INSTITUTE OF AGRICULTURAL RESEARCH STATISTICS

NATIONAL INDEX

OF

AGRICULTURAL

FIELD

EXPERIMENTS

VOL. 13 PART 1

UTTAR PRADESH

1948–53

PUBLISHED BY

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

NEW DELHI
FOREWORD

It is a well recognized fact that the level of agricultural production in India is one of the lowest in the world and it is only by the exploitation of scientific methods of agriculture that we can hope to increase our agricultural production to the level necessary for providing a reasonable standard of living to the country's population. Properly planned and conducted field experiments provide a reliable basis for propagating improved agricultural techniques among farmers. A number of research institutes and other experimental centres are functioning under the Central Ministry of Agriculture, the Commodity Committees and the State Governments, in which research on agricultural problems is going on. The need for an integrated account of the researches done in these organisations and institutions in the country has been felt, for a long time, particularly in the context of planning. The absence of such a unified account has often led to duplication of work and delay in the utilisation of the results for practical farming. The Institute of Agricultural Research Statistics of the Indian Council of Agricultural Research has, therefore, rendered a most timely service by preparing a compendium of all agricultural field experiments conducted in India upto 1953 and similar compendia are under preparation by the Institute for subsequent years.

The present compendium contains critical summaries of results of experiments bearing on important agronomic factors such as the responses of crops to fertilizers and manures, inter-relationship of fertilizers, varieties and cultivation practices and other information of value for giving sound advice to farmers in different regions. I am sure that these results will be fully utilised by agricultural institutions, research workers, planners and extension organisations. The chief merit of the present publication is that it brings together in one place the results of experimentation carried out under diverse soil, climatic and agricultural conditions obtaining in India. Workers in one State can thus supplement data for their own area by results from other regions where conditions may be similar and thereby re-inforce their own conclusions. For the same reason I hope that this publication will be of use to workers in other countries also.

A Standing Committee consisting of the Agricultural Commissioner with the Government of India, the Director, Indian Agricultural Research Institute and the Statistical Adviser, Indian Council of Agricultural Research, has been set up to provide general guidance to the work under this scheme. I congratulate the members of this Committee and in particular the Statistical Adviser and his associates at the Institute of Agricultural Research Statistics for bringing out this compendium. The preparation of this compendium has been made possible only by the whole hearted co-operation of the States and other organisations in making available the results of their experimental researches for this purpose. My thanks are due to the officers of the State Departments of Agriculture and other institutions for participating in this work. I hope that the present series will be followed by periodical publication of similar compendia for later years, in order that the availability, in a consolidated form, of results of scientific experiments in agriculture in India may be maintained up-to-date.

A.D. PANDIT
Vice-President,
Indian Council of Agricultural Research.

New Delhi,
August 20, 1962.
PREFACE

A large number of agricultural field experiments on different problems is being conducted in the country by Central and State Governments, Research Institutes, Commodity Committees and other organisations engaged in agricultural research. In addition, a number of schemes involving field experimentation is sponsored by the Indian Council of Agricultural Research in different States. The absence of a unified record of the results of these various experiments has considerably handicapped planning of further research and development and has often led to duplication of efforts.

Vaidyanathan brought out in 1933 a useful catalogue of manurial experiments conducted in India till then. Considering that Vaidyanathan's work was confined to manurial experiments and the fact that an enormous increase has taken place in the number and scope of agronomic experiments in recent years in India, the Indian Council of Agricultural Research launched the scheme of National Index of Field Experiments in 1954. The object of the scheme was two-fold:

(i) the preparation of compendium of all the field experiments for the period 1935-53 and

(ii) the preparation of index cards for individual experiments from 1954 onwards.

Under the scheme, results of all agricultural field experiments other than purely varietal trials were to be consolidated. Subsequently at the time of the extension of the scheme in 1959 it was decided that the compendium would be prepared in the first instance for the period 1948-53 and a similar compendium would be prepared for the period 1954-59. The present series for the period 1948-53 has been prepared in pursuance of this decision.

The compendium is divided into 15 volumes one each for (1) Andhra Pradesh (2) Assam, Manipur and Tripura (3) Bihar (4) Gujarat (5) Kerala (6) Madhya Pradesh (7) Madras (8) Maharashtra (9) Mysore (10) Orissa (11) Punjab & Kashmir and Himachal Pradesh (12) Rajasthan (13) Uttar Pradesh (14) West Bengal and (15) all Central Institutes. In each volume back-ground information of the respective State regarding its physical features, soils, rainfall and climate, agricultural production and area under different crops is given. A map showing different regions of the State, soils and agricultural research farms is also included. The experiments reported in each volume have been arranged cropwise for each State. All the experiments belonging to a particular crop at various research stations are grouped together. For a particular crop, experiments are arranged according to the following classification:

Manurial (M), Cultural (C), Irrigational (I), Diseases, Pests and Chemicals other than fertilisers (D), Rotational (R), Mixed Cropping (X) and combinations of these wherever they occur (e.g., CM as Cultural-cum-Manurial). Experiments in which crop varieties also form a factor are denoted by adding V to their symbol and are given together (e.g., MV as Manurial-cum-Varietal). The results of an experiment are given along with other basic information such as rotation of crops followed, cultural practices adopted, etc.

For making maximum use of the experimental data all the important tables giving the average yields of various treatments along with the appropriate standard errors have been presented. No attempt has, however, been made to summarise the data of groups of experiments on any particular item and to draw any general conclusions. This will be done for the period 1948-59 while publishing the compendium for the period 1954-59.

This publication is the result of the co-operative endeavour of a large number of persons both at the Centre and in the States. I should particularly mention in this connection, guidance and help rendered in the formulation of the scheme by Dr. D.J. Finney F.R.S. of Aberdeen University, Scotland, during his stay at the Institute of Agricultural Research Statistics as an F.A.O. Statistical Expert in 1952-53.
At the Institute of Agricultural Research Statistics, the work under the scheme was carried out under the supervision and guidance of Shri T.P. Abraham, Assistant Statistical Adviser. Shri G.A. Kularni, Statistician, looked after the detailed working of the scheme. These officers have been largely responsible for the preparation of the manuscript of the compendium and it is a pleasure to thank them for the hard work they have put in for getting this compendium ready. Messrs O.P. Kathuria, B.V. Srikantiah, M.L. Sahni, B.P. Dyundi, S.D. Bal and P.K. Jain of the statistical staff of the Institute deserve special mention for their careful scrutiny of the data and preparation of the material for the compendium. Thanks are also due to Dr. Uttam Chand, Professor of Statistics, now with the Central Statistical Organisation, Shri K.S. Avadhany, Assistant Statistician, also now with the Central Statistical Organisation, and Shri K.C. Raut, Statistician in this office who were associated with the scheme in its initial stages.

The burden of collecting data from original records by visiting different research stations and the analysis of a large number of experiments, only the primary data for which had been recorded in the files, fell on the regional staff appointed by the Indian Council of Agricultural Research in different States. They deserve to be congratulated for the patient work they have put in. The State Departments of Agriculture, Central Institutes and Commodity Committees made data for the experiments conducted within their jurisdiction readily available. The Indian Council of Agricultural Research acknowledged this willing cooperation without which the consolidation of the results would not have been possible. Various State officers who helped the project by making the data accessible to the statistical staff of the project and worked as the regional supervisors for the scheme also deserve thanks by the Council for their active help. The list of names of the regional supervisors is given on the following page.

V.G. Panse

Statistical Adviser

Institute of Agricultural Research Statistics

(I.C.A.R.)
REGIONAL SUPERVISORS FOR THE SCHEME OF THE NATIONAL INDEX OF FIELD EXPERIMENTS

<table>
<thead>
<tr>
<th>Region and headquarters</th>
<th>Regional Supervisors</th>
</tr>
</thead>
</table>
| **1. Andhra Pradesh**   | Shri D.V.G. Krishnamoorthy, Deputy Director of Food Production, Andhra Pradesh.  
                         | Shri Jagannath Rao, Joint Director of Agriculture (Research), Andhra Pradesh.  
                         | Dr. Khadruddin Khan, Joint Director of Agriculture (Research), Andhra Pradesh.  
                         | Dr. Wahiuddin, Headquarters Deputy Director of Agriculture (Research), Andhra Pradesh. |
| (Hyderabad)             |                      |
| **2. Assam, Manipur and Tripura (Shillong)** | Shri I.K. Handique, Director of Agriculture, Assam.  
                          | Shri S. Majid, Director of Agriculture, Assam.  
                          | Dr. S.R. Barooha, Director of Agriculture, Assam. |
| **3. Bihar** (Sabour)   | Dr. R. Richaria, Principal, Agriculture College, Sabour.  
                         | Shri R.S. Roy, Principal, Agriculture College, Sabour. |
| **4. Kerala** (Trivandrum) | Shri N. Shankara Menon, Director of Agriculture, Kerala.  
                          | Shri P.D. Nair, Director of Agriculture, Kerala. |
| **5. Madhya Pradesh**   | Dr. T.R. Mehta, Principal, Agriculture College, Gwalior. |
| (Gwalior)               |                      |
| **6. Madras** (Coimbatore) | Shri C.R. Seshadri, Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.  
                         | Shri P.A. Venkatateswaran, Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.  
                         | Late Shri M. Bhavani Sankara Rao, Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.  
                         | Shri T. Natarajan, Agronomist & Secretary, Research Council, Agriculture College, Coimbatore.  
                         | Shri A.H. Sarma, Extension Specialist & Secretary, Research Council, Agriculture College, Coimbatore. |
| **7. Maharashtra & Gujarat (Former Bombay State)** | Shri D.S. Ranga Rao, Statistician, Department of Agriculture, Poona. |

Owing to transfers and other changes more than one Regional Supervisor have been shown against several states as these officers have acted as Regional Supervisor during different periods from 1955 to 1962.
<table>
<thead>
<tr>
<th>No.</th>
<th>State</th>
<th>Statistician, Department of Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>Mysore (Bangalore)</td>
<td>Shri A. Anant Padmanabha Rau.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>State Statistician, Mysore State.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dy. Director of Agriculture (H.Q.), Orissa.</td>
</tr>
<tr>
<td>10.</td>
<td>Punjab, Jammu &amp; Kashmir and Himachal Pradesh (Chandigarh)</td>
<td>Shri P.S. Sahota,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Statistician, Department of Agriculture, Punjab</td>
</tr>
<tr>
<td>11.</td>
<td>Rajasthan (Jaipur)</td>
<td>Shri H.C. Kothari,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Statistician, Department of Agriculture, Rajasthan.</td>
</tr>
<tr>
<td>12.</td>
<td>Uttar Pradesh (Lucknow)</td>
<td>Dr. K. Kishen,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chief Statistician to Govt. of U.P.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Agriculture, U.P.</td>
</tr>
<tr>
<td>13.</td>
<td>West Bengal (Calcutta)</td>
<td>Shri S.N. Mukherjee,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Statistical Officer, Directorate of Agriculture, West Bengal.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dr. S. Basu,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Statistical Officer, Directorate of Agriculture, West Bengal.</td>
</tr>
</tbody>
</table>
ABBREVIATIONS COMMON TO EXPERIMENTS ON ANNUAL AND PERENNIAL CROPS AND EXPERIMENTS ON CULTIVATORS' FIELDS

Crop :- In the top left corner is given the name of the crop on which the experiment is conducted. Within brackets along side the crop is mentioned the season wherever the information is available.

Ref :- Against the sub-title 'reference' is mentioned the name of the State, the year in which the experiment is conducted and the serial number of the experiment for that year given in brackets.

Abbreviations adopted for States are as follows :-

<table>
<thead>
<tr>
<th>State</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.P.</td>
<td>Andhra Pradesh</td>
</tr>
<tr>
<td>As.</td>
<td>Assam</td>
</tr>
<tr>
<td>Bh.</td>
<td>Bihar</td>
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<tr>
<td>Dl.</td>
<td>Delhi</td>
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<tr>
<td>Gj.</td>
<td>Gujarat</td>
</tr>
<tr>
<td>H.P.</td>
<td>Himachal Pradesh</td>
</tr>
<tr>
<td>J.K.</td>
<td>Jammu &amp; Kashmir</td>
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<tr>
<td>K.</td>
<td>Kerala</td>
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<tr>
<td>M.</td>
<td>Madras</td>
</tr>
<tr>
<td>Mn.</td>
<td>Manipur</td>
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<tr>
<td>Mh.</td>
<td>Maharashtra</td>
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<tr>
<td>Ms.</td>
<td>Mysore</td>
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<tr>
<td>M.P.</td>
<td>Madhya Pradesh</td>
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<tr>
<td>Or.</td>
<td>Orissa</td>
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<tr>
<td>Pb.</td>
<td>Punjab</td>
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<tr>
<td>Rj.</td>
<td>Rajasthan</td>
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<tr>
<td>Tr.</td>
<td>Tripura</td>
</tr>
<tr>
<td>U.P.</td>
<td>Uttar Pradesh</td>
</tr>
<tr>
<td>W.B.</td>
<td>West Bengal</td>
</tr>
</tbody>
</table>

Repetition of the experiment in other years is indicated in the same line against 'reference' by stating the year and serial number for each repetition side by side e.g. U.P. 53(19)/52(42)/51(20) etc.

Site :- Name of the Research Station is mentioned along with the place where it is located, e.g. Agri. Res. Stn. for Agricultural Research Station.

For Central Institutes, the corresponding standard abbreviations have been adopted e.g. I.A.R.I. for Indian Agricultural Research Institute.

Type :- Abbreviations used against this item are one or more than one of the following :-

- C—Cultural
- D—Control of Diseases and Pests
- I—Irrigational
- M—Manurial
- R—Rotational
- V—Varietal
- X—Mixed cropping

E.g. CM is to be read as Cultural-cum-Manurial.

Results :- Information under this heading should be read against the following items :-

- (i) General mean.
- (ii) S.E. per plot.
- (iii) Result of test of significance.
- (iv) Summary table(s) with S.E. of comparison(s).

Abbreviations used in the text of the experiments :-

- ac.—acre.
- Ammo. Phos.—Ammonium Phosphate.
- A/N—Ammonium Nitrate.
- A/S—Ammonium Sulphate.
- B.D.—Basal Dressing.
- B.M.—Bone Meal.
- C.L.—Cart load.
- C.M.—Cattle Manure.
- C/N—Chilean Nitrate.
- C/S—Copper Sulphate.
- F.M.—Fish Meal or Fish Manure.
- F.W.C.—Farm Waste Compost.
F.Y.M.—Farm Yard Manure.
G.M.—Green Manure.
G.N.C.—Groundnut cake.
K—Potash.
lb.—Pounds.
M.C.—Municipal Compost.
Mur. Pot.—Muriate of Potash.

N—Nitrogen.
Nitro phos—Nitro phosphate.
P—Phosphate.
Pot. Sul.—Potassium Sulphate.
Super—Super Phosphate.
T.C.—Town compost.
Zn. Sul.—Zinc Sulphate.

BASAL CONDITIONS

Information under the above heading to be read against the following items:

A. For annual crops:
   (i) (a) Crop rotation if any. (b) Previous crop. (c) Manuring of previous crop. (State amount and kind). (ii) (a) Soil type. (b) Soil analysis. (iii) Date of sowing/planting. (iv) Cultural practices. (a) Preparatory cultivation. (b) Method of sowing/planting. (c) Seed-rate. (d) Spacing. (e) No. of seedlings per hole. (v) Basal manuring with time and method of application. (vi) Variety. (vii) Irrigated or Unirrigated. (viii) Post-sowing/planting cultural operations. (ix) Rainfall during crop season (State name of the season along with the month). (x) Date of harvest.

B. For perennial crops:
   (i) History of site including manuring and other operations. (ii) (a) Soil type. (b) Soil analysis. (iii) Method of propagation of plants. (iv) Variety. (v) Date and method of sowing/planting. (vi) Age of seedling at the time of planting. (vii) Basal dressing with time and method of application. (viii) Cultural operations during the year. (ix) Inter cropping if any. (x) Irrigated or Unirrigated. (xi) Rainfall during crop season. (xii) Date of harvest.

C. For experiments on cultivators' fields:
   (i) (a) Crop rotation if any. (b) Previous crop. (c) Manuring of previous crop. (ii) Soil type in general. (iii) Basal manuring with time and method of application. (iv) Variety. (v) Cultural practices. (a) Preparatory cultivation. (b) Method of sowing. (c) Seed-rate. (d) Spacing. (e) No. of seedlings per hole. (vi) Period of sowing/planting per hold. (vii) Irrigated or Unirrigated. (viii) Post-sowing/planting cultural operations. (ix) Rainfall during crop season. (x) Period of harvesting.

DESIGN

Information under this heading to be read against the following items:

A. For annual crops:
   (i) Abbreviations for designs: C.R.D.—Completely Randomised Design; R.B.D.—Randomised Block Design; L. Sq.—Latin Square; Conf’d.—Confounded; Fact.—Factorial. (other designs and modifications of the above to be indicated in full). (ii) (a) No. of plots per block. (b) Block dimensions (iii) No. of replications. (iv) Plot size. (a) Gross. (b) Net. (v) Border or guard rows kept. (vi) Whether treatments are randomised (separately in each block).

B. For perennial crops:
   (i) Abbreviations for designs: C.R.D.—Completely Randomised Design; R.B.D.—Randomised Block Design; L. Sq.—Latin Square; Conf’d.—Confounded. (other designs and modifications of the above indicated in full). (ii) (a) No. of plots per block. (b) Block dimensions. (iii) No. of replications. (iv) No. of trees/plot. (v) Border or guard rows kept. (vi) Are treatments randomised.

C. For experiments on cultivators' fields:
   (i) Method of selection of experimental sites. (ii) No. and distribution of experiments (iii) Plot size. (a) Gross. (b) Net. (iv) Whether treatments are randomised.
GENERAL

Information under this heading to be read against the following items:

A. For annual crops:
   (i) Crop conditions during growth with date of lodging, if any. (ii) Incidence of pests and diseases with control measures taken. (iii) Quantitative observations taken. (iv) In case of repetition in successive years—(a) from what year to what year, (b) whether treatments were assigned to the same plots in the same manner every year, (c) reference to combined analysis, if any. (v) In case of repetition in other places, (a) names of the places along with reference. (b) reference to combined analysis, if any. (vi) Abnormal occurrences like heavy rains, frost, storm etc., if any. (vii) Any other important information.

B. For perennial crops:
   (i) Crop condition during the year. (ii) Incidence of pests and diseases with control measures taken. (iii) Quantitative observations taken. (iv) In case of repetition in successive years—(a) from what year to what year, (b) reference to combined analysis, if any. (v) Abnormal occurrences like heavy rains, frost, storm etc., if any. (vi) Any other important information.

C. For experiments on cultivators' fields:
   (i) Crop condition during growth. (ii) Incidence of pests and diseases with control measures taken. (iii) Quantitative observations taken. (iv) In case of repetition in successive years, (a) from what year to what year, (b) whether treatments were assigned to the same plots in the same manner every year, (c) reference to combined analysis, if any. (v) In case of repetition in other places names of places along with reference. (vi) Abnormal occurrences, like heavy rains, frost, storm etc., if any. (vii) Any other important information.
<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Name and address of the Research officer</th>
<th>Abbreviation used in the proforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Agricultural Chemist to Government, U.P., Kanpur.</td>
<td>A.C.</td>
</tr>
<tr>
<td>2</td>
<td>The Crop Physiologist to Government, U.P., Lucknow.</td>
<td>C.P. and C.P. (R)</td>
</tr>
<tr>
<td>4</td>
<td>The Economic Botanist (Rabi) Cereals and Potatoes to Government, U.P., Kanpur.</td>
<td>E.B. (R)</td>
</tr>
<tr>
<td>5</td>
<td>The Economic Botanist, (Oilseed) to Government, U.P., Kanpur.</td>
<td>E.B. (O)</td>
</tr>
<tr>
<td>6</td>
<td>The Principal, Agricultural College, Kanpur.</td>
<td>P.A.C.</td>
</tr>
<tr>
<td>7</td>
<td>The Horticulturist Incharge, Vegetable Research Station, Kalianpur, Kanpur</td>
<td>V.R.S. and V.R. (H)</td>
</tr>
<tr>
<td>8</td>
<td>The Entomologist to Government, U.P., Kanpur.</td>
<td>Ento. (K)</td>
</tr>
<tr>
<td>10</td>
<td>The Economic Botanist (Cotton) to Government, U.P., Bulandshahr.</td>
<td>E.B. (C)</td>
</tr>
<tr>
<td>11</td>
<td>The Director, Sugarcane Research. Shahjahanpur.</td>
<td>D.S.R, D.S.R. (S), D.S.R. (M) and D.S.R. (G)</td>
</tr>
<tr>
<td>12</td>
<td>The Director, Irrigation Research Institute, Roorkee, Saharanpur.</td>
<td>I.R.I.</td>
</tr>
<tr>
<td>13</td>
<td>The Director, Vivekand Laboratory, Almora.</td>
<td>V.L.</td>
</tr>
<tr>
<td>14</td>
<td>Head of the Agronomy Department, Allahabad Agricultural Institute, P.O. Agricultural Institute, Allahabad.</td>
<td>H.A.D., A.A.I.</td>
</tr>
<tr>
<td>15</td>
<td>Prof. and Head of the Horticulture Department, B.R. College, P.O. Bichpuri, Agra.</td>
<td>H.H.D., B.R.C.</td>
</tr>
<tr>
<td>16</td>
<td>Prof. and Head of the Agronomy Department, B.R. College, P.O. Bichpuri, Agra.</td>
<td>H.A.D., B.R.C.</td>
</tr>
<tr>
<td>17</td>
<td>Principal, College of Agriculture, Banaras Hindu University, Varansi.</td>
<td>B.H.U., Varansi</td>
</tr>
<tr>
<td>18</td>
<td>Mycologist, Government Hill Fruit Research Station, Chaubattia (Almora).</td>
<td>Myco (C).</td>
</tr>
<tr>
<td>20</td>
<td>Horticulturist, Government Hill Fruit Research Station, Chaubattia (Almora).</td>
<td>Herti. (C).</td>
</tr>
<tr>
<td>22</td>
<td>Jt. Director, Soil Conservation Research Training and Demonstration Centre, Rehmankhera, Dhakauni, Rahimabad and katiyar.</td>
<td>J.D.A. (S) D,</td>
</tr>
<tr>
<td>23</td>
<td>Jute Development Officer, Lucknow.</td>
<td>J.D.O.</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of Crop</td>
<td>Botanical name</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>1.</td>
<td>Paddy</td>
<td><em>Oryza sativa</em> L.</td>
</tr>
<tr>
<td>2.</td>
<td>Wheat</td>
<td><em>Triticum Sativum</em> Lamk.; <em>Triticum aestivum</em> L.</td>
</tr>
<tr>
<td>4.</td>
<td>Bajra</td>
<td><em>Pennisetum typhoides</em> stapf Ex Hubbard</td>
</tr>
<tr>
<td>5.</td>
<td>Barley</td>
<td><em>Hordeum vulgare</em> L.</td>
</tr>
<tr>
<td>9.</td>
<td>Gram</td>
<td><em>Cicer arietinum</em> L.</td>
</tr>
<tr>
<td>10.</td>
<td>Pea</td>
<td><em>Pisum arvense</em> L.</td>
</tr>
<tr>
<td>11.</td>
<td>Masoor (Lentil)</td>
<td><em>Lens esculenta</em> Moench</td>
</tr>
<tr>
<td>12.</td>
<td>Potato</td>
<td><em>Solanum tuberosum</em> L.</td>
</tr>
<tr>
<td>13.</td>
<td>Onion</td>
<td><em>Allium Cepa</em> L.</td>
</tr>
</tbody>
</table>

GLOSSARY OF VERNACULAR NAMES OF CROPS
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Crop</th>
<th>Botanical name</th>
<th>Assamese</th>
<th>Bengali</th>
<th>Oriya</th>
<th>Telugu</th>
<th>Tamil</th>
<th>Malayam</th>
<th>Kannada</th>
<th>Marathi</th>
<th>Gujarati</th>
<th>Hindi</th>
<th>Punjabi &amp; Kashmiri</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.</td>
<td>Brinjal</td>
<td>Solanum melongena L.</td>
<td>Bengena</td>
<td>Begun</td>
<td>Baigan</td>
<td>Vankaya</td>
<td>Katharikai</td>
<td>Vazhuthana</td>
<td>Badame kayi</td>
<td>Vange</td>
<td>Vangan</td>
<td>Baingan</td>
<td>Benga; Bataun</td>
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<tr>
<td>16.</td>
<td>Cabbage</td>
<td>Brassica oleracea L.</td>
<td>Bandha kabi</td>
<td>Bandha kapi</td>
<td>Bandha kobi</td>
<td>L. Akugobi</td>
<td>Muttakose</td>
<td>Muttakose</td>
<td>Yele kosu</td>
<td>Kobi</td>
<td>Kobiij</td>
<td>Patgobhy</td>
<td>Band gobbi</td>
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<tr>
<td>17.</td>
<td>Carrot</td>
<td>Daucus carota L.</td>
<td>Gajor</td>
<td>Gajar</td>
<td>Gajar</td>
<td>Gajara-gudda</td>
<td>Karrat</td>
<td>Carrot</td>
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<td>Gajar</td>
<td>Gajar</td>
<td>Gajar</td>
<td>Gajjar</td>
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<td>19.</td>
<td>Calocasia</td>
<td>Colocosia antiquorum Schott.</td>
<td>—</td>
<td>—</td>
<td>Kachu</td>
<td>Saru</td>
<td>Chemadumpalu</td>
<td>Sambu Sapan Kizhangac Poodu Vella poodu Poosani</td>
<td>Chambu Kesavina gedde</td>
<td>Alu</td>
<td>Alvi</td>
<td>Arbi</td>
<td>Arvi</td>
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<td>20.</td>
<td>Garlic</td>
<td>Allium sativum L.</td>
<td>Nohoyu</td>
<td>Rashun</td>
<td>Rasun</td>
<td>Vullulii</td>
<td>Veluthulli</td>
<td>Bellulli</td>
<td>Lasun</td>
<td>Lasan</td>
<td>Lehsoon</td>
<td>Halwa kudu; Peetha Mulki</td>
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<tr>
<td>21.</td>
<td>Pumpkin</td>
<td>Cucurbita pepo; Cucurbita moschata Duch</td>
<td>Kumura</td>
<td>Kumra</td>
<td>Bilati Kakharu (Scaf) Mula</td>
<td>Allugadd Sceagum-madi Mullangi</td>
<td>Mullangi</td>
<td>Mullangi</td>
<td>Mullangi</td>
<td>Mullangi</td>
<td>Mullangi</td>
<td>Mullangi</td>
<td>Mullangi</td>
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<tr>
<td>22.</td>
<td>Radish</td>
<td>Raphanus sativus L</td>
<td>Mula</td>
<td>Mula</td>
<td>—</td>
<td>—</td>
<td>Spinak soopu</td>
<td>—</td>
<td>Palak</td>
<td>Palak</td>
<td>Palak</td>
<td>Palak</td>
<td>Palak</td>
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<tr>
<td>23.</td>
<td>Spinach</td>
<td>Spinacia oleracea L.</td>
<td>Palang sak</td>
<td>Palang</td>
<td>Mitha Palaga (Saga) Bilati baigan</td>
<td>Teegabat-chali</td>
<td>Vusavyely kerai</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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</tr>
<tr>
<td>26.</td>
<td>Turnip</td>
<td>Brassica Campestris var. rapa L.</td>
<td>Salgom</td>
<td>Shlagan</td>
<td>Salgum</td>
<td>Turnip</td>
<td>—</td>
<td>—</td>
<td>Seena mulanki</td>
<td>Turnip</td>
<td>Salgum</td>
<td>Salghum</td>
<td>Saljam</td>
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<tr>
<td>27.</td>
<td>Sugarcane</td>
<td>Saccharum officinarum L.</td>
<td>Kuhiar</td>
<td>Akh</td>
<td>—</td>
<td>Cherukku</td>
<td>Karumbu</td>
<td>Karimbu</td>
<td>Kabbu</td>
<td>Oos</td>
<td>Sherdi</td>
<td>Ganna Kamad Naishakar Kapas</td>
<td>Ganna Kamad Naishakar Kapas</td>
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<tr>
<td>S. No.</td>
<td>Name of crops</td>
<td>Botanical name</td>
<td>Assamese</td>
<td>Oriya</td>
<td>Telugu</td>
<td>Tamil</td>
<td>Malayalam</td>
<td>Kannada</td>
<td>Marathi</td>
<td>Gujarati</td>
<td>Hindi</td>
<td>Punjabi</td>
<td></td>
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<tr>
<td>29.</td>
<td>Tobacco</td>
<td><em>Nicotiana tabacum</em> L.</td>
<td>Dhopat</td>
<td>Tamak</td>
<td>Uanpatra</td>
<td>Pogaku</td>
<td>Pukayila</td>
<td>Hoge soppa</td>
<td>Tambaku</td>
<td>Tamaku</td>
<td>Tambaku</td>
<td>Tamaku</td>
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<tr>
<td>32.</td>
<td>Castor</td>
<td><em>Ricinus communis</em> L.</td>
<td>Eri</td>
<td>Rehri</td>
<td>Jada</td>
<td>Amudalu</td>
<td>Amanakku</td>
<td>Avanakku</td>
<td>Haralu</td>
<td>Erandi</td>
<td>Diveli ; Erondo</td>
<td>Rehri</td>
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<tr>
<td>33.</td>
<td>Line seed</td>
<td><em>Linum usitatissimum</em> L.</td>
<td>Tisi</td>
<td>Tishi</td>
<td>Peshi</td>
<td>Avise</td>
<td>Alivithai</td>
<td>Cheruchana</td>
<td>Agase</td>
<td>Javas ; Alsi</td>
<td>Alsi</td>
<td>Alsi</td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td><em>Til (Sesamum)</em></td>
<td><em>Sesamum orientale</em> L., <em>Sesamum indicum</em> L.</td>
<td>Til</td>
<td>Til</td>
<td>Rasi</td>
<td>.Nuvvulu</td>
<td>Ellu</td>
<td>Ellu</td>
<td>Yellu</td>
<td>Til, Tili</td>
<td>Til</td>
<td>Til</td>
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<tr>
<td>36.</td>
<td>Rape</td>
<td><em>Brassica compestris</em> var. toria Duthie</td>
<td>Sariah</td>
<td>Tori sarisha</td>
<td>—</td>
<td>Avu</td>
<td>Kadugu</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Saras</td>
<td>Sarav</td>
<td>Toria</td>
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<td>37.</td>
<td>Berseem</td>
<td><em>Trifolium alexanrinum</em> L.</td>
<td>—</td>
<td>—</td>
<td>Berseem</td>
<td>Gini ghasa</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Bersim gavat</td>
<td>Berseem</td>
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<tr>
<td>38.</td>
<td>Apple</td>
<td><em>Pyrus malus</em> L.</td>
<td>—</td>
<td>Apel</td>
<td>Seo</td>
<td>Apple ; Sabe</td>
<td>Apple</td>
<td>Apple</td>
<td>Sebu</td>
<td>Apple</td>
<td>Safarjan</td>
<td>Seb</td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>Lemon</td>
<td><em>Citrus limon</em> Burm. F. ; <em>Citrus limonita</em> oebbeck</td>
<td>Namu</td>
<td>Pati ;Gora lebu</td>
<td>Lembu</td>
<td>Peddanimma</td>
<td>—</td>
<td>Naranga</td>
<td>Herale</td>
<td>Limboo</td>
<td>Limbu</td>
<td>Bari</td>
<td>Nemboo</td>
</tr>
<tr>
<td>40.</td>
<td>Grape fruit</td>
<td><em>Citrus sardinis</em> Macf.</td>
<td>Grape Fruit</td>
<td>—</td>
<td>—</td>
<td>Pamparapana</td>
<td>China bombili mas</td>
<td>—</td>
<td>—</td>
<td>Grape fruit</td>
<td>—</td>
<td>Grape fruit</td>
<td></td>
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<tr>
<td>41.</td>
<td>Malta, Mosambi</td>
<td><em>Citrus sinensis</em> Osbeck</td>
<td>Mosambi</td>
<td>Mitha kamala</td>
<td>Battaiy</td>
<td>Sathugudi ; Cheeni</td>
<td>Madura naranga</td>
<td>Sathkudi</td>
<td>Mosambi</td>
<td>Mosami</td>
<td>Malta Mausmee</td>
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<tr>
<td>42.</td>
<td>Guava</td>
<td><em>Psidium guajava</em> L.</td>
<td>Madhuri</td>
<td>Peyara</td>
<td>Pijuli</td>
<td>Jama</td>
<td>Koyya</td>
<td>Pera</td>
<td>Sebe</td>
<td>Peru</td>
<td>Jamphal</td>
<td>Amrud</td>
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GLOSSARY OF VERNACULAR NAMES OF CROPS
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<th>S. No.</th>
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<th>Botanical name</th>
<th>Assamese</th>
<th>Bengali</th>
<th>Oriya</th>
<th>Telugu</th>
<th>Tamil</th>
<th>Malayalam</th>
<th>Kannada</th>
<th>Marathi</th>
<th>Gujarati</th>
<th>Hindi</th>
<th>Punjabi</th>
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<tr>
<td>43</td>
<td>Kharbooz (musk melon)</td>
<td>Cucumis melo L.</td>
<td>Chiral</td>
<td>Kharbuj</td>
<td>Karbuja</td>
<td>Kakkirikaal</td>
<td>Thai</td>
<td>Kekkarike</td>
<td>Kharbuja</td>
<td>Sakkar teti</td>
<td>Kharbooj</td>
<td>Kharbuza</td>
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<tr>
<td>44</td>
<td>Lokat</td>
<td>Eriobotrya japonica lindl.</td>
<td>Latuku</td>
<td>Loket phal</td>
<td>Lokat</td>
<td>Lakkota</td>
<td>Lakkotapalam</td>
<td>Lakkottapalam</td>
<td>—</td>
<td>—</td>
<td>Lokat</td>
<td>Lokat</td>
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<tr>
<td>45</td>
<td>Mango</td>
<td>Mangifera indica L.</td>
<td>Am</td>
<td>Am</td>
<td>Amba</td>
<td>Mamidi</td>
<td>Mangai</td>
<td>Mathalam</td>
<td>Mathalam</td>
<td>—</td>
<td>—</td>
<td>Amba</td>
<td>Aam</td>
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<tr>
<td>47</td>
<td>Pomegranate</td>
<td>Punica granatum L.</td>
<td>Dalim</td>
<td>Dalim</td>
<td>Dalimba</td>
<td>Danimma</td>
<td>Mathalam</td>
<td>Mathalam</td>
<td>—</td>
<td>—</td>
<td>Anar</td>
<td>Anar</td>
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<tr>
<td>48</td>
<td>Strawberry</td>
<td>Fragaria vesca L.</td>
<td>Garukhis</td>
<td>—</td>
<td>—</td>
<td>Strawberry</td>
<td>—</td>
<td>Strawberry</td>
<td>Strawberry</td>
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<td>Strawberry</td>
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<td>GLOSSARY OF VERNACULAR NAMES OF CROPS</td>
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<td>UTTAR PRADESH STATE</td>
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<td>EXPERIMENTAL RESULTS (CROP-WISE)</td>
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<td><strong>Paddy</strong></td>
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<td><strong>Wheat</strong></td>
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<td><strong>Jowar</strong></td>
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<td><strong>Bajra</strong></td>
<td>551</td>
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<td><strong>Barley</strong></td>
<td>588</td>
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<tr>
<td><strong>Maize</strong></td>
<td>589</td>
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<tr>
<td><strong>Pulses</strong> (Lobia, Moong, Gram, Lahi, Peas and Masoor)</td>
<td>604</td>
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<tr>
<td><strong>Vegetables, Candiments &amp; Spices</strong> (Potato, Onion, Bhindi, Brinjal, Cabbage, Carrot, Cauliflower, Colocasia, Garlic, Pumpkin, Radish, Spinach, Tomato, Torai and Turnips)</td>
<td>623</td>
</tr>
<tr>
<td><strong>Sugarcane</strong></td>
<td>739</td>
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<tr>
<td><strong>Cotton</strong></td>
<td>1078</td>
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<tr>
<td><strong>Tobacco</strong></td>
<td>1102</td>
</tr>
<tr>
<td><strong>Jute</strong></td>
<td>1102</td>
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<tr>
<td><strong>Oilseeds</strong> (Groundnut, Castor, Linseed, Til, Mustard and Rape)</td>
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<tr>
<td><strong>Fodder Crops</strong> (Berseem, Sawan, Sanai and Oats)</td>
<td>1120</td>
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<tr>
<td><strong>Mixed cropping</strong></td>
<td>1129</td>
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<tr>
<td><strong>Fruit Crops</strong> (Apple, Citrus, Guava, Kharbooz, Lokat, Mango, Peach, Strawberry and Pomegranate)</td>
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</table>
UTTAR PRADESH

1. GENERAL

This territory, formerly known as United Provinces of Agra and Avadh, was renamed as the State of Uttar Pradesh in January, 1950, on the inauguration of the New Constitution of the Indian Republic. The erstwhile princely States of Banaras, Rampur and Tehri, which were associated with the United Provinces for the purposes of census, were integrated in 1949—50 with Uttar Pradesh. Some other minor changes have also occurred as a result of transfer of enclaves. Uttar Pradesh lies between north latitudes 23° 52’ and 31° 18’ and east longitudes 77° 3’ and 84° 39’. On the north, its boundary runs along Tibet and Nepal; on the east lies the State of Bihar and on the south the State of Madhya Pradesh and on the west and south-west lie the States of Himachal Pradesh, Punjab and Rajasthan.

The State is divided into 54 districts which are grouped into following 11 revenue divisions:


The total geographical area of the State according to the Surveyor General of India is 1,13,452 square miles. According to the village papers the area of the State during the year 1960—61 comes to 7,28,82,803 acres. Between these two figures there is a little discrepancy which is due to the recording of area under forests. Regular partials are not carried out in the hilly regions of Kumaon and Uttarakhand divisions and so no reliable figures are available for these regions.

**TABLE I**

Statistics of Land Utilization for the plains of U.P. for 1960—61. *Area in acres*

<table>
<thead>
<tr>
<th>Item</th>
<th>Area in acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total Geographical Area (according to village papers)</td>
<td>6,21,17,858</td>
</tr>
<tr>
<td>2. Forests</td>
<td>48,43,873</td>
</tr>
<tr>
<td>3. Barren and Uncultivable Land</td>
<td>28,17,398</td>
</tr>
<tr>
<td>4. Land put to Non-agricultural uses</td>
<td>47,25,478</td>
</tr>
<tr>
<td>5. Culturable Waste</td>
<td>40,51,350</td>
</tr>
<tr>
<td>6. Permanent Pastures and Grazing grounds</td>
<td>1,08,248</td>
</tr>
<tr>
<td>7. Land under Misc. Tree and Groves</td>
<td>17,76,390</td>
</tr>
<tr>
<td>8. Current Fallow</td>
<td>3,59,774</td>
</tr>
<tr>
<td>9. Other Fallow Lands</td>
<td>31,12,707</td>
</tr>
<tr>
<td>10. Net Cultivated</td>
<td>4,09,22,640</td>
</tr>
<tr>
<td>Double Cropped Area</td>
<td>1,10,28,525</td>
</tr>
<tr>
<td>Total Cropped Area</td>
<td>5,19,51,165</td>
</tr>
</tbody>
</table>

The conventional estimate of the classification of land for the hilly regions of the Kumaon and Uttarakhand Divisions of the State for the year 1960—61 is given below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Area in acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total</td>
<td>1,01,64,945</td>
</tr>
<tr>
<td>2. Forests</td>
<td>45,32,415</td>
</tr>
<tr>
<td>3. Land not available for Cultivation</td>
<td>35,84,720</td>
</tr>
<tr>
<td>4. Culturable Land other than Current Fallow</td>
<td>4,29,138</td>
</tr>
<tr>
<td>5. Current Fallow</td>
<td>69,641</td>
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<tr>
<td>6. Net Cultivated</td>
<td>15,49,031</td>
</tr>
<tr>
<td>Double Cropped Area</td>
<td>1,95,530</td>
</tr>
<tr>
<td>Total Cropped Area</td>
<td>17,44,561</td>
</tr>
</tbody>
</table>

The natural divisions of the territory of Uttar Pradesh are Himalayas in the North, Gangetic plain in the centre and Plateau on the South of the river Yamuna. Geologically, Himalayas form a region of their own, the central plain and the Plateau form a large alluvium of the Gangetic valley. This is the central part of the Indo-Gangetic plain which stretches from east to west of the country in the north. A part of
Mirzapur and the trans-Ganges part of the old state of Banaras are different both from the Himalayas in the north and large alluvial tract in the centre. East Satpura hills touch the south-east of the state and form a small separate tract.

The largest part of the land lying between Yamuna-Ganges in the South and the Himalayas in the north, is a large stretch of even land sloping very gently along the course of the Ganges. The plateau in the south slopes along the course of the Yamuna before its confluence with the Ganges at Allahabad or Prayag.

2. DIFFERENT SOIL-CLIMATIC REGIONS OF THE STATE

The State has been divided into 11 soil-climatic regions each of which has a particular combination of soil and climate that makes it somewhat different from others. However, it cannot strictly be said that the soils and climate within a region are throughout uniform, for there are local differences and that in passing from one region to another there is always a gradual rather than an abrupt change in these conditions. The various soil-climatic regions are described below:

1. Hilly Region:—The hilly region includes the areas of Kumaon and Uttarakhand divisions and portions of Dehra Dun district of Meerut Division, the soils of which form a part of the southern outer spurs of the Himalayas, comprising of the eight hill districts viz., Almora, Garhwal, Tehri, Naini Tal (excluding Kichha and Kashipur Tahsils), Dehra Dun (Mussoorie and Chakrata), Chamoli, Uttarkashi and Pithoragarh.

   Native vegetation consists of forests of Oak and Pine with grasses and weeds as undergrowth.

2. Tarai Region:—This region extends along the foot hills of Himalayas from east to west and consists of Kichha and Kashipur tahsils of Naini Tal district, the whole of district Pilibhit excluding Bilaspur tahsil, entire area in Dehra Dun below 3000 ft. high northern part of Rampur district, Kheri district except Mohammad Tahsil, district Bahraich except Kaiserganj tahsil, district Gonda except Gonda and Tarabganj tahsils, Basti district except Hariyaiya, Basti and Khalilabad tehsils, district Deoria except Deoria tahsil and district Gorakhpur except Gorakhpur and Bansagaon tahsils.

   The vegetation consists of grasses, natural weeds and wild shrubby plants specially in the west tarai.

3. Western Region:—This region comprises of the districts of Saharanpur, Muzaffarnagar, Meerut and Bulandshahr which are located in the upper half of the Ganga-Yamuna doab of U.P. The region is separated from the States of Punjab and Delhi by the river Yamuna, which flows southwards down the Himalayas, forming the western boundaries of the region.

   The vegetation mostly consists of forests and hill shrubs and weeds in the north; grasses and halophytic plants in the South.

4. Mid-Western Region:—The area south of the Tarai region covering the districts of Bijnor, Moradabad, Budaun, Rampur, Bareilly, Shahjahanpur and Pilibhit is called Mid-Western region. River Ganges forms the western boundary of this tract and river Sharda forms the eastern boundary.

   Native vegetation is the same as in the western region, but the area abounds in natural vegetative growth also.

5. South-Western Region:—This region consists of the districts of Aligarh, Etah, Mainpuri and a major portion of Agra and Mathura districts. The region constitutes a very important tract of Ganga-Yamuna doab and extends both in the upper and mid region of this productive alluvial plain. River Ganges forms the eastern boundary and river Yamuna flows through the centre of Mathura and Agra districts touching the western and south-eastern borders of Mainpuri district.

   Native vegetation consists of short shrubs, bushes, low grasses, a number of wild dry land weeds and halophytic plants.
6. Central Region:—Central region is an area comprising of the districts of Kanpur, Fatehpur, Unnao, Lucknow, Sitapur, Hardoi, Farrukhabad and Etawah and forming a composite block of land in the middle and lower portions of Ganga-Yamuna doab. Besides the doab areas considerable portion of this region also occurs on the other side of the Ganges. River Yamuna forms the western boundary and flows in south-eastern direction. River Ganges also flows southward through the middle of this region.

7. Mid-Eastern Region:—The districts of Barabanki, Rae Bareli, Faizabad, Sultanpur, Pratapgarh and Allahabad are included in this region; with the exception of last named district, the area is situated between the river courses of the Ganges and the Ghagra. The latter river flows at a greater velocity.

8. North-Eastern Region:—This region comprising of the non-tarai areas of the districts of Bahraich, Gonda, Basti, Gorakhpur and Deoria is bounded on the south by river Ghagra, northern boundary being the tarai belt. Great Gandak river separates the eastern most districts of Gorakhpur and Deoria from the State of Bihar.

9. Eastern Region:—Areas of this region are distributed in the districts of Jaunpur, Azamgarh, Varanasi, Ghazipur and Ballia which are situated in south-eastern extremity of U.P. Ghazipur and Ballia districts adjoin the State of Bihar which is separated from these districts by the river Ganges. A number of important rivers viz., the Ganges, Sai, Gomati, Karmnasa and the Ghagra flow in this soil region. River Ghagra forms the northern boundary while the Ganges forms the southern boundary of this region.

10. Bundelkhand Region:—Jhansi, Jalaun, Hamirpur and Banda districts lying south-west of river Yamuna constitute this region.

Native vegetation consists of shrubs and grasses.

11. Vindhya Region:—The Vindhya Region extends on the south of the river Ganges in Mirzapur and southern portions of Varanasi (Chakia tahsil) and Allahabad districts (Meja and Karchhana tahsils).

Native vegetation consists of a wide range of forest trees and shrubs.

3. SOILS

The soils in the eleven regions already described above are as follows:

1. Hilly Region:—The soils have developed over biotite schists and phyllites. The soil classifications recognized so far are (i) Brown Forest Soils (ii) Podsollic soils and (iii) Wiesenboden or meadow soils. Brown forest soils are most productive. High acidity and deeper alluviation of nutrients are the main characteristics of Podsollic Soils. Wiesenbodens have developed under water-logged conditions in valleys. Considerable correlation is found between soil condition and incidence of diseases and pests.

2. Tarai Region:—The soils have developed over finer fractions of material of considerable thickness transported by innumerable streams and rivulets from the outer Himalayan and Siwalik ranges resulting from wide torrential rains during monsoon months. Parent gravelly material are often found in lower depths specially in the foothills. The thickness of the soil layers increases with distance from the base of the hills with simultaneous decline in the thickness of underlying pebble bed.

All grades of texturally varying soils of alluvial nature are found in this region. Soil types recognized in one of the Tarai Region in Naini Tal district are (1) Matkota clay loam (2) Matkota loam—highly calcareous (3) Matkota loam—slightly calcareous (4) Matkota loam—non-calcareous and (5) Matkota sandy loam.
Soils of Tarai region are productive, possessing initial reserve of nitrogenous plant food which deplete within few years of intensive cultivation. These soils have been found to be extremely responsive to phosphatic fertilizers. Being younger in formation these soils respond favourably to the application of both macro and micro-elements. Major portion of the tract due to their light texture, necessitates occasional green manuring. Short term crops do well in these areas.

The two Tarai tracts though developed under the influence of similar soil forming processes differ widely from one another in the fact that the soils in the north western group are located in close proximity to the Himalayas and are less calcareous than the soils in the north-eastern Tarai tracts, where the alluviums have to traverse larger distances. The latter thus are more calcareous and of much finer texture.

3. Western Region:—The alluviums are to a great depth and except for certain tracts of Saharanpur, parent rocks are found no where. These alluviums are very varied and are essentially basic in character and have been developed from mild calcareous parent material.

Like all alluvial regions, this tract contains all the four grades of the soil classes belonging to both the Ganges and the Yamuna river system. The four categories of soils pertaining to each of the two river systems are (i) Riverine soils (ii) Soils developed on flats (iii) Soils developed on uplands and (iv) Soils developed on low lands. Soils on recent alluviums are of recent origin and generally calcareous and light textured and are found in the vicinities of the river courses. At certain distances from the rivers, soils of the flatter areas are found. These soils are partially mature and of considerably older origin. These soils are medium textured, generally belonging to loam or clay loam categories with a heavy strata of soil in the lower regions of the soil profile. They are neutral to slightly alkaline on the top but slightly to moderately alkaline at lower depths. Free calcium carbonate is occasionally found at lower depths. Soils of the upland class are generally found in the mid-interior of the region on the highest elevations and are the product of the oldest alluviums. They are lighter on the surface, the finer fractions having been alluviated to lower depths. These soils are brown to reddish brown in colour and are neutral to slightly alkaline in reaction. Free calcium is not commonly found in these soil types. Soils of low land are found extensively within the elevated regions. The soils are formed from the washings of the adjoining areas and on this account are generally fine textured. Considerable soil salinization is found in these areas which give rise to various categories of usar formations. These soils are highly alkaline and usually contain a hard pan either of clay or of Kankar nodules. Where salinity does not prevail these soils form very productive areas specially in respect of paddy crop.

The alluvial soils found in this region are productive and respond very well to fertilizer applications and other management practices. The water requirement of this region is generally high.

4. Mid-Western Region:—Alluviums deposited by the river Ganges and its tributaries after the disintegration of Himalayan ranges in the north through which the rivers flow in southward direction, formed the soils. Those parent rocks are basic in character and calcareous in nature.

Soils of this region are closely related to the alluvial soils of the neighbouring western region and formed of similar parent material. Many of the characteristic features of those soils are also present in the soils of this region. All grades of soils viz., riverine, flat lands, up lands, and low lands distributed on topographical sequences are also found in this region. These soils, however, differ from doab soils in their degree of development, the factors influencing the soil development in the two cases being slightly different. These soils are generally finer in texture and have no impedence in drainage and on this account are, in general, comparatively free from hazards of soil salinity. They are generally calcareous except for the upland soils which have practically no lime.
The soils are freely drained and have a good moisture content. The water requirement of these soils is not as great as that of the soils of the adjoining western region. They are more productive and respond very well to improved management practices.

5. South-Western Region:—The soils of this region greatly resemble the soils of the Western Region and all grades of soils pertaining to the two river systems obtained in that region are also present in this soil region. These soils, however, differ from the soils of the former region in their extent of soil salinization, this region having greatest concentration of saline and alkali lands. The drainage of this tract is extremely defective, resulting in formation of extensive tracts of usar. The soils of the Agra and Mathura districts, more so of their western and south western tahsils lying on the other side of Yamuna, are markedly different from the soils of the doab area, the former being more closely related to the desert soils of Rajasthan.

The soils are generally dry and have accordingly a high water requirement. Irrigation facilities in this area have brought spectacular responses and give record yields of rabi cereal crops. These soils, however, should be watched with caution for hazards of soil salinization and a well laid out drainage system seems to be a pre-requisite for any agricultural development programme of this area.

6. Central Region:—Soils of this region also resemble closely the alluvial soils of the adjoining regions, more so of the doab areas. These soils, due to slightly better climate, however, give rise to fully mature soils. Riverine, flat, upland and lowland soils of both the river systems as found in the doab area are also found in this region. Greater extent of soil salinization is noticeable in these soils.

These soils afford good crop yields under controlled management practices and constitute an important part of the well known wheat belt of U.P. Due to the insufficient drainage, a considerable area of this region suffers from soil salinity. Extra caution should be taken to check further spread of salinity, more so in areas where irrigation canals are being introduced by providing adequate drainage facilities.

7. Mid-Eastern Region:—Practically all grades of soils, including recent alluviums, flats, uplands, and lowlands are found in this soil region. The region, however, differs from the other regions in the conspicuous absence of influence of Yamuna river which deposited alluviums primarily transported from more basic central Indian rock systems. The black, grey and the reddish brown soils found in the watersheds of the Yamuna river in doab areas are nowhere to be seen in this soil region. The districts adjoining Ganges river suffer from inadequate drainage facilities and on this account are subject to greater hazards of soil salinity. The districts worst affected from this hazard are, thus, Lucknow, Rae Bareli, Pratapgarh, Sultanpur and to certain extent that of Barabanki. The area on the left bank of Gomati comprising of greater portion of Barabanki and Faizabad are comparatively less saline than the soils of the remaining districts in this soil region.

The soils of the region stand in need of more controlled management practices especially in respect of saline and alkali soil areas. Provision of adequate drainage and affording other soil conservation practices are very important for the improvement of these soils.

8. North-Eastern Region:—The soils of this region have been rightly termed as calcimorphic soils due to the vast reserve of calcium present in them. Various stages of soil development found in other alluvial regions are also present in these areas even though they are inherently different in physical and chemical characteristics. The soils of the recent alluviums are highly calcareous, calcium carbonates at times being as high as 50 to 65 per cent. Soils are slightly to moderately alkaline in reaction, and possess an excellent moisture regime. Good crops are grown even without any irrigation. The water table in these areas is usually very high which maintains moisture supply to the plants during the entire period of their growth. Soils of the plains in this region are also calcareous though not to the same extent as the youngest member of the soil family. Soil
development which consists mainly of decalcification has considerably advanced in these areas and the surface soils have lost most of the calcium present in the recent alluviums. The lower regions are still fairly rich in free calcium carbonate and usually a zone of alluviated calcium carbonate in the form of Kankar nodules is found in these soil profiles. Soil salinity is not very common in these areas. Upland soils of this region are intensely leached, from which calcium carbonate has been completely washed out so much so that there is considerable depletion of exchangeable calcium. These soils thus are slightly acidic in reaction. There is excellent drainage and soil salinity is completely absent in these areas.

The soils of this region are fairly productive and afford bumper crops. Very intensive cultivation is practised in these areas and the field are rarely left fallow. These area have vast agricultural potential and given adequate plant foods, good crop yields can be maintained year after year. The upland soils due to the excessive rate of water percolation and their chemical and physical characteristics, hardly retain moisture for long period, and on this account stand in need of frequent irrigations. They respond remarkably well to fertilizer applications.

9. Eastern Region:—The alluviums deposited in this region though related to other alluvial formations of the State are somewhat different than the soils of the upper areas. In general they are finer in texture than the soils of the upper regions. The soils of this region are more weathered and they distinctly exhibit the influences of various soil forming factors. The soils have been subjected to greater hydro-morphic influences and have resulted in formation of a number of hydro-morphic soil varieties more important of which are Dhankar and Karail, the former constituting extremely productive paddy soils of this State. In regions where Ganges flows in circuitous courses a group of very fine textured and black coloured soils, resembling in many aspects the black cotton soils of Central India plains, are found deposited in the interior depressed lands. They are calcareous and retain moisture for long periods. During dry months they crack and form deep fissures. They grow good crops of gram alone or mixed with barley and wheat even without much irrigation.

The soils of this region have a better moisture regime and are comparatively free from salt. They respond remarkably well to fertilizer application and more so to nitrogenous fertilizer. The soils are productive and given adequate irrigation facilities and suitable management, are liable to maintain high yields.

10. Bundelkhand Region:—The soils have developed over granite and gneiss of the Deccan trap with highly ferruginous beds. Lime stones are occasionally found. Four broad soil types have been recognised. Type I—A is a reddish brown coarse grained soil, very shallow and underlaid with the parent material locally known as rakar. Type II is found near the plains. It is deeper having a layer of calcium carbonate in lower depths. This is locally known as parwa. Type III and IV are clayey, black coloured and calcareous. These are the kabar and mar types.

The soils in general are devoid of moisture and afford only early crops needing less water. Type I soils are most suited for inferior crops. Type II are better suited for cultivation under irrigated conditions. Type III & IV soils are very fertile and grow wheat, linseed and gram. Methods of dry farming are practised throughout Bundelkhand region.

11. Vindhya Region:—A wide variety of rocks consisting of Vindhya sandstones and shales, mixed conglomerates, calcareous shales, haematitic slates and schists, gneiss, granites, quartzite, trappezian and Archean Gneiss. Carboniferous rocks and lime stones give rise to different soils.

The topographical already recognized have developed on (i) Vindhya upland (ii) Vindhya flats (iii) Vindhya lowlands and categorized in five soil classifications viz., Vindhya type 1 to 5.
Vindhyan type 1 soils are dark brown in colour and sandy loam in texture and are found on uplands. Type 2 soils are loam textured and of brown colour underlain by reddish yellow mottled clay. Type 3 soils are yellowish gray in colour and comprise of heavy loams. They are developed on restricted drainage. Type 4 and 5 are associated with low lands. Type 4 soils have a compact surface of olive brown clay loam soil of strong acidic reaction. Type 5 soils have developed on extremely restricted drainage conditions with a high water table. These soils are gray coloured at the surface with a general fine texture and characterized by an underlying layer of Kankar nodules. Signs of water logging are clearly marked in lower depths of the profile of this type.

Cultivated areas are found sparsely interspersed within hilly areas with a system of rocks all round. Such areas are only adjacent to villages which are a few in number and are very sparsely populated. With the exception of soils developed on low lands the area supports only inferior crops. whose water requirements are necessarily low due to the general scarcity of water prevailing in that country. They are excessively drained. Soils found in the Belan Valley belonging to Vindhyan lowland tracts respond remarkably well to phosphate and potash applications.

4. CLIMATE AND RAINFALL

The climate and rainfall of the eleven regions are described below:

1. Hilly Region:—The climate is good with temperature being cool and moist. Rainfall is over 60 inches. Summer is short and cool. Winter is long and cold with frost and snow in the higher altitudes.

2. Tarai Region:—The climate is sub-humid and cool specially during winter months. Rainfall ranges between 40 and 50 inches, maximum being from July to September. Summer is not excessively hot, the temperature rarely crossing 108°F. Generally damp and excessive cold is experienced in the winter months.

3. Western Region:—The climate is sub-humid to semi-arid as one moves from north to south. Rainfall ranges between 30 and 50 inches, maximum being in the months of June to September. In north, the temperature is moderate all along the year.

4. Mid-west Region:—The climate is sub-humid in the north getting drier as one proceeds southward. The annual rainfall varies from 30 to 50 inches. The temperature is moderate with considerable fluctuations at different times of the year. Winters are very cold and summers are very hot. Almost the entire rain comes during the monsoon.

5. South-west Region:—The climate is arid to desert-like with rainfall ranging from 20 to 25 inches. Summer is quite severe, the western most districts showing desert like conditions.

6. Central Region:—The climate is semi-arid to sub-humid with slightly greater monthly and annual rainfall than the preceeding doab soil regions. Winters are very cold. Almost the entire rainfall is received during the monsoon months. Summers are very hot ranging only next to the adjoining south west region.

7. Mid-Eastern Region:—The climate of this region is sub-humid resembling their western and northern counterparts. They are slightly less humid than the districts of mid-west region but slightly more humid than the west or south western region. The rainfall ranges from 30 to 40 inches, nine tenth of the precipitations occur during the monsoon months. Summers and winters are extremes.

8. North-Eastern Region:—The climate is sub-humid to humid. Rainfall is more than in the districts of plains and the northern tarai. The area due, to its geographical situation and its scooplike shape is swampy and on this account is prone to numerous drainage and flood problems.
9. **Eastern Region** :- The climate is sub-tropic humid with annual rainfall ranging between 40 to 45 inches. The area due to the swampy nature maintains humidity almost throughout the year. The temperatures are moderate and fluctuations during summer and winter are very marked.

10. **Bundelkhand Region** :- The climate is dry with hot summers and cool winters. Rainfall varies from 30 to 35 inches.

11. **Vindhya Region** :- The climate is sub-tropical with an annual rainfall of 40 to 45 inches. Months of July, August and September have the highest rainfall accounting for nine-tenths of the total rainfall. Temperatures are very high during summers and very low during winters. Marked difference between night and day temperatures is found.

5. **IRRIGATION**

The net irrigated area in the plains of the State was 124.6 lakh acres during the year 1960-61. It represents about 30.5 per cent of the net cultivated area. Irrigated area is concentrated in the western and north western districts.

The sources of irrigation in order of importance are canals, wells, tube-wells and tanks. The distribution of irrigation from different sources is given below:

\[
\text{TABLE II}
\]

<table>
<thead>
<tr>
<th>Source</th>
<th>Government</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Canals</strong></td>
<td>49,19,747</td>
<td>4,016</td>
<td>49,23,773</td>
</tr>
<tr>
<td><strong>Tube Wells</strong></td>
<td>12,24,728</td>
<td>1,18,193</td>
<td>13,42,915</td>
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<tr>
<td><strong>Other Wells</strong></td>
<td>45,31,321</td>
<td></td>
<td>45,56,236</td>
</tr>
<tr>
<td><strong>Reservoirs</strong></td>
<td>6,327</td>
<td></td>
<td>6,327</td>
</tr>
<tr>
<td><strong>Tanks, Lakes and ponds</strong></td>
<td>10,33,543</td>
<td></td>
<td>10,33,543</td>
</tr>
<tr>
<td><strong>Other Sources</strong></td>
<td>5,99,834</td>
<td></td>
<td>5,99,834</td>
</tr>
<tr>
<td><strong>Total Irrigated</strong></td>
<td>1,24,64,184</td>
<td></td>
<td>1,24,64,184</td>
</tr>
</tbody>
</table>

6. **NORMAL CROPPING PATTERN AND AGRICULTURAL PRODUCTION**

Cropping Pattern :- The net cultivated area of the State, excluding the hills, in 1960-61 was about 409.2 lakh acres. Of this, about one fourth is Do fasli area. The total cropped area of each season is as follows:

- **Kharif**
  - 272.8 lakh acres
- **Rabi**
  - 244.6 lakh acres
- **Zaid**
  - 3.1 lakh acres

(i) **Kharif Crops** :- The main **Kharif** crops are Paddy and Millets which occupy 36.4 per cent and 27.5 percent respectively of the total **Kharif** cropped area. The heaviest concentration of these crops is in the eastern U.P. Among millets, *Jowar*, *Bajra* and *Maize* are the most important crops.

Sugarcane is included in **Kharif** crops. It occupies only 12.0 per cent of the **Kharif** area but from the monetary point of view, it is the most important cash crop of the State. The highest concentration of this crop is in the western districts of the Meerut and Rohilkhand Divisions but it is an important crop throughout the northern districts of the plain.

Cotton, Jute, Groundnut and *Til* are the other important cash crops of **Kharif** season. The cultivation of cotton increases from east to west due to the comparative aridity of the western portion of the upper Gangetic plains.

Jute cultivation found encouragement after the partition of the country and although its cultivation was not known before, it is extensively grown in the Tarai belt in low lying areas near river beds where water is in plenty.
(ii) Rabi Crops:—Among the Rabi crops, Wheat is the most important crop, which is grown in 37.9% of Rabi area. Cultivation of wheat increases from eastern to western U.P. Western districts of Meerut and Rohilkhand Divisions and northern districts of Faizabad and Lucknow Divisions constitute the most important wheat growing tract. Gram and Barley come next in importance with an area of 25.8 percent and 17.8 percent respectively of the total Rabi cropped area. Bundelkhand is the most important gram producing area of the State. Barley which is next in importance to Gram, has its largest concentration in the eastern districts.

Rapeseed, Mustard, Linseed, Tobacco and Potato are the other important crops of Rabi season.

(iii) Zaid crops:—Rice and Tobacco are the important zaid crops of the State.

Crop rotations:—The crop rotations followed locally by the cultivators in the different soil-climatic regions of the State, already described above, are given below:—

1. Hill Region:
   (1) Maize—Wheat (1 year)
   (2) Rice—Peas + Mandua—Wheat (2 years)
   (3) Fallow—Wheat (1 year)
   (4) Rice—Wheat (1 year)
   (5) Maize—Potato (1 year)
   (6) Mandua or Soyabean—Wheat (1 year)

2. Tarai Region:
   (1) Fallow—Lahi—Sugarcane (2 years)
   (2) Cowpea—Wheat (1 year)
   (3) Paddy—Peas + Green Manure—Wheat (2 years)
   (4) Green Manure—Lahi—Sugarcane (2 years)

3. Western Region:
   (1) Paddy—Berseem or Peas (1 year)
   (2) Maize—Berseem—Sugarcane (2 years)
   (3) Maize—Peas—Sugarcane (2 years)
   (4) Maize—Wheat (1 year)
   (5) Fallow—Wheat alone or mixed with Gram (1 year)
   (6) Maize—Methi—Sugarcane (2 years)
   (7) Maize—Potato—Sugarcane (2 years)
   (8) Green Manure—Wheat—Sugarcane—Ratoon (3 years)
   (9) Green Manure—Wheat—Cotton—Sugarcane (3 years)

4. Mid-Western Region:
   (1) Jowar, Bajra or Arahar—Fallow—Wheat (2 years)
   (2) Paddy—Gram or Peas (1 year)
   (3) Maize—Wheat (1 year)
   (4) Groundnut—Sugarcane—Ratoon (3 years)
   (5) Groundnut—Sugarcane (2 years)
   (6) Chari—Gram (1 year)
   (7) Paddy—Peas—Fallow—Wheat (2 years)
   (8) Groundnut—Sugarcane—Fallow—Wheat (3 years)

5. South Western Region:
   (1) Bajra alone or mixed with Arahar—Fallow—Wheat (2 years)
   (2) Jowar alone or mixed with Arahar—Fallow—Wheat (2 years)
   (3) Cotton—Peas—Fallow—Wheat (2 years)
   (4) Paddy—Peas—Sugarcane (2 years)
(5) Maize—Potato—Sugarcane (2 years)
(6) Fallow—Wheat (1 year)
(7) Green Manure—Mustard—Sugarcane—Ratoon (3 years)

6. Central Region:
(1) Jowar mixed with Arhar—Fallow—Wheat (2 years)
(2) Maize—Potato—Tobacco (1 year)
(3) Paddy—Peas—Sugarcane (2 years)
(4) Groundnut—Sugarcane—Fallow—Wheat (3 years)
(5) Cotton—Barley (1 year)
(6) Jowar or Bajra alone or mixed with Arhar—Fallow—Wheat (2 years)
(7) Paddy—Gram (1 year)

7. Mid-Eastern Region:
(1) Maize—Sugarcane—Fallow—Wheat (3 years)
(2) Paddy—Peas or Gram (1 year)
(3) Paddy—Fallow (1 year)
(4) Sugarcane—Ratoon—Maize (3 years)
(5) Paddy—Gram—Fallow—Sugarcane (3 years)
(6) Sanai Seed—Barley (1 year)
(7) Sunai (fibre)—Wheat (1 year)

8. North Eastern Region:
(1) Paddy—Fallow or Chatrimestri (1 year)
(2) Paddy—Peas or Gram (1 year)
(3) Sugarcane—Ratoon—Fallow—Wheat (3 years)
(4) Sugarcane—Maize—Peas (2 years)
(5) Paddy—Wheat (1 year)
(6) Fallow—Wheat (1 year)
(7) Paddy—Barley (1 year)

9. Eastern Region:
(1) Paddy—Peas (1 year)
(2) Paddy—Fallow (1 year)
(3) Maize—Peas (1 year)
(4) Arhar+Bajra—Fallow—Sugarcane (3 years)
(5) Jowar+Arhar—Fallow—Barley (2 years)
(6) Sugarcane—Fallow—Wheat—Paddy (3 years)

10. Bundelkhand Region:
(1) Jowar—Gram—Fallow—Wheat (2 years)
(2) Jowar and Arhar—Fallow—Wheat (2 years)
(3) Early Paddy—Wheat (1 year)
(4) Fallow—Wheat and Gram mixed (1 year)
(5) Jowar or Bajra—Fallow—Fallow—Linseed (2 years)
(6) Jowar with Til—Fallow—Wheat (2 years)
(7) Til—Fallow—Fallow—Wheat (2 years)

11. Vindhya Region:
(1) Early Paddy—Gram or Peas (1 year)
(2) Paddy—Khesari (1 year)
(3) Paddy—Fallow (1 year)
(4) Jowar and Bajra—Fallow—Fallow—Wheat or Barley (2 years)
(5) Maize—Linseed (1 year)
(6) Sawan or Kodon—Barley (1 year)
(7) Fallow—Wheat or Barley mixed with Gram (1 year)
### Agricultural Area and Production

The table below gives the area, production average yield of principal crops for the year 1960-61:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area in acres</th>
<th>Production in tons</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>1,03,40,080</td>
<td>31,01,148</td>
<td>653*</td>
</tr>
<tr>
<td>Wheat</td>
<td>97,32,933</td>
<td>38,82,298*</td>
<td>900*</td>
</tr>
<tr>
<td>Barley</td>
<td>45,62,294</td>
<td>16,60,517*</td>
<td>824*</td>
</tr>
<tr>
<td>Jawar</td>
<td>22,09,962</td>
<td>4,86,861*</td>
<td>494*</td>
</tr>
<tr>
<td>Bajra</td>
<td>26,92,328</td>
<td>4,22,345*</td>
<td>351*</td>
</tr>
<tr>
<td>Maize</td>
<td>26,04,702</td>
<td>6,15,361*</td>
<td>531*</td>
</tr>
<tr>
<td>Gram</td>
<td>63,07,398</td>
<td>18,02,375*</td>
<td>640*</td>
</tr>
<tr>
<td>Peas</td>
<td>23,84,424</td>
<td>9,44,980*</td>
<td>888*</td>
</tr>
<tr>
<td>Ahar</td>
<td>16,11,553</td>
<td>8,71,712*</td>
<td>1,211*</td>
</tr>
<tr>
<td>Til (pure)</td>
<td>1,25,127</td>
<td>6,674*</td>
<td>113*</td>
</tr>
<tr>
<td>Rapeseed and Mustard (pure)</td>
<td>5,21,367</td>
<td>1,73,669*</td>
<td>742*</td>
</tr>
<tr>
<td>Linseed (pure)</td>
<td>3,09,851</td>
<td>5,98,98*</td>
<td>445*</td>
</tr>
<tr>
<td>Castor</td>
<td>1,70,642</td>
<td>1,43,20*</td>
<td>187*</td>
</tr>
<tr>
<td>Total Oilseed (pure)</td>
<td>5,645</td>
<td>2,241</td>
<td>492</td>
</tr>
<tr>
<td>Til (mixed)</td>
<td>11,32,632</td>
<td>2,54,802</td>
<td>113*</td>
</tr>
<tr>
<td>Rapeseed and Mustard (mixed)</td>
<td>14,86,895</td>
<td>74,832</td>
<td></td>
</tr>
<tr>
<td>Linseed (mixed)</td>
<td>12,93,590</td>
<td>1,08,037</td>
<td>187</td>
</tr>
<tr>
<td>Total Oilseeds (mixed)</td>
<td>70,47,584</td>
<td>10,30,119</td>
<td></td>
</tr>
<tr>
<td>Sugarcane</td>
<td>32,83,988</td>
<td>5,36,54,564*</td>
<td>36,557*</td>
</tr>
<tr>
<td>Potato</td>
<td>2,80,825</td>
<td>7,87,102*</td>
<td>6,417</td>
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<tr>
<td>Cotton</td>
<td>1,57,681</td>
<td>39,680* bales</td>
<td>99*</td>
</tr>
<tr>
<td>Jute</td>
<td>32,315</td>
<td>92,137* bales</td>
<td>1,140*</td>
</tr>
<tr>
<td>Sann hemp</td>
<td>1,48,697</td>
<td>23,267*</td>
<td>351</td>
</tr>
<tr>
<td>Tobacco</td>
<td>48,075</td>
<td>15,796</td>
<td>777</td>
</tr>
</tbody>
</table>

Note: 1. * denotes that the estimates are based on the results of crop-cutting Experiments.
2. The production and average yield of Sugarcane are in terms of cane.
3. Production and average yield of rice are in terms of cleaned rice.
4. Figures of area and production are inclusive of the conventionally estimated figures for the hilly districts of Kumaon and Uttarakhand Divisions.
5. Figures of average yield are for the plains portion of the State only.
6. The figures of area under Til, Rapeseed (Mustard) and Linseed crops sown mixed are included in the crops with which these are sown mixed and have not been eliminated from the latter.
7. The production of Rice in Kharif is 30,97,011 tons and is based on the results of the crop-cutting experiments.
8. The production of Cotton is in bales of 392 lbs. and Jute in bales of 400 lbs.

### 7. AGRICULTURAL RESEARCH AND EXPERIMENTAL STATIONS

A large number of field experiments have been conducted for evolving better varieties through selection, acclimatisation and hybridisation. Varietal trials in various stages ranging from observational plots, preliminary trials, semifinal trials and field scale trials have been, and are being, conducted each season mostly at the Research Farms and Regional Research Stations. Besides these varietal trials, a number of other types of experiments on different problems have been conducted.

For the period 1848—1953, experiments conducted at 58 research and agricultural farms of the State were collected. A brief description of the number of experiments conducted is given below separately for each of the important crops.

(i) **Wheat**—It is the most important Rabi crop of U.P., occupying nearly 10 million acres. The number of experiments conducted on wheat are the highest. Nearly 100 experiments on wheat were conducted at the Government Research Farm, Kanpur and Government Agricultural Research Farm, Kalayanpur (Kanpur). In almost all the research farms and many of the seed multiplication farms of the State, experiments on wheat were conducted.
(ii) Paddy:—This is the most important *kharif* crop of the State, occupying as much as nearly 10 million acres. The research activities on Paddy were concentrated at the Rice Research Station, Nagina (Bijnor district), 38 experiments out of 40 laid at this station were on Paddy. The Central Rice Research Station has recently been established at Masodha, Faizabad district. The research work on early maturing varieties for the eastern districts of the State is being conducted at the Rice Research Sub-station, Kunrakhat (Gorakhpur). Thirty three experiments on paddy were available at this Station. For research work on late paddy crop, which is mainly grown in eastern districts, two new sub-stations were started in 1949, one in Pachperwa (District Gonda) for the north eastern region and the other at Tissubi (District Mirzapur) for the south eastern region. About 60 experiments were available at these two stations on Paddy. In order to intensify the research work on this crop, 3 more sub-stations have recently been established. These are located at Majhera (Naini Tal), Bansdih (Ballia) and Balchandpur (Braich). Research work is also being conducted at the 5 regional research stations situated at Meerut, Nawabganj, Hardoi, Amrukh and Varanasi.

(iii) Barley:—Although Barley occupies 4.6 million acres, only about 40 experiments were conducted on this crop. The attention is mostly being paid to evolve better varieties of this crop. Experiments on this crop were conducted mostly at Government Research Farm, Kanpur.

(iv) Jowar, Bajra and Maize:—These crops occupy 2.21, 2.69 and 2.60 million acres in area respectively. The research work on these crops is mainly conducted at Kanpur to evolve high yielding and disease-free varieties.

(v) Potato:—It is one of the most important vegetable crops that brings large economic returns and is widely grown in the State. Research work on Potato crop was started at Kanpur in the year 1944. Since most of the varieties do not flourish in the plains, attempts are being made at the Kausani Hill Sub-station. A number of experiments were conducted on nitrogen, phosphate and potash requirements of the potato crop. Potato crop is very widely grown in Farrukhabad district where a research station was established in 1948. Thirty one experiments on potato were conducted at this farm during the period under report.

(vi) Sugarcane:—U. P. is the most important sugarcane growing State. A full fledged Sugarcane Research Station at Shahjahanpur has been functioning for a very long time. All the 86 experiments laid out at this station were on Sugarcane. The two other sub-stations for conducting research on Sugarcane are situated at Muzaffarnagar in west U. P. and Gorakhpur in the east. Muzaffarnagar station has been catering to the special needs of western tracts of U. P., while Gorkhpur station caters to the needs of eastern tracts of U. P. which markedly differ in agricultural conditions. The main activities of these stations consists of evolution of new sugarcane varieties out of the material received from Coimbatore and Shahjahanpur in the form of the canes and out of the seedlings raised locally. Attention is also being paid by these research sub-stations for finding out improved agronomic practices suited to the tracts. Nearly 70 experiments were available at these two stations. A large number of experiments was conducted on cultivator's fields on this crop. Soil Survey work is also being conducted by these Stations. Eastern U. P. is more or less a permanent home for red rot and constant efforts are being made to wipe out this disease.

(vii) Cotton:—It is an important cash crop of western U. P. Experiments on this crop are being conducted at Bulandshahr with a sub-station at Raya (Mathura). The main research work is being carried out on the problem of finding out high yielding cotton varieties. Improved agronomical practices for increasing Cotton yield in the State are also being tried. Experiments on cotton are also being conducted at Regional Research Station, Meerut and several others Farms.

(viii) Oilseeds:—U. P. is one of the largest oilseed producing states of the country. Research work, mostly varietal, is being done on the five important oilseed crops viz. *Til*, Groundnut and Mustard, Linseed and Castor at Kalayanpur (Kanpur) Keserwa (Badaun) and Belatal (Hamirpur) for determining high yielding varieties.
(ix) Fruit: —The fruits grown in U.P. are of two types, Hill fruits and Plain fruits. Hill fruits like apple, peach and citrus are grown in the hilly districts of the State. Research work on these crops is concentrated at Chaubatia (Almora). Experiments are also being conducted at Jeolikote and Ramgarh in Nainital district. A large number of experiments are conducted to control pests and diseases. Experiments on plain fruits like mango, papaya, litchi are conducted at Govt. Horticultural Research Institute, Saharanpur. Recently, Govt. Fruit Research Station has been established at Basti to cater to the needs of eastern U.P.

(x) Vegetables: —The vegetable research station was established at Lucknow but was shifted to Kalayanpur (Kanpur) in 1953. Research work on seasonal vegetables is being conducted. Most of the experiments are laid out to control common diseases of vegetables. Varietal trials to improve the quality and yield of vegetables are also being conducted at regional research stations situated in different parts of the State.

8. EXPERIMENTS

The Table on page 14 shows the distribution of experiments according to the type of treatments tried and type of crops. Out of 1293 experiments reported for the period 1948-1953 in the state approximately, 44.6% were manurial and 20.0% cultural. Experiments in which manures or fertilizers forms a factor account for nearly 57.2% of the total number of experiments. The manurial experiments were largely on the principal crops like wheat, paddy and sugarcane. Nearly all manurial sum irrigational experiments were on wheat. Experiments in which irrigation was one of the factors accounted for nearly 10.5%. The experiments on vegetables were generally of manurial and cultural types. 80% of the experiments conducted on fruit trees were to control diseases and pests. Nearly 23% of the experiments were on wheat crop alone. Experiments on other cereal crops accounted for the same order. Among cash crops sugarcane received more attention. Nearly 25.3% experiments were conducted on this crop. About 100 experiments were rejected for the reasons that they were either having no results or were not conducted according to the statistically laid out designs.

The treatments commonly tried were the factorial combinations of 3 levels of nitrogen and 3 levels of P\textsubscript{2}O\textsubscript{5} on cereals and other food crops. The levels of both nitrogen and P\textsubscript{2}O\textsubscript{5} besides control, varied from 25 lb./ac. to 60 lb./ac. The usual source of nitrogen was Ammonium Sulphate, and in a few cases it was Chilean Nitrate. In some experiments the organic manures were also included to study their effects as compared to artificial fertilizers. The organic manures used were Farm Yard Manure, Compost, Castorcake, Coconut cake etc. The green manures tried in some experiments were Sanai, Guar, Senji, Berseem etc. The other type of treatment usually tried along with the nitrogenous fertilizers was irrigation in about 6 to 7% of cases. The cultural treatments usually included in the experiments were dates of sowing and seedrates etc.

On sugarcane crop, the levels of nitrogen varied from 100 lb./ac. to 200 lb./ac. and those of P\textsubscript{2}O\textsubscript{5} from 100 lb./ac. to 150 lb./ac. The source of nitrogen was usually Ammonium Sulphate, Ammonium Nitrate and mixture of Ammonium Sulphate and Groundnut cake. In cultivator's field experiments the treatments were usually manurial or cultural. In cultural experiments the treatments usually were harvesting time, times of planting etc.

The design mostly adopted was Randomised Blocks. In most of the experiments with R.B.D. layout the treatments were in factorial arrangements. The number of plots per replication varied from 3 to 16 although in a few experiments it was as much as 27. The next most used design was split-plot. In these designs the main plot treatments were usually irrigations, seedrates, dates of sowing etc. and sub-plot treatments were manures.

The number of main-plots per replication varied from 3 to 5 and number of sub-plots per main-plot varied from 3 to 6. The number of replications varied from 4 to 6. The net-plot size varied from 1/100th of an acre to 1/20th of an acre.
## TABLE 4

**Statement giving the distribution of experiments according to crops and types of treatments tried**

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<tr>
<th>Crop</th>
<th>M</th>
<th>MV</th>
<th>C</th>
<th>CV</th>
<th>CM</th>
<th>CMV</th>
<th>I+IV</th>
<th>IM+IMV</th>
<th>IC+ICV</th>
<th>D+DV</th>
<th>DM+CD+CDV</th>
<th>DI+DIV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>Paddy</td>
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<tr>
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<td>83</td>
<td>44</td>
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* Includes zonal trails also.
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<th>Sl. No.</th>
<th>Name of the Station, Location, year of establishment</th>
<th>Major crops and tract it represents</th>
<th>Soil type and soil analysis</th>
<th>Normal rainfall in inches (month wise)</th>
<th>Irrigation facilities</th>
<th>No. of experiments</th>
<th>General description of the topography of experimental area</th>
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<td>Turnip — 1</td>
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<td>Mixed cropping—1</td>
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<td>Total — 20</td>
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### Statement Showing Details of Experimental Stations

**Uttar Pradesh (Contd.)**

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<th>4</th>
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<td>(b) Chemical analysis:—</td>
<td>July 8.5</td>
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<tr>
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<td>N—0.047%, Phosphorous—0.853%. Potash (K)—1.217%.</td>
<td>Aug 8.5</td>
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<td>(c) Mechanical analysis:—</td>
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<td>Coarse sand 0.445%.</td>
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<td>Pure sand 58.925%.</td>
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<td>Clay 16.56%.</td>
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<td>(The figures are based on the data for the year 1960 only.)</td>
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<p>|    |   |   |   |   |   | Wheat—1 |   |
|    |   |   |   |   |   | Total—3 |   |</p>
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<th>No.</th>
<th>State</th>
<th>Station Details</th>
<th>Soil Type</th>
<th>Colour</th>
<th>Structure</th>
<th>Analysis</th>
<th>Rainfall (mm)</th>
<th>Irrigation Facilities</th>
<th>Major Crops</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Govt. Minto Park, Allahabad.</td>
<td>Generally sandy loam to loam.</td>
<td></td>
<td></td>
<td></td>
<td>July: 11.69, Aug: 15.02, Sept: 6.45, Oct: 0.68, Nov: 0.37, Dec: 0.08, Jan: 0.31, Feb: 0.77, March: 0.34, April: 0.12, May: 0.02</td>
<td>Available on 125 acres. It is available from 1940.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Almora</td>
<td>Vivekananda Laboratory. Distt. Almora. Year of establishment 1924.</td>
<td>Deep loam soil, Grey. Fairly loose cultivated soil.</td>
<td>Medium deep soil.</td>
<td>Sandy loam to clayey loam.</td>
<td>pH: 6.5 to 7</td>
<td>June: 5.85</td>
<td>There is a rain storage tank since 1943-44.</td>
<td>Barley 1, Terraced fields,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rabi-Wheat, Barley, Oats.</td>
<td>Generally sandy loam to loam.</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Average of 10 years 1948-49 to 1957-58.
18
CHEMICAL ANALYSIS OF FIELD SOILS
Table 1 (a) Agricultural Institute Farm, Allahabad.

Soil
Sample
No.

Ca-l, PAvailable
2 rModi-

B. Ex.
pacity

fied Bray's
Jbs./A.)

Absorbed
P Jbs./A.
Bray's Pl
modified

Available
K lbs.fac.

pH

Organic
carbon
perc entage

Sticky
Point
piper
percentage

Ratio
of
Kanka1'

Soil

1

15.15
19.04
14.45
15.3
11.35
9.7
15.0
10.9
11.84
25.2
14.85
29.3
19.1
14.75
10.55
9.85
9.9
18.9
18.85
19.2
8.85
10.2

t
2
3

4

s
6
7A
7B
7C
70
8
9A
9B
9C
90
lOA
lOB
10C
10D
tOE
11

12
11
13
22.55
14A
21.25
14B
20.2
14C
17
140
5.55
14E
17.85
14F
17.85
15A
11.65
15B
16.65
15C
150
9.35
15E
8.85
16A
11.55
10.75
16B
16C
7
160
9.15
17A
9.3
17B
8.9
17C
8.2
6.0
18A
18B
7.4
t8C
8.35
180
23.05
l8E
8.1
l8F
9.3
l9A
10.55
19B
9.45
19C
7.55
20A
7.85
20B
10.9
7.55
20C
200
12.25
21
9.1
Hort. Nur12.6
sery LOD (A)
Near Farm
20.65

Office

33
32
71
80
86
84
352
536
448
536
164
656
320
164
568
656
656
134
320
162
512
656
528
164
384
320
496
488
230

104
112

66
336
162
360
164
106
424
84
72
352
88
80
96
256
86
32
52
56
74
86
544
56
44
88
656
164

13
17
10
11

38
44
18
32
80
64
14
55
37
30
56
78
60

27

34
8
61
52
87
28
43
20
74
36
16
16
16
13
31
6
32
234
8
19.5
8
16
14
12.5
4
0

12
8
16
11

8
13
9
38
5
4

4
115

22

240

8.85
8.8
9.1
8.9
9.1
9.1
8.45
8.52
8.45
8.75
8.45
8.25
7.8
8.57
8.3
8.25
8.42
8.4
8.67
8.55
8.25
7.77
8.1
8.22
8.6
8.65
8.65
8.9
8.07
8.75
8.42
8.15
9
8.9
8.7
8.4
8.85
8.9
8.75
8.R
2.7
8.95
8.5
8.57
8.9
9.25
8.72
8.8
8.55
8.2
8.9
8.82
9
8.6
9
8.27

272

8.6

264
208
632
240
632
424
328
232
216
420
264
216
384
18+
304
240
240
232
352
184
200
304
232
240
36S
208
288
424
272
216
240
134
424
220
190
160

390
270
190
230
180
160
170
160
190
160

190
]50
130
150
130
300

120
120
120

.35
.48
.41

.47
.55
.52
.72
.48
.63
.52
.44
.99
.62
.51
.52
.62
.41
.52
.75
.47
.41
.58
.61
.61

.72
.61
.68
.46
.55
.48
.69
.33
.37
.41
.92

.so
.43
.41
.51
.41
.30

23.9
23.25
22.55
22.55
19.4
23.45
23.55
20.45
22.05
25.4
23.5
23.75
23.9
21.55
20.95
21.53
17.55
24.2
23.35
22.7
28.35
17.55
17.95
23.85
21.95
22.3
22.8
18.5
20.45
20.5
21.65
19.95
21-.05
23.5
20.35
14.6
22.95
20.75
2Q.4

.41
.55
.41
.36
.51
.32
.30
.33
.58
.75
.54
.35
.33
.69

24.4
23.55
20.7
19.15
23.6
19.95
17.75
24.9
20.6
22.05
19.8
22.2
24.35
25.35
19.9
15.6
22.05

.52

23.65

.41

7: 84

3 : 14
1 : 15
11:160

4:237

18: 246
14: 246
20:236
5: 232
12 : 148
10: 137
7:248
7: 142
7 :148
7: 148


### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

#### UTTAR PRADESH (Contd.)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7.</strong> Attara : Govt. Agri. Farm</td>
<td>It represents tripal soil of Parwa tract. Major crops : Paddy, Barley, Gram, and Sugarcane.</td>
<td>Soil type : Parwa, light Kabar, other information not available.</td>
<td>June</td>
<td>0.30</td>
<td>Irrigation by canal</td>
<td>Moong</td>
<td>—1</td>
</tr>
<tr>
<td>Distt. Banda, ½ mile from Attara Rly. Station. Year of establishment—1912,</td>
<td></td>
<td></td>
<td>July</td>
<td>18.08</td>
<td>but depends on rains. In rabi only</td>
<td>Maize</td>
<td>—1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aug.</td>
<td>15.19</td>
<td></td>
<td>Jowar</td>
<td>—2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sept.</td>
<td>8.65</td>
<td>one irrigation could be supplied. As the Stn. is in low land area, there is no proper drainage.</td>
<td>Wheat</td>
<td>—19</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oct.</td>
<td>3.80</td>
<td></td>
<td>Paddy</td>
<td>—11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nov.</td>
<td>Nil</td>
<td>Stn. is in low land area, there is no proper drainage.</td>
<td>Mixed</td>
<td>—7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dec.</td>
<td>Nil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jan.</td>
<td>3.82</td>
<td></td>
<td>Total</td>
<td>—41</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Feb.</td>
<td>0.32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>March</td>
<td>Nil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>April</td>
<td>Nil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>51.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period—N.A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Govt. Nursery. Year of establishment—N.A. | | | | | (Grape fruit) | |
| | | | | | Citrus | —1 |
| | | | | | (Lemon seedling) | |
| | | | | | Total | —2 |
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS.

#### UTTAR PRADESH (Contd.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Station Details</th>
<th>Description</th>
<th>Soil Type</th>
<th>Depth</th>
<th>Colour</th>
<th>Structure</th>
<th>Chemical Analysis</th>
<th>Mechanical Analysis</th>
<th>Irrigation</th>
<th>Crops</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total—4</td>
<td></td>
</tr>
<tr>
<td>Field No. 7 Pit No. 1</td>
<td></td>
<td></td>
<td></td>
<td>Field No. 1 B Pit No. 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
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<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>0'-1'2&quot;</td>
<td>1'2&quot;-2'3&quot;</td>
<td>2'5&quot;-4'9&quot;</td>
<td>4'9&quot;-6'</td>
<td>0-8&quot;</td>
<td>8'-3'3&quot;</td>
<td>3'3&quot;-5'10&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water holding capacity%</td>
<td>41.12</td>
<td>33.18</td>
<td>35.33</td>
<td>37.79</td>
<td>36.25</td>
<td>34.96</td>
<td>35.44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>7.3</td>
<td>7.00</td>
<td>7.4</td>
<td>7.4</td>
<td>7.3</td>
<td>7.3</td>
<td>7.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₂O₅ %</td>
<td>0.1230</td>
<td>0.1065</td>
<td>0.0915</td>
<td>0.0963</td>
<td>0.0945</td>
<td>0.1005</td>
<td>0.0810</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CaO %</td>
<td>3.9480</td>
<td>3.8360</td>
<td>2.7580</td>
<td>3.0240</td>
<td>3.0240</td>
<td>3.4020</td>
<td>2.7720</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K₂O %</td>
<td>0.7341</td>
<td>0.5371</td>
<td>0.4313</td>
<td>0.6978</td>
<td>1.4466</td>
<td>0.3909</td>
<td>0.3546</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Nitrogen%</td>
<td>0.0320</td>
<td>0.0154</td>
<td>0.0126</td>
<td>0.0196</td>
<td>0.0126</td>
<td>0.0056</td>
<td>0.0168</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Organic Carbon%</td>
<td>0.4430</td>
<td>0.1767</td>
<td>0.0665</td>
<td>0.0608</td>
<td>0.1680</td>
<td>0.0190</td>
<td>0.0361</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total water soluble solids %</td>
<td>0.0630</td>
<td>0.0620</td>
<td>0.0600</td>
<td>0.0560</td>
<td>0.0600</td>
<td>0.0760</td>
<td>0.0900</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total exchangeable bases m.e. %</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exchangeable calcium m.e. %</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coarse sand%</td>
<td>11.18</td>
<td>44.64</td>
<td>75.06</td>
<td>71.04</td>
<td>46.78</td>
<td>66.51</td>
<td>62.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine sand%</td>
<td>44.65</td>
<td>30.34</td>
<td>18.36</td>
<td>22.02</td>
<td>42.82</td>
<td>26.46</td>
<td>31.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silt%</td>
<td>30.35</td>
<td>11.25</td>
<td>2.40</td>
<td>2.55</td>
<td>2.70</td>
<td>0.65</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clay %</td>
<td>8.65</td>
<td>5.00</td>
<td>0.50</td>
<td>0.55</td>
<td>2.6</td>
<td>0.80</td>
<td>0.85</td>
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</tbody>
</table>
### Statement Showing Details of Experimental Stations

#### Uttar Pradesh (Contd.)

Analytical data of soils of Bahralch Farm (Contd.)

<table>
<thead>
<tr>
<th>Field No. 19</th>
<th>Pit No. 3</th>
<th>Field No. 10</th>
<th>Pit No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1'</td>
<td>1-2'10'</td>
<td>2'-3'8'</td>
<td>3'-5'10'</td>
</tr>
<tr>
<td>Water holding capacity%</td>
<td>48.98</td>
<td>47.22</td>
<td>48.80</td>
</tr>
<tr>
<td>pH</td>
<td>7.3</td>
<td>7.4</td>
<td>7.4</td>
</tr>
<tr>
<td>P2O5%</td>
<td>0.1605</td>
<td>0.1140</td>
<td>0.1110</td>
</tr>
<tr>
<td>CaO%</td>
<td>5.238</td>
<td>5.460</td>
<td>7.224</td>
</tr>
<tr>
<td>K2O%</td>
<td>0.8036</td>
<td>0.6344</td>
<td>1.7049</td>
</tr>
<tr>
<td>Total Nitrogen%</td>
<td>0.0462</td>
<td>0.0448</td>
<td>0.0160</td>
</tr>
<tr>
<td>Total Organic Carbon%</td>
<td>0.4973</td>
<td>0.1786</td>
<td>0.23204</td>
</tr>
<tr>
<td>Total water Soluble Solid%</td>
<td>0.083</td>
<td>0.084</td>
<td>0.078</td>
</tr>
<tr>
<td>Total exchangeable bases m.e.%</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Exchangeable calcium m.e.%</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Coarse sand%</td>
<td>2.311</td>
<td>3.925</td>
<td>1.295</td>
</tr>
<tr>
<td>Fine sand%</td>
<td>62.04</td>
<td>72.31</td>
<td>63.52</td>
</tr>
<tr>
<td>Silt%</td>
<td>19.30</td>
<td>9.60</td>
<td>21.05</td>
</tr>
<tr>
<td>Clay%</td>
<td>8.30</td>
<td>4.25</td>
<td>5.50</td>
</tr>
</tbody>
</table>
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

#### UTTAR PRADESH (Contd.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Station Name</th>
<th>Year of Establishment</th>
<th>Soil Type</th>
<th>Depth</th>
<th>Colour</th>
<th>Structure</th>
<th>Soil Analysis</th>
<th>Crops</th>
<th>Irrigation System</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>Barabanki Govt. Agri. Farm, Distt. Barabanki</td>
<td>1913</td>
<td>Loam</td>
<td>2'</td>
<td>Light blackish</td>
<td>Compact 26% poor space</td>
<td>Not available</td>
<td>Paddy-2, Pea or gram, Pea or Sugarcane, mung-G.M. Wheat</td>
<td>June: 3.70, July: 4.06, Aug: 14.93, Sept: 5.64, Oct: 10.00, Dec to May: 2.51</td>
<td>Irrigation by canal and tube well since inception, No drainage system</td>
</tr>
<tr>
<td>12.</td>
<td>Belatal Govt. Agri. Res. Farm, Distt. Hamirpur</td>
<td>1922-23</td>
<td>Hard kabar contains Kans</td>
<td>3'</td>
<td>Black</td>
<td>N.A.</td>
<td>Not available</td>
<td>Paddy-1, Cotton-1, Mixed-2</td>
<td>June: 2.93, July: 12.78, Aug: 16.93, Sept: 3.31, Oct: 3.59, Nov: 0.49, Dec: 0.56, Jan: 0.66, Feb: —, March: 0.78, April: —, May: —</td>
<td>Irrigation by tank and canal, facilities available since beginning of the farm, No proper drainage system</td>
</tr>
</tbody>
</table>
### Statement Showing Details of Experimental Stations

**Uttar Pradesh (Contd.)**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>July</td>
<td>14.96</td>
<td></td>
<td>Maize</td>
<td>—1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aug.</td>
<td>13.74</td>
<td></td>
<td>Wheat</td>
<td>—17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sept.</td>
<td>11.19</td>
<td></td>
<td>Paddy</td>
<td>—8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oct.</td>
<td>4.82</td>
<td></td>
<td>Mixed</td>
<td>—2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nov.</td>
<td>Nil</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td>Dec.</td>
<td>0.11</td>
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<td></td>
<td></td>
<td></td>
<td>Jan.</td>
<td>0.02</td>
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<td></td>
<td></td>
<td></td>
<td>Feb.</td>
<td>0.19</td>
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<td></td>
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<td></td>
<td>April</td>
<td>Nil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May</td>
<td>Nil</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

| **14.** Bulandshahr: Govt. Agri. School Farm (1921). | Light loam and sandy loam | Soil type: Light and sandy loam | June | 0.55 | Lift irrigation from canal | Sugarcane | —1 |
| | | Depth—10' (approximately) | July | 2.32 | | Wheat | —3 |
| | | Colour—Yellow | Aug. | 11.88 | | | |
| | | Structure—Fine and coarse | Sept. | 2.22 | | | |
| | | Chemical and Mechanical Analysis: N.A. | Oct. | 1.18 | | | |
| | | | Nov. | 1.12 | | | |
| | | | Dec. | Nil | | | |
| | | | Jan. | 1.80 | | | |
| | | | Feb. | 0.30 | | | |
| | | | March | Nil | | | |
| | | | April | Nil | | | |
| | | | May | 0.88 | | | |

Uneven land.

Gangetic plain; more or less flat.
STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

UTTAR PARDESH (Contd.)

<table>
<thead>
<tr>
<th>Soil type</th>
<th>Depth</th>
<th>Colour</th>
<th>Structure</th>
<th>Other Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loam</td>
<td>Deep</td>
<td>Typical</td>
<td>Loam</td>
<td>N.A.</td>
</tr>
<tr>
<td>Kabar and Parwa</td>
<td>15'</td>
<td>Light black and brown</td>
<td>Sticky nature, hard when dry and cracks in dry weather</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. Bulandshahr: Govt. Cotton Research Station (1944) 2 miles from Bulandshahr Railway Station.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat and Cotton. It represents the alluvial tract of western U.P.</td>
</tr>
<tr>
<td>Soil type: Loam</td>
</tr>
<tr>
<td>Depth: Deep</td>
</tr>
<tr>
<td>Colour: Typical Gangetic alluvium</td>
</tr>
<tr>
<td>Structure: Loam</td>
</tr>
<tr>
<td>Other Details: N.A.</td>
</tr>
<tr>
<td>Irrigation by tube-well and also by the Ganges canal.</td>
</tr>
<tr>
<td>June 0.78</td>
</tr>
<tr>
<td>July 8.54</td>
</tr>
<tr>
<td>Aug. 8.89</td>
</tr>
<tr>
<td>Sept. 6.39</td>
</tr>
<tr>
<td>Oct. 3.44</td>
</tr>
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<td>Nov. 0.15</td>
</tr>
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<td>Dec. 0.07</td>
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<tr>
<td>Jan. 0.99</td>
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<tr>
<td>Feb. 0.26</td>
</tr>
<tr>
<td>March 0.63</td>
</tr>
<tr>
<td>April 0.18</td>
</tr>
<tr>
<td>May 0.22</td>
</tr>
<tr>
<td>Average 2.545</td>
</tr>
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</table>

<table>
<thead>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Soil type: Kabar and Parwa</td>
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<tr>
<td>Depth: 15'</td>
</tr>
<tr>
<td>Colour: Light black and brown</td>
</tr>
<tr>
<td>Structure: Sticky nature, hard when dry and cracks in dry weather.</td>
</tr>
<tr>
<td>Other Details: N.A.</td>
</tr>
<tr>
<td>Pumping plant fixed in a well.</td>
</tr>
<tr>
<td>June 0.5</td>
</tr>
<tr>
<td>July 8.0</td>
</tr>
<tr>
<td>Aug. 11.0</td>
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<tr>
<td>Sept. 8.0</td>
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<tr>
<td>Oct. 0.5</td>
</tr>
<tr>
<td>Nov. Nil</td>
</tr>
<tr>
<td>Dec. 0.5</td>
</tr>
<tr>
<td>Jan. 1.5</td>
</tr>
<tr>
<td>Feb. Nil</td>
</tr>
<tr>
<td>March Nil</td>
</tr>
<tr>
<td>April Nil</td>
</tr>
<tr>
<td>May Nil</td>
</tr>
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</table>
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

**UTTAR PARDESH (Contd.)**

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<tr>
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<th>17. Chaubhatta : (Distt. Almora)</th>
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<tbody>
<tr>
<td></td>
<td>Perennial Hilly tract.</td>
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<tr>
<td></td>
<td>Govt. Hill Fruit Research Station.</td>
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<tr>
<td></td>
<td>N.A.</td>
<td></td>
<td>June</td>
<td>3.73</td>
<td>Natural precipitation.</td>
<td>N.A.</td>
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<td></td>
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<td>July</td>
<td>19.48</td>
<td>Peach</td>
<td>1</td>
<td>Hilly tract</td>
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<td></td>
<td></td>
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<td>Aug.</td>
<td>6.48</td>
<td>Apple</td>
<td>37</td>
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<td></td>
<td></td>
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<td>Sept.</td>
<td>7.61</td>
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<tr>
<td></td>
<td></td>
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<td>Oct.</td>
<td>6.70</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
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<td>Dec.</td>
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<tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>March</td>
<td>3.34</td>
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<table>
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<tr>
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<tbody>
<tr>
<td></td>
<td>Reclamation Farm.</td>
<td></td>
<td>N.A.</td>
<td>Saline alkaline above—7.8</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Paddy</td>
<td>N.A.</td>
</tr>
<tr>
<td></td>
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<td>pH value above —7.8</td>
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<tr>
<td></td>
<td>Wheat, Barley Sugarcane</td>
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<td>Soil type : Loam</td>
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</tr>
<tr>
<td></td>
<td>Cotton, Paddy, Potato</td>
<td></td>
<td>Colour : Light brown.</td>
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<td></td>
<td>June</td>
<td>0.19</td>
<td>Canal</td>
<td>Maize</td>
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<td>Wheat</td>
<td>11</td>
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<td>12.17</td>
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<td>Nov.</td>
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<tr>
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<td></td>
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<td></td>
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<td></td>
<td>Feb.</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>March</td>
<td>1.65</td>
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<tr>
<td></td>
<td>April</td>
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<tr>
<td></td>
<td>May</td>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>7</td>
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<tr>
<td></td>
<td></td>
<td>Colour : White brown.</td>
<td>July 11.46</td>
<td></td>
<td>Wheat — 8</td>
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<tr>
<td></td>
<td></td>
<td>Depth : 6&quot; (brown colour sub soil after 6&quot;). The soil becomes hard when dried and very loose with moisture. Other details N.A.</td>
<td>Aug. 13.40</td>
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<td>Paddy — 5</td>
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<td>Sept. 7.04</td>
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<td>Mixed — 2</td>
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<td>Oct. 1.85</td>
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<td>Total — 20</td>
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<td>Nov. Nil</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dec. 0.21</td>
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<td></td>
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<td>Jan. 1.35</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Feb. 0.05</td>
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<td>March 0.64</td>
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<td></td>
<td></td>
<td></td>
<td>May 1.11</td>
<td></td>
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</tr>
</tbody>
</table>

|  |  | Depth : N.A. | July 7.56 |  | Potato — 31 |
|  |  | Colour : Light brown. | Aug. 11.05 |  |  |
|  |  | Structure : Granular. | Sept. 5.52 |  |  |
|  |  | Other details : N.A. | Oct. Nil |  |  |
|  |  |  | Nov. Nil |  |  |
|  |  |  | Dec. 0.50 |  |  |
|  |  |  | Jan. 1.61 |  |  |
|  |  |  | Feb. Nil |  |  |
|  |  |  | March Nil |  |  |
|  |  |  | April Nil |  |  |
|  |  |  | May 1.67 |  |  |
|  |  |  |  |  | Total — 32 |
|  |  |  |  |  |  |
|  |  | Total 28.31 |  |  |  |
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

#### UTTAR PRADESH (Contd)

<table>
<thead>
<tr>
<th>No.</th>
<th>District</th>
<th>Soil Type</th>
<th>Soil Depth</th>
<th>Soil Colour</th>
<th>Chemical Analysis</th>
<th>Mechanical Analysis</th>
<th>Crops</th>
<th>Water Source</th>
<th>Irrigation Facilities</th>
<th>Other Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
<td>Ghazipur: Regional Training Institute</td>
<td>Alluvial</td>
<td>Fairly deep</td>
<td>Varies from ash grey to brownish yellow</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Rabi crops—cereals, pulses and fodder. Only fodder crops are taken in kharif.</td>
<td>Open wells, pond and tubewell. No. facilities for adequate irrigation during the dry months.</td>
<td>Tubewell from 1958.</td>
<td>More than 1/2 area is level. About 1/2 in the north-west end of the farm is sloping gently. A contour map shows 3’ difference between highest and lowest locations. No proper drainage system.</td>
</tr>
<tr>
<td>23.</td>
<td>Gograghat: (Distt. Bahraich) Jute Seed Demonstration and Experimental Farm</td>
<td>Sandy loam</td>
<td>6”-10”</td>
<td>Light yellow</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Jowar</td>
<td>Open wells, pond and tubewell. No. facilities for adequate irrigation during the dry months.</td>
<td>Tubewell from 1958.</td>
<td>Irrigation facilities are available in part of the farm from the year 1958-59.</td>
</tr>
</tbody>
</table>

The figures are based on 1948 to 1961 data.

---

**Note:**
- **Rabi crops:** cereals, pulses and fodder.
- **Kharif crops:** only fodder crops are taken.
- **Soil types:** Alluvial, Sandy loam.
- **Depth:** Fairly deep, 6”-10”.
- **Colour:** Varies from ash grey to brownish yellow, Light yellow.
- **Structure:** Granular to block, Sandy loam beneath the layer of coarse sand.
- **Chemical analysis:** N.A.
- **Mechanical analysis:** N.A.
- **Irrigation facilities:** Open wells, pond and tubewell. No. facilities for adequate irrigation during the dry months.
- **Total irrigation facilities:** Tubewell from 1958.
- **Water sources:** Open wells, pond and tubewell. No. facilities for adequate irrigation during the dry months.
- **Other details:** No proper drainage system.
<table>
<thead>
<tr>
<th>No.</th>
<th>Station Details</th>
<th>Soil Type</th>
<th>Depth</th>
<th>Colour</th>
<th>Structure</th>
<th>Other Details</th>
<th>Water Source</th>
<th>Crop</th>
<th>Remarks</th>
</tr>
</thead>
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<tr>
<td>25.</td>
<td>Hardoi: Govt. Agri. Farm.</td>
<td>N.A.</td>
<td>N.A.</td>
<td></td>
<td></td>
<td></td>
<td>Tube well and canal irrigation.</td>
<td>Maize</td>
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<td></td>
<td></td>
<td></td>
<td>Wheat</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Mixed</td>
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<td></td>
<td></td>
<td></td>
<td>Total</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>The levels of different plots are different but individual plots are some what levelled.</td>
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### Statement Showing Details of Experimental Stations

**Uttar Pradesh (Contd.)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Station</th>
<th>Type</th>
<th>Soil Type</th>
<th>Depth</th>
<th>Colour</th>
<th>Structure</th>
<th>Details</th>
<th>Crops</th>
<th>Yield (Bushels)</th>
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<tbody>
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<td></td>
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<td></td>
<td></td>
<td>Paddy -2</td>
<td>N.A.</td>
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### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

**UTTAR PRADESH (Contd.)**

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<td></td>
<td></td>
<td>Total</td>
<td>56</td>
</tr>
</tbody>
</table>

|     | (ii) Govt. Dairy Farm. |   |   |   |   | Jowar | 3 |
|     |   |   |   |   |   | Potato | 4 |
|     |   |   |   |   |   | Onion | 1 |
|     |   |   |   |   |   | Pea | 1 |
|     |   |   |   |   |   | Tomato | 1 |
|     |   |   |   |   |   | Radish | 1 |
|     |   |   |   |   |   | Citrus | 1 |
|     |   |   |   |   |   | Mango | 3 |
|     |   |   |   |   |   |   |   |
|     |   |   |   |   |   | Total | 20 |
### Statement Showing Details of Experimental Stations

**Uttar Pradesh (Contd.)**

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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wheat —82</td>
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<table>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Nitrogen</td>
<td>— 0.061%</td>
<td>July — 6.47</td>
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<tr>
<td></td>
<td></td>
<td>P2O5</td>
<td>— 0.120%</td>
<td>Aug. — 9.72</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Soil pH</td>
<td>— 7.3</td>
<td>Sept. — 3.99</td>
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<tr>
<td></td>
<td></td>
<td>Mechanical Analysis Clay</td>
<td>— 12.25%</td>
<td>Oct. — 3.63</td>
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</tr>
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<td></td>
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<td>Silt</td>
<td>— 21.14%</td>
<td>Nov. Nil</td>
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<td></td>
<td></td>
<td>Fine sand</td>
<td>— 61.36%</td>
<td>Dec. — 0.16</td>
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<td></td>
<td></td>
<td>Coarse sand</td>
<td>— 0.63%</td>
<td>Jan. — 0.76</td>
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<td></td>
<td></td>
<td>June —2.18</td>
<td>March Nil</td>
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<td>July — 6.47</td>
<td>April Nil</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>Aug. — 9.72</td>
<td>May — 0.60</td>
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<td>Total —16</td>
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</table>

- Jowar —82
- Barley —27
- Potato —42
- Sanad — 5
- Til — 2
- Bajra — 3
- Maize — 1
- Moong — 3
- Mustard — 1
- Groundnut — 10

Total —179

**About 10 acres of area is low land, the rest is levelled.**

- The farm is bench terraced except some sloping plots.
<table>
<thead>
<tr>
<th>No.</th>
<th>Station</th>
<th>Year of Establishment</th>
<th>Crops</th>
<th>Soil Description</th>
<th>Details</th>
<th>Irrigation Facilities</th>
<th>Crops</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>33</td>
<td>Kausani: (Distt. Almora) Potato Sub-Station</td>
<td>1949</td>
<td>Paddy, Small Millets, Potato and Wheat</td>
<td>Brown forest soil of the hills. Other details—N.A.</td>
<td>N.A.</td>
<td>Nil</td>
<td>Potato</td>
<td>-17</td>
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<tr>
<td>34</td>
<td>Kunraghat: (Distt. Gorakhpur) Rice Research Sub-Station (1939-40)</td>
<td></td>
<td>Paddy and Barley, Low land</td>
<td>Alluvial soil with sandy texture and free drainage Type III.</td>
<td>June 6.58</td>
<td>Hydro-electric tubewell</td>
<td>Paddy</td>
<td>-35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Depth: Surface—Sandy loam upto 20'</td>
<td>July 12.73</td>
<td>Irrigation facilities</td>
<td>Mixed</td>
<td>-5</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Colour: Yellowish. Brown to greyish brown.</td>
<td>Aug. 12.77</td>
<td>are available from</td>
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<td>Other details: N.A.</td>
<td>Sept. 9.61</td>
<td>1957.</td>
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<td>Nov. 0.36</td>
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<td></td>
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<td>Dec. 0.14</td>
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<td>Jan. 0.78</td>
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<td>Feb. 0.40</td>
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<td>March 0.27</td>
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<td>April 0.06</td>
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<td></td>
<td></td>
<td></td>
<td>May 1.33</td>
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<td></td>
<td></td>
<td>Leached calcium soil with pH of about 6.5.</td>
<td>July 12.73</td>
<td></td>
<td>Jowar</td>
<td>-3</td>
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<td>Depth: 20'</td>
<td>Aug. 12.77</td>
<td></td>
<td>Barley</td>
<td>-1</td>
</tr>
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<td>Colour: Greyish brown</td>
<td>Sept. 9.51</td>
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<td>Sugarcane</td>
<td>-30</td>
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<td>Other details: N.A.</td>
<td>Oct. 3.02</td>
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<td>Nov. 0.36</td>
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<td>Dec. 0.14</td>
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<td></td>
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<td>Feb. 0.40</td>
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<td>March 0.27</td>
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<td>May 1.33</td>
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### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

**UTTAR PRADESH (Contd.)**

<table>
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<tr>
<th>36. Lucknow: Crop physiological Research Station (1948)</th>
<th>37. Lucknow: Govt. Vegetable Research Station Alambagh Year of Establishment 1943,</th>
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<tbody>
<tr>
<td>Paddy, Maize, <em>Jowar</em> Wheat, Barley. Gangetic Alluvial.</td>
<td>Vegetable with legumes for Green manuring and Paddy in the low lying fields. It represents the tract known as the Gangetic Plain (<em>Duab</em>).</td>
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<tr>
<td>June 4.46 Well</td>
<td>N.A. There were three tube-wells. (Only two of which were in working order). The facilities were available from 1949.</td>
</tr>
<tr>
<td>July 12.00</td>
<td>Onion — 13 Well drained and levelled farm.</td>
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<td>Aug. 11.50</td>
<td>Cauliflower — 3</td>
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<td>Sept. 7.40</td>
<td>Tomato — 2</td>
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<td>Oct. 1.28</td>
<td>Colocasia — 1</td>
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<td>Nov. 0.22</td>
<td>Garlic — 4</td>
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<td>Dec. 0.32</td>
<td>Pumpkin — 3</td>
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<td>Jan. 0.76</td>
<td><em>Bhindi</em> — 3</td>
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<td>Feb. 0.72</td>
<td>Peas — 1</td>
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<td>March 0.34</td>
<td>Brinjal — 4</td>
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<td>April 0.25</td>
<td>Total — 35</td>
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<td>May 0.77</td>
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Formerly the experimental area was uneven having rolling topography with slopy land, with the levelling up of the farm, the fields are now even and uniform though the experimental area is in different tiers.
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

**Uttar Pradesh (Contd.)**

<table>
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<tr>
<th>No.</th>
<th>Station</th>
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<th>N.A.</th>
<th>Wheat</th>
<th>Cropping</th>
<th>Citrus</th>
<th>Guava</th>
<th>Mango</th>
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<tr>
<td>38</td>
<td>Lucknow: National Botanical Garden</td>
<td>N.A.</td>
<td>N.A.</td>
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<td>of Establishment: 1953.</td>
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<tr>
<td></td>
<td>Gangotri Plain Alluvial Soil.</td>
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<thead>
<tr>
<th>No.</th>
<th>Station</th>
<th>N.A.</th>
<th>N.A.</th>
<th>N.A.</th>
<th>Wheat</th>
<th>Cropping</th>
<th>Citrus</th>
<th>Guava</th>
<th>Mango</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Matkota : P.O. Rudrapur Distt. Nainital, Tarai State Farm Western Block (1948)</td>
<td>N.A.</td>
<td>Clay loam.</td>
<td>Loam highly calcareous.</td>
<td>June. 8.04</td>
<td>Tube-well and river irrigate a very small area and most of the area is unirrigated.</td>
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<td></td>
<td>N.A.</td>
<td>Loam slightly calcareous.</td>
<td>July. 12.81</td>
<td>Wheat -6</td>
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<td>Jowar -1</td>
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<td></td>
<td>N.A.</td>
<td>Sandy loam.</td>
<td>Aug. 15.38</td>
<td>Cropping -1</td>
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<td>Paddy -2</td>
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<td></td>
<td>N.A.</td>
<td>Depth: 9&quot; to 12&quot;.</td>
<td>Sept. 19.01</td>
<td></td>
<td>Tubewells were bored in 1951-52.</td>
<td>Total -9</td>
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<td>N.A.</td>
<td>Colour: Dark Grey and Dark Brown.</td>
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<td>May 0.64</td>
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## TYPE IV LOAM SOIL

### Depth

<table>
<thead>
<tr>
<th>Depth</th>
<th>0-9'</th>
<th>9'-18'</th>
<th>18'-42'</th>
<th>42'-60'</th>
<th>60'-66'</th>
<th>66'-75'</th>
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</thead>
</table>

### A—MECHANICAL COMPOSITION (AIR DRY BASIS)

<table>
<thead>
<tr>
<th>土层</th>
<th>颗粒组成百分比</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse sand percent</td>
<td>12.76</td>
</tr>
<tr>
<td>Fine sand percent</td>
<td>59.38</td>
</tr>
<tr>
<td>Silt percent</td>
<td>14.37</td>
</tr>
<tr>
<td>Clay percent</td>
<td>11.21</td>
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</table>

### C—CHEMICAL CONSTITUENTS (AIR DRY BASIS)

<table>
<thead>
<tr>
<th>指标</th>
<th>0'-9'</th>
<th>9'-18'</th>
<th>18'-42'</th>
<th>42'-60'</th>
<th>60'-66'</th>
<th>66'-75'</th>
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</thead>
<tbody>
<tr>
<td>Moisture percent</td>
<td>0.41</td>
<td>0.84</td>
<td>0.88</td>
<td>0.90</td>
<td>0.69</td>
<td>0.62</td>
</tr>
<tr>
<td>Loss on ignition percent</td>
<td>1.35</td>
<td>2.98</td>
<td>3.60</td>
<td>2.78</td>
<td>3.19</td>
<td>3.11</td>
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<tr>
<td>HCl in solubles percent</td>
<td>88.65</td>
<td>82.46</td>
<td>80.22</td>
<td>79.74</td>
<td>80.25</td>
<td>80.94</td>
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<tr>
<td>HCl solubles silica percent</td>
<td>1.05</td>
<td>1.23</td>
<td>1.28</td>
<td>1.24</td>
<td>1.22</td>
<td>1.27</td>
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<tr>
<td>R₂O₃ percent</td>
<td>6.67</td>
<td>11.46</td>
<td>12.39</td>
<td>13.44</td>
<td>12.76</td>
<td>11.58</td>
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<tr>
<td>Al₂O₃ percent</td>
<td>3.87</td>
<td>7.38</td>
<td>7.99</td>
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<td>Fe₂O₃ percent</td>
<td>2.80</td>
<td>4.08</td>
<td>4.40</td>
<td>4.64</td>
<td>4.80</td>
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<tr>
<td>CaO percent</td>
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<td>0.50</td>
<td>0.48</td>
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<tr>
<td>MgO</td>
<td>0.87</td>
<td>1.09</td>
<td>0.87</td>
<td>0.75</td>
<td>1.21</td>
<td>0.62</td>
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<tr>
<td>K₂O percent</td>
<td>0.33</td>
<td>0.40</td>
<td>0.42</td>
<td>0.49</td>
<td>0.45</td>
<td>0.39</td>
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<tr>
<td>P₂O₅ percent</td>
<td>0.04</td>
<td>0.02</td>
<td>0.04</td>
<td>0.10</td>
<td>0.08</td>
<td>0.05</td>
</tr>
<tr>
<td>Nitrogen percent</td>
<td>0.04</td>
<td>0.03</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>Carbon percent</td>
<td>0.34</td>
<td>0.29</td>
<td>0.25</td>
<td>0.16</td>
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### TYPE IV CLAY LOAM SOIL

### Depth

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<th>Depth</th>
<th>0'-7'</th>
<th>7'-20'</th>
<th>20'-28'</th>
<th>28'-32'</th>
<th>32'-51'</th>
<th>51'-72'</th>
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### A—MECHANICAL COMPOSITION (AIR DRY BASIS)

<table>
<thead>
<tr>
<th>土层</th>
<th>颗粒组成百分比</th>
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</thead>
<tbody>
<tr>
<td>Coarse sand percent</td>
<td>3.02</td>
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<tr>
<td>Fine sand percent</td>
<td>47.59</td>
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<tr>
<td>Silt percent</td>
<td>32.40</td>
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<td>Clay percent</td>
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### C—CHEMICAL CONSTITUENTS (AIR DRY BASIS)

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<tr>
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<th>1.04</th>
<th>1.46</th>
<th>1.52</th>
<th>1.34</th>
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<tbody>
<tr>
<td>Moisture percent</td>
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<td>4.49</td>
<td>4.21</td>
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<tr>
<td>Loss on ignition percent</td>
<td>82.57</td>
<td>74.79</td>
<td>75.97</td>
<td>72.70</td>
<td>71.26</td>
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<tr>
<td>HCl in solubles percent</td>
<td>9.91</td>
<td>1.06</td>
<td>0.90</td>
<td>0.98</td>
<td>0.96</td>
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<td>HCl soluble silica percent</td>
<td>11.88</td>
<td>18.14</td>
<td>16.69</td>
<td>18.65</td>
<td>21.23</td>
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<td>R₂O₃ percent</td>
<td>8.04</td>
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<td>11.29</td>
<td>11.93</td>
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<td>Al₂O₃ percent</td>
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<td>4.80</td>
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<td>Fe₂O₃ percent</td>
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<td>0.56</td>
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<td>0.68</td>
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<td>MgO</td>
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<td>0.65</td>
<td>0.87</td>
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<td>K₂O percent</td>
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<tr>
<td>Carbon percent</td>
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<td>0.38</td>
<td>0.33</td>
<td>0.24</td>
<td>0.22</td>
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### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

**UTTAR PARDESH (Contd.)**

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<td>May 0.87</td>
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| 43. Nawabganj: (Distt. Bareilly) Paddy, Sugarcane. Govt. Agri. Farm. Sub-Tarai region of the Rohelkhand division. | Locally known as Matijar. It is classified as Bareilly Type III. Profile development : mature. Texture—Clay loam with high clay percent. Structure : Cloddy Concretions—Small Iron nodules. pH—6.8 to 6.6. The water holding capacity ranges from 35 to 50% having highest capacity in between 18" to 30" depth. Other details (i.e. Chemical and Mechanical Analysis)—N.A. | June. 4.23 | Lift Irrigation from the river, [also canal irrigation. | Wheat—2 | — |
| | | July. 3.31 | | Sugarcane—2 | | |
| | | Aug. 12.11 | | Paddy—9 | | |
| | | Sept. 7.72 | | | | |
| | | Oct. 1.83 | | | | |
| | | Nov. 0.09 | | | | |
| | | Dec. 0.39 | | | | |
| | | Jan. 1.17 | | | | |
| | | Feb. 1.20 | | | | |
| | | March 0.46 | | | | |
| | | April 0.22 | | | | |
| | | May 0.88 | | | | |

The experimental area is low lying and gets water logged during monsoon.
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS
#### UTTAR PRADESH (Contd.)

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<tr>
<th>No.</th>
<th>Station Details</th>
<th>Crop Details</th>
<th>Soil Details</th>
<th>Water Source</th>
<th>Yield (in Tons)</th>
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<td></td>
<td>Year of establishment 1951—52.</td>
<td>Sandy Soil.</td>
<td>June 2.13</td>
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<td>25 acre area of land was set apart for experimental purposes. This land is situated in the Khadar tract of river Ganga which flows just on the north eastern boundary of the Neoli Farm.</td>
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<tr>
<td>45.</td>
<td>Pachperwa. (Distt. Gonda) Late Paddy Research Sub-station.</td>
<td>N.A. It represents late paddy growing tract. Light loam to loam. Other details N.A.</td>
<td>N.A.</td>
<td>Canal Irrigation</td>
<td>Paddy - 22</td>
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<td>Year of establishment: 1949.</td>
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<td>STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS</td>
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<td>UTTAR PRADESH (Contd.)</td>
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</tr>
</tbody>
</table>

47. Phoolbagh Tehsil Kichha (Kam) Distt. Nainital
Tarai State Farm Central Block. Year of establishment 1950-51.

It represents Tarai area.

| There are broadly six types of soils: | June 4.31 | Irrigation facilities are limited. There are only five artisons and two tube-wells on the farm. The cultivation depends on rain fall only. |
| (i) Clay loam. | July 18.22 |
| (ii) Loam. | Aug 7.45 |
| (iii) Loam, highly calcareous. | Sept 22.31 |
| (iv) Slightly calcareous. | Oct 6.53 |
| (v) Sandy loam. | Nov 0.40 |
| (vi) Sandy. | Dec 0.68 |
| Depth—18”. | Jan 0.33 |
| Colour—Brownish black. | Feb 0.04 |
| Structure—The sandy soil is loose structured and other soils are sticky. Soil particles are fine, have got the capacity of retaining fertility. | March 0.19 |
| | April 0.65 |
| | May Nil |
| Chemical analysis: Soils are deficient in N, P₂O₅ and K₂O. | These figures are based on period 1958-59. |
| Mechanical analysis:—N.A. |


Paddy, Maize, Jowar, Barley and Potato. Medium to light textured alluvial soils.

Alluvial (Gangetic).

| Depth—Very deep. | June 3.66 | N.A. |
| Colour—Groshish brown to dark brown. | July 10.51 |
| Structure—Single grained. | Aug 10.37 |
| Chemical analysis—Surface | Sept 5.85 |
| CaO | Oct 1.07 |
| Total N | Nov 0.16 |
| Org. C | Dec 0.36 |
| pH. | |
| 1.0% | |
| 0.065% | |
| 0.40% | |
| 7.8 | |
| Mechanical analysis: | |
| Sand | June 0.64 |
| Clay | July 0.40 |
| Silt | Aug 0.40 |
| 60% | Sept 0.31 |
| 15% | Oct 0.18 |
| 25% | Nov 0.30 |
| These figures are based on period 1958-59. | Dec 0.38 |

Most of the area is levelled except for some plots adjacent to road which have a slope of 2° to 3°.

| Wheat—1 | N.A. |
| Paddy—7 | Jowar—1 |
| Jowar—2 | Wheat—2 |
| Barley—1 | Gram—1 |
| Gram—1 | Total—12 |

| Total —12 | }
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

#### UTTAR PRADESH (Contd.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Station</th>
<th>District</th>
<th>Type</th>
<th>Year of Establishment</th>
<th>Soil Type</th>
<th>Chemical Analysis</th>
<th>Mechanical Analysis</th>
<th>Lift Irrigation</th>
<th>Crops</th>
<th>Topography</th>
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<tbody>
<tr>
<td>49</td>
<td>Ramgarh</td>
<td>Distt. Nainital</td>
<td>Govt. Hill Fruit Research Station</td>
<td>N.A</td>
<td>N.A</td>
<td>N.A</td>
<td>N.A</td>
<td>Peach</td>
<td>N.A</td>
<td>Orchard areas on terraced slopes. Note: There is no Hill Fruit Research Station at Ramgarh, but experiments of Hill Fruit Research Station at Chaubhättia (Distt. Almora) are often conducted there in private orchards. This station has now been abolished. It was financed by I.C.A.R. for 5 years only.</td>
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### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

**UTTAR PRADESH (Contd.)**

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<th>7</th>
<th>8</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Depth: 4&quot; to 5&quot;.</td>
<td>July</td>
<td>13.62</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Colour: Blackish to light reddish.</td>
<td>Aug.</td>
<td>13.11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Structure: Light, granular and heavy granular.</td>
<td>Sept.</td>
<td>6.36</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Other details - N.A.</td>
<td>Oct.</td>
<td>1.19</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nov.</td>
<td>0.11</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Dec.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Jan.</td>
<td>1.20</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Feb.</td>
<td>0.22</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>March</td>
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<td>April</td>
<td>0.07</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>May</td>
<td>0.11</td>
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| **52. Shahjahanpur:** Main Sugarcane Research Station. | Wheat, Barley and Sugarcane. Central tract of U P. typical of the white sugar belt of North India. | Soil type: Type 3 - Old Alluvium uplands. | June | 4.5 | Canal and tube well irrigation. | Sugarcane—86 | In general there are uplands with even surface except in three blocks where there are slight slopes. |
| | | Depth: 200' (approx.). | July | 11.1 | | | |
| | | Colour: Greyish brown. | Aug. | 12.4 | | | |
| | | Structure: Granular. | Sept. | 7.0 | | | |
| | For Mechanical and Chemical analysis of the soil please see page 46 | Oct. | 2.2 | | | |
| | | | Nov. | 0.5 | | | |
| | | | Dec. | 0.3 | | | |
| | | | Jan. | 1.1 | | | |
| | | | Feb. | 0.6 | | | |
| | | | March | 0.5 | | | |
| | | | April | 0.2 | | | |
| | | | May | 0.4 | | | |
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS
#### UTTAR PRADESH (Contd.)

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<tbody>
<tr>
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<td>July</td>
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<td></td>
<td></td>
<td></td>
<td>Aug.</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>Sept.</td>
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<td></td>
<td></td>
<td></td>
<td>Oct.</td>
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<td></td>
<td></td>
<td></td>
<td>Nov.</td>
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<td></td>
<td></td>
<td></td>
<td>Dec.</td>
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<td></td>
<td></td>
<td></td>
<td>Jan.</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>March</td>
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<td></td>
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<td>April</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>May</td>
</tr>
</tbody>
</table>

| **54.** Tissushi: (Distt. Mirzapur) Late Paddy Research Sub-Station. Year of Establishment 1949. | It represents late paddy growing tract. Normal cropping pattern—N.A. | Soil type: Loam to clayey loam. | Other details N.A. | N.A. | Canal Irrigation | Paddy | 33 | N.A. |
|   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |
### STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS

**UTTAR PRADESH** (Contd.)

<table>
<thead>
<tr>
<th>1</th>
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<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>55. Unnao</strong>&lt;br&gt;Govt. Seed Farm.&lt;br&gt;Year of Establishment 1953.</td>
<td>It represents the <em>Usar</em> tract. Major crops: Barley, Pea and Barley.</td>
<td>Depth—9&quot;</td>
<td>June</td>
<td>3.50</td>
<td>Canal and tubewell irrigation. Canal from 1953 and tubewell from 1961-62.</td>
<td>Paddy—2</td>
<td>The farm is in low lying area and there is water logging in most of the farm land. Mostly paddy crop is successful in this farm. There is proper drainage system.</td>
</tr>
<tr>
<td></td>
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<td>Colour—Clayey <em>Usar</em></td>
<td>July</td>
<td>14.05</td>
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<tr>
<td></td>
<td></td>
<td>Structure—Fine</td>
<td>Aug</td>
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<tr>
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<td>Chemical &amp; Mechanical analysis—N.A.</td>
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<tr>
<td></td>
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<td></td>
<td>Oct</td>
<td>11.91</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Nov</td>
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<td></td>
<td></td>
<td></td>
<td>Dec</td>
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<td></td>
<td>Jan</td>
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<td></td>
<td>March</td>
<td>Nil</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>April</td>
<td>0.01</td>
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<td></td>
<td></td>
<td>May</td>
<td>10.22</td>
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<tr>
<td></td>
<td></td>
<td>Average</td>
<td>43.01</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>The period</td>
<td>1960-61</td>
<td></td>
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</tbody>
</table>

| **56. Varanasi**<br>Agri. Farm.<br>Agri. College. Banaras<br>Hindu University. Year of Establishment 1923. | It represents the Gangetic Alluvium tract. Major crops—N.A. | Depth—Korizmens not distinctly formed. | June | 2.78 | Tubewell irrigation available from 1935. | Wheat—6 | Uniformly level except certain portions of the farm which are low lying and suitable for paddy cultivation. Natural drainage except in certain areas of the farm where deep ditches are provided for removing surplus and standing water. |
|  |  | Colour—Light brownish yellow. | July | 13.60 |  |  |  |
|  |  | Structure—Structureless to compact. | Aug | 9.68 |  |  |  |
|  |  | Chemical Analysis : N—0.05% | Sept | 7.62 |  |  |  |
|  |  | P_{2}O_{5}—0.05%, Org. C—0.5%, | Oct | 5.20 |  |  |  |
|  |  | K_{2}O—0.5% and CaO—0.8%, | Nov | Nil |  |  |  |
|  |  | Mechanical Analysis : Clay-20.0% | Dec | Nil |  |  |  |
|  |  | Silt-25.0%, Fine sand-35.0% and Coarse sand-15.0%. | Jan | 2.90 |  |  |  |
|  |  |  | Feb | Nil |  |  |  |
|  |  |  | March | 0.22 |  |  |  |
|  |  |  | April | 0.22 |  |  |  |
|  |  |  | May | 0.27 |  |  |  |
|  |  | Average | 42.63 |  |  |  |  |
|  |  | The period on which it is based is 1958-1959 and 1960. |  |  |  |  |  |
| 57. Varanasi: Regional Res. Stn, since 1956. Distt Varanasi. 3 miles from Varanasi Rly. Station. | It represents brown and grey alluvial soil. Major crop: Wheat. | Soil type: Banaras Type III (Brownish grey moderately drained loam soil). Depth: 0.6" to 0.5" surface soil. Colour: Brownish and Brownish grey. Structure: Crumb. Soil analysis: See page 46 | June 4.85 | July 12.76 | Aug. 9.92 | Sept. 10.41 | Oct. 1.56 | Nov. 0.04 | Dec. 0.09 | Jan. 0.59 | Feb. 0.15 | March 0.35 | April 0.02 | May 0.18 |
| | | | Average of 9 years (1950—1958). Total 40.92 |
### Analytical Data

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<td><strong>Depth</strong></td>
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<td>9&quot;—32&quot;</td>
<td>32&quot;—57&quot;</td>
<td>57&quot;—72&quot;</td>
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<td><strong>(a) Mechanical (air dry basis)</strong></td>
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<tr>
<td>Coarse sand percent</td>
<td>1.34</td>
<td>0.29</td>
<td>0.35</td>
<td>0.22</td>
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<tr>
<td>Fine sand percent</td>
<td>55.52</td>
<td>10.72</td>
<td>22.05</td>
<td>30.13</td>
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<tr>
<td>Silt percent</td>
<td>23.47</td>
<td>52.57</td>
<td>41.71</td>
<td>33.60</td>
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<tr>
<td>Clay percent</td>
<td>17.40</td>
<td>33.60</td>
<td>31.66</td>
<td>33.45</td>
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<td><strong>(b) Physical (air dry basis)</strong></td>
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<tr>
<td>Water holding capacity percent</td>
<td>42.66</td>
<td>58.30</td>
<td>54.96</td>
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<td>Moisture equivalent percent</td>
<td>22.49</td>
<td>27.13</td>
<td>24.92</td>
<td>25.39</td>
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<tr>
<td>Sticky point moisture percent</td>
<td>18.38</td>
<td>26.55</td>
<td>24.09</td>
<td>22.31</td>
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<td><strong>(c) Physico-chemical (air dry basis)</strong></td>
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<tr>
<td>Base exchange capacity percent</td>
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<tr>
<td>Exchangeable Ca^2+ m.e. percent</td>
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<td>9.00</td>
<td>6.00</td>
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<tr>
<td>Total exchangeable bases m.e. percent</td>
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<tr>
<td>pH</td>
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<td>6.20</td>
<td>6.00</td>
<td>6.00</td>
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<td><strong>(d) Chemical (air dry basis)</strong></td>
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<td>Moisture percent</td>
<td>0.67</td>
<td>1.79</td>
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<td>Loss on ignition percent</td>
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<td>3.01</td>
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<td>HCl insoluble percent</td>
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<td>R_{2}O_{3} percent</td>
<td>13.33</td>
<td>18.39</td>
<td>20.98</td>
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<td>A_{1}O_{3} percent</td>
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<td>12.67</td>
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<td>9.92</td>
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<tr>
<td>Fe_{2}O_{3} percent</td>
<td>5.24</td>
<td>5.72</td>
<td>12.76</td>
<td>6.52</td>
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<tr>
<td>CaO percent</td>
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<td>0.44</td>
<td>0.50</td>
<td>0.34</td>
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<tr>
<td>MgO percent</td>
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<td>—</td>
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<td>1.43</td>
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<td>0.21</td>
<td>0.64</td>
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<td>P_{2}O_{5} percent</td>
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<tr>
<td>Nitrogen percent</td>
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<td>Organic Carbon percent</td>
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<td>0.21</td>
<td>0.03</td>
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<td>C/N</td>
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<td>C/P</td>
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<td>0.95</td>
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### Soil Analysis from One Representative Profile of Regional Research Station, Varanasi

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<tr>
<th>Profile</th>
<th>0—9&quot;</th>
<th>9&quot;—22&quot;</th>
<th>22&quot;—33&quot;</th>
<th>33&quot;—72&quot;</th>
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<td>Moisture</td>
<td>1.46</td>
<td>1.06</td>
<td>1.28</td>
<td>1.07</td>
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<td>Loss</td>
<td>2.12</td>
<td>2.56</td>
<td>2.62</td>
<td>2.62</td>
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<td>HCl Insoluble</td>
<td>84.67</td>
<td>80.27</td>
<td>75.46</td>
<td>74.70</td>
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<tr>
<td>R_{2}O_{3} %</td>
<td>8.05</td>
<td>12.29</td>
<td>16.99</td>
<td>16.65</td>
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<tr>
<td>CaO %</td>
<td>0.28</td>
<td>0.45</td>
<td>0.45</td>
<td>0.395</td>
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<tr>
<td>MgO %</td>
<td>1.29</td>
<td>1.13</td>
<td>1.13</td>
<td>1.03</td>
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<tr>
<td>K_{2}O %</td>
<td>1.03</td>
<td>1.06</td>
<td>1.06</td>
<td>1.12</td>
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<tr>
<td>Fe_{2}O_{3} %</td>
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<td>3.68</td>
<td>3.68</td>
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<td>Al_{2}O_{3} %</td>
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<td>10.65</td>
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<td>Org. C</td>
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<td>0.025</td>
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<td>6.500</td>
</tr>
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<td>Total Water Soluble Salts</td>
<td>0.064</td>
<td>0.069</td>
<td>0.039</td>
<td>0.0570</td>
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<td>25.07</td>
<td>25.26</td>
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<td>Fine Sand</td>
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<td>34.80</td>
<td>32.46</td>
<td>40.60</td>
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<td>Silt</td>
<td>17.33</td>
<td>33.15</td>
<td>35.90</td>
<td>29.53</td>
</tr>
<tr>
<td>Clay</td>
<td>17.33</td>
<td>33.15</td>
<td>35.90</td>
<td>29.53</td>
</tr>
</tbody>
</table>
Crop:-Paddy (Kharif).

Object:-To ascertain the effect of two different Nitrogenous fertilizers on the yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Deep loam soil. (b) Refer soil analysis, Allahabad. (iii) 8,7,1953.

2. TREATMENTS:
1. A/S @ 40 lb./ac. of N.
2. Sodium Nitrate @ 40 lb./ac. of N.
3. Control.
Fertilizers were top dressed on 28.8,1953.

3. DESIGN:
(i) (a) 3. (b) 41' x 69'. (iii) 7. (iv) (a) 41' x 23'. (b) 39' x 21'. (v) 1'. ring around the net plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Dusting with gamma xene on 5,9.1953. (iii) Yield of grain and bhusa. (iv) (a) No. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) Nil. (vii) There was a gradual slope in the field from east to west. The plots in the south-eJ stern end of the layout matured earlier and yielded less than the plots in the north-western end. Experiment conducted by the Head of Agronomy Department, Allahabad Agricultural Institute, Allahabad.

5. RESULTS:
(i) 1537 lb./ac.
(ii) 287.73 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1790</td>
</tr>
<tr>
<td>2.</td>
<td>1524</td>
</tr>
<tr>
<td>3.</td>
<td>1297</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>108.7 lb./ac.</td>
</tr>
</tbody>
</table>

Crop:-Paddy (Kharif).

Site:-Govt. Agri. Farm, Atarra.

Object:-To study the residual effect of application of N and P to Paddy crop, having already studied the residual effect on previous crop Moong.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Moong T1. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 29.7,1953. (iv) (a) After turning Moong, 2 ploughings with Watts plough. (b) Transplanting. (c) --. (d) N.A. (e) N.A. (vi) Green manuring of Moong. (vii) N.A. (viii) Unirrigated. (ix) N.A. (ix) 28.10°. (x) 29, 30 and 31.10,1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N : N0=0, N1=30 and N2=60 lb./ac. 
(2) 3 levels of P2O5 : P0=0, P1=60 and P2=120 lb./ac. 
N as A/S and P2O5 as Super.
The treatments were applied in Rabi 1952-1253 to wheat crop. Then the residual effect was studied on Moong T1 crop and then the present experiment on Paddy crop.

3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 20' x 54.5'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1953-N.A. (b) N.A. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by Agril. Chemist,
5. RESULTS:
   (i) 2368 lb/ac.
   (ii) 117.20 lb/ac.
   (iii) Main effects of N and P are highly significant. Interaction N x P is not significant.
   (iv) Av. yield of paddy in lb/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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<td>2308</td>
<td>2591</td>
<td>2731</td>
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</tr>
<tr>
<td>Mean</td>
<td>2187</td>
<td>2369</td>
<td>2549</td>
<td>2368</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 27.63 lb/ac.
S.E. of body of table = 47.85 lb/ac.

---

Crop: Paddy (Khariff).
Site: Govt. Agri. Farm, Atarra.
Object: To study the effect of N and P applied alone and in combination on the yield and quality of Paddy crop.

1. BASAL CONDITIONS:
   (i) N.A. (b) Gram. (c) Nil. (ii) (a) Parwa, (b) N.A. (iii) 11 to 13.8.1953. (iv) (a) 4 ploughings with watts plough, including hot weather cultivation and 2 ploughings with watts plough at the time of transplanting. (b) Transplanted in lines. (c) —. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 24.07. (x) 25.26 and 27.11.1953.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀ = 0, N₁ = 30 and N₂ = 60 lb/ac.
   (2) 3 levels of P₂O₅ : P₀ = 0, P₁ = 60 and P₂ = 120 lb/ac.
   N as A/S applied on 14.8.1953 and P₂O₅ as Super applied on 8.7.1953. A/S broadcasted and placed in 4' deep bunds (furrow opened by either a victory or U.P. plough or even two desi ploughs one behind the other in the same furrow).

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 33' x 33'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Poor growth was observed in some plots which were on higher level and irrigation water could not reach properly. (ii) N.A. (iii) Yield of grain and straw. (iv) (a) and (b) N.A. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Experiment conducted by Agril. Chemist.

5. RESULTS:
   (i) 2201 lb/ac.
   (ii) 230.83 lb/ac.
   (iii) Main effects of N and P are highly significant, interaction N x P is not significant.
   (iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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<td>1997</td>
<td>2143</td>
<td>1992</td>
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</tr>
<tr>
<td>Mean</td>
<td>2029</td>
<td>2206</td>
<td>2370</td>
<td>2201</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 54.41 lb/ac.
S.E. of body of table = 94.24 lb/ac.

Ref: U.P. 53(344).
Object: To find the response of Paddy to application of nitrogen, phosphate and calcium.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Barley. (c) N.A. (ii) (a) Light kabar. (b) N.A. (iii) 5.6.1950/14.8.1950. (iv) (a) 4 ploughings with Watts plough. (b) Transplanted. (c) —. (d) and (e) N.A. (v) N.A. (vi) T.36 (late). (vii) Irrigated. (viii) Nil. (x) 58.16". (x) 26 to 28.11.1950.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
   (2) 3 levels of \( P_2O_5 \): \( P_0 = 0, P_1 = 20 \) and \( P_2 = 40 \) lb./ac.
   (3) 3 levels of Ca: \( C_0 = 0, C_1 = 30 \) and \( C_2 = 60 \) lb./ac.

3. DESIGN:
   (i) 3\(^8\) partially confounded. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 18\(\times\)42'. (b) 12\(\times\)36'. (v) 3' around the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) Yield of Paddy. (iv) (a) 1950—1953. (b) No. (c) N.A. (v) (a) Banaras, Tisui (Mirzapur), Bharari (Jhansi), Pachperwa (Gonda), Nawabgunj (Bareilly) and Nagina (Bijnore). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 240.5 lb./ac.
   (ii) 110.4 lb./ac.
   (iii) Main effect of N and interaction P x C are highly significant. Y component of NPC interaction is significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( C_0 )</th>
<th>( C_1 )</th>
<th>( C_2 )</th>
</tr>
</thead>
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<td>1400</td>
<td>1599</td>
<td>1419</td>
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<td>1387</td>
</tr>
<tr>
<td>( N_1 )</td>
<td>2260</td>
<td>2696</td>
<td>2441</td>
<td>2466</td>
<td>2355</td>
<td>2519</td>
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<tr>
<td>( N_2 )</td>
<td>3353</td>
<td>3215</td>
<td>3420</td>
<td>3329</td>
<td>3329</td>
<td>3349</td>
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<tr>
<td>Mean</td>
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<td>2486</td>
<td>2405</td>
<td>2360</td>
<td>2418</td>
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<td>( C_0 )</td>
<td>2247</td>
<td>2333</td>
<td>2499</td>
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<td></td>
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<td>( C_1 )</td>
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<td>2519</td>
<td>2467</td>
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<tr>
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</tbody>
</table>

S.E. of any marginal mean = 26.03 lb./ac.
S.E. of body of table = 45.07 lb./ac.

---

Crop :- Paddy (Kharif).  
Site :- Govt. Agri. Farm, Atarra.

Object: To find the response of Paddy to application of nitrogen, phosphate and calcium.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Kabar. (b) N.A. (iii) 28.6.1951/12.8.1951. (iv) (a) N.A (b) Transplanting. (c) —. (d) and (e) N.A. (v) N.A. (vi) T.36. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. **TREATMENTS:**

All combinations of (1), (2) and (3)

(I) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.

(2) 3 levels of \( P_2o_5 \): \( P_0 = 0, P_1 = 20 \) and \( P_2 = 40 \) lb./ac.

(3) 3 levels of Ca: \( C_0 = 0, C_1 = 30 \) and \( C_2 = 60 \) lb./ac.

3. **DESIGN:**

(i) 3 Confounded Fact. (ii) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 18'x42' (b) 12'x36'. (v) 3' around the net plot. (vi) Yes.

4. **GENERAL:**

(i) No lodging, good. (ii) Nil. (iii) Grain yield. (iv) (a) 1950-53. (b) and (c) No. (v) (a) Nagina, Tsuhi (Mirzapur), Bharari (Hariji), Pachperwa (Gonda), Faizabad and Nawatganj (Bareilly). (b) Nil. (vi) Nil. (vii) The expt. was conducted by C.P.

5. **RESULTS:**

(i) 2357 lb./ac.

(ii) 178.42 lb./ac.

(iii) Main effects of N, P and X component of NPC interaction are highly significant. W component of NPC interaction is significant. Other effects and interactions are not significant.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>Mean</th>
<th>( C_0 )</th>
<th>( C_1 )</th>
<th>( C_2 )</th>
</tr>
</thead>
<tbody>
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<td>( N_0 )</td>
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<td>1376</td>
<td>1575</td>
<td>1387</td>
<td>1359</td>
<td>13/2</td>
<td>1400</td>
</tr>
<tr>
<td>( N_1 )</td>
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<td>2446</td>
<td>2388</td>
<td>2143</td>
<td>2506</td>
<td>2515</td>
</tr>
<tr>
<td>( N_2 )</td>
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<td>3295</td>
<td>3271</td>
<td>3345</td>
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</tr>
<tr>
<td>Mean</td>
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<td>2468</td>
<td>2357</td>
<td>2268</td>
<td>2408</td>
<td>2394</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 42.06 lb./ac.

S.E. of body of table = 72.84 lb./ac.

_Crop:_ Paddy (*Kharij*).

_Site:_ Govt. Agri. Farm, Atarra.

_Ref:_ U.P. 52(322).

_Type:_ 'M'.

Object: _To find the response of Paddy to application of nitrogen, phosphate and calcium._

1. **BASAL CONDITIONS:**

(i) (a) Paddy—Pea. (b) Pea. (c) N.A. (ii) (a) Light *Kabar*. (b) N.A. (iii) 23.6.1952/25.7.1952. (iv) (a) N.A. (b) Transplanted. (c) —. (d) and (e) N.A. (v) Nili. (vi) T. 36 (late). (vii) N.A. (viii) N.A. (ix) 49.18'. (x) N.A.

2. **TREATMENTS:**

All combinations of (1), (2) and (3)

(I) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.

(2) 3 levels of \( P_2o_5 \): \( P_0 = 0, P_1 = 20 \) and \( P_2 = 40 \) lb./ac.

(3) 3 levels of Ca: \( C_0 = 0, C_1 = 30 \) and \( C_2 = 60 \) lb./ac.

N as A/S, \( P_2o_5 \) as Super and Ca as Gypsum.

3. **DESIGN:**

(i) 3 Confounded Fact. (ii) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 18'x42'. (b) 12'x36'. (v) 3' around. (vi) Yes.

4. **GENERAL:**

(i) No. (ii) N.A. (iii) Grain yield. (iv) (a) 1950-53. (b) No. (c) Nili (v) (a) Pachperwa (Gonda), Bhasar, Nagnia, (Bijr-ore), Nawatganj (Bareilly), Faizabad, Tisshu (Mirza'ur) and Bharari (Jhan). (b) Nili. (vii) Nil. (viii) The expt. was conducted by C.P.
RESULTS:

(i) 2937 lb./ac.
(ii) 158.81 lb./ac.
(iii) all main effects, all 1st order interactions and Y and Z components of NPC interaction are highly significant; W and X component of NPC interaction are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
<th>C0</th>
<th>C1</th>
<th>C2</th>
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<td>3112</td>
<td>2943</td>
<td>3710</td>
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<tr>
<td>2286</td>
<td>2554</td>
<td>1875</td>
<td>2318</td>
<td>2614</td>
<td>2042</td>
<td>2359</td>
</tr>
</tbody>
</table>

Mean 2761 3297 27.52

S.E. of any marginal mean = 37.44 lb./ac.
S.E. of body of table = 64.83 lb./ac.

Crop: Paddy
Site: Govt. Agri. Farm, Atarra.

Object: To find out the response of late Paddy to application of nitrogen, phosphate and calcium.

1. BASAL CONDITIONS:
(i) (a) Paddy followed by pea. (b) P.a. (c) Nil. (d) Bararias. (e) Bararias. (f) N.A. (g) 16.8.1953. (h) (a) 3 ploughings during July and August 1953. (b) Transplanting. (c) Planting 9" and row spacing 12". (d) 1. (e) Nil. (f) 1950-1953. (g) Yes. (h) 3' around the net plot. (i) Yes.

2. TREATMENTS:
All combinations of (1), (2) and (3).
(1) 3 levels of N: N0 = 0, N1 = 30 and N2 = 60 lb./ac.
(2) 3 levels of P2O5: P0 = 0, P1 = 20 and P2 = 40 lb./ac.
(3) 3 levels of Ca: C0 = 0, C1 = 30 and C2 = 60 lb./ac.
N as A/S, P2O5 as Super and Ca as Gypsum.

3. DESIGN:
(i) 3² confounded Fact. (ii) 9 plots/block; 3 blocks/replcation. (b) N.A. (iii) 2. (iv) (a) 18'×42'. (b) 12'×36'. (v) 3' around the net plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield and straw yield. (iv) (a) 1950-1953. (b) Yes. (c) N.A. (v) Bharari, Bararais, Faisabad and Nawabganj. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 2687 lb./ac.
(ii) 12.43 lb./ac.
(iii) All main effects, all first order interactions and W, Z and X components of NPC interaction are highly significant. Y component of NPC interaction is significant.
Object: To find out the effect of minor elements on growth and yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Sanai-Wheat-Paddy. (b) Wheat. (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 23.6.1952/7 and 8.8.1952.
   (iv) (a) N.A. (b) Transplanting. (c) —. (d) and (e) N.A. (v) Nil. (vi) T-36 (late). (vii) N.A. (viii) N.A. (ix) 49.18". (x) N.A.

2. TREATMENTS:
   1. Control.
   2. Molybdenum (Mo) as molybdic acid at 6 lb./ac. of Mo.
   3. Copper (Cu) as copper sulphate at 6 lb./ac. of Cu.
   4. Boron (B) as commercial borax at 1 lb./ac. of B.
   5. Sulphur (S) as commercial sulphate at 50 lb./ac. of S.
   6. Zinc (Zn) as zinc sulphate at 4 lb./ac. of Zn.
      A basal dose of A/S at 30 lb./ac. of N+Super at 15 lb./ac. of P₂O₅+Pot. Sul. at 15 lb./ac. of K₂O applied to all plots. Trace elements mixed with soil before sowing; date of manuring 23.7.1952.

3. DESIGN:
   (i) L. Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 35'×27'. (b) 31'×23'. (v) 2' around the net plot (vi) Yes.

4. GENERAL:
   (i) All plots except control lodged in the 1st week of December. (ii) No. (iii) Grain yield. (iv) (a) No. (b) No. (c) No. (v) (a) Nawabganj (Bareilly), Faizabad, Banaras, Bharari (Jhansi), Belatal and Bahraich. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 4580 lb./ac.
   (ii) 209.68 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>3.</td>
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<tr>
<td>4.</td>
<td>4817</td>
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<td>5.</td>
<td>4451</td>
</tr>
<tr>
<td>6.</td>
<td>4705</td>
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</tbody>
</table>

S.E./mean = 85.60 lb./ac.

---

Crop :-Paddy.
Site :-Govt. Agri. Farm, Atarra.
Ref :-U.P. 52(156).
Type :-‘M’.
Crop :- Paddy.  
Site :- Govt. Agri. Farm, Atarra.

Object :- To find the effect of trace elements on growth, yield and quality of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Wheat followed by Paddy.  (b) Fallow.  (c) Nil.  (ii) (a) Light Kahar.  (b) N.A.  (iii) 12.3.1953.  (iv) (a) 4 ploughings during July and August.  (b) Transplanting.  (c) 12 hrs./ac. in nursery bed.  (d) Plant spacing 9" and row spacing 12".  (e) single seedlings.  (v) G.M.+A/S at 30 lb./ac. + 30 lb./ac. of \( \text{P}_2\text{O}_5 \) as Super-15 lb./ac. of \( \text{K}_2\text{O} \) as Pot. sulphate+15 lb./ac. of Ca as Gypsum.  (vi) T-36 (late).  (vii) Irrigated.  (viii) Intersecting between rows 3-4 times with hand hoe.  Weeding also performed.  1st weeding after 10-15 days of transplanting.  (ix) N.A.  (x) 10.11.1953.

2. TREATMENTS:
   Main-plot treatments:
   - 3 trace elements: \( \text{Cu}=\text{Copper}, \, \text{B}=\text{Boron} \) and \( \text{Zn}=\text{Zinc} \).

   Sub-plot treatments:
   - 4 levels of trace elements: \( L_0, L_1, L_2, \) and \( L_3 \).
     (levels of copper: \( L_0=0, \, L_1=1, \, L_2=2, \) and \( L_3=4 \) lb./ac. of Cu)
     (levels of Boron: \( L_0=0, \, L_1=1, \, L_2=2, \) and \( L_3=4 \) lb./ac. of B)
     (levels of Zinc: \( L_0=0, \, L_1=1, \, L_2=4, \) and \( L_3=10 \) lb./ac. of Zn)

   Copper as copper sulphate, Boron as borax and Zinc as zinc sulphate applied as surface dressing mixed with dry earth or sand 2 days after transplanting so as to secure uniform distribution within the plots.

3. DESIGN:
   (i) Split-plot.  (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot.  (b) N.A.  (iii) 3.  (iv) (a) Sub-plot 28'x37' main-plot 56'x77'.  (b) 25'x34'.  (v) Plot bund 1.5'x1' alround.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) Nil.  (iii) Grain and straw yield.  (iv) (a) 1953—N.A.  (b) and (c) No.  (v) (a) Bharari (Jhansi), Baharaich, Nawabganj, Faizabad and Banaras.  (vi) Nil.  (vii) Conducted by C.P.

5. RESULTS:
   (i) 2674 lb./ac.
   (ii) (a) 21.42 lb./ac.  (b) 8.74 lb./ac.

   (iii) Main-plot treatments are not significantly different, sub-plot treatments within main-plots are highly significant.

   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( L_0 )</th>
<th>( L_1 )</th>
<th>( L_2 )</th>
<th>( L_3 )</th>
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Mean

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<th>( L_1 )</th>
<th>( L_2 )</th>
<th>( L_3 )</th>
<th>Mean</th>
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</table>

S.E. of difference of two

<table>
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<tr>
<th></th>
<th>main-plot treatment marginal means</th>
<th>means in the same row</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>( \pm 8.74 ) lb./ac.</td>
<td>( \pm 7.14 ) lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Paddy  
Site :- Govt. Agri. Farm, Baharaich.

Object :- To study the effect of trace elements in presence of adequate quantities of N, P and K on growth, yield and quality of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Pea+Marsup.  (c) N.A.  (ii) (a) Sandy Loam.  (b) Refer soil analysis, Baharaich.  (iii) 7.6.1952/19.24-10.1952 (iv) (a) N.A.  (b) Transplanting.  (c) —.  (d) and (e) N.A.  (v) \( \text{P}_2\text{O}_5 \) to be applied 6" deep in furrows while preparing the field.  A/S and Pot. sulphate as top dressing one week before transplanting.  (vi) T-8 (late).  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.
2. TREATMENTS:
   1. Control.
   2. Molybdenum (Mo) as molybdic acid at 6 lb./ac. of Mo.
   3. Copper (Cu) as copper sulphate at 6 lb./ac. of Cu.
   4. Boron (B) as commercial borax at 1 lb./ac. of B.
   5. Sulphur (S) as commercial sulphur at 50 lb./ac. of S.
   6. Zinc (Zn) as zinc sulphate at 4 lb./ac. of Zn.
   A basal dose of A/S at 30 lb./ac. of N+Super at 15 lb./ac. of P₂O₅ +Pot. Sulphate at 15 lb./ac. of K₂O is applied to all plots. Elements applied mixed with fine earth as surface dressing 5-6 days before soil. Date of manuring 12.7.1952.

3. DESIGN:
   (i) Latin square. (ii) 6. (b) N.A. (iii) 6. (iv) 35' x 27'. (b) 31' x 23'. (v) 2' around the net plot. (vi) Yes.

4. GENERAL:
   (i) No lodging. Good. (ii) No. (iii) Yield of Paddy. (iv) (a) to (c) N.A. (v) (a) Atarra, Nawabganj (Bareilly), Faizabad, Banaras, Bharari (Jhansi), Belatal and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 2799 lb./ac.
   (ii) 364.9 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>2.</td>
<td>2791</td>
</tr>
<tr>
<td>3.</td>
<td>2953</td>
</tr>
<tr>
<td>4.</td>
<td>2728</td>
</tr>
<tr>
<td>5.</td>
<td>2906</td>
</tr>
<tr>
<td>6.</td>
<td>2613</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>149.0 lb./ac.</td>
</tr>
</tbody>
</table>


Object := To find the effect of trace elements (Copper, Boron, Zinc) in presence of adequate quantities of N, P, K and Calcium on growth, yield and quality of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Manoor. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) To 30.8.1953. (iv) (a) 5 ploughings. (b) Transplanting. (c) 12 srs./ac. in nursery bed. (d) Plant spacing 9" and row spacing 12". (e) 1. (v) Green manuring, A/S at 30 lb./ac. of N, Super at 30 lb./ac. of P₂O₅; Sulphate of Potash at 15 lb./ac. and Gypsum at 15 lb./ac. (vi) T-15 (late) (vii) Irrigated; (viii) Weeding and hoeing on 15 and 16.9.1953. (ix) N.A. (x) 29.11.1953.

2. TREATMENTS:
   Main-plot treatments:
   3 trace elements := Cu=Copper, B=Boron and Zn=Zinc.
   Sub-plot treatments:
   4 levels of trace elements := L₀, L₁, L₂ and L₃.
   (Levels of copper := L₀=0, L₁=3, L₂=6 and L₃=12 lb./ac. of Cu.
   Levels of Boron := L₀=0, L₁=1, L₂=2 and L₃=4 lb./ac. of B.
   Levels of Zinc := L₀=0, L₁=1, L₂=4 and L₃=10 lb./ac. of Zn.)
   Copper as copper sulphate, Boron as borax and Zinc as zinc sulphate applied as surface dressing mixed with dry earth or sand 2 days before transplanting so as to secure uniform distribution within the plot.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 28' x 37'. (b) 25' x 34' (v) Plot bund 1.5' x 1' around. (vi) Yes.
4. GENERAL:
   (i) Fair. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1953—1955. (b) and (c) No. (v) (a) Banaras, Faizabad, Bharari (Jhansi), Banda and Nawabganj (Bareilly). (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 541.4 lb./ac.
   (ii) (a) 119.46 lb./ac. (b) 132.78 lb./ac.
   (iii) Main-plot treatments and sub-plot treatments within main-plot treatment are not significantly different.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>L0</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>Mean</th>
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<tbody>
<tr>
<td>Cu</td>
<td>542.5 590.8 507.4 529.3</td>
<td>542.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>546.9 529.3 560.1 621.6</td>
<td>564.5</td>
<td></td>
<td></td>
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<tr>
<td>Zn</td>
<td>456.9 571.1 542.5 498.6</td>
<td>517.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. main-plot treatment marginal means = 48.77 lb./ac.
2. means in the same row = 108.4 lb./ac.

Crop :- Paddy.
Site :- Govt. Agri. Farm, Barabanki.
Object :- To study the best time of application of N to Paddy.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Wheat. (c) N.A. (ii) (a) N.A. (b) N.A. (iii) 16.5.1949/2, 3.7.1949. (iv) (a) 2 ploughings. (b) Transplanting. (c) —. (d) and (e) N.A. (v) 40 lb./ac. of N in the form of compost. (vi) T-22. (vii) Irrigated. (viii) 1 weeding. (ix) Nil. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)+ a control.
   (1) 2 sources of N at 60 lb./ac. of N : S1=A/S and S2=A/N.
   (2) 6 times of application of N : T1=Full dose at transplanting, T2=Full dose at 30 days after transplanting, T3=Full dose at 50 days after transplanting, T4=½ at transplanting and ½ at 30 days after transplanting, T5=½ at transplanting and ½ at 50 days after transplanting and T6=½ at 30 days after and ½ at 50 days after transplanting.

3. DESIGN:
   (i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 17''x39''. (b) 11''x33''. (v) 3'' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Grain and Bhusa yield. (iv) (a) 1949—1950. (b) and (c) No. (v) (a) Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 1732 lb./ac.
   (ii) 323.9 lb./ac.
   (iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac. 

Control = 1480 lb./ac.

\[
\begin{array}{ccccccc}
 & T_1 & T_2 & T_3 & T_4 & T_5 & T_6 & \text{Mean} \\
S_1 & 1686 & 1624 & 16.4 & 1994 & 1953 & 1953 & 1806 \\
S_2 & 1552 & 1573 & 1696 & 1850 & 1871 & 1665 & 1701 \\
\text{Mean} & 1619 & 1599 & 1660 & 1522 & 1912 & 1809 & 1753 \\
\end{array}
\]

S.E. of marginal mean of S = 76.5 lb./ac.
S.E. of marginal mean of T = 132.3 lb./ac.
S.E. of body of table = 187.0 lb./ac.

Crop: Paddy. 
Site: Govt. Agri. Farm, Barabanki. 
Ref: U.P. 50(124). 
Type: 'M'.

Object: To study the optimum time of application of N to Paddy crop.

1. BASAL CONDITIONS:
(i) (a) No. (b) Gram. (c) N.A. (ii) Loam. (b) N.A. (iii) 15.5.1950/28.6. to 1.7.1950. (iv) (a) Pa/wa 29.4.1950 and 5, 6.5.1950; 1st ploughing by victory plough, 2nd ploughing by deshi plough on 13.5.1950, 3rd and 4th ploughing by cultivator, grass picking on 18, 21.6.1950. (b) Transplanting. (c) — (d) and (e) N.A. (v) 140 ml./ac. of compost. (vi) W-22(early). (vii) N.A. (viii) Weeding between 27.7.1950 and 2.8.1950. (ix) 19.68°. (x) 23 to 24.9.1950.

2. TREATMENTS:
All combinations of (1) and (2) + a control.
(1) 2 sources of N at 60 lb./ac. of N: S_1 = A/S and S_2 = A/N.
(2) 6 times of application of N: T_1 = Full dose at transplanting, T_2 = Full dose at 30 days after transplanting, T_3 = Full dose at 50 days after transplanting, T_4 = 2/3 at transplanting and 1/3 at 30 days after transplanting, T_5 = 2/3 at transplanting and 1/3 at 50 days after transplanting and T_6 = 2/3 at 30 days after and 1/3 at 50 days after transplanting.

3. DESIGN:
(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 17' x 39'. (b) 11' x 33'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:
(i) Due to scarcity of rains, the growth and yield was poor. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1950. (b) and (c) No. (v) (a) Lucknow, Tissuhi (Mirzapur) and Hawalbagh (Almora). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 2176 lb./ac.
(ii) 574.7 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac. 

Control = 1881 lb./ac.

\[
\begin{array}{ccccccc}
 & T_1 & T_2 & T_3 & T_4 & T_5 & T_6 & \text{Mean} \\
S_1 & 2185 & 2143 & 2251 & 2442 & 1913 & 2431 & 2231 \\
S_2 & 1922 & 2272 & 2447 & 2385 & 2097 & 1877 & 2170 \\
\text{Mean} & 2054 & 2208 & 2349 & 2414 & 2015 & 2164 & 2231 \\
\end{array}
\]

S.E. of marginal mean of S = 135.4 lb./ac.
S.E. of marginal mean of T = 234.7 lb./ac.
S.E. of body of table = 331.8 lb./ac.

Control = 1480 lb./ac.
Crop :- Paddy.  
Site :- Govt. Agri. Farm, Barabanki.  
Ref. :- U.P. 49(95).  
Type :- 'M'.

Object :- To study the optimum time of application of $P_2O_5$ to Paddy crop.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Wheat. (c) N.A.  
   (ii) (a) Loam. (b) N.A.  
   (iii) 16.5.1949/2, 3.7.1949.  
   (iv) (a) 2 ploughings. (b) Transplanting. (c) (d) & (e) N.A.  
   (v) 40 lb./ac. of N in the form of compost.  
   (vi) T-22.  
   (vii) Irrigated.  
   (viii) Weeding on 15.7.1949.  
   (ix) N.A.  
   (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2) + a control.  
   (1) 2 sources of $P_2O_5$ (at 40 lb./ac.) : $S_1$ = Super and $S_2$ = Ammon. Phos.  
   (2) 6 times of application of $P_2O_5$ : $T_1$ = Full dose at transplanting, $T_2$ = Full dose at 30 days after transplanting, $T_3$ = Full dose at 50 days after transplanting, $T_4$ = Full dose at transplanting and $T_5$ at 30 days after transplanting, $T_6$ = $T_5$ at transplanting and $T_5$ at 50 days after transplanting.

3. DESIGN:
   (i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3.  
   (iv) (a) 17' x 39'. (b) 11' x 33'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Grain and bhuta yield.  
   (iv) (a) 1949—50. (b) and (c) No.  
   (v) (a) Lucknow. (b) N.A. (vi) Nil. (vii) Nil.  
   (viii) Nil.

5. RESULTS:
   (i) 2074 lb./ac.  
   (ii) 345.9 lb./ac.  
   (iii) None of the effects is significant.  
   (iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th>Control</th>
<th>1480 lb./ac.</th>
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<tr>
<td></td>
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<tr>
<td>$S_1$</td>
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</tr>
<tr>
<td>$S_2$</td>
<td>2128</td>
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<td>1968</td>
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</table>

S.E. of marginal mean of $S$ = 82.2 lb./ac.  
S.E. of marginal mean of $T$ = 142.5 lb./ac.  
S.E. of body of table = 201.4 lb./ac.

Crop :- Paddy.  
Site :- Govt. Agri. Farm, Barabanki.  
Ref. :- U.P. 50(125).  
Type :- 'M'.

Object :- To study the optimum time of application of $P_2O_5$ to Paddy crop.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Gram. (c) N.A.  
   (ii) (a) Loam. (b) N.A.  
   (iii) 15.5.15/50/28.6.1950 to 1.7.1950.  
   (iv) (a) Palwa 29.4.1550, 1st ploughing by Victory plough, 2nd ploughing by deshi plough, 3rd and 4th ploughing by cultivator; grass picking on 18 to 21.6.1950. (b) Transplanting. (c) (d) and (e) N.A.  
2. TREATMENTS:

All combinations of (1), (2) + a control

(1) 2 sources of P<sub>2</sub>O<sub>5</sub> (at 40 lb./ac.): S<sub>1</sub> = Super and S<sub>2</sub> = Ammo. phos.

(2) 6 times of application of P<sub>2</sub>O<sub>5</sub>: T<sub>1</sub> = Full dose at transplanting, T<sub>2</sub> = Full dose at 30 days after transplanting, T<sub>3</sub> = Full dose at 50 days after transplanting, T<sub>4</sub> = 6 lb./ac. at transplanting and 30 days after transplanting, T<sub>5</sub> = 6 lb./ac. at transplanting and 50 days after transplanting, and T<sub>6</sub> = 6 lb./ac. at transplanting and 30 days after and 50 days after transplanting.

3. DESIGN:

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 17' x 33'. (b) 11' x 33', (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:

(i) Due to scarcity of rains the growth was poor. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1950. (b) and (c) No. (v) (a) Lucknow and Tissuhi (Mirzapur). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:

(i) 1968 lb./ac. (ii) 434.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Control</th>
<th>T&lt;sub&gt;1&lt;/sub&gt;</th>
<th>T&lt;sub&gt;2&lt;/sub&gt;</th>
<th>T&lt;sub&gt;3&lt;/sub&gt;</th>
<th>T&lt;sub&gt;4&lt;/sub&gt;</th>
<th>T&lt;sub&gt;5&lt;/sub&gt;</th>
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<td>1907</td>
<td>2066</td>
<td>1876</td>
<td>1856</td>
<td>1850</td>
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<td>1671</td>
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<td>2077</td>
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<tr>
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<td>1989</td>
<td>1868</td>
<td>2069</td>
<td>2044</td>
<td>1964</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of S = 102.3 lb./ac.
S.E. of marginal mean of T = 177.3 lb./ac.
S.E. of body of table = 177.3 lb./ac.

---

Crop :- Paddy.
Site :- Govt. Agri. Res. Farm, Belatal.

Ref :- U.P. 52(172).
Type :- M'.

Object :- To study the effect of Boron, Molybdenum, Copper, Sulphur and zinc in presence of adequate quantities of N, P and K on growth, yield and quality of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Hard khabar. (b) N.A. (iii) 12.6,1953/25.7,1953. (iv) (a) N.A. (b) Transplanted. (c) -, (d) and (e) N.A. (v) P<sub>2</sub>O<sub>5</sub> to be applied 6' deep in furrows while preparing field. A/S and Pot. sulphate as top dressing one week before transplanting. (vi) T.9 (late). (vii) N.A. (viii) N.A. (ix) 48.23'. (x) N.A.

2. TREATMENTS:

1. Control.
2. Molybdenum (Mo) as molybdic acid at 6 lb./ac. of Mo.
3. Copper (Cu) as copper sulphate at 6 lb./ac. of Cu.
4. Boron (B) as commercial borax at 1 lb./ac. of B.
5. Sulphur (S) as commercial sulphur at 50 lb./ac. of S.
6. Zinc (Zn) as zinc sulphate at 4 lb./ac. of Zn.

A basal dose of A/S at 30 lb./ac. of N+Super at 15 lb./ac. of P<sub>2</sub>O<sub>5</sub> + Pot. Sulphate at 15 lb./ac. of K<sub>2</sub>O is applied to all treatments. Elements applied mixed with fine earth as surface dressing 5-6 days before sowing.

3. DESIGN:

(i) L.Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 35' x 27'. (b) 31' x 23'. (v) 2' around the net plot. (vi) Yes.

4. GENERAL:

(i) No lodging. Poor. (ii) Nil. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) Atarra, Bahraich, Nawabganj (Bareilly), Faizabad, Badara, Barari (Jhansi) and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P
5. RESULTS:

(i) 335.6 lb./ac.
(ii) 108.2 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>327.9</td>
</tr>
<tr>
<td>2.</td>
<td>324.0</td>
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<tr>
<td>3.</td>
<td>244.7</td>
</tr>
<tr>
<td>4.</td>
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<tr>
<td>5.</td>
<td>415.0</td>
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<tr>
<td>6.</td>
<td>367.2</td>
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</tbody>
</table>

S.E./mean = 44.17 lb./ac.

**Crop:** Paddy.

**Site:** State Mechanised Farm, Bharari.

**Object:** To study the effect of Boron, Molybdenum, Copper, Sulphur and Zinc in presence of adequate quantities of N, P and K on the growth, yield and quality of Paddy.

1. BASAL CONDITIONS:

   (i) (a) Paddy-Berreem. (b) Berseem. (c) No. (ii) (a) Kabar. (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) $P_2O_5$ to be applied 6" deep in furrows while preparing field. A/S and Pot. sul. as top dressing one week before transplanting. (vi) T-43 (medium). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

   1. Control.
   2. Molybdenum (Mo) as molybdic acid at 6 lb./ac. of Mo.
   3. Copper (Cu) as copper sulphate at 6 lb./ac. of Cu.
   4. Boron (B) as commercial borax at 1 lb./ac. of B.
   5. Sulphur (S) as commercial sulphur at 50 lb./ac. of S.
   6. Zinc (Zn) as zinc sulphate at 4 lb./ac. of Zn.

   A basal dose of A/S at 30 lb./ac. of N, Super at 15 lb./ac. of $P_2O_5$, Pot. Sulphate at 15 lb./ac. of $K_2O$ is applied to all treatments. Trace elements mixed with fire earth as surface dressing 5-6 days before sowing.

3. DESIGN:

   (i) L. Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 35' × 37'. (b) 31' × 23'. (v) 2" around the net plot. (vi) Yes.

4. GENERAL:

   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1952-1953. (b) and (c) No. (v) (a) Atarra, Relatal, Bahraich, Nawabganj (Bareilly), Faizabad, Lucknow and Banaras. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:

   (i) 1557 lb./ac.
   (ii) 338.8 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1385</td>
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<tr>
<td>2.</td>
<td>1657</td>
</tr>
<tr>
<td>3.</td>
<td>1581</td>
</tr>
<tr>
<td>4.</td>
<td>1563</td>
</tr>
<tr>
<td>5.</td>
<td>1524</td>
</tr>
<tr>
<td>6.</td>
<td>1634</td>
</tr>
</tbody>
</table>

S.E./mean = 138.30 lb./ac.
Crop :- Paddy. 
Site :- State Mechanised Farm, Bharari. 

Object:- To study the effect of varying doses of trace elements (Copper, Boron, Zinc) in presence of adequate quantities of N, P and Calcium on growth, yield and quality of Paddy.

1. BASAL CONDITIONS:
(i) (a) Sanai-Paddy-Bersem. (b) Bersem. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 10.8.1953. (iv) (a) Ploughing and harrowing on 30.7.1953. (b) Transplanting. (c) 12 srs/ac. in nursery bed. (d) Plant spacing 9" and row spacing 12" (improved method). (e) 1. (v) Green manuring-Sanai turned in on 30.7.1953, A/S at 30 lb./ac. of N, Super at 30 lb./ac. of PO34, Superphosphate of potash at 15 lb./ac. of K2O and Gypsum at 15 lb./ac. of Ca. (vi) T-13 (late). (vii) Irrigated. (viii) Inter-culturing between rows 3-4 times with hand hoe. Weeding is also performed. 1st weeding after 10-15 days of transplanting (ix) N.A. (x) 8.11.1953.

2. TREATMENTS:
Main-plot treatments :
3 trace elements : Cu=Copper, B=Boron and Zn=Zinc.

Sub-plot treatments:
4 levels of trace elements: L0, L1, L2 and L3
.levels of Copper : L0=0, L1=3, L2=6 and L3=12 lb/ac. of Cu.
.levels of Boron : L0=0, L1=1, L2=2 and L3=4 lb/ac. of B.
.levels of Zinc : L0=0, L1=1, L2=4 and L3=10 lb/ac. of Zn }

Copper as copper sulphate, boron as borax and zinc as zinc sulphate applied as surface dressing mixed with fine sand or dry earth, 2 days before transplanting so as to secure uniform distribution within plots.

3. DESIGN:
(i) Split-plot. (ii) 3 main-plots replication and 4 sub-plots/main-plot (b) N.A. (iii) 3. (iv) (a) 25'x37'. (b) 21'x34'. (v) Plot bund 1.5'x1' around, clock partition of irrigation channel 3'. Field border 2' around. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight attack of gundhi bug at milky stage. (iii) Grain and straw yield. (iv) (a) 1953—contd. (b) and (c. No. (v) (a) Banaras, Nawabganj, Baharaich, Banda and Faizabad. (b) N.A. (vi) NIL (vii) Conducted by C.P.

5. RESULTS:
(i) 1944 lb./ac.
(ii) (a) 262.7 lb./ac.
(b) 210.3 lb./ac.
(iii) Main-plot treatments and sub-plot treatments within main-plot treatments are not significant.
(i) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>L0</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>Mean</th>
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<td>1907</td>
<td>2017</td>
<td>2042</td>
<td>1976</td>
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<tr>
<td>B</td>
<td>1959</td>
<td>2007</td>
<td>1717</td>
<td>2037</td>
<td>1930</td>
</tr>
<tr>
<td>Zn</td>
<td>2017</td>
<td>2004</td>
<td>1817</td>
<td>1864</td>
<td>1926</td>
</tr>
</tbody>
</table>

S.E. of difference of two
main-plot treatment means =107.3 lb./ac,
means in the same row =171.7 lb./ac.
1. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
   (2) 3 levels of \( P_2O_5: P_0 = 0, P_1 = 20 \) and \( P_2 = 40 \) lb./ac.
   (3) 3 levels of Calcium: \( C_0 = 0, C_1 = 30 \) and \( C_2 = 60 \) lb./ac.

2. DESIGN:
   (i) 3\(^3\) Confounded Factorial. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2. (iv) 
   (a) 18\( \times 42' \). (b) 12'\( \times 36' \). (v) 3' all round the net plot. (vi) Yes.

3. GENERAL:
   (i) N.A. (ii) N.A. (iii) Height of paddy plants. No. of tillers per plant. No. of green leaves per plant.
   No. of dry leaves per plant. Length of leaf in cms. Breadth of leaf. Fresh weight of shoot per plant. Fresh
   weight of root per plant. Total weight of straw and grain. (iv) (a) 1949—1953. (b) N/A. (v) Nil. (vi) Nil. (vii) The expt. was conducted by
   C.P. This experiment was wrongly laid out. In one replication the treatment combination \( N_1 P_1 C_2 \) should have been tried in a block in place of
   treatment combination \( N_1 P_2 C_1 \) and vice versa in the other
   block. Hence yield of combinations \( N_1 P_1 C_2 \) & \( N_1 P_2 C_1 \) have been taken as missing.

4. RESULTS:
   (i) 1309 lb./ac.
   (ii) 2509 lb./ac.
   (iii) Main effect of \( N \) is highly significant. Main effect of \( P \) and interaction \( N \times P \) are significant. Other
   effect and all the interactions are not significant.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>Mean</th>
<th>( C_0 )</th>
<th>( C_1 )</th>
<th>( C_2 )</th>
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<tr>
<td>( N )</td>
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<td>1227</td>
<td>1685</td>
<td>1431</td>
<td>1497</td>
<td>1305</td>
<td>1491</td>
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<tr>
<td>( N_2 )</td>
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</tbody>
</table>

5. REFERENCE:

Object: To study the response of Paddy to three levels of N, P and Calcium.
3. DESIGN:
(i) Partially Confounded. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 18'x42'. (b) 12'x36'. (v) 3 around the net plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-53. (b) and (c) N.A. (v) (a) Binaras, Atarra (Bandla), Tisuli (irzapuri), Pachpurwa (Gonda), Nawabganj (Barzilly) and Nagina. (b) N.A. (vi) Layout plan in replication was wrong. The treatment combination N1P2C2 should be in third block while the treatment combination N1P2C1 should be in first block. Hence the yield of plots containing wrong treatment combination has been rejected and analysis has been done by applying missing plot technique. (vii) Conducted by C.P.

5. RESULTS:
(i) 34.2 lb/ac.
(ii) 166.6 lb/ac.
(iii) None of the main effects and their interaction is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
<th>C0</th>
<th>C1</th>
<th>C2</th>
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<tbody>
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<td>N0</td>
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<td>253.6</td>
<td>216.0</td>
<td>282.3</td>
<td>319.8</td>
<td>224.7</td>
<td>302.5</td>
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<tr>
<td>N1</td>
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<td>321.9</td>
<td>382.4</td>
<td>344.3</td>
<td>302.5</td>
<td>347.9</td>
<td>382.4</td>
</tr>
<tr>
<td>N2</td>
<td>509.9</td>
<td>380.3</td>
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<td>412.0</td>
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<td>406.2</td>
<td>317.6</td>
<td>314.7</td>
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<tr>
<td>C2</td>
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<td>3.51</td>
<td>371.6</td>
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</table>

S.E. of marginal means of N0, N2, P0 and C0 = 39.27 lb./ac.
S.E. of marginal mean of N1 = 43.02 lb./ac.
S.E. of marginal mean of P1, P2, C1 and C2 = 41.02 lb./ac.
S.E. of any mean excluding (N1P1, N1C2, P1C2, N1P2, P2C1 and N1C1) in the body of any table = 68.02 lb./ac.
S.E. of means of N1P1, N1C2, P1C2, N1P2, P2C1 and N1C1 = 76.54 lb./ac.

Crop :- Paddy (Kharif).
Site :- State Mechanised Farm, Bharari.

Ref :- U.P. 51(281).
Type :- 'M'.

Object :- To study the response of late Paddy to 3 levels of N, P and Calcium.

1. EASAL CONDITIONS:
(i) (a) Nil. (b) Berseem. (c) N.A. (ii) (a) Kabar and Rankar mixed. (b) N.A. (iii) 28.5.1951/3.8.1951.
(iv) (a) N.A. (b) Transplanting. (c) -. (d) and (e) N.A. (v) Nil. (vi) T. 136. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N : N0 =0, N1 =30 and N2 =60 lb./ac.
(2) 3 levels of P0P2 : P0 =0, P1 =20 and P2 =40 lb./ac.
(3) 3 levels of Ca : C0 =0, C1 =30 and C2 =60 lb./ac.
N as A/S, P0P2 as Super and Ca as Gypsum. Manuring of A/S on 23.7.1951, Ca on 27.7.1951 and Super on 21.7.1951.

3. DESIGN:
(i) 3 Confounded Fact. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 18'x42'. (b) 12'x36'. (v) 3 around the net plot. (vi) Yes.
5. RESULTS:

(i) 1187 lb/ac.
(ii) 283.05 lb/ac.
(iii) Main effect of N is highly significant. Other effects and interactions are not significant.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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</table>

S.E. of difference between N₁ and N₀ or N₂ and N₄ means = 81.47 lb/ac.
S.E. of difference between N₀ and N₂ means = 77.68 lb/ac.
S.E. of difference between P₁ and P₀ or P₂ and P₄ means = 79.42 lb/ac.
S.E. of difference between P₀ and P₁ means = 81.12 lb/ac.
S.E. of difference between C₀ and C₁ or C₂ and C₄ means = 79.42 lb/ac.
S.E. of difference between C₀ and C₂ means = 81.12 lb/ac.
S.E. of body of any table excluding N₁ P₀, N₂ P₀, C₁ P₀, C₂ P₀, C₁ C₀ and N₁ C₀ means = 95.14 lb/ac.
S.E. of N₁ P₁, N₁ C₂, P₂ C₀, N₁ P₂, P₂ C₂ and N₁ C₂ means = 109.85 lb/ac.

Crop : Paddy (Kharif).
Site : State Mechanised Farm, Bharari.

Ref :- U.P. 52(244). Type : 'M'.

Object : To study the response of late Paddy to 3 levels of N, P and Ca.

1. BASAL CONDITIONS:

(i) (a) Paddy-Ferseem. (b) Ferseem. (c) N.A. (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) N.A. (c) N.A. (d) N.A. (e) N.A. (f) N.A. (vi) T-43 (med). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 levels of N : N₀=0, N₁=30 and N₂=60 lb/ac.
(2) 3 levels of P₂O₅ : P₀=0, P₁=20 and P₂=40 lb/ac.
(3) 3 levels of Calcium : C₀=0, C₁=30 and C₂=60 lb/ac.
N as A₅/S, P₂O₅ as Super and Ca as Gypsum.

3. DESIGN:

(i) 3x3x3 Partially Confounded. (ii) 3 block/replication, 9 plots/block. (b) N.A. (iii) 3. (iv) (a) 18'x42'. (b) 12'x36'. (v) 3' around the net plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1953. (b) N.A. (c) N.A. (v) Pachperwa, Gonda, Banaras, Nagina, Nawabgarj (Bareilly), Faizabad, Attara (Larda) and Tipsh (Mirzapur). (vi) Nil. (vii) Layout plan in replication 1 was wrong. The treatment combination N₁P₁C₂ should be in third block while the
treatment combination $N_1P_2C_1$ should be in first block. Hence the yield of plots containing wrong treatment combinations has been rejected and analysis has been done by applying missing plot technique as suggested by chief statistician to Govt. of U.P. Conducted by C.P.

5. RESULTS:

(i) $3191$ lb./ac.
(ii) $368.2$ lb./ac.
(iii) Main effect of $N$ is highly significant; interaction $N \times C$ is significant. Other effects and interactions are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
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<th>$C_0$</th>
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S.E. of marginal means of $N_0$, $N_2$, $P_0$ and $C_0$ = $86.79$ lb./ac.
S.E. of marginal mean of $N_1$ = $95.08$ lb./ac.
S.E. of marginal mean $P_1$, $P_2$, $C_1$ and $C_2$ = $90.65$ lb./ac.
S.E. of any mean excluding $N_1P_1$, $N_1C_2$, $P_1C_2$, $N_1P_2$, $P_2C_1$ and $N_1C_1$ in the body of any table = $150.33$ lb./ac.
S.E. of means of $N_1P_2$, $N_2C_2$, $P_2C_2$, $N_1P_2$ and $P_2C_1$ = $173.59$ lb./ac.

Crop : Paddy ($Kharif$).
Site : State Mechanised Farm, Bharari.
Object : To study the response of late Paddy to three levels of $N$, $P$ and Calcium (Ca).

1. BASAL CONDITIONS:

(i) Sanai-Paddy-Berscem. (b) Berscem (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) $6.8.1953$. (iv) (a) Ploughing and harrowing on $1.8.1953$. (b) Transplanted. (c) 12 rats in nursery bed. (d) Plant spacing $9'$ and row spacing $12'$. (e) 1. (v) Nil. (vi) T-43 (late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) $9.11.1953$.

2. TREATMENTS:

All combinations of (1), (2) and (3)
(1) 3 levels of $N : N_0 = 0$, $N_1 = 30$ and $N_2 = 60$ lb./ac.
(2) 3 levels of $P_0 : P_0 = 0$, $P_1 = 20$ and $P_2 = 40$ lb./ac.
(3) 3 levels of Calcium : $C_0 = 0$, $C_1 = 30$ and $C_2 = 60$ lb./ac.
$N$ as A/S, $P_0$ as super and Ca as Gypsum.
Super applied 3" deep in soil behind plough 3 days before sowing. Gypsum applied as surface dressing a day before sowing. A/S applied as top dressing 2 weeks after germination.

3. DESIGN:

(i) $3 \times 3 \times 3$ Confounded Fact. (ii) (a) 3 blocks/replication and 9 plots/block. (b) N.A. (iii) 2. (iv) (a) $18' \times 42'$. (b) $12' \times 36'$. (v) 3' around the net plot. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Negligible attack of gundibug. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) and (c) No. (v) Attra (Banda), Nawabganj, Banaras and Faizabad. (b) N.A. (vi) Nil. (vii) Conducted by C.P.
5. RESULTS:
(i) 2506 lb./ac.
(ii) 595.4 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>C₀</th>
<th>C₁</th>
<th>C₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>2627</td>
<td>2504</td>
<td>2411</td>
<td>2514</td>
<td>2746</td>
<td>2208</td>
<td>2588</td>
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<tr>
<td>N₁</td>
<td>2308</td>
<td>2390</td>
<td>2653</td>
<td>2450</td>
<td>2390</td>
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<td>N₂</td>
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<td>2580</td>
<td>2221</td>
<td>2553</td>
<td>2513</td>
<td>2865</td>
<td>2282</td>
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<tr>
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<td>2491</td>
<td>2429</td>
<td>2506</td>
<td>2550</td>
<td>2564</td>
<td>2404</td>
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</tbody>
</table>

S.E. of any marginal mean = 140.36 lb./ac.
S.E. of body of table = 243.08 lb./ac.

Crop: Paddy.
Site: Govt. Agri. Farm, Faizabad.

Ref: U.P. 51(155).
Type: 'M'.

Object: To study the response of late Paddy to three levels of N, P and Calcium.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Berseem. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 8.5.1951/29.7.1951. (iv) (a) N.A. (b) Transplanting. (c) Nil. (d) and (e) N.A. (v) N.A. (vi) T-136 (late). (vii) N.A. (viii) N.A. (ix) 30.7/1. (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: N₀=0, N₁=30 and N₂=60 lb./ac.
   (2) 3 levels of P₂O₅: P₀=0, P₁=20 and P₂=40 lb./ac.
   (3) 3 levels of Calcium: C₀=0, C₁=30 and C₂=60 lb./ac.

N as A/S, P₂O₅ as Super and Ca as Gypsum. Date of manuring 26.7.1951 and 27.5.1951.

3. DESIGN:
   (i) ³ Confounded Factorial. (ii) (a) 3 blocks/replication and 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 20'×36'. (b) 15'×30'. (v) 2½'×2'. Irrigation channel—2'. (vi) Yes.

4. GENERAL:
   (i) No lodging. The condition of the crop was poor due to late transplanting. (ii) Nil. (iii) Grain yield.
   (iv) (a) 1951—1953, (b) and (c) No. (v) (a) and (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 103.1 lb./ac.
   (ii) 23.48 lb./ac.
   (iii) None of the effects is significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>Mean</th>
<th>$C_0$</th>
<th>$C_1$</th>
<th>$C_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>97.4</td>
<td>110.9</td>
<td>104.7</td>
<td>104.3</td>
<td>94.3</td>
<td>117.1</td>
<td>101.6</td>
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<tr>
<td>$N_1$</td>
<td>97.4</td>
<td>104.7</td>
<td>122.3</td>
<td>108.1</td>
<td>108.8</td>
<td>103.7</td>
<td>111.9</td>
</tr>
<tr>
<td>$N_2$</td>
<td>97.4</td>
<td>96.4</td>
<td>96.4</td>
<td>96.7</td>
<td>82.9</td>
<td>107.8</td>
<td>99.5</td>
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<tr>
<td>Mean</td>
<td>97.4</td>
<td>104.0</td>
<td>107.8</td>
<td>103.1</td>
<td>95.3</td>
<td>109.5</td>
<td>104.3</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 5.53 lb/ac,
S.E. of body of table = 9.58 lb/ac.

Crop :- Paddy.
Site :- Govt. Agri. Farm, Faizabad.

Object :- To study the response of late Paddy to three levels of N, P and Calcium.

1. BASAL CONDITIONS:
   (i) (a) Paddy—Berseem. (b) Berseem. (c) N.A. (ii) (a) Clayey loam. (b) N.A. (iii) 31.5.1952 to 22.7.1952. (iv) (a) N.A. (b) Transplanting. (c) Nil. (d) and (e) N.A. (v) Nil. (vi) T.136 (early variety). (vii) N.A. (viii) N.A. (ix) 25.57'. (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N : $N_0=0$, $N_1=30$ and $N_2=60$ lb/ac.
   (2) 3 levels of $P_2O_5 : P_0=0$, $P_1=20$ and $P_2=40$ lb/ac.
   (3) 3 levels of Calcium : $C_0=0$, $C_1=30$ and $C_2=60$ lb/ac.
   N as $A/S$, $P_2O_5$ as Super and Ca as Gypsum. Manures applied 3 days before transplanting.

3. DESIGN:
   (i) 3' Partially Confounded. (ii) (a) 3 blocks/replication and 9 plots/block. (b) N.A. (iii) 2. (iv) (a) $20' \times 36 '$. (b) $15' \times 30'$. (v) 3' around the net plot. (vi) Yes.

4. GENERAL:
   (i) No lodging. (ii) Attacked by gundi 25% on ear heads. (iii) Grain yield. (iv) (a) 1951—1953. (b) and (c) No. (v) (a) Pachperwa (Gonda), Tisuhi (Mirzapur), Nagina (Bijnore), Nawabganj (Bareilly), Banaras, Atarra (Banda) and Bharari (Jhansi). (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 452.4 lb/ac.
   (ii) 86.12 lb/ac.
   (iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>C₀</th>
<th>C₁</th>
<th>C₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>408.6</td>
<td>427.9</td>
<td>464.7</td>
<td>448.7</td>
<td>419.0</td>
<td>470.9</td>
<td>456.3</td>
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<tr>
<td>N₁</td>
<td>396.2</td>
<td>460.5</td>
<td>448.0</td>
<td>434.9</td>
<td>452.2</td>
<td>394.1</td>
<td>458.4</td>
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<tr>
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<td>522.7</td>
<td>435.6</td>
<td>462.6</td>
<td>473.6</td>
<td>514.4</td>
<td>445.9</td>
<td>460.3</td>
</tr>
<tr>
<td>Mean</td>
<td>442.5</td>
<td>456.3</td>
<td>458.4</td>
<td>452.4</td>
<td>461.9</td>
<td>437.0</td>
<td>458.4</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 20.29 lb./ac.
S.E. of body of table = 35.16 lb./ac.

Crop :- Paddy.
Site :- Govt. Agri. Farm, Faizabad.

Object :- To study the response of late Paddy to three levels of N, P and Calcium (Ca).

1. BASAL CONDITIONS:
   (i) (a) Paddy followed by Berseem. (b) Berseem. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 6—12.7.1953.
   (iv) (a) Ploughing with desi plough on 6, 7 and 11.7.1953. (b) Transplanting. (c) 12 srs./ac. in nursery bed.

2. TREATMENTS:
   All combinations of (1), (2) and (3).
   (1) 3 levels of N : N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
   (2) 3 levels of P₂O₅ : P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.
   (3) 3 levels of Calcium : C₀ = 0, C₁ = 30 and C₂ = 60 lb./ac.

   N as A/S. P₂O₅ as Super and Ca as Gypsum. Super placed 3"-4" deep in soil between the plough 3 days before sowing. Gypsum applied as surface dressing a day before sowing. A/S applied as top dressing 2 weeks before germination.

3. DESIGN:
   (i) 3² Confounded Factorial. (ii) (a) 3 blocks/replication and 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 21'×36'. (b) 15'×30'. (v) Plot bund 3'×9' around. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Severe attack of gundhibug badly damaged the crop. (iii) Grain and straw yield. (iv) (a) 1951—1953. (b) No. (c) No. (v) (a) Nawabganj, Banaras, Bharari (Jhansi) and Atarra (Banda). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 375 lb./ac.
   (ii) 59.96 lb./ac.
   (iii) Main effect of C is highly significant; that of N is significant. Interactions N×P and P×C are highly significant, interaction N×C is significant Y and W components of NPC interaction are highly significant.
Crop: Paddy.  
Site: Govt. Agri. Farm, Faizabad.  
Ref: U.P. 52(175).  
Type: 'M'.

Object: To study the effect of Boron, Molybdenum, Copper, Sulphur and Zinc in presence of adequate quantities of N, P and K on growth, yield and quality of Paddy.

1. BASAL CONDITIONS:
   
   (i) (a) Paddy-Berseem. (b) Berseem. (c) No.  
   (ii) (a) Clay loam. (b) N.A.  
   (iii) N.A.  
   (iv) (a) N.A. (b) Transplanted. (c) —. (d) N.A.  
   (v) P₂O₅ to be applied 6' deep in furrows while preparing the field; A/S and Pot. sulphate as top dressing one week before transplanting. (vi) T-136 (early). (vii) N.A. (viii) N.A. (ix) 25.57°. (x) N.A.

2. TREATMENTS:
   
   1. Control.  
   2. Molybdenum (Mo) as molybic acid at 6 lb./ac. of Mo.  
   3. Copper (Cu) as copper sulphate at 6 lb./ac. of Cu.  
   4. Boron (B) as commercial borax at 1 lb./ac. of B  
   5. Sulphur (S) as commercial sulphur at 50 lb./ac. of S.  
   6. Zinc (Zn) as zinc sulphate at 4 lb./ac. of Zn.  

A basal dose of A/S at 30 lb./ac. of N+Super at 15 lb./ac. of P₂O₅+Pot. Sulphate at 15 lb./ac. of K₂O is applied to all treatments. Elements will be applied mixed with fine earth as surface dressing 5-6 days before sowing.

3. DESIGN:
   
   (i) L. Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 48'x19'. (b) 44'x15'. (v) 2’ around the net plot. (vi) Yes.

4. GENERAL:
   
   (i) No lodging. Satisfactory. (ii) Attacked by gundy-25% on ears. (iii) Grain yield. (iv) (a) 1925—1955. (b) No. (c) No. (v) (a) Atarra, Banaras, Bharari (Jhansi), Belatal, Bahrain, Nawabganj (Bareilly) and Lucknow. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   
   (i) 792.2 lb./ac.  
   (ii) 127.7 lb./ac.  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of grain in lb./ac,  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>720.2</td>
</tr>
<tr>
<td>2.</td>
<td>814.2</td>
</tr>
<tr>
<td>3.</td>
<td>796.3</td>
</tr>
<tr>
<td>4.</td>
<td>813.1</td>
</tr>
<tr>
<td>5.</td>
<td>741.4</td>
</tr>
<tr>
<td>6.</td>
<td>868.0</td>
</tr>
</tbody>
</table>

S.E./mean = 52.64 lb./ac.
Object:—To study the effect of varying doses of trace elements (Copper, Boron, Zinc) in presence of adequate quantities of N, P, K and Calcium on growth, yield and quality of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy followed by Berseem. (b) Berseem. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 16, 18.7.1953. (iv) (a) Two ploughings by praja desi on 26.6.1953 and 12.7.1953., ploughing with desi plough on 16 and 18.7.1953. (b) Transplanting. (c) 12 srs./ac. in nursery bed. (d) Plant spacing, 9’ and row spacing 12”.
   (e) Single seeding. (v) G.M.+30 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super+15 lb./ac. of K₂O as Pot. Sulphate+15 lb./ac. of CaO as Gypsum. (vi) T-136 (early). (vii) Irrigated. (viii) Interculturing between rows 3-4 times with hand hoes. Weeding also performed. 1st weeding after 10-15 days of transplanting. (ix) N.A. (x) 6 and 7.10.1953.

2. TREATMENTS:
   Main-plot treatments:
   3 trace elements: Cu=Copper as Copper Sulphate, B=Boron as Borax and Zn=Zinc as Zinc Sulphate.
   Sub-plot treatments:
   4 levels of trace elements: L₀, L₁, L₂ and L₃
   Levels of Cu : L₀=0, L₁=3, L₂=6 and L₃=12 lb./ac.
   Levels of Boron : L₀=0, L₁=1, L₂=2 and L₃=4 lb./ac.
   Levels of Zinc : L₀=0, L₁=1, L₂=4 and L₃=6 lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 28’×37’. (b) 25’×34’. (v) 1.5’×1’ (highl alround. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Attack of Gundhi bug (35.0%). (iii) Grain and straw yield. (iv) (a) 1952—1955. (b) and (c) No. (v) (a) Banaras, Nawabganj, Bahariach, Banda, and Bharari. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 1479 lb./ac.
   (ii) (a) 35.86 lb./ac.
   (b) 55.39 lb./ac.
   (iii) Main treatments and sub-treatments are both highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>Cu</th>
<th>B</th>
<th>Zn</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₀</td>
<td>1450</td>
<td>1531</td>
<td>1485</td>
</tr>
<tr>
<td>L₁</td>
<td>1395</td>
<td>1671</td>
<td>1349</td>
</tr>
<tr>
<td>L₂</td>
<td>1518</td>
<td>1388</td>
<td>1654</td>
</tr>
<tr>
<td>L₃</td>
<td>1215</td>
<td>1483</td>
<td>1610</td>
</tr>
</tbody>
</table>

   Mean 1394 1518 1524

   S.E. of difference of two
   1. main-plot treatment means = 14.64 lb./ac.
   2. means in the same column = 45.23 lb./ac.
2. TREATMENTS:

All combinations of (1), (2) + a control.

(1) 2 sources of N at 60 lb./ac: $S_1 = A/S$ and $S_2 = A/N$.

(2) 6 times of application of N: $T_1$ = Full dose at transplanting, $T_2$ = Full dose 30 days after transplanting, $T_3$ = Full dose 50 days after transplanting, $T_4$ = at transplanting and half 30 days after transplanting and half 50 days after transplanting, $T_5$ = Half 30 days after transplanting, and $T_6$ = Half 30 days after transplanting.

3. DESIGN:

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 2. (iv) (a) $14' \times 40'$. (b) $10' \times 36'$. (v) 2' around the net plot. (vi) Yes.

4. GENERAL:

(i) Not satisfactory due to lack of irrigation. (ii) No. (iii) Grain yield. (iv) (a) 1950–1951. (b) No. (c) N.A. (v) (a) Tisuhi (Mizipur), Lucknow and Barabanki. (vi) Nil. (vii) The S.E. is greater than the G.M. on account of the fact that there is great variation between the yield in different plots. Conducted by C.P.

5. RESULTS:

(i) 785.0 lb./ac.

(ii) 310.1 lb./ac.

(iii) None of the treatments and their interaction is significant.

(iv) Ave. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Control mean = 280.0 lb./ac.</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
<th>$T_5$</th>
<th>$T_6$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>342.3</td>
<td>186.7</td>
<td>93.3</td>
<td>404.5</td>
<td>435.6</td>
<td>186.7</td>
<td>274.8</td>
</tr>
<tr>
<td>$S_2$</td>
<td>497.8</td>
<td>217.8</td>
<td>124.5</td>
<td>186.7</td>
<td>513.4</td>
<td>248.9</td>
<td>298.2</td>
</tr>
<tr>
<td>Mean</td>
<td>420.0</td>
<td>202.2</td>
<td>108.9</td>
<td>295.6</td>
<td>474.5</td>
<td>217.8</td>
<td>286.5</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N = 89.52 lb./ac.

S.E. of marginal mean of T = 155.05 lb./ac.

S.E. of body of table = 219.26 lb./ac.

---

Crop: Paddy.

Site: Govt. Agri. School Farm, Hawalbagh.

Ref: U.P. 51(136).

Type: 'M'.

Object: To study the effect of time of application of N on growth and yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 4.5.1951 - 4.7.1951. (iv) (a) N.A. (b) Transplanted. (c) —. (d) and (e) N.A. (v) Nil. (vi) Thapachini (late). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2) + a control.

(1) 2 sources of N at 60 lb./ac: $S_1 = A/S$ and $S_2 = A/N$.

(2) 6 times of application of N: $T_1$ = Full dose at transplanting, $T_2$ = Full dose 30 days after transplanting, $T_3$ = Full dose 50 days after transplanting, $T_4$ = at transplanting and half 30 days after transplanting and half 50 days after transplanting, $T_5$ = Half 30 days after transplanting, and $T_6$ = Half 30 days after transplanting.

3. DESIGN:

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 2. (iv) (a) $14' \times 40'$. (b) $10' \times 36'$. (v) 2' around the net plot. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1950-1951. (b) and (c) No. (v) (a) Tisuhi and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.
5. RESULTS:
(i) 886.8 lb./ac.
(ii) 483.6 lb./ac.
(iii) None of the effects and their interaction is significant.
(iv) Av. yield of grain in lb./ac.

\[
\text{Control} = 728.1 \text{ lb./ac.}
\]

\[
\begin{array}{cccccc}
\text{T} & \text{T}_1 & \text{T}_2 & \text{T}_3 & \text{T}_4 & \text{T}_5 & \text{Mean} \\
\hline
\text{S}_1 & 576.4 & 879.8 & 1152.8 & 273.0 & 394.4 & 1577.5 & 809.0 \\
\text{S}_2 & 879.8 & 455.0 & 1152.8 & 1152.8 & 1395.5 & 910.1 & 991.0 \\
\text{Mean} & 728.1 & 667.4 & 1152.8 & 712.9 & 895.0 & 1243.8 & 900.0 \\
\end{array}
\]

S.E. of marginal mean of \( S \) = 139.6 lb./ac.
S.E. of marginal mean of \( T \) = 241.8 lb./ac.
S.E. of body of table = 342.0 lb./ac.

---

Crop: Paddy (Kharif).
Site: Rice Res. Sub-Stn., Kunraghat.
Object: To find out the best manure amongst A/S. Neem cake, Castor cake, T.C. and F.Y.M. for early broadcast Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 21.6.1948.
(iv) (a) 1 ploughing with victory plough and 3 ploughings with desl plough. (b) By broadcast. (c) 37 seers/ac.
(ix) 43.59
(x) 17 and 22.10.1948.

2. TREATMENTS:
1. A/S at 50 lb./ac. of N.
2. Neem cake at 50 lb./ac. of N.
3. Castor cake at 50 lb./ac. of N.
4. T.C. at 50 lb./ac. of N.
5. F.Y.M. at 50 lb./ac. of N.
6. Control.

3. DESIGN:
(i) R.B.D. (ii) 6. (b) 79' x 66'-3". (iii) 4. (iv) (a) 37' x 21'-3". (b) 35' x 19'-3". (v) 1' around. (vi) Yes.

4. GENERAL:
(i) Treatments 1, 2 and 5 completely lodged in replication II and treatment 1 completely lodged in replication IV. Partial lodging of other treatments. (ii) There had been a slight attack of white-ants in the central plots of replication I i.e., having treatments 1 and 3. (iii) Height, tillering and yield of paddy grain.
(iv) (a) 1946—1949. (b) and (c) No. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist to Govt. of U.P., Nagina.

5. RESULTS:
(i) 907 lb./ac.
(ii) 206.3 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1492</td>
</tr>
<tr>
<td>2.</td>
<td>980</td>
</tr>
<tr>
<td>3.</td>
<td>1132</td>
</tr>
<tr>
<td>4.</td>
<td>610</td>
</tr>
<tr>
<td>5.</td>
<td>688</td>
</tr>
<tr>
<td>6.</td>
<td>538</td>
</tr>
</tbody>
</table>

S.E./mean = 103.2 lb./ac.
Crop :- Paddy (Kharif).
Site :- Rice Res. Sub-Stn., Kunraghat.

Object :- To find out the best manure amongst A/S, Neem cake, Castor cake, T.C. and F.Y.M. for early broadcast Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 12.6.1949.
(iv) (a) One ploughing with victory plough and 3 with desi plough. (b) Broadcast. (c) 37 seers/ac. (d) and (e) N.A. (v) Nil. (vi) N. 22 (early). (vii) Unirrigated. (viii) Weeding on 17.7.1949 and 12.8.1949 and two hoeings. (ix) 47.37°. (x) 5.10.1949.

2. TREATMENTS:
1. A/S at 50 lb./ac. of N.
2. Neem cake at 50 lb./ac. of N.
3. Castor cake at 50 lb./ac. of N.
4. T.C. at 50 lb./ac. of N.
5. F.Y.M. at 50 lb./ac. of N.
6. Control.


3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) 79'x66'—9'. (iii) 4. (iv) (a) 37'x21'—3'. (b) 35'x19'—3'. (v) 1' all round the net plot. (vi) Yes.

4. GENERAL:
(i) Good growth. (ii) A few sandy plots of replication I and III were attacked by white-ants. This affected the germination adversely. About 50% of the plants were destroyed by the white-ants in some plots. (iii) Height, tillering and yield of paddy grain. (iv) (a) 1946—1949. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 408.6 lb./ac.
(ii) 147.6 lb./ac.

(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>2.</td>
<td>425.9</td>
</tr>
<tr>
<td>3.</td>
<td>509.1</td>
</tr>
<tr>
<td>4.</td>
<td>315.9</td>
</tr>
<tr>
<td>5.</td>
<td>292.9</td>
</tr>
<tr>
<td>6.</td>
<td>253.4</td>
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<tr>
<td>S.E./mean</td>
<td>=73.8 lb./ac.</td>
</tr>
</tbody>
</table>

---

Crop :- Paddy (Kharif).
Site :- Rice Res. Sub-Stn., Kunraghat.

Object :- To test the qualitative merit of A/N as compared to A/S.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Kesari. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, Kunraghat. (iii) 14.7.1948.
(iv) (a) One ploughing by victory plough and 3 ploughings by desi plough. (b) Transplanted. (c) to (e) N.A. (v) Nil. (vi) T. 88 (late). (vii) Unirrigated. (viii) Two hoeings by kassi and weeding on 12.9.1948. (ix) 44.24°. (x) 27 and 30.11.1948.

2. TREATMENTS:
All combinations of (1) and (2)+ one control
   (1) 2 sources of N : S₁=A/N and S₂=A/S.
   (2) 2 levels of N : N₁=30 and N₂=60 lb./ac.

Manures top dressed on 27.7.1948.
3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 18'x33'. (b) 16'—6'x31'—6'. (v) 9' all round the net plot. (v) Yes.

4. GENERAL:
(i) Uniform growth. (ii) A few gundhi bugs were found on two plants only at the flowering time. (iii) Height, tillering and yield of paddy grain. (iv) (a) 1947—1949. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 1785 lb./ac.
(ii) 454.6 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

\[
\begin{array}{ccc}
| & N_1 & N_2 & \text{Mean} \\
|---|---|---|---|
| S_1 | 1722 | 1934 | 1828 \\
| S_2 | 1817 | 1923 | 1870 \\
| Mean | 1770 | 1928 | 1849 \\
\end{array}
\]

S.E. of marginal means of S or N = 131.2 lb./ac.
S.E. of body of table = 185.6 lb./ac.

Crop :- Paddy (Kharif).
Site :- Rice Res. Stn., Kunraghat.

Object :- To test the qualitative merits of A/N as compared to A/S.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, Kunraghat. (iii) 16.7.1949. (iv) (a) One ploughing by victory plough and 3 by desi plough. (b) Transplanted. (c) N.A. (d) N.A. (e) N.A. (v) Nil. (vi) T-88 (late). (vii) Unirrigated. (viii) 2 hoeings with kassi, weedings on 11.8.1949 and 3.9.1949. (ix) 47.53'. (x) 2.12.1949.

2. TREATMENTS:
All combinations of (1) and (2)+a control.
(1) 2 sources of N : S₁=A/N and S₂=A/S.
(2) 2 levels of N : N₁=30 and N₂=60 lb./ac.
N top dressed on 25.8.1949.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 18'x33'. (b) 16'—6'x31'—6'. (v) 9' all round the net plot. (vi) Yes.

4. GENERAL:
(i) Good growth. (ii) Nil. (iii) Height, tillering and yield of paddy grain. (iv) (a) 1947—1949. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 1188 lb./ac.
(ii) 207.4 lb./ac.
(iii) Only control vs others is highly significant.
(iv) Av. yield of grain in lb./ac.

Control = 930 lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N1</th>
<th>N2</th>
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</tr>
<tr>
<td>Mean</td>
<td>1200</td>
<td>1306</td>
<td>1253</td>
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</tbody>
</table>

S.E. of marginal mean of S or N = 59.88 lb./ac.
S.E. of body of table = 84.69 lb./ac.

Crop: Paddy (Kharif).

Site: Rice Res. Sub-Stn., Kunraghat.

Object: To determine the optimum time of application of manure.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Peas. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Kunraghat. (iii) 27 to 31.5.1949/2.7.1949. (iv) (a) One victory plough and 3 with desi plough. (b) Transplanting. (c) to (e) N.A. (v) Nil. (vi) T-136 (early). (vii) Irrigated. (viii) Weeding on 19.8.1949. (ix) 43.58'. (x) 16.9.1949.

2. TREATMENTS:
   All combinations of (1), (2) and (3) + one control (no manure).
   (1) 2 sources of N: S1 = A/S and S2 = Castor cake.
   (2) 2 levels of N: N1 = 30 and N2 = 60 lb./ac.
   (3) 2 methods of application: M1 = Castor cake at transplanting and A/S one week after transplanting and M2 = half at transplanting and half 3 weeks after transplanting.

   Manuring on 2, 9 and 23.7.1949.

3. DESIGN:
   (i) 23 F 23 in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 23' - 6' x 18'. (b) 27' x 16' - 6'. (v) 9' around the net plot. (vi) Yes.

4. GENERAL:
   (i) Not good. (ii) There was a very severe attack of guandi bugs on the whole field. The attack occurred in the 3rd week of August. Heavy manuring resulted in gappy growth in certain plots and such plots were seriously attacked by kharif grass hoppers and bugs. (iii) Height, tillers and yield of paddy grain. (iv) 1949-1951. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) The plot got flooded two days after first manuring. (ii) Expt. conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
   (i) 971.5 lb./ac.
   (ii) 250.6 lb./ac.
   (iii) Main effect of N is highly significant, interaction N x S is significant. Other effects and interactions are not significant.
   (iv) Av. yield of grain in lb./ac.

Control = 880 lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N1</th>
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<th>M1</th>
<th>M2</th>
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<td>M2</td>
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<td>1199</td>
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</tbody>
</table>

S.E. of any marginal mean = 62.65 lb./ac.
S.E. of body of any table = 88.61 lb./ac.
Object:—To determine the optimum time of application of manures to Paddy.

1. BASAL CONDITIONS:

2. TREATMENTS:
   All combinations of (1), (2), (3)+4 controls.
   (1) 2 levels of N: N₁=30 and N₂=60 lb./ac. of N.
   (2) 2 sources of N: S₁=A/S and S₂=Castor cake.
   (3) 2 methods of application: M₁=Castor cake at transplanting and A/S or 1/2 week after transplanting and M₂=1/2 at transplanting and half 3 weeks after transplanting.

3. DESIGN:
   (i) R.B.D. (ii) 12. (b) N.A. (iii) 4. (iv) (a) 42°×18°. (b) 40°-6°×16°-6°. (v) 9° around the rest plot. (vi) Yes.

4. GENERAL:
   (i) Good growth. (ii) No disease was observed. Gundhi lugs and grass hoppers both were found in small numbers and hence the damage was also not very serious. (iii) Height, tillering and yield of paddy grain.
   (iv) (a) 1950-1951. (b), No. (c) N.A. (v) (a) N.A. (b) No. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
   (i) 1271 lb./ac. 
   (ii) 740.8 lb./ac.
   (iii) Main effects of N and M alone are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>M₁</th>
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<td>1442</td>
<td>1347</td>
<td>1518</td>
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<tr>
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<td>1825</td>
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</tbody>
</table>

S.E. of any marginal mean = 60.2 lb./ac.
S.E. of body of any table = 85.2 lb./ac.
2. TREATMENTS:

All combinations of (1), (2), (3) + 4 controls.

(1) 2 levels of N: \( N_1 = 30 \) and \( N_2 = 60 \) lb./ac. of N.
(2) 2 sources of N: \( S_1 = A/S \) and \( S_2 = \text{Castor cake} \).
(3) 2 methods of application of N: \( M_1 = \text{Castor cake at transplanting and A/S one week after transplanting} \) and \( M_2 = \frac{1}{2} \) at transplanting and half weeks after transplanting.

3. DESIGN:

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 42' x 18'. (b) 40' - 5' x 16'. (v) 9' left around the net plot. (vi) Yes.

4. GENERAL:

(i) Good growth. No lodging. (ii) Grass hoppers and \textit{Gundhi} bugs were found in abundance in weedy plots due to hogs growth of weeds. All the pests were soon controlled by taking out weeds. The damage was very nominal. Borer attacked plants were also removed from some of the manured plots. (iii) Height, tillering and yield of paddy grain. (iv) (a) 1950 - 1951. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:

(i) 943 lb./ac. (ii) 212.6 lb./ac.

(iii) Main effect of N is highly significant. Main effect of M is significant; others are not significant.

(iv) Av. yield of grain in lb./ac.

Control = 668 lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( N_1 )</th>
<th>( N_2 )</th>
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<th>( M_2 )</th>
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</tbody>
</table>

S.E. of any marginal mean \( = 53.1 \) lb./ac.
S.E. of body of any table \( = 75.2 \) lb./ac.

---

Crop :- Paddy (\textit{Kharif}).
Site :- Rice Res. Sub-Stn., Kunraghat.
Ref :- U.P. 50(282).
Type :- 'M'.

Object :- To study the cumulative effect of applying A/S over a number of years to the same field with or without F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Peas. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, Kunraghat. (iii) 23.6.1950.

(iv) (a) 1 ploughing by Punjab plough and 3 ploughings by \textit{desi} plough. (b) Broadcast. (c) 37 \textit{seers}./ac.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of F.Y.M.: \( F_0 = 0, F_1 = 50 \) and \( F_2 = 100 \) lb./ac. of N.

(2) 4 levels of N as A/S: \( N_0 = 0, N_1 = 20, N_2 = 40 \) and \( N_3 = 60 \) lb./ac. of N.

F.Y.M. broadcast on 1.6.1950 as basal dressing A/S top dressed on 7.7.1950.

3. DESIGN:

(i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 42' x 18'. (b) 40' x 16'. (v) 1' around the net plot. (vi) Yes.
4. GENERAL:
(i) Good growth. (ii) There was no disease incidence. Nymphs of grass hoppers were observed in the first week of August but soon they were controlled with the help of Hexiclene dust. (iii) Height, tillering and yield of paddy grain. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 969 lb./ac.
(ii) 102.3 lb./ac.
(iii) Main effect of N is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
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<th>N₂</th>
<th>N₃</th>
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S.E. of marginal mean of F = 25.6 lb./ac.
S.E. of marginal mean of N = 29.5 lb./ac.
S.E. of body of table = 51.1 lb./ac.

Crop:— Paddy (Khafir).
Site:— Rice Res. Sub-Stn., Kunraghat.
Object:— To study the cumulative effect of applying A/S over a number of years to the same field with or without F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium black. (b) Refer soil analysis, Kunraghat. (iii) 16.6.1951. (iv) 1 ploughing with gujar and two ploughings with desi plough (b) Broadcast. (c) 37 seers/ac. (d) Nil. (e) —. (v) As per treatments. (vi) N—22 (early). (vii) Unirrigated. (viii) 3 weedings. (ix) 26.27°. (x) 30.9.1951 and 4.10.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of F.Y.M.: \( F₀ = 0, F₁ = 50 \) and \( F₂ = 100 \) lb./ac. of N.
(2) 4 levels of N as A/S: \( N₀ = 0, N₁ = 20, N₂ = 40 \) and \( N₃ = 60 \) lb./ac.
F.Y.M. broadcast on 2.4.5.1951 as basal dressing. A/S top dressed on 12.7.1951.

3. DESIGN:
(i) 3x5 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 42' × 18'. (b) 40' × 16'. (y) 1' left allround the net plot. (vi) Yes.

4. GENERAL:
(i) Good growth. Some of the heavily manured plots were lodged due to rains. Grass hopper and Gundhl bugs were noticed in the heavily manured plots. Height, tillering and yield of paddy grain: (iv) (a) 1950—1952. (b) and (c) No. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 892 lb./ac.
(ii) 150.4 lb./ac.
(iii) Main effect of N is highly significant. Main effect of F and interaction N×F are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>N₂</th>
<th>N₃</th>
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S.E. of marginal mean of F = 37.6 lb./ac.
S.E. of marginal mean of N = 43.4 lb./ac.
S.E. of body of table = 75.2 lb./ac.

**Crop :-** Paddy (Kharif).
**Site :-** Rice Res. Sub-Stn., Kunraghat.
Ref :- U.P. 52(311).
Type :- 'M'.

Object :- To study the cumulative effect of applying A/S over a number of years to the same field with or without F.Y.M. on the yield of Paddy.

1. **BASAL CONDITIONS**:
   (i) Nil, (b) Barley, (c) Nil, (ii) (a) Medium loam. (b)Refer soil analysis, Kunraghat. (iii) 28.7.1952.
   (iv) (a) 2 ploughings by Punjab plough and 3 ploughings by desi plough. (b) Broadcast. (c) 37 yrs/ac.
   (x) 10 and 11.10.1952.

2. **TREATMENTS**:
   All combinations of (1) and (2)
   (1) 3 levels of F.Y.M. : F₀=0, F₁=50 and F₂=102 lb./ac. of N.
   (2) 4 levels of N as A/S : N₀=0, N₁=20, N₂=40 and N₃=60 lb./ac.

3. **DESIGN**:
   (i) 3×4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 42′×18′. (b) 40′×16′. (v) 1′ around the net plot. (vi) Yes.

4. **GENERAL**:
   (i) Good growth; no lodging. (ii) Spotting of leaves in the later stage was noticed. There has been a serious attack of gundhi bug. Dusting with gammaxene was done twice as control measure but with no result.
   (iii) Height, tillering and yield of paddy grain (iv) (a) 19.9—19.52. (b) No. (c) Nil. (v) (a) N.A. (b) No.
   (vi) Low yields due to less rains during the crop period and very limited supply of tubewell water and that too not proper time. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. **RESULTS**:
   (i) 45.47 lb./ac.
   (ii) 5.05 lb./ac.
   (iii) Main effects of F and N are highly significant. Interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>F₀</td>
<td>21.70</td>
<td>30.80</td>
<td>47.60</td>
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<td>49.70</td>
<td>72.10</td>
<td>45.32</td>
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<tr>
<td>F₂</td>
<td>37.10</td>
<td>30.80</td>
<td>52.15</td>
<td>76.30</td>
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<tr>
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<td>29.17</td>
<td>30.83</td>
<td>49.82</td>
<td>72.10</td>
<td>45.47</td>
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</table>

S.E. of marginal mean of N = 1.26 lb./ac.
S.E. of marginal mean of F = 1.46 lb./ac.
S.E. of body of table = 2.52 lb./ac.
Crop : Paddy (Kharif).
Site : Crop Physiological Res. Stn., Lucknow.

Object :- To study the effect of application of N on growth, performance and yield of Paddy.

1. BASAL CONDITIONS :
   (i) (a) No. (b) Fallow. (c) Nil. (ii) (a). Sandy loam. (b) N.A. (iii) 5.6.1949 and 12 and 14.7.1949. (iv) (a) 4 ploughings by 

2. TREATMENTS :
   All combinations of (1) and (2) + Control
   (1) 2 sources of N at 60 lb./ac. : S1=A/S and S2=A/N.
   (2) 6 time of application of N: T1=Full dose at transplanting, T2=Full dose 30 days after transplanting, T3=Full dose 50 days after transplanting, T4=Full dose at transplanting and half 30 days after transplanting, T5=Full dose at transplanting and half 50 days after transplanting, T6=Half 30 days after and the other half 50 days after transplanting.

3. DESIGN :
   (i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) 8'x11'. (b) 5'x8'. (v) 11'. all round the net plot. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Av. height of plants, av. length of ear, av. no. of tillers per plant, grain and bhusa yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) Barabanki. (b) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :
   (i) 624.7 lb./ac.
   (ii) 87.62 lb./ac.
   (iii) Main effect of T and control vs others are highly significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

   Control = 303.4 lb./ac.

   \[
   \begin{array}{ccccccc}
   & T_1 & T_2 & T_3 & T_4 & T_5 & T_6 \\
   S_1 & 933.4 & 863.4 & 653.4 & 746.7 & 466.7 & 396.5 \\
   S_2 & 863.4 & 746.7 & 583.4 & 723.4 & 466.7 & 373.4 \\
   \text{Mean} & 898.4 & 805.0 & 618.4 & 735.0 & 466.7 & 385.0 \\
   \end{array}
   \]

   S.E. of marginal mean of S = 20.66 lb./ac.
   S.E. of marginal mean of T = 35.78 lb./ac.
   S.E. of body of table = 50.59 lb./ac.

---

Crop :- Paddy.
Site :- Crop Physiological Res. Stn., Lucknow.

Object :- To study the effect of time of application of N on growth, performance and yield of Paddy.

1. BASAL CONDITIONS :
   (i) (a) Paddy—Wheat. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 3.6.1950/2 and 23.7.1950. (iv) (a) One ploughing by mould board and two by 
   desi plough, one by cultivator and planking etc. (b) Transplanting. (c) —. (d) and (e) N.A. (v) T.C. as basal dressing on 1.6.1950. (vi) N. 22 (early). (vii) Irrigated. (viii) Interculture on 21.7.1950. (ix) N.A. (x) 9 10.1950.

2. TREATMENTS :
   All combinations of (1) and (2)+a control
   (1) 2 sources of N at 60 lb./ac. : S1=A/S and S2=A/N.
   (2) 6 time of application of N :
   \[
   T_1=\text{Full dose at transplanting, } T_2=\text{Full dose 30 days after transplanting, } T_3=\text{Full dose 50 days after transplanting, } T_4=\frac{1}{2} \\
   \text{at transplanting and half 30 days after transplanting, } T_5=\frac{1}{2} \text{ at transplanting and half 50 days after transplanting and } T_6=\text{Half 30 days after and the other half 50 days after transplanting.}
   \]
3. DESIGN:
(i) R.B.D. (ii) 13. (b) N.A. (iii) 2. (iv) (a) 34' x 8', (b) 30' x 6'. (v) 2' x 1'. (vi) Yes.

4. GENERAL:
(i) Ordinary. (ii) No. (iii) Grain yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) Hawalbagh, Tisuhi and Barabanki. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 380.7 lb./ac.
(ii) 61.44 lb./ac.
(iii) Control vs. Others and T are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>Mean</th>
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<tr>
<td>S1</td>
<td>622.3</td>
<td>497.8</td>
<td>311.1</td>
<td>404.5</td>
<td>389.9</td>
<td>311.1</td>
<td>422.6</td>
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<tr>
<td>S2</td>
<td>544.5</td>
<td>451.2</td>
<td>264.5</td>
<td>357.8</td>
<td>342.3</td>
<td>248.9</td>
<td>368.2</td>
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<tr>
<td>Mean</td>
<td>583.4</td>
<td>474.5</td>
<td>287.8</td>
<td>381.2</td>
<td>365.6</td>
<td>280.0</td>
<td>395.4</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of S = 17.73 lb./ac.
S.E. of marginal mean of T = 30.72 lb./ac.
S.E. of body of table = 43.44 lb./ac.

Ref: — U.P. 51(121).
Type: — 'M'.

Crop: — Paddy.
Site: — Crop Physiological Res. Stn., Lucknow.

Object: — To investigate the effect of time of application of N on the growth, performance and yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 12.6.1951/31.7.1951. (iv) (a) Hot weather cultivation. One ploughing by victory plough. Two by cultivator, one by kudali and planking etc. (b) Transplanted. (c) —. (d) and (e) N.A. (v) Nil. (vi) T. 136 (early). (vii) Irrigated. (viii) Interculturing on 17.8.1951, 31.8.1951 and 23.9.1951. (ix) N.A. (x) 27.10.1951.

2. TREATMENTS:
All combinations of (1) and (2)+a control
(1) 2 sources of N at 60 lb./ac.: S1=A/S and S2=A/N.
(2) 6 time cf application of N: T1=Full dose at transplanting, T2=Full dose 30 days after transplanting, T3=Full dose 50 days after transplanting, T4=½ at transplanting and half 30 days after transplanting, T5=½ at transplanting and half 50 days after transplanting and T6=Half 30 days after and the other half 50 days after transplanting.

3. DESIGN:
(i) R.B.D. (ii) 13. (b) N.A. (iii) 2. (iv) (a) 18' x 8', (b) 16' x 6'. (v) 1' around the net plot. (vi) Yes.

4. GENERAL:
(i) Crop was very poor. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) Tisuhi and Hawalbagh. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 477.9 lb./ac.
(ii) 62.0 lb./ac.
(iii) Control vs. others and main effect of T are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
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<tbody>
<tr>
<td>S₁</td>
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<td>816.7</td>
<td>641.7</td>
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<td>291.7</td>
<td>262.5</td>
<td>505.6</td>
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<tr>
<td>S₂</td>
<td>758.4</td>
<td>729.2</td>
<td>583.4</td>
<td>350.0</td>
<td>262.5</td>
<td>262.5</td>
<td>491.0</td>
</tr>
<tr>
<td>Mean</td>
<td>700.0</td>
<td>773.0</td>
<td>612.6</td>
<td>364.6</td>
<td>277.1</td>
<td>262.5</td>
<td>498.3</td>
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</table>

S.E. of marginal mean of S = 17.9 lb./ac.
S.E. of marginal mean of T = 31.0 lb./ac.
S.E. of body of table = 43.85 lb./ac.

Crop : Paddy.
Site : Crop Physiological Res. Stn., Lucknow.
Object : To study the effect of time of application of P₂O₅ on growth, performance and yield of Paddy.

1. BASAL CONDITIONS :
(i) (a) No. (b) Nil. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 5.6.1949/12, 14.7.1949. (iv) (a) Four ploughings by desi plough and planking. (b) to (e) N.A. (v) Nil. (vi) N. 22 (early). (vii) N.A. (viii) 2 weedings. (ix) N.A. (x) 3.10.1949.

2. TREATMENTS :
All combinations of (1), (2) + a control
(1) 2 sources of P₂O₅ (at 40 lb./ac.) : S₁ = Super and S₂ = Ammon. Phos.
(2) 6 times of application of P₂O₅ : T₁ = Full dose at transplanting, T₂ = Full dose 30 days after transplanting, T₃ = Full dose 50 days after transplanting, T₄ = ½ at transplanting and half 30 days after transplanting, T₅ = ½ at transplanting and half 50 days after transplanting, T₆ = Half 30 days after and the other half 50 days after transplanting.

3. DESIGN :
(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 8 ′ x 11 ′ . (b) 5 ′ x 8 ′ . (v) 14 ′ all round the net plot. (vi) Yes.

4. GENERAL :
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1951. (b) No. (c) No. (v) (a) Barabanki. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS :
(i) 540.3 lb./ac.
(ii) 124.6 lb./ac.
(iii) Effect of T and control vs others are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
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<td>653.4</td>
<td>630.1</td>
<td>443.4</td>
<td>513.4</td>
<td>513.4</td>
<td>373.6</td>
<td>521.2</td>
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<tr>
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<td>676.7</td>
<td>536.7</td>
<td>583.4</td>
<td>583.4</td>
<td>467.7</td>
<td>602.8</td>
</tr>
<tr>
<td>Mean</td>
<td>711.8</td>
<td>653.4</td>
<td>490.0</td>
<td>548.4</td>
<td>548.4</td>
<td>420.0</td>
<td>562.0</td>
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</tbody>
</table>

S.E. of marginal mean of S = 29.37 lb./ac.
S.E. of marginal mean of T = 50.88 lb./ac.
S.E. of body of table = 71.93 lb./ac.
Object:—To study the effect of time of application of $P_2O_5$ on growth, performance and yield of Paddy.

1. BASAL CONDITIONS:

2. TREATMENTS:
   All combinations of (I) and (2)+a control
   (I) 2 sources of $P_2O_5$ at 40 lb./ac. : $S_1=$Super and $S_2=$Ammo. Phos.
   (2) 6 times of application of N: $T_1=$Full dose at transplanting, $T_2=$Full dose 30 days after transplanting, $T_3=$Full dose 50 days after transplanting, $T_4=$Full dose at transplanting and half 30 days after transplanting, $T_5=$Full dose at transplanting and half 50 days after transplanting and $T_6=$Half 30 days after and half 50 days after transplanting.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 13.  (b) N.A.  (iii) 2.  (iv) (a) 20'$	imes$11'.  (b) 16'$	imes$7'.  (v) 2' around the net plot.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) Nil.  (iii) Grain yield.  (iv) (a) 1949—1951.  (b) No.  (v) (a) Tisushi and Barabanki.  (b) N.A.  (vi) Nil.  (vii) Conducted by C.P.

5. RESULTS:
   (i) 830.9 lb./ac.
   (ii) 106.2 lb./ac.
   (iii) Control vs others and main effects of S and T are highly significant. Interaction S$\times$T is not significant.
   (iv) Av. yield of grain in lb./ac.

\[
\begin{array}{cccccc}
 & T_1 & T_2 & T_3 & T_4 & T_5 & T_6 & \text{Mean} \\
S_1 & 950 & 950 & 550 & 700 & 600 & 550 & 717 \\
S_2 & 1250 & 1150 & 800 & 1100 & 1050 & 700 & 1008 \\
\text{Mean} & 1100 & 1050 & 675 & 900 & 825 & 625 & 863 \\
\end{array}
\]

S.E. of marginal mean of S =30.6 lb./ac.
S.E. of marginal mean of T =53.1 lb./ac.
S.E. of body of table =75.1 lb./ac.
2. TREATMENTS:
All combinations of (1) and (2) + a control
(1) 2 sources of $P_2O_5$ at 40 lb./ac.: $S_1 =$ Super and $S_2 =$ Ammo. Phos.
(2) 6 times of application of $N$: $T_1 =$ Full dose at transplanting, $T_2 =$ Full dose 30 days after transplanting, $T_3 =$ Half dose 50 days after transplanting and half 30 days after transplanting, $T_4 =$ Half 30 days after transplanting and half 50 days after transplanting.

3. DESIGN:
(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 2. (iv) (a) 18'×8'. (b) 12'×6'. (v) 3'×1'. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) Tisubi. (b) N.A. (v) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 173.5 lb./ac.
(ii) 65.91 lb./ac.
(iii) Main effects of $S$ and $T$ are significant. Control vs others and interaction $S\times T$ are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
<th>$T_5$</th>
<th>$T_6$</th>
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</tr>
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<tbody>
<tr>
<td>$S_1$</td>
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<td>155.6</td>
<td>155.6</td>
<td>116.7</td>
<td>116.7</td>
<td>77.8</td>
<td>142.6</td>
</tr>
<tr>
<td>$S_2$</td>
<td>350.0</td>
<td>311.1</td>
<td>233.4</td>
<td>155.6</td>
<td>116.7</td>
<td>116.7</td>
<td>213.9</td>
</tr>
<tr>
<td>Mean</td>
<td>291.7</td>
<td>233.4</td>
<td>194.5</td>
<td>136.2</td>
<td>116.7</td>
<td>97.2</td>
<td>178.3</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of $S$ = 19.32 lb./ac.
S.E. of marginal mean of $T$ = 33.45 lb./ac.
S.E. of body of table = 47.31 lb./ac.

Crop: Paddy.
Site: Crop Physiological Res. Stn., Lucknow.
Ref: U.P. 53(34).
Type: 'M'.

Object: To study the effect of varying doses of $N$ in presence of adequate quantities of $K_2O$, $P_2O_5$, Calcium, Copper, Zinc and Boron on growth and yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Nil. (c) Potato. (ii) (a) Sandy loam. (b) N.A. (iii) 12, 13.7.1953. (iv) (a) N.A. (b) Transplanted. (c) —. (d) Plant spacing 9" and row spacing 12". (e) One. (v) Green manuring with sanai and F.Y.M. at 80 mds./ac. Super at 40 lb./ac. of $P_2O_5$, Sulphate of Potash at 48 lb./ac. Gypsum at 32.5 lb./ac., Copper Sulphate at 25.46 lb./ac. and Zinc Sulphate at 1 lb./ac. (vi) T-136. (vii) Irrigated. (viii) Weeding and hoeing on 27.7.1953, 9 and 23.8.1953. (ix) 49.36°. (x) 4.10.1953.

2. TREATMENTS:
1. Control.
2. 50 lb./ac. of $N$.
3. 100 lb./ac. of $N$.
4. 150 lb./ac. of $N$.
5. 200 lb./ac. of $N$.

3. DESIGN:
(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 20'×11.5'. (b) 19'×10.5'. (v) ½ around. (vi) Yes.

4. GENERAL:
(i) Lodging occurred in plots receiving more than 100 lb./ac. of $N$. (ii) Nil. (iii) Grain and bhuras yield.
(iv) (a) No. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Conducted by C.P.
5. RESULTS:

(i) 860 lb./ac.
(ii) 253.4 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<tbody>
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<td>1.</td>
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<td>6.</td>
<td>779</td>
</tr>
<tr>
<td>2.</td>
<td>1628</td>
<td>7.</td>
<td>716</td>
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<tr>
<td>3.</td>
<td>997</td>
<td>8.</td>
<td>695</td>
</tr>
<tr>
<td>4.</td>
<td>730</td>
<td>9.</td>
<td>597</td>
</tr>
<tr>
<td>5.</td>
<td>758</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E./mean = 126.7 lb./ac.

Crop: Paddy.  
Site: Crop Physiological Res. Stn., Lucknow.
Ref: U.P. 53(211).
Type: ‘M’.

Object: To study the effect of different doses of Calcium in presence of adequate quantities of N, P, K, Copper, Zinc and Boron on growth and yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) No. (b) Potato. (c) N.A.  (ii) (a) Sandy loam. (b) N.A.  (iii) 1.6.1953/18.7.1953.  (iv) (a) N.A. (b) Transplanting. (c) 10.  (d) and (e) N.A.  (v) Green manuring by sanai with 40 lb./ac. (P₂O₅) F.Y.M. at 80 maunds/ac. A/S at 40 lb./ac of N, Super at 40 lb./ac of P₂O₅ and Pot. Sulphate at 20 lb./ac. of K₂O and trace elements-dose N.A.  (vi) T-136 (medium-early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 5.10.1953.

2. TREATMENTS:

1. Control.
2. 20 lb./ac. of CaO.
3. 40 lb./ac. of CaO.
4. 60 lb./ac. of CaO.
5. 80 lb./ac. of CaO.
6. 100 lb./ac. of CaO.
7. 120 lb./ac. of CaO.
8. 140 lb./ac. of CaO.
9. 160 lb./ac. of CaO.

CaO applied as Gypsum on 18.8.1953.

3. DESIGN:

(i) R.B.D.  (ii) 9.  (b) N.A.  (iii) 3.  (iv) (a) 20’X11½’.  (b) 16’X7.5’.  (v) 2’ all round the net plot.  (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) to (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:

(i) 1379 lb./ac.
(ii) 112.2 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<tbody>
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<td>1.</td>
<td>1275</td>
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<td>2.</td>
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<td>7.</td>
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<td>3.</td>
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<td>4.</td>
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</tr>
<tr>
<td>5.</td>
<td>1399</td>
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<td></td>
</tr>
</tbody>
</table>

S.E./mean = 64.75 lb./ac.
Crop :- Paddy.

Site :- Crop Physiological Res. Stn., Lucknow.

Object :- To study the response of Paddy to application of Sulphur and Calcium.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow. (c) Nil: (ii) (a) Sandy loam; (b) N.A. (iii) 3.6.1950/9.7.1950. (iv) (a) 2 ploughings by mould board; 2 ploughings by desi and planking. (b) Transplanting. (c) (d) and (e) N.A. (v) 50 lb./ac. of N on 4.7.1950. (vi) T-136 (medium early). (vii) Unirrigated. (viii) Interculturings on 13.7.1950, 19.8.1950 and 24.9.1950. (ix) N.A. (x) 6.10.1950.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of Ca as Gypsum : C₀ = 0, C₁ = 30 and C₂ = 60 lb./ac.
   (2) 3 levels of Sulphur : S₀ = 0, S₁ = 10 and S₂ = 20 lb./ac.
   Manures applied on 24.7.1950.

3. DESIGN :
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) 10' x 7'. (b) 9' x 6'. (v) Half foot round the net plot. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) Length of shoot, length of leaf etc. and grain yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS :
   (i) 2240 lb./ac.
   (ii) 271.3 lb./ac.
   (iii) Main effect of C and S are highly significant. Interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>C₀</th>
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<th>C₂</th>
<th>Mean</th>
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<td>1693</td>
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<td>2240</td>
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S.E. of any marginal mean = 110.8 lb./ac.
S.E. of body of table = 191.9 lb./ac.

Crop :- Paddy.

Site :- Crop Physiological Res. Stn., Lucknow.

Object :- To study the effect of Boron, Molybdenum, Copper, Sulphur and Zinc in presence of adequate quantities of N, P and K on yield and quality of Paddy.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Potato. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 18.7.1952/9.8.1952. (iv) (a) N.A. (b) Transplanting. (c) (d) Line to line 6" ; plant to plant 3". (e) N.A. (v) Super at 15 lb./ac. of P₂O₅ to be applied 6" deep in furrows while preparing the field. A/S at 30 lb./ac. of N and Pot. Sulphate at 15 lb./ac. of K₂O as top dressing at least one week before transplanting. (vi) T-136 (Medium early). (vii) Irrigated. (viii) Weeding and hoeings on 2, 9, 18, 1932 and 11, 20, 8, 1952. (ix) N.A. (x) 21.10.1952.
2. TREATMENTS:
1. Control.
2. Molybdenum (Mo) as Molybdate acid at 6 lb./ac. of Mo.
3. Copper (Cu) as Copper sulphate at 6 lb./ac. of Cu.
4. Boron (B) as Commercial Borax at 1 lb/ac. of B.
5. Sulphur (S) as Commercial Sulphur at 10 lb./ac. of S.
6. Zinc (Zn) as Zinc Sulphate at 4 lb./ac. of Zn.
A basal dose of A/S at 30 lb./ac. of N + Super at 15 lb./ac. of P₂O₅ + Pot. Sulphate at 15 lb./ac. of K₂O is supplied to all treatments. Trace elements mixed with fine earth and applied as top dressing 5-6 days before transplanting.

3. DESIGN:
(i) L. Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 26' x 10' (b) 24' x 8'. (v) 1' around the net plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) Atarra, Faizabad, Banaras, Bharari Belatal, Bhaarich and Nawabganj. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 610.1 lb./ac.
(ii) 215.3 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
<td>622.3</td>
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<tr>
<td>3.</td>
<td>568.8</td>
</tr>
<tr>
<td>4.</td>
<td>763.3</td>
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<td>5.</td>
<td>612.6</td>
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<tr>
<td>6.</td>
<td>578.5</td>
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<tr>
<td>S.E./mean</td>
<td>87.90 lb./ac.</td>
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</tbody>
</table>

Crop: Paddy.  
Ref: U.P. 51(88).
Site: Tarai State Farm (Western Block), Matkota.  
Type: 'M'.

Object: To study the effect of N and P applied alone and in combination on the yield and quality of Paddy crop.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Matkota. (iii) 27.6.1951. (iv) (a) The field was ploughed and harrowed by tractor. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) Un-irrigated. (viii) Two weedings. (ix) N.A. (x) End of Nov., 1951

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
(2) 3 levels of P₂O₅: P₀ = 0, P₁ = 50 and P₂ = 100 lb./ac.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 46' x 23' - 7'. (v) A distance of one to three feet from plot to plot. (vi) Yes.

4. GENERAL:
(i) Not good, below normal due to heavy infection of weeds and late rains. (ii) No. (iii) Grain yield. (iv) (a) 1951-1952. (b) and (c) No. (v) (a) Nawabganj. (b) N.A. (vi) N.A. (vii) Conducted by A.C.
5. RESULTS:
(i) 579.3 lb./ac.
(ii) 176.3 lb./ac.
(iii) Main effect of N is highly significant, main effect of P and interaction N × P are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
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<th>P₂</th>
<th>Mean</th>
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<td>575.5</td>
<td>642.5</td>
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<tr>
<td>N₂</td>
<td>615.7</td>
<td>609.0</td>
<td>842.2</td>
<td>689.3</td>
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<td>Mean</td>
<td>535.4</td>
<td>564.4</td>
<td>638.0</td>
<td>579.5</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of P or N = 41.56 lb./ac.
S.E. of body of table = 71.98 lb./ac.

Crop: Paddy (Kharif).
Site: Tarai State Farm (Western Block), Matkota.

Ref: U.P. 52(1).
Type: 'M'.

Object: To study the effect of N and P applied alone and in combination on the yield and quality of Paddy crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Silt loam. (b) Refer soil analysis, Matkota. (iii) 24.6.1952. (iv) (a) Field prepared by tractor ploughing and disc harrowing. (b) Seedlings were sown in rows according to local practices. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 16.10.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
(2) 3 levels of P₂O₅: P₀ = 0, P₁ = 50 and P₂ = 100 lb./ac.
N as A/S and P₂O₅ as Super. A/S applied by broadcast as surface dressing and Super drilled in furrows 4' deep behind the plough. Date of application 22, 23.6.1952 and 11, 14.7.1952.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 22' x 49.5'. (b) 22' x 49.5'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Affected by excessive weeds. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1951—1952. (b) No. (c) No.
(vi) A/S Kalyanpur, Banaras, Partapgarh, Nawabganj, Bharari and Atarra. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 1156 lb./ac.
(ii) 229.2 lb./ac.
(iii) None of the effects and their interaction is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
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<tr>
<td>Mean</td>
<td>1220</td>
<td>1136</td>
<td>1111</td>
<td>1156</td>
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</table>

S.E. of marginal mean of N or P = 54.0 lb./ac.
S.E. of body of table = 93.6 lb./ac.
Crop := Paddy.
Site := Rice Res. Stn., Nagina.
Type := 'M'.

Object := To study the cumulative effect of applying A/S over a number of years to the same field with or without F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Fallow. (b) Fallow. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) 1.6.1949/8.7.1949. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) to (e) N.A. (v) Nil. (vi) Anjana Pilibhit. (vii) N.A. (viii) Two weedings by hand. (ix) N.A. (x) 3.10.1949.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of F.Y.M.: F_0 = 0, F_1 = 50 and F_2 = 100 lb./ac. of N
   (2) 4 levels of N as A/S: N_0 = 0, N_1 = 20, N_2 = 40 and N_3 = 60 lb./ac.


3. DESIGN:
   (i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 41' x 15'. (b) 1/87.43 ac. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 15/9—1953. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Conducted by A. E. B. (P).

5. RESULTS:
   (i) 2337 lb./ac.
   (ii) 241.9 lb./ac.
   (iii) Main effects of N and F are highly significant. Interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N_0</th>
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<th>N_2</th>
<th>N_3</th>
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<td>F_2</td>
<td>1873</td>
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<tr>
<td>Mean</td>
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<td>2260</td>
<td>2608</td>
<td>2600</td>
<td>2337</td>
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</table>

S.E. of marginal mean of F = 60.4 lb./ac.
S.E. of marginal mean of N = 69.8 lb./ac.
S.E. of body of table = 120.9 lb./ac.
4. GENERAL:
(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) Yes. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 1610 lb./ac.
(ii) 314.7 lb./ac.
(iii) Main effect of N is highly significant. Main effect of F and interaction N×F are not significant.
(iv) Av. yield of grain in lb./ac.

\[
\begin{array}{cccc|c}
N_0 & N_1 & N_2 & N_3 & \text{Mean} \\
F_0 & 1034 & 1072 & 1715 & 2113 & 1484 \\
F_1 & 1178 & 1558 & 1615 & 2111 & 1616 \\
F_2 & 1387 & 1483 & 2014 & 2017 & 1730 \\
\hline
\text{Mean} & 1199 & 1371 & 1788 & 2080 & 1610 \\
\end{array}
\]

S.E. of marginal mean of F = 78.68 lb./ac.
S.E. of marginal mean of N = 90.85 lb./ac.
S.E. of body of table = 157.36 lb./ac.

Crop := Paddy.
Ref := U.P. 51(47)/50(44)/49(40).
Site := Rice Res. Stn., Nagina.
Type := 'M'.

Object := To study the cumulative effect of application of A/S over a number of years to the same field with and without F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Paddy-Fallow. (b) Fallow. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) 13.7.1951. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) to (e) N.A. (vi) N.A. (vii) T-138(early). (viii) N.A. (ix) N.A. (x) 22.10.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of F.Y.M. : F_0 =0, F_1 =50 and F_2 =100 lb./ac. of N
(2) 4 levels of N as A/S : N_0 =0, N_1 =20, N_2 =40 and N_3 =60 lb./ac. of N.

3. DESIGN:
(i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 41' x 15'. (b) 39.5' x 13.5'. (v) One row at each end of the plot. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) Yes. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 664.4 lb./ac.
(ii) 165.8 lb./ac.
(iii) Main effects of F and N are highly significant. Interaction N×F is not significant.
(iv) Av. yield of grain in lb./ac.

\[
\begin{array}{cccc|c}
N_0 & N_1 & N_2 & N_3 & \text{Mean} \\
F_0 & 399.8 & 387.5 & 651.8 & 722.4 & 540.4 \\
F_1 & 402.1 & 687.7 & 545.4 & 912.8 & 637.0 \\
F_2 & 679.8 & 749.3 & 984.5 & 850.1 & 815.9 \\
\hline
\text{Mean} & 493.9 & 608.2 & 727.2 & 828.4 & 664.4 \\
\end{array}
\]

S.E. of marginal mean of F = 41.45 lb./ac.
S.E. of marginal mean of N = 47.86 lb./ac.
S.E. of body of table = 82.88 lb./ac.
Crop : Paddy.  
Site : Rice Res. Stn., Nagina. 
Object : To study the cumulative effect of application of A/S over a number of years to the same field with and without F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy—Fallow—Paddy—Fallow—Paddy—Wheat. (b) Wheat. 
   (ii) (a) Silt loam. (b) N.A. 
   (iii) 30.6.1952. (iv) (a) 1 deep ploughing and 2 shallow ploughings. (b) to (e) N.A. 
   (vi) T-138 (early). (vii) N.A. (viii) 2 weedings. (ix) N.A. 
   (x) 10.10.1952.

2. TREATMENTS:
   All combinations of (1) and (2) 
   (1) 3 levels of F.Y.M. : F₀ = 0, F₁ = 50 and F₂ = 100 lb./ac. of N. 
   (2) 4 levels of N as A/S : N₀ = 0, N₁ = 20, N₂ = 40 and N₃ = 60 lb./ac. of N.

3. DESIGN:
   (i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 41°x15°. (b) 39°x13°. (v) 0.75° border around the plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) Yes. (c) N.A. 
   (v) (a) and (b) No. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
   (i) 1985 lb./ac. 
   (ii) 352.8 lb./ac. 
   (iii) Main effect of F is highly significant. Main effect of N and interaction N x F are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>N₀</th>
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<th>N₂</th>
<th>N₃</th>
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<td>2010</td>
<td>2029</td>
<td>2077</td>
<td>1985</td>
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</table>

S.E. of marginal mean of F = 88.2 lb./ac. 
S.E. of marginal mean of N = 101.8 lb./ac. 
S.E. of body of table = 176.4 lb./ac. 

---

Crop : Paddy (Kharif).  
Site : Rice Res. Stn., Nagina. 
Object : To study the cumulative effect of application of A/S over a number of years to the same field with and without F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy—Barrism. (b) Fallow. (c) Nil. 
   (ii) (a) Silt loam. (b) N.A. 
   (iii) 6.7.1953. (iv) (a) 1 deep ploughing and 2 shallow ploughings. (b) to (e) N.A. 

2. TREATMENTS:
   All combinations of (1) and (2) 
   (1) 3 levels of F.Y.M. : F₀ = 0, F₁ = 50 and F₂ = 100 lb./ac. of N. 
   (2) 4 levels of N as A/S : N₀ = 0, N₁ = 20, N₂ = 40 and N₃ = 60 lb./ac. of N.

3. DESIGN:
   (i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 41° x 15°. (b) 39.5° x 13.5°. (v) 0.75° border around each experimental plot. (vi) Yes.
4. GENERAL:
(i) 50 to 75% lodging was noted. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) N.A. (v) (a) and (b) Nil. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 2213 lb./ac.
(ii) 734.4 lb./ac.
(iii) Only the interaction N X F is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N_0</th>
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<th>N_2</th>
<th>N_3</th>
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<td>2279</td>
<td>2138</td>
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</table>

Mean 2080 2312 2212 2248 2213

S.E. of marginal mean of N = 96.5 lb./ac.
S.E. of marginal mean of F = 83.6 lb./ac.
S.E. of body of table = 167.2 lb./ac.

Crop:— Paddy.
Site:— Rice Res. Stn., Nagina.

Object:— To find out the effect of application of Phosphate to a legume Berseem in Rabi on subsequent Paddy crop.

1. BASAL CONDITIONS:
(i) (a) Paddy-Berseem. (b) Berseem. (c) As per treatments. (ii) (a) Silt loam. (b) N.A. (iii) 1.6.1950/30.6.1950. (iv) (a) 1 deep ploughing and 2 shallow ploughings. (b) to (e) N.A. (v) Nil. (vi) Anjana Pilibhit. (vii) N.A. (viii) 2 weedings by hand. (ix) N.A. (x) 6.10.1950.

2. TREATMENTS:
1. No. P_2O_5.
2. P_2O_5 at 25 lb./ac.
3. P_2O_5 at 50 lb./ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 41' X 15'. (b) 1/87.43 ac. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 1484 lb./ac.
(ii) 327.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1512</td>
</tr>
<tr>
<td>2.</td>
<td>1519</td>
</tr>
<tr>
<td>3.</td>
<td>1421</td>
</tr>
</tbody>
</table>

S.E./mean = 115.6 lb./ac.
Object:—To find out the effect of application of Super to a legume Berseem in Rabi on subsequent Paddy crop.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Berseem. (b) Berseem. (c) As per treatments. (ii) (a) Silt loam. (b) N.A. (iii) 15.7.1951/N.A. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) to (e) N.A. (v) Nil. (vi) T-138 (early). (vii) Irrigated. (viii) 2 weedings by hand. (ix) N.A. (x) 23.10.1951.

2. TREATMENTS:
   1. No P2O5
   2. Super at 50 lb./ac. of P2O5
   3. Super at 100 lb./ac. of P2O5
   Super was applied 4" deep behind the plough.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 41' x 15'. (b) 1/87.43 ac. (v) One row at each end of the plot. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 819.1 lb./ac.
   (ii) 269.9 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
<td>733.6</td>
</tr>
<tr>
<td>3.</td>
<td>881.4</td>
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</table>

   S.E./mean = 95.4 lb./ac.
5. RESULTS:

(i) 1584 lb./ac.
(ii) 182.56 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
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</thead>
<tbody>
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<td>2</td>
<td>1523</td>
</tr>
<tr>
<td>3</td>
<td>1692</td>
</tr>
</tbody>
</table>

S.E./mean = 64.54 lb./ac.

Crop := Paddy.
Site := Rice Res. Stn., Nagina.
Object := To study the response of Paddy to the application of N, P and calcium.

1. BASAL CONDITIONS:

(i) (a) No. (b) N.A. (c) N.A. (ii) (a) and (b) N.A. (iii) 1.6.1949/14.7.1949. (iv) (a) to (e) N.A. (v) Nil. (vi) T-36 (late). (vii) N.A. (viii) N.A. (ix) N.A. (x) 28.9.1949.

2. TREATMENTS:

All combinations of (1), (2) and (3).
(1) 3 levels of N: N₀ =0, N₁ =30 and N₂ =60 lb./ac.
(2) 3 levels of P₂O₅ : P₀ =0, P₁ =20 and P₂ =40 lb./ac.
(3) 3 levels of Calcium : C₀ =0, C₁ =30 and C₂ =60 lb./ac.

N as A/S, P₂O₅ as Super and Ca as Gypsum.

3. DESIGN:

(i) 3⁸ confounded factorial. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 18' × 37'. (b) 12' × 31'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Height of plants, length of leaf, breadth of leaf, no. of tillers, no. of green leaves and grain yield. (v) (a) 1949—1952. (b) and (c) No. (v) (a) Bharari (Jhansī), Nawabganj (Bareilly) and Banaras. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:

(i) 1602 lb./ac.
(ii) 196.59 lb./ac.
(iii) Main effect of N alone is highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>C₀</th>
<th>C₁</th>
<th>C₂</th>
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<td>1565</td>
<td>1602</td>
<td>1565</td>
<td>1625</td>
<td>1617</td>
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S.E. of any marginal mean = 46.33 lb./ac.
S.E. of body of table = 80.27 lb./ac.
Crop: Paddy.
Site: Rice Res. Stn., Nagina.

Object: To study the response of Paddy to application of N, P and calcium.

1. BASAL CONDITIONS:
   (i) (a) No.  (b) Oats. (c) N.A.  (ii) (a) Loam. (b) N.A.  (iii) 1.6.1950/12.7.1950.  (iv) (a) 3 ploughings. (b) Transplanting.  (c) —. (d) and (e) N.A.  (v) Nil. (vi) Paddy T-36 (early). (vii) Irrigated. (viii) 1 weeding on 7.8.1950. (ix) N.A.  (x) 9.10.1950.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: N₀ =0, N₁=30 and N₂=60 lb./ac.
   (2) 3 levels of P₂O₅: P₀=0, P₁=20 and P₂=40 lb./ac.
   (3) 3 levels of Calcium: C₀=0, C₁=30 and C₂=60 lb./ac.
   N as A/S, P₂O₅ as Super and Ca as Gypsum. Manures applied on 5, 6 and 26.7.1950.

3. DESIGN:
   (i) 3² confd. Fact. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 18' x 37'. (b) 12' x 31'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1952. (b) and (c) No. (v) (a) and (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 1392 lb./ac.
   (ii) 331.05 lb./ac.
   (iii) Main effect of N alone is highly significant. others are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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S.E. of any marginal mean = 78.02 lb./ac.
S.E. of body of table = 135.17 lb./ac.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
(2) 3 levels of \( P_2O_5 \): \( P_0 = 0, P_1 = 20 \) and \( P_2 = 40 \) lb./ac.
(3) 3 levels of Calcium: \( C_0 = 0, C_1 = 30 \) and \( C_2 = 60 \) lb./ac.
N as A/S, \( P_2O_5 \) as Super and Ca as Gypsum. Manures applied 3 days before transplanting.

3. DESIGN:
(i) 3\(^3\) partially confounded. (ii) (a) 9 plots/block, 3 blocks/replication. (iii) 2. (iv) (a) 18\('\)x37\('\). (b) 12\('\)x31\('\). (v) 3\('\) around. (vi) Yes.

4. GENERAL:
(i) No lodging; moderate. (ii) Nil. (iii) Grain yield (iv) (a) 1949-1952. (b) and (c) No. (v) (a) Nawabganj (Bareilly), Tissuhi (Mirzapur). Bharari (Jhansi), Atarra (Banda), Pachperwa (Gonda) and Faizabad. (b) N.A. (vi) Nil. Conducted by C.P.

5. RESULTS:
(i) 1019 lb./ac.
(ii) 248.85 lb./ac.
(iii) Main effect of N is highly significant. All other effects and interactions are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>Mean</th>
<th>( C_0 )</th>
<th>( C_1 )</th>
<th>( C_2 )</th>
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<td>721</td>
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<td>653</td>
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<tr>
<td>( N_1 )</td>
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<td>1085</td>
<td>1005</td>
<td>878</td>
<td>1110</td>
<td>1028</td>
</tr>
<tr>
<td>( N_2 )</td>
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<td>1057</td>
<td>1019</td>
<td>977</td>
<td>1030</td>
<td>1049</td>
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</table>

S.E. of any marginal mean = 58.66 lb./ac.
S.E. of body of table = 101.60 lb./ac.

Crop: Paddy.
Site: Rice Res. Stn., Nagina.
Ref: U.P.52(215).
Type: 'M'.

Object: To study the response of late Paddy to 3 levels of N, P and calcium.

BASAL CONDITIONS:
(i) (a) Nil. (b) Oats. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 30.5.1952/10.7.1952. (iv) (a) N.A. (b) Transplanting. (c) -. (d) and (e) N.A. (v) Nil. (vi) T-136 (ear'y). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
(2) 3 levels of \( P_2O_5 \): \( P_0 = 0, P_1 = 20 \) and \( P_2 = 40 \) lb./ac.
(3) 3 levels of Calcium: \( C_0 = 0, C_1 = 30 \) and \( C_2 = 60 \) lb./ac.
N as A/S, \( P_2O_5 \) as Super and Ca as Gypsum. N applied on 15.7.1952, Gypsum on 9.7.1952 and \( P_2O_5 \) on 7.7.1952.

3. DESIGN:
(i) 3\(^3\) Partially Conf. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 18\('\)x37\('\). (b) 12\('\)x31\('\). (v) 3\('\) around. (vi) Yes.
4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1949—1952.  (b) and (c) No.  (v) (a) Nawabganj (Bareilly), Bharari, Faizabad, Tissuhi and Pachperwa (Gandra).  (b) N.A.  (vi) Nil.  (vii) Conducted by C.P.

5. RESULTS:
(i) 2679 lb./ac.
(ii) 486.3 lb./ac.
(iii) Main effect of N alone is highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>C₀</th>
<th>C₁</th>
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<tr>
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<td>2825</td>
<td>2679</td>
<td>2566</td>
<td>2608</td>
<td>2863</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 114.6 lb./ac.
S.E. of body of table = 198.5 lb./ac.

Crop :— Paddy.
Site :— Rice Res. Stn., Nagina.
Object :— To determine the residual effect of different doses of T.C. as manure applied in previous years on the yield of Paddy crop.

1. BASAL CONDITIONS:
(i) (a) Nil.  (b) Fallow.  (c) No.  (ii) (a) Light loam.  (b) N.A.  (iii) 1.6.1948/5.7.1948.  (iv) (a) 1 deep ploughing and 2 shallow ploughings.  (b) Transplanting.  (c) —.  (d) and (e) N.A.  (v) Nil.  (vi) T-21.  (vii) N.A.  (vii) 2 weedings.  (ix) N.A.  (x) 15.10.1948.

2. TREATMENTS:
1. Control.
2. T.C. at 50 lb./ac. of N.
3. T.C. at 100 lb./ac. of N.
4. T.C. at 150 lb./ac. of N.
Manures applied last year.  No manure was applied this year.

3. DESIGN:
(i) R.B.D.  (ii) (a) 4.  (b) N.A.  (iii) 6.  (iv) (a) 41' x 18'.  (b) 1/76.81 ac.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) Normal.  No lodging.  (ii) Nil.  (iii) Grain yield.  (iv) (a) 1945—1948.  (b) Yes.  (c) N.A.  (v) (a) and (b) No.  (vi) Nil.  (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 1566 lb./ac.
(ii) 243.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1472</td>
</tr>
<tr>
<td>2.</td>
<td>1723</td>
</tr>
<tr>
<td>3.</td>
<td>1534</td>
</tr>
<tr>
<td>4.</td>
<td>1533</td>
</tr>
</tbody>
</table>
S.E./mean = 99.22 lb./ac.
Crop: Paddy (Kharif).  
Site: Rice Res. Stn., Nagina.  
Ref: U.P. 53(166).  
Type: ‘M’.

Object: To find out the most economic dose of N in the form of A/S.

1. BASAL CONDITIONS:
   (i) (a) Paddy. (b) Berseem. (c) No. (ii) (a) Silt loam. (b) N.A. (iii) 6.7.1953. (iv) (a) One deep ploughing, 2 shallow ploughings. (b) to (c) N.A. (v) Nil. (vi) T-138 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 46.28°. (x) 13.10.1953.

2. TREATMENTS:
   1. No manure.
   2. A/S at 30 lb./ac. of N.
   3. A/S at 60 lb./ac. of N.
   4. A/S at 90 lb./ac. of N.
   5. A/S at 120 lb./ac. of N.
   6. A/S at 150 lb./ac. of N.
1st dose applied on 29.7.1953 and 2nd dose applied on 29.8.1953.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 41°×15°. (b) 1/81.35th ac. (v) 1° border around each experimental plot. (vi) Yes.

4. GENERAL:
   (i) Poor; 50 to 75% crop lodged in different plots. (ii) Not recorded. (iii) Grain yield. (iv) (a) No. (b) No. (c) No. (v) (a) and (b) No. (vi) Treatment no. 5 (A/S at 120 lb./ac.) was missing in all the four replicates and so it was totally eliminated while analysis was done. (vii) Conducted by A.E.B.(P).

5. RESULTS:
   (i) 2433 lb./ac.
   (ii) 367.4 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
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<tr>
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<tr>
<td>3.</td>
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<tr>
<td>4.</td>
<td>2678</td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>2694</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>183.7 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy.  
Site: Rice Res. Stn., Nagina.  
Ref: U.P. 52(143).  
Type: ‘M’.

Object: To study the effect of A/S/N in comparison with A/S on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Oats. (c) No. (ii) (a) Silt loam. (b) N.A. (iii) Transplanting on 1.7.1952. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) Transplanting. (c) to (e) N.A. (v) Nil. (vi) T-138. (vii) Irrigated. (viii) 2 weedings by hand. (ix) N.A. (x) 6.10.1952.

2. TREATMENTS:
   All combinations of (1) and (2)+a Control.
   (1) 2 sources of N: S_1=A/S and S_2=A/S/N.
   (2) 3 levels of N: N_1=30, N_2=60 and N_3=90 lb./ac.

N_1 applied one week after transplantation; N_2 applied one to three weeks after transplanting and N_3 applied one, three and 5 weeks after transplantation.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 55°×15°. (b) 1/55.34th ac. (v) No. of lines/plot=23; no. of lines/plot=21 at harvest. (vi) Yes.
4 GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) No. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 2214 lb./ac.
(ii) 274.40 lb./ac.
(iii) Main effect of N and control vs. others are highly significant. Main effect of S is significant. Interaction N×S is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>S2</th>
<th>Mean</th>
</tr>
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<tr>
<td>N2</td>
<td>2342</td>
<td>2201</td>
<td>2272</td>
</tr>
<tr>
<td>N3</td>
<td>3127</td>
<td>2734</td>
<td>2930</td>
</tr>
<tr>
<td>Mean</td>
<td>2433</td>
<td>2237</td>
<td>2335</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N = 79.21 lb./ac.
S.E. of marginal mean of S = 64.68 lb./ac.
S.E. of body of table = 112.02 lb./ac.

Crop: Paddy.
Site: Rice Res. Stn., Nagina.

Object: To study the effect of C/N in comparison with A/S on the yield of Paddy crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Berseem and fallow. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 31.5.1951/14.7.1951.
(iv) (a) N.A. (b) Transplanting. (c) —. (d) & (e) N.A. (v) Nil. (vi) T-137. (vii) Irrigated. (viii) 2 weedings.
(ix) N.A. (x) 24.10.1951.

2. TREATMENTS:
All combinations of (1) and (2) + a control.
(1) 2 sources of N: S1 = A/S and S2 = C/N.
(2) 3 levels of N: N1 = 20, N2 = 40 and N3 = 60 lb./ac.
C/N and A/S applied on 4.8.1951.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 55'×15'. (b) 53'×13'. (v) One row at each end of the plot.
(vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 990 lb./ac.
(ii) 152.3 lb./ac.
(iii) Control vs. others and main effect of N are highly significant. Main effect of S and interaction S×N are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1</td>
<td>766</td>
<td>880</td>
<td>823</td>
</tr>
<tr>
<td>N2</td>
<td>1024</td>
<td>1091</td>
<td>1057</td>
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<tr>
<td>N3</td>
<td>1271</td>
<td>1228</td>
<td>1249</td>
</tr>
<tr>
<td>Mean</td>
<td>1020</td>
<td>1066</td>
<td>1043</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N = 43.97 lb./ac.
S.E. of marginal mean of S = 35.91 lb./ac.
S.E. of body of table = 62.18 lb./ac.

Crop: Paddy.
Site: Rice Res. Stn., Nagina.

Ref: U.P. 48(30).
Type: 'M'.

Object: To test efficacy of different sources of compost and its manurial value on Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Fallow.
   (ii) (a) Light loam.
   (b) N.A.
   (iii) 1.6.1948/9.7.1948.
   (iv) (a) One deep plough and 2 shallow ploughing.
   (b) Transplanting.
   (c) Nil.
   (d) N.A.
   (e) T-21 (medium-early).
   (f) N.A.
   (v) Nil.
   (vi) Nil.
   (vii) Transplanted.
   (viii) N.A.
   (ix) 16.10.1948.

2. TREATMENTS:
   1. Control.
   2. Maya Das compost at 50 lb./ac. of N.
   3. Indore compost at 50 lb./ac. of N.
   4. P.charya's compost at 50 lb./ac. of N.
   5. T.C. at 50 lb./ac. of N.
   6. A/S at 50 lb./ac. of N.

   Manuring of treatments 2, 3, 4 and 5 on 9.7.1948 and treatment 6 on 19.7.1948.

3. DESIGN:
   (i) R.B.D.
   (ii) 6.
   (b) N.A.
   (iii) 5.
   (iv) (a) 33'x18'.
   (b) 1/92.64th ac.
   (v) N.A.
   (vi) Yes.

GENERAL:
   (i) No lodging. Normal.
   (ii) Nil.
   (iii) Grain yield.
   (iv) 1945—1948.
   (b) and (c) No.
   (v) (a) and (b) N.A.
   (vi) Nil.
   (vii) Conducted by A.E.B. (P).

5. RESULTS:
   (i) 2160 lb./ac.
   (ii) 455.8 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1615</td>
</tr>
<tr>
<td>2.</td>
<td>2477</td>
</tr>
<tr>
<td>3.</td>
<td>2206</td>
</tr>
<tr>
<td>4.</td>
<td>2388</td>
</tr>
<tr>
<td>5.</td>
<td>2418</td>
</tr>
<tr>
<td>6.</td>
<td>1827</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=203.9 lb./ac.</td>
</tr>
</tbody>
</table>
Crop : Paddy.  
Site : Rice Res. Stn., Nagina.  
Object — To test the comparative merits of A/S and A/N on the yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 1.6.1948/5.7.1948. (iv) (a) 1 deep ploughing and 2 shallow ploughings. (b) Transplanting. (c) —. (d) & (e) N.A. (v) Nil. (vi) Anjana Pilibhit. (vii) N.A. (viii) 2 weedings. (ix) N.A. (x) 11.10.1948.

2. TREATMENTS:
All combinations of (1) and (2) + a control.
(1) 2 sources of N : $S_1 = A/S$ and $S_2 = A/N$.
(2) 2 levels of N : $N_1 = 30$ and $N_2 = 60$ lb./ac.
Manuring on 9.8.1948.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 33'X18'. (b) 1/92.63th ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) No lodging. Normal. (ii) Nil. (iii) Grain yield. (iv) (a) 1946—1948. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 1978 lb./ac.
(ii) 306.0 lb./ac.
(iii) Only control vs. others is highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>Mean</th>
</tr>
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<td>1961</td>
<td>2069</td>
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<tr>
<td>$N_2$</td>
<td>2257</td>
<td>2152</td>
<td>2204</td>
</tr>
<tr>
<td>Mean</td>
<td>2217</td>
<td>2056</td>
<td>2137</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N or $S$ = 88.3 lb./ac.
S.E. of body of table = 124.9 lb./ac.

---

Crop : Paddy.  
Site : Rice Res. Stn., Nagina.  
Object — To study the manurial value of coconut cake on Paddy.

1. BASAL CONDITIONS:
(i) (a) Paddy—Oats. (b) Oats. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) 8.6.1949/2.8.1949. (iv) (a) 1 deep ploughing and 2 shallow ploughings. (v) Transplanting. (c) —. (d) & (e) N.A. (v) Nil. (vi) T-17 (late). (vii) N.A. (viii) 2 weedings by hand. (ix) N.A. (x) 6.12.1949.

2. TREATMENTS:
1. No manure.
2. Coconut cake at 25 lb./ac. of N.
3. Coconut cake at 50 lb./ac. of N.
4. Coconut cake at 75 lb./ac. of N.
5. Coconut cake at 100 lb./ac. of N.
Manuring on 15.7.1949.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 1/73.3th ac. (l) 1/59.6th ac. (v) N.A. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1950. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 1721 lb./ac.
(ii) 144.5 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1748</td>
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<tr>
<td>2.</td>
<td>1723</td>
</tr>
<tr>
<td>3.</td>
<td>1747</td>
</tr>
<tr>
<td>4.</td>
<td>1856</td>
</tr>
<tr>
<td>5.</td>
<td>1729</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>58.98 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Paddy.
Site :- Rice Res. Stn, Nagina.

Object :-To study the manurial value of coconut cake on Paddy.

1. BASAL CONDITIONS:
(i) (a) Paddy-Oats. (b) Paddy followed by oats. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) 10.6.1950/15.7.1950. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) Transplanting. (c) —. (d) & (e) N.A. (v) Nil. (vi) T-17 (late). (vii) N.A. (viii) 2 weedings by hand. (ix) N.A. (x) 6.12.1950.

2. TREATMENTS:
1. No manure.
2. Coconut cake at 25 lb./ac. of N.
3. Coconut cake at 50 lb./ac. of N.
4. Coconut cake at 75 lb./ac. of N.
5. Coconut cake at 100 lb./ac. of N.
Manuring on 15, 16.6.1950.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 33' x 18'. (b) 1/92.64th ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1950. (b) Yes. (c) N.A. (v) (a) No. (b) No. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. RESULTS:
(i) 1984 lb./ac.
(ii) 233.0 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1435</td>
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<tr>
<td>2.</td>
<td>1836</td>
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<tr>
<td>3.</td>
<td>2019</td>
</tr>
<tr>
<td>4.</td>
<td>2438</td>
</tr>
<tr>
<td>5.</td>
<td>2194</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>95.1 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Paddy.  
Site :- Rice Res. Stn., Nagina.  
Object :- To find out the response of Paddy to application of super singly or in combination with compost and A/S.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Wheat. (c) N.A.  
   (ii) (a) Silt loam. (b) N.A.  
   (iii) 31.5.1951/14, 15.7.1951.  
   (iv) (a) One deep ploughing and 2 shallow ploughing. (b) Transplanting.  
   (c) — (d) N.A. (e) N.A.  
   (v) Nil.  
   (vi) T-138 (early).  
   (vii) Irrigated.  
   (viii) 2 weedings by hand.  

2. TREATMENTS:
   All combinations of (1) and (2) + a selective treatment.
   (1) 3 sources of N:  
   S₀ = No manure,  
   S₁ = 50 lb./ac. of N as A/S,  
   S₂ = 50 lb./ac. of N as compost.
   (2) 2 levels of P₂O₅:
   P₀ = 0 and P₁ = 40 lb./ac. of P₂O₅ as Super.
   Selective treatment = A/S at 25 lb./ac. of N + compost at 25 lb./ac. of N + Super at 40 lb./ac. of P₂O₅.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 7. (b) N.A.  
   (iii) 6.  
   (iv) (a) 55°x15°. (b) 1/58.34th ac. (v) One row at each end of the plot.  
   (vi) Yes.

4. GENERAL:
   (i) Poor.  
   (ii) N.A.  
   (iii) Grain yield.  
   (iv) (a) 1951—1953. (b) Yes. (c) N.A.  
   (v) (a) No. (b) No. (vi) Nil.  
   (vii) Conducted by A.E.B. (P).

5. RESULTS:
   (i) 653.8 lb./ac.  
   (ii) 145.9 lb./ac.
   (iii) Main effect of S is highly significant; interaction S x P is significant. Main effect of P and selective treatment vs others are not significant.  
   (iv) Av. yield of grain in lb./ac.

   Selective treatment = 682.6 lb./ac.

<table>
<thead>
<tr>
<th>S₀</th>
<th>P₀</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
<td>490.1</td>
<td>400.6</td>
<td>445.4</td>
</tr>
<tr>
<td>912.0</td>
<td>763.3</td>
<td>837.6</td>
</tr>
<tr>
<td>588.3</td>
<td>739.9</td>
<td>664.1</td>
</tr>
</tbody>
</table>

   Mean = 663.5, 634.6, 649.0

   S.E. of marginal mean of S = 42.41 lb./ac.
   S.E. of marginal mean of P = 34.63 lb./ac.
   S.E. of body of table = 59.97 lb./ac.
   S.E. of selective treatment = 59.97 lb./ac.

Crop :- Paddy.  
Site :- Rice Res. Stn. Nagina.  
Object :- To find out the response of Paddy to application of super singly or in combination with compost and A/S.

1. BASAL CONDITIONS:
   (i) (a) Paddy—Berseem—Paddy—Oats. (b) Oats. (c) Nil.  
   (ii) (a) Silt Loam. (b) N.A.  
   (iii) Transplanting on 2.7.1952.  
   (iv) (a) One deep ploughing and 2 shallow ploughings. (b) Transplanting (c)— (d) & (e) N.A.  
   (v) Nil. (vi) T. 138. (early). (vii) N.A.  
   (viii) 2 weedings by hand.  
   (ix) N.A.  
   (x) 4.10.1952.
2. TREATMENTS:
All combinations of (1) and (2) + a selective treatment.
(1) 3 sources of N: $S_0$ = No manure, $S_1$ = 50 lb./ac. of N as A/S and $S_2$ = 50 lb./ac. of N as compost.
(2) 2 levels of $P_2O_5$: $P_0$ = 0 and $P_1$ = 40 lb./ac. of $P_2O_5$ as Super.
Selective treatment = A/S at 25 lb./ac. of N + Compost at 25 lb./ac. of N + Super at 40 lb./ac. of $P_2O_5$.

3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 6. (iv) (a) 1/52.8th ac. (b) 1/58.34th ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1951−1953. (b) yes. (c) N.A. (v) (a), (b) No. (vi) Nil. (vii) Conducted by A.E. B(P).

5. RESULTS:
(i) 2039 lb./ac. 
(ii) 276.7 lb./ac.
(iii) Main effect of S is highly significant, others are not significant.
(iv) Av. yield of grain in lb./ac.

<p>| Selective treatment=2218 lb./ac. |</p>
<table>
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<tr>
<th>P0</th>
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<td>2309</td>
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<tr>
<td>$S_2$</td>
<td>1987</td>
<td>1893</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of S = 79.87 lb./ac.
S.E. of marginal mean of P = 65.22 lb./ac.
S.E. of body of table = 112.95 lb./ac.
S.E. of selective treatment = 112.9 lb./ac.

Crop :- Paddy (Kharif).
Site :- Rice Res. Stn., Nagina
Ref. :- U.P. 53(167)/52(145)/51(45)
Type :- 'M'

Object :- To find out the response of Paddy to application of super singly or in combination with compost and A/S.

1. BASAL CONDITIONS:
(i) (a) Paddy-Berseem. (b) Berseem. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) 14.7.1953. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) to (e) N.A. (v) Nil. (vi) T-138 (medium). (vii) Irrigated (viii) 2 weedings. (ix) 46,28'. (x) 23.10.1953.

2. TREATMENTS:
All combinations of (1) and (2) + a selective treatment.
(1) 3 sources of N: $S_0$ = no manure, $S_1$ = 50 lb./ac. of N as A/S and $S_2$ = 50 lb./ac. of N as compost.
(2) 2 levels of $P_2O_5$: $P_0$ = 0 and $P_1$ = 40 lb./ac. of $P_2O_5$ as super.
Selective treatment = A/S at 25 lb./ac. of N + compost at 25 lb./ac. of N + super at 40 lb./ac. of $P_2O_5$.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 55°×15'. (b) 1/58.34th ac. (v) 1' border around each experimental plot. (vi) Yes.

4. GENERAL:
(i) Good; no lodging. (ii) Not recorded. (iii) Nil. (iv) (a) 1951 to 1953. (b) Yes. (c) N.A. (v) (a), (b) Nil. (vi) Nil. (vii) Conducted by A.E.B.(P).

5. RESULTS:
(i) 1314 lb./ac. 
(ii) 277 0 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac. Selective treatment = 1152 lb./ac.

<table>
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<tr>
<td>Mean</td>
<td>1290</td>
<td>1391</td>
<td>1341</td>
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</table>

S.E. of marginal mean of S = 79.9 lb./ac.
S.E. of marginal mean of P = 65.3 lb./ac.
S.E. of body of table = 113.1 lb./ac.
S.E. of selective treatment = 113.1 lb./ac.

---

Site: Regional Res. Stn., Nawabganj. Type: 'M'.

Object: To study the response of Paddy to three levels of N, P and calcium (Ca).

1. BASAL CONDITIONS:
   (i) Nil. (b) Gram. (c) N.A. (ii) (a) N.A. (b) N.A. (iii) 12.5.1949/16, 17.6.1949. (iv) (a) 2 ploughings. (b) Transplanting. (c) — (d) and (e) N.A. (v) Nil. (vi) T-136. (vii) Irrigated. (viii) 1 weeding on 5.8.1949. (ix) N.A. (x) 8.9.1949.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
   (2) 3 levels of P₂O₅: P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.
   (3) 3 levels of Calcium: C₀ = 0, C₁ = 30 and C₂ = 60 lb./ac.

3. DESIGN:
   (i) 3² Confounded Fact. (ii) (a) 3 blocks/repetition, 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 18'×42', (b) 12'×36'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Ht. of plants, no. of tillers, no. of green leaves, grain yield and straw yield. (iv) 1949—1953. (b) and (c) No. (v) (a) Bharari (Jhansi), Nagina (Bijnor) and Banaras. (b) N.A. (vi) N.A. (vii) Conducted by C.P.

5. RESULTS:
   (i) 1118 lb./ac.
   (ii) 254.4 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
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<th>P₂</th>
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S.E. of any marginal mean = 60.0 lb./ac.
S.E. of body of table = 104.0 lb./ac.
Object: To study the response of Paddy to three levels of N, P and calcium (Ca).

1. BASAL CONDITIONS:
   (i) (a) Paddy-Berseem. (b) Berseem. (c) Nil. (ii) (a) N.A. (b) N.A. (iii) 6.5.1950/18.6.1950. (iv) (a) Ploughing, turn-wrest plough on 23, 24.5.1950 and Meston plough on 29 and 30.5.1950 (b) Transplanting. (c) — (d) and (e) N.A. (v) Nil. (vi) CH.4 [early]. (vii) Irrigated. (viii) Interculture on 19.8.1950. (ix) N.A. (x) 27.9.1950.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: \( N_0 = 0 \), \( N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
   (2) 3 levels of \( P_2O_5 \): \( P_0 = 0 \), \( P_1 = 20 \) and \( P_2 = 40 \) lb./ac.
   (3) 3 levels of Calcium: \( C_0 = 0 \), \( C_1 = 30 \) and \( C_2 = 60 \) lb./ac.

3. DESIGN:
   (i) 3\(^2\) Partially confd. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2. (iv) (a) \( 18' \times 42' \). (b) \( 12' \times 36' \). (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Bharari, Nagina and Banaras. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 2617 lb./ac.
   (ii) 505.1 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

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<th>( P_2 )</th>
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S.E. of any marginal mean = 119.0 lb./ac.
S.E. of body of table = 206.2 lb./ac.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N: N₀ = 0, N₁ = 30 and N₂ = 60 lb/ac.
(2) 3 levels of P₂O₅: P₀ = 0, P₁ = 20 and P₂ = 40 lb/ac.
(3) 3 levels of Calcium: C₀ = 0, C₁ = 30 and C₂ = 60 lb/ac.
N as A/S, P₂O₅ as Super and Ca as Gypsum. Manures applied 3 days before transplanting.

3. DESIGN:
(i) 3² partially confounded. (ii) (a) 9 plots/block, 3 blocks/replication. (iii) 2. (iv) (a) 18' x 42'. (b) 12' x 36'. (v) 3' on all sides of plot. (vi) Yes.

4. GENERAL:
(i) No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1949-1953. (b) and (c) No. (v) (a) Nagina, Tisuhi (Mirzapur), Atarra (Banda), Pachperwa (Gonda) and Faizabad. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1519 lb/ac.
(ii) 263.1 lb/ac.
(iii) Main effect of C is significant. Other effects are not significant.
(iv) Av. yield of grain in lb/ac.

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S.E. of any marginal mean = 62.0 lb/ac.
S.E. of body of table = 107.4 lb/ac.

Crop: Paddy.
Site: Regional Res. Stn., Nawabganj.
Object: To study the response of Paddy to three levels of N, P and calcium (Ca).

Ref: U.P. 52(216).
Type: 'M'.

1. BASAL CONDITIONS:
(i) (a) Paddy-Berseem. (b) Berseem-Fallow. (c) N.A. (ii) (a) Heavy loam, (b) N.A. (iii) 9.6.1952/27.7.1952.
(iv) (a) N.A. (b) Transplanted. (c) —. (d) and (e) N.A. (v) Nil. (vi) CH-4 (early). (vii) N.A.
(viii) N.A. (ix) N.A. (x) N.A

2. TREATMENTS:
All combinations of (1), (2) and (3).
(1) 3 levels of N: N₀ = 0, N₁ = 30 and N₂ = 60 lb/ac.
(2) 3 levels of P₂O₅: P₀ = 0, P₁ = 20 and P₂ = 40 lb/ac.
(3) 3 levels of Calcium: C₀ = 0, C₁ = 30 and C₂ = 60 lb/ac.
N as A/S, P₂O₅ as Super and Ca as Gypsum. Date of manuring 13, 14.7.1952.

3. DESIGN:
(i) 3² partially confounded. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 18' x 42'.
(b) 12' x 36'. (v) 3' aloud. (vi) Yes.
4. GENERAL:
(i) Nil. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Pachperwa (Gonda), Tisuali, Nagina (Bijoor), Banaras, Faizabad, Attara (Banda) and Bharari. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1306 lb./ac.
(ii) 309.0 lb./ac.
(iii) Main effects and their interactions are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of any marginal mean = 72.8 lb./ac.
S.E. of body of table = 126.1 lb./ac.

Crop:—Paddy.
Site:—Regional Res. Stn., Nawabganj.
Object:—To study the response of late Paddy to three levels of N, P and calcium (Ca).

1. BASAL CONDITIONS:
(i) (a) Paddy followed by gram or Berseem. (b) Gram. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 4.8.1953. (iv) (a) Two ploughings and pota on 25, 26, 30.7.1953 and 1.8.1953. (b) Transplanting. (c) Plant spacing 9" and row spacing 12". (d) Single. (e) Nil. (vi) CH-4 (late). (vii) Irrigated. (viii) NA. (ix) N.A. (x) 7.11.1953.

2. TREATMENTS:
All combinations of (1), (2) and (3).
(1) 3 levels of N : N₀ =0, N₁ =30 and N₂ =60 lb./ac.
(2) 3 levels of P₂O₅ : P₀ =0, P₁ =20 and P₂ =40 lb./ac.
(3) 3 levels of Calcium : C₀ =0, C₁ =30 and C₂ =60 lb./ac.

3. DESIGN:
(i) 3² Confounded Fact. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 18'×42' (b) 12 ×36'. (v) 3'×1' around. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) No. (c) No. (v) (a) Attara, (Banda), Bharari (Jhansi), Banaras and Faizabad. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 2030 lb./ac.
(ii) 601.0 lb./ac.
(iii) None of the effects is significant.
Object: To study the effect of N and P applied alone and in combination with each other, on the yield and quality of Paddy.

### 1. BASAL CONDITIONS:

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Domat (Bareilly Type 3). (b) N.A. (iii) 23, 24.7.1951. (iv) (a) The field was prepared by ploughing with desi plough. (b) N.A. (c) Nil. (d) N.A. (vii) Irrigated. (vi) N.A. (ix) N.A. (x) 16.11.1951.

### 2. TREATMENTS:

- All combinations of (1) and (2)
  - (1) 3 levels of N: N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
  - (2) 3 levels of P₂O₅: P₀ = 0, P₁ = 50 and P₂ = 100 lb./ac.

N as A/S and P₂O₅ as Super. A/S applied broadcast and 'uper placed 3' deep in furrows behind the plough, mar.u raging of Non 27th August 1951 and P₂O₅ on 23.7.1951.

### 3. DESIGN:

- (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 62' x 17'. (v) A distance of one to three feet from plot to plot and three to four feet from block to block was left out. (vi) Yes.

### 4. GENERAL:

- (i) Monsoon was abnormally delayed and canal Irrigation could not be obtained in time. The crop in general, was unsatisfactory. (ii) No. (iii) Grain yield. (iv) (a) 1951–1952. (b) No. (c) No. (v) (a) Matkota and Nainital. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

### 5. RESULTS:

- (i) 748 lb./ac.
- (ii) 202 lb./ac.

Main effect of N is highly significant. Main effect of P is significant. Interaction is not significant.

- (iv) Av. yield of grain in lb./ac.
Crop :- Paddy.
Site :- Regional Res. Stn., Nawabganj.
Object :-To study the effect of N and P₂O₅ applied alone and in combination with each other, on yield and quality of Kharif crop.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) and (c) N.A. (ii) (a) Clay loam (Bvrelly type=E). (b) N.A. (iii) 6 to 8.7.1952.
   (iv) (a) 3 ploughings with desi plough. (b) Seedlings planted in rows according to local practices. (c) Nil.
   (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 21 to 23.10.1952.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀ =0, N₁ =15 and N₂ =30 lb./ac.
   (2) 3 levels of P₂O₅ : P₀ =0, P₁ =30 and P₂ =60 lb./ac.
   N as A/S and P₂O₅ as Super. A/S applied as surface dressing by broadcast and Super drilled in furrows 4" deep behind plough. Date of manuring 5, 6 and 9.7.1952.

3. DESIGN :
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 22' x 49.5'. (b) 22' x 49.5'. (v) Nil. (vi) Yes.

4. GENERAL :
   (i) Normal, crop lodged during formation of seeds and was severely damaged specially in those plots which had bumper crop. (ii) Attacked by rats. (iii) Grain and straw yield. (iv) (a) 1951—1952 (b) Yes (c) N.A. (v) (a) Purtapgarh, Baranasi, Atarra (Band), Mathkota (Nainital), Kalyanpur (Kanpur) and Bharari (Jhansi). (vi) Nil. (vii) Conducted by A.C.

5. RESULTS :
   (i) 1668 lb./ac.
   (ii) 254.8 lb./ac.
   (iii) Main effect of N is highly significant. Main effect of P is significant. Interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of marginal mean of N or P = 60.1 lb./ac.
S.E. of body of table = 104.0 lb./ac.
2. TREATMENTS:
   1. Control.
   2. Molybdenum (Mo) as molybdic acid at 5 lb./ac. of Mo.
   3. Copper (Cu) as copper sulphate at 6 lb./ac. of Cu.
   4. Boron (B) as commercial borax at 1 lb./ac. of B.
   5. Sulphur (S) as commercial sulphur at 50 lb./ac. of S.
   6. Zinc (Zn) as zinc sulphate at 4 lb./ac. of Zn.
   A basal dose of A/S at 30 lb./ac. of N + Super at 15 lb./ac. of P2O5 + Pot. sulphate at 15 lb./ac. of K2O is applied to all plots. Trace elements mixed with soil and applied as surface dressings 5-6 days before sowing.

3. DESIGN:
   (i) L. Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 33' x 27'. (b) 31' x 23'. (v) 2' around the net plot. (vi) Yes.

4. GENERAL:
   (i) No lodging. Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1952--1953. (b) and (c) No. (v) (a) Atarra, Faizabad, Banaras, Bharari (Jhansi), Belatal, Bahraich and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 1341 lb./ac.
   (ii) 201.6 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment  | Av. yield |
   -----------|-----------|
   1.         | 1407      |
   2.         | 1370      |
   3.         | 1207      |
   4.         | 1378      |
   5.         | 1312      |
   6.         | 1372      |
   S.E./mean  | 82.30 lb./ac.

   Crop: Paddy.
   Site: Late Paddy Res. Sub-Stn., Pachperwa.
   Ref: U.P. 50(213).
   Type: 'M'.

Object: To study the response of late Paddy to three levels of N, P and calcium (Ca).

1. BASAL CONDITIONS:
   (i) (a) Nil (b) Gram. (c) N.A. (ii) (a) Clayey. (b) N.A. (iii) 10.7.1950/ 22 to 24.8.1950. (iv) (a) 3 ploughings by desi plough. (b) Transplanted. (c) —. (d) Single plant 9" x 9" distance. (e) 1. (v) N.A. (vi) T-88 (late). (vii) Irrigated. (viii) One weeding. (ix) 41.43'. (x) 4.12.1950.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: N0 = 0, N1 = 30 and N2 = 60 lb./ac.
   (2) 3 levels of P2O5: P0 = 0, P1 = 20 and P2 = 40 lb./ac.
   (3) 3 levels of Calcium: Ca0 = 0, Ca1 = 30 and Ca2 = 60 lb./ac.

N as A/S, P2O5 as Super and Ca as Gypsum. Manuring on 19.8.1950.

3. DESIGN:
   (i) 33 partially confounded. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 19.5' x 34.5'. (b) 13.5' x 28.5'. (v) 3' around the net plot. (vi) Yes.

4. GENERAL:
   (i) Crop suffered due to no irrigation arrangement and failure of monsoon. (ii) N.A. (iii) Grain yield. (iv) (a) 1950--1952. (b) No. (c) Nil. (v) (a) Attara (Banda), Tisuhi (Mirzlpur), Bharari (Jhansi), Banaras, Nawabgunj (Bareilly) and Naginl (Bijnor). (b) N.A. (vi) Nil. (vii) Conducted by C.P.
5. RESULTS:
(i) 453.6 lb./ac.
(ii) 128.6 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of marginal mean of N, P or C = 30.32 lb./ac.
S.E. of body of table = 52.48 lb./ac.

Crop :- Paddy.
Site :- Late Paddy Res. Sub-Stn., Pachperwa.
Ref. :- U.P. 51(280).
Type :- 'M'.

Object :—To study the response of late Paddy to three levels of N, P and calcium (Ca).

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Heavy soil. (b) N.A. (iii) 17.7.1951/27, 28.8.1951. (iv) (a) N.A. (b) Transplanting. (c) —. (d) N.A. (e) N.A. (v) N.A. (vi) T-88 (late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: N0 = 0, N1 = 30 and N2 = 60 lb./ac.
   (2) 3 levels of P2O5 : P0 = 0, P1 = 30 and P2 = 40 lb./ac.
   (3) 3 levels of Ca : C0 = 0, C1 = 30 and C2 = 60 lb./ac.
   N as A/S, P2O5 as Super and Calcium (Ca) as Gypsum,

3. DESIGN:
   (i) 3f confounded Factorial. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 19.5'x34.5'. (b) 13.5'x38.5'. (v) 3' around the net plot. (vi) Yes.

4. GENERAL:
   (i) No lodging, crop very poor, failed due to non availability of water and late transplanting. (ii) There was attack of borer and the damage was about 15%. (iii) Grain yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Nagina, Tishti (Mirzapur), Bharari (Jhansi), Atarra (Banda), Nawabgunj (Bareilly) and Faizabad. (b) Nil. (vi) Nil. (vii) The expt. was conducted by C.P.

5. RESULTS:
   (i) 1644 lb./ac.
   (ii) 421.7 lb./ac.
   (iii) Main effect of N and interaction PxC is significant. All other effects and interactions are no significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th></th>
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<th>P₁</th>
<th>P₂</th>
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S.E. of marginal mean of N, P or C = 99.4 lb./ac.
S.E. of body of table = 172.2 lb./ac.

Crop: Paddy

Site: Late Paddy Res. Sub-Stn., Pachperwa

Object: To study the response of late Paddy to 3 levels of nitrogen, phosphate and calcium.

1. BASAL CONDITIONS:
   (i) (a) Paddy - Fallow. (b) Fallow. (c) N.A. (ii) 'a' Heavy clay. (b) N.A. (iii) 10.7.1952/14.8.1952.
   (iv) (a) N.A. (b) Transplanting. (c) -. (d) & (e) N.A. (v) Nil. (vi) T-38 (late). (vii) N.A. (viii) N.A.
   (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: N₀ =0, N₁ =30 and N₂ =60 lb/ac.
   (2) 3 levels of P₂O₅: P₀ =0, P₁ =20 and P₂ =50 lb/ac.
   (3) 3 levels of Calcium: C₀ =0, C₁ =30 and C₂ =60 lb/ac.
   N as A/S, P₂O₅ as super and Ca as Gypsum. Date of manuring 9,11.8.1952.

3. DESIGN:
   (i) 3rd Conf. Fact. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 19.5' x 34.5'. (b) 13.5' x 28.5'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1953-1952. (b) and (c) No. (v) 'a' and (b) N.A.
   (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 1726 lb./ac.
   (ii) 286.1 lb./ac.
   (iii) Only the main effect of N is significant. All other effects and interactions are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean = 67.4 lb./ac.
S.E. of body of table = 116.8 lb./ac.
Crop: - Paddy.  
Site: - Late Paddy Res. Sub-Stn., Pachperwa.  
Object: - To find out best manure amongst A/S, green manure and F.Y.M. for late Paddy.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  
   (ii) (a) Heavy loam.  
   (b) N.A.  
   (iii) N.A.  
   (iv) (a) to (e) N.A.  
   (v) N.A.  
   (vi) N.A.  
   (vii) N.A.  
   (viii) N.A. (ix) 41.43°.  
   (x) N.A.

2. TREATMENTS:
   1. A/S at 50 lb./ac. of N.  
   2. Castor cake at 50 lb./ac. of N.  
   3. F.Y.M. at 50 lb./ac. of N.  
   4. Dhaincha at 50 lb./ac. of N.  
   5. Control (no manure).

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 5.  
   (b) N.A.  
   (iii) 5.  
   (iv) (a) N.A. (b) 1/56th ac.  
   (v) N.A.  
   (vi) Yes.

4. GENERAL:
   (i) N.A.  
   (ii) N.A.  
   (iii) Grain yield.  
   (iv) (a) 1950 - 1952.  
   (v) N.A.  
   (vi) N.A.  
   (vii) The experiment was conducted by A.E.B. (P).

5. RESULTS:
   (i) 877 lb./ac.  
   (ii) 185.1 lb./ac.  
   (iii) Treatment differences are highly significant.  
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>3.</td>
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<td>4.</td>
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<td>656</td>
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<td>S.E./mean</td>
<td>82.8 lb./ac.</td>
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</tbody>
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Crop: - Paddy (Kharif).  
Site: - Late Paddy Res. Sub-Stn., Pachperwa.  
Object: - To find out the best manure among A/S, green manure and F.Y.M.

1. BASAL CONDITIONS:
   (i) (a) N.A.  
   (b) N.A.  
   (c) N.A.  
   (ii) (a) Heavy loam.  
   (b) N.A.  
   (iv) (a) N.A.  
   (b) Transplanting.  
   (c) —.  
   (d) N.A.  
   (e) N.A.  
   (f) N.A.  
   (vi) T-88 (late).  
   (vii) N.A.  
   (viii) N.A. (ix) N.A.  
   (x) 28.11.1952.

2. TREATMENTS:
   1. A/S at 50 lb./ac. of N.  
   2. Castor cake at 50 lb./ac. of N.  
   3. F.Y.M. at 50 lb./ac. of N.  
   4. Dhaincha at 50 lb./ac. of N.  
   5. Control.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 5.  
   (b) N.A.  
   (iii) 6.  
   (iv) (a) N.A.  
   (b) 1/56 ac.  
   (v) N.A.  
   (vi) N.A.

4. GENERAL:
   (i) N.A.  
   (ii) N.A.  
   (iii) N.A.  
   (iv) (a) 1950 - 1952.  
   (v) N.A.  
   (vi) N.A.  
   (vii) Experiment conducted by A.E.B. (P) to Govt. of U.P. Experiment failed in 1951.
5. RESULTS:

(i) 1324 lb./ac.
(ii) 211.0 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th>Treatment</th>
<th>Av. yield</th>
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<tbody>
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<tr>
<td>2.</td>
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<td>3.</td>
<td>1357</td>
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<td>4.</td>
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<td>5.</td>
<td>997</td>
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<td>S.E./mean</td>
<td>=86.14 lb./ac.</td>
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</table>

Crop : Paddy (Kharif).
Site : Late Paddy Res. Sub-Stn., Pachperwa.

Object : To find out the best manure among A/S, F.Y.M. and Castor cake for late Paddy.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. A/S at 50 lb./ac. of N.
2. Castor cake at 50 lb./ac. of N.
3. F.Y.M. at 50 lb./ac. of N.
4. Control (no manure).

Date and method of application—N.A.

3. DESIGN:

(i) R.B.D. (ii) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/90.5 ac. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.E.B. (P) to Govt. of U.P.

5. RESULTS:

(i) 1487 lb./ac.
(ii) 267.7 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yl. id of grain in lb./ac.

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<th>Treatment</th>
<th>Av. yield</th>
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<tr>
<td>4.</td>
<td>1165</td>
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<tr>
<td>S.E./mean</td>
<td>=109.3 lb./ac.</td>
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</table>

Crop : Paddy (Kharif).
Site : Late Paddy Res. Sub-Stn., Pachperwa

Object : To find out the best manure among A/S, green manure and compost for late Paddy.
2. TREATMENTS.

1. A/S at 50 lb./ac. of N.
2. G.N.C. at 50 lb./ac. of N.
3. Compost at 5 lb./ac. of N.
4. Dhaincha (Green manuring).
5. Control.
   Date and method of application—N.A.

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 32' x 27'. (b) 30' x 25'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Slight attack of stem borer. (iii) N.A. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The expt. was conducted by AEB (P) to Govt. of U.P.

5. RESULTS:

(i) 1914 lb./ac.
(ii) 342.1 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

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<th>Treatment</th>
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<tr>
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<td>3.</td>
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<td>4.</td>
<td>1629</td>
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<td>5.</td>
<td>1498</td>
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<tr>
<td>S.E./mean</td>
<td>139.7 lb./ac.</td>
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Crop :- Paddy (Kharif)  
Ref. :- U.P. 53(320)

Site :- Late Paddy Res. Sub-Sn., Pachperwa  
Type :- 'M'

Object :- To find out the efficacy of Japanese method of paddy cultivation.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Heavy Loan. (b) N.A. (iii) 28.6.1953/28.7.1953. (iv) (a) N.A. (b) Transplanting. (c) —. (d) N.A. (e) N.A. (f) N.A. (g) N.A. (h) N.A. (i) N.A. (x) 7.12.1953.

2. TREATMENTS:

1. Local method of Paddy cultivation as followed at sub-station.
2. Japanese method as recomended by the state Department of Agriculture.
   Compost applied at 20 C.L./ac. and A/S applied at 1.25 mds. per acre under the Japanese method.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) 25' x 85', (b) 23' x 83', (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Slight attack of stem borer, (iii) Grain yield. (iv) (a) 1953—N.A. (b) Nil. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The expt. was conducted by AEB (P) to Govt. of U.P.

5. RESULTS:

(i) 1981 lb./ac.
(ii) 254.3 lb./ac.
(iii) Treatment difference is not significant.
(iv) Av. yield of grain in lb./ac.

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<td>S.E./mean</td>
<td>127.1 lb./ac.</td>
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Crop: Paddy (Kharif).
Site: Govt. Agri. Farm, Tissuhi.

Object: To study the residual effect of N and P applied to previous crop on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Wheat. (c) As per treatments. (ii) (a) Karail clay loam. (b) N.A. (iii) 27.6.1953. (iv) (a) 4 ploughings on 14.6.1953, 22.6.1953, 29.6.1953 and 2.7.1953. (b) Sown in lines. (c) N.A. (d) N.A. (e) N.A. (v) The experiment was given a uniform manuring at 20 lb./ac. of N on 17.8.1953. (vi) N-22. (vii) Nil. (viii) Nil. (ix) 35.61'. (x) 8 to 12.10.1953.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N: N₀ = 0, N₁ = 30, and N₂ = 60 lb./ac.
   (2) 3 levels of P₂O₅: P₀ = 0, P₁ = 60, and P₂ = 120 lb./ac.

3. RESULTS:
   (i) 1442 lb./ac.
   (ii) 251.4 lb./ac.
   (iii) Effect of P is highly significant. Effect of N and interaction N × P are not significant.
   (iv) Mean yield of grain in lb./ac.

<table>
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S.E. of marginal mean of N or P = 59.3 lb./ac.
S.E. of body of table = 102.6 lb./ac.
3. DESIGN:
(i) 3 X 3 Fact. in R.B.D.  (ii) (a) 9.  (b) N.A.  (iii) 6.  (iv) (a) and (b) 25' x 42'.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Grain and straw yield.  (iv) (a) 1953—N.A.  (b) N.A.  (c) Nil.  (v) (a) to (b) Pura.  (vi) Nil.  (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 412.7 lb./ac.
(ii) 83.16 lb./ac.
(iii) Effects of N and P are highly significant. Interaction N x P is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>P₂</th>
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<td>394.4</td>
<td>539.2</td>
<td>412.7</td>
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S.E. of marginal mean of N or P = 19.60 lb./ac.
S.E. of body of table = 33.95 lb./ac.

Crop: Paddy.
Site: Govt. Agri. Farm, Tissuhi.

Ref: U.P. 50(127).
Type: ‘M’.

Object: To study the effect of varying doses of Sulphur and Boron in combination with N and P on late Paddy.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) and (c) N.A.  (ii) (a) Hard clay.  (b) N.A.  (iii) 25.6.1950/27.8.1950.  (iv) (a) N.A.  (b) Transplanting.  (c) N.A.  (d) 9' x 9'.  (e) N.A.  (v) Nil.  (vi) T-36 (late).  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
All combinations (1), (2) and (3)
(1) 3 fertilizers: O = No manure, N = 40 lb./ac. of N and P = 20 lb./ac. of P₂O₅.
(2) 3 levels of Boron: B₀ = 0, B₁ = 5 and B₂ = 10 lb./ac.
(3) 3 levels of Sulphur: S₀ = 0, S₁ = 5 and S₂ = 10 lb./ac. of Sulphur.
N as A₈S, P₂O₅ as Super and Boron as Borax applied on 21, 22, 8, 1950.

3. DESIGN:
(i) 3 X 3 Fact. in R.B.D.  (ii) (a) 27.  (b) N.A.  (iii) 3.  (iv) (a) 58' x 18'.  (b) 52' x 12'.  (v) 3' ring round the net plot.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1950—1951.  (b) and (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Conducted by C.P.

5. RESULTS:
(i) 2105 lb./ac.
(ii) 319.3 lb./ac.
(iii) None of the effects and their interaction is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>O</th>
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<td>2120</td>
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<td>2249</td>
<td>2240</td>
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S.E. of any marginal mean = 61.45 lb./ac.
S.E. of body of table = 106.43 lb./ac.

Crop: Paddy.
Site: Govt. Agri. Farm, Tissuhi.
Ref: U.P. 51(137).
Type: 'M'.

Object: To study the effect of varying doses of Sulphur and Boron in combination with N and P on Paddy.

1. **BASAL CONDITIONS**:
   (i) (a) Nil (b) Wheat. (c) N.A. (ii) (a) Hard clay. (b) N.A. (iii) 30.6.1951/24,25.8.1951. (iv) (a) N.A. (b) Transplanting (c) —. (d) 9'x9'. (e) N.A. (v) Nil. (vi) T-36 (late). (vii) Unirrigated. (viii) N.A. (ix) 29.80'. (x) N.A.

2. **TREATMENTS**:
   All combinations of (1), (2) and (3)
   (1) 3 fertilizers: O=No manure, N=40 lb./ac. of N and P=20 lb./ac. of P₂O₅.
   (2) 3 levels of Boron: B₁=0, B₂=5 and B₂=10 lb./ac.
   (3) 3 levels of Sulphur: S₀=0, S₁=5 and S₂=10 lb./ac.
   N as A/S, P₂O₅ as Super, Sulphur as commercial Sulphur and Boron as commercial Borax. Manuring on 19,20.8.1951.

3. **DESIGN**:
   (i) 3³ Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 3. (iv) (a) 60'x20'. (b) 52'x12'. (v) Plot bund- 1'. field border-4' and irrigation channel-4'. (vi) Yes.

4. **GENERAL**:
   (i) No lodging, there was no water in the canal and the crop suffered very much for want of water. (ii) Nil.
   (iii) Grain yield. (iv) (a) 1950—1951. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. **RESULTS**:
   (i) 2387 lb./ac.
   (ii) 440.7 lb./ac.
   (iii) None of the main effects and their interaction is significant.
(iv) Av. yield of grain in lb./ac.

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<tr>
<th>O</th>
<th>N</th>
<th>P</th>
<th>Mean</th>
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<td>2446</td>
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S.E. of any marginal mean = 84.8 lb./ac.
S.E. of body of any table = 146.9 lb./ac.

Crop :— Paddy.
Site :— Late Paddy Res. Sub-Stn., Tissuhi.

Object :— To study the effect of time of application of N on growth, performance and yield of late Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Kesari. (c) N.A.  
   (ii) (a) Hard clayey with Usar patches at places. (b) N.A.  
   (iv) (a) Ploughing 3 times by desi plough. (b) Transplanted. (c) —. (d) 9" x 9".  
   (e) Single plant. (v) Nil. (vi) T-36 (late). (vii) Irrigated. (viii) 2 weedings (ix) 35.67". (x) 2nd week of December.

2. TREATMENTS:
   All combinations of (1) and (2) + a control.
   (1) 2 sources at 6 lb./ac. of N : S₁ = A/S and S₂ = A/N.
   (2) 6 times of application of N : T₁ = Full dose at transplanting, T₂ = Full dose 30 days after transplanting, T₃ = Full dose 53 days after transplanting, T₄ = Half at transplanting and half 30 days after transplanting, T₅ = Half at transplanting and half 50 days after transplanting and T₆ = Half 30 days after transplanting and the other half 50 days after transplanting.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 13. (b) N.A.  
   (iii) 3.  
   (iv) (a) 28" x 29". (b) 22" x 23". (v) 3' around. (vi) Yes.

4. GENERAL:
   (i) The crop was severely damaged due to the total failure of rains at the right moment. Late transplanting due to late rains further depressed the yield. (ii) Slight attack of poricularia oryzac and Stem-borer. (iii) Grain yield. (iv) (a) 1950—1951. (b) and (c) No. (v) (a) Hawalbagh, Lucknow and Barabanki. (b) N.A.  
   (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 128.7 lb./ac.
   (ii) 92.96 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

Control = 122.1 lb./ac.

<table>
<thead>
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<th></th>
<th>T₁</th>
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<th>T₃</th>
<th>T₄</th>
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<td>107.5</td>
<td>168.0</td>
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<td>136</td>
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S.E. of marginal mean of S = 21.91 lb./ac.
S.E. of marginal mean of T = 37.96 lb./ac.
S.E. of body of table = 53.67 lb./ac.
Crop : Paddy.  
Site : Late Paddy Res. Sub-Stn., Tissuhi.  
Object :—To study the effect of time of application of N on the growth, performances and yield of late Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Hard c'ayey. (b) N.A. (iii) Middle of June/3rd week of July. (iv) (a) N.A. (b) Transplanted. (c) —. (d) and (e) N.A. (v) (vi) T. 36 (late). Nil. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) + one control.
(1) 2 sources at 60 lb./ac. of N: S₁=A/S and S₂=A/N.
(2) 6 times of application of N: T₁=Full dose at transplanting, T₂=Full dose 30 days after transplanting, T₃=Full dose 50 days after transplanting, T₄=½ at transplanting and half 30 days after transplanting, T₅=½ at transplanting and half 50 days after transplanting, and T₆=Half 30 days after transplanting and the other half 50 days after transplanting.

3. DESIGN:
(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 28'×29'. (b) 22'×23'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Very poor growth and yield of Paddy. (ii) Nil. (iii) Grain yield. (iv) (a) 1950-1951. (b) and (c) No. (v) (a) Lucknow and Havaibagh (Almora). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 338.9 lb./ac. (ii) 106.4 lb./ac. (iii) Main effects of S and T are significant. (iv) Av. yield of grain in lb./ac.

Control=210.3 lb./ac.

<table>
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<tr>
<th></th>
<th>T₁</th>
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<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
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<td>262.0</td>
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<td>158.7</td>
<td>464.9</td>
<td>461.2</td>
<td>453.8</td>
<td>180.8</td>
<td>365.3</td>
<td>347.4</td>
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<tr>
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<td>363.4</td>
<td>428.0</td>
<td>365.2</td>
<td>332.0</td>
<td>339.4</td>
<td>349.6</td>
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</table>

S.E. of marginal mean of S =25.09 lb./ac.
S.E. of marginal mean of T =43.46 lb./ac.
S.E. of body of table =61.45 lb./ac.

———

Crop :—Paddy.  
Site : Late Paddy Res. Sub-Stn., Tissuhi.  
Object :—To study the effect of time of application of P₂O₅ on growth, performance and yield of late Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Kerari. (c) N.A. (ii) (a) Hard clayey with Ustar patches at places. (b) N.A. (iii) 23.6.1950/31.8.1950 to 3.9.1950. (iv) (a) Ploughings 3 times with desi plough. (b) Transplanted. (c) —. (d) 9°×9°. (e) 1. (v) Nil (vi) T-36 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 35.67°. (x) 2nd week of December
2. TREATMENTS:
All combinations of (1) and (2) + one control.
(1) 2 sources of P$_2$O$_5$ (at 40 lb./ac.) : S$_1$=Super and S$_2$=Ammo. Phos.
(2) 6 times of application of P$_2$O$_5$: T$_1$=Full dose at transplanting, T$_2$=Full dose 30 days after transplanting, T$_3$=Full dose 50 days after transplanting, T$_4$=½ at transplanting and half 30 days after transplanting, T$_5$=½ at transplanting and half 50 days after transplanting and T$_6$=Half 30 days after transplanting and the other half 50 days after transplanting.

3. DESIGN:
(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 28' x 29'. (b) 22' x 23'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) The crop was severely damaged due to the total failure of rains at the right moment. Late transplanting due to late rains further depressed the yield. (iii) Attack of *poriciaria oryzae* and stem borer. (iii) Grain yield. (iv) (a) 1930–1951. (b) and (c) Nil. (v) (a) Lucknow and Barendeki. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 68.41 lb./ac.
(ii) 30.24 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>T$_1$</th>
<th>T$_2$</th>
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<th>T$_4$</th>
<th>T$_5$</th>
<th>T$_6$</th>
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<td>91.84</td>
<td>50.40</td>
<td>63.84</td>
<td>67.20</td>
<td>57.12</td>
<td>65.33</td>
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<tr>
<td>S$_2$</td>
<td>50.40</td>
<td>57.12</td>
<td>54.88</td>
<td>122.08</td>
<td>59.36</td>
<td>96.32</td>
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<td>52.63</td>
<td>92.96</td>
<td>63.28</td>
<td>76.72</td>
<td>69.34</td>
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S.E. of marginal mean of S = 7.13 lb./ac.
S.E. of marginal mean of T = 12.35 lb./ac.
S.E. of body of table = 17.46 lb./ac.

Crop :- Paddy.
Site :- Late Paddy Res. Sub-Stn., Tissuhl.

Object :- To study the effect of time of application of P$_2$O$_5$ on the growth, performance and yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) (a) Hard clayey. (b) N.A. (iii) Middle of June/3rd week of July. (iv) (a) N.A. (b) Transplanted. (c) Nil. (d) and (e) N.A. (v) Nil. (vi) T-36 (late). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2) + a control
(1) 2 sources of P$_2$O$_5$ (at 40 lb./ac.) : S$_1$=Super and S$_2$=Ammo. Phos.
(2) 6 times of application of P$_2$O$_5$: T$_1$=Full dose at transplanting, T$_2$=Full dose 30 days after transplanting, T$_3$=Full dose 50 days after transplanting, T$_4$=½ at transplanting and half 30 days after transplanting, T$_5$=½ at transplanting and half 50 days after transplanting and T$_6$=Half 30 days after transplanting and the other half 50 days after transplanting.

3. DESIGN:
(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 28' x 29'. (b) 22' x 23'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Very poor growth and yield of Paddy. (ii) Nil. (iii) Grain yield. (iv) (a) 1950–1951. (b) and (c) No. (v) (a) Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.
5. RESULTS:
(i) 436.8 lb./ac.
(ii) 274.16 lb./ac.
(iii) Main effect of S is highly significant, control vs. treated is significant and main effect of T and interaction S × T are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
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<td>199.2</td>
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<td>509.2</td>
<td>544.2</td>
<td>433.5</td>
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S.E. of marginal mean of S = 57.56 lb./ac.
S.E. of marginal mean of T = 99.69 lb./ac.
S.E. of body of table = 140.97 lb./ac.

Crop: Paddy.
Site: Late Paddy Res. Sub-Stn., Tissuhi.

Object: To study the effect of varying doses of trace elements in combination with N, P, and K on the growth and yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A.
(ii) (a) Hard clay. (b) N.A.
(iii) 30.6.1951/24.7.1951
(iv) (a) N.A. (b) Transplanting.
(c) —. (d) 9' × 9'. (e) N.A. (v) 33 lb./ac. of N as A/S, 15 lb./ac. of P₂O₅ as Super (single) and 15 lb./ac. of K₂O as Sulphate of potash. (vi) T-36 (late). (vii) N.A.
(viii) N.A. (ix) 34.31'. (x) N.A.

2. TREATMENTS:
1. Control.
2. Molybdic acid (41.1%Mo) at 1 lb./ac. of Mo.
3. Molybdic acid (41.1%Mo) at 3 lb./ac. of Mo.
4. Molybdic acid (41.1%Mo) at 6 lb./ac. of Mo.
5. Copper Sulphate (25.46%Cu) at 3 lb./ac. of Cu.
6. Copper Sulphate (25.46%Cu) at 6 lb./ac. of Cu.
7. Copper Sulphate (25.46%Cu) at 12 lb./ac. of Cu.
8. Commercial Borax (9.4%B) at 1 lb./ac. of B.
9. Commercial Borax (9.4%B) at 2 lb./ac. of B.
10. Commercial Borax (9.4%B) at 4 lb./ac. of B.
11. Commercial Sulphur (85%S) at 15 lb./ac. of S.
12. Commercial Sulphur (85%S) at 30 lb./ac. of S.
13. Commercial Sulphur (85%S) at 50 lb./ac. of S.
14. Zinc Sulphate (22.74%Zn) at 1 lb./ac. of Zn.
15. Zinc Sulphate (22.74%Zn) at 4 lb./ac. of Zn.
16. Zinc Sulphate (22.74%Zn) at 10 lb./ac. of Zn.

3. DESIGN:
(i) R.B.D. (ii) 16. (b) N.A. (iii) 4. (iv) 3' × 18'. (b) 52' × 12'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1931—1952. (b), (c) No. (v) (a), (b) No. (vi) Nil.
(vii) Conducted by C.P.

5. RESULTS:
(i) 302 lb./ac.
(ii) 343.3 lb./ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
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S.E./mean = 171.7 lb./ac.

Crop: Paddy.

Site: Late Paddy Res. Sub-Strn., Tissuhi.

Object: To study the effect of varying doses of trace elements in combination with N, P and K on growth and yield of late Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Heavy clay.  (b) N.A.  (iii) N.A.  (iv) (a) to (e) N.A.  (v) As per treatment.  (vi) T-36 (late).  (vii) N.A.  (viii) N.A.  (ix) 30.02°.  (x) N.A.

2. TREATMENTS:
   1. Control (5 plots/block).
   2. Molybdium (Mo) as Molybdic acid at 1 lb./ac. of Mo.
   3. Molybdenum (Mo) as Molybdic acid at 3 lb./ac. of Mo.
   4. Molybdenum (Mo) as Molybdic acid at 6 lb./ac. of Mo.
   5. Copper (Cu) as Copper Sulphate at 3 lb./ac. of Cu.
   6. Copper (Cu) as Copper Sulphate at 6 lb./ac. of Cu.
   7. Copper (Cu) as Copper Sulphate at 12 lb./ac. of Cu.
   8. Boron (B) as commercial Borax at 1 lb./ac. of B.
   9. Boron (B) as commercial Borax at 2 lb./ac. of B.
   10. Boron (B) as commercial Borax at 4 lb./ac. of B.
   11. Zinc (Zn) as Zinc Sulphate at 1 lb./ac. of Zn.
   12. Zinc (Zn) as Zinc Sulphate at 4 lb./ac. of Zn.
   13. Zinc (Zn) as Zinc Sulphate at 10 lb./ac. of Zn.
   14. Sulphur (S) as commercial Sulphur at 15 lb./ac. of S.
   15. Sulphur (S) as commercial Sulphur at 30 lb./ac. of S.
   16. Sulphur (S) as commercial Sulphur at 50 lb./ac. of S.

A basal dressing of 30 lb./ac. of N as A/S+15 lb./ac. of P₂O₅ as Super+15 lb./ac. of K₂O as Pot. Sulphate was applied to all treatments including control plots.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 20.  (b) N.A.  (iii) 4.  (iv) (a) 58'x18'.  (b) 52 x 12'.  (v) 3' around.  (vi) Yes.

4. GENERAL:
   (i) Satisfactory.  (ii) No.  (iii) Grain yield.  (iv) (a) 1951—1952.  (b) No.  (c) No.  (v) (a) No.  (b) No.  (vi) Nil.  (vii) Conducted by C.P.

5. RESULTS:
   (i) 1306 lb./ac.
   (ii) 363.3 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
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<td>4.</td>
<td>1048</td>
<td>12.</td>
<td>1304</td>
</tr>
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<td>5.</td>
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<td>6.</td>
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<td>1409</td>
</tr>
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<td>7.</td>
<td>1598</td>
<td>15.</td>
<td>1171</td>
</tr>
<tr>
<td>8.</td>
<td>1115</td>
<td>16.</td>
<td>16'6</td>
</tr>
</tbody>
</table>

S.E./mean (excluding control mean) = 181.6 lb./ac.
S.E. for control mean = 81.2 lb./ac.

Ref: U.P. 52(162).
Type: 'M'.

Object: To study the effect of varying doses of trace elements in combination with N, P and K on growth and yield of late Paddy.
Crop :- Paddy.  
Site :- Late Paddy Res. Sub-Stn., Tissuhi.  
Object :—To study the response of Paddy to N, P and Calcium (CaO).

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Kesari. (c) N.A. (ii) (a) Hard clay. (b) N.A. (iii) 23.6.1950/16 and 17.8.1950. (iv) (a) 3 ploughing with desi plough. (b) Transplanted. (c) —. (d) N.A. (e) N.A. (f) Nil. (vi) T-36 (late). (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N : \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
   (2) 3 levels of \( P_2O_5 : P_0 = 0, P_1 = 20 \) and \( P_2 = 40 \) lb./ac.
   (3) 3 levels of Ca : \( C_0 = 0, C_1 = 30 \) and \( C_2 = 60 \) lb./ac.
   N as A/S, \( P_2O_5 \) as Super and Ca as Gypsum. N applied on 14.8.50, \( P_2O_5 \) on 13.8.1950 and Ca on 12.8.1950.

3. DESIGN:
   (i) 3 partially confounded. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 21' x 36'. (b) 15' x 30'. (v) 3 around. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1950–1952. (b) No. (c) No. (v) (a) Atarra (Banda) Banaras, Bharari (Jhansi) Pachperwa (Gonda), Nawabganj (Bareilly) and Nagina (Bijnor). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 454.9 lb./ac.
   (ii) 323.7 lb./ac.
   (iii) Only the main effect of N is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>Mean</th>
<th>( C_0 )</th>
<th>( C_1 )</th>
<th>( C_2 )</th>
</tr>
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<tr>
<td>( N_0 )</td>
<td>178.3</td>
<td>396.2</td>
<td>385.8</td>
<td>320.1</td>
<td>302.8</td>
<td>278.0</td>
<td>379.6</td>
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<tr>
<td>( N_1 )</td>
<td>253.1</td>
<td>555.9</td>
<td>657.5</td>
<td>488.8</td>
<td>512.3</td>
<td>535.2</td>
<td>419.0</td>
</tr>
<tr>
<td>( N_2 )</td>
<td>383.7</td>
<td>522.7</td>
<td>761.3</td>
<td>555.9</td>
<td>659.6</td>
<td>550.0</td>
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<tr>
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<td>491.6</td>
<td>401.5</td>
<td>454.9</td>
<td>491.6</td>
<td>454.4</td>
<td>419.0</td>
</tr>
<tr>
<td>( C_0 )</td>
<td>396.2</td>
<td>460.5</td>
<td>618.1</td>
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<tr>
<td>( C_1 )</td>
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<tr>
<td>( C_2 )</td>
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<td>487.5</td>
<td>308.2</td>
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</tbody>
</table>

S.E. of marginal mean of N, P or C = 76.3 lb./ac.
S.E. of body of table = 132.1 lb./ac.

---

Crop :- Paddy.  
Site :- Late Paddy Res. Sub-Stn., Tissuhi.  
Object :—To study the response of late Paddy to N, P and Calcium (CaO).

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Hard clay. (b) N.A. (iii) 17.6.1951/30.7.1951 and 31.7.1951. (iv) (a) N.A. (b) Transplanted. (c) —. (d) and (e) N.A. (v) N.A. (vi) T-36 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 35.29°. (x) 18th, 19th, and 20th November 1951.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N: N₀=0, N₁=30 and N₂=60 lb./ac.
(2) 3 levels of P₂O₅: P₀=0, P₁=20 and P₂=40
(3) 3 levels of Calcium: C₀=0, C₁=30 and C₂=60 lb./ac.
N as A/S, P₂O₅ as Super and Ca as Gypsum. Ca applied on 28.7.1951, P₂O₅ on 29.7.1951 and N on 30.7.1951.

3. DESIGN:
(i) 3⁵ Partially confounded. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 21'×36'. (b) 15'×30'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) Nagina (Bijnor), Nawabgunj (Bareilly), Bharari (Jhansi), Aturra (Banda), Pachperwa (Gonda) and Faizabad. (b) N.A. (vi) Crop was transplanted very late. (vii) Conducted by C.P.

5. RESULTS:
(i) 952 lb./ac.
(ii) 594.4 lb./ac.
(iii) Main effects and their interactions are not significant.
(iv) A.v. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>C₀</th>
<th>C₁</th>
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<td>622</td>
<td>965</td>
<td>865</td>
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<td>487</td>
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<td>N₁</td>
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<td>425</td>
<td>1246</td>
<td>929</td>
<td>1196</td>
<td>893</td>
</tr>
<tr>
<td>N₂</td>
<td>1259</td>
<td>1230</td>
<td>690</td>
<td>1059</td>
<td>1487</td>
<td>823</td>
</tr>
<tr>
<td>Mean</td>
<td>1129</td>
<td>759</td>
<td>967</td>
<td>952</td>
<td>1145</td>
<td>735</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N, P or C = 140.1 lb./ac.
S.E. of body of table = 242.7 lb./ac.

Crop:— Paddy.
Site:— Late Paddy Res. Sub-Strn., Tissuhi.

Object:— To study the response of Paddy to N, P and Calcium (CaO).

Ref:— U.P. 52(213).
Type:— 'M'.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Heavy clay. (b) N.A. (iii) 20.6.1952/12 and 13.8.1952. (iv) (a) to (e) N.A. (v) Nil. (vi) T-36 (late). (vii) N.A. (viii) N.A. (ix) 30.02. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N: N₀=0, N₁=30 and N₂=60 lb./ac.
(2) 3 levels of P₂O₅: P₀=0, P₁=20 and P₂=40 lb./ac.
(3) 3 levels of Calcium: C₀=0, C₁=30 and C₂=60 lb./ac.

3. DESIGN:
(i) 3⁵ Partially confounded. (ii) (a) 9 plots/block, 3 blocks/replication. (iii) 2. (iv) (a) 21'×36'. (b) 15'×30'. (v) 3' around. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1952. (b) and (c) No. (v) Pachperwa (Gonda), Banaras, Nagina (Bijnor), Nawabgunj (Bareilly), Faizabad, Atarra (Banda), Bharari (Jhansi). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1103 lb./ac.
(ii) 586.0 lb./ac.
(iii) Main effects and their interactions are not significant.
(iv) Average yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>Mean</th>
<th>$C_0$</th>
<th>$C_1$</th>
<th>$C_2$</th>
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<td>660</td>
<td>1021</td>
<td>902</td>
<td>975</td>
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<td>1172</td>
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<td>1311</td>
<td>1076</td>
<td>1344</td>
<td>1170</td>
<td>714</td>
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<td>1006</td>
<td>1332</td>
<td>1776</td>
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<tr>
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<td>1263</td>
<td>935</td>
<td>1113</td>
<td>1103</td>
<td>1365</td>
<td>942</td>
<td>1003</td>
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<td>1674</td>
<td></td>
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</tr>
<tr>
<td>$C_1$</td>
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<td>807</td>
<td></td>
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</tr>
<tr>
<td>$C_2$</td>
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<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N, P or C
S.E. of body of table
= 138.1 lb./ac.
= 239.2 lb./ac.

Crop :- Paddy (Kharif).
Site :- Rate Paddy Res. Sub-Stn., Tissuhi.
Object :- To find out the best manure for late Paddy.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 45.43". (x) N.A.

2. TREATMENTS:
1. Castor cake.
2. Compost.
3. Dhaincha.
4. A/S.
5. Control.
Rate of application—N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/86.71 ac. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) N.A. (iv) (a) 1950—1953. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) N.A. (vii) Raw data N.A. The experiment was conducted by A.E.B. (P) T.

5. RESULTS:
(i) 738.0 lb./ac.
(ii) N.A.
(iii) Treatment differences are not significant.
Crop : Paddy (Kharif).  
Site : Late Paddy Res. Sub-Station, Tissuhi.

Object : To select the best manure for late Paddy.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  
   (ii) (a) Light clay to hard clay with greyish black colour.  
   (b) N.A.  
   (iii) N.A.  
   (iv) (a) to (e) N.A.  
   (v) N.A.  
   (vi) N.A.  
   (vii) N.A.  
   (viii) N.A.  
   (ix) N.A.  
   (x) N.A.

2. TREATMENTS:
   1. Castor cake.
   2. Compost.
   3. A/S.
   4. Dhaincha.
   5. Control.

   Rate of application — N.A.

3. DESIGN:
   (i) R.B.D.  
   (ii)  
   (iii)  
   (iv)  
   (v) N.A.  
   (vi) N.A.

4. GENERAL:
   (i) N.A.  
   (ii) N.A.  
   (iii) N.A.  
   (iv) N.A.  
   (v) Nil.  
   (vi) N.A.  
   (vii) N.A.  
   (ix) N.A.

5. RESULTS:
   (i)  
   (ii) N.A.  
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

   Treatment | Av. yield
   ----------|-----------
   1.        | 1661      
   2.        | 1122      
   3.        | 995       
   4.        | 978       
   5.        | 917       

   S.E./mean = N.A.

---

Crop : Paddy (Kharif).  
Site : Late Paddy Res. Sub-Station, Tissuhi.

Object : To select the best manure for late Paddy.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  
   (ii) (a) Light clay to hard clay with greyish black colour.  
   (b) N.A.  
   (iii) N.A.  
   (iv) (a) to (e) N.A.  
   (v) N.A.  
   (vi) N.A.  
   (vii) N.A.  
   (viii) N.A.  
   (ix) N.A.

2. TREATMENTS:
   1. Castor cake.
   2. Compost.
   3. Dhaincha green manure.
   4. A/S.
   5. Control.

   Rate of application — N.A.
3. DESIGN:
(i) R.B.D. (ii) S. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/86.7 a.c. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) N.A. (iv) (a) 1930—1953. (b) N.A. (c) No. (v) (a) and (b) N.A. (vi) Nil. (vii) Raw data N.A. The experiment was conducted by A.E.B. (P) T.

5. RESULTS:
(i) 1125 lb./a.c.
(ii) N.A.
(iii) N.A.
(iv) Av. yield of grain in lb./a.c.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2016</td>
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<tr>
<td>2.</td>
<td>1099</td>
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<tr>
<td>3.</td>
<td>939</td>
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<tr>
<td>4.</td>
<td>893</td>
</tr>
<tr>
<td>5.</td>
<td>677</td>
</tr>
</tbody>
</table>

S.E./mean = N.A.

Crop: Paddy.
Site: Late Paddy Res. Sub-Stn., Tissuhi.

Object: —To select the best among different manures.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) 19.7.1951. (iv) (a) N.A. (b) Transplanted. (c) —. (d) 9' x 9'. (e) N.A. (f) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. A/S at 50 lb./a.c. of N.
2. Castor cake at 50 lb./a.c. of N.
3. Compost at 50 lb./a.c. of N.
4. Dhaincha green manuring.
5. Control.

3. DESIGN:
(i) R.B.D. (ii) S. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 35'-3' x 14'-3'. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1953. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.E.B (P.T.).

5. RESULTS:
(i) 1052 lb./a.c.
(ii) 506.7 lb./a.c.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./a.c.

<table>
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<th>Treatment</th>
<th>Av. yield</th>
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<td>3.</td>
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<td>4.</td>
<td>622</td>
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<td>5.</td>
<td>979</td>
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</table>

S.E./mean = 226.6 lb./a.c.
Crop := Paddy.
Site := Regional Res. Stn., Varanasi.

Object:—To study the response of Paddy to N, P and Calcium.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Peas and Barley. (c) Sesame grain manured. (ii) (a) Medium alluvium. (b) Refer soil analysis, Varanasi. (iii) 5.5.1949/26, 27.6.1949. (iv) (a) Hot weather cultivation by tractor, Palewa on 19.6.1949. (b) 4 ploughings on 20.6.1949; 21, 22.6.1949. (b) to (c) N.A. (v) Nil. (vi) T-136 (early).

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N : N0 = 0; N1 = 30 and N2 = 60 lb./ac.
   (2) 3 levels of P2O5 : P0 = 0; P1 = 20 and P2 = 40 lb./ac.
   (3) 3 levels of Calcium : C0 = 0, C1 = 30 and 60 lb./ac. of Ca.

3. DESIGN:
   (i) 33 Partially confounded. (ii) (a) 3 blocks/replication. 9 plots/block: (b) N.A. (iii) 2: (iv) (a) 15'x 42'. (b) 12'x36'. (v) 3' around the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) D.D.T. spray on 26.6.1949. (iii) Height of paddy plants in cm. No. of tillers/plant, green leaves, dry leaves, length of green leaves and grain yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Bhairi (Jhanai), Nawabgunj (Bareilly) and Nagina (Bijnor). (vi) Nil. (vii) Conducted by C.P

5. RESULTS:
   (i) 1779 lb./ac.
   (ii) 272.6 lb./ac.
   (iii) Main effects of N alone is highly significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>Mean</th>
<th>C0</th>
<th>C1</th>
<th>C2</th>
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<td>1995</td>
<td>1775</td>
<td>1799</td>
<td>1728</td>
<td>1792</td>
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<tr>
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<td>1779</td>
<td>1859</td>
<td>1710</td>
<td>1783</td>
<td>1764</td>
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<td>1938</td>
<td>1699</td>
<td>1779</td>
<td>1692</td>
<td>1820</td>
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</tbody>
</table>

S.E. of any marginal mean = 64.26 lb./ac.
S.E. of body of any table = 111.31 lb./ac.
2. TREATMENTS:

All combinations of (1), (2) and (3)
(1) 3 levels of N: $N_0 = 0$, $N_1 = 30$ and $N_2 = 60$ lb./ac.
(2) 3 levels of $P_2O_5$: $P_0 = 0$, $P_1 = 20$ and $P_2 = 40$ lb./ac.
(3) 3 levels of Calcium: $C_0 = 0$, $C_1 = 30$ and $C_2 = 60$ lb./ac. of Ca.

$N$ as A/S, $P_2O_5$ as Super and Ca as Gypsum. Manuring on 24.6.1950.

3. DESIGN:

(i) $3^2$ partially confounded. (ii) (a) 9 plots/block 3 block/replication. (b) N.A. (iii) 2. (iv) (a) 18'×42'. (b) 12'×36'. (v) 3' around. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Slightly affected by gundhi bug, yield reduced by 20%. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) No. (v) (a) Atarra (Banda), Tissuhi (Mirzapur), Bharari (Jhansi) Pachperwa (Gonda) Nawabganj (Bareilly) and Nagina (Bijnor). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:

(i) 237.4 lb./ac.
(ii) 170.3 lb./ac.
(iii) Main effects of N, P, C and their interactions are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>Mean</th>
<th>$C_0$</th>
<th>$C_1$</th>
<th>$C_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>246.3</td>
<td>220.4</td>
<td>198.8</td>
<td>221.8</td>
<td>177.2</td>
<td>276.6</td>
<td>211.7</td>
</tr>
<tr>
<td>$N_1$</td>
<td>207.4</td>
<td>330.6</td>
<td>341.4</td>
<td>293.1</td>
<td>309.0</td>
<td>287.4</td>
<td>283.0</td>
</tr>
<tr>
<td>$N_2$</td>
<td>181.4</td>
<td>168.5</td>
<td>242.0</td>
<td>197.3</td>
<td>237.7</td>
<td>194.5</td>
<td>159.9</td>
</tr>
<tr>
<td>Mean</td>
<td>211.7</td>
<td>239.8</td>
<td>260.7</td>
<td>237.4</td>
<td>241.3</td>
<td>252.8</td>
<td>218.2</td>
</tr>
<tr>
<td>$C_0$</td>
<td>203.1</td>
<td>231.2</td>
<td>289.5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>$C_1$</td>
<td>218.2</td>
<td>299.3</td>
<td>280.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_2$</td>
<td>213.9</td>
<td>229.0</td>
<td>211.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 28.3 lb./ac.
S.E. of body of any table = 49.1 lb./ac.

Crop :- Paddy.
Site :- Regional Res. Stn., Varanasi.

Object :- To study the response of late Paddy to N, P and Calcium.

1. BASAL CONDITIONS:


2. TREATMENTS:

All combinations (1), (2) and (3)
(1) 3 levels of N: $N_0 = 0$, $N_1 = 30$ and $N_2 = 60$ lb./ac.
(2) 3 levels of $P_2O_5$: $P_0 = 0$, $P_1 = 20$ and $P_2 = 40$ lb./ac.
(3) 3 levels of Calcium: $C_0 = 0$, $C_1 = 30$ and $C_2 = 60$ lb./ac.

N as A/S, $P_2O_5$ as Super and Ca as Gypsum. Date of manuring 12.7.1952.

3. DESIGN:

(i) $3^2$ partially confounded. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 18'×42'. (b) 12'×36'. (v) 3' around. (vi) Yes.
4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1953. (b) No. (c) No. (v) (a) Pachperwa (Gonda) Tissuhi (Mirzapur), Nagina (Bijnor), Nawabganj (Bareilly), Faizabad, Attara (Banda), and Bharari (Jhansi). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:

(i) 709.4 lb./ac. (ii) 279.8 lb./ac. 

(ii) None of the effects and their interactions is significant.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Site</th>
<th>Object</th>
<th>Ref</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>Regional Res. Stn. Varanasi</td>
<td>To study the response of Paddy to N, P and Calcium</td>
<td>U.P. 53(39)</td>
<td>'M'</td>
</tr>
</tbody>
</table>

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Pea. (c) Nil. (ii) (a) Clay Loam. (b) Refer soil analysis, Varanasi. (iii) 23,24.7.1953. (iv) (a) Ploughing on 21 and 23.7.1953. (b) Transplanting. (c) —. (d) Row spacing 12" and plan spacing 9". (e) Single seeding. (v) Nil. (vi) N-22 (late). (vii) Irrigated. (viii) Intercultural operation such as hoeing and weeding are common in practice. (ix) N.A. (x) 16.10.53.

2. TREATMENTS:

All combinations of (1), (2) and (3).

(1) 3 levels of N := N0=0, N1=30 and N2=60 lb./ac.
(2) 3 levels of P2O5 := P0=0, P1=20 and P2=40 lb./ac.
(3) 3 levels of Calcium := C0=0, C1=30 and C2=60 lb./ac.

N as A/S, P2O5 as Super and Ca as Gypsum. Super placed 3"-4" deep in soil behind the plough 3 days before sowing. Gypsum applied as surface dressing a day before sowing. A/S applied as top dressing 2 weeks after germination.

3. DESIGN:

(i) 3² confounded factorial. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 18'X42' (b) 12'X36'. (v) Plot bound 3'X1' (high) arouind. Irrigation channel 4' and field border 4' around. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Slight attack of Gundhi bug. (iii) Grain yield and straw yield. (iv) (a) 1949-1953. (b), (c) No. (v) (a) Attara, Bharari (Jhansi), Faizabad and Nawabgang (Bareilly). (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:

(i) 2174 lb./ac. (ii) 233.8 lb./ac. 

(iii) Main effects of N, P, and C are highly significant. Interaction NXP is significant. Interactions NXC and PXC are not significant.
132

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>C₀</th>
<th>C₁</th>
<th>C₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>1478</td>
<td>1694</td>
<td>1932</td>
<td>1701</td>
<td>1357</td>
<td>1776</td>
<td>1971</td>
</tr>
<tr>
<td>P₁</td>
<td>1990</td>
<td>2474</td>
<td>2331</td>
<td>2265</td>
<td>1843</td>
<td>2411</td>
<td>2541</td>
</tr>
<tr>
<td>P₂</td>
<td>2286</td>
<td>2446</td>
<td>2934</td>
<td>2555</td>
<td>2124</td>
<td>2573</td>
<td>2969</td>
</tr>
<tr>
<td>Mean</td>
<td>1918</td>
<td>2205</td>
<td>2399</td>
<td>2174</td>
<td>1775</td>
<td>2253</td>
<td>2494</td>
</tr>
<tr>
<td>C₀</td>
<td>1445</td>
<td>1763</td>
<td>2115</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>C₁</td>
<td>1988</td>
<td>2416</td>
<td>2357</td>
<td></td>
<td></td>
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<td>2321</td>
<td>2435</td>
<td>2725</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N, P or C
S.E. of body of any table

=55.1 lb./ac.
=95.4 lb./ac.

Crop :- Paddy.
Site :- Regional Res. Stn., Varanasi.
Object :- To study the effect of varying doses of trace elements in presence of adequate quantities of N, P and K on growth, yield and quality of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Clay Loam. (b) Refer soil analysis, Varanasi. (iii) N.A. (iv) (a) N.A. (b) Transplanted. (c) —. (d), (e) N.A. (v) P₂O₅ to be applied 6" deep, in furrows while preparing the field. A/S and Potassium Sulphate as top dressing one week before transplanting. (vi) N 22 (Early). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control.
2. Molybdenum (Mo) as Molybdic acid at 6 lb./ac. of Mo.
3. Copper (Cu) as Copper Sulphate at 6 lb./ac. of Cu.
4. Boron (B) as commercial Borax at 1 lb./ac. of B.
5. Sulphur (S) as commercial Sulphur at 50 lb./ac. of S.
6. Zinc (Zn) as Zinc Sulphate at 4 lb./ac. of Zn.
A basal dose of A/S at 30 lb./ac. of N+Super at 15 lb./ac. of P₂O₅+Pot. Sul. at 15 lb./ac. of K₂O. is applied to all treatments. Trace elements mixed with fine earth and applied as surface dressing 5—6 days before sowing.

3. DESIGN:
(i) L. Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 35'x27'. (b) 31'x23'. (v) 2' alround. (vi) Yes.

4. GENERAL:
(i) No lodging. Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1952—1953. (b) & (c) No. (v) (a) Atarra, Faizabad, Bharari (Jhansi), Belatal, Bharailch. Nawabganj (Bareilly) and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1696 lb./ac.
(ii) 295.7 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1990</td>
</tr>
<tr>
<td>2.</td>
<td>1670</td>
</tr>
<tr>
<td>3.</td>
<td>1817</td>
</tr>
<tr>
<td>4.</td>
<td>1435</td>
</tr>
<tr>
<td>5.</td>
<td>1793</td>
</tr>
<tr>
<td>6.</td>
<td>1471</td>
</tr>
</tbody>
</table>
S.E./mean =120.7 lb./ac.

Ref :- U.P. 52(173).
Type :- 'M'.
Crop: Paddy
Site: Regional Res. Stn., Varanasi
Object: To study the effect of varying doses of trace elements in the presence of adequate N, P, Potassium and Calcium on growth yield and quality of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Leguminous crop. (b) Gram. (c) Nil. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 17.7.1953. (iv) Ploughing on 14, 15 and 17.7.1953. (b) Transplanting of single seedling. (c) 12 srs./ac. in nursery bed. (d) Plant spacing 9" and row spacing 12". (d) Plant spacing 9" and row spacing 12". (e) Improved method.

2. TREATMENTS:
   Main-plot treatments:
   3 trace elements: Cu=Copper as Copper Sulphate, B=Boron as Borax, and Zn=Zinc as Zinc Sulphate.
   Sub-plot treatments:
   Levels of trace elements: L0, L1, L2 and L3:
   Levels of Cu: L0=0, L1=3, L2=6 and L3=12 lb./ac.
   Levels of B: L0=0, L1=1, L2=2 and L3=4 lb./ac.
   Levels of Zn: L0=0, L1=1, L2=4 and L3=10 lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 28'x37', sub-plot size 56'x77' main-plot size. (b) 25':i<34'. (v) Plot bund 1.5'xl' thigh) bund alround, block partition and irrigation channel 3' and field border 2' alround. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Attacked by rice gundhi bug. (iii) Grain and straw yield. (iv) (a) 1952-1953. (b) and (c) N.A. (d) Nil. (e) Nil. (f) Conducted by C.P.

5. RESULTS:
   (i) 1017 lb./ac.
   (ii) (a) 189.5 lb./ac.
   (b) 178.1 lb./ac.
   (iii) Sub-plot treatments within main-plot are significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>Cu</th>
<th>B</th>
<th>Zn</th>
</tr>
</thead>
<tbody>
<tr>
<td>L0</td>
<td>988</td>
<td>984</td>
<td>1129</td>
</tr>
<tr>
<td>L1</td>
<td>1041</td>
<td>1274</td>
<td>1054</td>
</tr>
<tr>
<td>L2</td>
<td>1028</td>
<td>984</td>
<td>808</td>
</tr>
<tr>
<td>L3</td>
<td>1230</td>
<td>764</td>
<td>914</td>
</tr>
<tr>
<td>Mean</td>
<td>1072</td>
<td>1002</td>
<td>976</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. main-plot treatment means =77.34 lb./ac.
2. means in the same column =38.92 lb./ac.
2. TREATMENTS:
1. Control.
2. 25 lb./ac. of N.
3. 25 lb./ac. of N+50 lb./ac. of P₂O₅.
Method of Application: N as A/S broadcast at the time of sowing and Phosphoric acid in the form of Super is applied to one of the plots over the N dose. Super is placed at a depth of 3'-4' deep at the sole of the furrow and in the sides of the furrow made by either an iron plough or two desl plough, one behind the other in the same furrow.

3. DESIGN:
(i) and (ii) One village selected in the district and expt. with the above 3 treatments laid out in 10 replications. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
(i) Uniform growth; satisfactory. (ii) N.A. (iii) Yield of paddy grain and straw. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.

5. RESULTS:
(i) 1080 lb./ac.
(ii) 85.02 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yie'd of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>894</td>
</tr>
<tr>
<td>2.</td>
<td>1106</td>
</tr>
<tr>
<td>3.</td>
<td>1241</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>25.89 lb./ac.</td>
</tr>
</tbody>
</table>

(Crop:- Paddy (Kharif).  
Site:- Nawabganj (Bareilly).  
Object:- To draw out a suitable fertilizer schedule for this agriculturally important soil type.)

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) Bareilly type 3 E and 3 F. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) Generally irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control.
2. 15 lb./ac. of N
3. 15 lb./ac. of N+30 lb./ac. of P₂O₅.
N as A/S and P₂O₅ as Super.

3. DESIGN:
(i) and (ii) R.B.D. in which villages have been taken as replications (No. of villages=4) Fields selected randomly in randomly selected villages in the district. (iii) (a) N.A. (b) N.A. (but generally 1/40th of an ac.). (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1827 lb./ac.
(ii) 85.30 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1669</td>
</tr>
<tr>
<td>2.</td>
<td>1786</td>
</tr>
<tr>
<td>3.</td>
<td>2025</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=42.65 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Paddy (Kharij).

Site: Robertsganj and Dubhi (Mirzapur).

Ref: U.P. 51(225).

Type: 'M'.

Object: To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS:

(i) N.A. (b) N.A. (c) N.A. (ii) Dhaunsar, Domat and Karail. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Control.
2. 25 lb./ac. of N.
3. 25 lb./ac. of N+50 lb./ac. of P₂O₅.

3. DESIGN:

(i) and (ii) R.B. D. in which villages have been taken as replications (No of villages=21). Field selected randomly in a randomly selected village in the District. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:

(i) 1797 lb./ac.
(ii) 175.9 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain of in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1431</td>
</tr>
<tr>
<td>2.</td>
<td>1856</td>
</tr>
<tr>
<td>3.</td>
<td>2104</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>38.4 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharij).

Site: Kichha (Nanital).

Ref: U.P. 51(235).

Type: 'M'.

Object: To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS:

(i) N.A. (b) N.A. (c) N.A. (ii) Domat. (2) Clayey loam. (3) Light loam. (4) Matiyan. (iii) N.A. (iv) Improved. (v) (a) As practised locally. No details are available. After application of manures the field is levelled by drawing a pata. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) At a distance of 1" to 2" away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Control.
2. 25 lb./ac. of N.
3. 25 lb./ac. of N+50 lb./ac. of P₂O₅.

N as A/S broadcast at the time of sowing P₂O₅ as Super applied to one of the plots over the N dose, Super is placed at a depth of 3'-4' at the sole of the furrow and the sides of the furrow made by either an iron plough or two desi ploughs, one behind the other in the same furrow.

3. DESIGN:

(i) and (ii) Villages selected in the district and experiments with the above three treatments laid out with 8 replications. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:

(i) One trial has excellent stand and four trials have good stand. One trial was infested with kans. One trial damaged by animals. (ii) One trial damaged by borer. (iii) Grain and straw yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.
5. RESULTS:
(i) 1318 lb./ac.
(ii) 119.9 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1155</td>
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<tr>
<td>2.</td>
<td>1360</td>
</tr>
<tr>
<td>3.</td>
<td>1440</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>42.4 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Paddy (Kharif).
Site : Bilaspur and Kichha (Nanital.)
Object : To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) Terai soil. (iii) Clayey loam to loam. (iv) Improved. (v) (a) After application of P₂O₅ the field was levelled by drawing a pata and seeds sown. (b) Sown by broadcast. (c) N.A. (d) N.A. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control.
2. 25 lb./ac. of N.
3. 25 lb./ac. of N+50 lb./ac. of P₂O₅
N applied as A/S and P₂O₅ as Super. Nitrogen applied to surface at sowing time. Super is placed at a depth of about 3”-4” deep at the sole of the furrow and in the side of the seed row made by either an iron plough or two deal ploughs one behind the other in the same furrow.

3. DESIGN:
(i) and (ii) Villages selected in the district and the experiment laid out with 8 replications. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:
(i) Poor growth for 4 trials, good for two trials and normal for 2 trials. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1828 lb./ac.
(ii) 307.1 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1608</td>
</tr>
<tr>
<td>2.</td>
<td>1887</td>
</tr>
<tr>
<td>3.</td>
<td>1989</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>108.6 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Paddy (Kharif).
Site : State Usar Reclamation Farm, Dhakauni.
Object : To study whether leaching with water alone helps in reclaiming saline alkali soils.

1. BASAL CONDITIONS:
(i) (a) No. (b) No. (c) Nil. (ii) (a) Saline alkali. (b) N.A. (iii) 20.7.1951/1.8.1951. (iv) (a) One ploughing and one harrowing by tractor. (b) Transplanted and broadcast. (c) 5 md./ac. (d) Irregular (e) One seedling per hole. (v) Nil. (vi) No. 22 (early). (vii) Irrigated. (viii) Nil. (ix) 21.07*. (x) 18.10.1951.
2. TREATMENTS:

Two cultural operations: \( L_0 = \) No leaching and \( L_1 = \) leaching with water.

3. DESIGN:

(i) Paired-plot. (ii) 2. (b) N.A. (iii) 2. (iv) (a) and (b) \( L_0 = 0.48 \text{ ac.}, \) \( L_1 = 0.37 \text{ ac.}, \) \( L_2 = 0.59 \text{ ac.} \) (v) Nil. (vi) Yes.

4. GENERAL:

(i) Nil. (ii) Nil. (iii) Grain yield. (iv) (a) 1951—1955. (b) Yes. (c) Nil. (v) Nil. (vi) Nil. (vii) The exp. was conducted by J.D.A.S.(D).

5. RESULTS:

(i) 291.8 lb./ac.
(ii) 72.64 lb./ac.

(iii) Treatments do not differ significantly.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( L_0 )</td>
<td>59.0</td>
</tr>
<tr>
<td>( L_1 )</td>
<td>524.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=51.36 lb./ac.</td>
</tr>
</tbody>
</table>

Ref:—U.P. 52(344)/51(300).

Site:—State Usar Reclamation Farm, Dhakauni. Type:—'C'.

Object:—To study whether leaching with water alone helps in reclaiming saline alkali soils.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy. (c) Nil. (ii) (a) Saline alkali. (b) pH value varies from 7.9 to 9.5 at different depths. (iii) N.A. (iv) (a) One ploughing by gujar plough. (b) Transplanted. (c) —. (d) Irregular. (e) One seedling/hole. (v) No. (vi) Type 100 (late). (vii) Irrigated. (viii) No. (ix) N.A. (x) 22.11.1952.

2. TREATMENTS:

Two Cultural operations: \( L_0 = \) No leaching and \( L_1 = \) leaching with water.

3. DESIGN:

(i) Paired-plot. (ii) 2. (b) N.A. (iii) 2. (iv) (a) and (b) \( L_0 = 0.48 \text{ ac.}, \) \( L_1 = 0.59 \text{ ac.} \) ; \( L_2 = 0.37 \text{ ac.} \) (v) Nil. (vi) Yes.

4. GENERAL:

(i) No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1951—1955. (b) Yes. (c) Nil. (v) Nil. (vi) Nil. (vii) The exp. was conducted by J.D.A.S.(D).

5. RESULTS:

(i) 739.4 lb./ac.
(ii) 302.2 lb./ac.

(iii) Treatments do not differ significantly.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( L_0 )</td>
<td>246.9 lb./ac.</td>
</tr>
<tr>
<td>( L_1 )</td>
<td>1231.9 lb./ac.</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=213.7 lb./ac.</td>
</tr>
</tbody>
</table>

Ref:—U.P. 53(401)/52(344)/51(300).

Site:—State Usar Reclamation Farm, Dhakauni. Type:—'C'.

Object:—To study whether leaching with water alone helps in reclaiming saline alkali soils.

1. BASAL CONDITIONS:

(i) (a) No. (b) Paddy. (c) Nil. (ii) (a) Saline alkali. (b) pH value varies from 7.8 to 9.5 at different depths. (iii) 7 and 8.8.1953. (iv) (a) One ploughing by gujar plough. (b) Transplanting. (c) —. (d) Irregular. (e) One seedling per hole. (v) Nil. (vi) Type 100 (late). (vii) Irrigated. (viii) Nil. (ix) 15.1955. (x) 15 and 29.11.1953.
2. TREATMENTS:
Two cultural operations: L₀ = No leaching and L₁ = leaching with water.

3. DESIGN:
(i) Paired-plot. (ii) 2. (b) N.A. (iii) 2 (iv) (a) and (b) L₀=0.48 ac., L₁=0.59 ac. [L₀=0.37 ac., L₁=0.59 ac (v) Nil. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Grain yield. (iv) a) 1951—1955. (b) Yes. (c) Nil. (v) Nil. (vi) Nil. (vii) The exp. was conducted by J.D.A.S. (D).

5. RESULTS:
(i) 469.0 lb./ac.
(ii) 134.4 lb./ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₀</td>
<td>253.0</td>
</tr>
<tr>
<td>L₁</td>
<td>685.1</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>≈95.0 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: State Usar Reclamation Farm, Dhakauni
Object: To study whether leaching by water alone helps in reclaiming saline alkali soils.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) No. (c) Nil. (ii) (a) Saline alkali. (b) pH value varies from 10.60 to 11.90 at different depths. (iii) 23 to 31.7.52. (iv) (a) One ploughing by gujar plough. (b) Transplanted. (c) Irregular. (e) 1 seedling per hole. (v) Nil. (vi) Type 100 (late). (vii) Irrigated. (viii) Nil. (ix) 21.56'. (x) 22 to 24.11.52.

2. TREATMENTS:
Two cultural operations: L₀ = No leaching and L₁ = Leaching with water.

3. DESIGN:
(i) Paired-plot. (ii) 2. (b) N.A. (iii) 8. (iv) (a) 0.50 acre. (b) 0.50 acre. (v) Nil. (vi) Yes.

4. GENERAL:
(i) No leaching. (ii) Nil. (iii) Grain yield. (iv) (a) 1952—1956. (b) Yes. (c) Nil. (v) Nil. (vi) Nil. (vii) The exp. was conducted by J.D.A.S. (D).

5. RESULTS:
(i) 299.5 lb./ac.
(ii) 113.3 lb./ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₀</td>
<td>253.7</td>
</tr>
<tr>
<td>L₁</td>
<td>345.3</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>≈43.6 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: State Usar Reclamation Farm, Dhakauni
Object: To study whether leaching by water alone helps in reclaiming saline alkali soils.

1. BASAL CONDITIONS:
(i) (a) No. (b) No. (c) Nil. (ii) (a) Saline alkali. (b) pH value varies from 10.0 to 11.20 at different depths. (iii) 5 to 28.8.1953. (iv) (a) One ploughing by gujar plough. (b) Transplanted. (c) Irregular. (e) 1 seedling/hole. (v) Nil. (vi) Type 100 (late). (vii) Irrigated. (viii) One weeding, (ix) 15.19'. (x) 13 to 17.11.1953.
2. TREATMENTS:
Two cultural operations: \( L_0 \) = No leaching and \( L_1 \) = Leaching with water.

3. DESIGN:
(i) Paired-plot. (ii) 2. (b) N.A. (iii) 8. (iv) (a) 0.50 ac. (b) 0.50 ac. (v) Nil. (vi) Yes.

4. GENERAL:
(i) No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1952–1956. (b) Yes. (c) Nil. (v) Nil. (vi) NIL
(vii) The exp. was conducted by J.D.A.S. (D).

5. RESULTS:
(i) 232.4 lb./ac.
(ii) 82.78 lb./ac.
(iii) Treatments differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( L_0 )</td>
<td>182.6</td>
</tr>
<tr>
<td>( L_1 )</td>
<td>282.1</td>
</tr>
</tbody>
</table>

S.E./mean = 29.87 lb./ac.

Crop :- Paddy.  
Site :- Rice Res. Sub-Stn., Kunraghat.  
Object :- Rotational trial for early Paddy. (For final rotation).

6. BASAL CONDITIONS:
(i) (a) As per treatments. (b) As per treatments. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 17.952.
(iv) (a) One ploughing by Punjab and two by desi plough. (b) Broadcast. (c) 37 srs/ac. (d)—, (e)—, (v) Nil. (vi) N-22 (early paddy). (vii) Unirrigated. (viii) Weeding on 30.8.1951. (ix) 20.20", (x) 7 and 8.10.1951.

7. TREATMENTS:
A. Paddy-Pea-Paddy-Pea-Paddy.
C. Paddy-Pea-Sugarcane—Paddy.
D. Paddy—Berseem—Sawan—Pea—Paddy.

8. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) 172'×173'. (iii) 6. (iv) (a) 42'×20'. (b) 40'×18'. (v) 1' around the net plot left as non experimental area. (vi) Yes.

9. GENERAL:
(i) Good growth. No lodging. (ii) Nil. (iii) Height, tillering and yield of paddy grain. (iv) (a) 1949—1951. (b) As per rotations. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt., of U.P., Nagina Analysis is done or iv for the final year rotation. For the first two years of rotation only mean yields of different crops are given.

10. RESULTS:
(i) 736.1 lb./ac.
(ii) 96.68 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>764.8</td>
</tr>
<tr>
<td>B</td>
<td>612.8</td>
</tr>
<tr>
<td>C</td>
<td>754.2</td>
</tr>
<tr>
<td>D</td>
<td>782.6</td>
</tr>
</tbody>
</table>

S.E./mean = 39.47 lb./ac.

[Note: The results given above are for the yield of paddy grain in the year 1951].
Object:—To find out the most suitable and economical long rotation of early Paddy under broadcast condition.

1. BASAL CONDITIONS:

(i) (a) Paddy-Pea and then the rotation as given under treatments. (b) As per treatments. (c) T.C.—giving about 43 lb./ac. of N. (ii) (a) Medium loam. (b) N.A. (iii) 1.7.1953. (iv) (a) Three des picturesque and one victory ploughing. (b) Broadcast. (c) 37\(\frac{1}{2}\) seers/ac. (d) —. (e) —. (v) Village compost 10 lb./ac. of C.L, giving about 40 lb./ac. of N and A/S @ 20 sr./ac. as top dressing. (vi) N-22 (early). (vii) Unirrigated. (viii) Weedings on 16.7.1953 and 8.8.1953. (ix) 37.38°. (x) 11 and 13.10.1953.

2. TREATMENTS:

A. Paddy-Pea Paddy-Pea—Paddy.
B. Paddy-Pa—Paddy-Berseem—Paddy.
C. Paddy-Pea—Sugarcane—Paddy.
D. Paddy-Berseem—Sawan—Pea—Paddy.

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 42°—6°×39°. (b) 40°—6°×37°. (v) 1' left on all sides of the net plot as non-experimental area. (vi) Yes.

4. GENERAL:

(i) Growth is very good and uniform in all the plots. Full lodging in all the plots on 26.9.1950. (ii) Only slight attack of leaf-spot disease was observed in the last stage of the crop. Attack of grass hoppers and gandhi bug. Control measure:—One dusting with gammaoxene was done. (iii) Height, tillering, yield of paddy grain. (iv) (a) 1951—1953. (b) As per rotation. (c) —. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina. As this is a rotational expt., all the information and yield etc. are given in the two enclosed proformas. Analysis was done for the final year rotation crop. For the first two years only mean yields given. Analysis: was not done for 2 years.

5. RESULTS:

(i) 1293 lb./ac.
(ii) 210.2 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of paddy in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>1382</td>
</tr>
<tr>
<td>B.</td>
<td>1235</td>
</tr>
<tr>
<td>C.</td>
<td>1299</td>
</tr>
<tr>
<td>D.</td>
<td>1257</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>85.8</td>
</tr>
</tbody>
</table>

Note:—The results given are for the Paddy of 1953 only.

Object:—To find out the best time of broadcasting early Paddy.

1. BASAL CONDITIONS:

(i) (a) Paddy—Pea. (b) Pea. (c) Nil. (ii) (a) Medium loam. (b) N.A. (iii) As per treatments. (iv) (a) One victory plough and 3 des picturesque. (b) Broadcast. (c) 33 srs./ac. (d) —. (e) —. (v) Village compost at 10 C.L./ac. giving about 40 lb./ac. of N. (vi) N-22 (early). (vii) Irrigated. (viii) 3 weedings. (ix) 43.59°. (x) 4 to 30.9.1948 and 10.10.1948.

2. TREATMENTS:

5 dates of broadcasting: \(D_1=1.6.1948, D_2=10.6.1948, D_3=20.6.1948, D_4=30.6.1948\) and \(D_5=10.7.1948\).

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 33°—6°×18°. (b) 31°—6°×16°. (v) 1’ around. (vi) Yes.
4. GENERAL:
(i) Good and vigorous growth in D1, D2 and D3 plots and stunted in D4 and D5 plots. (ii) Nil. (iii) Height, tillers and grain yield. 
(iv) (a) 1947-1950. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 1594 lb./ac.
(ii) 240.4 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>2240</td>
</tr>
<tr>
<td>D2</td>
<td>1844</td>
</tr>
<tr>
<td>D3</td>
<td>1616</td>
</tr>
<tr>
<td>D4</td>
<td>1151</td>
</tr>
<tr>
<td>D5</td>
<td>1118</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>98.1 lb./ac.</td>
</tr>
</tbody>
</table>
Object: — To find out the best time of broadcasting early Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Pea. (b) Pea. (c) Nil. (ii) (a) Medium loam. (b) N.A. (iii) As per treatments. (iv) (a) One Punjab plough and 3 desi ploughs. (b) Broadcast. (c) 35 sets/ac. (d) —. (e) —. (v) Village compost at 10 C.L./ac giving about 42 lb./ac. of N. (vi) N-22 (early). (vii) Unirrigated. (viii) 3 weedings.
   (ix) 39.97°. (x) 12, 22.9, 1950; 6 and 8.10, 1950.

2. TREATMENTS:

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 33'6" x 18'. (b) 31'6" x 16'. (v) 12' around the net plot. (vi) Yes.

4. GENERAL:
   (i) Good growth. (ii) Slight attack of gundhi bug in August. (iii) Height, tillers and grain yield. (iv) (a) 1948-90. (b) No. (c) Nil. (v) Yes. (vi) N.A. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
   (i) 711.5 lb./ac.
   (ii) 127.4 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>988.6</td>
</tr>
<tr>
<td>D2</td>
<td>883.1</td>
</tr>
<tr>
<td>D3</td>
<td>851.7</td>
</tr>
<tr>
<td>D4</td>
<td>477.4</td>
</tr>
<tr>
<td>D5</td>
<td>357.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=52.0 lb./ac.</td>
</tr>
</tbody>
</table>

Object: — To find out the best time of transplanting early Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Pea. (b) Pea. (c) Nil. (ii) (a) Medium loam. (b) N.A. (ii) As per treatments. (iv) (a) One victory plough and 3 desi ploughs. (b) Transplanting. (c) —. (d) N.A. (e) N.A. (v) 10 C.L./ac of village compost giving about 40 lb./ac. of N. (vi) T-136 (early). (vii) Irrigated. (viii) One weeding. (ix) 43.59°. (x) 1, 14 and 25.9, 1948 and 1, 6, 10, 1948.

2. TREATMENTS:
   5 dates of transplanting: D1 = 10.6.1948, D2 = 20.6.1948, D3 = 30.6.1948, D4 = 10.7.1948 and D5 = 20.7.1948.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) 37'-6" x 86'-6". (iii) 6. (iv) (a) 37'-6" x 16-6" (b) 36' x 15'. (v) 9' around the net plot. (vi) Yes.

4. GENERAL:
   (i) Good growth. (ii) Slight attack of gundhi bug in August. (iii) Height, tillers and grain yield. (iv) (a) 1948-90. (b) No. (c) Nil. (v) Yes. (vi) N.A. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.
5. RESULTS:
(i) 941 lb./ac.
(ii) 151.6 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Average yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D_{1}</td>
<td>1448</td>
</tr>
<tr>
<td>D_{2}</td>
<td>791</td>
</tr>
<tr>
<td>D_{3}</td>
<td>1070</td>
</tr>
<tr>
<td>D_{4}</td>
<td>1099</td>
</tr>
<tr>
<td>D_{5}</td>
<td>299</td>
</tr>
</tbody>
</table>

S.E./mean = 61.9 lb./ac.

Crop : Paddy. (Kharif).
Site : Rice Res. Sub-Stn., Kunraghat.

Object : To find out the best time of transplanting early Paddy.

1. BASAL CONDITIONS:
(i) (a) Paddy-Pea. (b) Pea. (c) Nil. (ii) (a) Medium loam. (b) N.A. (iii) As per treatments. (iv) (a) One victory plough and 3 desi ploughs. (b) Transplanting. (c) —. (d) N.A. (e) N.A. (v) 10 C.L. of village compost giving about 40 lb./ac. of N. (vi) T-136 (early). (vii) Unirrigated. (viii) 2 weedings. (ix) 47.37°

2. TREATMENTS:

3. DESIGN:
(i) R.B.D. (ii) 5. (b) N.A. (iii) 6. (iv) (a) 37'-6" x 16'-6". (b) 36' x 15'. (v) 9° around the net plot. (vi) Yes.

4. GENERAL:
(i) Vigorous growth. (ii) Nil. (iii) Height, tiller and grain yield. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt., of U.P. Nagni.

5. RESULTS:
(i) 694.5 lb./ac.
(ii) 158.0 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Average yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D_{1}</td>
<td>770.6</td>
</tr>
<tr>
<td>D_{2}</td>
<td>869.6</td>
</tr>
<tr>
<td>D_{3}</td>
<td>943.7</td>
</tr>
<tr>
<td>D_{4}</td>
<td>675.7</td>
</tr>
<tr>
<td>D_{5}</td>
<td>212.7</td>
</tr>
</tbody>
</table>

S.E./mean = 64.5 lb./ac.

Crop : Paddy (Kharif).
Site : Rice Res. Sub-Stn., Kunraghat.

Object : To find out the best time of transplanting early Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) N.A. (iii) As per treatments. (iv) (a) One victory plough and 3 desi ploughs. (b) Transplanting. (c) —. (d) N.A. (e) N.A. (v) T-136 (early). (vii) N.A. (viii) 2 weedings. (ix) 39.97°. (x) 29.8.1950, 10, 29.9.1950 and 6.10.1950.
2. TREATMENTS:

3. DESIGN:
(i) R.B.D. (ii) (a) 5, (b) N.A. (iii) 6. (iv) (a) 37°-5°×16'-5°. (b) 35°×15°. (v) 9° around the net plot. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Height, tillering and grain yield. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Expt. conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 1070 lb./ac.
(ii) 203.5 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>1731</td>
</tr>
<tr>
<td>D₂</td>
<td>1583</td>
</tr>
<tr>
<td>D₃</td>
<td>644</td>
</tr>
<tr>
<td>D₄</td>
<td>803</td>
</tr>
<tr>
<td>D₅</td>
<td>587</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>83.1 lb./ac.</td>
</tr>
</tbody>
</table>

Crop:– Paddy (Kharif).
Site:– Rice Res. Sub-Stn., Kunraghat.
Object:– To find out the best method of sowing early Paddy.

1. BASAL CONDITIONS:
(i) (a) Paddy—gram. (b) Gram. (c) Nil. (ii) (a) Sandy Loam. (b) N.A. (iii) 21.6.1948, 3.7.1948. (iv) (a) One victory plough and 1 desi ploughs. (b) Broadcast. (c) 37 s.e.r./ac. (d) —. (e) —. (f) 10 C.I./ac. of village compost giving about 40 lb./ac. of N. A/S at 501 s.e.r./ac. of N as top dressing. (vi) N. 22 (early). (vii) Irrigated. (viii) 2 weedings. (ix) 43.5°. (x) 20, 21.10.1948.

2. TREATMENTS:
4 methods of sowing:
1. Dry Sowing.
2. Sowing in moisture.
3. Sowing in puddled field with germinated seed.
4. Sowing in puddled field with ungerminated seed.

3. DESIGN:
(i) R.B.D. (ii) (a) 4, (b) N.A. (iii) 6. (iv) (a) 37°×21°-3° (b)35°×19°-3°. (v) 1° around the net plot. (vi) Yes.

4. GENERAL:
(i) Good growth. (ii) Nil. (iii) Height, tillering and grain yield. (iv) (a) 1948—1951. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to U.P. Nagina.

5. RESULTS:
(i) 1172 lb./ac.
(ii) 122.1 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1085</td>
</tr>
<tr>
<td>2.</td>
<td>1413</td>
</tr>
<tr>
<td>3.</td>
<td>1167</td>
</tr>
<tr>
<td>4.</td>
<td>1023</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>49.9 lb./ac.</td>
</tr>
</tbody>
</table>

Ref:– U.P. 48(120). Type:— 'C'.
Crop : - Paddy (Kharif).
Site : - Rice Res. Sub-Stn., Kunraghat.
Object : - To find out the best method of sowing early Paddy.

1. BASAL CONDITIONS :
   (i) (a) Paddy—Gram. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 7.6.1949. (iv) (a) One victory plough and 3 desi ploughs. (b) Broadcast. (c) 37 srs./ac. (d)—. (e)—. (v) Village compost at 10 C.L./ac. giving 40 lb./ac. of N. (vi) N-22 (early). (vii) Irrigated. (viii) 2 weedings. (ix) 47.37°. (x) 12.10.1949.

2. TREATMENTS :
   4 methods of sowing :
   1. Dry sowing.
   2. Sowing in moisture.
   3. Sowing in puddled field with germinated seed.
   4. Sowing in puddled field with ungerminated seed.

3. DESIGN :
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 37'x21'-5". (b) 35'x19'-6". (v) I’ arround the net plot. (vi) Yes.

4. GENERAL :
   (i) Good growth. (ii) Slight attack of white ants. (iii) Height, tillers and grain yield. (iv) (a) 1948—1951. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) The experiment has been spoiled due to the excessive mud in the field. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt., of U.P., Nagina.

5. RESULTS :
   (i) 217.7 lb./ac.
   (ii) 103.6 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>180.3</td>
</tr>
<tr>
<td>2.</td>
<td>285.8</td>
</tr>
<tr>
<td>3.</td>
<td>217.5</td>
</tr>
<tr>
<td>4.</td>
<td>187.3</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>42.3 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : - Paddy (Kharif).
Site : - Rice Res. Sub-Stn., Kunraghat.
Object : - To find out the best method of sowing early Paddy.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) N.A. (iii) 8.6.1950. (iv) (a) One victory plough and 3 desi ploughs. (b) Broadcast. (c) 37 srs./ac. (d)—. (e)—. (v) Nil. (vi) N-22 (early). (vii) Unirrigated. (viii) 2 weedings. (ix) 39.92°. (x) 18.9.1950.

2. TREATMENTS :
   4 methods of sowing :
   1. Dry sowing.
   2. Sowing in moisture.
   3. Sowing in puddled field with germinated seed.
   4. Sowing in puddled field with ungerminated seed.

3. DESIGN :
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 23'x28'. (b) 27'x26'. (v) I’ arround the net plot. (vi) Yes.

4. GENERAL :
   (i) Satisfactory. (ii) A disease similar to root rot was observed. (iii) Height, tillers and grain yield. (iv) (a) 1948—1951. (b) No. (c)—. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt., of U.P., Nagina.
5. RESULTS:
(i) 458.2 lb./ac.
(ii) 54.31 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>380.2</td>
</tr>
<tr>
<td>2.</td>
<td>474.6</td>
</tr>
<tr>
<td>3.</td>
<td>527.6</td>
</tr>
<tr>
<td>4.</td>
<td>450.6</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 22.17 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).  
Site: Rice Res. Sub-Stn., Kunraghat.  
Object: To find out the best method of sowing early Paddy.

1. BASAL CONDITIONS:

(i) (a) Paddy-gram. (b) Gram and then Sanai for G.M. (c) No. (ii) (a) Sandy. (b) N.A. (iii) 18.6.1951.
(iv) (a) One Punjab plough and 2 desi ploughs. (b) Broadcast. (c) 37 seers/ac. (d) —. (e) —. (v) Sanai as G.M. (vi) N-22 (early). (vii) Unirrigated. (viii) 2 weedings. (ix) 26.27°. (x) 1.10.1951.

2. TREATMENTS:

4 methods of sowing:
1. Dry sowing.
2. Sowing in moisture.
3. Sowing in puddled field with germinated seed.
4. Sowing in puddled field with ungerminated seed.

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 32'-6"x24'. (b) 30'-6"x22. (v) 1' alround the net plot. (vi) Yes.

4. GENERAL:

(i) Good. No lodging (ii) Nil. (iii) Height, tillers and grain yield. (iv) (a) 1948—1951. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Lower yield due to the shortage of water and less rains during the crop period. (vii) Expt. conducted by Asst. Econmic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:

(i) 459.6 lb./ac.
(ii) 159.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>355.9</td>
</tr>
<tr>
<td>2.</td>
<td>506.2</td>
</tr>
<tr>
<td>3.</td>
<td>514.6</td>
</tr>
<tr>
<td>4.</td>
<td>461.9</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>= 64.9 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).  
Site: Rice Res. Sub-Stn., Kunraghat.  
Object: To find out the best seed rate for broadcasting Paddy.

1. BASAL CONDITIONS:

(iv) (a) Paddy-gram, (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 21.6.1948. (iv) (a) One victory plough and three Desi ploughs. (b) Broadcast. (c) As per treatments. (d) —. (e) —. (v) Village compost as 10 C.L./ac giving about 40 lb./ac of N. and A/S at the rate of 50 lb./ac. (vi) N-22 (early). (vii) Irrigated. (viii) One weeding. (ix) 43.5°. (x) 19.10.1948.
2. TREATMENTS:
4 seed rates: \( R_1 =20, R_2 =30, R_3 =40 \) and \( R_4 =50 \) seer/ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6, (iv) (a) \( 37' \times 21' \text{-}3" \). (b) \( 35' \times 19' \text{-}3" \). (v) 1' around the net plot. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Attack of white ants. (iii) Height, tillers and grain yield. (iv) (a) 1947—1948. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 1052 lb./ac.
(ii) 243.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( R_1 )</td>
<td>875</td>
</tr>
<tr>
<td>( R_2 )</td>
<td>989</td>
</tr>
<tr>
<td>( R_3 )</td>
<td>1296</td>
</tr>
<tr>
<td>( R_4 )</td>
<td>1048</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>-99.2 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Rice Res. Sub-Stn., Kunraghat.
Object: To study the benefits of double cropping of Paddy.

Ref: U.P. 49(227).
Type: ‘C’.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) As under treatments (iv) (a) One victory plough and 3 dest ploughs. (b) As per treatments. (c) N.A. (d) N.A. (e) N.A. (f) Nil. (g) N-22 (early), T-88 (late). (vii) N.A. (viii) 2 weedings. (ix) 49,63'. (x) 26.7.1949, 14.10.1949 and 5.12.1949.

2. TREATMENTS:
1. Early variety N-12 broadcast in April (12.4.1949) and manured. Late variety T-88 transplanted in August (28.8.1949) and manured. Berseem in standing late crop.
2. Early variety N-22 broadcast in normal time (13.6.1949) and manured. Berseem in Rabi.
3. Late variety T-88 transplanted in normal time (22.7.1949) and manured and Berseem in standing in late crop.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6, (iv) (a) \( 42' - 9' \times 13' - 6" \). (b) \( 41' - 13' - 6" \). (v) 1' along the length and 2' along the breadth. (vi) Yes.

4. GENERAL:
(i) Good. Late sown plots poor in growth. (ii) Nil. (iii) Height, tillers, grain yield of paddy and yield of Berseem green fodder. (iv) (a) 1949—1951. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 646.5 lb./ac.
(ii) 121.3 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>918.2</td>
</tr>
<tr>
<td>2.</td>
<td>124.5</td>
</tr>
<tr>
<td>3.</td>
<td>896.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>-49.5 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Paddy (Kharif).
Site :- Rice Res. Sub-Stn., Kunraghat.

Object :- To study the benefits of double cropping of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Dhanicha for G.M. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) As under treatments.
   (iv) (a) One victory plough and 3 desi ploughs. (b) As per treatments. (c) N.A. (d) N.A. (c) N.A. (v)
   Green manuring dhanicha.
   (vi) N-22 (early), T-88 (late).
   (vii) Irrigated. (viii) 4 weedings. (ix) 42.53'.

2. TREATMENTS:
   1. Early variety (N-22) broadcast in April (12.4.1950) and manured. Late variety transplanted in
      August (12.8.1950) and manured. Berseem sown in standing late crop.
   2. Early variety broadcast in normal time (17.4.1950) and manured. Berseem in Rabi.
   3. Late variety transplanted in normal time (18.7.1950) and manured and Berseem in standing late crop.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 42'-9" x 16'-6". (b) 41'-3" x 15'. (v) 9' left around the
      net plot. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Attack of root rot and stem borer was observed. (iii) Height, tillering and grain yield.
   (iv) (a) 1949-1951. (b) No. (c) Nil. (v) (a) N. (b) N. (vi) Nil. (vii) The yield of Berseem is not
      available in the records and hence it is not possible to find out the economics of this experiment.
      In treatment the yield of early and late Paddy has been added up and the data of Paddy grain only has been
      analysed. Experiment conducted by Assistant Economic Botanist (Paddy) to Govt., U.P. Nagina.

5. RESULTS:
   (i) 1178 lb./ac.
   (ii) 276.6 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment       Av. yield
   1.             2170
   2.             371
   3.             993
   S.E./mean     =97.8 lb./ac.

---------------------------------------------

Crop :- Paddy (Kharif).
Site :- Rice Res. Sub-Stn., Kunraghat.

Object :- To study the benefits of double cropping.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Berseem. (c) N.A. (ii) (a) Light Loam. N.A. (iii) As under treatments. (iv) (a) One
   hoeing with kudali and two ploughings by desi plough. (b) As per treatments. (c) to (e) N.A. (v)
   Nil. (vi) N-22 (early), T-88 (late). (vii) Irrigated. (viii) 7 weedings. (ix) 26.69'. (x) 21.8.1951,

2. TREATMENTS:
   1. Early variety N-22 broadcast in April (14.4.1951) and manured. Late variety transplanted in
      August (27.8.1951) and manured. Berseem sown in standing late crop.
   2. Early variety broadcast in normal time (16.6.1951) and manured. Berseem sown in Rabi.
   3. Late variety transplanted in normal time (17.7.1951) and manured and Berseem in standing late crop.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) 42'-9" x 16'-6". (b) 41'-3" x 15'. (v) 9' left around the
      net plot. (vi) Yes.

4. GENERAL:
   (i) Good growth. (ii) Nil. (iii) Height, tillers and grain yield. (iv) (a) 1945-1951. (b) No. (c) Nil.
   (vi) N.A. (vi) Lowor yields due to less rains. (vii) The yield of Berseem is not available in the records
   and hence it is not possible to find out the economics of this experiment. In treatment 1, the yields of early
   and late Paddy has been added up and the data of Paddy grain only has been analysed. Experiment con-
   ducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.
5. RESULTS:
(i) 638 lb./ac.
(ii) 128.8 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1176</td>
</tr>
<tr>
<td>2.</td>
<td>403</td>
</tr>
<tr>
<td>3.</td>
<td>324</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>45.5 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Rice Res. Sub-Stn., Kunraghat.
Ref: U.P. 50(285).
Type: 'C'.

Objct:—To determine the effect of summer ploughing on the yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Paddy-Gram. (b) Gram. (c) Nil. (ii) (a) Sandy Loam. (b) N.A. (iii) 17.6.1953. (iv) (a) As per treatments. (b) Broadcast. (c) 37 srs/ac. (d) — (e) —. (v) N.A. (vi) N-22 (early). (vii) Unirrigated. (viii) 2 weedings. (ix) 38.92°. (x) 28.9.1950.

2. TREATMENTS:
1. Two desi ploughings in summer, puddling and ganning (control).
2. Thorough ploughing in summer (one deep ploughing and 5 desi); puddling and ganning.
3. No ploughing in summer; puddling and ganning.
4. Ploughing just before puddling and ganning.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 42' X 18'. (b) 40' X 16'. (v) 1' all round the net plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Height, tillers and grain yield. (iv) (a) 1950-1952. (b) N.A. (c) —. (v) (a), (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 1041 lb./ac.
(ii) 161.7 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1053</td>
</tr>
<tr>
<td>2.</td>
<td>1190</td>
</tr>
<tr>
<td>3.</td>
<td>907</td>
</tr>
<tr>
<td>4.</td>
<td>1015</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>66.0 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Rice Res. Sub-Stn., Kunraghat.
Ref: U.P. 51(262).
Type: 'C'.

Objct:—To determine the effect of summer ploughing on the yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Paddy—Gram. (b) Gram. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 24.6.1951. (iv) (a) As per treatments. (b) Broadcast. (c) 37 srs/ac. (d) —. (e) —. (v) Nil. (vi) N-22 (early). (vii) Unirrigated. (viii) 2 weedings. (ix) 26.27°. (x) 2.10.1951.
2. TREATMENTS:
1. 2 desi ploughings in summer, puddling and ganning (control).
2. Thorough ploughing in summer (one deep ploughing and 3 desi) puddling and ganning.
3. No ploughing in summer, puddling and ganning.
4. Ploughing just before puddling and ganning.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 50'-6' x 33'. (b) 48'-6' x 31'. (v) 1' all around the net plot. (vi) Yes.

4. GENERAL:
(i) Good growth except in treat. no. 3 where the growth is poor and weeds are too many. (ii) Nil. (iii) Tillering and grain yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Lower yields due to the shortage of water and rains. (vii) Experiment was conducted by Assistant Economic Botanist (Paddy) to Govt., U.P., Nagina.

5. RESULTS:
(i) 209.4 lb./ac.
(ii) 93.21 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>208.5</td>
</tr>
<tr>
<td>2.</td>
<td>270.0</td>
</tr>
<tr>
<td>3.</td>
<td>191.8</td>
</tr>
<tr>
<td>4.</td>
<td>167.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>38.05 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Paddy (Kharif). Site :- Rice Res. Sub-Stn., Kunraghat.
Object :- To determine the effect of summer ploughing on the yield of Paddy.

Ref :- U.P. 52(309). Type :- 'C'.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Pea. (c) Nil. (ii) (a) Medium black. (b) N.A. (iii) 24.6.1952. (iv) (a) As per treatments. (b) Broadcast. (c) 39 srs./ac. (d) -. (e) -. (v) T.C. at 160 mds./ac. giving about 40 lb./ac. of N. (vi) N-22 (early). (vii) Unirrigated. (viii) 3 weedings. (ix) 28.36'. (x) 29, 30.9.1952 and 1.10.1952.

2. TREATMENTS:
1. 2 desi ploughings in summer, puddling and ganning (control).
2. Thorough ploughing in summer (one deep ploughing and 3 desi), puddling and ganning.
3. No ploughing in summer, puddling and ganning.
4. Ploughing just before puddling and ganning.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 42'-6' x 39'. (b) 40'-6' x 37'. (v) 1' all around the net plot. (vi) Yes.

4. GENERAL:
(i) Good growth. Lodging on 20.9.1952. (ii) Grass hoppers and gudhi bug were observed. Dusting by gammexene. (iii) Height, tillers and grain yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The expt. was conducted by Assistant Economic Botanist (Paddy) to Govt., U.P., Nagina.

5. RESULTS:
(i) 830.7 lb./ac.
(ii) 124.3 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>882.2</td>
</tr>
<tr>
<td>2.</td>
<td>958.0</td>
</tr>
<tr>
<td>3.</td>
<td>757.3</td>
</tr>
<tr>
<td>4.</td>
<td>785.4</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>50.8 lb./ac.</td>
</tr>
</tbody>
</table>
Object: To find out the best time of sowing germinated seed for early Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Gram and Arhar. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 22.6.1951. (iv) (a) One victory plough and 2 desi ploughs. (b) Broadcast. (c) 38 seers/ac. (d) —. (e) —. (v) Nil. (vi) N-22 (early). (vii) Unirrigated. (viii) 3 weedings. (ix) 26.27°. (x) 28 and 29.9.1951.

2. TREATMENTS:
   1. Ungerminated seed.
   2. Germinated seed sown immediately.
   3. Germinated seed dried for two days and stored for 15 days before sowing.
   4. Germinated seed dried for two days and stored for 30 days before sowing.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 32'-6''×24'. (b) 30'-6''×22'. (v) 1' around the net plot. (vi) Yes.

4. GENERAL:
   (i) Good growth. Half lodging. (ii) Nil. (iii) Height tillers and grain yield. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) All sowings were to be done on 15.6.1951 but due to scarcity of water it was done on 22.6.1951 The seed for germination was soaked for 24 hours in water. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt., U.P. Nagon.

5. RESULTS:
   (i) 668.3 lb./ac.
   (ii) 183.4 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>645.5</td>
</tr>
<tr>
<td>2.</td>
<td>696.9</td>
</tr>
<tr>
<td>3.</td>
<td>532.0</td>
</tr>
<tr>
<td>4.</td>
<td>778.8</td>
</tr>
</tbody>
</table>
   S.E./mean = 74.9 lb./ac.
5. RESULTS:
(i) 1215 lb./ac.
(ii) 194.4 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1212</td>
</tr>
<tr>
<td>2.</td>
<td>1229</td>
</tr>
<tr>
<td>3.</td>
<td>1234</td>
</tr>
<tr>
<td>4.</td>
<td>1186</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>~79.4 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy.
Site: Crop Physiological Res. Stn., Lucknow.
Object: To study the effect of cutting roots and shoots of Paddy seedling on its growth and yield.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 1.6.1953/15.7.1953. (iv) (a) N.A. (b) Transplanting. (c)—. (d) Line to line 9" apart; plant to plant 8" apart. (e) Nil. (v) C/N at 2 srs. applied on 18.8.1953. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 5.10.53.

2. TREATMENTS:
1. Control.
2. Roots—¾ cut.
3. Roots ½ cut.
4. Roots—full cut. (leaving a very small portion).
5. Shoots—full cut.

3. DESIGN
(i) R.B.D. (ii) (a) S. (b) N.A. (iii) 4. (iv) (a) 11'×6' (b) 10'×5' (v) 1' plot bund and 1' irrigation channel. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by Crop Physiologist.

5. RESULTS:
(i) 1075 lb./ac.
(ii) 378 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>896</td>
</tr>
<tr>
<td>2.</td>
<td>1484</td>
</tr>
<tr>
<td>3.</td>
<td>1092</td>
</tr>
<tr>
<td>4.</td>
<td>896</td>
</tr>
<tr>
<td>5.</td>
<td>1008</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>~189.0 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy.
Site: Rice Res. Stn., Nagina.
Object: To determine the effect of summer ploughings on the yield of Paddy.

1. BASAL CONDITIONS:
2. TREATMENTS:
1. Two or three desi ploughings in summer, puddling and ganning (control).
2. Thorough ploughings in summer (one deep ploughing and 6 of 7 desi ploughings puddling and ganning).
3. No ploughing in summer.
4. Ploughing just before puddling and ganning.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 1/59 ac. (b) 1/72.23 ac. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 1028 lb./ac.
(ii) 181.44 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.
   Treatment  Av. yield
   1.          1030
   2.          1104
   3.          848
   4.          1130
S.E./mean = 74.07 lb./ac.

Crop: Paddy.  Ref.: U.P. 50(42)
Site: Rice Res. Strn., Nagina. (Bijnor.) Type 'C'.

Object: To determine the effect of summer ploughing on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Silt Loam. (b) N.A. (iii) 29.6.1950. (iv) (a) to (e) N.A. (v) Nil. (vi) N-22 (early). (vii) N.A. (viii) 2 hand weedings. (ix) N.A. (x) 22.9.1950.

2. TREATMENTS:
1. Three desi ploughings in summer and ganning.
2. Thorough ploughings in summer (one deep ploughing and 6-7 desi ploughings).
3. No ploughings in summer and ganning.
4. Ploughing in water and no ganning.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 61' x 28'. (b) 1/28.40 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1949 to 1952. (b) No. (c) No. (v) (a), (b) No. (vi) Nil. (vii) Conducted by Asstt. Economic Botanist (Paddy) to Govt. of U.P. Nagina.

5. RESULTS:
(i) 1220 lb./ac.
(ii) 75.04 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.
   Treatment  Av. yield
   1.          1187
   2.          1306
   3.          1103
   4.          1285
S.E./mean = 30.63 lb./ac.
Object:—To determine the effect of summer ploughings on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Oats. (c) Nil.  
   (ii) (a) Silt (loam). (b) N.A.  
   (iii) 11.7.1951.  
   (iv) (a) to (e) N.A.  
   (v) Nil.  
   (vi) N.22. (early).  
   (vii) N.A.  
   (viii) 2 hand weedings.  
   (ix) N.A.  
   (x) 29.9.1951 and 5.10.1951.

2. TREATMENTS:
   1. Two desi ploughings in summer.
   2. Thorough ploughing in summer (1 deep ploughing and 4 or 5 desi ploughings) and ganning.
   3. One ploughing immediately before puddling and ganning.
   4. Ploughing in water and no ganning.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 4. (b) N.A.  
   (iii) 6.  
   (iv) (a) 17½'×8½'. (b) 16'×8'.  
   (v) One row at each end of the plot.  
   (vi) Yes.

4. GENERAL:
   (i) Satisfactory.  
   (ii) Nil.  
   (iii) Grain yield.  
   (iv) (a) No. (b) and (c) No.  
   (v) (a) and (b) No.  
   (vi) Nil.  
   (vii) Conducted by Asstt. Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
   (i) 409.4 lb./ac.
   (ii) 94.08 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E/mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>489.4</td>
<td>38.41 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>769.4</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>190.4</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>188.2</td>
<td></td>
</tr>
</tbody>
</table>

Object:—To determine the effects of summer ploughings on the yield of paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A.  
   (ii) (a) Silt (loam). (b) N.A.  
   (iii) 22.6.1952.  
   (iv) (a) to (e) N.A.  
   (v) Nil.  
   (vi) N.22. (early).  
   (vii) N.A.  
   (viii) 2 hand weedings.  
   (ix) N.A.  
   (x) 22.9.1952.

2. TREATMENTS:
   1. Two desi ploughings in summer and ganning (control).
   2. Thorough ploughing in summer (deep ploughing and 4 to 5 desi ploughings) and ganning.
   3. One ploughing immediately before puddling and ganning.
   4. Ploughing in water and no ganning.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 4. (b) N.A.  
   (iii) 6.  
   (iv) (a) 85.5'×17.5'. (b) 84'×16'.  
   (v) N.A.  
   (vi) Yes.

4. GENERAL:
   (i) Satisfactory.  
   (ii) Nil.  
   (iii) Grain yield.  
   (iv) (a) 1949—1952. (b) and (c) No.  
   (v) (a) and (b) No.  
   (vi) Nil.  
   (vii) Conducted by Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
   (i) 927.1 lb./ac.
   (ii) 190.40 lb./ac.
   (iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>873.6</td>
</tr>
<tr>
<td>2.</td>
<td>965.4</td>
</tr>
<tr>
<td>3.</td>
<td>984.8</td>
</tr>
<tr>
<td>4.</td>
<td>884.8</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>77.73 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy.  
Ref: U.P. 52(144).  
Type: 'C'.

Object: To determine the three year rotation for early Paddy.

1. **BASAL CONDITIONS**:
   (i) (a) As per Treatment. (b) As per treatment. (c) N.A. (ii) (a) Silt (loam). (b) N.A. (iii) 2.7.1952. (iv) (a) One deep ploughing and 2 shallow ploughings, (b) to (e) N.A. (v) Nil. (vi) Early variety (vii) N.A. (viii) 2 weedings by hand. (ix) N.A. (x) 23.9.1952.

2. **TREATMENTS**:
   1st year 2nd year 3rd year.
   A. Paddy—Gram Paddy—Gram Paddy.
   B. Paddy—Gram Jowar—Berseem Paddy.
   C. Paddy—Pea Sugarcane Paddy.

3. **DESIGN**:
   (i) R.B.D. (ii) 4. (b) N.A. (iii) 6. (iv) (a) 59'x28'. (b) 1/32.65 ac. (v) N.A. (vi) Yes.

4. **GENERAL**:
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1952—1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by A.E.B. (P).

5. **RESULTS**:
   (i) 1980 lb./ac.  
   (ii) 317.0 lb./ac.  
   (iii) Treatments are not significant.  
   (iv) Av. yield of grain in lb./ac.  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>1869</td>
</tr>
<tr>
<td>B.</td>
<td>2025</td>
</tr>
<tr>
<td>C.</td>
<td>1948</td>
</tr>
<tr>
<td>D.</td>
<td>2078</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>133.51 lb./ac</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).  
Site: Late Paddy Res. Sub-Stn., Pachperwa.  
Ref: U.P. 49(233).  
Type: 'C'.

Object: To determine the proper age of seedling for late Paddy.

1. **BASAL CONDITIONS**:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanted. (c)—. (d) N.A. (e) N.A. (f) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. **TREATMENTS**:
   4 different ages of seedling: A₁=20, A₂=30, A₃=40 and A₄=50 days.

3. **DESIGN**:
   (i) R.B.D. (ii) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/39.0 ac. (v) N.A. (vi) N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) No. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil.
(vii) The expt. was conducted by Assistant Economic Botanist (Paddy) to Govt., U.P., Nagina. Only the annual report "Rice Research work in U.P." for the year 1949 was consulted. No original record or plotwise yield data, available.

5. RESULTS:
(i) 1835 lb/ac.
(ii) N.A.
(iii) Treatment differences are not significant.
(iv) Avg. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Avg. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁</td>
<td>1873</td>
</tr>
<tr>
<td>A₂</td>
<td>1883</td>
</tr>
<tr>
<td>A₃</td>
<td>1891</td>
</tr>
<tr>
<td>A₄</td>
<td>1695</td>
</tr>
</tbody>
</table>

S.E./mean = N.A.

Crop: Paddy (Kharif).
Site: Late Paddy Res. Sub-Stn., Pachperwa.
Object: To find out the best age of seedlings for late Paddy.

1. BASAL CONDITIONS:
(i) N.A. (b) N.A. (c) N.A. (ii) Heavy loam. (b) N.A. (iii) N.A. (a) Transplanted.
(c)—. (d) and (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 41.41. (x) N.A.

2. TREATMENTS:
5 different ages of seedlings: A₁=20, A₂=30, A₃=40, A₄=50 and A₅=60 days.

3. DESIGN:
(i) R.B.D. (ii) 5. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/130.15 ac. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) No. (b)—. (c) Nil. (v) (a) and (b) N.A. (vi) Nil.
(vii) The expt. was conducted by Assistant Economic Botanist (Paddy) to Govt., U.P., Nagina. Only the annual report "Rice Research work in U.P." for the year 1950 was consulted. No original records or plotwise yield data were available.

5. RESULTS:
(i) 1213 lb/ac.
(ii) N.A.
(iii) Treatment differences are not significant.
(iv) Avg. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Avg. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁</td>
<td>1077</td>
</tr>
<tr>
<td>A₂</td>
<td>1254</td>
</tr>
<tr>
<td>A₃</td>
<td>1318</td>
</tr>
<tr>
<td>A₄</td>
<td>1190</td>
</tr>
<tr>
<td>A₅</td>
<td>1224</td>
</tr>
</tbody>
</table>

S.E./mean = N.A.

Crop: Paddy (Kharif).
Site: Late Paddy Res. Sub-Stn., Pachperwa.
Object: To determine the best time of transplanting.

1. BASAL CONDITIONS:
(i) N.A. (b) N.A. (c) N.A. (ii) Heavy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanting.
(c)—. (d) N.A. (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) N.A. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil.
(vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt., of U.P., Nagina. Only the annual report "Rice Research Work in U.P. for the year 1949" was consulted. No original record or plotwise yield data were available.

5. RESULTS:
(i) 1064 lb./ac.
(ii) N.A.
(iii) The treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>1643</td>
</tr>
<tr>
<td>D2</td>
<td>1384</td>
</tr>
<tr>
<td>D3</td>
<td>999</td>
</tr>
<tr>
<td>D4</td>
<td>745</td>
</tr>
<tr>
<td>D5</td>
<td>801</td>
</tr>
<tr>
<td>D6</td>
<td>810</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Late Paddy Res. Sub-Stn., Pachperwa.

Ref: U.P. 50(289).
Type: ‘C’.

Object: To determine the best time of transplanting.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanted. (c) No. (d) N.A. (e) N.A. (f) N.A. (g) N.A. (h) N.A. (i) 41.43”. (x) N.A.

2. TREATMENTS:

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/73.54 ac. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) —. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil.
(vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina. Only the annual report "Rice Research Work in U.P." for the year 1950 was consulted. No original record or plotwise yield data were available.

5. RESULTS:
(i) 506.4 lb./ac.
(ii) 188.12 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>452.3</td>
</tr>
<tr>
<td>D2</td>
<td>529.1</td>
</tr>
<tr>
<td>D3</td>
<td>655.7</td>
</tr>
<tr>
<td>D4</td>
<td>617.3</td>
</tr>
<tr>
<td>D5</td>
<td>722.6</td>
</tr>
<tr>
<td>D6</td>
<td>570.4</td>
</tr>
<tr>
<td>D7</td>
<td>412.5</td>
</tr>
<tr>
<td>D8</td>
<td>81.1</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>94.06 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Paddy (Kharif).  
Site: Late Paddy Res. Sub-Stn., Pachperwa.  
Object: To find out the best spacing for transplanting late Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Heavy loam.  (b) N.A.  (iii) N.A.  (iv) (a) N.A.  (b) Transplanting.  
   (c) →  (d) As per treatments.  (e) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   3 spacings: S₁=6", S₂=9" and S₃=12".

3. DESIGN:
   (i) R.B.D.  (ii) (a) 3.  (b) N.A.  (iii) 8.  (iv) (a) and (b) N.A.  (v) N.A.  (vi) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1947—1950.  (b) N.A.  (c) Nil.  (v) (a) and (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina.  
   Only the annual report “Rice Research Work in U.P.” for the year 1949 was consulted. No original record or plotwise yield data were available.

5. RESULTS:
   (i) 1047 lb./ac.  
   (ii) 201.4 lb./ac.  
   (iii) Treatment differences are significant.  
   (iv) Av. yield of grain in lb./ac.
   Treatment  | Av. yield  |
   S₁         | 1228       |
   S₂         | 1074       |
   S₃         | 838        |
   S.E./mean  | 71.22 lb./ac.

Crop: Paddy (Kharif).  
Site: Late Paddy Res. Sub-Stn., Pachperwa.  
Object: To find out the best spacing for transplanting late Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Heavy loam.  (b) N.A.  (iii) N.A.  (iv) (a) N.A.  (b) Transplanting.  
   (c) →  (d) As per treatments.  (e) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) 41.43".  (x) N.A.

2. TREATMENTS:
   3 spacings: S₁=6", S₂=9" and S₃=12" apart.

3. DESIGN:
   (i) R B.D.  (ii) (a) 3.  (b) N.A.  (iii) 8.  (iv) (a) N.A.  (b) 1/104.5 ac.  (v) and (vi) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1949—1950.  (b) N.A.  (c) Nil.  (v) (a) and (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina.  
   Only the annual report “Rice Research Work in U.P.” for the year 1950 was consulted. No original plotwise yield data or original records were available.

5. RESULTS:
   (i) 896.1 lb./ac.  
   (ii) 167.74 lb./ac.  
   (iii) Treatment differences are significant.  
   (iv) Av. yield of grain in lb./ac.
   Treatment  | Av. yield  |
   S₁         | 1175.3     |
   S₂         | 904.1      |
   S₃         | 708.9      |
   S.E./mean  | =59.31 lb./ac.
Crop : Paddy. (Kharif).
Site : Late Paddy Res. Sub-Stn., Pachperwa.

Object : To find out the optimum number of seedlings for transplanting late Paddy.

1. BASAL CONDITIONS :
   (i) (a), (b), and (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanting (c)— (d) N.A. (e) As per treatments. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   No. of seedlings/hole : $S_1 = 1$, $S_2 = 3$ to 4 and $S_3 = 8$ to 12 seedlings.

3. DESIGN :
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/105.6 ac. (v) N.A. (vi) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1950. (b) N.A. (c) Nil. (v) (a), (b) N.A. (vi) Nil, (vii) The expn. was conducted by Asstt. Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the Annual report “Rice Research Work in U.P.” for the year 1949 was consulted. No original plotwise yield data were available.

5. RESULTS :
   (i) 1161 lb./ac.
   (ii) 215.16 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb./ac.
      Treatment | Av. yield
      $S_1$    | 1042.40
      $S_2$    | 1127.28
      $S_3$    | 1312.21
      S.E./mean = 76.03 lb./ac.

Crop : Paddy. (Kharif).
Site : Late Paddy Res. Sub-Stn., Pachperwa.

Object : To find out the optimum number of seedlings for transplanting late Paddy.

1. BASAL CONDITIONS :
   (i) (a), (b) and (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanting (c)— (d) N.A. (e) As per treatments. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 4.43" (x) N.A.

2. TREATMENTS :
   No. of seedlings/hole : $S_1 = 1$, $S_2 = 3$ to 4 and $S_3 = 8$ to 12 seedlings.

3. DESIGN :
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/150.95 ac. (v) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1950. (b) N.A. (c) Nil. (v) (a), (b) N.A. (vi) Nil, (vii) The expn. was conducted by Asstt. Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report “Rice Research Work in U.P.” for the year 1950 was consulted. No original plotwise yield data or original records were available.

5. RESULTS :
   (i) 1570 lb./ac.
   (ii) 236.17 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb./ac.
      Treatment | Av. yield
      $S_1$    | 1354
      $S_2$    | 1667
      $S_3$    | 1690
      S.E./mean = 83.51 lb./ac.
Crop: Paddy: (Kharif).  
Site: Late Paddy Res. Sub-Stn., Pachperwa.  
Type: ‘C’.

Object: To study the effect of mixed sowing of early and late Paddy on its yield, and hence to avoid total crop failure.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) As per treatment. (c) —. (d) N.A. (e) N.A. (v) N.A. (vi) N-22 (early) and T-88 (late). (vii) N.A. (viii) N.A. (ix) 31.33’. (x) N.A.

2. TREATMENTS:
1. Pure late broadcast
2. Pure late transplant
3. Pure early broadcast
4. Pure early transplant
5. Early and late broadcast
6. Early and late transplant

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/87.72 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1951–1952. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (.ii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina.

5. RESULTS:
(i) 108.4 lb./ac,
(ii) N.A.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>110.3</td>
</tr>
<tr>
<td>2.</td>
<td>183.9</td>
</tr>
<tr>
<td>3.</td>
<td>67.9</td>
</tr>
<tr>
<td>4.</td>
<td>56.2</td>
</tr>
<tr>
<td>5.</td>
<td>62.2</td>
</tr>
<tr>
<td>6.</td>
<td>130.1</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= N.A.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).  
Site: Late Paddy Res. Sub-Stn., Pachperwa.  
Type: ‘C’.

Object: To study the effect of mixed sowing of early and late Paddy on its yield, and hence to avoid total crop failure.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) Date of transplanting 19.7.1950. Broadcast 26.6.1952; Nursery sowing 24.6.1952. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) N.A. (e) N.A. (f) N.A. (g) T-88 (late) and N-22 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) Early 26.9.1952; Late 1.12.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 varieties: \( V_1 = T-88, V_2 = N-22 \) and \( N_2 = T-88 + N-22 \).
(2) 2 methods of sowing: \( M_1 = \text{Broadcast} \) and \( M_2 = \text{Transplant} \).

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/57.03 ac. (v) N.A. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1951—1952. (b) N.A. (c) N.A. (v) (a) N.A. (b) N.A. (vi) N.A. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina.

5. RESULTS:
(i) 1220 lb./ac.
(ii) 494.0 lb./ac.
(iii) Main effect of V alone differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Crop:</th>
<th>Paddy (Kharif).</th>
<th>Site:</th>
<th>Late Paddy Res. Sub-Stn., Pachperwa.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object:</td>
<td>To compare different cultural practices.</td>
<td>Ref U.P.:</td>
<td>51(272).</td>
</tr>
<tr>
<td>Type:</td>
<td>'C'.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Broadcast. (c) to (e) N.A. (v) N.A. (v) N.A. (vii) N.A. (viii) As per treatments. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control
2. Ploughing 3 weeks after sowing
3. Ploughing 5 weeks after sowing
4. Harrowing 3 weeks after sowing
5. Harrowing 5 weeks after sowing
6. Transplanting

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/93.33 ac. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1951—N.A. (b) N.A. (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report "Rice Research Work in U.P." for the year 1951 was consulted. Original records and the plotwise yield data are not available.

5. RESULTS:
(i) 116.27 lb./ac.
(ii) N.A.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>94.63</td>
</tr>
<tr>
<td>2.</td>
<td>77.79</td>
</tr>
<tr>
<td>3.</td>
<td>94.63</td>
</tr>
<tr>
<td>4.</td>
<td>109.67</td>
</tr>
<tr>
<td>5.</td>
<td>113.66</td>
</tr>
<tr>
<td>6.</td>
<td>207.26</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>
Crop: Paddy (Kharif).
Site: Late Paddy Res. Sub-Stn., Pachperwa.

Object: To compare different cultural practices.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Control
   2. Ploughing 3 weeks after sowing
   3. Ploughing 5 weeks after sowing
   4. Harrowing 3 weeks after sowing
   5. Harrowing 5 weeks after sowing
   6. Transplanting

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/73.03. ac. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1951—N.A. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina.

5. RESULTS:
   (i) 1645 lb./ac.
   (ii) 338.9 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1534</td>
</tr>
<tr>
<td>2.</td>
<td>1715</td>
</tr>
<tr>
<td>3.</td>
<td>1803</td>
</tr>
<tr>
<td>4.</td>
<td>1809</td>
</tr>
<tr>
<td>5.</td>
<td>1519</td>
</tr>
<tr>
<td>6.</td>
<td>1488</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 138.3 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy. (Kharif).
Site: Late Paddy Res. Sub-Stn., Pachperwa.

Object: To compare different cultural practices.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Control
   2. Ploughing 3 weeks after sowing
   3. Ploughing 5 weeks after sowing
   4. Harrowing 3 weeks after sowing
   5. Harrowing 5 weeks after sowing
   6. Transplanting

3. DESIGN:
   (i) R. B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 20' x 29'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) 1951—N.A. (t) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina.
5. RESULTS:

(i) 2466 lb./ac.
(ii) 220.9 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1591</td>
</tr>
<tr>
<td>2.</td>
<td>1756</td>
</tr>
<tr>
<td>3.</td>
<td>1522</td>
</tr>
<tr>
<td>4.</td>
<td>1556</td>
</tr>
<tr>
<td>5.</td>
<td>1994</td>
</tr>
<tr>
<td>6.</td>
<td>1750</td>
</tr>
</tbody>
</table>

S.E./mean = 196.12 lb./ac.

Crop: Paddy (Kharif).
Site: Late Paddy Res. Sub-Stn., Tissuhi.

Object: To select out which rotation suits best after late Paddy with crops sown after harvesting late Paddy.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light clay and hard clay with greyish black colour. (b) N.A.
(iii) 1.8.1953. (iv) (a) to (e) N.A. (v) N.A. (vi) Late Paddy T-9. (vii) N.A. (viii) N.A. (ix) N.A.
(x) 9.12.1953.

2. TREATMENTS:

1. Late Paddy followed by Phillipine Pea.
2. Late Paddy followed by Local Pea.
3. Late Paddy followed by Gram T.87.
4. Late Paddy followed by Tangier Pea.
5. Late Paddy followed by Lathyrus Salivas.
6. Late Paddy followed by Fallow.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 27°—6°×26°—6°. (v) (a) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A.
(vi) Nil. (vii) The experiment was conducted by A.E.B(P).

5. RESULTS:

(i) 1695 lb./ac.
(ii) 252.24 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1591</td>
</tr>
<tr>
<td>2.</td>
<td>1756</td>
</tr>
<tr>
<td>3.</td>
<td>1522</td>
</tr>
<tr>
<td>4.</td>
<td>1556</td>
</tr>
<tr>
<td>5.</td>
<td>1994</td>
</tr>
<tr>
<td>6.</td>
<td>1750</td>
</tr>
</tbody>
</table>

S.E./mean = 196.12 lb./ac.
Crop: Paddy (Kharif).  
Site: Late Paddy Res. Sub-Stn., Tissuhi.  
Object: To find out the best rotation for late Paddy (with crop that can be broadcast on standing late Paddy fields).

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Late paddy followed by fallow.
   2. Late paddy followed by gram T-87 at 1 md./ac.
   3. Late paddy followed by Aksa at 25 seers/ac.
   4. Late paddy followed by Masoor at 15 seers/ac.
   5. Late paddy followed by Pea local at 1 md./ac.
   6. Late paddy followed by Hubam clover at 10 seers/ac.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 6.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 34°-6'x19°-6'.  (v) N.A.  (vi) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1953—N.A.  (b) N.A.  (c) Nil.  (v) (a) & (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by A.E.B. (P) Nagina

5. RESULTS:
   (i) 1258 lb./ac.
   (ii) 377.8 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1199</td>
</tr>
<tr>
<td>2.</td>
<td>1336</td>
</tr>
<tr>
<td>3.</td>
<td>1122</td>
</tr>
<tr>
<td>4.</td>
<td>1566</td>
</tr>
<tr>
<td>5.</td>
<td>1211</td>
</tr>
<tr>
<td>6.</td>
<td>1113</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=188.9 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).  
Site: Late Paddy Res. Sub-Stn., Tissuhi.  
Object: To find out the best rotation for late Paddy.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1951. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil.
(vii) The experiment was conducted by A.E.B. (P) Nagan. Only the annual report “Rice Research Work in Uttar Pradesh” for the year 1951 was consulted. No original record or plotwise yield data were available.

5. RESULTS:
(i) 512.5 lb./ac.
(ii) N.A.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>617.1</td>
</tr>
<tr>
<td>2.</td>
<td>579.3</td>
</tr>
<tr>
<td>3.</td>
<td>485.5</td>
</tr>
<tr>
<td>4.</td>
<td>477.3</td>
</tr>
<tr>
<td>5.</td>
<td>466.6</td>
</tr>
<tr>
<td>6.</td>
<td>449.3</td>
</tr>
</tbody>
</table>

S.E./mean = N.A.

Crop := Paddy.
Site := Rice Res. Stn., Nagan.

Object := To find out the residual effects of previous crop.

1. BASAL CONDITIONS:
(i) (a) Paddy-Berseem. (b) Paddy followed by Berseem. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) 1.6.1949/17.7.1949. (iv) (a) One deep ploughing and two shallow ploughings. (b), (c), (d), and (e) N.A. (v) Nil (vi) Anjana Pilibhit. (vii) N.A. (viii) Two hand weedicings. (ix) N.A. (x) 10.10.1949.

2. TREATMENTS:
Paddy Anjana Pilibhit is sown in all the fields having 3 treatments in the previous year as follows:
1. Very early broadcast and harvested in early August, late variety transplanted in August.
2. Early variety broadcast at normal time.
3. Late variety transplanted at normal time.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 1/54.7 ac. (b) 1/55.9 ac. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 1500 lb./ac.
(ii) 258.7 lb./ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1548</td>
</tr>
<tr>
<td>2.</td>
<td>1527</td>
</tr>
<tr>
<td>3.</td>
<td>1425</td>
</tr>
</tbody>
</table>

S.E./mean = 91.5 lb./ac.
Crop :- Paddy.  
Site :- Rice Res. Stn., Nagina.

Object :- To find out the residual effects of previous crop.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Berceem. (b) Berseem. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) 1.6.1950/1.7.1950. (iv) (a) One deep ploughing and two shallow ploughings. (b), (c), (d), and (e) N.A. (v) Nil. (vi) Anjana Pilibhit. (vii) N.A. (viii) Two hand weedings. (ix) N.A. (x) 7.10.1950.

2. TREATMENTS:
   Paddy Anjana Pilibhit is sown in all the fields having 3 treatments in the previous year as follows:
   1. Very early broadcast and harvested in early August, late variety transplanted in August.
   2. Early variety broadcast at normal time.
   3. Late variety transplanted at normal time.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 1/51.8 ac. (b) 1/67.87 ac. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1948—1950. (b) and (c) Yes. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by Asst. Economic Botanist, (Paddy) to Govt. U.P., Nagina.

5. RESULTS:
   (i) 2108 lb./ac.
   (ii) 274.4 lb./ac.
   (iii) Treatments differ significantly.
   (iv) Av. yield of grain in lb./ac. 
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2307</td>
</tr>
<tr>
<td>2.</td>
<td>1905</td>
</tr>
<tr>
<td>3.</td>
<td>2111</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>97.0 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Paddy.  
Site :- Late Paddy Res. Sub-Stn., Tissuhi. 

Object :- To find out the effect of spacing along with time of transplanting on the growth and yield of different varieties of Paddy.

3. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Heavy clay. (b) N.A. (iii) 20.6.1952/3.8.1952 and 18.8.1952. (iv) (a) N.A. (b) Transplanted. (c)— (d) and (e) N.A. (v) No. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 30.02°. (x) 4.12.1952.

2. TREATMENTS:
   Main-plot treatments:
   2 times of transplanting : T1 = Last week of July and T2 = 15 days after 1st transplanting.
   Sub-plot treatments:
   All combinations of (1) and (2).
   (1) 3 varieties : V1 = T-36, V2 = T-88 and V3 = T-100.
   (2) 4 spacings : S1 = 3', S2 = 6', S3 = 9' and S4 = 12'.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block ; 12 sub-plots/main-plots. (iv) (a) 28'x29'. (b) 22'x23'. (v) 6' around the plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P. to Govt. U.P., Lucknow.
5. RESULTS:
(i) 1271 lb./ac.
(ii) (a) 173.6 lb./ac.
(b) 50.8 lb./ac.
(iii) S and V effects are highly significant. None of the interactions is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>S_1</th>
<th>S_2</th>
<th>S_3</th>
<th>S_4</th>
<th>Mean</th>
<th>V_1</th>
<th>V_2</th>
<th>V_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>T_1</td>
<td>1988</td>
<td>1698</td>
<td>1152</td>
<td>977</td>
<td>1454</td>
<td>1034</td>
<td>1896</td>
</tr>
<tr>
<td>T_2</td>
<td>1953</td>
<td>1025</td>
<td>759</td>
<td>617</td>
<td>1089</td>
<td>920</td>
<td>1360</td>
</tr>
<tr>
<td>Mean</td>
<td>1970</td>
<td>1362</td>
<td>955</td>
<td>797</td>
<td>1271</td>
<td>977</td>
<td>1628</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. T marginal means = 40.9 lb./ac.
2. S marginal means = 167.3 lb./ac.
3. V marginal means = 144.9 lb./ac.
4. S means at a level of T = 236.5 lb./ac.
5. T means at a level of S = 208.9 lb./ac.
6. V means at a level of T = 204.8 lb./ac.
7. T means at a level of V = 172.2 lb./ac.
S.E. of body of S x V table = 204.8 lb./ac.

Crop: Paddy (Kharif).
Site: Late Paddy Res. Sub-Stn., Tissuhi.
Ref: U.P. 51(278).
Type: ‘CV’.
Object: To study the effect of growing together early and late Paddy on its yield.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplant and broadcast. (c) to (e) N.A. (v) N.A. (vi) N-22 (early), T-88 (late). (vii) N.A. (viii) N.A. (ix) 48.12”. (x) N.A.

2. TREATMENTS:
1. Late variety broadcast
2. Late variety transplanted
3. Late and early variety broadcast
4. Late and early varieties transplanted
5. Early variety broadcast
6. Early variety transplanted

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/61.16 ac. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1951—1952. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The expt. was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report “Rice Research Work in Uttar Pradesh” for the year 1951 was consulted. No original record or plotwise yield data were available.

5. RESULTS:
(i) 521.8 lb./ac.
(ii) N.A.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>626.2</td>
</tr>
<tr>
<td>2.</td>
<td>516.8</td>
</tr>
<tr>
<td>3.</td>
<td>566.1</td>
</tr>
<tr>
<td>4.</td>
<td>544.6</td>
</tr>
<tr>
<td>5.</td>
<td>474.0</td>
</tr>
<tr>
<td>6.</td>
<td>393.3</td>
</tr>
</tbody>
</table>

S.E./mean = N.A.

Crop :- Paddy (Kharif).

Site :- Late Paddy Res. Sub-Stn., Tissuhi.

Object :- To study the effect of growing together early and late Paddy on its yield.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplant and Broadcast. (c) N.A. (d) N.A. (e) N.A. (f) N.A. (g) N-22 (early), T-88 (late) (h) N.A. (i) N.A. (j) N.A. (k) N.A.

2. TREATMENTS:

1. Late variety broadcast
2. Late variety transplanted
3. Late and early varieties broadcast
4. Late and early varieties transplanted
5. Early variety broadcast
6. Early variety transplanted

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/61.16 ac. (v) N.A. (vi) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1951—1952. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Report was consulted. No original record or plotwise yield data were available.

5. RESULTS:

(i) 766.8 lb./ac.
(ii) N.A.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1163.5</td>
</tr>
<tr>
<td>2.</td>
<td>1166.8</td>
</tr>
<tr>
<td>3.</td>
<td>714.2</td>
</tr>
<tr>
<td>4.</td>
<td>1091.1</td>
</tr>
<tr>
<td>5.</td>
<td>195.8</td>
</tr>
<tr>
<td>6.</td>
<td>269.1</td>
</tr>
</tbody>
</table>

S.E./mean = N.A.

Crop :- Paddy (Kharif).

Site :- Late Paddy Res. Sub-Stn., Tissuhi.

Object :- To determine the best age for transplanting late Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanting. (c) —. (d) N.A. (e) N.A. (f) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 45.43. (x) N.A.
2. TREATMENTS:
5 different ages of seedlings: \( A_1 = 20 \), \( A_2 = 30 \), \( A_3 = 40 \), \( A_4 = 50 \) and \( A_5 = 60 \) days.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/72.2 ac. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil.
(vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report "Rice Research Work in Uttar Pradesh" for the year 1950 was consulted. No original record or plot wise yield data were available.

5. RESULTS:
(i) 403.9 lb/ac.
(ii) N.A.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( A_1 )</td>
<td>250.3</td>
</tr>
<tr>
<td>( A_2 )</td>
<td>304.9</td>
</tr>
<tr>
<td>( A_3 )</td>
<td>555.2</td>
</tr>
<tr>
<td>( A_4 )</td>
<td>618.0</td>
</tr>
<tr>
<td>( A_5 )</td>
<td>291.3</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Crop : Paddy (Kharif), Site : Late Paddy Res. Sub-Strn., Tissuhl. Object : To find an optimum date for transplanting Paddy.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) As per treatment. (iv) (a) N.A. (b) Transplanting. (c) —. (d) N.A. (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 45.43° (x) N.A.

2. TREATMENTS:
8 dates of transplanting: \( D_1 = 20.6.1950 \), \( D_2 = 30.6.1950 \), \( D_3 = 10.7.1950 \), \( D_4 = 20.7.1950 \), \( D_5 = 30.7.1950 \), \( D_6 = 10.8.1950 \), \( D_7 = 20.8.1950 \) and \( D_8 = 30.8.1950 \).

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/102.46 ac. (v) N.A. (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report "Rice Research Work in Uttar Pradesh" the year 1950 was consulted. No original record or plot wise yield data were available.

5. RESULTS:
(i) 488.1 lb/ac.
(ii) N.A.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( D_1 )</td>
<td>653.8</td>
</tr>
<tr>
<td>( D_2 )</td>
<td>787.6</td>
</tr>
<tr>
<td>( D_3 )</td>
<td>711.2</td>
</tr>
<tr>
<td>( D_4 )</td>
<td>690.2</td>
</tr>
<tr>
<td>( D_5 )</td>
<td>341.5</td>
</tr>
<tr>
<td>( D_6 )</td>
<td>323.0</td>
</tr>
<tr>
<td>( D_7 )</td>
<td>260.8</td>
</tr>
<tr>
<td>( D_8 )</td>
<td>137.0</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>
Crop :- Paddy (Kharif).
Site :- Late Paddy Res. Sub-Stn., Tissuhi.

Ref :- U.P. 49(238).
Type :- 'C'.

Object :- To find out the best spacing for transplanting late Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Clayey to hard clay, with greyish black colour. (b) N.A. (iii) N.A.
   (iv) (a) N.A. (b) Transplanted. (c) —. (d) As per treatments. (e) N.A. (v) N.A. (vi) N.A. (vii) N.A.
   (viii) N.A. (ix) 39.18”. (x) N.A.

2. TREATMENTS:
   3 spacings :— S1=6", S2=9" and S3=12" apart.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/72.2 ac. (v) N.A. (vi) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1950. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report “Rice Research Work in U.P.” for the year 1949 was consulted. No original record or plotwise yield data were available.

5. RESULTS:
   (i) 366.12 lb./ac.
   (ii) N.A.
   (iii) Treatments differ significantly.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>506.64</td>
</tr>
<tr>
<td>S2</td>
<td>346.48</td>
</tr>
<tr>
<td>S3</td>
<td>245.25</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Crop :- Paddy (Kharif).
Site :- Late Paddy Res. Sub-Stn., Tissuhi.

Ref :- U.P. 50(294).
Type :- 'C'.

Object :- To find out the best spacing for transplanting late Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A.
   (iii) N.A. (iv) (a) N.A. (b) Transplanting (c) —. (d) As per treatments. (e) N.A. (v) N.A. (vi) N.A.
   (vii) N.A. (viii) N.A. (ix) 45.43" (x) N.A.

2. TREATMENTS:
   3 spacings :— S1=6", S2=9" and S3=12" apart.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/72.2 ac. (v) N.A. (vi) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1950. (b)and (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by Asst. Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report “Rice Research Work in U.P.” for the year 1950 was consulted. No original records or plotwise yield data were available.

5. RESULTS:
   (i) 833.1 lb./ac.
   (ii) N.A.
   (iii) Treatments differ significantly.
Object: To find out the optimum number of seedlings required for transplanted Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Clay to hard clay with greyish black colour. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanting. (c) —. (d) N.A. (e) As per treatments. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 39.18°. (x) N.A.

2. TREATMENTS:
   No. of seedlings/hole: S₁ = 1, S₂ = 3 to 4 and S₃ = 8 to 12 seedlings.

3. DESIGN:
   (i) R.B.D. (ii) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/72.2 ac. (v) N.A. (vi) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1950. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Asst. Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report “Rice Research Work in Uttar Pradesh” for the year 1949 was consulted. No original records or plotwise yield data were available.

5. RESULTS:
   (i) 417.86 lb./ac.
   (ii) N.A.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment       Av. yield
   S₁       261.8
   S₂       388.9
   S₃       602.9
   S.E./mean = N.A.

Object: To find out the optimum number of seedlings required for transplanted Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanting. (c) —. (d) N.A. (e) As per treatments. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 45.43°. (x) N.A.

2. TREATMENTS:
   No. of seedlings/hole: S₁ = 1, S₂ = 3 to 4 and S₃ = 8 to 12 seedlings.

3. DESIGN:
   (i) R.B.D. (ii) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/72.2 ac. (v) N.A. (vi) N.A.
4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1950. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report "Rice Research Work in Uttar Pradesh" for the year 1950 was consulted. No original plotwise yield data or records were available.

5. RESULTS:

(i) 687.2 lb./ac.
(ii) N.A.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>409.2</td>
</tr>
<tr>
<td>S2</td>
<td>649.7</td>
</tr>
<tr>
<td>S3</td>
<td>1002.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Crop :-Paddy (Kharif).

Site :- Late Paddy Res. Sub-Stn., Tissuhi.

Object :- To compare different cultural practices.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Broadcast. (c) N.A. (d) N.A. (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) As per treatments. (ix) 45.43'. (x) N.A.

2. TREATMENTS:

6 cultural operations:
1. Control
2. Ploughing 3 weeks after sowing
3. Ploughing 5 weeks after sowing
4. Harrowing 3 weeks after sowing
5. Harrowing 5 weeks after sowing
6. Transplanting

3. DESIGN:

(i) R.B.D. (ii) (a) N.A. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/99.62 ac. (v) N.A. (vi) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1930—1952. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report "Rice Research Work in Uttar Pradesh" for the year 1950 was consulted. No original record or plotwise yield data were available.

5. RESULTS:

(i) 210.5 lb./ac.
(ii) N.A.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>284.4</td>
</tr>
<tr>
<td>2</td>
<td>254.1</td>
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<td>3</td>
<td>103.4</td>
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<tr>
<td>4</td>
<td>299.8</td>
</tr>
<tr>
<td>5</td>
<td>83.3</td>
</tr>
<tr>
<td>6</td>
<td>237.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>
Object:—To compare different cultural practices.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Light clay to hard clay with greyish black colour. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Broadcasting and transplanting. (c) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 48.12". (x) N.A.

2. TREATMENTS:
1. Control
2. Ploughing 3 weeks after sowing
3. Ploughing 5 weeks after sowing
4. Harrowing 3 weeks after sowing
5. Harrowing 5 weeks after sowing
6. Transplanting

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/99.72 ac. (v) and (vi) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1952. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil, (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the annual report "Rice Research Work in Uttar Pradesh" for the year 1951 was consulted. No original records or plotwise yield data were available.

5. RESULTS:
(i) 661.2 lb./ac.
(ii) N.A.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
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<td>4.</td>
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<td>5.</td>
<td>639.4</td>
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<tr>
<td>6.</td>
<td>568.6</td>
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<td>N.A.</td>
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4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1950-1952. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina. Only the Annual report "Rice Research Work in Uttar Pradesh" for the year 1952 was consulted. No plot-wise yield data or original records were available.

5. RESULTS:
(i) 1141 lb./ac.
(ii) N.A.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

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<tr>
<td>3.</td>
<td>986</td>
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<tr>
<td>4.</td>
<td>1337</td>
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<tr>
<td>5.</td>
<td>1131</td>
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<tr>
<td>6.</td>
<td>1066</td>
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<tr>
<td>S E./mean</td>
<td>N.A.</td>
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</tbody>
</table>

Crop : Paddy.
Site : Late Mechanised Farm, Bharari.
Object : To study the effect of spacing and manuring on growth and yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Sanai-Paddy-Berseem. (b) Berseem. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 3.8.1953. (iv) (a) Ploughing and harrowing and Palewa with cultivators, desi plough. (b) Transplanted. (c)—. (d) and (e) N.A. (v) Sanai ploughed in as G.M. and F.Y.M. applied at 50 md./ac. (vi) T-43. (vii) Irrigated. (viii) Inter culturing between rows 3-4 times with hand hoes and weedings. (ix) N.A. (x) 29.10.1953.

2. TREATMENTS:
Main-plot treatments:
4 spacings: $S_1=3'$, $S_2=6'$, $S_3=9'$ and $S_4=12'$.

Sub-plot treatments:
4 manurings: $N_1=20$ lb./ac. of $P_2O_5+10$ lb./ac. of CaO, $N_2=30$ lb./ac. of $N+40$ lb./ac. of $P_2O_5+15$ lb./ac. of $P_3O_5+20$ lb./ac. of CaO. $N_3=60$ lb./ac. of $N+60$ lb./ac. of $P_2O_5+30$ lb./ac. of $K_2O+30$ lb./ac. of CaO and $N_4=90$ lb./ac. of $N+80$ lb./ac. of $P_2O_5+45$ lb./ac. of $K_2O+40$ lb./ac. of CaO.
$P_2O_5$ applied as Super, CaO as Gypsum, N as A/S, and $K_2O$ as Pot. Sulphate.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main—$72'x39'$; Sub—$18'x39'$. (b) Sub—$15'x36'$. (v) Plot bund 1.5' x 1' (high) allround. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight attack of GunJhi bug in milky stage. (iii) Grain and straw yield. (iv) (a) 1953—continued. (b) and (c) No. (v) (a) Kanpur, Nawabganj, Banaras and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by Crop Physiologist to Govt. of U.P., Lucknow.

5. RESULTS:
(i) 1967 lb./ac.
(ii) (a) 342.8 lb./ac.
(b) 376.2 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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<th>N_3</th>
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<td>1902</td>
<td>1832</td>
<td>1936</td>
<td>1914</td>
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<tr>
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<td>1798</td>
<td>2102</td>
<td>1874</td>
<td>1839</td>
<td>1903</td>
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<td>S_3</td>
<td>1805</td>
<td>1898</td>
<td>2061</td>
<td>2196</td>
<td>2040</td>
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<td>1725</td>
<td>2265</td>
<td>2147</td>
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<tr>
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<td>1907</td>
<td>2008</td>
<td>2080</td>
<td>1967</td>
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S.E. of difference of two
1. marginal means of S = 139.9 lb./ac.  
2. marginal means of N = 153.5 lb./ac.  
3. N means at a level of S = 307.2 lb./ac.  
4. S means at a level of N = 300.6 lb./ac.

Crop: - Paddy (Kharif).
Site: - Govt. Agri. Res. Farm, Kalyanpur.

Object: - To study the effect of spacing and manuring on the growth and yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Pea. (c) Nil. (ii) (a) Heavy loam. (b) N.A. (iii) 30 and 31.7.1953. (iv) (a) One ploughing. (b) Transplanted. (c) (d) As per treatments. (e) One seeding/hole. (v) Mung and Lobia ploughed in as G.M. and F.Y.M. at 50 md./ac. at puddling. (vi) T-9 (late). (vii) Irrigated. (viii) Interculturing 3-4 times. (ix) N.A. (x) 9 and 10.12.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 spacings: S_1=3", S_2=6", S_3=9" and S_4=12".
   Sub-plot treatments:
   4 manurings: N_1=20 lb./ac. of P_2O_5+10 lb./ac. of CaO, N_2=30 lb./ac. of N+40 lb./ac. of P_2O_5+15 lb./ac. of K_2O+20 lb./ac. of CaO, N_3=60 lb./ac. of N+60 lb./ac. of P_2O_5+30 lb./ac. of K_2O+30 lb./ac. of CaO and N_4=90 lb./ac. of N+80 lb./ac. of P_2O_5+45 lb./ac. of K_2O+40 lb./ac. of CaO.
   P_2O_5 applied as Super, CaO as Gypsum, N as A/S, and K_2O as Pot. Sulphate.
   Time of application: P_2O_5 on 26.7.1953, Gypsum 29.7.1953. Potash and A/S 2 weeks after transplanting.
   Method of application: P_2O_5 by placement (3"--4" deep) in soil behind the plough, Gypsum as surface dressing, and A/S and Potash as top dressing.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/block ; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) main 72'x42'. Sub-18'x42'. (b) 15'x39'. (v) 1'H around the net-plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1953--continued. (b) No. (c) N.A. (v) (a) Nawabganj, Bharari, Varanasi and Lucknow. (vi) Nil. (vii) The exp't. was conducted by Crop Physiologist to Govt. U.P., Lucknow.

5. RESULTS:
   (i) 3513 lb./ac.
   (ii) (a) 58.34 lb./ac.
   (b) 81.45 lb./ac.
   (iii) Main effect of S, N and interaction N×S are highly significant.

Ref: - U.P. 53(40).
Type: - 'CM'.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>N1</th>
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<td>3309</td>
<td>3466</td>
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</tr>
<tr>
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<td>3600</td>
<td>3759</td>
<td>3839</td>
<td>3791</td>
<td>3747</td>
</tr>
<tr>
<td>S4</td>
<td>3242</td>
<td>3616</td>
<td>3928</td>
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<td>3274</td>
<td>3473</td>
<td>3674</td>
<td>3630</td>
<td>3513</td>
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</tbody>
</table>

S.E. of difference between two:
1. S marginal means = 23.82 lb./ac.
2. N marginal means = 33.25 lb./ac.
3. S means at a level of S = 66.50 lb./ac.
4. N means at a level of N = 62.32 lb./ac.

Crop: Paddy (*Kharif*).
Site: Rice Res. Sub-Stn., Kunraghat.

Object: To test the efficacy of Japanese method of Paddy cultivation.

1. **BASAL CONDITIONS**:
   - (i) (a) Paddy-Pea. (b) Pea. (c) Nil. (ii) (a) Medium loam. (b) N.A. (iii) 4.6.1953/12 and 13.7.1953
     (Tr. 1) and 10.7.1953 (Tr. 2). (iv) (a) 5 ploughings by desi plough. (b) Transplanting. (c) (d) 10" x 10"
     (in Tr. 1) : 9" in rows (Tr. 2). (e) 3 seedlings hole (Trt. 1) and 4 seedlings/hole (Trt. 2). (v) Nil. (vi) N-22
     (early). (vii) Nil. (viii) 4 weedings. (ix) 46.14'. (x) 1 and 3.10.1953.

2. **TREATMENTS**:
   2. Local method of cultivation.

3. **DESIGN**:
   - (i) Paired-plot. (ii) 2. (b) N.A. (iii) 4. (iv) (a) 121' x 18'; (b) 119' x 16'-6". (v) 9" around the net
     plot. (vi) Yes.

4. **GENERAL**:
   - (i) Good and uniform growth, lodging on 26.9.1953. (ii) Slight attack of leaf spot disease and *gundhis*. Control
     measures—dusting with gammaxene. (iii) Height, tillering, and grain yield. (iv) (a) No. (b) No. (c) Nil. (v)
     (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina.

5. **RESULTS**:
   - (i) 1524 lb./ac.
   - (ii) 46.07 lb./ac.
   - (iii) Treatment differences are highly significant.
   - (iv) Av. yield of grain in lb./ac.

**Treatment** | **Av. yield** | **S.E./mean**
--- | --- | ---
1. | 1658 | 23.82 lb./ac.
2. | 1389 |
Crop : Paddy (Kharif).
Site : Rice Res. Sub-Stn., Kunraghat.
Ref : U.P. 48(121).
Type : 'CM'.

Object : To find out the effect of manuring nursery and the field along with different seed rates on yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Peas. (c) Nil. (ii) (a) Medium loam. (b) N.A. (iii) 12.7.1948. (iv) (a) One victory plough and 3 desi plough. (b) Transplanted. (c) ---. (d) N.A. (e) N.A. (v) Nil. (vi) T-136 (early). (vii) Irrigated. (viii) 2 weedings. (ix) 43.59'. (x) 1 to 3.10.1948.

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 doses of N applied to the field : F₀ = 0, F₁ = 25 lb./ac. of N and F₂ = 50 lb./ac. of N.
(2) 3 doses of N applied to nursery : N₀ = 0, N₁ = 10 lb./ac. of N and N₂ = 20 lb./ac. of N.
(3) 2 seed rates : S₁ = 20 and S₂ = 40 lb./ac.

N as Castor cake.

Date of application : In nursery beds on 25.5.1948 as basal by broadcast. In field on 30.7.1948 as top dressing by broadcast.

3. DESIGN:

(i) 3 x 3 x 2 Fact. in R.B.D. (ii) (a) 18. (b) 175' x 60'. (iii) 4. (iv) (a) 28' x 18'. (b) 28' x 16'. (v) 1' around the net plot. (vi) Yes.

4. GENERAL:

(i) Vigorous growth. (ii) Slight attack of gundhi bugs and stem borer. (iii) Height, tillers and grain yield. (iv) (a) 1946-1949. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:

(i) 1174 lb./ac.
(ii) 182.1 lb./ac.

(iii) Main effect of P and N are highly significant. No other effect is significant.

(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
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</table>

'S.E. of marginal means of N or P = 37.17 lb./ac.
'S.E. of marginal means of S = 30.35 lb./ac.
'S.E. of body of N x F table = 64.38 lb./ac.
'S.E. of body of P x S or N x S table = 52.51 lb./ac.'
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 doses of N applied to the field: \( F_0 = 0, F_1 = 25 \text{ lb./ac. of N} \) and \( F_2 = 50 \text{ lb./ac. of N} \).
(2) 3 dates of N applied to nursery: \( N_0 = 0, N_1 = 100 \text{ lb./ac. of N} \) and \( N_2 = 200 \text{ lb./ac. of N} \).
(3) 2 seed rates: \( S_1 = 20 \) and \( S_2 = 40 \text{ lb./ac.} \)
N as Castor cake.
Date of application: In nursery beds on 28.5.1949 as basal by broadcast. In field on 25.7.1949 as top dressing by broadcast.

3. DESIGN:
(i) \( 3 \times 3 \times 2 \) Factorial in R.B.D.
(ii) (a) 18; (b) \( 175' \times 60' \).
(iii) 4.
(iv) (a) \( 28' \times 18' \); (b) \( 26' \times 16' \).
(v) One foot around the net plot.
(vi) Yes.

4. GENERAL:
(i) Good growth.
(ii) Slight attack of Gundhi bugs.
(iii) Height, tillers and grain yield.
(iv) (a) 1946-1949
(b) No. (c) Nil. (d) A/S, (e) N.A.
(vi) Nil.
(vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P. at Nagina.

5. RESULTS:
(i) 828 lb./ac.
(ii) 252.3 lb./ac.
(iii) Main effect of F is highly significant. Effect of S and interaction N \( \times S \) are significant. No other effects are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>N_0</th>
<th>N_1</th>
<th>N_2</th>
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S.E. of marginal mean of N or F = 57.37 lb./ac.
S.E. of marginal mean of S = 42.05 lb./ac.
S.E. of body of \( N \times X \) table = 89.20 lb./ac.
S.E. of body of \( F \times X \) and \( N \times X \) table = 72.75 lb./ac.

Object: To study the effect of spacing and manuring on growth and yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 9.7.1953. (iv) (a) N.A. (b) Transplant d. (c) T-136. (d) N.A. (e) N.A. (f) Nil. (vi) T-136. (vii) Irrigated. (viii) Weeding and hoeing.
(ix) N.A. (x) 2.10.1953.

2. TREATMENTS:
Main-plot treatments: 4 spacings: \( S_1 = 3', S_2 = 6', S_3 = 9' \) and \( S_4 = 12' \).
Sub-plot treatments: 3 manures: \( N_0 = \) No manure, \( N_1 = A/S \) at 30 lb./ac. of N + Super at 40 lb./ac. of P2O5 + Pot. Sulphate at 15 lb./ac. of K2O + Gypsum at 20 lb./ac. of CaO, \( N_2 = A/S \) at 60 lb./ac. of N + Super at 60 lb./ac. of P2O5 + Pot. Sulphate at 30 lb./ac. of K2O + Gypsum at 30 lb./ac. of CaO.
Super by placement \( 3' - 4' \) deep in soil before sowing and Gypsum as surface dressing. A/S and Pot. Sulphate applied two weeks after transplanting.
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 20' × 11.5'.
(b) 16 × 9.5'. (v) 2' × 1'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1953—continued. (b) No. (c) No. (v) (a) Kanpur, Nawabgunj, Baaarari and Varanasi. (b) N.A. (vi) Nil. (vii) Conducted by crop Physiologist to Govt. of U.P., Lucknow.

5. RESULTS:
(i) 1984 lb./ac.
(ii) (a) 552.9 lb./ac.
(b) 277.4 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

\[
\begin{array}{cccc|c}
S_1 & S_2 & S_3 & S_4 & \text{Mean} \\
N_1 & 1774 & 1945 & 2256 & 1898 & 1968 \\
N_2 & 1649 & 2022 & 2069 & 1836 & 1944 \\
N_3 & 1540 & 2147 & 2038 & 2629 & 2089 \\
\hline 
\text{Mean} & 1654 & 2038 & 2121 & 2121 & 1984 \\
\end{array}
\]

S.E. of difference between two
1. S marginal means
2. N marginal means
3. S means at a level of N
4. N means at a level of S

Crop :- Paddy.
Site :- Rice Res. Stn., Nagina.

Ref :- U.P. 48(31).
Type :- 'CM'.

Object :- To find out the effect of manuring nursery and the field along with different seed rates on yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) No. (ii) (a) Light loam. (b) N.A. (iii) 7.6.1948/25.7.1948. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) to (e) N.A. (v) (a) Nil. (vi) T-22-A (late). (vii) N.A. (viii) 2 weedings. (ix) N.A. (x) 29.11.1948.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 doses of N applied to the field: F_0=0, F_1=25 and F_2=50 lb./ac. of N
(2) 3 doses of N applied to nursery: N_0=0, N_1=100 and N_2=200 lb./ac. of N
(3) 2 seed rates: S_1=20 and S_2=40 lb./ac.
N applied as castor cake on 7.6.1948 to nursery and on 26.8.1948 to the field.

3. DESIGN:
(i) 3×3×2 Fact. in R B.D. (ii) (a) 18. (b) N.A. (iii) 4. (iv) (a) 41' × 15'. (b) 1/93.88 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) 1946—1948. (b) and 'c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by Assistant Economic Botanist (Paddy) to Govt. U.P., Nagina.

5. RESULTS:
(i) 1404 lb./ac.
(ii) 184.8 lb./ac.
(iii) Only main effect of F is highly significant.
Object:—To test the merits of Japanese method of Paddy cultivation.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Berseem. (b) Berseem. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) 9,10,7.1953 (iv) (a) 1 deep ploughing, 2 shallow ploughings and 1 harrowing (b) to (e) As per treatments. (v) F Y M. at 80 mds./ac. and compost at 80 mds./ac. applied on 21.6.1953 and 22.6.1953 respectively. (vi) CH-4 (medium). (vii) Irrigated. (viii) 2 hand weedicings and 2 weedicings by Japanese cultivator. (ix) 46.28'. (x) 20,21.10.1953.

2. TREATMENTS:
   All combinations of (A), (B), (C) (D), (E) and (F)
   (A)=Seed rate, (B)=Preparation of bed!, (C)=No. of seedlings/hole, (D)=Method of planting (E)=Manuring and (F)=Weeding.
   Each of the above treatments tried under Local and Japanese method of Paddy cultivation.

3. DESIGN:
   (i) 2² confounded. (ii) (a) 8 blocks/replication; 8 plots/block. (b) N.A. (iii) 1. (iv) (a) 59' x 20'. (b) 57' x 18'. (v) 1' around the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Attack of rice fly and gum/bhi, 3-4 dustings with gammaxene. (iii) Grain yield. (iv) (a) 1953—continued. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
   (i) 2463 lb./ac.
   (ii) 350.3 lb./ac.
   (iii) Only main effects of C and E are highly significant.
   (iv) Mean and differential response of grain in lb./ac.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean response</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<th>F</th>
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<tr>
<td>A</td>
<td>-152.9</td>
<td>-</td>
<td>+</td>
<td>-</td>
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<tr>
<td>B</td>
<td>48.9</td>
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<td>8.5</td>
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<td>-</td>
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<td>186.8</td>
<td>314.2</td>
<td>-</td>
<td>-</td>
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<td>D</td>
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<tr>
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<td>687.8</td>
<td>598.7</td>
<td>794.0</td>
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<td>730.3</td>
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<td>34.0</td>
<td>-169.8</td>
<td>-8.5</td>
<td>-127.4</td>
<td>-42.5</td>
<td>-93.4</td>
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S.E./mean response=87.57 lb./ac.  S.E./differential response=123.8 lb./ac.
Crop: Paddy.  
Site: Regional Res. Stn., Nawabganj.  
Object: To study the effect of manuring along with spacing on yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Gram. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 31.7.1953 and 1.8.1953. (iv) (a) Ploughing and pata. (b) Transplanted. (c) —. (d) and (e) N.A. (v) Green manuring dhaincha. Compost at 5 mds /ac. at the time of puddling when the green manure crop has been buried. (vi) CH-4. (vii) Irrigated. (viii) Interculturing between rows 3-4 times and weeding. (ix) N.A. (x) 10.11.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 spacings: \( S_1 = 3'' \), \( S_2 = 6'' \), \( S_3 = 9'' \) and \( S_4 = 12'' \)

   Sub-plot treatments:
   4 manures: 
   - \( N_1 = 20 \text{ lb./ac. of } P_2O_{5} + 10 \text{ lb./ac. of } Ca ; \)
   - \( N_2 = 30 \text{ lb./ac. of } N + 40 \text{ lb./ac. of } P_2O_{5} + 15 \text{ lb./ac. of } K_2O + 20 \text{ lb./ac. of } Ca ; \)
   - \( N_3 = 60 \text{ lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_{5} + 30 \text{ lb./ac. of } K_2O + 30 \text{ lb./ac. of } Ca ; \)
   - \( N_4 = 90 \text{ lb./ac. of } N + 90 \text{ lb./ac. of } P_2O_{5} + 45 \text{ lb./ac. of } K_2O + 40 \text{ lb./ac. of } Ca. \)

   \( P_2O_5 \) applied as Super, \( Ca \) as Gypsum, \( N \) as A/S and \( K_2O \) as Pot. Sulphate.

3. DESIGN:
   (i) Split-Plot (ii) (a) 4 main-plots/block; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) main—72'X42'; sub 18'X42'. (b) 15'X39'. (v) Flot bund 1.5'X1' (high) alround. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil (iii) Grain and straw yield. (iv) (a) 1953 —continued (b) and (c) No. (v) (a) Bharari, Varansi, Kanpur and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by Crop Physiologist.

5. RESULTS:
   (i) 2415 lb./ac.
   (ii) (a) 404.2 lb./ac.
   (b) 322.2 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( N_3 )</th>
<th>( N_4 )</th>
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<td>2566</td>
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<td>( S_3 )</td>
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<td>2374</td>
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<td>( S_4 )</td>
<td>2285</td>
<td>2272</td>
<td>2042</td>
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<tr>
<td>Mean</td>
<td>2336</td>
<td>2476</td>
<td>2348</td>
<td>2499</td>
<td>2415</td>
</tr>
</tbody>
</table>

S.E. of difference between two:
1. S marginal means = 165.0 lb./ac.
2. N marginal means = 131.5 lb./ac.
3. N means at a level of S = 263.1 lb./ac.
4. S means at a level of N = 281.3 lb./ac.

Crop: Paddy.  
Site: Late Paddy Res. Sub-Stn., Tissuhi.  
Object: To study the effect of manuring along with spacing on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) No. (b) N.A. (c) N.A. (d) \( \text{Nil} \). (e) Heavy clay. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Transplanted. (c) —. (d) and (e) N.A. (v) Nil. (vi) T-36 (late) (vii) N.A. (viii) N.A. (ix) 30.02° (x) N.A.
2. TREATMENTS:

Main-plot treatments:
3 manures: \( N_1 = A/S \) at 30 lb./ac. of N + Super at 15 lb./ac. of \( P_2O_5 \) + Pot. Sulphate at 22.5 lb./ac. of \( K_2O \);
\( N_2 = A/S \) at 45 lb./ac. of N + Super at 22.5 lb./ac. of \( P_2O_5 \) + Pot. Sulphate at 22.5 lb./ac. of \( K_2O \);
\( N_3 = A/S \) at 60 lb./ac. of N + Super at 25 lb./ac. of \( P_2O_5 \) + Pot. Sulphate at 30 lb./ac. of \( K_2O \).

Sub-plot treatments:
4 spacings: \( S_1 = 3" \), \( S_2 = 6" \), \( S_3 = 9" \), and \( S_4 = 12" \).

3. DESIGN:
(i) Split-Plot. (ii) (a) 3 main-plots/block; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 35' x 27' (b) 2' around. (v) Yes. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) No. (iii) Grain yield. (iv) (a), (b) and (c) Nil. (v) (a) and (b) Nil. (vii) Conducted by Crop Physiologist.

5. RESULTS:
(i) 784 lb./ac.
(ii) (a) 310.2 lb./ac. (b) 399.8 lb./ac.
(iii) Only S effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>( S_4 )</th>
<th>Mean</th>
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<td>796</td>
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<td>( N_2 )</td>
<td>1665</td>
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<td>370</td>
<td>810</td>
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<tr>
<td>( N_3 )</td>
<td>1215</td>
<td>843</td>
<td>482</td>
<td>330</td>
<td>718</td>
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</table>

Mean 1387 794 454 499 784

S.E. of difference between two
1. N marginal means = 126.7 lb./ac.
2. S marginal means = 188.5 lb./ac.
3. S means at a level of N = 326.5 lb./ac.
4. N means at a level of S = 309.8 lb./ac.

Site: Late Paddy Res. Sub-Stn., Tissuhi. Type: 'CM'.

Object: To judge the merits of Japanese method of Paddy cultivation.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light clay to hard clay with grayish black colour. (iii) 14.6.1953/23.7.1953. (iv) (a) As per treatments. (b) Transplanting. (c) N.A. (d) As per treatments. (e) As per treatments. (f) N.A. (vi) T-88 (late). (vii) Irrigated. (viii) One weeding. (ix) N.A. (x) 17.12.1953.

2. TREATMENTS:
(1) Local method: One 1/16 acre plot of nursery bed, in which 25 mds. of compost and 25 lb. mixture of A/S in equal proportion was applied, was filled with water, ploughed with desi plough 4 times and was thoroughly puddled and sprouted seeds at the rate of 40 lb./bed. was sown, half an hour after puddling the fields (no raised beds were made in this case). No weeding in the nursery was required. Transplanted seedlings 7' x 8' apart, not in a row, with 3 to 4 seedlings/hole.
(2) Japanese method: Made 4' x 25 bed raised 3 inches above the level of the ground and with 1 foot space, between adjacent beds. The raised beds were prepared after 6 ploughings of the fields with desi plough after palewa. Each raised seed bed was manured with 1 md. compost and levelled and then a thin layer of compost followed by a thin layer of ashes which in itself was followed by one lb. of mixture of super and A/S in equal parts. One lb. seed which was thoroughly winnowed was sown in each bed on 14.6.1953 and the seed was covered with 1/8 inches layer of fine earth and was highly pressed and the beds were irrigated. No weeding in nursery was required. Transplanted 10' apart from row to row and plant to plant with 3 to 4 seedlings/hole.
3. DESIGN:
(i) Paired-plot. (ii) (a) 2, (b) N.A. (iii) 5. (iv) (a) N.A. (b) 88.5' x 22.5'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Asst. Economic Botanist (Paddy) to Govt. of U.P., Tissubi.

5. RESULTS:
(i) 1400 lb./ac.
(ii) 378.44 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1609</td>
</tr>
<tr>
<td>2.</td>
<td>1191</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>169.22 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Paddy (Kharif).
Site :- Agri. College Farm, B.H.U., Varanasi.

Object :- To study the effect of multiple transplantation with increasing doses of N on growth and yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane Ratoon. (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis, Agri. College Farm, Varanasi. (iii) September 1953. (iv) (a) Two ploughings by metre plough and 5 by desi plough. (b) Transplanted. (c)—. (d) 9' x 9'. (e) 2 seedlings/hole. (v) F.Y.M. at 100 mds./ac and Super at 82 lb./ac. applied before transplanting. (vi) T-2 (mid-late). (vii) Irrigated. (viii) 3 weedings and one hand hoeing. (ix) Nil. (x) 20.11.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 levels of N : N₁ = 0, N₂ = 20, N₃ = 40 and N₄ = 60 lb./ac.
(2) 3 types of seedlings : T₁ = From nursery (1), T₂ = From nursery (2) and T₃ = From nursery (3).

As A/S applied 12 days after transplanting of seedlings. Light irrigation after application of A/S. [Nursery (1) : Bed size—1/50 ac. 3 ploughings were given and F.Y.M. applied at 100 mds./ac. 10 lb. of seed dipped in 15% brine solution. Heavier seeds were taken from the bottom and soaked in water for 24 hours prior to sowing. Soaked seed dried for 1 hour and broadcast. Nursery (2) : 2/3 of the seedlings from nursery (1) removed and the gap is immediately covered with hand implements. The removed seedlings were transplanted in nursery (2) in bunches of 15 to 20 seedlings with 3' x 3' spacing.

Nursery (3) : 50% of the seedlings from nursery (2) uprooted after 15 days and again transplanted in bunches of 10 to 15. After 15 days, the seedlings were transplanted in the main field from these three nurseries as under (2).]
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
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<td>1768</td>
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<tr>
<td>Mean</td>
<td>1979</td>
<td>2380</td>
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<td>2157</td>
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S.E. of N marginal means = 42.18 lb./ac.
S.E. of T marginal means = 36.53 lb./ac.
S.E. of body of table = 73.04 lb./ac.

Crop :- Paddy.

Site :- Regional Res. Stn., Varanasi.

Object — To study the effect of manuring and spacing on yield and growth of Paddy.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 20.7.1953. (iv) (a) 4 ploughings. (b) Transplanted. (c) —. (d) N.A. (e) N.A. (v) F.Y.M. at 50 mds/ac and G.M. at the time of puddling when green manure crop has been turned in. (vi) N-22. (vii) Irrigated. (viii) 3 to 4 interculturings and weeding. (ix) N.A. (x) 15.10.1953.

2. TREATMENTS :
   Main-plot treatments :
   4 spacings: S₁ = 3", S₂ = 6", S₃ = 9" and S₄ = 12".

   Sub-plot treatments :
   4 manures: N₁ = 20 lb./ac. of P₂O₅ + 10 lb./ac. of Ca, N₂ = 30 lb./ac. of N + 40 lb./ac. of P₂O₅ + 15 lb./ac. of K₂O + 20 lb./ac. of Ca, N₃ = 60 lb./ac. of N + 60 lb./ac. of P₂O₅ + 70 lb./ac. of K₂O + 30 lb./ac. of Ca, N₄ = 90 lb./ac. of N + 80 lb./ac. of P₂O₅ + 45 lb./ac. of K₂O + 40 lb./ac. of Ca.

   N applied as A/S, Ca as Gypsum, P₂O₅ as Super and K₂O as Pot. Sulphate.

3. DESIGN :
   (i) Split-plot. (ii) (a) 4 main-plots/block; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) main-72' x 42'; sub-18' x 42'. (b) 15' x 39'. (v) 3' around the net plot. (iv) Yes.

4. GENERAL :
   (i) Good. (ii) Attack by gundhi bug. (iii) Grain and straw yield. (iv) (a) 1953—contd. (b) No. (c) No. (v) (a) Kanpur, Nawabganj, Bharari and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by Crop Physiologist to Govt. U.P., Lucknow.

5. RESULTS :
   (i) 1223 lb./ac.
   (ii) (a) 361.8 lb./ac. (b) 171.7 lb./ac.

   (iii) Only S effect differs significantly.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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S.E. of difference of two
1. S marginal means = 147.7 lb./ac.
2. N marginal means = 70.1 lb./ac.
3. N means at the same level of S = 140.2 lb./ac.
4. S means at the same level of N = 191.2 lb./ac.
Crop :- Paddy.
Site :- Rice Res. Stn., Nagina.

Object :- To determine the effect of double cropping on the total Paddy yield and its residual effect on the subsequent rice crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) Tr. 1 : 15.4.1948, Tr. 2 (double) : 17.4.1948 and Tr. 2 and Tr. 3 : 15.6.1948, Berseem : 11.11.1948. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) As per treatments. (c) N.A. (d) N.A. (e) N.A. (v) Nil. (vi) N-22 (early) and T-100 (late). (vii) N.A. (viii) 2 weedings. (ix) N.A. (x) Tr. 1 : 9.8.1948, Tr. 2 : 18.9.1948, Tr. 3 : 2.12.1948, Tr. 1 (double) 9.12.1948.

2. TREATMENTS:
1. Early variety broadcast in April and manured, late variety transplanted in August and manured, Berseem sown in standing late crop.
2. Early variety broadcasted normal time and manured. Berseem in Rabi.
3. Late variety transplanted in normal time, manured and Berseem in standing late crop.

Date of manuring : Tr. 1 on 17.5.1948, Tr. 2 on 17.7.1948, Tr. 3 on 17.8.1948 and Tr. 1 double on 14.9.1948.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 27' x 29.5'. (b) 1/54.7 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Normal. No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1948-1950. (b) Yes. (c) N.A. (v) (a) No, (b) No. (vi) Nil. (vii) Conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 1881 lb./ac.
(ii) 356.2 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

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<th>Av. yield</th>
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<tr>
<td>3.</td>
<td>1919</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>125.9 lb./ac.</td>
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</tbody>
</table>

Crop :- Paddy.
Site :- Rice Res. Stn., Nagina.

Object :- To determine the effect of double cropping on the total Paddy yield and its residual effect on the subsequent rice crop.

1. BASAL CONDITIONS:
(i) (a) Paddy—Fallow. (b) Fallow (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) Tr. 1 : 11.4.1949, Tr. 1 (double) : 27.6.1949/11.8.1949. 11.8.1949. Tr. 2 : 24.6.1949 and Tr. 3 : 8.6.1949/18.7.1949. (iv) One deep ploughing and 2 shallow ploughings. (b) As per treatments. (c) to (e) N.A. (v) (v) Nil. (vi) T-22 (early) and T-17 (late). (vii) N.A. (viii) 2 hand weedings. (ix) N.A. (x) Tr. 1 : 2 and 5.8.1949; Tr. 2 : 24,9.1949; Tr. 3 : 28.11.1949 and Tr. 1 (double) : 3.12.1949.

2. TREATMENTS:
1. Early variety broadcast in April and manured, late variety transplanted in August and manured, Berseem sown in standing late crop.
2. Early variety broadcasted normal time manured and Berseem in Rabi.
3. Late variety transplanted in normal time manured and Berseem in standing late crop.


3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 29' x 29.5'. (b) 1/38.34 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1948 -1950. (b) No. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagain.
5. RESULTS:

(i) 1678 lb./ac.
(ii) 190.4 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1550</td>
</tr>
<tr>
<td>2.</td>
<td>1740</td>
</tr>
<tr>
<td>3.</td>
<td>1744</td>
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<tr>
<td>S.E./mean</td>
<td>67.32 lb./ac.</td>
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</table>

Crop: Paddy.  
Site: Rice Res. Stn., Nagina.  
Ref: U.P. 50(38).  
Type: 'CMV'.

Object: To determine the effect of double cropping on the total Paddy yield and its residual effect on the subsequent rice crop.

1. BASAL CONDITIONS:

(i) (a) Paddy—Berseem. (b) Paddy. (c) Nil. (ii) (a) Silt loam. (b) N.A. (iii) Tr. 1: 10.4.1950, Tr. 2: 22.6.1950 and Tr. 3: 8.6.1950. (iv) (a) One deep ploughing and two shallow ploughings. (b) to (e) N.A. (v) Nil. (vi) N-22 (early) and T-17 (late). (vii) N.A. (viii) Two weedings by hand. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Early variety broadcast in April and manured. Late variety transplanted in August and manured. Berseem sown in standing late crop.
2. Early variety broadcast in normal time manured and Berseem in Rabi.
3. Late variety transplanted in normal time, manured and Berseem in standing late crop. Castor cake applied on 10.5.1950 and 11.8.1950.

3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 29'x29'. (b) 1/61.25 ac. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1948-1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:

(i) 2155 lb./ac.
(ii) 323.7 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th>Treatment</th>
<th>Av. yield</th>
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<tbody>
<tr>
<td>1.</td>
<td>3074</td>
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<td>2.</td>
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<td>1710</td>
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<td>S.E./mean</td>
<td>114.4 lb./ac.</td>
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Crop: Paddy (Kharif).  
Site: Govt. Agri. Farm, Attara.  
Ref: U.P. 48(113).  
Type: 'T'.

Object: To study the effect of varying intervals and depths of irrigation on yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) N. A. (b) N.A. (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 7.7.1948/23.8.1948 to 27.8.1948. (iv) (a) Ploughing according to the local practice. (b) to (e) N.A. (v) N.A. (vi) T-36. (vii) As per treatments. (viii) Weeding was done in nursery plots. (ix) 76.04'. (x) 15.12.1948.
2. **TREATMENTS**: 
All combinations of (1) and (2) 
(1) 6 depths of irrigation: \( L_0=0, L_1=3, L_2=4 \), \( L_3=6, L_4=7 \), and \( L_5=9 \) inches. 
(2) 4 intervals of irrigations: \( I_1=2, I_2=2.5, I_3=3 \) and \( I_4=4 \) weeks.

3. **DESIGN**: 
(i) 6x4 Fact. in R.B.D. (ii) (a) 24. (b) N.A. (iii) 4. (iv) (a) 25'x11'. (b) N.A. (v) N.A. (vi) Yes.

4. **GENERAL**: 
(i) Crop matured well. (ii) No. (iii) Grain yield. (iv) (a) 1946—1950. (b) In the same plots from 1948 to 1950. (c) N.A. (v) (a) Bahadrabad. (b) N.A. (vi) Nil. (vii) Conducted by I.R.I.

5. **RESULTS**: 
(i) 1961 lb./ac.  
(ii) 307.62 lb./ac.  
(iii) None of the effects is significant.  
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>I_1</th>
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<th>I_3</th>
<th>I_4</th>
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<td>1919</td>
<td>2006</td>
<td>1746</td>
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<td>L_2</td>
<td>2077</td>
<td>1762</td>
<td>2037</td>
<td>1996</td>
<td>1968</td>
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<td>L_3</td>
<td>2026</td>
<td>1863</td>
<td>2093</td>
<td>2006</td>
<td>1997</td>
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<td>L_4</td>
<td>2057</td>
<td>2113</td>
<td>1940</td>
<td>1879</td>
<td>1997</td>
</tr>
<tr>
<td>L_5</td>
<td>2184</td>
<td>2057</td>
<td>2118</td>
<td>1879</td>
<td>2060</td>
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<tr>
<td>Mean</td>
<td>2050</td>
<td>1943</td>
<td>2039</td>
<td>1901</td>
<td>1983</td>
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</table>

S.E. of L marginal means = 76.91 lb./ac.  
S.E. of I marginal means = 68.78 lb./ac.  
S.E. of body of table = 153.81 lb./ac.  
S.E. of the control mean = 76.91 lb./ac.

---

**Crop**: Paddy (Kharif).  
**Site**: Govt. Agri. Farm, Attara.  
**Ref**: U.P. 49(221).  
**Type**: 'T'.

Object: To study the effect of varying intervals and depths of irrigation on yield of Paddy.

**BASAL CONDITIONS**: 
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 24.6.1949/3.8.1949 to 6.11.1949. (iv) (a) Ploughing according to the local practice. (b) to (e) N.A. (v) Nil. (vi) T-36. (vii) Irrigated. (viii) Weeding was done in the nursery plots. (ix) 39.58'. (x) 4.12.1949.

2. **TREATMENTS**: 
All combinations of (1) and (2) 
(1) 6 depths of irrigation: \( L_0=0, L_1=3, L_2=4 \), \( L_3=6, L_4=7 \), and \( L_5=9 \) inches. 
(2) 4 intervals of irrigations: \( I_1=2, I_2=2.5, I_3=3 \) and \( I_4=4 \) weeks.

3. **DESIGN**: 
(i) 6x4 Fact. in R.B.D. (ii) (a) 24. (b) N.A. (iii) 4. (iv) (a) 25'x11'. (b) N.A. (v) N.A. (vi) Yes.

4. **GENERAL**: 
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1946—1950. (b) In the same plots from 1948 to 1950. (c) Nil. (v) (a) Bahadrabad. (b) N.A. (vi) Nil. (vii) Conducted by I.R.I.

5. **RESULTS**: 
(i) 736.8 lb./ac.  
(ii) 307.62 lb./ac.  
(iii) L effect is significant, interaction L×I and control vs others are highly significant. I effect is not significant.
(iv) Av. yield of grain in lb./ac.

Control = 75.1 lb./ac.

<table>
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<th>I₄</th>
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<td>1018.3</td>
<td>768.8</td>
<td>702.6</td>
<td>910.1</td>
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<td>L₂</td>
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<td>651.7</td>
<td>829.9</td>
<td>809.5</td>
<td>791.7</td>
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<tr>
<td>L₃</td>
<td>676.2</td>
<td>840.1</td>
<td>1150.7</td>
<td>1048.8</td>
<td>916.4</td>
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<tr>
<td>L₄</td>
<td>814.6</td>
<td>677.2</td>
<td>906.3</td>
<td>957.2</td>
<td>838.8</td>
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<tr>
<td>L₅</td>
<td>794.3</td>
<td>1165.9</td>
<td>855.4</td>
<td>738.3</td>
<td>888.5</td>
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</table>

Mean 852.3 870.6 902.2 851.3 869.1

S.E. of L marginal means = 33.11 lb./ac.
S.E. of I marginal means = 29.61 lb./ac.
S.E. of body of table = 66.21 lb./ac.
S.E. of control mean = 33.11 lb./ac.

Crop :- Paddy (Kharij).

Site:- Govt. Agri. Farm, Attara.

Ref :- U.P. 50(277).

Type :- 'T'.

Object :- To study the effect of varying intervals and depths of irrigation on yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a), (b) and (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 30.6.1950/10 to 12.8.1950. (iv) (a) Ploughing according to local practice. (b) to (e) N.A. (v) N.A. (vi) T-36. (vii) Irrigated. (viii) Weeding was done in the nursery plots. (ix) 56.28° x 8.12.1950.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 6 days of irrigations: L₀=0, L₁=3, L₂=4, L₃=6, L₄=7 and L₅=9 inches.
   (2) 4 intervals of irrigations: I₁=2, I₂=3, I₃=3 and I₄=4 weeks.

3. DESIGN:
   (i) 6x4 Fact. in R.B D. (ii) (a) 24. (b) N.A. (iii) 4. (iv) (a) 23' x 11' inches. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Not good. The crop was badly damaged for want of rains. (ii) N.A. (iii) Grain yield. (iv) (a) 1946-1950. (b) In the same plots from 1948 to 1950. (c) Nil. (v) (a) Bahadarabad. (b) N.A. (vi) Nil.
   (vii) The experiment was conducted by I.R.I.

5. RESULTS:
   (i) 1442 lb./ac.
   (ii) 218.5 lb./ac.
   (iii) Only 1 effect, interaction I x L and control vs others are highly significant.
   (iv) Av. yield of grain in lb./ac.

Control = 336 lb./ac.

<table>
<thead>
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<th></th>
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<th>I₂</th>
<th>I₃</th>
<th>I₄</th>
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<td>1874</td>
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<td>1609</td>
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<td>L₅</td>
<td>1599</td>
<td>1553</td>
<td>1354</td>
<td>2118</td>
<td>1656</td>
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</table>

Mean 1565 1743 1569 1773 1663

S.E. of L marginal means = 54.60 lb./ac.
S.E. of I marginal means = 48.86 lb./ac.
S.E. of body of table = 109.26 lb./ac.
S.E. of control mean = 54.60 lb./ac.
Crop: Paddy (Kharif).
Site: Field Res. Stn., Bahadrabad.
Object: To study the effect of varying frequencies and depths of irrigation on yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a), (b) and (c) N.A. (ii) (a) Clayey. (b) N.A. (iii) 2.6.1949/1 to 18.7.1949. (iv) (a) Pulleva, ploughing and patala. (b) to (e) N.A. (v) F.Y.M. at 120 md./ac to nursery and castor cake at 10 md./ac. to the field. (vi) T-21 (medium). (vii) Irrigated. (viii) Weeding was done in nursery plots. (ix) 44.2°. (x) 15 to 23.10.1949.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 6 depths of irrigation: \( L_0 = 0, L_1 = 3, L_2 = 4, L_3 = 6, L_4 = 7 \) and \( L_6 = 9 \) inches.
   (2) 4 intervals of irrigation: \( I_1 = 2, I_2 = 2, I_3 = 3 \) and \( I_4 = 4 \) weeks.

3. DESIGN:
   (i) 6\times4 Fact. in R.B.D. (ii) (a) 24. (b) N.A. (iii) 4. (iv) (a) 48\times30'. (b) 43\times25'. (v) 2\frac{1}{2} all round the net plot. (vi) Yes.

4. GENERAL:
   (i) Tilling and growth were very good. (ii) Nil. (iii) Grain yield. (iv) 1947-1949. (b) No. (c) Nil. (v) (a) Attara. (b) N.A. (vi) Nil. (vii) The experiment was conducted by I.R.I.

5. RESULTS:
   (i) 1655 lb./ac.
   (ii) 325.8 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

\[
\begin{array}{cccc|c}
 I_1 & I_2 & I_3 & I_4 & \text{Mean} \\
 L_1 & 1562 & 1670 & 1803 & 1493 & 1707 \\
 L_2 & 1562 & 1631 & 1709 & 1734 & 1659 \\
 L_3 & 1704 & 1675 & 1572 & 1730 & 1670 \\
 L_4 & 1442 & 1909 & 1654 & 1530 & 1634 \\
 L_5 & 1667 & 1599 & 1714 & 1849 & 1707 \\
 \text{Mean} & 1647 & 1697 & 1690 & 1667 & 1675 \\
\end{array}
\]

S.E. of L marginal means = 81.45 lb./ac.
S.E. of I marginal means = 72.85 lb./ac.
S.E. of body of table = 162.90 lb./ac.
S.E. of control mean = 81.45 lb./ac.

Crop: Paddy (Kharif).
Site: Field Res. Stn., Bahadrabad.
Object: To study the effect of varying frequencies and depths of irrigation on yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam and clayey. (b) N.A. (iii) 7.6.1949/1 to 7.8.1949. (iv) (a) Ploughing according to local practice. (b) to (e) N.A. (v) F.Y.M. at 120 md./ac to the nursery and the field on 4.6.1949. (vi) T-21 (medium). (vii) Irrigated. (viii) Weeding was done after sowing of nursery. (ix) 37°. (x) 29.10.1949 to 4.11.1949.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 6 levels of irrigation: \( L_4 = 0, L_2 = 3, L_2 = 4, L_3 = 6, L_4 = 7 \) and \( L_6 = 9 \) inches.
   (2) 4 intervals of irrigation: \( I_1 = 2, I_2 = 2, I_3 = 3 \) and \( I_4 = 4 \) weeks.
3. DESIGN:
   (i) 6 x 4 Fact. in R.B.D. (ii) (a) 24. (b) N.A. (iii) 4. (iv) (a) 48' x 30'. (b) 43' x 25'. (v) 24' all round the net plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1947—1949. (b) Yes. (c) No. (v) (a) Attara. (b) No. (vi) Nil. (vii) Conducted by I.R.I.

5. RESULTS:
   (i) 1275 lb./ac.
   (ii) 257.9 lb./ac.
   (iii) Only I effect is significant.
   (iv) Av. yield of grain in lb./ac.

   Control mean = 1326 lb./ac.

<table>
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<td>1257</td>
<td>1406</td>
<td>1129</td>
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</table>

   S.E. of L marginal means = 64.48 lb./ac.
   S.E. of I marginal means = 57.67 lb./ac.
   S.E. of body of table = 128.95 lb./ac.
   S.E. of control mean = 64.48 lb./ac.

Ref: U.P. 50(43).
Type: "P".

Object: To test the effect of varying intervals and depths of irrigation on Paddy yield.

1. BASAL CONDITIONS:
   (i) (a) Paddy-fallow. (b) Paddy. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 1.6.1950/2.7.1950. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) to (e) N.A. (v) Castor cake at 50 lb./ac. of N. (vi) Anjana Pilibhit. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 11.10.1950.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 depths of irrigation: L₀=0, L₁=2, L₂=4 and L₃=6 inches.
   (2) 3 intervals of irrigation: I₁=4, I₂=8 and I₃=12 days.

3. DESIGN:
   (i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 25' x 11'. (b) 1/233.77 ac. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 2458 lb./ac.
   (ii) 381.7 lb./ac.
   (iii) Only I effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>I₃</th>
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<td>2811</td>
<td>2435</td>
<td>2283</td>
<td>2510</td>
</tr>
</tbody>
</table>

S.E. any marginal mean = 110.19 lb./ac.
S.E. of body of table = 190.85 lb./ac.
S.E. of control mean = 110.19 lb./ac.

Crop: Paddy (Kharij).
Site: Govt. Agri. Farm, Tissuhi.

Object: To study the effect of varying frequencies and depths of irrigation on yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) June 1948/25.7.1948. (iv) (a) Ploughing according to the local practice. (b) to (c) N.A. (v) N.A. (vi) T-36. (vii) Irrigated. (viii) Weeding was done in nursery plots. (ix) 66.5¹ (x) 24.11.1948.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 levels of irrigation: \( L₀ = 0, L₁ = 3, L₂ = 6 \) and \( L₃ = 9 \) inches.
   (2) 3 intervals of irrigation: \( I₁ = 2, I₂ = 3 \) and \( I₃ = 4 \) weeks.

3 DESIGN:
   (i) 4 x 3 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 25¹ x 11². (b) N.A. (v) N.A. (vi) Yes.

GENERAL:
   (i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1946—1950. (b) No. (c) Nil. (v) (a) No (b) N.A. (vi) Nil. (vii) The experiment was conducted by the I.R.I. In the absence of net plot area which is not available the yields etc. given above are on gross plot size.

5. RESULTS:
   (i) 2104. lb./ac.
   (ii) 488.7 lb./ac.
   (iii) Only I effect is significant.
   (iv) Av. yield of grain in lb./ac.

Control=2199 lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>I₁</th>
<th>I₂</th>
<th>I₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₁</td>
<td>2530</td>
<td>1650</td>
<td>1741</td>
<td>1974</td>
</tr>
<tr>
<td>L₂</td>
<td>2205</td>
<td>1914</td>
<td>1675</td>
<td>1931</td>
</tr>
<tr>
<td>L₃</td>
<td>2536</td>
<td>2184</td>
<td>2210</td>
<td>2310</td>
</tr>
<tr>
<td>Mean</td>
<td>2424</td>
<td>1916</td>
<td>1875</td>
<td>2072</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 141.07 lb./ac.
S.E. of body of table = 244.34 lb./ac.
S.E. of control mean = 141.07 lb./ac.
Crop: Paddy (Kharif).

Site: Govt. Agri. Farm, Tissuhi.

Object: To study the effect of varying frequencies and depths of irrigation on yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) June 1950/28.7.1950. (iv) (a) Ploughing according to local practice. (b) to (c) N.A. (v) T-36. (vi) Irrigated. (vii) Weeding was done in the nursery plot. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 levels of irrigation: L₀=0, L₁=1, L₂=6 and L₃=9 inches.
   (2) 3 intervals of irrigation: I₁=2, I₂=3 and I₃=4 weeks.

3. DESIGN:
   (i) 4 x 3 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 25' x 11'. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 1546 lb./ac.
   (ii) 272.2 lb./ac.
   (iii) Only control vs. others effect is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>I₁</th>
<th>I₂</th>
<th>I₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₀</td>
<td>1701</td>
<td>1527</td>
<td>1487</td>
<td>1572</td>
</tr>
<tr>
<td>L₁</td>
<td>1660</td>
<td>1614</td>
<td>1558</td>
<td>1607</td>
</tr>
<tr>
<td>L₂</td>
<td>1634</td>
<td>1665</td>
<td>1548</td>
<td>1616</td>
</tr>
<tr>
<td>Mean</td>
<td>1665</td>
<td>1599</td>
<td>1531</td>
<td>1598</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 78.57 lb./ac.
S.E. of body of table = 136.08 lb./ac.
S.E. of control mean = 78.57 lb./ac.

---

Crop: Paddy (Kharif).

Site: Govt. Agri. Farm, Tissuhi.

Object: To study the effect of varying frequencies and depths of irrigation on yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) June 1950/28.7.1950. (iv) (a) Ploughing etc. according to the local practice. (b) to (c) N.A. (v) N.A. (vi) T-36. (vii) Irrigated. (viii) Weeding was done in the nursery plots. (ix) 38.7'. (x) 20.11.1950.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 5 levels of irrigation: L₀=0', L₁=4', L₂=6', L₃=7½', and L₄=9'.
   (1) 3 intervals of irrigation: I₁=2, I₂=2½ and I₃=3 weeks.

3. DESIGN:
   (i) 5 x 3 Fact. in R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a) 25' x 11'. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
5. RESULTS:
(i) 1496 lb./ac.
(ii) 398.4 lb./ac.
(iii) Effect of I differs significantly. Control vs others differs highly significantly. Other effects do not differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>I1</th>
<th>I2</th>
<th>I3</th>
<th>Mean</th>
<th>S.E. of I means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>1906</td>
<td>1694</td>
<td>1459</td>
<td>1686</td>
<td>= 115.0 lb./ac.</td>
</tr>
<tr>
<td>L1</td>
<td>1819</td>
<td>1483</td>
<td>1292</td>
<td>1531</td>
<td>= 115.0 lb./ac.</td>
</tr>
<tr>
<td>L2</td>
<td>1919</td>
<td>1755</td>
<td>1188</td>
<td>1621</td>
<td>= 99.6 lb./ac.</td>
</tr>
<tr>
<td>L3</td>
<td>1846</td>
<td>1904</td>
<td>1568</td>
<td>1773</td>
<td>= 199.2 lb./ac.</td>
</tr>
<tr>
<td>L4</td>
<td>2040</td>
<td>1633</td>
<td>1789</td>
<td>1821</td>
<td>= 115.0 lb./ac.</td>
</tr>
</tbody>
</table>

S.E. of L means = 115.0 lb./ac.

Crop: - Paddy (Kharif).
Site: - Rice Res. Sub-Stn., Kunraghat.
Object: - To compare the effect of mercurial, copperous and organic seed dressings on germination, disease and yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Barley. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 22.6.1953. (iv) (a) 3 ploughings by desi plough. (b) Broadcast. (c) 37 yrs/ac. (d) - (e) - (f) 10 C.L./ac. of village compost. A/S at 20 yrs/ac. (v) N-22 (early). (vi) N.A. (vii) 2 weedings. (ix) 46.14°. (x) 7 to 9.10.1953.

2. TREATMENTS:
1. Agrosan G.N.
2. Special Agrosan (of low vitality)
3. Fernosan A
4. Copper seed dressing (Y.F. 2776)
5. Control (no dressing)
Rate of dressing 0.25% by weight.

3. DESIGN:
(i) L. Sq. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 21'×51'. (b) 21'×51'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Satisfactory growth. Half lodging in all the plots on 23.9.1953. (ii) Nil. (iii) Height, tillering and grain yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
(i) 875.5 lb./ac.
(ii) 80.98 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>888.9</td>
</tr>
<tr>
<td>2.</td>
<td>936.0</td>
</tr>
<tr>
<td>3.</td>
<td>886.8</td>
</tr>
<tr>
<td>4.</td>
<td>= 809.4</td>
</tr>
<tr>
<td>(v)</td>
<td>89923 (ii)</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 86.32 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Paddy (Kharif).
Site: Rice Res. Stn., Nagina.

Object: To find out the effect of dressing seed with new fungicides on the leaf spot disease and yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Berseem. (b) Berseem. (c) No. (ii) (a) Silt loam. (b) N.A. (iii) 29.6.1953. (iv) (a) One deep ploughing and 2 shallow ploughings. (b) to (e) N.A. (v) Nil. (vi) T-88 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 46.28°. (x) 23.10. 1953.

2. TREATMENTS:
   1. Control
   2. Special Agrosan
   3. Agrosan G N.
   4. Ferrosan
   5. Copper seed dressing (Y.F. 2776)

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 21' X 31.5'. (b) 21' X 31.5'. (v) No. (vi) Yes.

4. GENERAL:
   (i) Good. No lodging. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b), (c) No. (v) (a), (b) No. (vi) Nil. (vii) Conducted by Asst. Economic Botanist (Paddy) to Govt. of U.P., Nagina.

5. RESULTS:
   (i) 3186 lb./ac.
   (ii) 260.8 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3124</td>
</tr>
<tr>
<td>2.</td>
<td>3240</td>
</tr>
<tr>
<td>3.</td>
<td>3118</td>
</tr>
<tr>
<td>4.</td>
<td>3760</td>
</tr>
<tr>
<td>5.</td>
<td>3158</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>116.6 lb./ac.</td>
</tr>
</tbody>
</table>

Ref: U.P. 53(164).
Type: 'D'.

Object: To test the efficacy of D.D.T. and Gammaxene against Gundhi bugs of Paddy.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) N.A. (c) N.A. (d) N.A. (e) N.A. (f) N.A. (vi) Paddy (Anghani Pilibhit). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. /r-raying with 0.25% DDT emulsion at 300 gallon per acre.
   2. Dusting with gammaxene D.025 (containing 5% benzenehexachloride) at 15 lb./ac.
   3. Dusting with gammaxene D.025 at 30 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 23' X 36'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Attack of gundhi bug. (iii) Counts of living bugs before and after application of treatments. (iv) (a) No. (b) No. (c) N.A. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The data has been converted into sin^-1y/p and then analysed. Transformed back mean percentages are given after correcting for bias. Expt conducted by Ento. (K).

Ref: U.P. 48(150).
Type: 'D'.

Crop: Paddy (Kharif).
Site: Rice Res. Stn., Nagina.
5. RESULTS:

(i) to (iv) Reduction of *gundhi* bugs/100 sq. ft.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean Angle</th>
<th>Transformed back - mean %</th>
<th>Mean Angle</th>
<th>Transformed back - mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>83.36</td>
<td>98.17</td>
<td>80.33</td>
<td>96.73</td>
</tr>
<tr>
<td>2.</td>
<td>51.42</td>
<td>60.99</td>
<td>64.88</td>
<td>81.68</td>
</tr>
<tr>
<td>3.</td>
<td>65.26</td>
<td>82.16</td>
<td>82.80</td>
<td>97.92</td>
</tr>
<tr>
<td>4.</td>
<td>35.53</td>
<td>35.26</td>
<td>62.38</td>
<td>78.22</td>
</tr>
<tr>
<td>G M.</td>
<td>59.14</td>
<td></td>
<td>72.60</td>
<td></td>
</tr>
<tr>
<td>S E /mean</td>
<td>4.297</td>
<td></td>
<td>7.877</td>
<td></td>
</tr>
</tbody>
</table>

Sig. Highly significant

---

Crop: Paddy (*Kharif*).

Site: Rice Res. Stn., Nagina.

Object: To study the effects of B.H.C. and sodium fluosilicate against the *Kharif* Grass hoppers of Paddy.

1. BASAL CONDITIONS:

(i) to (c) N.A.

(ii) (a) and (b) N.A.

(iii) N.A.

(iv) (a) to (e) N.A.

(v) N.A.

(vi) Several varieties.

(vii) N.A.

(viii) N.A.

(ix) N.A.

(x) N.A.

2. TREATMENTS:

1. Gammaxene 0.025 (5% B.H.C.) at 15 lb./ac.


3. Control (no treatments).

3. DESIGN:

(i) R.B.D.

(ii) 3.

(iii) 5.

(iv) (a) N.A.

(b) 28' x 28'.

(v) N.A.

(vi) Yes.

4. GENERAL:

(i) N.A.

(ii) Grass hoppers—as per treatments.

(iii) Population of grass hoppers before and after the application of treatments.

(iv) (a) No.

(b) No.

(c) No.

(v) No.

(a) No.

(b) Nil.

(vi) Nil.

(vii) The data has been converted into \( \frac{1}{\sin y} \) and then analysed. The experiment was conducted by Ento. (K).

5. RESULTS:

(i) to (iv) Reduction of grass hoppers at a distance of 28'.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back - mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>61.28</td>
<td>76.63</td>
</tr>
<tr>
<td>2.</td>
<td>51.12</td>
<td>60.50</td>
</tr>
<tr>
<td>3.</td>
<td>9.68</td>
<td>3.27</td>
</tr>
<tr>
<td>G.M.</td>
<td>40.69</td>
<td></td>
</tr>
<tr>
<td>S.E /mean</td>
<td>= 4.812</td>
<td></td>
</tr>
</tbody>
</table>

Sig. Highly Significant

---

Crop: Paddy (*Kharif*).

Site: Rice Res. Stn., Nagina.

Object: To test the efficacy of D.D.T. and B.H.C. insecticides against *gundhi* bugs of Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.

(ii) (a) and (b) N.A.

(iii) N.A.

(iv) (a) to (e) N.A.

(v) N.A.

(vi) Paddy A-22 (late).

(vii) N.A.

(viii) N.A.

(ix) N.A.

(x) N.A.

2. TREATMENTS:

1. Spraying 0.25% D.D.T. suspension.

2. Spraying with 0.5% Benzene hexachloride suspension at 100 gallon/ac.

3. Dusting with 5% Benzene hexachloride dust at 30 lb./ac.

4. Dusting with 5% D.D.T. (Bugs 5% D.D.T. dust) at 30 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 63’ × 17.5’. (v) No. (vi) Yes.

4. GENERAL:
   (i) Milk stage on 28.10.1949. (ii) Gundhi bugs—as per treatments. (iii) Population of gundhi bugs before and after the application of treatments. (iv) (a) N.A. (b) N.A. (c) N.A. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) The data has been converted into $\sin^{-1} Y/P$ and then analysed. The experiment was conducted by Ento. (K).

5. RESULTS:
   (i) to (iv) Reduction of gundhi bugs/100 sq. ft. 24 hrs. after the application of treatments

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back—mean%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>74.54</td>
<td>92.47</td>
</tr>
<tr>
<td>2.</td>
<td>83.07</td>
<td>98.07</td>
</tr>
<tr>
<td>3.</td>
<td>79.04</td>
<td>95.98</td>
</tr>
<tr>
<td>4.</td>
<td>65.72</td>
<td>82.77</td>
</tr>
<tr>
<td>5.</td>
<td>39.58</td>
<td>40.69</td>
</tr>
<tr>
<td>G.M.</td>
<td>68.39</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>-7.494 lb./ac.</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Significant</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Late Paddy Res. Sub-Stn., Pachperwa.
Type: 'D'.

Ref.: U.P. 53(310).

Object: To test the efficacy of different insecticides against stem borer of Paddy.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) 2.7.1953/31.7.1953 and 1.8.1953. (iv) (a) to (e) N.A. (v) N.A. (vi) T-83 (late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 3.12.1953.

2. TREATMENTS:
   1. Spraying with 0.2% D.D.T.
   2. Spraying with 0.2% B.H.C.
   3. Dusting with 5% B.H.C.
   4. Dusting with 5% D.D.T.
   5. Spraying with 0.2% Parathione.
   6. Control.

Rate of application of insecticides: Dusting at 20 lb./ac. in both applications. Spraying at 40 and 60 gallons in 1st and 2nd applications respectively.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 23’ × 30’. (v) 5’ on all sides of the plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Stem borer—as per treatments. (iii) Count of total no. of plants affected, no. of adults larvae and eggs at 5 different places in each plot of size 2’ × 2’ and yield of grain. (iv) (a) Nil. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The data has been converted into $\sqrt{x+1}$ and then analysed where x is the larvae count per plot. The experiment was conducted by Ento. (K).

5. RESULTS:
   (i) to (iv) 

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of $\sqrt{x+1}$</th>
<th>Larvae counts (Transformed back)</th>
<th>Av. yield of grain in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.414</td>
<td>5.38</td>
<td>2980</td>
</tr>
<tr>
<td>2.</td>
<td>2.472</td>
<td>5.37</td>
<td>2137</td>
</tr>
<tr>
<td>3.</td>
<td>2.546</td>
<td>5.98</td>
<td>2066</td>
</tr>
<tr>
<td>4.</td>
<td>2.348</td>
<td>4.55</td>
<td>2425</td>
</tr>
<tr>
<td>5.</td>
<td>2.162</td>
<td>4.17</td>
<td>2731</td>
</tr>
<tr>
<td>6.</td>
<td>2.838</td>
<td>7.55</td>
<td>2075</td>
</tr>
<tr>
<td>G.M.</td>
<td>2.440</td>
<td>5.50</td>
<td>2402</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.0994</td>
<td></td>
<td>121.61</td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
<td>Highly significant</td>
</tr>
</tbody>
</table>

...
Crop: Paddy (Kharif).
Site: Govt. Res. Farm, Pura.

Object: To test the efficacy of different insecticides against gundhi bugs of Paddy.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Pura. (iii) 2.7.1953/31.7.1953. (iv) (a) to (e) N.A. (v) N.A. (vi) 21 (medium). (vii) N.A. (viii) N.A. (ix) N.A. (x) 14.10.1953.

2. TREATMENTS:
   1. Dusting with 5% B.H.C at 20 lb./ac.
   2. Dusting with 10% Toxaphene at 20 lb./ac.
   3. Dusting with 5% Chlorodain at 20 lb./ac.
   4. Control.
   Application on 8.9.1953.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3'×20'. (v) 4' all around the plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Gundhi bugs— as per treatments. (iii) Counts of adults and nymphs taken at 5 different places in plot of size 2'×2' and grain yield. (iv) (a) 1953—1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The data has been converted into sin⁻¹YP and then analysed where p is % of survival of adults and nymphs. Transformed back means have been calculated after applying bias correction. The experiment was conducted by Ento. (K).

5. RESULTS:
   (i) to (iv).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value in sin⁻¹YP</th>
<th>% of survival of adults and nymphs (transformed back)</th>
<th>Av. yield of grain in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>35.36</td>
<td>33.67</td>
<td>998.8</td>
</tr>
<tr>
<td>2.</td>
<td>38.74</td>
<td>39.28</td>
<td>1028.2</td>
</tr>
<tr>
<td>3.</td>
<td>37.75</td>
<td>37.61</td>
<td>1087.4</td>
</tr>
<tr>
<td>4.</td>
<td>59.59</td>
<td>74.14</td>
<td>849.4</td>
</tr>
<tr>
<td>G.M.</td>
<td>42.86</td>
<td></td>
<td>1004.6</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.5860</td>
<td></td>
<td>232.61</td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
<td>N.S.</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Govt. Seed Farm, Unnao.


1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) No. 21. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. 25% D.D.T. (Guesarol 550) suspension at 40 gallon/ac.
   2. 25% B.H.C suspension (Hexachloride) at 40 gallon/ac.
   3. Pyro dust 4000 at 20 lb./ac.
   4. 5% Hexyclan dust at 20 lb./ac.
   5. Control (no treatment).

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 40'×54.5'. (v) No. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Gundhi bugs—as per treatments. (iii) Number of nymphs and adult bugs. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) Nil. (vi) Nil. (vii) Transformed back mean percentages are given after applying bias correction. The data was converted into sin⁻¹YP and then analysed. The experiment was conducted by Ento. (K).
5. RESULTS:

(i) to (iv) Reduction of Gundhi bugs/100 sq. ft. 72 hrs. after the application of treatment

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>86.45</td>
<td>99.11</td>
</tr>
<tr>
<td>2.</td>
<td>78.75</td>
<td>95.74</td>
</tr>
<tr>
<td>3.</td>
<td>90.00</td>
<td>99.50</td>
</tr>
<tr>
<td>4.</td>
<td>87.50</td>
<td>99.31</td>
</tr>
<tr>
<td>5.</td>
<td>87.97</td>
<td>99.37</td>
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<tr>
<td>G.M.</td>
<td>86.13</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=5.321 lb./ac.</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>N.S.</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Govt. Seed Farm, Unnao.

Object: To test the efficacy of different insecticides against Gundhi bugs of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 21.6.1953/24.7.1953. (iv) (a) to (e) N.A. (v) N.A. (vi) T-21 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Spraying with 0.2% B.H.C. @ 40 gallons/ac.
   2. Dusting with 5.0% B.H.C. at 20 lb./ac.
   3. Spraying with 0.02% Parathion emulsion at 40 gallons/ac.
   4. Spraying with 4% Fish oil Rosin Soap at 40 gallons/ac.
   5. Spraying with 10% Nicotine Sulphate at 40 gallons/ac.
   6. Control (no treatment).
   Application on 22.9.1953.

3. DESIGN:
   (i) R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 42' x 31' (v) 8' around the plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Gundhi bugs—as per treatment. (iii) Count of adult and nymphs in plots of size 2' x 2' and grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) N.A. (vii) Transformation back has been done after applying bias correction. The data has been converted into $\sin^{-1}\sqrt{P}$ and then analysed, where $p =$ % reduction of nymphs and adults. The experiment was conducted by Ento. (K).

5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value in $\sin^{-1}\sqrt{P}$</th>
<th>% reduction (transformed back)</th>
<th>Av. yield of grain in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>79.70</td>
<td>96.33</td>
<td>1628</td>
</tr>
<tr>
<td>2.</td>
<td>79.27</td>
<td>96.06</td>
<td>1488</td>
</tr>
<tr>
<td>3.</td>
<td>76.94</td>
<td>94.44</td>
<td>1370</td>
</tr>
<tr>
<td>4.</td>
<td>76.62</td>
<td>94.20</td>
<td>1435</td>
</tr>
<tr>
<td>5.</td>
<td>78.07</td>
<td>95.27</td>
<td>1594</td>
</tr>
<tr>
<td>6.</td>
<td>42.68</td>
<td>45.99</td>
<td>1488</td>
</tr>
<tr>
<td>G.M.</td>
<td>72.21</td>
<td></td>
<td>1500</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.6978</td>
<td></td>
<td>167.74</td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
<td>N.S.</td>
</tr>
</tbody>
</table>
Crop :- Paddy. 
Site :- Azamgarh. (Tehsil) Dist. Azamgarh. 

Object :- To test the efficiency of Hexyclan and Toxaphene dusts and Sodium fluosilicate bait against kharif grass hoppers.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) Paddy (Local). (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Dusting with 5% Hexyclan dust at 20 lb./ac.
   2. Dusting with 5% Hexychin dust at 10 lb./ac.
   3. Dusting with 20% Toxaphene at 20 lb./ac.
   4. Sodium fluosilicate, bran, molasses bait in the ratio of 1 : 15 : 2 at 40 lb./ac.
   5. No treatment (control).

Insecticides applied on 11.8.1950.

3. DESIGN:
   (i) R.B.D. (ii) Number of replications—4. (iii) N.A. (iv) (a) N.A. (b) 40.5'x27'. (v) N.A.

4. GENERAL:
   (i) N.A. (ii) Grass hoppers—ass per treatments. (iii) Count of grass hoppers (nymphs and adults) per 10 strokes at hand net (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The data were converted to Sin^-1 yp and then analysed. Transformed back means have been presented after applying bias correction. (The experiment was conducted by Ento. (K.) on cultivator's field.

5. RESULTS:
   (i) to (iv) Reduction in grass hopper population 72 hrs. after the application of treatments.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back—mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>70.25</td>
<td>88.22</td>
</tr>
<tr>
<td>2.</td>
<td>40.90</td>
<td>42.97</td>
</tr>
<tr>
<td>3.</td>
<td>60.20</td>
<td>75.05</td>
</tr>
<tr>
<td>4.</td>
<td>25.84</td>
<td>19.31</td>
</tr>
<tr>
<td>5.</td>
<td>19.89</td>
<td>11.98</td>
</tr>
<tr>
<td>G.M.</td>
<td>43.42</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>5.039</td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td></td>
<td>Highly significant.</td>
</tr>
</tbody>
</table>

Crop :- Wheat (Rabi). 
Site :- B. R. College Farm, (Bichpuri), Agra. 

Object :- To study the effect of organic and inorganic nitrogenous manures on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam and medium in texture, quite porous. (b) Refer soil analysis, B.R. College Farm, Bichpuri. (iii) 3.11.1949. (iv) (a) 10 ploughings, 3 spat, 2 times stubble picking. (b) Behind the plough by drilling seeds with Nal, regular depth of 5'. (c) 40 seers/ac. (d) Rows 9'' apart. (e) —. (f) Nil. (vi) Pb-591 (late variety). (vii) Irrigated. (viii) One weeding. (ix) Nil. (x) 13.4.1950.

2. TREATMENTS:
   1. No manure.
   2. Farm compost at 60 lb./ac. of N.
   3. A/S at 60 lb./ac. of N and Super to give P₂O₅ as contained in treatment 2. 

Compost spread about 25 days before sowing ; A/S and Super applied 1 day before sowing.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) 121'x 59'. (iii) 3. (iv) (a) 57'x 38', 57'x 41' and 57'x 40'. (b) 49'x30'. (v) 4'x4', 4'x5' and 4'x 5½'. (vi) Yes.
4. GENERAL:
(i) Lodging occurred in plots and treated with inorganic manures in the later stage. (ii) Nil. (iii) Grain and straw yield, etc. (iv) (a) No. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R. College.

5. RESULTS:
(i) 2024 lb./ac.
(ii) 438.2 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2021</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>1949</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>2101</td>
<td>=253.0 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).  
Site: B. R. College Farm, (Bichpuri) Agra.  
Ref: U.P. 49(247).  
Type: ‘M’.

Object: To study the effect of different sources of P₂O₅ applied at varying depths on Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Alluvial origin, It is a loam type of soil having more % of sand than the clay. (b) Refer soil analysis, B.R. College Farm, Bichpuri. (iii) 7.11.1949. (iv) (a) N.A. (b) Behind the plough with the help of a Nai. (c) 90 lb./ac. (d) 9" apart. (e) —. (f) N.A. (vi) P₂O₅-59.1 t/ha. (vii) Irrigated. (viii) One weeding on 14.12.1949. Roguing of extra plants removed from the field before harvesting (ix) N.A. (x) 29.4.1950.

2. TREATMENTS:
Main-plot treatments: All combinations of (1) and (2)
(1) 2 sources of P₂O₅: F₁ = Bone meal and F₂ = Super.
(2) 2 levels of P₂O₅: P₁ = 20 and P₂ = 40 lb./ac.
Sub-plot treatments:
4 depths of placement of P₂O₅: D₁ = Surface, D₂ = 3", D₃ = 6" and D₄ = 9".
A/S additional dressing to F₂ plots to compensate for N in B.M. Super, finely powdered and sieved, placed at different depths on 5 to 7.11.1949.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 20’×26’. (b) 18”×24’. (v) 1’ around. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) Grain, bhuma yield and other characters. (iv) (a) No. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) Experiment conducted by B.R. College. Raw data N.A.

5. RESULTS:
(i) 1957 lb./ac.
(ii) (a) 416.5 lb./ac.
     (b) 218.2 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Main plot treatments</th>
<th>Av. yield</th>
<th>sub-Plot treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>F₁</td>
<td>1898</td>
<td>D₁</td>
<td>2020</td>
</tr>
<tr>
<td>F₂</td>
<td>2016</td>
<td>D₂</td>
<td>1942</td>
</tr>
<tr>
<td>P₁</td>
<td>1955</td>
<td>D₃</td>
<td>1983</td>
</tr>
<tr>
<td>P₂</td>
<td>1960</td>
<td>D₄</td>
<td>1883</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=73.63 lb./ac.</td>
<td>S.E./mean</td>
<td>=54.55 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Wheat (Rabi).
Site: B. R. College Farm, (Bichpuri), Agra.
Object: To study the effect of green manure crops buried in different ways on soil fertility and Wheat yield.

1. BASAL CONDITIONS:
(i) Cow pea—Wheat. (b) As per treatments. (c) Nil to green manures. (ii) (a) Sandy loam of average fertility. (b) Refer soil analysis, B.R. College Farm, Bichpuri. (iii) 4.11.1951. (iv) (a) Palawat applied, after burying the green manuring crops, the field was ploughed by tractor disc two times before wheat sowing. (b) By tractor driven seed drill. (c) 10 lb./ac. (d) Rows 9" apart. (e)—. (v) N.A. (vi) Pb. 591. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 14.4.1954.

2. TREATMENTS:
Main-plot treatments:
Two methods of burying the green manuring crops: M₁=Burying the whole plant and M₂=Burying the under ground portion only (harvesting the complete above ground portion).
Sub-plot treatments:
5 green manures: G₁=Moong at 10 lb./ac., G₂=Sanai at 50 lb./ac., G₃=Gucr at 10 lb./ac., G₄=Cow pea at 20 lb./ac. and G₅=Chinamug at 10 lb./ac.
G.M. on 19.7.1953 by broadcast followed by harrowing and ploughing off set disc. Harrow attached with pata driven by tractor to mix seeds. Burying of G.M. done on 1.9.1953.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 15' X 36'. (v) Plot border—2', block border—4' and channels—4'.

4. GENERAL:
(i) Poor in plots at a bit higher level. Patchy germination. (ii) N.A. (iii) Yield of grain and bhusa. (iv) (a) No. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) Nil. (vii) The experiment was conducted by B.R. College.

5. RESULTS:
(i) 1051 lb./ac.
(ii) (a) 74.21 lb./ac.
(b) 179.49 lb./ac.
(iii) M and G effects are highly significant. Interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>G₁</th>
<th>G₂</th>
<th>G₃</th>
<th>G₄</th>
<th>G₅</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>M₁</td>
<td>708</td>
<td>1178</td>
<td>691</td>
<td>963</td>
<td>943</td>
<td>897</td>
</tr>
<tr>
<td>M₂</td>
<td>1182</td>
<td>1687</td>
<td>874</td>
<td>1164</td>
<td>1123</td>
<td>1206</td>
</tr>
<tr>
<td>Mean</td>
<td>945</td>
<td>1432</td>
<td>782</td>
<td>1064</td>
<td>1013</td>
<td>1051</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. M marginal means = 23.47 lb./ac.
2. G marginal means = 89.74 lb./ac.
3. G means at the same level of M = 126.9 lb./ac.
4. M means at the same level of G = 115.9 lb./ac.

Crop: Wheat (Rabi).
Site: B. R. College Farm, (Bichpuri), Agra.
Object: To study the effect of N with and without basal dressing of compost on yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Pea and then fallow. (c) Nil. (ii) (a) High loam. (b) Refer soil analysis, B.R. College Farm. Bichpuri. (iii) 8.11.1950. (iv) (a) Ploughings by tractor with disc harrow on 9.5.1950. 6 dest ploughings. Ploughing by tractor with disc harrow on 21.10.1951. (b) By Nai plough method at 3" depth. (c) 40 srs./ac. (d) N.A. (e)—. (v) Nil. (vi) Pb. 591 (late). (vii) Irrigated. (viii) 2 weedings by khurpi. (ix) N.A. (x) 21.4.1953.
2. TREATMENTS:
Main-plot treatments:
2 basal applications: $B_0 = 0$ and $B_1 = 20$ lb./ac. of N as compost.

Sub-plot treatments:
8 levels of N as A/S: $N_0 = 0$, $N_1 = 15$, $N_2 = 30$, $N_3 = 45$, $N_4 = 60$, $N_5 = 75$, $N_6 = 90$, $N_7 = 105$ and $N_8 = 120$. Farm compost: Cattle dung including litter, sugarcane trash and other farm refuse including straw of mustard, etc. applied on 5.10.1952 followed by desi plough on 6.10.1950, A/S applied on 7.11.1950 by spreading evenly.

3. DESIGN:
(i) Split/plot. (ii) (a) 2 main-plot/replication and 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 42’x19’ and 42’x21’. (b) 35’x15’. (v) Block border –4’ and plot border–2’. (vi) Yes.

4. GENERAL:
(i) Lodging occurred due to showers followed by wind at high velocity. (ii) N.A. (iii) Grain and bhusa yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) Nil. (b) No. (vi) Nil. (vii) The experiment was conducted by B.R. College.

5. RESULTS:
(i) 1679 lb./ac.
(ii) (a) 212.03 lb./ac.
(b) 215.11 lb./ac.
(iii) levels of N differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield B_0</th>
<th>Av. yield B_1</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1674</td>
<td>1683</td>
<td>= 37.48 lb./ac.</td>
</tr>
<tr>
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<td>1178</td>
<td>1413</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1575</td>
<td>1852</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1933</td>
<td>1812</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1828</td>
<td>1814</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= 76.05 lb./ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop :-Wheat (Rabi).
Site :-Central Dairy Farm, Aligarh.
Ref :-U.P. 50(69).
Type :-'M'.

Object :-To study the effect of N and P fertilizers applied alone and in combination on Wheat crop.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loan. (b) N.A. (iii) 17.11.1950. (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N:A. (x) 17.4.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: $N_0 = 0$, $N_1 = 30$ and $N_2 = 60$ lb./ac.
(2) 3 levels of $P_2O_5$: $P_0 = 0$, $P_1 = 60$ and $P_2 = 120$ lb./ac.
A/S was broadcast while $P_2O_5$ placed pre drilling it in bands near the root zone on 13, 14.11.1950.

3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/40th acre. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Growth patchy in2 blocks. (ii) No. (iii) Grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) Kalyanpur; Atarra (Banda), Kalai, Banaras, Partapgarh, Nawabganj, and Bharari. (b) N.A. (vi) Nil. (vii) The field was uneven with alkaline patches. The patchy growth had, however considerably vitiated the accuracy of the experiment. Experiment was planned with 6 replications but 2 replications were omitted for analysis for patchy growth. The experiment conducted by A.C.
5. RESULTS:
(i) 1479 lb./ac.
(ii) 111.43 lb./ac.
(iii) All effects are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( N_0 )</td>
<td>1030</td>
<td>1350</td>
<td>1360</td>
<td>1253</td>
</tr>
<tr>
<td>( N_1 )</td>
<td>1550</td>
<td>1650</td>
<td>1720</td>
<td>1640</td>
</tr>
<tr>
<td>( N_2 )</td>
<td>1790</td>
<td>1220</td>
<td>1620</td>
<td>1543</td>
</tr>
<tr>
<td>Mean</td>
<td>1457</td>
<td>1407</td>
<td>1573</td>
<td>1479</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 32.17 lb./ac.
S.E. of body of table = 55.72 lb./ac.

Crop : Wheat (Rabi).
Ref : U.P. 52(371).
Site : Allahabad Agricultural Institute, Allahabad.
Type : 'M'.

Object : To study the effect of N, P and K applied alone and in combination on Wheat yield.

1. BASAL CONDITIONS:
(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Fine sandy loam. (b) Refer soil analysis, Allahabad Agricultural Institute. (iii) 29.10.1953 [missing strips replanted on 10.11.1953]. (iv) (a) to (e) N.A. (v) N.A. (vi) N.P.720 (N.A.) (vii) Irrigated. (viii) N.A. (ix) 1.00". (x) 27.3.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3) + N1+Mg at 40 lb./ac. of N+120 lb./ac. of Mg. (selective treatment.)
(1) 2 levels of \( P_0 \) : \( P_0 = 0 \) and \( P_1 = 40 \) lb./ac.
(2) 2 levels of N : \( N_0 = 0 \) and \( N_1 = 40 \) lb./ac.
(3) 2 levels of K : \( K_0 = 0 \) and \( K_1 = 45.5 \) lb./ac.
N as A/S, \( P_0 \) as Super, K as Potassium chloride and Mg as Magnesium Sulphate. Fertilizer applied 20 to 27.10.1953. Cultivated the fertilizer on 28.10.1953. These were spread on ploughed land and mixed with the surface soil by cultivation just before the crop was planted on 20 to 27.10.1953.

3. DESIGN:
(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9' x 36'. (v) 3' border between the plots. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Attack of termite. (iii) Yield of grain and straw. (iv) (a) No. (b) No. (c) Nil. (v) (a) & (b) Nil. (vi) Nil. (vii) Experiment conducted by Dr. George H. Dungan, I.C.A. (representative from the University of Illinois who worked in collaboration with the Agronomy Department). Plot wise yield data N.A.

5. RESULTS:
(i) 1837 lb./ac.
(ii) 332.64 lb./ac.
(iii) Effects of N.P, NK and N are Significant. While effect NPK is highly significant.
(iv) Av. yield of grain in lb./ac.

Selective treatment (N+Mg) = 1827 lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( K_0 )</th>
<th>( K_1 )</th>
</tr>
</thead>
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<td>( N_0 )</td>
<td>1535</td>
<td>1642</td>
<td>1568</td>
<td>1609</td>
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<td>2181</td>
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<td>2156</td>
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<tr>
<td>Mean</td>
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<td>1911</td>
<td>1838</td>
<td>1794</td>
</tr>
<tr>
<td>( K_0 )</td>
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<td>1851</td>
<td>1794</td>
<td>1882</td>
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<tr>
<td>( K_1 )</td>
<td>1794</td>
<td>1971</td>
<td>1828</td>
<td>1882</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 83.16 lb./ac.
S.E. of body of table = 117.61 lb./ac.
Crop: Wheat (Rabi)  Ref: U.P. 52(325).
Site: Allahabad Agricultural Institute, Allahabad.  Type: 'M'.

Object: To see the effect of four different leguminous crops when ploughed into the soil as green manures, on the following Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (n) As per treatments.  (c) N.A.  (ii) (a) Fine sandy loam.  (b) Refer soil analysis, Allahabad Agricultural Institute.  (iii) 11.10.1952.  (iv) (a) N.A.  (b) Sown in rows.  (c) 30 srs./ac.  (d) 12 rows/plot.  (e) —.  (v) N.A.  (vi) C-13 (early).  (vii) Irrigated.  (viii) N.A.  (ix) 1.78°.  (x) 30.3.1953.

2. TREATMENTS:
   1. Sannhemp.
   2. Cow Pea.
   3. Mung.
   4. Dhaincha.
   5. No manure.

Green manures sown on 7.6.1952 and ploughed into the soil on 20.9.1952.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) 73' x 60'.  (iii) 6.  (iv) (a) 73' x 12'.  (b) 71' x 10'.  (v) 1' around.  (vi) Yes.

4. GENERAL:
   (i) The germination poor and patchy.  (ii) N.A.  (iii) Ear emergence, germination and yield of grain.  (iv) (a) No.  (b) No.  (c) Nil  (v) (a) and  (b) No.  (vi) Nil.  (vii) Seed received from Govt. seed store was bad. Experiment conducted by the Head, Agriculture Department, (A.A.I.).

5. RESULTS:
   (i) 1636 lb./ac.
   (ii) 210.42 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2040</td>
</tr>
<tr>
<td>2.</td>
<td>1735</td>
</tr>
<tr>
<td>3.</td>
<td>1725</td>
</tr>
<tr>
<td>4.</td>
<td>1641</td>
</tr>
<tr>
<td>5.</td>
<td>1041</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>85.90 lb./ac.</td>
</tr>
</tbody>
</table>

---

Site: Allahabad Agri. Inst., Allahabad.  Type: 'M'.

Object: To see the effect of four different leguminous crops when ploughed into the soil as green manure, on the following Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Wheat - Bajra.  (c) N.A.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Allahabad Agri. Institute.  (iii) 29.10.1953.  (iv) (a) N.A.  (b) Drilling by Malabasa.  (c) 30 srs./ac.  (d) 12 rows/plot.  (e) —.  (v) N.A.  (vi) C-13 (early).  (vii) Irrigated.  (viii) Weeding on 4, 5.12.1953.  (ix) 1.00°.  (x) 2.4.1953.

2. TREATMENTS:
   1. Sannhemp.
   2. Cow Pea.
   3. Mung.
   4. Dhaincha.
   5. Control (no manure).

Green manures sown on 7.6.1952 and ploughed into the soil on 20.9.1952. Their effects studied on wheat (1952), residual effect studied on Bajra 1953 and again residual effect on wheat studied now.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) 73' x 60'.  (iii) 6.  (iv) (a) 73' x 12'.  (b) 71' x 10'.  (v) 1' around.  (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of grain and bhuma. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by the Head, Agronomy Department (A.A.I.).

5. RESULTS:
(i) 1020 lb./ac.
(ii) 113.31 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1125</td>
</tr>
<tr>
<td>2.</td>
<td>1052</td>
</tr>
<tr>
<td>3.</td>
<td>1020</td>
</tr>
<tr>
<td>4.</td>
<td>1010</td>
</tr>
<tr>
<td>5.</td>
<td>894</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>46.26 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat.
Site: Govt. Agri. Farm, Atarra.
Ref: U.P. 49(23).
Type: 'M'.

Object: To study the effect of N and P manures alone and in combination on Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 29, 30.10.1949. (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 20.3.1950.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
(2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
Super placed 3'-4" deep in furrows A/S was top dressed on 27, 28.9.1949.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 1/40th ac. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Satisfactory. Germination 90%. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) N.A. (c) N.A. (v) (a) Kanpur, Kalai, Banaras, Partapgarh, Bharari, Nawabganj (b) N.A. (vi) During harvesting there was a hailstorm, hence it delayed threshing. (vii) Conducted by A.C.

5. RESULTS:
(i) 6/0 lb./ac.
(ii) 61.45 lb./ac.
(iii) All the effects are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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<tbody>
<tr>
<td>N₀</td>
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<td>507</td>
<td>820</td>
<td>517</td>
</tr>
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<tr>
<td>N₂</td>
<td>567</td>
<td>1060</td>
<td>1047</td>
<td>891</td>
</tr>
<tr>
<td>Mean</td>
<td>420</td>
<td>733</td>
<td>918</td>
<td>690</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 14.48 lb./ac.
S.E. of body of the table = 23.09 lb./ac.

Object: To study the effect of N and P fertilizers alone and in combination on Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Fallow. (c) No. (ii) (a) Parwa. (b) N.A. (iii) 7.12.1953. (iv) (a) Seed bed was prepared after cross ploughings. (b) In lines behind a desi plough. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 9 to 11.4.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N: \( N_0 =0, N_1 =30 \) and \( N_2 =60 \) lb./ac.
   (2) 3 levels of \( P_2 O_5 \): \( P_0 =0, P_1 =60 \) and \( P_2 =120 \) lb./ac.
   N as A/S was broadcast and \( P_2 O_5 \) as Super through pre-drilling in bands (4'-5' deep) near the root zone on 6.12.1950.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/40th ac. (v) 1' plot to plot and 3' block to block. (vi) Yes.

4. GENERAL:
   (i) Lodging on account of rains. (ii) No. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) No. (v) (a) Kalyanpur, Kari, Aigarh, Banaras, Partapgarh, Nawabganj and Bharari. (b) N.A. (vi) Slight damage caused by rats. (vii) Conducted by A.C.

5. RESULTS:
   (i) 1520 lb./ac.
   (ii) 91.22 lb./ac.
   (iii) All effects are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
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</tr>
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<td>1413</td>
<td>1231</td>
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<td>( N_1 )</td>
<td>1587</td>
<td>1407</td>
<td>1380</td>
<td>1458</td>
</tr>
<tr>
<td>( N_2 )</td>
<td>1781</td>
<td>1893</td>
<td>1940</td>
<td>1871</td>
</tr>
<tr>
<td>Mean</td>
<td>1478</td>
<td>1504</td>
<td>1578</td>
<td>1520</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 21.50 lb./ac.
S.E. of body of table = 37.24 lb./ac.


Object: To study the effect of N and P applied alone and in combination on Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) No. (b) N.A. (c) N.A. (ii) (a) Light Parwa. (b) N.A. (iii) 27, 28, 10.1951. (iv) (a) 4 ploughings with watts plough. One ploughing with desi plough after Palewa. (b) Binda country seed drill. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrig. (viii) N.A. (ix) N.A. (x) 29 to 31.3.1952.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N: \( N_0 =0, N_1 =30 \) and \( N_2 =60 \) lb./ac.
   (2) 3 levels of \( P_2 O_5 \): \( P_0 =0, P_1 =60 \) and \( P_2 =120 \) lb./ac.
   N as A/S was broadcast and \( P_2 O_5 \) as Super was placed deep in bands near the root zone through fertilizer drill and then pata applied on 26.10.1951.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 6. (iv) (a) N.A. (b) 38' x 28'-8'. (v) 1 to 3 feet plot to plot and 3 to 4 feet between blocks. (vi) Yes.
4. GENERAL:

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949 to 1953. (b) & (c) No. (v) (a) Kalyanpur, Kalai (Allgarh), Raya, Tisushi, Partapgarh, Bharari and Matkota. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:

(i) 1578 lb./ac.
(ii) 111.03 lb./ac.
(iii) N and P effects are highly significant while interaction is not significant.
(iv) Av. yield of grain n lb./ac.

<table>
<thead>
<tr>
<th>N0</th>
<th>P0</th>
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<th>P2</th>
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<td>15 3</td>
<td>1593</td>
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<td>1666</td>
<td>1686</td>
<td>1813</td>
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<tr>
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<td>1511</td>
<td>1557</td>
<td>1666</td>
<td>1578</td>
</tr>
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</table>

S.E. of any marginal mean = 26.17 lb./ac.
S.E. of body of table = 45.33 lb./ac.

Crop: Wheat.
Site: Govt. Agri. Farm, Atarra.
Object: To study the effect of N and P alone and in combination on Wheat crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Early paddy. (c) N.A. (ii) (a) Parwa (un classified). (b) N.A. (iii) 7.11.1952. (iv) (a) 4 ploughings. (b) Sown behind the plough, (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 28.3.1953.

2. TREATMENTS:

All combinations of (1) and (2):

(1) 3 levels of N: N0 = 0, N1 = 30 and N2 = 60 lb./ac.
(2) 3 levels of P205: P0 = 0, P1 = 60 and P2 = 1.0 lb./ac.
N as A/S applied as top dressing by broadcast and P205 as Super placed 4" deep in bands near the root zone-applied on 5.11.1952.

3. DESIGN:

(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 20' x 54.5'. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1549 to 1953. (b) Yes. (c) N.A. (v) (a) Pura, Kali, Raya, Tisushi, Matkota, Banaras, Bharari and Farrukhabad. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:

(i) 1405 lb./ac.
(ii) 66.39 lb./ac.
(iii) N and P effects are highly significant while interaction is not significant.

<table>
<thead>
<tr>
<th>N0</th>
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</tr>
<tr>
<td>Mean</td>
<td>1292</td>
<td>1419</td>
<td>1565</td>
<td>1405</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 15.65 lb./ac.
S.E.of body of table = 27.10 lb./ac.
Crop: Wheat.  
Site: Govt. Agri. Farm, Atarra.  
Object: To study the effects of N and P alone and in combination on Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Charip and Jowar. (c) Nil. (ii) (a) Parwa.  
   (b) N.A. (iii) 31.10.1953.  
   (iv) (a) 4 ploughings with watts plough and 1 ploughing with cultivator. (b) Line sowing by Banda—country seed drill. (c) to (e) N.A.  

2. TREATMENTS:
   All combinations of (1) and (2)  
   (1) 4 levels of N as A/S: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.  
    \( P_2 O_5 \) placed in 4' deep bands at 9' apart (Furrows opened by either a victory or U.P. plough or even two desi ploughs one behind the other in the same furrows) \( P_2 O_5 \) is about 1' to 2' below the seed. Manures applied on 30.10.1953.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D.  
   (ii) (a) 9, (b) N.A. (iii) 6. (iv) (a) N.A. (b) 40.33' x 27'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Germination satisfactory. (ii) N.A. (iii) Yield of grain and burha. (iv) (a) 1949 to 1953. (b) N.A. (c) Nil. (v) (a) Phoolbagh, Matkota, Tissuli, Gazipur, and Raya. (b) —. (vi) The lack of irrigation has resulted in the incomplete response or fertilizers. (vii) Expt. conducted by A.C.

5. RESULTS:
   (i) 1012 lb./ac  
   (ii) 56.96 lb./ac.  
   (iii) N, P effects are highly significant while interaction is not significant.  
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>Mean</th>
</tr>
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<td>1017</td>
<td>1130</td>
<td>1025</td>
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<td>( N_2 )</td>
<td>973</td>
<td>1147</td>
<td>1227</td>
<td>1116</td>
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</table>

Mean 903 1024 1110 1012

S.E. of any marginal mean =13.40 lb./ac.

S.E. of body of table =23.21 lb./ac.

Crop: Wheat (Rabi).  
Site: Govt. Agri. Farm, Atarra.  
Object: To study the effect of different fertilizers on growth and yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Paddy. (c) Nil. (ii) (a) Parwa.  
   (b) N.A. (iii) 23.11.1953. (iv) (a) 4 ploughings. (b) Drilling. (c) 10 chks/plot (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (mid-late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 16.4.1953.

2. TREATMENTS:
   All combinations of (1) and (2)  
   (1) 4 fertilizers: \( M_1 = 60 \) lb./ac of N as A/S, \( M_2 = 50 \) lb./ac of \( P_2 O_5 \) as Super, \( M_3 = 40 \) lb./ac of \( K_2 O \) as Pot Sulphate and \( M_4 = 60 \) lb./ac of \( CaO \) as Gypsum.  
   (2) 3 methods of application of fertilizers: \( A_1 = \) By broadcast, \( A_2 = \) Placement behind plough in furrows and \( A_3 = \) Drilled mixed with seed through improved seed drill.

Date of manuring 23.11.1953.
3. DESIGN:
(i) 3 x 4 Fact. in R.B.D.  (ii) (a) 12.  (b) N.A.  (iii) 3.  (iv) (a) 36' x 40'.  (b) 33' x 27'. (v) N.A. (vi) Yes,

4. GENERAL:
(i) Satisfactory. (ii) No. (iii) Grain and straw yield. (iv) (a) 1953 to 1954. (b) and (c) No. (v) (a) Faizabad and Partapgarh. (b) N.A. (vi) Nil. (vii) Conducted by C.P. (R).

5. RESULTS:
(i) 735 lb./ac.
(ii) 15.11 lb./ac.
(iii) All effects are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>Mean</th>
</tr>
</thead>
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<td>1018</td>
<td>1035</td>
<td>941</td>
</tr>
<tr>
<td>M2</td>
<td>715</td>
<td>645</td>
<td>610</td>
<td>657</td>
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<tr>
<td>M3</td>
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<td>708</td>
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<tr>
<td>M4</td>
<td>769</td>
<td>503</td>
<td>629</td>
<td>634</td>
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</tbody>
</table>

S.E. of M marginal mean = 5.04 lb./ac.
S.E. of A marginal mean = 4.36 lb./ac.
S.E. of body of table = 8.72 lb./ac.

Crop : Wheat.
Site : Mechanised Farm, Bharari.
Ref : U.P. 49(30).
Type : 'M'.

Object : To study the effect of N and P₂O₅ applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A.  (ii) (a) Parwa (Bundelkhand T₂). (b) N.A. (iii) 15.11.1949.  (iv) (a) to (e) N.A. (v) Nil.  (vi) N.A.  (vii) Irrigated. (viii) N.A.  (ix) N.A.  (x) 13.4.1950.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N : N₀ =0, N₁ =30 and N₂ =60 lb./ac.
(2) 3 levels of P₂O₅ : P₀ =0, P₁ =60 and P₂ =120 lb./ac.
P₂O₅ as single Super applied 3'-4' deep in soil and N as A/S top dressed

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9.  (b) N.A.  (iii) 6.  (iv) (a) and (b) 1/40th ac.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1949 to 1953. (b) No. (c) N.A. (v) (a) Atarra, Bataras, Kanpur, Nawabganj, Kalai and Partapgarh. (b) N.A. (vi) and (vii) Nil.

5. RESULTS:
(i) 1188 lb./ac.
(ii) 253.33 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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<td>N₂</td>
<td>1387</td>
<td>1600</td>
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<td>1597</td>
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</table>

Mean 1178 1167 1220 1188
S.E. of any marginal mean = 59.7 lb./ac.
S.E. of body of table = 103.4 lb./ac.
Crop: Wheat.  
Ref: U.P. 50(68).  
Site: Mechanised Farm, Bharari.  
Type: 'M'.

Object: To study the effect of N and P$_2$O$_5$ applied alone and in combination on yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A.  (b) Maize.  (c) No.  (ii) (a) Parwa.  (b) N.A.  (iii) 14.11.1950.  (iv) (a) Seed bed was prepared after two ploughings and one harrowing by tractor.  (b) to (e) N.A.  (v) Nil.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 4.4.1951.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of N as A/S: N$_0=0$, N$_1=30$ and N$_2=60$ lb./ac.

(2) 3 levels of P$_2$O$_5$ as Super: P$_0=0$, P$_1=60$ and P$_2=120$ lb./ac.

N as A/S was broadcast and Super applied on 11.11.1950 through predrilling it in bands near the root zone.

3. DESIGN:

(i) 3 x 3 Fact. in R.B.D  (ii) (a) 9.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 1/40th ac.  (v) 1' between plots and 3' between blocks.  (vi) Yes.

4. GENERAL:

(i) Crop lodged due to heavy rains.  (ii) No.  (iii) Grain yield.  (iv) (a) 1949—1952.  (b) N.A.  (c) N.A.  (v) (a) Kalya..pur, Atarra, Kalai, Aliigah, Banaras, Parapgarh and Nawabganj.  (b) N.A.  (vi) Nil.  (vii) Conducted by A.C.

5. RESULTS:

(i) 2589 lb./ac.

(ii) 332.07 lb./ac.

(iii) Only N effect is highly significant.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P$_0$</th>
<th>P$_1$</th>
<th>P$_2$</th>
<th>Mean</th>
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<tr>
<td>N$_2$</td>
<td>2800</td>
<td>2740</td>
<td>2713</td>
<td>2751</td>
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</table>

Mean = 2682  2624  2660  2589

S.E. of any marginal mean = 78.27 lb./ac.

S.E. of body of table = 135.57 lb./ac.

Crop: Wheat.  
Ref: U.P. 51(114).  
Site: Mechanised Farm, Bharari.  
Type: 'M'.

Object: To study the effect of N and P$_2$O$_5$ applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) No.  (b) N.A.  (c) N.A.  (ii) (a) Parwa.  (b) N.A.  (iii) 30.11.1951.  (iv) (a) 3 tractor harrowings, and one polewa.  (b) Drilled.  (c) to (e) N.A.  (v) Nil.  (vi) N.A.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 5 to 7.4.1952.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of N: N$_0=0$, N$_1=30$ and N$_2=60$ lb./ac.

(2) 3 levels of P$_2$O$_5$: P$_0=0$, P$_1=60$ and P$_2=120$ lb./ac.

N as A/S was broadcast and P$_2$O$_5$ as Super placed deep in bands near the root zone through a fertilizer drill and then placed applied on 24.11.1951.

3. DESIGN:

(i) 3 x 3 Fact. in R.B.D.  (ii) (a) 9.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 33' x 33'.  (v) 1' to 3' between plots and 3' to 4' between blocks.  (vi) Yes.
4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1949—1952. (b) No. (c) No. (v) (a) Kalyanpur, Kalai, Raya, Tissuhi, Atarra, Partaghar and Matkota. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 1347 lb./ac.
(ii) 208.46 lb./ac.
(iii) N and P effects are highly significant while interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>P₂</th>
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</tr>
<tr>
<td>Mean</td>
<td>1075</td>
<td>1413</td>
<td>1553</td>
<td>1347</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 49.13 lb./ac.
S.E. of body of table = 85.10 lb./ac.

Crop :- Wheat.
Site :- Mechanised Farm, Bharari.
Ref :- U.P. 52(19)
Type :- 'M'.
Object :- To study the effect of N and P fertiliser, alone and in combinations on Wheat yield.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) and (c) N.A. (ii) (a) Parwa (b) N.A. (iii) 7.11.1952. (iv) (a) One tractor ploughing and 2 harrowings. (b) Drilling. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 26, 27.3.1953.

2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 levels of N : N₀ =0, N₁ = 30 and N₂ = 60 lb./ac.
(2) 3 levels of P₂Ο₅ : P₀ =0, P₁ = 60 and P₂ = 120 lb./ac.
N as A/S applied as top dressing by broadcast and P₂Ο₅ as Super placed 4" deep in bands near the root zone on 5.11.1952.

3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 33°x33°. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) Pura, Kalai, Raya, Banaras, Tissuhi, Matkota, Atarra and Farrukhabad. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 1930 lb./ac.
(ii) 221.12 lb./ac.
(iii) N and P effects are highly significant. Interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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<td>1633</td>
<td>1947</td>
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<td>1876</td>
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<td>N₂</td>
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<td>2353</td>
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<tr>
<td>Mean</td>
<td>1707</td>
<td>2009</td>
<td>2073</td>
<td>1930</td>
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</table>

S.E. of any marginal mean = 52.12 lb./ac.
S.E. of body of table = 90.27, lb./ac.
Crop : Wheat (Rabi).

Site : Mechanised Farm, Bharari.

Object : To study the effect of different trace elements on growth, yield and quality of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Parwa soil, clay loam. (b) N.A. (iii) 6.11.1952. (iv) (a) One ploughing, 2 harrowings & 2 Pata. (b) to (e) N.A. (v) Nil. (vi) Pb. 591 (mid-late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 28.3.1953.

2. TREATMENTS:
   1. Control.
   2. Molybdenum as Molybdic acid at 6 lb./ac. of Mo.
   3. Copper as Copper sulphate at 6 lb./ac. of Cu.
   4. Boron as commercial Borax at 6 lb./ac. of B.
   5. Ca as Gypsum at 30 lb./ac. of Ca.
   6. Zinc as Zinc Sulphate at 4 lb./ac. of Zn.
   A basal dose of (A/S at 30 lb./ac. of N+Super at 15 lb./ac. of P₂O₅+Pot. Sulphate at 15 lb./ac. of K₂O) was applied to all treatments. Treatments applied on 2.11.1952.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 42'x37'. (b) 38'x33'. (v) 2' around. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Rust was traceable. (iii) Grain and straw yield. (iv) (a) to (c) No. (v) (a) Kanpur, and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P. (R).

5. RESULTS:
   (i) 1856 lb./ac.
   (ii) 153.15 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment       Av. yield
   1.             2102
   2.              1787
   3.              1907
   4.              1787
   5.              1697
   6.              1858
   S.E./mean      76.58 lb./ac.
3. DESIGN:
(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) \(35' \times 36'\). (b) \(32' \times 33'\). (v) 1.5' around. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight attack of rust and frost. (iii) Straw and grain yield. (iv) (a) 1953—continued. (b) and (c) No. (v) (a) Faizabad, Etawah, Kalyanpur (Kanpur) Atarra (Banda), Meerut, Gorakhpur and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Conducted by C.P.(R).

5. RESULTS:
(i) 1229 lb./ac.
(ii) 387.4 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
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<td>6.</td>
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<tr>
<td>2.</td>
<td>1283</td>
<td>7.</td>
<td>1138</td>
</tr>
<tr>
<td>3.</td>
<td>1619</td>
<td>8.</td>
<td>912</td>
</tr>
<tr>
<td>4.</td>
<td>1181</td>
<td>9.</td>
<td>1167</td>
</tr>
<tr>
<td>5.</td>
<td>1202</td>
<td>10.</td>
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</table>

S.E./mean. \(=223.6\) lb./ac.

Crop :- Wheat (Rabi).
Site :- Mechanised Farm, Bharari.

Ref :- U.P. 53(341).
Type :- 'M'.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<td>1532</td>
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S.E. of marginal mean of N or P = 44.51 lb./ac.
S.E. of marginal mean of K = 54.51 lb./ac.
S.E. of body of N x P table = 62.94 lb./ac.
S.E. of body of N x K or P x K table = 77.08 lb./ac.

Crop :- Wheat. (Rabi)
Site :- Govt. Agri. School Farm, Bulandshahar.
Ref :- U.P. 51(293).
Type :- 'M'.
Object :- To study the effect of N and P applied by different methods.

1. BASAL CONDITIONS:
(i) (a) Green manuring—Wheat—Maize—Gram. (b) Sanai. (c) Nil. (ii) (a) Sandy loam of average fertility with free drainage. (b) N.A. (iii) 26.10.1951. (iv) (a) One palawa, 6 ploughings by desi plough followed by planking. (b) Sowing with desi plough and Nai method. (c) 40 yrs./ac. (d) and (e) N.A. (v) Green manuring with Sanai (ploughing on 13.8.1951. (vi) Pb. 591 (late). (vii) Irrigated. (viii) Weeding and hoeing on 22.4.1951. Roguing on 21.2.1952. (ix) 2.78'. (x) 2.4.1952.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N as A/S: N₀=0, N₁=20 and N₂=40 lb./ac.
(2) 3 levels of P₀ as Super: P₀=0, P₁=80 and P₂=160 lb./ac.
(3) 3 methods of placement of fertilizers: D₀=Broadcast, D₁=2½" and D₂=4½".
Fertilizers thoroughly mixed with equal quantity of earth taken for the same plot and evenly broadcast with hand and was immediately mixed with cultivator. Fertilizers applied on 26.10.1951.

3. DESIGN:
(i) 3² partially confounded. (ii) (a) 3 blocks/replication; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 56'×13'. (b) 53'×10'. (v) Block 4' and replication 5' apart. (vi) Yes.

4. GENERAL:
(i) Lodging occurred in patches in March (stormy wind). Lodging occurred in NP treatment plots. (ii) A slight attack of white ants was observed after germination. To check this, 1st irrigation was applied on 11.11.1951. Rust attack when earing was complete. No pest attack. (iii) Grain and bhusa yield. (iv) (a) and (b) No. (c) Nil. (v) and (a) (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R.C.

5. RESULTS:
(i) 2465 lb./ac.
(ii) 246.7 lb./ac.
(iii) P effect is highly significant, N effect is significant. All other effects are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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<td>2518</td>
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S.E. of any marginal mean = 58.15 lb./ac.
S.E. of body of table = 100.72 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Faizabad.

Object: To study the effect of placement of fertilizers on growth and yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil.
(ii) (a) Clay loam. (b) N.A.
(iii) 14.11.1953.
(iv) (a) 2 ploughings with Proja and desi plough. (b) Sown behind plough.
(c) 20-25 srs./ac.
(d) and (e) N.A.
(v) Nil.
(vi) NP-52 (medium, early). (vii) Irrigated.
(viii) Weeding and hoeing.
(ix) N.A. (x) 17.4.1954.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 fertilizers: M₁ = A/S at 60 lb./ac. of N, M₂ = Super at 50 lb./ac. of P₂O₅, M₃ = Pot. Sulphate at 40 lb./ac. of K₂O and M₄ = Gypsum at 60 lb./ac. of Ca.
(2) 3 methods of application: A₁ = By broadcast, A₂ = Placement behind plough in furrows and A₃ = Drilled mixed with seed through improved seed drill.

3. DESIGN:
(i) 3 × 4 Fact. in R.B.D. (ii) (a) 12 (3 flanks of 4 plots each). (b) N.A.
(iii) 3. (iv) (a) 42" × 21", (b) 39" × 18", (v) 1.5" × 1.5".
(vi) Yes.

4. GENERAL:
(i) Good. (ii) 30% attack by rust. (iii) Grain and straw yield.
(iv) (a) 1953—continued. (b) and (c) No (v) (a) Banda, Partapgarh, Hardoi and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C. P. (R).

5. RESULTS:
(i) 531.6 lb./ac.
(ii) 76.32 lb./ac.
(iii) Only M effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>A₃</th>
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<td>571.1</td>
<td>531.6</td>
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</table>

S.E. of marginal mean of M = 25.44 lb./ac.
S.E. of marginal mean of A = 22.02 lb./ac.
S.E. of body of table = 44.06 lb./ac.
Crop: Wheat (Rabi).

Site: Regional Training Institute, Gazipur.

Ref: U.P. 53 (329).

Type: ‘M’.

Object: To study the effects of N and P₂O₅ fertilizers applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 1, 2.11.1953. (iv) (a) 2 ploughings. (b) Line sowing behind the plough. (c) N.A. (d) —. (e) —. (v) Nil. (vi) Nil. (vii) Irrigated. (viii) Nil. (ix) 23.11. (x) 18, 19.3.1954.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
   (2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
   A/S broadcasted. P₂O₅ placed in 4" deep bands at 9" apart; about 1" to 2" below the seed. Manures applied on 31.10.1953 and 1.11.1953.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 25'x42'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Germination satisfactory. Heavy rains affected the plots of N₂P₂ and N₂P₁, which occurred in the third week of February 1954 and caused lodging in few plots. (ii) Rat damage in some plots. (iii) Yield of grain and straw. (iv) 1953 — N.A. (b) N.A. (c) Nil. (v) (a) Phoolbagh, Mathota, Tissuhi, Atarra and Raya. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
   (i) 1550 lb./ac.
   (ii) 205.65 lb./ac.
   (iii) Only N effect is highly significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of any marginal mean = 48.47 lb./ac.
S.E. of body of table = 83.96 lb./ac.

Crop: Wheat (Rabi).

Site: Regional Res. Stn., Hardoi.

Ref: U.P. 53(5).

Type: ‘M’.

Object: To study the effect of fertilizer placement on growth and yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Moong. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 10.10.1953. (iv) (a) 6 ploughings. (b) Behind desi plough. (c) 20-25 seers/ac. (d) N.A. (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) 9.4.1954.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 fertilizers: M₁ = A/S at 60 lb./ac. of N, M₂ = Super at 50 lb./ac. of P₂O₅, M₃ = Pot. sulphate at 40 lb./ac. of K₂O and M₄ = Gypsum at 60 lb./ac. of CaO.
   (2) 3 methods of application: A₁ = By broadcast, A₂ = Placement behind plough in furrows and A₃ = Drilled mixed with seed through improved seed drill.
3. DESIGN:
(i) 3x4 Fact. in R.B.D. (ii) (a) 12 (3 flanks of 4 plots each). (b) N.A. (iii) 3. (iv) (a) 36x30'. (b) 33x27'. (v) 1.5x1.5'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1953—continued. (b) No. (c) No. (v) (a) Banda, Partapgarh, Fizabad and Luckn.w. (vi) Crop failed due to untimely rains in winter. Grain shriveled due to Westerly winds in March. (vii) Conducted by C.P. (R).

5. RESULTS:
(i) 899 lb./ac.
(ii) 198.40 lb./ac.
(iii) Only M effect is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of marginal mean of M = 66.13 lb./ac.
S.E. of marginal mean of A = 57.27 lb./ac.
S.E. of body of table = 114.55 lb./ac.

Crop :—Wheat (Rabi).
Site :—Govt. Agri. Farm, Kalai.
Object :—To study the effect of N and P2O5 applied alone and in combination on the yield of Wheat.
Ref :—U.P. 49(21).
Type :—'M'.

1. BASAL CONDITIONS .
(i) (a) to (c) N.A. (ii) (a) Light loam (Aligarh T2) (b) N.A. (iii) 18.10.1949. (iv) (a) to (c) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 9.4.1950.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: N0=0, N1=30 and N2=60 lb./ac.
(2) 3 levels of P2O5 as Single Super: P0=0, P1=60 and P2=120 lb./ac.
N top dressed, P2O5 applied 3' to 4' deep in furrows on 17.10.1949.

3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1949 to 1952. (b) N.A. (c) N.A. (v) (a) Atarra, Kanpur, Banaras, Partapgarh, Bharari and Nawabganj. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1732 lb./ac.
(ii) 337.36 lb./ac.
(iii) N and P effects are highly significant. Interaction is not significant.
Av. yield of grain in lb./ac.

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S.E. of any marginal mean = 79.5 lb./ac.
S.E. of body of table = 137.7 lb./ac.

Crop: Wheat (Rabi).
Ref: U.P. 50(61).
Type: 'M'.

Object: To study the effect of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam (Allgarh Type 3). (b) N.A. (iii) 26.10.1950. (iv) (a) Seed bed prepared after 5 ploughings followed by levelling. (b) In lines by seed drill. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 18.4.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
   (2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
   A/S was broadcast, Super was applied through pre-drilling it in bands near the root zone (4" to 5" deep) on 25, 26.10.1950.

3. DESIGN:
   (i) 3x3 Fact. in R B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/40 acre. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) No. (iii) Grain yield. (iv) (a) 1949 to 1952. (b) No. (c) N.A. (v) (a) Kalyanjpur, Atarra, Allgarh, Banaras, Partapgarh, Nawabganj and Bharari. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 835 lb./ac.
   (ii) 85.32 lb./ac.
   (iii) All effects are highly significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of any marginal mean = 20.11 lb./ac.
S.E. of body of table = 34.83 lb./ac.
Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Kalai.

Object: To study the effects of N and P fertilizers, alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
(i) No. (b) Jowar. (c) NA. (ii) Loam. (b) NA. (iii) 16.11.1951. (iv) (a) 5 initial ploughings with a desi plough, finally 1 harrowing. (b) Seed drill. (c) 50 seers/ac. (d) and (e) NA. (v) Nil. (vi) Ph. 591 (med). (vii) Irrigated. (viii) NA. (ix) NA. (x) 9, 10.4.1952.

TREATMENTS:
All cominations of (1) and (2).
(1) 3 levels of N as A/S: N0 =0, N1 =30 and N2 =60 lb./ac.
(2) 3 levels of P2O5 as Super: P0 =0, P1 =60 and P2 =120 lb./ac.
A/S was broadcast and Super placed deep in bands near the root zone by fertiliser drill and then pata applied on 15.11.1951.

DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) 9. (b) N.A. (iii) 6. (iv) (a) NA; (b) 1949 x 26’ (v) NA. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1949 to 1952. (b) NA. (v) (a) Kalyanpur, Raya, Tishli, Partapgarh, Atarra, Bharari, and Matkota. (b) NA. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 744.6 lb./ac.
(ii) 129.8 lb./ac.
(iii) All the effects are highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of any marginal mean =30.59 lb./ac.
S.E. of body of table =52.99 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Kalai.

Object: To study the effect of N and P fertilizers alone and in combination on yield of crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Moong (failed). (c) Failure of these crops left behind high fertility. (ii) (a) Loam. (b) NA. (iii) 30.10.1952. (iv) (a) Palewa and 1 ploughing with soil turning plough and 6 ploughings with desi plough. (b) Behind the plough. (c) to (e) NA. (v) Nil. (vi) NA. (vii) Irrigated. (viii) NA. (ix) NA. (x) 3, 4.4.1953.

2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 levels of N as A/S: N0 =0, N1 =30 and N2 =60 lb./ac.
(2) 3 levels of P2O5 as single super: P0 =0, P1 =60 and P2 =120 lb./ac.
A/S was applied as surface dressing by broadcast. P2O5 was placed in bands 4' deep near the root zone with the help of fertiliser drill attached to a plough on 22.10.1952.
3. DESIGN:
(i) 3 x 3 Fact. in R.B.D.  (ii) (a) 9.  (b) N.A.  (iii) 6.  (iv) (a) and (b) 40.33' x 27'  (v) Nil.  (vi) Yes.

4. GENERAL:
(i) Very good.  (ii) Nil.  (iii) Grain and straw yield.  (iv) (a) 1949 to 1952.  (b) Yes.  (c) N.A.  (v) (a)  Pura, Bharrari, Banaras, Tissubi, Matkota, Raya, Atarra and Farrukhabad.  (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1802 lb./ac.
(ii) 158.0 lb./ac.
(iii) All effects are highly significant.
(iv) Av. Yield of grain in lb./ac.

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S.E. of any marginal mean = 37.24 lb./ac.
S.E. of body of table = 64.50 lb./ac.

Ref: U.P. 53(352).
Type: 'M'.

Object: To study the effect of Super and B.M. applied at deep placement with and without N on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Mixed fodder.  (c) Nil.  (ii) (a) Aligarh type 2.  (b) N.A.  (iii) 2.11.1953.  (iv) (a) 6 ploughings, one additional ploughing for drilling of the fertilizers, 1 harrowing.  (b) Drilling.  (c) to (e) N.A.  (v) Nil.  (vi) N.A.  (vii) Irrigated.  (viii) Nil.  (ix) 4.57'.  (x) 8.4.1953.

2. TREATMENTS:
Main-plot treatments:
2 levels of N as A/S: N0=30 and N1=30 lb./ac.

Sub-plot treatments:
5 applications of P2O5: P0=0, P1=60 lb./ac. of P2O5 as Super, P2=60 lb./ac. of P2O5 as B.M., P3=120 lb./ac. of P2O5 as super and P4=120 lb./ac. of P2O5 as B.M.

A/S broadcast P placed in 4" deep bands at 9" apart on 1.11.1953.  P about 1" to 2" below the seed.

3. DESIGN:
(i) Split plot.  (ii) (a) 2 main-plots/replication and 5 sub-plots/main-plot.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 72.7' x 15'.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) Germination—satisfactory.  Crop normal.  Some plots lodged due to adverse weather conditions during February, March.  (ii) N.A.  (iii) Yield of grain and bhassa.  (iv) (a) 1952—1953.  (b) N.A.  (c) Nil.  (v) (a) Matkota and Banaras.  (b) —.  (vi) Nil.  (vii) Expt. conducted by A.C.  Data for 1952 N.A.

5. RESULTS:
(i) 1417 lb./ac.
(ii) (a) 221.3 lb./ac.
(b) 235.2 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. N marginal means $= 70.61$ lb./ac.
2. P marginal means $= 117.62$ lb./ac.
3. P means at the same level of N $= 165.34$ lb./ac.
4. N means at the same level of P $= 164.70$ lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Kalai.

Object: To study the effect of N, P and K, fertilizers alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) Aligarh type 2. (b) N.A. (iii) 30.10.1953. (iv) (a) 9 ploughings followed by Pata. 1 more ploughing for fertilizer drilling. (b) Drilling. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 4.57'. (x) 8.4.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3)
1. 2 levels of N as A/S: $N_0 = 0$ and $N_1 = 30$ lb./ac.
2. 2 levels of $P_0$ as Super: $P_0 = 0$ and $P_1 = 60$ lb./ac.
3. 3 levels of $K_2O$ as Pot.Sul: $K_0 = 0$, $K_1 = 60$ and $K_2 = 120$ lb./ac.

A/S broadcast. P placed in 4" deep bands at 9" apart. P is about 1" to 2" below the seed. Potash applied as deep placement with phosphate. Manures applied on 29.10.1953.

3. DESIGN:
(i) $3 \times 2 \times 2$ partially balanced. (ii) (a) 2 blocks/repetition and 6 plots/block. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 41' x 264'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Crop progressed well upto February and March 1954 and then was damaged due to abnormal weather conditions. Heavy showers and strong winds caused partial lodging. (ii) Attack of rust resulting in shriveling of the grain. (iii) Yield of grain and biomass. (iv) (a) 1953 – 1954. (b) N.A. (c) Nil. (v) (a) Bharari, Matkota, Banaras and Pura. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1506 lb./ac.
(ii) 57.96 lb./ac.
(iii) Main effect of N, P and K and interactions NK, FK are highly significant other effects are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of marginal means of N or P $= 11.83$ lb./ac.
S.E. of marginal means of K $= 14.49$ lb./ac.
S.E. of body of $N \times P$ table $= 16.73$ lb./ac.
S.E. of body of $N \times K$ or $P \times K$ table $= 20.49$ lb./ac.
Crop: Wheat (Rabi).

Site: Govt. Agri. Res. Farm, Kalyanpur.

Ref: U.P. 49(22).

Type: 'M'.

Object:—To study the effect of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Loam (Kanpur T3). (b) N.A. (iii) 25.10.1949 Resown on 12.11.1949. (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 7, 8.4.1950.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of N as A/S: N0 = 0, N1 = 30 and N2 = 60 lb./ac.

(2) 3 levels of P2O5 as super: P0 = 0, P1 = 60 and P2 = 120 lb./ac.

A/S was top dressed, P2O5 was placed in deep (3"—4") furrows on 24.10.1949.

3. DESIGN:

(i) 3 x 3 F.A.C. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 57.5' x 19'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Severe hail storm resulted in heavy damage to the crop. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1951. (b) N.A. (c) N.A. (v) (a) Atarra, Kalai, Baranars, Partapgarh, Bharati and Nawabganj. (b) N.A. (vi) Just after sowing there were heavy rains—hence poor germination. So it was resown. (vii) The experiment was conducted by A.C.

5. RESULTS:

(i) 2059 lb./ac.

(ii) 167.9 lb./ac.

(iii) None of the effects is significant.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>1980</td>
<td>2060</td>
<td>1987</td>
<td>2009</td>
</tr>
<tr>
<td>N1</td>
<td>2114</td>
<td>2153</td>
<td>2166</td>
<td>2111</td>
</tr>
<tr>
<td>N2</td>
<td>2146</td>
<td>1940</td>
<td>2080</td>
<td>2055</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 39.57 lb./ac.

S.E. of body of table = 68.54 lb./ac.
5. RESULTS:
(i) 1176 lb./ac.
(ii) 269.4 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>808</td>
<td>668</td>
<td>741</td>
<td>739</td>
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<td>N₁</td>
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<tr>
<td>N₂</td>
<td>1535</td>
<td>1509</td>
<td>1589</td>
<td>1544</td>
</tr>
<tr>
<td>Mean</td>
<td>1184</td>
<td>1131</td>
<td>1213</td>
<td>1176</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 63.49 lb./ac.
S.E. of body of table    = 169.97 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Res. Farm, Kalyanpur.

Object :- To study the effects of N and P fertilizers, alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) Maize. (c) N.A.  (ii) (a) Loam. (b) N.A.  (iii) 7.11.1951.  (iv) (a) 3 ploughings with Watt's plough followed by levelling each time. Finally sown by levelled. (b) seed drill. (c) to (e) N.A.  (v) C-13 (early).  (vi) Irrigated.  (vii) One interculture.  (ix) N.A.  (x) 10.4.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
(2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
A/S was broadcast and P₂O₅ was placed deep in bands near the root zone through a fertilizer drill and pata applied on 5, 6.11.1951.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D.  (ii) 9. (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 37.5' × 29'.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) Average.  (ii) No.  (iii) Grain yield.  (iv) (a) 1949 to 1953.  (b) No.  (c) N.A.  (v) (a) Kalai, Raya, Tisubhi, Parapargh, Atarra, Bharri and Matkota. (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 955 lb./ac.
(ii) 247.0 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>647</td>
<td>541</td>
<td>641</td>
<td>610</td>
</tr>
<tr>
<td>N₁</td>
<td>968</td>
<td>1035</td>
<td>1041</td>
<td>1015</td>
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<tr>
<td>N₂</td>
<td>1248</td>
<td>1242</td>
<td>1235</td>
<td>1242</td>
</tr>
<tr>
<td>Mean</td>
<td>954</td>
<td>939</td>
<td>972</td>
<td>955</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 58.23 lb./ac.
S.E. of body of table    = 100.9 lb./ac.
Crop : Wheat (Rabi).
Site : Govt. Agri. Res. Farm, Kalyanpur.
Object : To study the effect of rare elements on the yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) 4.11.1952. (iv) (a) 1 victory plough, 1 watts plough, 1 pata, 3 desi plough, 1 spring harrow, 6 times patta and one ploughing with cultivator plough. (b) N.A. (c) 17.5 lb./ac. (d) and (e) N.A. (v) 30 lb./ac. of N as A/S+15 lb./ac. of P2O5 as Super+15 lb./ac. of K2O as Pot. Sul, applied 3 days before sowing. (vi) C-13 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 21.4.1953.

2. TREATMENTS :
   1. Control.
   2. Molybdic Acid at 6 lb./ac. of Mo.
   3. Copper Sulphate at 6 lb./ac. of Cu.
   4. Commercial Borax at 1 lb./ac. of B.
   5. Gypsum at 30 lb./ac. of Ca.
   6. Zinc Sulphate at 4 lb./ac. of Zn.

   Treatments applied 1 day before sowing.

3. DESIGN :
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) 47' x 29'. (b) 43' x 25'. (v) 2' alround. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) Nil. (iii) Grain and straw yield. (iv) (a) and (b) No. (c) N.A. (v) (a) Jhansi and Lucknow. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS :
   (i) 1306 lb./ac.
   (ii) 115.69 lb./ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1489</td>
</tr>
<tr>
<td>2.</td>
<td>1291</td>
</tr>
<tr>
<td>3.</td>
<td>1279</td>
</tr>
<tr>
<td>4.</td>
<td>1141</td>
</tr>
<tr>
<td>5.</td>
<td>1282</td>
</tr>
<tr>
<td>6.</td>
<td>1357</td>
</tr>
</tbody>
</table>

   S.E./mean = 57.84 lb./ac.

---

Crop : Wheat (Rabi).
Site : Govt. Agri. Res. Farm, Kalyanpur.
Object : To study the effect of doses of trace elements in presence of adequate N, P, K and Calcium on yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) Legume and Cereal. (b) Lablab. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 31.10.1953. (iv) (a) 5 ploughings followed by pata. (b) Sz, 3 sri. (c) 20-25 sri./ac. (d) and (e) N.A. (v) 15 lb./ac. of P2O5 as Super to be placed 3"-4" deep in furrows behind the plough while preparing the field. A/S at 60 lb./ac. of N as surface dressing 4-5 days before sowing and application of gypsum at 30 lb./ac. as surface dressing to be done 2 days before sowing. (vi) C-13. (vii) Irrigated. (viii) Interculturing with cultivator on 2.12.1953. (ix) N.A. (x) 22.4.1954.
2. TREATMENTS:

1. Control.
2. 3 lb./ac. of Copper.
3. 6 lb./ac. of Copper.
4. 12 lb./ac. of Copper.
5. 1 lb./ac. of Boron.
6. 2 lb./ac. of Boron.
7. 4 lb./ac. of Boron.
8. 1 lb./ac. of Zinc.
9. 4 lb./ac. of Zinc.
10. 10 lb./ac. of Zinc.

Copper as Copper Sulphate, Boron as Borax and Zinc as Zinc Sulphate mixed with fine dry earth as surface dressing a day before sowing and applied on 30.10.1953.

3. DESIGN:

(i) R.B.D. (ii) (a) 10, (b) N.A. (iii) 3. (iv) (a) 46'×26', (b) 43'×23', (v) 1.5' around. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Slightly damaged by rats. (iii) Germination, sq. yd., grain and straw yield. (iv) (a) 1953—1956. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Borax plots appeared to be better when judged in 1st week of March and these plots have given better yield also. (vii) The experiment was conducted by C.P.(R).

5. RESULTS:

(i) 1584 lb./ac.
(ii) 228.9 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1674</td>
<td>6.</td>
<td>1806</td>
</tr>
<tr>
<td>2.</td>
<td>1651</td>
<td>7.</td>
<td>1699</td>
</tr>
<tr>
<td>3.</td>
<td>1593</td>
<td>8.</td>
<td>1608</td>
</tr>
<tr>
<td>4.</td>
<td>1357</td>
<td>9.</td>
<td>1551</td>
</tr>
<tr>
<td>5.</td>
<td>1346</td>
<td>10.</td>
<td>1553</td>
</tr>
</tbody>
</table>

S.E./mean = 132.2 lb./ac.

Crop:-Wheat (Rabi).

Site:-Govt. Agri. Res. Farm, Kalyanpur.

Object:-To study the effect of heavy applications of Phosphatic fertilizers in a rotation on the yield of crops.

1. BASAL CONDITIONS:

(i) (a) Wheat-Moong. (b) Moong. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 15.10.1952. (iv) (a) to (e) N.A. (v) Green manuring by Moong in 2nd week of September+30 lb./ac. of N as A/S; (vi) N.A.; (vii) N.A. (viii) N.A. (ix) N.A. (x) 29.3.1953.

2. TREATMENTS:

Application of P$_2$O$_5$ as Super in lb./ac. to wheat during

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>120</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2.</td>
<td>60</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3.</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>4.</td>
<td>240</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5.</td>
<td>120</td>
<td>—</td>
<td>120</td>
<td>—</td>
</tr>
<tr>
<td>6.</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>7. Control</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

P$_2$O$_5$ placed deep in furrows on 14.10.1952.

3. DESIGN:

(i) R.B.D. (ii) 7. (b) 44'×191.25', (iii) 6. (iv) (a) and (b) 44'×24.75'. (v) Nil. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1952 to 1956. (b) Yes. (c) Nil. (v) (a), (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 1262 lb./ac.
(ii) 202.8 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+5</td>
<td>1383</td>
</tr>
<tr>
<td>2+6</td>
<td>1350</td>
</tr>
<tr>
<td>3</td>
<td>1347</td>
</tr>
<tr>
<td>4</td>
<td>1193</td>
</tr>
<tr>
<td>7</td>
<td>827</td>
</tr>
<tr>
<td>S.E./mean of 1+5 or 2+6</td>
<td>=58.55 lb./ac.</td>
</tr>
<tr>
<td>S.E./mean of 3, 4 or 7</td>
<td>=82.80 lb./ac.</td>
</tr>
</tbody>
</table>

Crop := Wheat (Rabi).

Site := Govt. Agri. Res. Farm, Kalyanpur.

Object := To study the effect of heavy applications of Phosphatic fertilizers in a rotation on the yield of crops.

1. BASAL CONDITIONS:
   (i) (a) Wheat-Moong. (b) Moong. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 30.10.1953. (iv) (a) 1 ploughing by victory plough, 1 harrowing by Spring harrow, 2 patar; and 1 cultivator. All the clods were crushed by clod crusher, weeds taken out, 2 ploughings by desi plough. (b) to (c) N.A. (v) G.M. by Moong on 8.9.1953. (vi) N.A. (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) 4, 5.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Application of $P_2O_5$ as Super in lb./ac. to Wheat crop during 1952-53</th>
<th>1953-54</th>
<th>1954-55</th>
<th>1955-56</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 120</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. 60</td>
<td>—</td>
<td>60</td>
<td>—</td>
</tr>
<tr>
<td>3. 30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>4. 240</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. 120</td>
<td>—</td>
<td>120</td>
<td>—</td>
</tr>
<tr>
<td>6. 60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>7. Control</td>
<td>Control</td>
<td>Control</td>
<td>Control</td>
</tr>
</tbody>
</table>

$P_2O_5$ placed deep in furrows on 29.10.1953.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) 44'x191.25'. (iii) 6. (iv) (a) and (b) 44'x24.75'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Stand and growth good. (ii) Crop badly attacked by rats. (iii) Yield of grain and straw. (iv) (a) 1952—1955. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS:
   (i) 449.3 lb./ac.
   (ii) 252.4 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+6</td>
<td>371.0</td>
</tr>
<tr>
<td>2</td>
<td>512.0</td>
</tr>
<tr>
<td>3</td>
<td>482.0</td>
</tr>
<tr>
<td>4</td>
<td>503.3</td>
</tr>
<tr>
<td>5</td>
<td>494.7</td>
</tr>
<tr>
<td>7</td>
<td>411.3</td>
</tr>
<tr>
<td>S.E./mean of 1+6</td>
<td>= 72.86 lb./ac.</td>
</tr>
<tr>
<td>S.E. of other treatment means</td>
<td>=103.03 lb./ac.</td>
</tr>
</tbody>
</table>

Ref := U.P. 53(419). Type := 'M'.
Crop: Wheat (Rabi).
Site: Govt. Dairy Farm, Kanpur.

Ref: U.P. 48(40).
Type: 'M'.

Object: To study the effect of Super applied at different depths to Wheat.

1. BASAL CONDITIONS:
(i) (a) Wheat-Jowar fodder. (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 21.10.1948. (iv) (a) N.A. (b) N.A. (c) 50 seers/ac. (d) N.A. (e) N.A. (f) Nil. (v) C 13-(early). (vi) N.A. (vii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2) + one Control (no manure)
(1) 2 levels of $P_2O_5$ as Super: $P_1$ = 125 and $P_2$ = 250 lb./ac.
(2) 3 methods of application of $P_2O_5$: $M_1$ = Applied on surface, $M_2$ = Applied 2" deep and $M_3$ = Applied 4" deep.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 52'x21'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1947—1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Control</th>
<th>1616 lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M_1$</td>
</tr>
<tr>
<td>$P_1$</td>
<td>1556</td>
</tr>
<tr>
<td>$P_2$</td>
<td>1536</td>
</tr>
<tr>
<td>Mean</td>
<td>1546</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of $M$ = 62.42 lb./ac.
S.E. of marginal mean of $P$ = 50.97 lb./ac.
S.E. of body of table = 88.28 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Dairy Farm, Kanpur.

Ref: U.P. 49(90)/48(40).
Type: 'M'.

Object: To study the effect of Super applied at different depths to Wheat.

1. BASAL CONDITIONS:
(i) (a) Wheat—Jowar fodder. (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 18.10.1949. (iv) (a) and (b) N.A. (c) 50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C 13-(early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 11.4.1950.

2. TREATMENTS:
All combinations of (1) and (2) + a Control (no manure)
(1) 2 levels of $P_2O_5$ as Super $P_1$ = 125 and $P_2$ = 250 lb./ac.
(2) 3 methods of application of $P_2O_5$: $M_1$ = Applied on surface, $M_2$ = Applied 2½" deep and $M_3$ = Applied 4½" deep.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 52'x21'. (v) N.A. (vi) Yes.
GENERAL:
(i) Much below average. (ii) No. (iii) Grain yield. (iv) (a) 1947 to 1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.

RESULTS:
(i) 548.2 lb./ac. (ii) 92.35 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield (lb./ac.)</th>
<th>S.E./mean (lb./ac.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>514.2</td>
<td>92.0</td>
</tr>
<tr>
<td>P₁</td>
<td>736.1</td>
<td>705.8</td>
</tr>
<tr>
<td>P₂</td>
<td>786.5</td>
<td>473.9</td>
</tr>
<tr>
<td>Mean</td>
<td>645.3</td>
<td>615.6</td>
</tr>
</tbody>
</table>


Object: To study the relative efficiency of different manures on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Wheat-Jowar fodder. (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 23.10.1948. (iv) (a) and (b) N.A. (c) 50 lb./ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control.
2. 50 lb./ac. of N as castor cake.
3. 50 lb./ac. of N as G.N.C.
4. 50 lb./ac. of N as A/S.
5. 50 lb./ac. of N as cowdung manure.
6. 25 lb./ac. of N as A/S + 25 lb./ac. of N as castor cake.
7. 25 lb./ac. of N as A/S + 25 lb./ac. of N as G.N.C.
8. 25 lb./ac. of N as A/S + 25 lb./ac. of N as cowdung manure.

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) 40' x 27'. (v) No. (vi) Yes.

4. GENERAL:
(i) Germination was bad on account of less moisture in the field at the time of sowing. Growth normal except in Block No. 2. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.

5. RESULTS:
(i) 616.6 lb./ac. (ii) 184.0 lb./ac. (iii) Treatments are not significantly different. (iv) Av. yield of grain in lb./ac.

S.E./mean = 92.0 lb./ac.
Crop: Wheat (Rabi).

Site: Govt. Dairy Farm, Kanpur.

Ref: U.P. 48(32)/48(35).

Object: To study the relative efficiency of different N manures on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Wheat-Jowar fodder. (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 20.10.1949.
   (iv) (a) and (b) N.A. (c) 50 seers/acre. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 11.4.1950.

2. TREATMENTS:
   1. Control. 5. 50 lb./acre of N as cowdung manure.
   2. 50 lb./acre of N as castor cake. 6. 25 lb./acre of N as A/S and 25 lb./acre of N as castor cake.
   3. 50 lb./acre of N as G.N.C. 7. 25 lb./acre of N as A/S plus 25 lb./acre of N as G.N.C.
   4. 50 lb./acre of N as A/S. 8. 25 lb./acre of N as A/S plus 25 lb./acre of N as cowdung manure.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) 40' x 27'. (v) No. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 661.8 lb./acre.
   (ii) 196.4 lb./acre.
   (iii) Treatments are not significantly different.
   (iv) Av. yield of grain in lb./acre.
   Treatment | Av. yield | Treatment | Av. yield
   1. | 436.6 | 5. | 573.7
   2. | 665.5 | 6. | 668.5
   3. | 605.0 | 7. | 809.7
   4. | 704.8 | 8. | 830.9
   S.E./mean = 98.2 lb./acre.

Crop: Wheat (Rabi).

Site: Govt. Dairy Farm, Kanpur.

Ref: U.P. 48(34).

Object: To find the effect of P₂O₅ applied to leguminous crops and its residual effect on the yield of Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 22.10.1948. (iv) (a) to (e) N.A. (v) Nil. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. 100 lb./acre of P₂O₅ as Super.
   2. 100 lb./acre of P₂O₅ as Ammo. Phos.
   3. 100 lb./acre of P₂O₅ as Bone Super.
   4. 75 lb./acre of P₂O₅ as Super plus 25 lb./acre of P₂O₅ as Ammo. Phos.
   5. 75 lb./acre of P₂O₅ as Super plus 25 lb./acre of P₂O₅ as Bone Super.
   6. Control.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) and (b) 1/40 acre. (v) No. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1948. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.
5. RESULTS:
(i) 1549 lb./ac.
(ii) 360.36 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1549</td>
</tr>
<tr>
<td>2.</td>
<td>1536</td>
</tr>
<tr>
<td>3.</td>
<td>1525</td>
</tr>
<tr>
<td>4.</td>
<td>1527</td>
</tr>
<tr>
<td>5.</td>
<td>1529</td>
</tr>
<tr>
<td>6.</td>
<td>1527</td>
</tr>
</tbody>
</table>
S.E./mean = 161.16 lb./ac.

Object:—To study the effects of ploughing stubbles of leguminous crops on the yield of Wheat as compared to fallow and green manuring with Sanai.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) As per treatments. (c) No. (ii) (a) Loam. (b) N.A. (iii) 29.10.1948. (iv) (a) to (e) N.A. (v) N.A. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 29.3.1949.

2. TREATMENTS:
1. Sanai for green manuring sown at 1 md./ac. and ploughed in on 7, 8.8.1948.
2. Guar cut for fodder, sown at 25 srs./ac.
3. Jowar cut for fodder, sown at 25 srs./ac.+50 lb./ac. of N as F.Y.M. applied from 6 to 8.8.1948.
4. Fallow during Kharif+50 lb./ac. of N as F.Y.M. applied from 6 to 8.8.1948.

3. DESIGN:
(i) L. Sq. (ii) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 66’x33’. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) and (b) No. (c) Nil. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1830 lb./ac.
(ii) 157.6 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1959</td>
</tr>
<tr>
<td>2.</td>
<td>1845</td>
</tr>
<tr>
<td>3.</td>
<td>1625</td>
</tr>
<tr>
<td>4.</td>
<td>1900</td>
</tr>
</tbody>
</table>
S.E./mean = 78.8 lb./ac.

Object:—To study the manurial value of coconut oil cake for Wheat.
2. TREATMENTS:
4 doses of N: $N_0 = 0$, $N_1 = 25$, $N_2 = 50$ and $N_3 = 75$ lb./ac.
N applied as coconut oil cake containing 3½% N on 30.12.1948.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) $37\times15\text{'}$. (b) $34\times13\text{'}$. (v) $1\text{'}\times1\text{'}$. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Yield of grain and blast. (iv) (a) 1948 to 1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1183 lb./ac.
(ii) 104.8 lb./ac.
(iii) Treatments are not significantly different.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>1129</td>
</tr>
<tr>
<td>$N_1$</td>
<td>1248</td>
</tr>
<tr>
<td>$N_2$</td>
<td>1178</td>
</tr>
<tr>
<td>$N_3$</td>
<td>1178</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>42.80 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Ref: U.P. 49(31).
Type: 'M'.

Object:—To study the manurial value of coconut oil cake for Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai for G.M. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 8.11.1949. (iv) (a) Ploughing and harrowing—1 with victory plough, 1 with cultivator and 5 with desi plough. (b) N.A. (c) 100 lb./ac. (d) and (e) N.A. (v) 5 mds. of G.N.C. (vi) NP—125 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 20, 21.4.1950.

2. TREATMENTS:
4 levels of N: $N_0 = 0$, $N_1 = 25$, $N_2 = 50$ and $N_3 = 75$ lb./ac.
N applied as coconut oil cake containing 3½% N on 30.12.1948.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) $42\times12\text{'}$. (b) $39\times11\text{'}$. (v) $1\text{'}\times1\text{'}$. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Moderate late infection of Orange rust. Postules reaching a little below the collar. Black rust in traces only. (iii) Yield of fresh and dry grain. (iv) (a) 1948 to 1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
(i) 2572 lb./ac.
(ii) 2442 lb./ac.
(iii) Treatments are not significantly different.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>2504</td>
</tr>
<tr>
<td>$N_1$</td>
<td>2685</td>
</tr>
<tr>
<td>$N_2$</td>
<td>2500</td>
</tr>
<tr>
<td>$N_3$</td>
<td>2601</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>99.68 lb./ac.</td>
</tr>
</tbody>
</table>
Object:—To study the effect of different methods of application of Super on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Wheat-Jowar fodder. (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 7, 8.11.1950, (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 30.4.1951 to 1.5.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 applications of P₂O₅ : P₀ = 0, P₁ = 100 lb./ac. of P₂O₅ broadcast, P₂ = 100 lb./ac. of P₂O₅ applied in furrows by victory plough and P₃ = 100 lb./ac. of P₂O₅ applied by seed drill.
   (2) 2 levels of N as A/S : N₀ = 0 and N₁ = 50 lb./ac.

3. DESIGN:
   (i) 4×2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 35′×20′.9. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1950 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 2071 lb./ac.
   (ii) 412.2 lb./ac.
   (iii) Only N effect is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>2015</td>
<td>1742</td>
<td>2017</td>
<td>1597</td>
<td>1858</td>
</tr>
<tr>
<td>N₁</td>
<td>2039</td>
<td>2385</td>
<td>2402</td>
<td>2309</td>
<td>2284</td>
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<tr>
<td>Mean</td>
<td>2047</td>
<td>2064</td>
<td>2210</td>
<td>1953</td>
<td>2071</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N = 92.2 lb./ac.
S.E. of marginal mean of P = 130.3 lb./ac.
S.E. of body of table = 184.3 lb./ac.

Reference:
Ref.: U.P. 51(119).
Type: 'M'.
Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To study the effect of different methods of application of Super on Wheat.

1. BASAL CONDITIONS:

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 applications of \( P_2O_5 \): \( P_0=0, P_1=100 \) lb./ac. of \( P_2O_5 \) broadcast, \( P_2=100 \) lb./ac. of \( P_2O_5 \) applied in furrows by victory plough and \( P_3=100 \) lb./ac. of \( P_2O_5 \) by seed drill.
   (2) 2 levels of N as A/S: \( N_0=0 \) and \( N_1=50 \) lb./ac.

3. DESIGN:
   (i) 4x2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 31'x20'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1950 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 2168 lb./ac.
   (ii) 535.9 lb./ac.
   (iii) Only N effect is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( P_3 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( N_0 )</td>
<td>1877</td>
<td>1758</td>
<td>2122</td>
<td>2067</td>
</tr>
<tr>
<td>( N_1 )</td>
<td>2489</td>
<td>2410</td>
<td>2200</td>
<td>2424</td>
</tr>
<tr>
<td>Mean</td>
<td>2183</td>
<td>2084</td>
<td>2161</td>
<td>2146</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N     = 84.7 lb./ac.
S.E. of marginal mean of P     = 169.5 lb./ac.
S.E. of body of table          = 239.7 lb./ac.
Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of different methods of application of Super on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Wheat—Jowar fodder. (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 9.11.1953. (iv) (a) and (b) N.A. (c) 50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14.4.1954.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 applications of P<sub>1</sub>O<sub>5</sub>: P<sub>0</sub> = 0, P<sub>1</sub> = 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> broad-ax, P<sub>2</sub> = 100 lb./ac. of P<sub>3</sub>O<sub>5</sub> applied in furrows by victory plough and P<sub>3</sub> = 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> by seed drill.
   (2) 2 levels of N as A/S: N<sub>0</sub> = 0 and N<sub>1</sub> = 50 lb./ac.

Manures applied on 9.11.1953 before sowing.

3. DESIGN:
   (i) 4 x 2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 31' x 20'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) No. (iii) Grain yield. (iv) (a) 1953 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.

5. RESULTS:
   (i) 1728 lb./ac.
   (ii) 314.8 lb./ac.
   (iii) Only N effect is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P&lt;sub&gt;0&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N&lt;sub&gt;0&lt;/sub&gt;</td>
<td>1255</td>
<td>1305</td>
<td>1315</td>
<td>1385</td>
<td>1315</td>
</tr>
<tr>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>2151</td>
<td>2193</td>
<td>2035</td>
<td>2184</td>
<td>2141</td>
</tr>
<tr>
<td>Mean</td>
<td>1703</td>
<td>1749</td>
<td>1675</td>
<td>1784</td>
<td>1728</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N = 74.88 lb./ac.
S.E. of marginal mean of P = 105.88 lb./ac.
S.E. of body of table = 149.74 lb./ac.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1943 to 1949. (b) Yes. (c) N.A. (v) (a) Kalyanpur (b) N.A. (vi) Nil. (vii) The exp. was conducted by Agri. chemist. Not conducted during 1944.

5. RESULTS:
(i) 1205 lb./ac.
(ii) 99.27 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1992</td>
</tr>
<tr>
<td>2</td>
<td>1277</td>
</tr>
<tr>
<td>3</td>
<td>1126</td>
</tr>
<tr>
<td>4</td>
<td>1126</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>49.64 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Wheat (Rabi).
Site: - Govt. Res. Farm, Kanpur.
Object: - To test the effect of growing a leguminous crop and ploughing in as against a non-leguminous crop and fallow during Kharif.

1. BASAL CONDITIONS:
(i) (a) to (c) As under treatments. (ii) (a) Loam. (b) N.A. (iii) 21.10.1949. (iv) (a) to (e) N.A. (v) Nil. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 10, 24, 25.4.1950.

2. TREATMENTS:
1. Sanai for green manuring, seed rate 4 srs./ac.
2. Guar for fodder, seed rate 25 srs./ac.
3. Jowar for fodder and seed rate 25 srs./ac. + 50 lb./ac. of N as F.Y.M.
4. Fallow + 50 lb./ac. of N as F.Y.M.
Date of sowing = 17.6.1949, date of harvest = 10.8.1949 and Sanai turned out = 12.8.1949.

3. DESIGN:
(i) L. Sq. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36 1/2 X 20. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1943 to 1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 877.6 lb./ac.
(ii) 193.4 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>857.7</td>
</tr>
<tr>
<td>2</td>
<td>833.7</td>
</tr>
<tr>
<td>3</td>
<td>931.3</td>
</tr>
<tr>
<td>4</td>
<td>887.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>96.7 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Wheat (Rabi).
Site: - Govt. Res. Farm, Kanpur.
Object: - To study the optimum dose of F.Y.M. and compost on the yield of Wheat as compared with A/S.

1. BASAL CONDITIONS:
(i) (a) Wheat - Jowar fodder. (b) Jowar fodder. (ii) (a) Loam. (b) N.A. (iii) 5.10.1948. (iv) (a) and (b) N.A. (c) 50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1.4.1949.
2. TREATMENTS:
1. Control.
2. 100 lb./ac. of N as F.Y.M.
3. 150 lb./ac. of N as F.Y.M.
4. 200 lb./ac. of N as F.Y.M.
5. 100 lb./ac. of N as compost.
6. 150 lb./ac. of N as compost.
7. 200 lb./ac. of N as compost.
8. 50 lb./ac. of N as A/S.

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 29'×25'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1948 to 1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Agri. Chemist.

5. RESULTS:
(i) 2356 lb./ac.
(ii) 209.60 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2208</td>
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<td>2.</td>
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<td>4.</td>
<td>2373</td>
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<tr>
<td>S.E./mean</td>
<td>104.8 lb./ac.</td>
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Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To study the optimum doses of F.Y.M. and compost on the yield of Wheat as compared with A/S.

1. BASAL CONDITIONS:
(i) Wheat-Jowar fodder, (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 23.10.1949. (iv) (a), (b) N.A. (c) 50 sr./ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 10.4.1950.

2. TREATMENTS:
1. Control.
2. 100 lb./ac. of N as F.Y.M.
3. 150 lb./ac. of N as F.Y.M.
4. 200 lb./ac. of N as F.Y.M.
5. 100 lb./ac. of N as Compost.
6. 150 lb./ac. of N as Compost.
7. 200 lb./ac. of N as Compost.
8. 50 lb./ac. of N as A/S.

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 29'×25'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1948 to 1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 2153 lb./ac.
(ii) 519.6 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>Treatment</th>
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<td>S.E./mean</td>
<td>259.8 lb./ac.</td>
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Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To determine a dose of F.Y.M. equivalent to optimum dose of A/S.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Control. 5. 150 lb./ac. of N as F.Y.M.
   2. 50 lb./ac. of N as A/S. 6. 175 lb./ac. of N as F.Y.M.
   3. 100 lb./ac. of N as F.Y.M. 7. 200 lb./ac. of N as F.Y.M.
   4. 125 lb./ac. of N as F.Y.M. 8. 225 lb./ac. of N as F.Y.M.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 29'×25'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1950 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 739.4 lb./ac.
   (ii) 240.41 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment | Av. yield | Treatment | Av. yield
   1. | 1867 | 5. | 1891
   2. | 2508 | 6. | 2110
   3. | 2110 | 7. | 2427
   4. | 2077 | 8. | 2378
   S.E./mean =205.98 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Ref: U.P. 51(117), Type: 'M'.

Object: To determine a dose of F.Y.M. equivalent to optimum dose of A/S.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Control. 5. 150 lb./ac. of N as F.Y.M.
   2. 50 lb./ac. of N as A/S. 6. 175 lb./ac. of N as F.Y.M.
   3. 100 lb./ac. of N as F.Y.M. 7. 200 lb./ac. of N as F.Y.M.
   4. 125 lb./ac. of N as F.Y.M. 8. 225 lb./ac. of N as F.Y.M.
   F.Y.M. applied on 20.10.1951 while A/S on 28.11.1951.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 29'×25'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) No. (iii) Grain yield. (iv) (a) 1950 to 1955. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 739.4 lb./ac.
   (ii) 240.41 lb./ac.
   (iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
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<td>6.</td>
<td>639.9</td>
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<td>3.</td>
<td>629.4</td>
<td>7.</td>
<td>857.7</td>
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<td>4.</td>
<td>555.8</td>
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<td>869.7</td>
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</table>

S.E./mean = 120.2 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To determine a dose of F.Y.M. equivalent to the optimum dose of A/S.

1. BASAL CONDITIONS:
   (i) (a) Wheat-Jowar fodder. (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 15.11.1952. (iv) (a) N.A. (b) N.A. (c) 40 seers/ac. (d) N.A. (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 17.4.1953.

2. TREATMENTS:
   1. Control.
   2. 50 lb./ac. of N as A/S.
   3. 100 lb./ac. of N as F.Y.M.
   4. 125 lb./ac. of N as F.Y.M.
   5. 150 lb./ac. of N as F.Y.M.
   6. 175 lb./ac. of N as F.Y.M.
   7. 200 lb./ac. of N as F.Y.M.
   8. 225 lb./ac. of N as F.Y.M.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36' x 20'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) No. (iii) Grain yield. (iv) (a) 1950 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A. C.

5. RESULTS:
   (i) 1673 lb./ac.
   (ii) 278.96 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
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<td>1691</td>
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<td>2134</td>
<td>6.</td>
<td>1804</td>
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<td>1791</td>
<td>7.</td>
<td>1541</td>
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<tr>
<td>4.</td>
<td>1653</td>
<td>8.</td>
<td>1463</td>
</tr>
</tbody>
</table>

S.E./mean = 139.48 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To determine a dose of F.Y.M. equivalent to the optimum dose of A/S.

1. BASAL CONDITIONS:
   (i) (a) Jowar fodder-Wheat. (b) Jowar fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 6.11.1953. (iv) (a) and (b) N.A. (c) 50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14.4.1954.
2. TREATMENTS:

1. Control.
2. 50 lb./acre of N as A/S.
3. 100 lb./acre of N as F.Y.M.
4. 125 lb./acre of N as F.Y.M.
5. 150 lb./acre of N as F.Y.M.
6. 175 lb./acre of N as F.Y.M.
7. 200 lb./acre of N as F.Y.M.
8. 225 lb./acre of N as F.Y.M.

F.Y.M. applied on 25.10.1953 while A/S on 6.10.1953.

3. DESIGN:

(i) R.B.D. (ii) (a) 8, (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36'x20'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Ordinary. (ii) No. (iii) Grain yield. (iv) (a) 1950 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:

(i) 1214 lb./acre.
(ii) 280.20 lb./acre.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./acre.

<table>
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<th>Treatment</th>
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<tbody>
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<td>2.</td>
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<td>3.</td>
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<td>4.</td>
<td>1148</td>
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</table>

S.E./mean = 140.1 lb./acre.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of N, P and K applied alone and in combination on Wheat.

1. BASAL CONDITIONS:

(i) (a) No. (b) Chari for fodder. (c) Nil. (ii) (a) Leam. (b) N.A. (iii) 25.10.1951. (iv) (a) 2 diest, 2 victory ploughing and 1 spring harrow. (b) N.A. (c) 100 lb./acre. (d) Rows 9" apart. (e) N.A. (f) Nil. (g) N.P. 125 (medium). (h) Irrigated. (i) Two weedings. (ix) N.A. (x) 9.4.1952.

2. TREATMENTS:

All combinations of (1), (2) and (3).

(1) 3 levels of N as A/S: N0 = 0, N1 = 25 and N2 = 50 lb./acre.
(2) 3 levels of P2O5 as super: P0 = 0, P1 = 50 and P2 = 100 lb./acre.
(3) 3 levels of K2O: K0 = 0, K1 = 50 and K2 = 100 lb./acre.

3. DESIGN:

(i) 3 replicated in R.B.D. (ii) (a) 27 in 3 flanks: (b) N.A. (iii) 3. (iv) (a) 20' x 19'. (b) 16' x 16'. (v) 2' x 14'. (vi) Yes.

4. GENERAL:

(i) Fair, the plants of one block in treatment N2P2K0 were semi-edged. (ii) The attack of brown rust. (iii) Grain yield. (iv) (a) 1951 to 1954. (b) Yes. (c) N.A. (v) No. (b) N.A. (vii) Nil. (vii) The experiment was conducted by E.B. (R).
5. RESULTS:

(i) 910.1 lb./ac.
(ii) 391.47 lb./ac.
(iii) N effect is highly significant, interaction NK is significant while other effects are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>Mean</th>
<th>$K_0$</th>
<th>$K_1$</th>
<th>$K_2$</th>
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<td>$N_0$</td>
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<td>478.5</td>
<td>512.1</td>
<td>559.4</td>
<td>584.6</td>
<td>671.8</td>
<td>421.8</td>
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<tr>
<td>$N_1$</td>
<td>985.3</td>
<td>997.1</td>
<td>792.0</td>
<td>924.8</td>
<td>1188.0</td>
<td>1015.9</td>
<td>570.4</td>
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<td>$N_2$</td>
<td>1086.6</td>
<td>1284.6</td>
<td>1367.1</td>
<td>1246.1</td>
<td>1272.9</td>
<td>1096.1</td>
<td>1369.5</td>
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</table>

Mean: 909.8 920.1 900.4 910.1 1015.2 927.9 787.3

S.E. of any marginal mean = 75.33 lb./ac.
S.E. of body of table = 130.49 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Res. Farm, Kanpur.
Ref :- U.P. 52/67/51(35).
Type :- 'M'.

Object :- To study the effects of N, P and K applied alone and in combination on Wheat.

1. BASAL CONDITIONS:

(i) (a) No. (b) Charif for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 7.11.1952. (iv) (a) 5 victory, 8 desi and 1 cultivator ploughing. (b) Sown behind the plough. (c) 80 lb./ac. (d) 9" apart. (e) N.A. (v) Nil. (vi) N.P.-125 (medium). (vii) Irrigated. (viii) One weeding on 28.11.1952. (ix) N.A. (x) 2.4.1953.

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 levels of N as A/S: $N_0=0$, $N_1=25$ and $N_2=50$ lb./ac.
(2) 3 levels of $P_2O_5$ as Super: $P_0=0$, $P_1=50$ and $P_2=100$ lb./ac.
(3) 3 levels of $K_2O$ as Potash: $K_0=0$, $K_1=50$ and $K_2=100$ lb./ac.

N and $K_2O$ dusted and $P_2O_5$ applied in rows before sowing.

3. DESIGN:

(i) 3° Fact. in R.B.D. (ii) (a) 27 in 3 flanks. (b) N.A. (iii) 3. (iv) (a) 15°×10'-5", (b) 11°×9". (v) 2°×1°. (vi) Yes.

4. GENERAL:

(i) Not good. (ii) Orange rust or brown rust attack 5%. (iii) Grain yield and germination. (iv) (a) 1951 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS:

(i) 1613 lb./ac.
(ii) 304.59 lb./ac.

(iii) Only N and K effects are highly significant.
Crop:—Wheat (Rabi).
Site:—Govt. Res. Farm, Kanpur.
Object:—To find the manurial requirement of N, P and K for Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 10.11.1953. (iv) (a) Palewa on 9.10.1953. Ploughing with victory plough and pata on 12, 13.9.1953; 16 and 19.10.1953. Cultivator and pata on 1, 2 and 16.10.1953. Desi plough and pata on 25.10.1953, 1 and 10.11.1953. (b) Behind plough. (c) 80 lb./ac (d) 9" apart. (e) N.A. (vi) Nil. (vii) Irrigated. (viii) Weeding. (ix) Not recorded. (x) 13.4.1954.

2. TREATMENTS:
   All possible combinations of (1), (2) and (3)
   (1) 3 levels of N as A/S : N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
   (2) 3 levels of P₂O₅ as Super : P₀ = 0, P₁ = 50 and P₂ = 100 lb./ac.
   (3) 3 levels of K₀ as Pot. Sul. : K₀ = 0, K₁ = 50 and K₂ = 100 lb./ac.
N and K₂O were broadcast, P₂O₅ applied in furrows before sowing.

3. DESIGN:
   (i) 3³ Fact. in R.B.D. (ii) (a) 27 (3 flanks of 9 plots each), (b) N.A. (iii) 3. (iv) (a) 15' × 10.5'. (b) 11' × 9'. (v) 2' × 1'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Attack by rust. (iii) Germination, straw and dry grain yield. (iv) (a) 1951 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B. (R).

5. RESULTS:
   (i) 1624 lb./ac.
   (ii) 321.95 lb./ac.
   (iii) Main effect of N alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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<tr>
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<td>1779</td>
<td>1766</td>
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S.E. of any marginal mean = 61.96 lb./ac.
S.E. of body of table = 107.32 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of time of application of different doses of A/S.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 8.11.1950. (iv) (a) One ploughing by victory plough and two by desi plough. (b) Sown behind the plough. (c) 80 lb./ac. (d) Rows 9' apart. (e) N.A. (v) Nil. (vi) NP-125 (medium). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 4, 5.5.1951.

2. TREATMENTS:
   1. 50 lb./ac. of N as A/S at the time of sowing.
   2. 50 lb./ac. of N as A/S at the time of first irrigation.
   3. 25 lb./ac. of N as A/S at the time of sowing + 25 lb./ac. of N as A/S at first irrigation.
   4. 37 1/2 lb./ac. of N as A/S at the time of sowing + 12 1/2 lb./ac. of N as A/S at first irrigation.
   5. 25 lb./ac. of N as Castor cake at the time of sowing + 25 lb./ac. of N as A/S at first irrigation.
   6. 37 1/2 lb./ac. of N as Castor cake at the time of sowing + 12 1/2 lb./ac. of N as A/S at first irrigation.

3. DESIGN:
   (i) R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) 29'×18'-9". (b) 25'×17'-3". (v) 2'×1'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil.
   (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 1886 lb./ac.
   (ii) 201.25 lb./ac.
   (iii) The treatments do not differ significantly.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<tbody>
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<td>1807</td>
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<td>6.</td>
<td>1817</td>
</tr>
</tbody>
</table>

S.E./mean = 100.62 lb./ac.
Crop :- Wheat (Rabi).

Ref :- U.P. 50(139).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'M'.

Object :- To study the effect of N and P on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 7.11.1950. (iv) (a) One ploughing with victory plough and two by desi plough. (b) N.A. (c) 50 lb./ac. (d) Rows 3' apart. (e) N.A (v) Nil. (vi) NP-125 (medium). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 4.5.1951.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N_0 =0, N_1 =25 and N_2 =50 lb./ac.
   (2) 3 levels of P_2O_5 as Super: P_0 =0, P_1 =25 and P_2 =50 lb./ac.
   N broadcast while P_2O_5 applied in furrows.

3. DESIGN :
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 32'×12', (b) 28'×11', (v) 2'×1'. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS :
   (i) 1761 lb./ac.
   (ii) 218.08 lb./ac.
   (iii) Only N effect is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N_0</th>
<th>N_1</th>
<th>N_2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_0</td>
<td>1000</td>
<td>1978</td>
<td>2165</td>
<td>1714</td>
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<tr>
<td>P_1</td>
<td>1169</td>
<td>2178</td>
<td>2178</td>
<td>1842</td>
</tr>
<tr>
<td>P_2</td>
<td>1009</td>
<td>1991</td>
<td>2178</td>
<td>1726</td>
</tr>
<tr>
<td>Mean</td>
<td>1059</td>
<td>2049</td>
<td>2174</td>
<td>1761</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 62.95 lb./ac.
S.E. of body of table = 109.04 lb./ac.

Crop :- Wheat (Rabi).

Ref :- U.P. 50(141).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'M'.

Object :- To study the manurial value of coconut oil cake on Wheat crop.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 8.11.1950. (iv) (a) 3 ploughings by victory plough and 3 ploughings with desi plough. (b) Sown behind the plough. (c) 12 ozs/plot. (d) Between rows 9" (e) N.A. (v) 2 srs/plot of A/S. (vi) NP-125 (medium). (vii) Irrigated. (viii) One weeding with khurpi. (ix) N.A. (x) 4.11.1951.

2. TREATMENTS :
   All combinations of (1) and (2)-a control.
   (1) 3 levels of N : N_1 =25 lb./ac., N_2 =50 lb./ac. and N_3 =75 lb./ac.
   (2) 2 sources of N : S_1 =Castor cake and S_2 =Coconut cake.
   Manures broadcast before sowing.
3. DESIGN:
   (i) R.B.D.  (ii) (a) 7.  (b) N.A.  (iii) 4.  (iv) (a) 38'x10'.6'.  (b) 34'x9'.  (v) 2'x3'.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) Nil.  (iii) Grain yield.  (iv) (a) No.  (b) No.  (c) No.  (v) (a) No.  (b) N.A  (vi) Nil.
      (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 1739 lb./ac.
   (ii) 145.27 lb./ac.
   (iii) Only N and control vs other treatments effects are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;3&lt;/sub&gt;</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&lt;sub&gt;1&lt;/sub&gt;</td>
<td>1482</td>
<td>1954</td>
<td>2343</td>
<td>1926</td>
</tr>
<tr>
<td>S&lt;sub&gt;2&lt;/sub&gt;</td>
<td>1437</td>
<td>1821</td>
<td>2242</td>
<td>1833</td>
</tr>
<tr>
<td>Mean</td>
<td>1460</td>
<td>1888</td>
<td>2292</td>
<td>1830</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N = 51.36 lb./ac.
S.E. of marginal mean of S = 41.94 lb./ac.
S.E. of body of table = 72.64 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Farm, Kanpur.

Ref. :- U.P. 50(137).
Type :- 'M'.

Object :- To study the comparative effect of green manuring on the yield of succeeding Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) As per treatments.  (c) Nil.  (ii) (a) Loam.  (b) N.A.  (iii) 6.11.1950.  (iv) (a) 2
   ploughings with victory plough and 4 with desi plough.  (b) N.A.  (c) 80 lb./ac.  (d) and (e) N.A.  (v)

2. TREATMENTS:
   1. Fallow.
   2. Moong T<sub>1</sub> - pods picked and plants buried.
   3. Sanai G.M.
   5. Fallow followed by 50 lb./ac. of F.Y.M.
   6. Fallow followed by 50 lb./ac. of castor cake.
   7. Chari followed by 50 lb./ac. of F.Y.M.
   8. Chari followed by 50 lb./ac. of castor cake.
Sanai and Chari were broadcast.  Sanai ploughed in on 6.9.1950.  Moong (with vegetable parts) ploughed in

3. DESIGN:
   (i) R.B.D.  (ii) (a) 8.  (b) N.A.  (iii) 6.  (iv) (a) 28'x15'-9'.  (b) 24'x14'-3'.  (v) 2'x3'.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1950 to 1953.  (b) Yes.  (c) N.A.  (v) (a) No.  (b) N.A.
   (vi) Nil.  (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
   (i) 1651 lb./ac.
   (ii) 184.23 lb./ac.
   (i.i) Treatments are highly significantly different.
Object:—To study the comparative effect of green manure crops on yield of succeeding Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) No. (b) As per treatments. (c) No. (ii) (a) Loam. (b) N.A. (iii) 10.11.1951. (iv) (a) Ploughing with 4 desi, 1 victory, 1 watts and 1 cultivator. (b) N.A. (c) 80 lb./ac. (d) N.A. (e) N.A. (f) Nil. (g) C-13. (h) Irrigated. (i) One weeding. (ix) N.A. (x) 14.4.1952.

2. TREATMENTS:
   1. Fallow.  
   2. Moong T1—pods picked and plants buried on 22.9.1951.  
   3. Sanai G.M.  
   5. Fallow followed by F.Y.M. at 100 lb. 4 oz./plot.  
   6. Fallow followed by Castor cake at 12 lb. 1 oz./plot.  
   7. Chari followed by F.Y.M. at 10 lb. 4 oz./plot.  
   8. Chari followed by Castor cake at 12 lb. 10 oz./plot.


3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) 28' x 13'9". (b) 24' x 14'3". (v) 2'x 5'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination and yield of grain. (iv) (a) 1950—1953. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 735 lb./ac.  
   (ii) 172.03 lb/ac.  
   (iii) Treatments are highly significantly different.  
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>549</td>
<td>5.</td>
<td>611</td>
</tr>
<tr>
<td>2.</td>
<td>778</td>
<td>6.</td>
<td>1160</td>
</tr>
<tr>
<td>3.</td>
<td>802</td>
<td>7.</td>
<td>587</td>
</tr>
<tr>
<td>4.</td>
<td>434</td>
<td>8.</td>
<td>938</td>
</tr>
</tbody>
</table>

S.E./mean = 70.60 lb./ac.

Crop:—Wheat (Rabi).  
Ref:—U.P. 51(26).  
Type:— ‘M’.  

Object:—To study the comparative effect of green manure crops on yield of succeeding Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) 50 lb./ac. of N. (ii) (a) Loam. (b) N.A. (iii) 29.10.1952. (iv) (a) 3 victory, 7 desi, 4 cultivator and 2 watts ploughing. (b) N.A. (c) 80 lb./ac. (d) 9'. (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) One weeding on 29.12.1952. (ix) N.A. (x) N.A.
2. TREATMENTS:

1. Fallow.
2. *Moong* at 5 seers/acre. (pods picked and plants buried in).
3. *Sanai* G.M. at 1 md./acre.
4. *Chari* for fodder at 20 seers/acre.
5. Fallow followed by F.Y.M. at 101.25 lb./plot.
6. Fallow followed by Castor cake at 12.66 lb./plot.
8. *Chari* followed by Castor cake at 12.66 lb./plot.

F.Y.M. and Castor cake applied on 28.10.1952; *Sanai, Chari and Moong* sown on 8.7.1952 while turned in on 30.8.1952, 10.9.1952 and N.A. respectively.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 in two flanks. (b) N.A. (iii) 6. (iv) (a) 28'×15'9". (b) 24'×14'3". (v) 2'×1'. (vi) Yes.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 in two flanks. (b) N.A. (iii) 6. (iv) (a) 28'×15'9". (b) 24'×14'3". (v) 2'×1'. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) Brown rust attack 6%. (iii) Germination and grain yield. (iv) (a) 1950—1953. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:

(i) 1049 lb./ac.
(ii) 164.87 lb./ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>901</td>
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<tr>
<td>2.</td>
<td>1138</td>
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<tr>
<td>3.</td>
<td>1329</td>
</tr>
<tr>
<td>4.</td>
<td>540</td>
</tr>
</tbody>
</table>

S.E./mean = 67.31 lb./ac.

Crop :- Wheat (*Rabi*).
Site :- Govt. Res. Farm, Kanpur.

Object :- To study the comparative effect of green manure crops on the yield of succeeding Wheat crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) As per treatments. (c) 50 lb./acre of N. (ii) (a) Loam. (b) N.A. (iii) 28.10.1953. (iv) *Palwa* on 13.10.1953. Ploughing with victory plough on 5/6.9.1953, desi plough and pata on 10/10, 26/10, and 8.10.1953 (b) Behind the plough. (c) *Mung* T1 at 10.28 lb./ac., *Sanai* 82.285 lb./ac. *Chari* at 41.14 lb./ac. Wheat at 80 lb./ac. (d) 9" apart. (e) N.A. (f) Nil. (g) C-13. (vii) Irrigated. (viii) Weeding on 22.1.1954 with *khurpi*. (ix) N.A. (x) 8.4.1954.

2. TREATMENTS:

1. Fallow.
2. *Moong* T1 at 10.28 lb./ac. (Pod picked and plants turned in).
5. Fallow followed by F.Y.M. at 101.25 lb./plot.
6. Fallow followed by castor cake at 12.66 lb./plot.
8. *Chari* followed by castor cake at 12.66 lb./plot.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 in two flanks. (b) N.A. (iii) 6. (iv) (a) 28'×15.75". (b) 24'×14.25". (v) 2'×1'. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) Slight incidence of rust. (iii) Germination, grain and straw yield. (iv) (a) 1950 to 1953. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B. (R).
5. RESULTS:

(i) 962 lb./ac.
(ii) 118.02 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>794</td>
<td>5.</td>
<td>1425</td>
</tr>
<tr>
<td>2.</td>
<td>1387</td>
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<td>854</td>
</tr>
<tr>
<td>3.</td>
<td>1073</td>
<td>7.</td>
<td>742</td>
</tr>
<tr>
<td>4.</td>
<td>614</td>
<td>8.</td>
<td>1307</td>
</tr>
</tbody>
</table>

S.E./mean = 48.18 lb./ac.

Crop: Wheat (Rabi)
Site: Govt. Res. Farm, Kanpur.

Object: To study the effects of Sanai with different doses of Super on a subsequent crop of Wheat.

1. BASAL CONDITIONS:

(i) Wheat—Sanai. (b) Sanai. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 26/27.10.1948.
(iv) (a), (b) N.A. (c) 50 swrs./ac. (d) and (e) N.A. (v) No. (vi) C-13 (early). (vii) Irrigated.
(viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Control. (no manure).
2. Sanai for green manuring without P₂O₅ at sowing time.
3. Sanai for green manuring with 25 lb./ac. of P₂O₅ at sowing of Sanai.
4. Sanai for green manuring with 50 lb./ac. of P₂O₅ at sowing of Sanai.
5. Sanai for green manuring with 75 lb./ac. of P₂O₅ at sowing of Sanai.
6. Sanai for green manuring plus 25 lb./ac. of P₂O₅ at the time of burial of Sanai.
7. Sanai for green manuring plus 50 lb./ac. of P₂O₅ at the time of burial of Sanai.
8. Sanai for green manuring plus 75 lb./ac. of P₂O₅ at the time of burial of Sanai.

P₂O₅ as Super applied on 2.7.1948. Sanai sown on 2.7.1948 and ploughed in on 1.9.1948.

3. DESIGN:

(i) R.B.D. (ii) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 37.5°x28.5°. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A.
(vi) Nil. (vii) The expt. was conducted by A.C.

5. RESULTS:

(i) 1542 lb./ac.
(ii) 251.81 lb./ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of grain in lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of Sanai with different doses of Super on subsequent Wheat crop.

1. BASAL CONDITIONS:

(i) (a) Wheat—Sanai. (b) Sanai. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 19.10.1949.
(iv) (a) and (b) N.A. (c) 50 yrs./ac. (d) and (e) N.A. (v) No. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 11.4.1949.
2. **TREATMENTS**:

1. Control.
2. *Sanai* alone as green manure.
3. *Sanai* + 75 lb/ac. of P\(_2\)O\(_5\) as Super at the time of *Sanai* sowing.
4. *Sanai* + 100 lb/ac. of P\(_2\)O\(_5\) as Super at the time of *Sanai* sowing.
5. *Sanai* + 125 lb/ac. of P\(_2\)O\(_5\) as Super at the time of *Sanai* sowing.
6. *Sanai* + 75 lb/ac. of P\(_2\)O\(_5\) as Super at the time of ploughing in of *Sanai*.
7. *Sanai* + 100 lb/ac. of P\(_2\)O\(_5\) as Super at the time of ploughing in of *Sanai*.
8. *Sanai* + 125 lb/ac. of P\(_2\)O\(_5\) as Super at the time of ploughing in of *Sanai*.

3. **DESIGN**:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 28.5'x37.5'. (v) N.A. (vi) Yes.

4. **GENERAL**:

(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.R. (R).

5. **RESULTS**:

(i) 1094 lb/ac.
(ii) 336.69 lb/ac.
(iii) Treatments are significantly different.
(iv) 

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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</tr>
<tr>
<td>2.</td>
<td>1140</td>
</tr>
<tr>
<td>3.</td>
<td>946</td>
</tr>
<tr>
<td>4.</td>
<td>1063</td>
</tr>
</tbody>
</table>

S.E./mean = 168.3 lb/ac.

Crop: Wheat (Rabi).

Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of applying P\(_2\)O\(_5\) while sowing and while ploughing in *Sanai* crop.

1. **BASAL CONDITIONS**:

(i) (a) Wheat—*Sanai*. (b) *Sanai*. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 5.11.1950. (iv) (a) and (b) N.A. (c) 100 lb/ac. (d) and (e) N.A. (v) No. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 14.4.1951.

2. **TREATMENTS**:

1. Control (no manure).
2. *Sanai* alone.
3. *Sanai* + 75 lb/ac. of P\(_2\)O\(_5\) at sowing of *Sanai*.
4. *Sanai* + 100 lb/ac. of P\(_2\)O\(_5\) at sowing of *Sanai*.
5. *Sanai* + 125 lb/ac. of P\(_2\)O\(_5\) at sowing of *Sanai*.
6. *Sanai* + 75 lb/ac. of P\(_2\)O\(_5\) at burying of *Sanai*.
7. *Sanai* + 100 lb/ac. of P\(_2\)O\(_5\) at burying of *Sanai*.
8. *Sanai* + 125 lb/ac. of P\(_2\)O\(_5\) at burying of *Sanai*.


3. **DESIGN**:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 28.5'x37.5'. (v) N.A. (vi) Yes.

4. **GENERAL**:

(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. (R).

5. **RESULTS**:

(i) 1757 lb/ac.
(ii) 310.91 lb/ac.
(iii) Treatment differences are highly significant.
Crop: Wheat (Rabi).

Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of applying P₂O₅ while sowing and while ploughing in Sanai crop.

1. BASAL CONDITIONS:
   (i) (a) Wheat-Sanai. (b) Sanai. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 26.10.1951. (iv) (a), (b) N.A. (c) 40 srs./ac. (d) and (e) N.A. (v) No. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 5.4.1952.

2. TREATMENTS:
   1. Control (no manure).
   2. Sanai alone.
   3. Sanai+75 lb./ac. of P₂O₅ at sowing time of sanai.
   4. Sanai+100 lb./ac. of P₂O₅ at sowing time of sanai.
   5. Sanai+125 lb./ac. of P₂O₅ at sowing time of sanai.
   6. Sanai+75 lb./ac. of P₂O₅ at burying time of sanai.
   7. Sanai+100 lb./ac. of P₂O₅ at burying time of sanai.
   8. Sanai+125 lb./ac. of P₂O₅ at burying time of sanai.

The crop of sanai was badly damaged by locust and the total produce of sanai was equally distributed to all the 28 plots at 2 md's. 18 srs./plot.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 28.5' x 37.5'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1954. (b) Yes. (c) N.A. (d) N.A. (e) N.A. (f) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 1021 lb./ac.
   (ii) 251.79 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
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<td>835</td>
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<td>1190</td>
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<td>927</td>
<td>7.</td>
<td>1282</td>
</tr>
<tr>
<td>4.</td>
<td>1041</td>
<td>8.</td>
<td>1269</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>112.6 lb./ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).

Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of applying P₂O₅ while sowing and while ploughing in Sanai crop.

1. BASAL CONDITIONS:
   (i) (a) Wheat-Sanai. (b) Sanai. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 15.10.1952. (iv) (a), (b) N.A. (c) 40 srs./ac. (d), (e) N.A. (f) No. (v) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 13.4.1953.
2. TREATMENT

1. Control (no manure).
2. Sanai alone.
3. Sanai+75 lb./ac. of \( P_2O_5 \) at sowing time of Sanai.
4. Sanai+100 lb./ac. of \( P_2O_5 \) at sowing time of Sanai.
5. Sanai+125 lb./ac. of \( P_2O_5 \) at sowing time of Sanai.
6. Sanai+75 lb./ac. of \( P_2O_5 \) at burying time of Sanai.
7. Sanai+100 lb./ac. of \( P_2O_5 \) at burying time of Sanai.
8. Sanai+125 lb./ac. of \( P_2O_5 \) at burying time of Sanai.

Sanai sown on 8.7.1952 and buried in on 5.9.1952.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 28.5'×37.5'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1954. (b) Yes. (c) N.A. (v) No. (i) N.A. (vi) Nil.
(vii) The experiment was conducted by A.C.

5. RESULTS:

(i) 1250 lb./ac.
(ii) 256.40 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1246</td>
</tr>
<tr>
<td>2.</td>
<td>1325</td>
</tr>
<tr>
<td>3.</td>
<td>1202</td>
</tr>
<tr>
<td>4.</td>
<td>627</td>
</tr>
<tr>
<td>5.</td>
<td>1320</td>
</tr>
<tr>
<td>6.</td>
<td>1526</td>
</tr>
<tr>
<td>7.</td>
<td>1477</td>
</tr>
<tr>
<td>8.</td>
<td>1550</td>
</tr>
</tbody>
</table>

S.E./mean =128.2 lb./ac.

Crop :-Wheat (Rabi).
Site :-Govt. Res. Farm, Kanpur.

Ref :-U.P. 53(200).
Type :-‘M’.

Object:—To study the effect of applying \( P_2O_5 \) while sowing and while ploughing in Sanai crop.

1. BASAL CONDITIONS:

(i) (a) Wheat—Sanai. (b) Sanai. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 4.11.1953. (iv) (a) and (b) N.A. (c) 50 seers/ac. (d) and (e) N.A. (v) No. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 11.4.1954.

2. TREATMENTS:

1. Control.
2. Sanai alone.
3. Sanai+ 75 lb./ac. of \( P_2O_5 \) at sowing time of Sanai.
4. Sanai+100 lb./ac. of \( P_2O_5 \) at sowing time of Sanai.
5. Sanai+125 lb./ac. of \( P_2O_5 \) at sowing time of Sanai.
6. Sanai+75 lb./ac. of \( P_2O_5 \) at burying time of Sanai.
7. Sanai+100 lb./ac. of \( P_2O_5 \) at burying time of Sanai.
8. Sanai+150 lb./ac. of \( P_2O_5 \) at burying time of Sanai.

Sanai buried on 23.9.1953.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 28.5'×37.5'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) No. (iii) Grain yield. (iv) (a) 1945 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:

(i) 1250 lb./ac.
(ii) 274.0 lb./ac.
(iii) Treatments differ highly significantly.
Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of $P_2O_5$ applied to green manure crops on Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) As per treatments. (c) Nil. (ii) (a) Medium loam. (b) N.A. (iii) 26.10.1951. (iv) (a) 3 desl ploughings, 1 victory ploughing and 1 cultivator ploughing. (b) N.A. (c) 80 lb./ac. (d) 9" apart. (e) N.A. (v) N.A. (vi) Ps. 591. (vii) Irrigated. (viii) One weeding. (ix) N.A. (x) 17.4.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 previous Kharif crops: $C_1$ = Fallow, $C_2$ = Moong $T_1$ and $C_3$ = Sanai green manure.
(2) 2 levels of $P_2O_5$ as Super applied to kharif crops: $P_0$ = 0 and $P_2$ = 50 lb./ac.
Sanai broadcast, moong sown behind the plough on 23.7.1951, green manure ploughed in on 23.9.1951.

3. DESIGN:
(i) $3 \times 2$ Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 37' x 15'-5". (b) 33' x 14'-3". (v) 2' x 1'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) In the early stage, when the ears had not emerged there was a little attack of brown rust. After the emergence of ears in all the plots at later stage, when the ears were just about to mature, the leaves were attacked by rust. (iii) Germination and grain yield. (iv) (a) 1951 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS:
(i) 1759 lb./ac.
(ii) 284.95 lb./ac.
(iii) C effect and interaction CP are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$C_1$</th>
<th>$C_2$</th>
<th>$C_3$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_0$</td>
<td>1438</td>
<td>1849</td>
<td>2096</td>
<td>1794</td>
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<tr>
<td>$P_1$</td>
<td>1772</td>
<td>1929</td>
<td>1468</td>
<td>1723</td>
</tr>
<tr>
<td>Mean</td>
<td>1605</td>
<td>1889</td>
<td>1782</td>
<td>1759</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of $C$ = 100.75 lb./ac.
S.E. of marginal mean of $P$ = 82.26 lb./ac.
S.E. of body of table = 142.48 lb./ac.
Crop :- Wheat (Rabi).  
Site :- Govt. Res. Farm, Kanpur.  
Ref :- U.P. 52(45).  
Type :- 'M'.

Object :- To study the effect of P₂O₅ applied to green manure crops on Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) As per treatments. (c) As per treatments. (ii) (a) Loam (medium). (b) N.A. (iii) 28.10.1952. (iv) (a) 8 ploughings-victory 2, Watts 2, desi 3 and cultivator 1. (b) Behind the plough. (c) 80 lb./ac. (d) 9° apart. (e) N.A. (f) Nil. (g) Po. 591 (medium). (h) Irrigated. (i) 2 weedings. (j) Not recorded. (k) 7.4.1953.

2. TREATMENTS:
All combinations of (1) and (2)

(1) 3 previous kharif crops: C₁ = Fallow, C² = Moong and C₃ = Sanai for green manuring.
(2) 2 levels of P₂O₅ as Super applied to kharif crops: P₀ = 0 and P₁ = 50 lb./ac.
Sanai at 80 lb./ac. broadcast and Moong T₁ sown behind the plough on 8.7.1952; Sanai ploughed in on 30.8.1952 while Moong T₁ on 2.9.1952.

3. DESIGN:
(i) 3 x 2 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 30'x15'. (b) 26'x13'. (v) 2'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Brown rust attack 20%. (iii) Grain yield. (iv) (a) 1951-1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 2220 lb./ac.
(ii) 193.89 lb./ac.
(iii) C effect and interaction CP are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>C₁</th>
<th>C₂</th>
<th>C₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>1735</td>
<td>2377</td>
<td>2357</td>
<td>2156</td>
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<td>P₁</td>
<td>2369</td>
<td>2166</td>
<td>2318</td>
<td>2284</td>
</tr>
<tr>
<td>Mean</td>
<td>2052</td>
<td>2271</td>
<td>2337</td>
<td>2220</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of C = 68.55 lb./ac.
S.E. of marginal mean of P = 55.97 lb./ac.
S.E. of body of table = 96.94 lb./ac.

Crop :- Wheat (Rabi).  
Site :- Govt. Res. Farm, Kanpur.  
Ref :- U.P. 53(92).  
Type :- 'M'.

Object :- To study the effect of P₂O₅ applied to green manure crops on Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 21.1.1953. (iv) (a) Light Palwa on 11.10.1953. (b) Watt plough and pata on 20.10.1953. (c) Spring harrowing and pata on 20.10.1953. (d) desi plough and pata on 30.10.1953. (e) Behind the plough. (f) 80 lb./ac. (g) 9° apart. (h) N.A. (i) Nil. (j) Po. 591 (late). (k) Irrigated. (l) Weeding on 18.1.1954 by khurpi. (m) N.A. (n) 7.4.1954.

2. TREATMENTS:
All combinations of (1) and (2)

(1) 3 previous kharif crops: C₁ = Fallow, C₂ = Moong T₁ and C₃ = Sanai for green manuring.
(2) 2 levels of P₂O₅ as Super applied to kharif crops: P₀ = 0 and P₁ = 50 lb./ac.
Sanai at 80 lb./ac. Mung T₂ at 4 lb./ac, pods removed, upper portion, leaves and stems turned in on 4.9.1953.
3. DESIGN:
(i) 3 x 2 Fact. in R.B.D.  (ii) (a) Yes. (b) N.A.  (iii) Yes. (iv) (a) 30' x 15'. (b) 26' x 13.5'. (v) 2' x 1'. (vi) Yes.

4. GENERAL:
(i) Good. No lodging.  (ii) Medium infection of brown and black rust was observed in every plot (treated or untreated). (iii) Germination %, grain and straw yield. (iv) (a) 1951-1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A.  (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1555 lb./ac.
(ii) 223.25 lb./ac.
(iii) C effect and interaction CP are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>C_1</th>
<th>C_2</th>
<th>C_3</th>
<th>Mean</th>
</tr>
</thead>
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<td>1978</td>
<td>1723</td>
<td>1575</td>
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<td>P₁</td>
<td>1237</td>
<td>1839</td>
<td>1508</td>
<td>1535</td>
</tr>
<tr>
<td>Mean</td>
<td>1141</td>
<td>1909</td>
<td>1616</td>
<td>1555</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of C = 78.90 lb./ac.
S.E. of marginal mean of P = 64.45 lb./ac.
S.E. of body of table = 91.14 lb./ac.

Crop :- Wheat (Rabi).
Site :- Students’ Instructional Farm, Govt. College, Kanpur.

Object :- To study the residual effect of N and P on Wheat.

1. BASAL CONDITIONS :
(i) (a) N.A.  (b) Maize.  (c) As per treatments.  (ii) (a) and (b) N.A.  (iii) 25.10.1950.  (iv) (a) Punjab plough on 28.9.1950, 2 desi plough after palewa. Each ploughing was followed by para.  (b) Sown behind desi plough.  (c) 50 srs./ac.  (d) and (e) N.A.  (v) Nil. (vi) NP-125 (N.A.). (vii) Irrigated. (viii) One weeding with khurpi to remove weeds like rougeing. Ears of other varieties were picked before harvesting to maintain the purity of the variety.  (ix) 5.54'.  (x) 14 and 15.A,1951.

2. TREATMENTS :
All combinations of (1) and (2).
(1) 3 levels of N as A/S: N₀ = 0, N₁ = 40 and N₂ = 80 lb./ac.
(2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 50 and P₂ = 100 lb./ac.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D.  (ii) (a) 9. (b) N.A.  (iii) Yes. (iv) (a) 64' x 15'. (b) 61' x 12'. (v) 2 rows on either side and 1½ at each end of the plot. (vi) Yes.

4. GENERAL:
(i) Good.  (ii) A very mild attack of black rust.  (iii) Germination counts, shoot height, tillers, final shoot height, ear height, grain and bhuse yield. (iv) (a) and (b) Nil. (c) Nil. (v) (a) No. (b) N.A.  (vi) Nil. The experiment conducted by Govt. Agril. College, Kanpur.

5. RESULTS :
(i) 1056 lb./ac.
(ii) 68.85 lb./ac.
(iii) Only P effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td>N₀</td>
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<td>1016</td>
<td>1185</td>
<td>1068</td>
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<td>N₁</td>
<td>1010</td>
<td>1023</td>
<td>1154</td>
<td>1062</td>
</tr>
<tr>
<td>N₂</td>
<td>965</td>
<td>996</td>
<td>1148</td>
<td>1036</td>
</tr>
<tr>
<td>Mean</td>
<td>993</td>
<td>1012</td>
<td>1162</td>
<td>1056</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 19.88 lb./ac.
S.E. of body of table = 34.42 lb./ac.

Crop :- Wheat (Rabi).
Site :- Crop Physiological Res. Stn., Lucknow.
Object :- To study the effect of different forms of N on yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Fallow. (c) No. (ii) (a) Light loam. (b) N.A. (iii) 20.11.1949. (iv) (a) Two ploughings by mould board plough, crosswise ploughing by tractor and two harrowings. (b) Sown behind the plough. (c) 45 srs./ac. (d) and (e) N.A. (v) T.C. applied on 21.10.1949. Amount N.A. (vi) Pb. 591 (mid late). (vii) Irrigated. (viii) 2 weedings and 2 hoeings. (ix) N.A. (x) 3 and 4.4.1950.

2. TREATMENTS :
   60 lb./ac of N applied on 19.11.1949 in the form of
   1. Sulphate of Ammonia.
   2. Groundnut cake.
   3. Ammonium phosphate.
   5. Town compost.
   6. Poultry manure.
   7. F.Y.M.
   8. Zoo excreta.
   10. Stable manure.
   11. Neem cake.
   12. Mohowa cake.
   15. Linseed cake.
   16. Control (no manure).

3. DESIGN :
   (i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 30°×20′. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Grain yield, height and length of ear/plant. (iv) (a), (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS :
   (i) 1130 lb./ac.
   (ii) 115.89 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1724</td>
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<tr>
<td>2.</td>
<td>1089</td>
</tr>
<tr>
<td>3.</td>
<td>1307</td>
</tr>
<tr>
<td>4.</td>
<td>1343</td>
</tr>
<tr>
<td>5.</td>
<td>1062</td>
</tr>
<tr>
<td>6.</td>
<td>1243</td>
</tr>
<tr>
<td>7.</td>
<td>1033</td>
</tr>
<tr>
<td>8.</td>
<td>889</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=81.95 lb./ac.</td>
</tr>
</tbody>
</table>

Ref :- U.P. 49(70).
Type :- 'M'.
Crop: Wheat.  
Ref: U.P. 50(117).  
Site: Crop Physiological Res. Stn., Lucknow.  
Type: 'M'.

Object:—To study the effect of various forms of N on yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Jowar. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 23.10.1950. (iv) (a) 2 ploughings by mould board plough, 4 deshi and one by cultivator. (b) Sown behind the deshi plough. (c) 50 srs./ac. (d) and (e) N.A. (v) T.C. applied on 1, 2.10.1950. (vi) C-13. (vii) N.A. (viii) 2 interculturings. (ix) N.A. (x) 18.4.1951.

2. TREATMENTS:
   60 lb./ac. of N applied on 22.10.1950 as:
   1. Control (no manure) 6. F.Y.M.
   2. A/S 7. T.C.
   5. Ammonium Phosphate 10. G.N.C.

3. DESIGN:
   (i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 25'×24'. (b) 22'×21'. (v) 11' alround. (vi) Yes.

4. GENERAL:
   (i) Below normal. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 837 lb./ac.
   (ii) 404.7 lb./ac.
   (iii) Treatments do not differ significantly.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1260</td>
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</tr>
<tr>
<td>2.</td>
<td>1066</td>
<td>7.</td>
<td>1115</td>
</tr>
<tr>
<td>3.</td>
<td>1212</td>
<td>8.</td>
<td>170</td>
</tr>
<tr>
<td>4.</td>
<td>824</td>
<td>9.</td>
<td>489</td>
</tr>
<tr>
<td>5.</td>
<td>678</td>
<td>10.</td>
<td>888</td>
</tr>
</tbody>
</table>

S.E./mean =233.7 lb./ac.

Crop: Wheat (Rabi).  
Ref: U.P. 53(139).  
Site: Crop Physiological Res. Stn., Lucknow.  
Type: 'M'.

Object:—To study the effect of different trace elements on growth and yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Dhainchha. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 25.10.1953. (iv) (a) 6 ploughings and 1 planking. (b) Behind the plough. (c) 30—35 srs./ac. (d) and (e) N.A. (v) Pea and (G.M.) dhainchha turned in on 12.8.1953 and A/S on 24.10.1953 at 2 lb./ac. of N, 30 lb./ac. of P₂O₅ as Super, 30 lb./ac. of K₂O as Pot. Sul., and Gypsum at 30 lb./ac. of Ca applied on 20.10.1953. (vi) K-13 (early). (vii) Irrigated. (viii) Nil. (ix) 5.78". (x) 10, 11.4.1954.

TREATMENTS:

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Copper Sulphate at 3 lb./ac.</td>
<td>7. Borax at 4 lb./ac.</td>
</tr>
<tr>
<td>3. Copper Sulphate at 6 lb./ac.</td>
<td>8. Zinc Sulphate at 1 lb./ac.</td>
</tr>
<tr>
<td>4. Copper Sulphate at 12 lb./ac.</td>
<td>9. Zinc Sulphate at 4 lb./ac.</td>
</tr>
<tr>
<td>5. Borax at 1 lb./ac.</td>
<td>10. Zinc Sulphate at 10 lb./ac.</td>
</tr>
</tbody>
</table>

Trace elements applied mixed with fine earth as surface dressing a day before sowing.

3. DESIGN:
   (i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 2. (iv) (a) 20'×40'. (b) 16'×36'. (v) 2' alround. (vi) Yes.
4. GENERAL:
(i) Fair. (ii) Nil. (iii) Physiological aspects of plants. Grain and straw yield. (iv) (a) to (c) No. (v) (a) and (b) Nil. (vi) Instead of 4 replications, only 2 have been used for analysis purpose, as the remaining 2 replications were shaded. (vii) Conducted by C.P. (R).

5. RESULTS:
(i) 706.4 lb./ac.
(ii) 124.0 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
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<td>6.</td>
<td>807.0</td>
</tr>
<tr>
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<td>661.2</td>
<td>7.</td>
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<td>5.</td>
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S.E./mean = 87.69 lb./ac.

---

Crop :-Wheat.
Site :-Crop Physiological Res. Sta., Lucknow.
Object:-To study the effect of different trace elements (in presence of adequate quantities of N, P, K and Ca) on the growth, yield and quality of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Guar. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 6.11.1952. (iv) (a) 10 ploughings, (b) Seed drilled. (c) 40 srs./ac. (d) and (e) N.A. (v) 30 lb./ac. of N as A/S, 15 lb./ac. of P2O5 as Super, 15 lb./ac. of K2O as Pot. Sul. and 12 lb./ac. of Ca applied during 19 to 21.10.1952. + town compost. (vi) C-13 (early). (vii) Irrigated. (viii) Weedings and hoeings from 4 to 24.12.1952. (ix) N.A. (x) 2 to 5.5.1953.

2. TREATMENTS:
1. Control.
2. Manganese Sulphate at 5 lb./ac.
3. Borax at 1 lb./ac.
4. Copper Sulphate at 6 lb./ac.
5. Molybdenic acid at 6 lb./ac.
6. Gypsum at 30 lb./ac.
7. Zinc Sulphate at 4 lb./ac.
8. Magnesium Sulphate at 5 lb./ac.
Trace elements applied on 4, 5, 6.11.1952.

3. DESIGN:
(i) R.B.D. (ii) (a) & (b) N.A. (iii) 4. (iv) (a) 41′ x 26′. (b) 38′ x 23′. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield and bhasa. (iv) (a) No. (b) and (c) No. (v) (a), (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 383.1 lb./ac.
(ii) 154.7 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
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S.E./mean = 77.34 lb./ac.
Crop: Wheat.

Site: Crop Physiological Res. Stn., Lucknow.

Object: To study the residual effect of different green manure crops in presence and absence of P on growth and yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) G.M. as per treatments. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) 26.10.1952. (iv) (a) 7 ploughings. (b) Behind desi plough with sowing funnel. (c) 50 seers/ac. (d) and (e) N.A. (v) 10 lb./ac. of Ca as Gypsum and 5 lb./ac. of K₂O as Pot. Sul. applied on 2.10.1952. (vi) C-13 (early). (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) 21 and 23.3.1953.

2. TREATMENTS:
   All combinations of (1) and (2):
   (1) 6 green manures: G₀ = Fallow, G₁ = Moong, G₂ = Lobia, G₃ = Udid, G₄ = Dhaincha and G₅ = Sanai.
   (2) 2 levels of P₂O₅ as Super: P₀ = 0 and P₁ = 30 lb./ac.

Fertilizers applied on 26.10.1952.
3. DESIGN:
(i) 2 x 6 Fact. in R.B.D. (ii) a) 12. (b) N.A. (iii) 4. (iv) a) 27' x 13'. (b) 24' x 10'. (v) Irrigation channel 2', block border 4' and field border=4' around. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1105 lb./ac. (ii) 456.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

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<tr>
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<th>G_2</th>
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S.E. of the marginal mean of G = 161.2 lb./ac.
S.E. of the marginal mean of P = 93.1 lb./ac.
S.E. of body of table = 228.0 lb./ac.

Crop :- Wheat (Rabi).
Site :- Tarai State Farm (Western Block), Matkota. Type :- ‘M’.
Object :- To study the effect of N and P fertilizers, alone and in combination on the yield of Wheat crop.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loom. (b) N.A. (iii) 23.11.1951. (iv) (a) Ploughing and harrowing with a tractor, ploughed with a victory plough at the time of drilling of Super. (b) Sown in lines behind desl plough. (c) to (e) N.A. (v) Nil. (vi) to (ix) N.A. (x) April, 1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: N_0=0, N_1=30 and N_2=60 lb./ac.
(2) 3 levels of P_2O_5: P_0=0, P_1=60 and P_2=120 lb./ac.
N as A/S broadcast and P_2O_5 as Super placed deep in bands near the root zone through a fertilizer drill and then pata applied; measured on 22.11.1951 and 14.1.1952.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) a) 9. (b) N.A. (iii) 6. (iv) a) N.A. (b) 27' x 40'-4'. (v) 1' to 3' between plots and 3' to 4' between blocks. (vi) Yes.

4. GENERAL:
(i) Very good growth, completely lodged due to rains. Very little grain could be recovered. (ii) No. (iii) Grain yield. (iv) (a) 1951—Continued. (b) and (c) No. (v) (a) Kalyanpur, Kalai, Raya, Tissuhi, Atarra, Partapgarh and Bharari. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 1280 lb./ac. (ii) 228.66 lb./ac. (iii) N effect and interaction NP are highly significant. P effect is not significant.
Object: To study the effect of N and P fertiliser, alone and in combination on the yield of What.

1. BASAL CONDITIONS:

   (i) (a) to (c) N.A.  (ii) (a) Loam (Matkota loam). (b) N.A.  (iii) 19.11.1952.  (iv) (a) One tractor ploughing followed by harrowing and pata. (b) to (e) N.A.  (v) Nil.  (vi) N.A.  (vii) Irrigated.  (viii) Nil.  (ix) N.A.  (x) 9 to 11.4.1953.

2. TREATMENTS:

   (1) 3 levels of N: N0 = 0, N1 = 30 and N2 = 60 lb./ac.
   (2) 3 levels of P2O5: P0 = 0, P1 = 60 and P2 = 120 lb./ac.

   N as A/S applied as surface dressing by broadcast and P2O5 as Super drilled in furrows 4" deep near the root done by plough. A/S applied on 2.1.1953 and P2O5 on 18.11.1952.

3. DESIGN:

   (i) 3x3 Factorial R.B.D.  (ii) (a) 9.  (b) N.A.  (iii) 6.  (iv) (a) and (b) 49.5x22'.  (v) Nil.  (vi) Yes.

4. GENERAL:

   (i) Very good.  (ii) Badly attacked by rats.  (iii) Grain and straw yield.  (iv) (a) 1951—Contd.  (b) and (c) No.  (v) (a) Puru, Kali, Bharari, Rayor, Tissuufi, Atarra, Bagaras and Farrukhabad.  (b) N.A.  (vi) Nil.  (vii) Conducted by A.C.

5. RESULTS:

   (i) 1828 lb./ac.
   (ii) 408.22 lb./ac.
   (iii) None of the effects is significant.

   (iv) Av. yield of grain in lb./ac.

   \[ \begin{array}{|c|c|c|c|}
   \hline
   & P_0 & P_1 & P_2 \text{ (Mean)} \\
   \hline
   N_0 & 1280 & 2053 & 2160 & 1931 \\
   N_1 & 1813 & 1813 & 2000 & 1875 \\
   N_2 & 1680 & 1740 & 1913 & 1778 \\
   \hline
   \text{Mean} & 1591 & 1869 & 2024 & 1828 \\
   \hline
   \end{array} \]

   S.E. of any marginal mean = 96.22 lb./ac.
   S.E. of body of table = 166.66 lb./ac.
Crop: Wheat (Rabi).
Site: Tarai State Farm (Western Block), Matkota.
Type: ‘M’.

Object: To study the effects of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Paddy. (c) Nil. (ii) (a) Matkota clay loam, calcareous. (b) N.A. (iii) 18 to 20.11.1953.
   (iv) (a) Disc ploughing, harrowing—including one cultivator. (b) Behind the desi plough. (c) N.A.
   (d) and e) —. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 7.37. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2).
   (1) 3 levels of N as A/S: N₀ = 0, N₁ = 30, N₂ = 60 lb./ac.
   (2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
   A/S broadcast. Super placed in 4' deep bands 9' apart; P is about 1' to 2' below the seed; manures applied on 15 to 17.11.1953.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 49.5' x 22'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Heavy rains accompanied by strong winds caused severe lodging especially in N plots. Germination good. Growth normal. (ii) Attack of rust and smut. Damage due to rats was severe in lodged plots while light damage in all the plots. Attack of weeds. (iii) Grain and bhuta yield. (iv) (a) 1951—continued. (b) N.A. (c) Nil. (v) (a) Phoolbagh, Tissuhi, Gazipur, Atarra and Raya. (b) —. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
   (i) 1282 lbs./ac.
   (ii) 570.99 lbs./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<th></th>
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<td>1264</td>
<td>1293</td>
<td>1282</td>
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</table>

S.E. of any marginal mean = 134.58 lb./ac.
S.E. of body of table = 233.11 lb./ac.
3. DESIGN:
(i) 3 x 2 x 2 partially balanced. (ii) (a) 2 blocks/replication; 6 plots/block. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 49.5' x 22'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Heavy rains accompanied by hail storm in the last week of February caused lodging and also general damage of immature ears. Lodging was more marked in N applied plots. Crop condition good. (ii) Outbreak of wheat rust and smut. Also attack of rats, controlled by frequent bait poisoning. (iii) Grain and straw yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) Bharati, Banaras, Kalai and Pura. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. One replication was rejected because it involved one missing plot and as such analysis became complex due to partially balanced design of the experiment.

5. RESULTS:
(i) 1209 lb./ac.
(ii) 237.72 lb./ac.
(iii) Main effects of P and K are significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of the marginal mean of K
S.E. of the marginal mean of N or P
S.E. of the body of the table N x P
S.E. of the body of the table N x K or P x K = 68.62 lb./ac.
= 56.03 lb./ac.
= 79.24 lb./ac.
= 97.05 lb./ac.

Crop:- Wheat (Rabi).
Site:- Tarai State Farm, Matkota.
Ref:- U.P. 53(340).
Type:- 'M'.

Object:- To study the effect of Super and B.M. applied at deep placement with and without N on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 17 and 18.11.1953. (iv) (a) 1 tractor ploughing and 1 harrowing. Ploughing by desi plough and victory plough followed by pata. (b) Behind desi plough. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Nil. (viii) Weeding and hoeing twice. (ix) 8.55'. (x) 19 and 20.4.1954.

2. TREATMENTS:
Main-plot treatments:
2 levels of N as A/S: N0=0 and N1=30 lb./ac.
Sub-plot treatments:
5 applications of P2O5: P0=0, P1=60 lb./ac. of P2O5 as Super, P2=60 lb./ac. of P2O5 as B.M., P3=120 lb./ac. of P2O5 as Super and P4=120 lb./ac. of P2O5 as B.M.
A/S broadcast. Super placed in 4" deep bands 9" apart and about 1" to 2" below the seed.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block and 5 sub-plots main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 54.5' x 20'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) Normal. (ii) Severe attack of wheat rust and smut. (iii) Grain and bhusa yield. (iv) (a) 1953–1954. (b) N.A. (c) N.A. (v) (a) Kalai & Banaras. (b) N.A. (vi) Heavy rains accompanied by hail storm in the last week of February 1954 and severe infection of weeds specially kateri which could not be eradicated even by weedings affected the experiment. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 1168 lb./ac.
(ii) (a) 316.76 lb./ac. (b) 162.43 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of the difference of two
1. marginal means of N = 109.66 lb./ac.
2. marginal means of P = 81.22 lb./ac.
3. P means at the same level of N = 114.86 lb./ac.
4. N means at the same level of P = 150.27 lb./ac.

Crop :-Wheat.  
Site :-Regional Res. S tn., Nawabganj.  
Ref :-U.P. 49(29).  
Type :-'M'.

Object :-To study the effect of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a), (b) and (c) N.A.  (ii) (a) Heavy loam (unclassified). (b) N.A. (iii) 13.11.1949. (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 13.4.1950.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N : N₀ =0, N₁ =30 and N₂ =60 lb./ac.
(2) 3 levels of P₂₀₅ : P₀ =0, P₁ =60 and P₂ =120 lb./ac.
N as A/S top dressed and P₂₀₅ as single Super applied in deep furrows c n 13.11.1949.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/40 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949 to 1550. (b) N.A. (c) N.A. (v) (a) Bharari, Atarra, Banaras, Kanpur, Kalai and Partapgarh. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 1124 lb./ac.  
(ii) 121.26 lb./ac.  
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of any marginal mean =26.58 lb./ac.
S.E. of body of table =49.50 lb./ac.

Crop : Wheat
Site : Regional Res. Stn., Nawabganj.

Object : To study the effect of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Heavy Loam (Barielly Type 30). (b) N.A. (iii) 6.11.1949. (iv) (a) 4 ploughings after levelling. (b) Sown in lines behind the plough. (c) to (e) N.A. (v) Nil. (vi) to (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀ =0, N₁ =12 and N₂ =24 lb./ac.
   (2) 3 levels of P₂O₅ : P₀ =0, P₁ =20 and P₂ =40 lb./ac.
   N as A/S broadcast and P₂O₅ as Super placed through pre-drilling on 5.11.1949.

3. DESIGN:
   (i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 24’×45.4’. (v) 1’ from plot to plot and 3’ from block to block was left out. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1949 to 1950. (b), (c) No. (v) (a) Kalyanpur, Atarra, Kalai, Aligarh, Banaras, Pratapgarh and Bharari. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
   (i) 1504 lb./ac.
   (ii) 230.3 lb./ac.
   (iii) None of effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean =54.28 lb./ac.
S.E. of body of table =94.01 lb./ac.
Crop :- Wheat.  
Site :- Govt. Agril. Farm, Pratapgarh.  
Object :- To study the effect of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A.  (ii) (a) Domat.  (b) N.A.  (iii) 12.11.1949.  (iv) (a) to (c) N.A.  (v) Nil.  (vi) to (vii) N.A.  (ix) N.A.  (x) 30.3.1950 to 8.4.1950.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀=0, N₁=15 and N₂=30 lb./ac.
   (2) 3 levels of P₂O₅ : P₀=0, P₁=60 and P₂=120 lb./ac.

3. DESIGN :
   (i) 3x3 Fact. in R.B.D.  (ii) (a) 9.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 45'x22'.  (v) N.A.  (vi) Yes.

4. GENERAL :
   (i) Good.  (ii) Nil.  (iii) Grain and straw yield.  (iv) (a) 1949 to 1951.  (b) and (c) N.A.  (v) (a) Atarra, Banaras, Bharari, Nawabgunj and Kalai.  (b) N.A.  (vi) Nil.  (vii) Conducted by A.C.

5. RESULTS :
   (i) 1537 lb./ac.
   (ii) 168.0 lb./ac.
   (iii) N effect alone is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean = 39.60 lb./ac.
S.E. of body of table = 68.59 lb./ac.

---

Crop :- Wheat (Rabi).  
Site :- Govt. Agril. Farm, Pratapgarh.  
Object :- To study the effect of N and P applied alone and in combination on the yield of Wheat.

2. BASAL CONDITIONS :
   (i) (a) N.A.  (b) Moong type 1.  (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) 2.11.1950.  (iv) (a) 5 ploughings and one harrowing.  (b) to (e) N.A.  (v) Nil.  (vi) to (ix) N.A.  (x) 3.4.1951.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀=0, N₁=30 and N₂=60 lb./ac.
   (2) 3 levels of P₂O₅ : P₀=0, P₁=60 and P₂=120 lb./ac.

N as A/S and P₂O₅ as Super applied on 1, 2.11.1950 through pre-drilling.

3. DESIGN :
   (i) 3x3 Fact. in R.B.D.  (ii) (a) 9.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 45'x22'.  (v) 1' between plots and 3' between blocks.  (vi) Yes.
4. GENERAL:
(i) Heavy lodging at the time of harvesting. (ii) No. (iii) Grain yield. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) Kalyanpur, Atarra, Kalai, Aligarh, Banaras, Nawabgunj and Bharari. (b) No. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 1598 lb./ac. (ii) 321.4 lb./ac. (iii) N effect alone is highly significant. P effect and interaction 'NP' are significant. (iv) Av. yield of grain in lb./ac.

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Mean 1420 1643 1733 1598

S.E. of any marginal mean = 75.77 lb./ac.
S.E. of body of table = 131.23 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agril. Farm, Pratapgarh.
Ref: U.P. 51(108).
Type: ‘M’.

Object: To study the effect of N and P fertilizers, alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) Green manuring. (c) No. (ii) (a) Loam (unclassified). (b) N.A. (iii) 14.11.1951. (iv) (a) Eight ploughings. (b) Sown in lines behind the plough. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14.4.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: N_0 = 0, N_1 = 30 and N_2 = 60 lb./ac.
(2) 3 levels of P_2O_5 as Super: P_0 = 0, P_1 = 60 and P_2 = 120 lb./ac.
A/S broadcast and Super placed deep in bands through drill.

3. DESIGN:
(i) 3 x 3 F in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 22’ x 46’. (v) 1’ to 3’ between plots and 3’ to 4’ between blocks. (vi) Yes.

4. GENERAL:
(i) Germination good. Growth suffered due to lack of moisture. (ii) Nil. (iii) Grain yield. (iv) (a) 1949 to 1951. (b) and (c) No. (v) (a) Kalyanpur, Kalai, Raya, Tissuhi, Atarra, Bharari and Maiktota. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 1152 lb./ac. (ii) 174.7 lb./ac. (iii) N effect is highly significant. P effect is significant while interaction is not significant. (iv) Av. yield of grain in lb./ac.

<table>
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Mean 1105 1096 1255 1152

S.E. of any marginal mean = 41.18 lb./ac.
S.E. of body of table = 71.33 lb./ac.
Crop :- Wheat (Rabi).
Site :- Govt. Agril. Farm, Pratapgarh.

Object :- To study the effect of placement of fertilizers on growth and yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil (b) G.M. (c) Nil. (ii) (a) Loam (b) N.A. (iii) 30.10.1953. (iv) (a) 7 ploughings and harrowing. (b) Drilling. (c) 20-25 seers/acre. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Weeding on 19-21.12.1953. (ix) N.A. (x) 25.3.1954.

2. TREATMENTS:
   All combinations of (1) and (2).
   (1) 4 fertilizers: M1 = 60 lb./ac. of N as A/S, M2 = 50 lb./ac. of P2O5 as Super, M3 = 40 lb./ac. of K2O as Pot. Sulphate and M4 = 60 lb./ac. of CaO as Gypsum.
   (2) 3 methods of application: A1 = By broadcast, A2 = Placement behind plough in furrows and A3 = Mixed with seed and drilled through improved seed drill.

3. DESIGN:
   (i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 27' x 40'. (b) 24' x 37'. (v) 1.5' x 1.5'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1953—continued. (b) and (c) Nil. (v) Nil. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
   (i) 512.8 lb./ac. (ii) 44.17 lb./ac. (iii) Only M effect is highly significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
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<td>Mean</td>
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<td>560.4</td>
<td>451.0</td>
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S.E. of marginal mean of M = 14.72 lb./ac.
S.E. of marginal mean of A = 12.75 lb./ac.
S.E. of body of table = 25.50 lb./ac.

Crop :- Wheat (Rabi).
Site :- Tarai State Farm, (Central Block) Phoolbagh.

Object :- To study the effects of N and P fertilizers applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) to (c) Nil. (ii) (a) Slightly calcareous. (b) Nil. (iii) 4, 11.1953. (iv) (a) 1 ploughing by disc plough and 3 harrowings. (b) Sown behind the disc plough in lines. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 7.37'. (x) May, 1954.

2. TREATMENTS:
   All combinations of (1) and (2).
   (1) 3 levels of N as A/S: N0 = 0, N1 = 30 and N2 = 60 lb./ac.
   (2) 3 levels of P2O5 as Super: P0 = 0, P1 = 60 and P2 = 120 lb./ac.
   Method of application: A/S broadcast, P2O5 placed in 4" deep bands 9" apart and 1" to 2" below the seed.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 49.5' x 21'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) Practically good growth. (ii) Rust and smut attack. Rat attack in some treatments. (iii) Grain and straw yield. (iv) (a) 1953-1954. (b) N.A. (c) Nil. (v) (a) Matkota, Tissuhi, Gazipur, Atarra and Raya. (b) N.A. (vi) Heavy rains in the last week of February. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 1317 lb./ac.
(ii) 182.8 lb./ac.
(iii) N effect is highly significant and interaction NP is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean = 43.1 lb./ac.
S.E. of body of table = 74.63 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Pura (Kanpur).
Ref: U.P. 52(8).
Type: "M".

Object: To study the effect of N and P applied alone and in combination on yield of Wheat.

1. BASAL CONDITIONS:
(i) N.A. (b) Sugarcane. (c) N.A. (ii) (a) Loam (Kanpur type 2). (b) Refer soil analysis, Pura. (iii) 25.10.1949. (iv) (a) 1 ploughing with victory plough and 3 ploughings with surar plough, one harrowing to remove weeds and stubbles on 26.9.1952. Ploughing again with desi plough. (b) Sown behind the plough.
(c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) Nil. 23 to 25.3.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
(2) 3 levels of P₂₀₆ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
N applied as surface dressing by broadcast, P₂₀₆ drilled in furrows (4" deep) on 24, 25.10.1952.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 33' x 15". (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. Lodging due to rains and stormy winds. (ii) Lodged; crop attacked by rats. Anti rat measures taken. (iii) Grain and straw yield. (iv) (a) 1952-1953. (b) No. (c) N.A. (v) (a) Kalai, Raya, Banaras, Tissuhi, Matkota, Bharari. Atarra and Farrukhabad. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1686 lb./ac.
(ii) 228.7 lb./ac.
(iii) Both the main effects are highly significant. Interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean = 53.92 lb./ac.
S.E. of body of table = 93.39 lb./ac.
Object:—To study the effect of N, P and K fertilizers applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Kanpur – type 2 soil. (b) Refer soil analysis, Pura. (iii) 2, 3.11.1953. (iv) (a) 1 ploughing by gurjar plough, 3 by desi plough and 1 disc harrowing. (b) Behind the plough in lines. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irriga. ed. (viii) N.A. (ix) 4.7. (x) 5.4.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 levels of N as A/S: N_1=0 and N_1=30 lb./ac.
   (2) 2 levels of P as Super: P_1=0 and P_1=6 lb./ac.
   (3) 3 levels of K as Pot. Sul.: K_1=0, K_1=60 and K_1=120 lb./ac.
   A/S broadcast, P_2O_5 placed in 4" deep bands 9" apart and K_2 applied as deep placement with P_2O_5 on 1, 2.11.1953.

3. DESIGN:
   (i) 3x2x2 partially confd. (ii) (a) 2 blocks/replication 6 plots/block. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 47'-4'x23'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Germination good. Growth poor in January. (ii) N.A. (iii) Grain and bhusha yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) Matkota, Banaras, Kalai and Bharari. (b) N.A. (vi) Nil. (vii) Experiment was conducted by A.C.

5. RESULTS:
   (i) 682.6 lb./ac.
   (ii) 171.9 lb./ac.
   (iii) N, P effects are highly significant. Interaction NP is significant, while other effects are not significant.
   (iv) Av. yield of grain in lb./ac.

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S E. of marginal mean of N or P =35.09 lb./ac.
S.E. of marginal mean of K =42.98 lb./ac.
S E. of body of table N x P =49.63 lb./ac.
S.E. of body of table N x K or P x K =60.78 lb./ac.
2. **TREATMENTS**:

All combinations of (1) and (2)

(1) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.

(2) 3 levels of \( P_2O_5: P_0 = 0, P_1 = 60 \) and \( P_2 = 120 \) lb./ac.

N as A/S broadcast and \( P_2O_5 \) as Super placed deep through fertilizer drill on 21.11.1951.

3. **DESIGN**:

(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 7'×7'×15'. (v) 1' to 3' from plot to plot and 3' to 4' from block to block. (vi) Yes.

4. **GENERAL**:

(i) Satisfactory. (ii) No. (iii) Grain yield. (iv) (a) 1951 to 1953. (b) and (c) No. (v) (a) Kalyanpur, Kalai, Tissuhi, Pratapgarh, Atarra, Bharari and Matkota. (vi) Nil. (vii) Conducted by A.C.

5. **RESULTS**:

(i) 1658 lb./ac.

(ii) 108.6 lb./ac.

(iii) N and P effects are highly significant, while interaction is not significant.

(iv) Av. yield of grain in lb./ac.

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</table>

Mean 1463 1696 1816 1638

S.E. of any marginal mean = 2.60 lb./ac.

S.E. of body of table = 44.35 lb./ac.


Site: Govt. Cotton Res. Sub-Stn., Raya. Type: 'M'.

Object: To study the effect of N and P applied alone and in combination on Wheat.

1. **BASAL CONDITIONS**:

(i) (a) to (c) N.A. (ii) (a) Sandy loam (unclassified). (b) Refer soil analysis, Raya. (iii) 2.11.1952. (iv) (a) 4 ploughings with desi plough, palewa followed by 2 more ploughings with desi plough and pata. (b) Sowed in lines behind desi plough. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) 2 hand weedings and 1 harrowing with level harrow. (ix) 1.8'. (x) 3.4.1953.

2. **TREATMENTS**:

All combinations of (1) and (2)

(1) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.

(2) 3 levels of \( P_2O_5: P_0 = 0, P_1 = 60 \) and \( P_2 = 120 \) lb./ac.

N as A/S applied as surface dressing by broadcast and \( P_2O_5 \) as Super placed 3'-4' deep near the root zone.

Date of manuring 25.10.1952.

3. **DESIGN**:

(i) 3 x 3 Fact in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 60°×18'. (v) Nil. (vi) Yes.

4. **GENERAL**:

(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1951—1953. (b) No. (c) No. (v) (a) Pura, Kalai, Atarra, Tissuhi, Matkota, Bharari and Farrukhabad. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. **RESULTS**:

(i) 2193 lb./ac.

(ii) 236.4 lb./ac.

(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<td>N₃</td>
<td>2240</td>
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<tr>
<td>Mean</td>
<td>2091</td>
<td>2260</td>
<td>2246</td>
<td>2159</td>
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S.E. of any marginal mean = 55.72 lb./ac.
S.E. of body of the table = 96.51 lb./ac.

Crop: Wheat (Rabi).
Site: Govt, Cotton Res. Farm, Raya.
Ref: U.P. 53(346).
Type: 'M'.

Object: To study the effect of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Jowar fodder. (c) Nil. (iii) (a) Loam. (b) Refer soil analysis, Raya. (iii) 13.11.1953.
   (iv) (a) 6 ploughings followed by para. Palewa one on 25.10.1953; (one more ploughing by way drilling of fertilizers. (b) Drilling. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) 2 hoeings and weedings. (ix) 1.13'. (x) 12.4.1954.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
   (2) 3 levels of P₂₀₅ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
A/S broadcasted P₂₀₅ placed in 4' deep bands to 9' apart P₂₀₅ is about 1' to 2' below the seed. Manures applied on 10.11.1953.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) N.A. (iii) 6. (iv) (a) N.A. (b) 60.5' x 18'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Germination excellent. Crop condition good. Rains with strong winds during February 1954 caused lodging in plots with "bumper growth. (ii) Affected with rust. (iii) Grain of and bhuta yield. (iv) (a) 1951—N.A. (b) N.A. (c) Nil. (v) (a) Phoolbigh, Matkota, Tissuhi, and Gazipur. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
   (i) 2328 lb./ac.
   (ii) 188.4 lb./ac.
   (iii) N effect and interaction N x P are highly significant while P effect is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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<td>2262</td>
<td>2411</td>
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S.E. of any marginal mean = 44.41 lb./ac.
S.E. of body of the table = 76.91 lb./ac.
Crop : Wheat (Rabi).
Site : Govt. Agril. Farm, Tissuhi.
Object : To study the effect of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) Early paddy. (c) N.A. (ii) (a) Hard clay (Belan clay loam). (b) N.A. (iii) 27 and 28.11.1951. (iv) (a) 5 ploughings. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 4 and 5.4.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
(2) 3 levels of \( P_2O_5: \) \( P_0 = 0, P_1 = 60 \) and \( P_2 = 120 \) lb./ac.
N as A/S broadcast and \( P_2O_5 \) as Super, deep placed through a fertilizer drill on 21.11.1951.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 26' x 42'. (v) 1' to 3' from plot to plot and 3 from block to block was left out. (vi) Yes.

4. GENERAL:
(i) Below normal due to late sowing and inadequacy of moisture. (ii) Nil. (iii) Grain yield. (iv) (a) 1951 to 1953. (b) and (c) No. (v) (a) Kalyanpur, Kalai, Raya, Pratapgarh, Atarra, and Matkota. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 571.8 lb./ac.
(ii) 95 20 lb./ac.
(iii) N and P effects alone are highly significant.
(iii) AV. yield of grain in lb./ac.

<table>
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<tr>
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<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
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<tr>
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<td>( N_1 )</td>
<td>452.5</td>
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<td>697.8</td>
<td>585.0</td>
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<tr>
<td>( N_2 )</td>
<td>459.2</td>
<td>645.1</td>
<td>765.0</td>
<td>623.1</td>
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<tr>
<td>Mean</td>
<td>450.2</td>
<td>589.5</td>
<td>675.8</td>
<td>571.8</td>
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</table>

S.E. of any marginal mean = 22.44 lb./ac.
S.E. of body of table = 38.67 lb./ac.

---

Crop : Wheat (Rabi).
Site : Govt. Agril. Farm, Tissuhi.
Object : To study the effect of N and P applied alone and in combination on Wheat.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Karai (Mirzapur—type 2 C) clayey. (b) N.A. (iii) 9.11.1952. (iv) (a) 7 ploughings with desi plough and light pre-sowing irrigation. (b) Sown in lines behind the plough. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1 and 2.4.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: \( N_0 = 0, N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
(2) 3 levels of \( P_2O_5: \) \( P_0 = 0, P_1 = 60 \) and \( P_2 = 120 \) lb./ac.
N as A/S top dressed by broadcast and \( P_2O_5 \) as Super drilled in furrows 4" deep near the root zone.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 42' x 26'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1951 to 1953. (b) No. (c) N.A. (v) (a) Bharari, Pura, Kalai, Raya, Banaras, Matkota, Atarra and Farrukhabad. (b) N.A. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 832.5 lb./ac.
(ii) 161.95 lb./ac.
(iii) All the effects are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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<tr>
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<tr>
<td>Mean</td>
<td>633.2</td>
<td>937.8</td>
<td>926.6</td>
<td>832.5</td>
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S.E. of any marginal mean = 38.17 lb./ac.
S.E. of body of table = 66.12 lb./ac.

Crop: Wheat.
Site: Govt. Agri. Farm, Tissuhi.
Object: To study the effects of N and P applied alone and in combination on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Fallow-Wheat-Paddy-early Wheat-Fallow-Wheat. (b) Fallow. (c) Nil. (d) (a) Hard clayey (Kharif) soil. (b) N.A. (ii) 25, 26.11.53. (iv) 3 ploughings. (b) Line sowing behind desi plough. (c) to (e) N.A. (f) Nil. (g) N.A. (vii) Irrigated. (viii) Nil. (ix) 1.61* (x) 11.4.1954.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as N₀, N₁, N₂: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
(2) 3 levels of P₂₀ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
A/S broadcast, P₂₀ placed in 4” deep bands at 9” apart is about 1” to 2” below the seed. Manures applied on 23, 24.11.1953.

3. DESIGN:
(i) 9×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 25’×42’. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Uniform germination. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1949 to 1953. (b) N.A. (c) Nil. (v) (a) Phoolbagh, Matkota, Gazipur, Atarra and Raya. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 386.5 lb./ac.
(ii) 63.91 lb./ac.
(iii) All effects are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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<td>386.5</td>
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</table>

S.E. of any marginal mean = 15.06 lb./ac.
S.E. of body of table = 26.09 lb./ac.

Ref.: U.P. 53(354).
Type: ‘M’.
Crop : Wheat (Rabi).
Site : Regional Res. Stn., Varanasi.

Object : To study the effect of N and P applied alone and in combination on Wheat.

1. BASAL CONDITIONS:
   (i) N.A. (b) Moong T1. (c) N.A. (ii) (a) Domat (Banaras – Type 2). (b) Refer soil analysis, Varanasi. (iii) 26.10.1950. (iv) (a) to (e) N.A. (v) Nil. (vi) to (ix) N.A. (x) 6 to 10.4.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N : N0 = 0, N1 = 30 and N2 = 60 lb./ac.
   (2) 3 levels of P2O5 : P0 = 0, P1 = 60 and P2 = 120 lb./ac.
   N as A/S was broadcast and P2O5 as Super applied 3” – 4” deep through furrows and N as A/S top dressed on 2.11.1949.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 9. (iv) (a) N.A. (b) 41’ x 23’. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Severe lodging due to winter rains. Nil. (ii) Grain and straw yield. (iv) (a) 1949 to 1952. (b) N.A. (c) N.A. (c) (a) Atarra, Kanpur, Pratapgarh, Bharati, Nawabganj and Karai. (b) N.A. (vi) and (vii) Nil.

5. RESULTS:
   (i) 1102 lb./ac.
   (ii) 193.3 lb./ac.
   (iii) N effect is highly significant, P effect is significant while interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

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<tr>
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<td>1128</td>
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<tr>
<td>N2</td>
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<td>1419</td>
<td>1161</td>
<td>1290</td>
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<tr>
<td>Mean</td>
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<td>1050</td>
<td>1102</td>
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S.E. of any marginal mean = 45.57 lb./ac.
S.E. of body of table = 78.93 lb./ac.
4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) Kalyanpur, Atarra, Kalai, Aligarh, Pratapgarh, Nawabgunj and Bharari. (vi) Nil. (vii) Conducted by A.C. Plots damaged by rats.

5. RESULTS:
(i) 1649 lb./ac.
(ii) 233.66 lb./ac.
(iii) N effect is highly significant, P effect is significant. Interaction is not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of any marginal mean = 55.08 lb./ac.
S.E. of body of table = 95.39 lb./ac.

Crop: Wheat (Rabi).
Site: Regional Res. Stn., Varanasi.
Ref: U.P. 52(9).
Type: ‘M’.

Object: To study the effect of N and P applied alone and in combination on Wheat.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) Nil. (li) (a) Loam (Banaras—type 2). (b) Refer soil analysis, Varanasi. (iii) 29.10.1952. (iv) (a) Slight palewa, 9 ploughings with desi plough and one harrowing. (b) Sown by Seed drill. (c) to (e) N.A. (v) Nil (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 26/27.3.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: N₀ = 0, N₁ = 30, N₂ = 60 lb./ac.
(2) 3 levels of P₂O₅: P₀ = 0, P₁ = 60, P₂ = 120 lb./ac.
N as A/S applied on surface dressing by broadcast and P₂O₅ as Super drilled in furrows 4" deep near the root zone

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 42’ x 25’. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Very good, no lodging. (ii) Severely attacked by rats. (iii) Grain and straw yield. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) Pura, Bharari, Raya, Atarra, Tissuli, Markota, Kalai and Farrukhabad. (vi) Nil. (vii) Conducted by A.C.

5. RESULTS:
(i) 894 lb./ac.
(ii) 171.15 lb./ac.
(iii) N effect is highly significant, interaction is significant, while P effect is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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<td>908</td>
<td>894</td>
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S.E. of any marginal mean = 40.34 lb./ac.
S.E. of body of table = 69.87 lb./ac.
Crop : Wheat (Rabi).

Object : To study the effect of Super and B.M. applied at deep placement with and without N on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Jowar fodder. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 19.11.1953. (iv) (a) 1 palewa, 3 ploughings and 1 pata. (b) Seed drilled. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 1.75". (x) 3.4.1954.

2. TREATMENTS:
Main-plot treatments:
2 levels of N as A/S: N₀ = 0 and N₁ = 30 lb./ac.
Sub-plot treatments:
5 application of P₂O₅: P₀ = 0, P₁ = 60 lb./ac. of P₂O₅ as Super, P₂ = 60 lb./ac. of P₂O₅ as B.M., P₃ = 120 lb./ac. of P₂O₅ as Super and P₄ = 120 lb./ac. of P₂O₅ as B.M.
A/S broadcast on 20.11.1953 Super placed in 4° deep bands 9" apart on 14.11.1953 about 1" to 2" below the seed.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 23' x 47.25'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Germination uniform. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1952-53—N.A. (b) N.A. (c) Nil. (v) (a) Matkota and Kalai. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. Data for 1952 N.A.

5. RESULTS:
(i) 672.9 lb./ac.
(ii) (a) 89.23 lb./ac.
(b) 81.40 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>P₄</th>
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<tr>
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<td>625.8</td>
<td>688.2</td>
<td>678.2</td>
<td>675.8</td>
<td>672.9</td>
</tr>
</tbody>
</table>

S.E of difference of two
1. marginal means of N = 28.22 lb./ac.
2. marginal means of P = 40.70 lb./ac.
3. P means at the same level of N = 57.56 lb./ac.
4. N means at the same level of P = 58.71 lb./ac.

Crop : Wheat (Rabi).

Object : To study the effect of N, P₂O₅ and K₂O applied alone and in combination on Wheat.

6. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 18.11.1953. (iv) (a) 3 ploughings during kharif, 2 palewa, 1 ploughing and 1 pata. (b) In lines with seed drill. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 1.75". (x) 29.3.1954.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of N as A/S: N₀ = 0 and N₁ = 30 lb./ac.
(2) 2 levels of P₂O₅ as Super: P₀ = 0 and P₁ = 60 lb./ac.
(3) 3 levels of K₂O as Pot. Sul.: K₀ = 0, K₁ = 60 and K₂ = 120 lb./ac.
A/S broadcast on 5, 6.11.1953. Super placed in 4" deep bands 9" apart about 1" to 2" below the seed. Potash applied as deep as Super.

3. DESIGN:
(i) 3 x 2 x 2 partially confd. (ii) (a) 2 blocks/replication; 6 plots/block. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 26' x 36'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Affected by rats. (iii) Grain and bhana yield. (iv) (a) 1953-54—N.A. (b) N.A. (c) Nil. (v) (a) Matkota, Bharari, Kulai, and Pura. (b) N.A. (vi) Nil. (vii) Experiment was conducted by A.C.

5. RESULTS:
(i) 1285 lb./ac.
(ii) 178.1 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>1093</td>
<td>1095</td>
<td>1088</td>
<td>1092</td>
<td>1104</td>
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<td>N₁</td>
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<td>1484</td>
<td>1493</td>
<td>1477</td>
<td>1438</td>
<td>1516</td>
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<tr>
<td>Mean</td>
<td>1274</td>
<td>1250</td>
<td>1290</td>
<td>1285</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₀</td>
<td>1280</td>
<td>1271</td>
<td>1262</td>
<td>1271</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₁</td>
<td>1267</td>
<td>1308</td>
<td>1319</td>
<td>1298</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of marginal means of N or P = 36.36 lb./ac.
S.E. of marginal means of K = 44.53 lb./ac.
S.E. of body of N x K or P x K tables = 62.98 lb./ac.
S.E. of body of N x P table = 51.42 lb./ac.

Crop :- Wheat (Rabi).
Site :- College of Agri. B.H.U., Varanasi.
Object :- To study the relative effect of organic and inorganic manures on the growth and morphological characters of Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis B.H.U., Varanasi. (iii) N.A. (iv) (a) and (b) N.A. (c) 40 seers/ac. (d) and (e) N.A. (v) Nil. (vi) Pusa 52 (N.A.). (vii) to (x) N.A.

2. TREATMENTS:
1. No manure.
2. F.Y.M. at 12000 lb./ac.
3. Compost at 7500 lb./ac.
4. Castor cake at 1052 lb./ac.
5. A/S at 1052 lb./ac.
7. C/N at 393 lb./ac.
All manures were applied on equal N basis before sowing.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 58' x 26'. (b) 54' x 22'. (v) 2' around. (vi) Yes.
4. GENERAL:
(i) Good and vigorous growth. (ii) N.A. (iii) Grain and straw yield. (iv) (a) and (b) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The expt. was conducted by B.H.U.

5. RESULTS:
(i) 1063 lb./ac.
(ii) 146.68 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>969</td>
</tr>
<tr>
<td>2.</td>
<td>1033</td>
</tr>
<tr>
<td>3.</td>
<td>979</td>
</tr>
<tr>
<td>4.</td>
<td>1215</td>
</tr>
<tr>
<td>5.</td>
<td>1133</td>
</tr>
<tr>
<td>6.</td>
<td>981</td>
</tr>
<tr>
<td>7.</td>
<td>1130</td>
</tr>
</tbody>
</table>

S.E./mean = 73.34 lb./ac.

Crop: Wheat (Rabi).
Site: College of Agri., B.H.U., Varanasi.

Ref: U.P. 53(391).
Type: ‘M’.

Object: To study the effect of different trace elements applied alone and in combination on Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) 9.11.1953. (iv) (a) Field thoroughly ploughed to a fine tilth. (b) Drilled. (c) 50 seers/ac. (d) and (e) N.A. (v) 60 lb./ac. of N as A/S+40 lb./ac. of P₄O₁₀ as Super+10 lb./ac. of K₂O as Pot. Sul. (vi) C. 13. (vii) Irrigated. (viii) Hoeing at regular intervals. (ix) N.A. (x) 2.4.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of Boron as Borax: \( B₀ = 0 \) and \( B₁ = 10 \) lb./ac.
(2) 2 levels of Iron as Fe. Sulphate: \( I₀ = 0 \) and \( I₁ = 15 \) lb./ac.
(3) 2 levels of Zinc as Zinc Sulphate: \( Z₀ = 0 \) and \( Z₁ = 10 \) lb./ac.

Treatments applied 15 days after sowing. A light irrigation was given afterwards to help incorporation of the elements into soil.

3. DESIGN:
(i) 2⁵ Fact. in R.B.D. (ii) (a) 8. (b) 10³×74’. (iii) 3. (iv) (a) 33’×23’. (b) 29’×19’. (v) 2’ around. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain and bhuna yield (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The expt. was conducted by B.H.U.

5. RESULTS:
(i) 1160 lb./ac.
(ii) 347.23 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Z₀</th>
<th>Z₁</th>
<th>Mean</th>
<th>I₀</th>
<th>I₁</th>
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<tr>
<td>1292</td>
<td>1198</td>
<td>1245</td>
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<td>1050</td>
<td>1088</td>
<td>1069</td>
<td>1067</td>
<td>1070</td>
</tr>
<tr>
<td>Mean</td>
<td>1171</td>
<td>1143</td>
<td>1117</td>
<td>1197</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 50.12 lb./ac.
S.E. of body of table = 70.88 lb./ac.
Crop : Wheat (Rabi).


Object : To study the effect of different trace elements applied alone and in combination on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Medium Loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) 9.11.1953. (iv) (a) Field ploughed several times to achieve good tilth. (b) Seeds drill. (c) 100 lb./ac. (d) and (e) N.A. (v) 60 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ as Super + 10 lb./ac. of K₂O as Pot. Sul. Uniformly distributed and incorporated into the soil. (vi) C-13. (vii) Irrigated. (viii) Hoeing and other interculture operations at regular intervals. (ix) N.A. (x) 5.4.1954.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (1) 2 levels of Borax : B₀ = 0 and B₁ = 10 lb./ac.
   (2) 2 levels of Zinc oxide : Z₀ = 0 and Z₁ = 10 lb./ac.
   (3) 2 levels of Ammonium Molybdate : A₀ = 0 and A₁ = 1 lb./ac.
   Treatments mixed with sand and applied as top dressing 15 days after germination.

3. DESIGN :
   (i) 2² Fact. in R.B.D. (ii) (a) 8. (b) 10³ X 74'. (iii) 3. (iv) (a) 33' X 23'. (b) 29' X 19'. (v) 2' around. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS :
   (i) 813.5 lb./ac.
   (ii) 168.1 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>B₀</th>
<th>B₁</th>
<th>Mean</th>
<th>Z₀</th>
<th>Z₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₀</td>
<td>733.7</td>
<td>857.4</td>
<td>795.5</td>
<td>713.1</td>
<td>878.0</td>
</tr>
<tr>
<td>A₁</td>
<td>766.1</td>
<td>897.0</td>
<td>831.5</td>
<td>780.0</td>
<td>883.1</td>
</tr>
<tr>
<td>Mean</td>
<td>749.9</td>
<td>877.2</td>
<td>813.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z₀</td>
<td>691.0</td>
<td>802.1</td>
<td>746.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z₁</td>
<td>808.8</td>
<td>952.3</td>
<td>880.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 48.52 lb./ac.
S.E. of body of table = 68.62 lb./ac.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of Borax: \(B_0 = 0\) and \(B_1 = 10\) lb./ac.
(2) 2 levels of Zinc oxide: \(Z_0 = 0\) and \(Z_1 = 10\) lb./ac.
(3) 2 levels of Manganese: \(M_0 = 0\) and \(M_1 = 10\) lb./ac.
Treatments given 15 days after germination followed by irrigation.

3. DESIGN:
(i) R.B.D. (ii) 8. (b) 37'×63'. (iii) 3. (iv) (a) 30'×21'. (b) 26'×17'. (v) 2' alround. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) No. (c) Nil. (v) (a), (b) Nil. (vi) Nil. (vii) Nil.

5. RESULTS:
(i) 910 lb./ac.
(ii) 210.3 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>(B_0)</th>
<th>(B_1)</th>
<th>Mean</th>
<th>(Z_0)</th>
<th>(Z_1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(M_0)</td>
<td>955</td>
<td>868</td>
<td>912</td>
<td>944</td>
<td>879</td>
</tr>
<tr>
<td>(M_1)</td>
<td>807</td>
<td>1008</td>
<td>908</td>
<td>898</td>
<td>917</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 60.7 lb./ac.
S.E. of body of table = 85.8 lb./ac.

Crop: Wheat (Rabi).
Site: College of Agri. B.H.U., Varanasi.
Ref.: U.P. 52(397).
Type: 'M'.

Object: To study the effect of different trace elements applied alone and in combination on yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) 9.11.1953. (iv) (a) Ploughing several times. (b) N.A. (c) 50 srs./ac. (d) N.A. (e) N.A. (f) 60 lb./ac. of N as A/S, 40 lb./ac. of \(\text{P}_2\text{O}_5\) as Super and 10 lb./ac. of \(\text{K}_2\text{O}\) as Pot. Sul. uniformly spread over the field. (vi) C-13. (vii) N.A. (viii) Hoeing was done at regular intervals. (ix) N.A. (x) 5.4.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of Borax: \(B_0 = 0\) and \(B_1 = 10\) lb./ac.
(2) 2 levels of Zinc oxide: \(Z_0 = 0\) and \(Z_1 = 10\) lb./ac.
(3) 2 levels of Copper Sulphate: \(C_0 = 0\) and \(C_1 = 10\) lb./ac.
Treatments applied 15 days after the germination.

3. DESIGN:
(i) 2^* Fact. in R.B.D. (ii) 8. (b) 90'×59'. (iii) 3. (iv) (a) 21'×28.51'. (b) 17'×24.5'. (v) 2' alround. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain and straw yield. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. 
(vi) Nil. (vii) Nil.

5. RESULTS:
(i) 908.5 lb./ac.
(ii) 102.5 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>B₀</th>
<th>B₁</th>
<th>Mean</th>
<th>Z₀</th>
<th>Z₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₀</td>
<td>913.9</td>
<td>913.1</td>
<td>913.5</td>
<td>978.5</td>
<td>848.5</td>
</tr>
<tr>
<td>C₁</td>
<td>919.9</td>
<td>886.9</td>
<td>903.4</td>
<td>881.7</td>
<td>925.1</td>
</tr>
<tr>
<td>Mean</td>
<td>916.9</td>
<td>900.0</td>
<td>908.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z₀</td>
<td>949.2</td>
<td>911.0</td>
<td>930.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z₁</td>
<td>884.6</td>
<td>889.0</td>
<td>886.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 29.60 lb./ac.
S.E. of body of table = 41.84 lb./ac.

Crop :- Wheat (Rabi).
Site :- Koil, Sikandra Roa and Hathras, Aligarh.

Object:- To draw out a suitable fertilizer schedules for agriculturally important soil type.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Aligarh type 1 soils and type 2 soils. (iii) N.A. (iv) Improved. (v) (a) After application of manure, the field was levelled by drawing a pata. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) 1'-2' away from the fertilizer line. (e) N.A. (vi) 23.10.1949 to 3.11.1949. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 24.3.1950 to 8.4.1950.

2. TREATMENTS:
1. Control (no manure)
2. 30 lb./ac. of N
3. 30 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.

A/S added to surface at sowing time. Super placed at a depth of 3'-4' deep in the hole of the furrow and in the side of the seed row made by either an iron plough or two desi ploughs, one behind the other in the same furrow.

3. DESIGN:
(i) and (ii) villages selected in the district and unreplicated 35 trials laid out. (iii) (a) N.A. (b) 1/40 ac. (iv) N.A.

4. GENERAL:
(i) 5 trials attacked and damaged by hail storm, general crop stand normal. (ii) Rust attack in one trial, one trial attacked by white ants. (iii) Yield of grain of wheat and straw of wheat. (iv) (a) 1949—1950, (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. [Expt. conducted on cultivator's field.]

5. RESULTS:
(i) 1618 lb./ac.
(ii) 278.2 lb./ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1241</td>
</tr>
<tr>
<td>2.</td>
<td>1649</td>
</tr>
<tr>
<td>3.</td>
<td>1963</td>
</tr>
</tbody>
</table>

S.E./mean = 47.03 lb./ac.
Crop :- Wheat (Rabi).

Site :- Sikandra Rao, Hathras, Koil, Khair, Atrauli and Gis, (Aligarh). Type :- 'M'.

Object :- To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) October – November. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) April.

2. TREATMENTS:
   1. Control (no manure).
   2. 30 lb./ac. of N as A/S.
   3. 30 lb./ac. of N as A.S + 60 lb./ac. of P2O5 as Super.

3. DESIGN:
   (i) and (ii) Fields selected randomly from 26 villages ; villages randomly selected in the district. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
   (i) Good to fair crop. (ii) N.A. (iii) Grain yield (iv) (a) 1949-1950. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The ext. was conducted by A.C. [Expt. on cultivator’s field]

5. RESULTS:
   (i) 1806 lb./ac.
   (ii) 252.65 lb./ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1376</td>
</tr>
<tr>
<td>2.</td>
<td>1856</td>
</tr>
<tr>
<td>3.</td>
<td>2186</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>-49.55</td>
</tr>
</tbody>
</table>

---

Crop :- Wheat (Rabi).

Site :- Nawabganj and Anola, (Bareilly). Type :- 'M'.

Object :- To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) November. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) March–April.

2. TREATMENTS:
   1. Control (no manure).
   2. 30 lb./ac. of N as A/S.
   3. 30 lb./ac. of N as A.S + 60 lb./ac. of P2O5 as Super.

3. DESIGN:
   (i) and (ii) Fields selected randomly from 22 villages ; villages randomly selected in the district. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
   (i) Generally good. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The ext. was conducted by A.C. [Expt. on cultivator’s field]

5. RESULTS:
   (i) 1415 lb./ac.
   (ii) 147.63 lb./ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1092</td>
</tr>
<tr>
<td>2.</td>
<td>1343</td>
</tr>
<tr>
<td>3.</td>
<td>1711</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 31.47</td>
</tr>
</tbody>
</table>
Crop: Wheat (Rabi).
Site: Bareilly, Bahri and Meerganj (Bareilly).
Object: To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Bareilly soil type 1 (A+B combined), type 2 (A+B combined), type 3 C and type 3 D. (iii) N.A. (iv) Improved. (v) (a) After application of manures the field was levelled by drawing a para. (b) Sown in lines parallel to the fertilizer band. (c) N.A. (d) 1'-2' away from the fertilizer. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (no manure).
2. 30 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S+6 lb./ac. of P_{2}O_{5} as Super. A/S broadcast at the time of sowing and applied to one of the plots over the N dose. Super is placed at a depth of 3'-4' deep at the sole of the furrow and in the sides of the furrow made by either an iron plough or two desi ploughs one behind the other in the same furrow.

3. DESIGN:
(i) and (ii) 33 villages selected in the district and unreplicated experiments are laid. (iii) (a) N.A. (b) 1/40 ac. (iv) N.A.

4. GENERAL:
(i) On the whole the trials had good growth. About 8 trials suffered due to drought, rats, cattle, weeds or frost. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. [Expt. on cultivator’s field]

5. RESULTS:
(i) 1097 lb./ac.
(ii) 98.16 lb./ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>912</td>
</tr>
<tr>
<td>2.</td>
<td>1103</td>
</tr>
<tr>
<td>3.</td>
<td>1276</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>17.09 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).
Site: Etah and Jalesar (Etah).
Object: To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Domat. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (no manure).
2. 30 lb./ac. of N.
3. 30 lb./ac. of N+63 lb./ac. of P_{2}O_{5}.

3. DESIGN:
(i) and (ii) Villages have been taken as replications. Field selected randomly 30 in randomly selected villages in the district. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. [Expt. on cultivator’s field].
5. RESULTS:

(i) 1527 lb./ac.
(ii) 150.52 lb./ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1328</td>
</tr>
<tr>
<td>2.</td>
<td>1569</td>
</tr>
<tr>
<td>3.</td>
<td>1684</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=27.48 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).
Site: Kasganj, Jalesar, Etah, Aliganj (Etah).

Object: To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Etah type 2, Etah type 3, Etah type 4. (iii) N.A. (iv) Improved.
(x) (a) After application of manures P_2O_5, the field was levelled by drawing a puta. (b) Sown in lines parallel to the fertilizer band. (c) N.A. (d) 1° to 2° away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

(1) Control (no manure)
(2) 30 lb./ac. of N as A/S.
(3) 30 lb./ac. of N as A/S.+60 lb./ac. of P_2O_5 as Super.
A/S added to surface at sowing time; Super is placed at a depth of about 3°—4° deep at the sole of the furrow and in the side of the seed row made by either an iron plough or two desi ploughs—one behind the other in the same furrows.

3. DESIGN:

(i), (ii) 44 villages selected in the district and unreplicated experiments laid out. (iii) (a), (b) 1/40 ac. (iv) N.A.

4. GENERAL:

(i) Good and uniform stand in 33 trials pcor growth in 8 trials and average in the rest. (ii) N.A. (iii) Grain and bhua yield. (iv) (a) No. (b), (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. Expt. on cultivator’s field.

5. RESULTS:

(i) 1106 lb./ac.
(ii) 174.75 lb./ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>937</td>
</tr>
<tr>
<td>2.</td>
<td>1096</td>
</tr>
<tr>
<td>3.</td>
<td>1286</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=26.34 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).
Site: Chibraman, Kanauj. (Farrukhabad).

Object: To draw out a suitable fertilizer schedule for this agriculturally important soil type.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy Loam, Eheor, Denar, Kepsa. (iii) N.A. (iv) Improved. (v) (a) to (c) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:

(I) Control (no manure).
(2) 30 lb./ac. of N.
(3) 30 lb./ac. of N+60 lb./ac. of P₂O₅.

3. DESIGN:

(i) R B.D. (ii) Villages have been taken as replications. Field selected randomly in 33 randomly selected villages. (iii) N.A. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (v) (a), (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. [Expt. on cultivator’s field].

5. RESULTS:

(i) 965 lb./ac.
(ii) 109.2 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>818</td>
</tr>
<tr>
<td>2.</td>
<td>970</td>
</tr>
<tr>
<td>3.</td>
<td>1097</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>19.02 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat (Rabi.)

Site :- Karimganj, Farrukhabad, Chibraman and Kanunj (Farrukhabad). Type :- ‘M’.

Object :- To draw out suitable fertilizer schedule for this agriculturally important soil types.

1. BASAL CONDITIONS:

(i) (a), (b) and (c) N.A. (ii) Farrukhabad type 1 soil, type 2 soil type 3 soil and type 4 soil. (iii) N.A. (iv) Improved. (v) (a) After application of P₂O₅, the field was levelled by drawing a posta. (b) Sown in lines parallel to the fertilizer band. (c) N.A. (d) 1’ to 2’ away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Control (no manure).
2. 30 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.
   A/S added to surface at sowing time is placed at a depth of about 3”-4” deep at the sole of furrow and in the side of the seed row made by either an iron plough or two desi plough—one behind the other in the same furrow.

3. DESIGN:

(i) (ii) 46 villages selected in the district and unreplicated experiments laid out. (iii) N.A. ; but roughly about 1/40th ac. (iv) N.A.

4. GENERAL:

(i) Poor for 7 expts. good for 20 expts. and average for the rest of the villages. (ii) N.A. (iii) Grain and bhasta yield. (iv) (a), (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by A.C. [Expt. on cultivator’s fields].

5. RESULTS:

(i) 1530 lb./ac.
(ii) 93.83 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1284</td>
</tr>
<tr>
<td>2.</td>
<td>1575</td>
</tr>
<tr>
<td>3.</td>
<td>1732</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>13.83 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Wheat (Rabi).
Site: Fatehpur (Fatehpur).

Object: To draw out suitable fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Jowar for 10 trials, Paddy for 4 trials. (c) N.A. (ii) 12 trials in loam, 1 trial in sandy loam and 1 trial in clay loam. (iii) N.A. (iv) N.A. (v) (a) to (c) N.A. (vi) 30.10.1953 to 13.11.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 3.4.1954 to 9.4.1954.

2. TREATMENTS:
   1. Control.
   2. 25 lb./ac. of N as A/S.
   3. 25 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.
   4. 25 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.
   A/S broadcast and Super placed deep in furrows behind the plough before sowing.

3. DESIGN:
   (i) and (ii) 7 villages were selected in the tehsil. In each village two fields were selected. (iii) (a) N.A. (b) Different sizes, Area=1/16th ac. (iv) N.A.

4. GENERAL:

5. RESULTS:
   (i) 1491 lb./ac.
   (ii) 103.5 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1223</td>
</tr>
<tr>
<td>2.</td>
<td>1371</td>
</tr>
<tr>
<td>3.</td>
<td>1589</td>
</tr>
<tr>
<td>4.</td>
<td>1782</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>27.74 lb./ac.</td>
</tr>
</tbody>
</table>

---

Crop: Wheat (Rabi).
Site: Khaga (Fatehpur).

Object: To draw out suitable fertilizer schedule for agriculturally important soil type.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Jowar in 3 trials, Paddy in 3 trials. (c) N.A. (ii) Loam. (iii) N.A. (iv) N.A. (v) (a) to (c) N.A. (vi) 9 to 16.11.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 30.3.1954 to 1.4.1954.

2. TREATMENTS:
   1. Control (no manure).
   2. 25 lb./ac. of N as A/S.
   3. 25 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.
   4. 25 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.
   A/S broadcast and Super applied deep in furrows behind the plough before sowing.

3. DESIGN:
   (i) and (ii) 3 villages were selected in the tehsil. In each village 2 fields were selected. (iii) (a) N.A. (b) Different plot sizes, Area=1/16th ac. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1953—54. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Interaction village x treatment has been taken as Error, because it comes out to be significant when tested with Interaction Treatment x Fields within villages. [Expt. on cultivator’s field].
5. RESULTS:
(i) 1433 lb./ac.
(ii) 71.19 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>93</td>
</tr>
<tr>
<td>2.</td>
<td>1255</td>
</tr>
<tr>
<td>3.</td>
<td>1615</td>
</tr>
<tr>
<td>4.</td>
<td>189</td>
</tr>
</tbody>
</table>
S.E./mean = 29.06 lb./ac.

Crop: Wheat (Rabi)
Site: Khajuha (Fatehpur)

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow for 16 trials, paddy for 3 trials, maize for 1 trial. (c) N.A. (ii) 14 trials in loam, 5 trials in sandy loam and 1 trial in clayey loam. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) 27.10.1953 to 11.11.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1 to 18.4.1954.

2. TREATMENTS:
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S + 30 lb./ac. of P₂O₅ as Super.
4. 25 lb./ac. of N as A/S + 60 lb./ac. of P₂O₅ as Super.
A/S broadcast and Super applied deep in furrows behind the plough before sowing.

3. DESIGN:
(i) and (ii) 10 villages were selected in the tahsil. In each tahsil two fields were selected. (iii) (a) N.A. (b) Different plot size, area = 1/6 ac. (iv) N.A.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1953—N.A. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Interaction village x treatment has been taken as Error, because it comes out to be significant when tested with treatment x fields within villages. Experiment conducted by A.C. in cultivators fields.

5. RESULTS:
(i) 1423 lb./ac.
(ii) 140 02 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1403</td>
</tr>
<tr>
<td>2.</td>
<td>1313</td>
</tr>
<tr>
<td>3.</td>
<td>1592</td>
</tr>
<tr>
<td>4.</td>
<td>1849</td>
</tr>
</tbody>
</table>
S.E./mean = 31.31 lb./ac.

Crop: Wheat (Rabi)
Site: Ghazipur

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow for 15 trials, maize for 1 trial and late paddy for 2 trials. (c) N.A. (ii) 6 trials sandy loam, 4 trials in clayey loam to clayey 2 trials in loam and 6 trials in clayey loam. (iii) N.A. (iv) N.A. (v) (a) 7 to 8 ploughings by desi plough. (b) Behind the plough. (c) 30 to 40 srs./ac. (d) 4" to 6" between rows. (e) N.A. (vi) 22.10.1953 to 20.11.1953. (vii) 16 trials Irrigated and 2 trials unirrigated. (viii) N.A. (ix) N.A. (x) 9.3.1954 to 4.4.1954.
2. TREATMENTS:
1. Control (no manures).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as super.
4. 25 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as super.

N as A/S, broadcast and P₂O₅ as super placed deep in furrows behind the plough, before sowing.

3. DESIGN:
(i) 10 villages were selected in the tahsil. In 8 villages 2 fields were selected and in 2 villages one field was selected. (iii) (a) N.A. (b) Different plot sizes, area 1/16 acre. (iv) N.A.

4. GENERAL:
(i) Good in 13 trials, fair in 3 trials and very poor in 2 trials. (ii) Damage by rats in 7 trials. (iii) Grain and straw yield. (iv) (a) No. (b), (c) N.A. (v) N.A. (vi) Nil. (vii) Interaction village X treatment has been taken as error, because it comes out to be highly significant when tested by the interaction treatment X fields within villages. Experiments conducted by A.C. in cultivator’s fields.

5. RESULTS:
(i) 1216 lb./ac.
(ii) 272.6 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Control</td>
<td>851</td>
</tr>
<tr>
<td>2. 25 lb./ac. of N as A/S</td>
<td>1036</td>
</tr>
<tr>
<td>3. 25 lb./ac. of N as A/S+30 lb./ac. P₂O₅ as super.</td>
<td>1148</td>
</tr>
<tr>
<td>4. 25 lb./ac. of N as A/S+60 lb./ac. P₂O₅ as super.</td>
<td>1252</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>21.44 lb./ac.</td>
</tr>
</tbody>
</table>


Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow for 6 trials, Jowar fodder for 1 trial and early paddy for one trial. (c) N.A. (ii) Sandy loam to loam in 2 trials, clayey loam to clayey in 2 trials. (iii) N.A. (iv) N.A. (v) (a) 7 to 8 ploughings by desi plough, (b) Sown behind the plough. (c) 35 to 40 yrs./ac. (d) 4° to 6° between rows. (vi) 20.10.1953 to 3.11.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 6.3.1954 to 21.3.1954.

2. TREATMENTS:
1. Control (no manures).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S+30 lb./ac. P₂O₅ as super.
4. 25 lb./ac. of N as A/S+60 lb./ac. P₂O₅ as super.
A/S broadcasted, Super placed deep in furrows behind the plough before sowing.

3. DESIGN:
(i), (ii) 6 villages were selected in the tahsil. In 2 villages two fields were selected and in the other 4 villages one field was selected. (iii) (a) N.A. (b) Different plot sizes. Area=1/40 ac. (iv) N.A.

4. GENERAL:
(i) Good in 3 trials, fair in 4 trials and very poor in one trial. (ii) Damage by rats in two trials. (iii) Grain and straw yield. (iv) (a) No. (b), (c) N.A. (v) N.A. (vi) Nil. (vii) Interaction village X treatment has been taken as Error, because it comes out to be highly significant when tested by the interaction treatment X fields within villages. Experiments conducted by A.C. in cultivator’s field.

5. RESULTS:
(i) 1216 lb./ac.
(ii) 272.6 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>806</td>
<td>96.39 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>1120</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>1442</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>1495</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).
Site: Mohamadabad (Ghazipur).

Type : 'M'.

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) In clayey loam 3 trials, in loam 2 trials and in sandy loam 1 trial. (iii) N.A. (iv) N.A. (v) (a) 7 to 8 ploughings by desi plough. (b) Sown behind the plough. (c) 30 to 40 seeds/ac. (d) 4" to 6" between rows. (vi) 28.10.1953 to 7.11.1953. (vii) 4 trials irrigated, 2 trials unirrigated (viii) N.A. (ix) N.A. (x) 3 to 24.3.1954.

2. TREATMENTS:

1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S+30 lb./ac. of P2O5 as Super.
4. 25 lb./ac. of N as A/S+60 lb./ac. of P2O5 as Super.

A/S broadcasted, Super placed deep in furrows behind the plough before sowing.

3. DESIGN:

(i), (ii) 3 villages were selected in the tahsil. In each village 2 fields were selected. (iii) (a) N.A. (b) Different plot sizes. Area = 1/40 ac. (iv) N.A.

4. GENERAL:

(i) Good. (ii) 1 trial damaged by rats. (iii) Yield of grain and straw. (iv) (a) 1953—continued. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) As interaction village x treatment is not significant it has been pooled with interaction treatment x fields within villages to give the error. Experiment conducted by A.C. in cultivator's fields.

5. RESULTS:

(i) 1399 lb./ac.
(ii) 106.8 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1133</td>
<td>43.61 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>1420</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>1503</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>1540</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).
Site: Orai and Kunch (Jalaun).

Ref.: U.P. 52(274).
Type : 'M'.

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Bundelkhand type 2 soils and type 3 soils. (iii) N.A. (iv) Improved. (v) (a) After application of manures, the field is levelled by drawing a pata. (b) sown in lines parallel to the fertilizer band. (c) N.A. (d) Seeds sown 1" to 2" away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
1. Control.
2. 30 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.
A/S broadcasted at the time of sowing and super applied to one of the plots over N dose. Super placed at a depth of 3"-4" deep in the furrow and on the side of the sole made by either an iron plough or two detta ploughs one behind the other in the same furrow.

3. DESIGN:
(i) and (ii) Villages selected in the district and unreplicated experiments were laid out. 30 such trails were laid. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain and bhusa yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil.
(vii) The experiment was conducted by A.C. in cultivator’s fields.

5. RESULTS:
(i) 1265 lb./ac.
(ii) 220.2 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>815</td>
</tr>
<tr>
<td>2</td>
<td>1427</td>
</tr>
<tr>
<td>3</td>
<td>1553</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>40.20 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat (Rabi).
Site : Jalaun (Jalaun).
Object : To draw out suitable fertilizer schedules for agriculturally important soil type.

Ref : U.P. 53(411).
Type : ‘M’.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Parwa soil in 10 trials, Mar soil in 8 trials and Kabar soil in 2 trials.

2. TREATMENTS:
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.
4. 25 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.
A/S broadcast and Super applied deep in furrows on the day of sowing.

3. DESIGN:
(i) 9 villages were selected in the tohilt. In 7 villages 2 fields were selected and in two villages 3 fields were selected. (iii) (a) N.A. (b) 1/40 ac. (iv) N.A.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil.
(vii) There were light weeds in practically every field. Interaction village X treatment has been taken as Error because it comes out to be highly significant when tested by the interaction treatment X fields within villages. Experiment conducted by A.C. in cultivator’s fields.

5. RESULTS:
(i) 1521 lb./ac.
(ii) 329.1 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>816</td>
</tr>
<tr>
<td>2.</td>
<td>1524</td>
</tr>
<tr>
<td>3.</td>
<td>1834</td>
</tr>
<tr>
<td>4.</td>
<td>1910</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 73.58 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat (Rabi).

Site : Kalpi (Jalaun).

Object : To draw out suitable fertilizer schedules for agriculturally important soil types.

1. **BASAL CONDITIONS**:

2. **TREATMENTS**:
   1. Control (no manure).
   2. 25 lb./ac. of N as A/S.
   3. 25 lb./ac. of N as A/S + 30 lb./ac. of P₂O₅ as Super.
   4. 25 lb./ac. of N as A/S + 60 lb./ac. of P₂O₅ as Super.
   A/S applied by broadcast and Super placed deep in furrows one day before sowing.

3. **DESIGN**:
   (i) and (ii) 9 villages were selected in the tahsil. In 7 villages 2 fields were selected and in two villages 3 fields were selected. (iii) (a) N.A. (b) 1/40 ac. (iv) N.A.

4. **GENERAL**:
   (i) Satisfactory. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) As interaction villages x treatment is not significant, it has been pooled with treatment x fields within villages to give Error. Experiment conducted by A.C. in cultivator's fields.

5. **RESULTS**:
   (i) 1698 lb./ac.
   (ii) 145.72 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1338</td>
</tr>
<tr>
<td>2.</td>
<td>1760</td>
</tr>
<tr>
<td>3.</td>
<td>1810</td>
</tr>
<tr>
<td>4.</td>
<td>1885</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 32.58 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat.

Site : Jhansi, Lalitpur and Mahroni (Jhansi).

Object : To draw out suitable fertilizer schedules for agriculturally important soil types.

1. **BASAL CONDITIONS**:
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) Generally irrigated.
   (viii) N.A. (ix) N.A. (x) N.A.

2. **TREATMENTS**:
   1. Control (no manure).
   2. 30 lb./ac. of N as A/S.
   3. 30 lb./ac. of N as A/S + 60 lb./ac. of P₂O₅ as Super.
3. DESIGN:
(i), (ii) R.B.D. 24 villages have been taken as replications. Field selected randomly in a randomly selected village. (iii) (a), (b) N.A. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. in cultivator’s fields.

5. RESULTS:
(i) 1018 lb./ac.
(ii) 141.2 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>875</td>
</tr>
<tr>
<td>2.</td>
<td>1042</td>
</tr>
<tr>
<td>3.</td>
<td>1138</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=28.82 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat (Rabi).
Ref : U.P. 51(234).
Site : Moth, Mau Ranipur and Gorotha (Jhansi). Type : 'M'.

Object : To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) (a), (b) N.A. (vii) Irrigated.

2. TREATMENTS:
1. Control.
2. 30 lb./ac. of N.
3. 60 lb./ac. of P₂O₅.

3. DESIGN:
(i), (ii) R.B.D. 35 villages have been taken as replications. Field selected randomly in a randomly selected village in the district. (iii) (a), (b) N.A. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. in cultivator’s fields.

5. RESULTS:
(i) 1116 lb./ac.
(ii) 160.22 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>840</td>
</tr>
<tr>
<td>2.</td>
<td>1195</td>
</tr>
<tr>
<td>3.</td>
<td>1314</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=27.08 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat (Rabi).
Ref : U.P. 49(187).
Site : Bilhaur, Ghatampur and Kanpur (Kanpur). Type : 'M'.

Object : To draw out suitable fertilizer schedules for agriculturally important soil types.

4. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Kanpur-Type 1 soils, Type 2 soils and Type 3 soils. (v) (a) After application of manure the field was levelled by pata. (b) Seeds sown in lines parallel to the fertilizer band. (d) N.A. (d) At a distance of 1"—2" from the fertilizer line. (e) N.A. (vi) 8.10.1949 to 15.11.1950. (vii) N.A. (viii) N.A. (ix) N.A. (x) 23.2.1950 to 9.4.1950.
2. TREATMENTS:
1. Control.
2. 30 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S + 60 lb./ac. of P2O5 as Super.

N added to surface at sowing time. Super placed at a depth of 3'-4' in the furrow and on the side of the seed row made by either an iron plough or two desi ploughs one behind the other in the same furrow.

3. DESIGN:
(i), (ii) Villages selected in the district and 29 unreplicated trials were laid out. (iii) (a) N.A. (b) 1/40 ac. (iv) N.A.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil, (vii) The expt. was conducted by A.C. in cultivator's fields.

5. RESULTS:
(i) 1209 lb./ac.
(ii) 139.5 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>977</td>
</tr>
<tr>
<td>2.</td>
<td>1199</td>
</tr>
<tr>
<td>3.</td>
<td>1451</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>25.90 lb./ac.</td>
</tr>
</tbody>
</table>

CROP: Wheat (Rabi).

Site: In 5 tahsils of Kanpur Distt.

Object:—To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) October—November 1950.

2. TREATMENTS:
1. Control (no manure).
2. 30 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S + 60 lb./ac. of P2O5 as Super.

3. DESIGN:
(i), (ii) R.B.D., 32 villages have been taken as replications. Fields selected randomly in randomly selected villages. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
(i) Generally good growth except in few cases. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b), and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. in cultivator's fields.

5. RESULTS:
(i) 1308 lb./ac.
(ii) 175.1 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1132</td>
</tr>
<tr>
<td>2.</td>
<td>1335</td>
</tr>
<tr>
<td>3.</td>
<td>1457</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>30.95 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Wheat (Rabi).
Site: Bhogaon (Mainpuri).

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Fallow for 18 trials, maize for 2 trials. (c) N.A. (ii) Loam. (iii) N.A. (iv) N.A.
   (v) (a) About 6 to 8 ploughings by desi plough. (b) Sown in lines by seed drill. (c) 35 to 40 seers/acre. (d) Rows 6" to 9" apart. (e) N.A. (vi) 27.10.1953 to 1.11.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 23.5.1954, to 6.4.1954.

2. TREATMENTS:
   1. Control (no manure).
   2. 25 lb./acre. of N as A/S.
   3. 25 lb./acre. of N as A/S+30 lb./acre. of P₂O₅ as Super.
   4. 25 lb./acre. of N as A/S+60 lb./acre. of P₂O₅ as Super.
   A/S broadcasted and Super applied by drilling before sowing.

3. DESIGN:
   (i) and (ii) 9 villages were selected in the tahsil, in 7 villages 2 fields and in 2 villages 3 fields were selected.
   (iii) (a) N.A. (b) Different plot sizes, area = 1/16 acre. (iv) N.A.

4. GENERAL:
   (i) 16 trials good, 3 trials average, 1 trial poor (lodging in 3 trials). (ii) 3 trials were damaged by rats and birds.
   (iii) Grain and straw yield. (iv) (a) 1953—continued. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) There were alkaline patches in one trial. As interaction village x treatment is non significant, it has been pooled with treatments x fields within villages to give the error. Experiment conducted by A.C. in cultivator's fields.

5. RESULTS:
   (i) 1137 lb./acre.
   (ii) 197.06 lb./acre.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./acre.
   
   Treatment  | Av. yield | S.E./mean
   -----------|-----------|-----------
   1.         | 863       | 44.06     
   2.         | 1077      |           
   3.         | 1260      |           
   4.         | 1349      |           

Crop: Wheat (Rabi).
Site: Jasrana (Mainpuri).

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Fallow for 3 trials, maize for 3 trials. (c) N.A. (ii) Loam. (iii) N.A. (iv) N.A. (v) (a) About 6 to 8 ploughings by desi plough. (b) Sown in lines by seed drill. (c) 35 to 40 seers/acre. (d) Rows 6" to 9" apart. (e) N.A. (vi) 31.10.1953 to 2.11.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1.4.1954 to 7.4.1954.

2. TREATMENTS:
   1. Control (no manure).
   2. 25 lb./acre. of N as A/S.
   3. 25 lb./acre. of N as A/S+30 lb./acre. of P₂O₅ as Super.
   4. 25 lb./acre. of N as A/S+60 lb./acre. of P₂O₅ as Super.
   A/S broadcasted and Super drilled before sowing.

3. DESIGN:
   (i) and (ii) 3 villages were selected. In each village 2 fields were selected. (iii) (a) N.A. (b) Different plot sizes, area = 1/16 acre. (iv) N.A.
4. GENERAL:
(i) Good in the beginning. Continuous rains and high winds caused severe lodging. (ii) Slight attack of disease (Name—N.A.). (iii) Grain and straw yield. (iv) (a) 1953—continued. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) In one field, crop failed. Interaction village×treatment has been taken as error because it comes out to be significant when tested by interactions treatment×fields within villages. Experiments conducted by A.C. in cultivator’s fields.

5. RESULTS:
(i) 1168 lb./ac.
(ii) 368.5 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>749</td>
</tr>
<tr>
<td>2.</td>
<td>957</td>
</tr>
<tr>
<td>3.</td>
<td>1498</td>
</tr>
<tr>
<td>4.</td>
<td>1470</td>
</tr>
</tbody>
</table>

S.E./mean = 164.8 lb./ac.

Crop :-Wheat (Rabi).
Site :-Sikohabad (Main puri).
Ref :- U.P. 53(404).
Type :-‘M’.

Object :-To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow for 5 trials and maize for 1 trial. (c) N.A. (ii) Loam. (iii) N.A. (iv) N.A. (v) (a) About 6 to 8 ploughings by desi plough. (b) Sown in lines by seed drill. (c) 35—40 seers/ac. (d) Rows 6’ to 9’ apart. (e) N.A. (vi) 28 to 30.10.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 29.3.1954. to 5.4.1954.

2. TREATMENTS:
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.
4. 25 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.
A/S and super applied by drilling before sowing.

3. DESIGN:
(i) and (ii) 3 villages were selected in the tahsil. In each village 2 fields were selected. (iii) (a) N.A. (b) Different sizes, area=1/16 ac. (iv) N.A.

4. GENERAL:
(i) Good, continuous rains for 3 days and high winds caused lodging. (ii) Slight attack of disease. (iii) Grain and straw yield. (iv) (a) 1953—continued. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Interaction village×treatment has been taken as error, because it comes out to be highly significant when tested with interaction treatment×fields within villages. Experiment conducted by A.C. in cultivator’s field.

5. RESULTS:
(i) 986.7 lb./ac.
(ii) 306.1 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>868.0</td>
</tr>
<tr>
<td>2.</td>
<td>986.7</td>
</tr>
<tr>
<td>3.</td>
<td>985.3</td>
</tr>
<tr>
<td>4.</td>
<td>1106.7</td>
</tr>
</tbody>
</table>

S.E./mean = 125.0 lb./ac.
Crop: Wheat (Rabi).  
Site: Mainpuri (Mainpuri).  
Type: 'M'.  

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. **BASAL CONDITIONS:**
   - (i) (a) N.A.  (b) Fallow for 5 trials, maize for 2 trials.  (c) N.A.  (ii) Clayey loam.  (iii) N.A.  (iv) N.A.  (v) (a) About 6 to 8 ploughings by desi plough.  (b) Sown in lines by seed drill.  (c) 35—40 seers/ac.  (d) Rows 6" to 9" apart.  (e) N.A.  (vi) 3 to 5.11.1953.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 24.3.1954 to 7.4.1954.

2. **TREATMENTS:**
   - 1. Control (no manure).  
   - 2. 25 lb./ac. of N as A/S.  
   - 3. 25 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.  
   - 4. 25 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.  
   - A/S broadcasted and Super drilled before sowing.

3. **DESIGN:**
   - (i) and (ii) 3 villages were selected. In two villages 2 fields and in one village 3 fields were selected.  (iii) (a) N.A.  (b) Different plot sizes; area=1/16 ac.  (iv) N.A.

4. **GENERAL:**
   - (i) Average in 4 trials, good in 1 trial, poor in 1 trial and 1 trial failed.  (ii) Nil.  (iii) Grain and straw yield.  (iv) (a) 1953—continued.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) In one field crop failed.  

5. **RESULTS:**
   - (i) 745.3 lb./ac.  
   - (ii) 61.65 lb./ac.  
   - (iii) Treatment differences are highly significant.  
   - (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>613.3</td>
</tr>
<tr>
<td>2.</td>
<td>674.7</td>
</tr>
<tr>
<td>3.</td>
<td>805.0</td>
</tr>
<tr>
<td>4.</td>
<td>885.3</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>25.17 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat (Rabi).  
Site: Robertsganj and Dudhi (Mirzapur).  
Type: 'M'.  

Object:—To draw out suitable fertilizer schedules for agriculturally important soil types.

1. **BASAL CONDITIONS:**
   - (i) (a) to (c) N.A.  (ii) Domat, Karail, Dhanusar.  (iii) N.A.  (iv) Improved.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. **TREATMENTS:**
   - 1. Control.  
   - 2. 30 lb./ac. of N.  
   - 3. 30 lb./ac. of N+60 lb./ac. of P₂O₅.

3. **DESIGN:**
   - (i), (ii) R.B.D., 21 villages have been taken as replications. Fields selected randomly in a randomly selected village in the district.  (iii) (a), (b) N.A.  (iv) N.A.

4. **GENERAL:**
   - (i) Good to poor growth.  (ii) N.A.  (iii) Grain yield.  (iv) (a) No.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by A.C. in cultivator's fields.
5. RESULTS:

(i) 681 lb./ac.
(ii) 87.88 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>553</td>
</tr>
<tr>
<td>2.</td>
<td>695</td>
</tr>
<tr>
<td>3.</td>
<td>996</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=89.18 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat (Rabi).  
Site : Chunar, Mirzapur, Robertsganj (Mirzapur).  
Ref : U.P. 52(285).  
Type :- 'M'.

Object :- To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.  
(ii) Mirzapur soils—Type 1B (Southern Flats), Type 1C (Karail), Type 1E (Eastern Lowlands), Type 2A (Vindhyan Uplands), Type 2B (Vindhyan Flats), Type 2C (Vindhyan Lowlands), Type 3 (Belanseries).  
(iii) N.A.  
(iv) Improved.  
(v) (a) After application of P_2O_5 the field was levelled by drawing pata. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) At a distance of 1" to 2" from the fertilizer line.  
(e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Control (no manure).  
2. 30 lb./ac. of N as A/S.  
3. 30 lb./ac. of N as A/S+60 lb./ac. of P_2O_5 as Super.  
N added to surface at sowing time super is placed at a depth of about 3"—4" in the furrow and on the sides of the seed row made by either an iron plough or two desi plough—one behind the other in the same furrow.

3. DESIGN:

(i), (ii) Villages selected in the district and 32 unreplicated experiments conducted.  
(iii) (a), (b) N.A.  
(iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain and bhusa yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. on cultivator's fields.

5. RESULTS:

(i) 1027 lb./ac.  
(ii) 146.1 lb./ac.  
(iii) Treatments differ highly significantly.  
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>761</td>
</tr>
<tr>
<td>2.</td>
<td>969</td>
</tr>
<tr>
<td>3.</td>
<td>1351</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=25.83 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat (Rabi).  
Site : Kichha (Nainital).  
Ref : U.P. 51(236).  
Type :- 'M'.

Object :- To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.  
(ii) Tarai soils. (iii) N.A. (iv) Improved. (v) (a) After application of manures the field is levelled by drawing a pata. (b) Sown in lines parallel to the fertilizer. (c) N.A. (d) At a distance of 1" to 2" from the fertilizer line.  
(e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
   1. Control (no manure).
   2. 30 lb./ac. of N as A/S.
   3. 30 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.

   A/S broadcasted at the time of sowing and super applied to one of the plots over the N dose. Super placed at a depth of 3'-4" in the furrow and on the sides of the furrow made either by an iron plough or two desi ploughs one behind the other in the same furrow.

3. DESIGN:
   (i) and (ii) Villages selected in the district and 10 unreplicated experiments are laid out. (iii) N.A. (b) N.A. (iv) N.A.

4. GENERAL:
   (f) The crop was sown late but the growth on the whole was satisfactory, one trial damaged by hail storm and rats and one trial badly infested by weeds. (ii) N.A. (iii) Grain and straw yield. (iv) (a) N.A. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. in cultivator's fields.

5. RESULTS:
   (i) 1189 lb./ac.
   (ii) 59.58 lb./ac.
   (iii) Treatments differ highly significantly.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>999</td>
<td>18.84</td>
</tr>
<tr>
<td>2.</td>
<td>1162</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>1405</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Wheat (Rabi).
Site :- Matkota (Nainital).
Object :- To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Block wise (1) Clay loam, (2) Loam (slightly calcareous), (3) as in (2), (4) Loam (highly calcareous). (iii) N.A. (iv) Improved. (v) (a) Field was levelled by drawing pata. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) At a distance of 1" to 2" from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control.
   2. 30 lb./ac. of N as A/S.
   3. 30 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.

   N—applied to surface at sowing time, super placed at a depth of about 3'-4" in the furrow and on the sides of the seed row made by either an iron plough or two desi ploughs one behind the other in the same furrow.

3. DESIGN:
   (i) and (ii) R.B.D. with 3 treatments and 4 replications. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:
   (i) Growth normal, a very serious rat attack caused heavy damage at the time of seed formation. (ii) N.A. (iii) Grain and straw yield. (iv) (a) N.A. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. in cultivator's fields.

5. RESULTS:
   (i) 1160 lb./ac.
   (ii) 108.7 lb./ac.
   (iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>974</td>
</tr>
<tr>
<td>2.</td>
<td>1120</td>
</tr>
<tr>
<td>3.</td>
<td>1386</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=54.35 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Wheat (Rabi).
Site: - Matkota (Nainital)

Object: - To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) 2 block on loam (slightly calcareous). 2 blocks on loam (highly calcareous)
   One block on clayey loam. (iii) N.A. (iv) Improved. (v) (a) The field was levelled by drawing a pata.
   (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) 1' to 2' away from the fertilizer line,
   (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control
   2. N₁
   3. N₂
   4. N₁P₁
   5. N₁P₂
   6. N₂P₁
   7. N₂P₂
   Doses of N and P—N.A.
   N as A/S, P₂O₅ as Super. N added to the surface at sowing time, Super placed at a depth of 3''—4''
   in the furrow and on the sides of the seed row made either by the iron plough or two dest ploughs—one
   behind the other in the same furrow.

3. DESIGN:
   (i), (ii) R.B.D. with 5 replications. (iii) (a), (b) N.A. (iv) N.A.

4. GENERAL:
   (i) Results erratic due to severe damage by rats. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No.
   (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by A.C. in cultivators' fields.

5. RESULTS:
   (i) 1380 lb./ac.
   (ii) 262.10 lb./ac.
   (iii) P effect is significant. The interaction N×P and control vs others are highly significant. N effect is
   not significant.
   (iv) Av. yield of grain in lb./ac.

Control = 1019 lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>1479</td>
<td>1666</td>
<td>1342</td>
<td>1496</td>
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<td>N₁</td>
<td>1160</td>
<td>1444</td>
<td>1552</td>
<td>1385</td>
</tr>
<tr>
<td>Mean</td>
<td>1320</td>
<td>1555</td>
<td>1447</td>
<td>1441</td>
</tr>
</tbody>
</table>

S.E. of P marginal mean = 82.88 lb./ac.
S.E. of N marginal mean = 67.67 lb./ac.
S.E. of body of table = 117.21 lb./ac.
Crop: Wheat (Rabi).  
Site: Kichha (Nainital).

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Fallow in case of 3 trials, maize in case of 2, paddy in case of 1, sanaí for green manuring in case of 1, and N.A. in case of 3 trials. (c) N.A. (ii) Sandy Loam in 6 trials, Loam (highly calcareous) in 2 trials and loam (slightly calcareous) in case of 2 trials. (iii) Nil. (iv) N.A. (v) (a) About 6 to 8 ploughings by desi plough, (b) Sown in lines by seed drill, (c) 30 to 40 seeds/ac. (d) rows 6" to 9" apart. (e) N.A. (vi) 23.10.1953 to 14.11.1953. (vii) 8 trials unirrigated. 2 trials irrigated. (viii) N.A. (ix) N.A. (x) 5.4.1954 to 24.4.1954.

2. TREATMENTS:
   1. Control.
   2. 15 lb/ac. of N as A/S + 25 lb/ac. of P₂O₅ as Super.
   3. 30 lb/ac. of N as A/S + 25 lb/ac. of P₂O₅ as Super.
   4. 15 lb/ac. of N as A/S + 50 lb/ac. of P₂O₅ as Super.
   5. 30 lb/ac. of N as A/S + 50 lb/ac. of P₂O₅ as Super.
   6. 15 lb/ac. of N as A/S
   7. 30 lb/ac. of N as A/S

A/S broadcast before sowing, and Super applied 4" deep in furrows behind the victory plough.

3. DESIGN:
   (i) and (ii) 3 villages were selected in the tahsil. In one village 5 fields were selected, in another 4 fields, and in the third village one field was selected. (iii) (a) 66'x33'. (b) 33'x33'. (iv) N.A.

4. GENERAL:
   (i) Poor in some fields while good to very good in others. (ii) N.A. (iii) Grain and bhûsa yield.

RESULTS:
(i) 1059 lb/ac.
(ii) 142.14 lb/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>920</td>
</tr>
<tr>
<td>2</td>
<td>1074</td>
</tr>
<tr>
<td>3</td>
<td>1014</td>
</tr>
<tr>
<td>4</td>
<td>1129</td>
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<tr>
<td>5</td>
<td>1211</td>
</tr>
<tr>
<td>6</td>
<td>1007</td>
</tr>
<tr>
<td>7</td>
<td>1037</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>44.95 lb/ac.</td>
</tr>
</tbody>
</table>

---

Crop: Wheat (Rabi).  
Site: Varanasi and Chandauli (Varanasi).

Object: To draw out suitable fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) N.A. (iii) NA. (iv) Improved. (v) (a) to (e) N.A. (vi) October—November 1950. (vii) Generally irrigated. (viii) N.A. (ix) N.A. (x) March—April 1951.

2. TREATMENTS:
   1. Control.
   2. 30 lb/ac. of N as A/S.
   3. 30 lb/ac. of N as A/S + 60 lb/ac. of P₂O₅ as Super.

3. DESIGN:
   (i), (ii) R.B.D. in which 14 villages have been taken as replications. Field selected randomly in a randomly selected village in the district. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:
   (i) Average to good. (ii) N.A. (iii) yield (iv) (a) No. (b), (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. in cultivators' fields.
5. RESULTS:

(i) 1564 lb./ac.

(ii) 122.46 lb./ac.

(iii) Treatments are highly significantly different.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1218</td>
</tr>
<tr>
<td>2.</td>
<td>1383</td>
</tr>
<tr>
<td>3.</td>
<td>1890</td>
</tr>
</tbody>
</table>

S.E./mean = 32.73 lb./ac.

Crop :- Wheat.  Ref :- Complex experiments (T.C.M.), 1953.
Centre :- Varanasi (U.P.)  Type :- 'M'.

Object :- (i) To study the effect of types and levels of N and P on non-acidic soils.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.  (ii) (a) Loam in texture - brownish in colour.  (b) Neutral in reaction.


2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 levels of N : N₀ = 0, N₁ = 20 and N₂ = 40 lb./ac.

(2) 2 sources of N : S₁ = A/S and S₂ = Urea.

(3) 3 levels of P₀₆ as Triple Super : P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.

A/S and Urea broadcast before sowing and Triple Super placed in bands behind a plough with the help of fertilizer drill.

3. DESIGN:

(i) R.B.D.  (ii) 15.  (b) N.A.  (iii) 3.  (iv) (a) N.A.  (b) 20' x 37'.  (v) N.A.  (vi) Yes.

4. GENERAL:

(i) Normal, no lodging.  (ii) Nil.  (iii) Grain yield.  (iv) (a) 1953—1956.  (b) No.  (c) N.A.  (v) (a) Pura, Palnad.  (b) N.A.  (vi) Nil.  (vii) Nil.

5. RESULTS:

(i) 743 lb./ac.

(ii) 180.2 lb./ac.

(iii) Main effect of N is highly significant and that of P is significant. Other effects and interactions are not significant.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>S₁</th>
<th>S₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>374</td>
<td>571</td>
<td>926</td>
<td>674</td>
<td>789</td>
<td>708</td>
</tr>
<tr>
<td>P₁</td>
<td>392</td>
<td>723</td>
<td>1075</td>
<td>798</td>
<td>934</td>
<td>864</td>
</tr>
<tr>
<td>P₂</td>
<td>448</td>
<td>709</td>
<td>960</td>
<td>757</td>
<td>869</td>
<td>801</td>
</tr>
</tbody>
</table>

Mean |

| S₁ | —  | 665| 1052| 864|
| S₂ | —  | 670| 912 | 791|

For table N x P

S.E. of mean in body of table in N₀ column = 74.0 lb./ac.
S.E. of mean in body of table in N₁ and N₂ column = 52.7 lb./ac.
S.E. of marginal mean of N₀ column = 42.8 lb./ac.
S.E. of marginal mean of N₁, N₂ column = 30.4 lb./ac.
S.E. of marginal mean of P = 32.9 lb./ac.

For table S x P

S.E. of body of table = 52.7 lb./ac.
S.E. of marginal mean of P = 30.4 lb./ac.
S.E. of marginal mean of S = 37.0 lb./ac.

For table S x N

S.E. of body of table = 42.8 lb./ac.
S.E. of any marginal mean = 30.4 lb./ac.
Crop :- Wheat. Ref :- Complex experiments (T.C.M.), 1953. Centre :- Varanasi (U.P.). Type :- 'M'.

Object :- II-To study the best time of application of N.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Loam in texture-brownish in colour. (b) Neutral in reaction. (iii) 18.11.53 (iv) N.A. (v) N.A. (vi) P-52 (vii) Irrigated. (viii) N.A. (ix) 39.75° (x) 7.4.54.

2. TREATMENTS:
   All combinations of (1) and (2) + one control (no manure).
   (1) 2 source of N (20 lb./ac.): S₁=A/S and S₂=Urea.
   (2) 2 times of application : T₁=at sowing and T₂= at first irrigation.
   Manures broadcast as top dressing at sowing time and at first irrigation.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 16' x 44'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal, no lodging. (ii) Nil. (iii) Grain yield (iv) (a) 1953-56 (b) No. (c) N.A. (v) (a) Kotah, Pura, Niphad, Satna and Paliad, (b) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:
   (i) 534 lb./ac.
   (ii) 52.68 lb./ac.
   (iii) Main effect of S and control vs others are highly significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Control =325 lb./ac.</th>
<th>T₁</th>
<th>T₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>605</td>
<td>647</td>
<td>626</td>
</tr>
<tr>
<td>S₂</td>
<td>538</td>
<td>552</td>
<td>545</td>
</tr>
<tr>
<td>Mean</td>
<td>572</td>
<td>600</td>
<td>586</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =16.57 lb./ac.
S.E. of body of table =23.56 lb./ac.

---

Crop :- Wheat. Ref :- Complex experiments (T.C.M.), 1953. Centre :- Varanasi (U.P.). Type :- 'M'.

Object :- IV-To study the effect of types, levels and method of application of P.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam in texture—brownish in colour. (b) Neutral in reaction. (iii) 27.11.1953. (iv) N.A. (v) N.A. (vi) P-52. (vii) Irrigated. (viii) N.A. (ix) 39.75°. (x) 7.4.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3) + 2 extra treatments
   (1) 3 sources of P₂O₅ : S₁=Super, S₂=Nitro. Phos. and S₃=Ammo. Phos.
   (2) 2 levels of P₂O₅ : P₁=15 and P₂=30 lb./ac.
   (3) 2 methods of application: M₁=Broadcast before final cultivation, M₂=2" below seed.
   Extra treatments: one control (no manure)/block, one plot receiving 30 lb./ac. of N as A/S broadcast at sowing.

3. DESIGN:
   (i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 20' x 37'. (v) N.A. (vi) Yes.
4. GENERAL:

(i) Normal, no lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1953-56. (b) No. (c) N.A. (v) (a) Kotah, Pura and Paliad. (b) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:

(i) 952 lb./ac.
(ii) 137.2 lb./ac.
(iii) Control vs N and (control+N) vs other treatments are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

Control = 518 lb./ac.; N only = 1073 lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
<th>Mean</th>
<th>M₁</th>
<th>M₂</th>
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<tbody>
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<td>998</td>
<td>1025</td>
<td>993</td>
<td>974</td>
<td>1012</td>
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<tr>
<td>P₂</td>
<td>956</td>
<td>965</td>
<td>969</td>
<td>963</td>
<td>987</td>
<td>940</td>
</tr>
<tr>
<td>Mean</td>
<td>956</td>
<td>982</td>
<td>997</td>
<td>978</td>
<td>981</td>
<td>977</td>
</tr>
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<td>M₁</td>
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<td>960</td>
<td>1013</td>
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</tr>
<tr>
<td>M₂</td>
<td>945</td>
<td>1002</td>
<td>981</td>
<td>977</td>
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</tr>
</tbody>
</table>

S.E. of marginal mean of S = 39.61 lb./ac.
S.E. of marginal mean of M or P = 32.34 lb./ac.
S.E. of any mean in the body of table S×P or S×M = 56.02 lb./ac.
S.E. of any mean in the body of table P×M = 45.73 lb./ac.
S.E. of control or "N only" means = 79.22 lb./ac.

Crop: Wheat. Centre: Pura (Kanpur). Ref.: Complex experiments (T.C.M.), 1953. Type: 'B'.

Object: — I' (a)-To study the effect of types and levels of N and P on non-acidic soils.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Loam in texture-Grey in colour. (b) pH. 7.5. (iii) 1 and 2.11.1953. (iv) N.A. (v) N.A. (vi) Co. 13. (vii) Irrigated. (viii) N.A. (ix) 38.18'. (x) 10.4.1954.

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 levels of N : N₀ = 0, N₁ = 20 and N₂ = 40 lb./ac.
(2) 2 sources of N : S₁ = A/S and S₂ = Urea.
(3) 3 levels of P₂O₅ as Triple Super : P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.
A/S and urea applied by broadcast before sowing and Triple Super placed deep in band behind a plough with the help of fertilizer drill.

3. DESIGN:

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 45.45'×16'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Normal, lodging appeared in plots treated with S₁N₄P₂ and S₁N₄P₂. (ii) Slight damage by rats and wheat rust. (iii) Grain yield. (iv) (a) 1953—1956. (b) No. (c) N.A. (v) (a) Paliad and Varanasi. (b) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 1436.
(ii) 139.1 lb./ac.
(iii) Main effects of N, P are highly significant. Other effects are not significant.
Crop: Wheat.  Ref: Complex experiments (T.C.M.), 1953.
Centre: Pura (Kanpur).  Type: 'M'.
Object: II-To study the best time of application of N.

1. BASAL CONDITIONS:

2. TREATMENTS:
   All combinations of (1) and (2)+One control
   (1) 2 sources of N (20 lb./ac.):  \( S_1 \) = A/S and \( S_2 \) = Urea.
   (2) 2 times of application:  \( T_1 \) = At sowing and \( T_2 \) = At first irrigation.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 5.  (iv) (a) N.A.  (b) 14.2' \times 51'.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) Normal, no lodging.  (ii) Nil.  (iii) Grain yield.  (iv) (a) 1953—1956.  (b) No.  (c) N.A.  (v) (a) Kotah, Varanasi, Niphad, Satna and Paliad.  (b) N.A.  (vi) and (vii) Nil.

5. RESULTS:
   (i) 1035 lb./ac.
      (ii) 141.1 lb./ac.
      (iii) Only control vs others is highly significant.

<table>
<thead>
<tr>
<th></th>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( N_3 )</th>
<th>Mean</th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_1 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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S.E. of marginal mean of No Column = 69.5 lb./ac.
S.E. of marginal mean of \( N_1, N_2 \) Column = 49.1 lb./ac.
S.E. of body of table (\( N_1, N_2 \) Col.) = 85.1 lb./ac.
S.E. of marginal mean of \( P \) = 53.8 lb./ac.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<td>1097</td>
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</table>

S.E. of any marginal mean = 44.7 lb./ac.
S.E. of body of table = 63.1 lb./ac.

---

**Crop:** Wheat.  
**Ref.:** Complex experiments (T.C.M.) 1953.  
**Centre:** Pura (Kanpur). (U.P.)  
**Type:** 'M'.

Object:—IV., To study the effect of types, levels and method of application of P.

1. **BASAL CONDITIONS:**
   (i) (a) to (c) N.A. (ii) (a) Loam in texture—Grey in colour. (b) pH 7.5. (iii) 17.11.1953. (iv) N.A. (v) N.A.  

2. **TREATMENTS:**
   All combinations of (1), (2) and (3)+2 extra treatments.
   (1) 2 levels of $P_2O_5$: $P_1=15$ lb./ac. and $P_2=30$ lb./ac.
   (2) 2 methods of application: $M_1=$Broadcast before final cultivation and $M_2=2\frac{1}{2}^\circ$ below seed.
   (3) 3 sources of $P_2O_5$: $S_1=$Super, $S_2=$Nitro. phos. and $S_3=$Ammo. Phos.
   One control (no manure)/block and one plot receiving 30 lb./ac. of N as $A/S$ broadcast at sowing.

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 44'×16.5'. (v) N.A. (vi) Yes.

4. **GENERAL:**
   (i) Norm.I.; lodging was observed in plots treated with higher doses of manures. (ii) Appreciable damage by rats, controlled by rat poison baits. (iii) Grain yield. (iv) (a) 1953—1956. (b) No. (c) N.A. (v) (a) Kotah, Varanasi and Paliad. (b) N.A. (vi) Nil. (vii) Nil.

5. **RESULTS:**
   (i) 1414 lb./ac.
   (ii) 2100 lb./ac.
   (iii) (Control+ N) vs others effect is highly significant. Other effects are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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S.E. of marginal mean of S = 63.5 lb./ac.
S.E. of marginal mean of P or M = 51.8 lb./ac.
S.E. of any mean in the body of table $S×P$ or $S×M$ = 89.8 lb./ac.
S.E. of body of $S×M$ table = 73.3 lb./ac.
S.E. of control mean = 127.0 lb./ac.
Crop : Wheat (Rabi).
Site : B.R. College Farm, (Bichpuri) Agra.

Object : To study the effect of N, P and K on different varieties of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Maize—chari. (c) Nil. (ii) Typical Gangetic alluvial light loam moderate fertility and neutral in reaction with a free drainage and a good water holding capacity. (b) Refer soil analysis, B.R. College, Bichpuri. (iii) 29.10.48. (iv) (a) 1 ploughing with soil turning plough, followed by pata, 4 ploughings with desi clearing, and 4 ploughing. (b) By means of the plough by Nai method (2.5" to 3" depth). (c) 50 srs./ac. (d) rows 9" apart. (e) — (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) One Liver harrowing, one harrowing and roguing. (ix) N.A. (x) 6, 7.4.1949.

2. TREATMENTS:
   All combinations of (1), (2), (3) and (4)
   (1) 3 varieties : \( V_1 = \text{Local} \), \( V_2 = \text{C13 (early)} \) and \( V_3 = \text{P591 (late)} \).
   (2) 3 levels of N as A/S : \( N_0 = 0 \), \( N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
   (3) 3 levels of \( P_2 \) as Super : \( P_0 = 0 \), \( P_1 = 8 \) and \( P_2 = 16 \) lb./ac.
   (4) 3 levels of \( K_2 \) as Pot. Sul. : \( K_0 = 0 \), \( K_1 = 15 \) and \( K_2 = 30 \) lb./ac.
   All combinations of manures mixed separately for each treatment and then mixed with the soil of the plot in which treatment has to be applied and evenly spread on 28.10.1948.

3. DESIGN:
   (i) 3¹ partially confounded in quasi L. sq. (ii) (a) 9 cols x 9 rows. (b) column 395"x18" and row 175"x40". (iii) 1. (iv) (a) 18"x42". (b) 13x06". (v) 1.5"x3". (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) White ant attack at all stages of the life cycle. (iii) Grain and \( bhusa \) yield. (iv) (a) No. (b) N.A. (c) Nil. (v) (a), (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R.C.

5. RESULTS:
   (i) 1653 lb./ac.
   (ii) 347.2 lb./ac.
   (iii) N.A.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>( V_3 )</th>
<th>( V_0 )</th>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>( V_3 )</th>
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\( P_0 \): 1711, 1556, 1713; \( P_1 \): 1618, 1495, 1771; \( P_2 \): 1862, 1515, 1635

\( N_0 \): 1620, 1281, 1490; \( N_1 \): 2006, 1597, 1690; \( N_2 \): 1564, 1688, 1938

S.E. of any marginal mean = 66.82 lb./ac.
S.E. of body of table = 115.78 lb./ac.
Crop: - Wheat (Rabi).
Site: - Govt. Res. Farm, Kanpur.

Object: - To compare the effect of two varieties of Wheat under different levels of N.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Jowar fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 5.11.1950. (iv) (a) 1 ploughing with victory plough 2 ploughings by desi plough. (b) Line sowing. (c) 100 lb./ac. (d) rows 9" apart. (e) - (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding on 28.2.1951. (ix) N.A. (x) 1.2.4.1952.

2. TREATMENTS:
   All combinations of (1) and (2).
   (1) 2 varieties: V₁ = C·13 (early) and V₂ = N.P. 125 (medium).
   (2) 3 levels of N as A/S: N₀ = 0, N₁ = 25, N₂ = 50 lb./ac.

3. DESIGN:
   (i) 3 x 2 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 24' x 12'-9". (b) 20' x 11'-3". (v) One row on either side and 2' at each end of the plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) N.A. (iii) Germination and yield of grain. (iv) (a) 1950 to 1952. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) Nil. (vii) The experiment was conducted by the Economist Botanist (Rabi cereals and Potato) to Govt. of U.P., Kanpur.

5. RESULTS:
   (i) 1086 lb./ac.
   (ii) 141.6 lb./ac.
   (iii) Only N effect is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<td>1096</td>
<td>1553</td>
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S.E. of marginal mean of N = 50.05 lb./ac.
S.E. of marginal mean of V = 40.86 lb./ac.
S.E. of the body of table = 70.78 lb./ac.
5. RESULTS:
(i) 1655 lb./ac.
(ii) 315.39 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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S.E. of marginal mean of N = 111.51 lb./ac.
S.E. of marginal mean of V = 74.34 lb./ac.
S.E. of body of table = 157.70 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To compare the effect of two Wheat varieties under different levels of N.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Chatur. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 3.11.1952. (iv) (a) Ploughings and harrowing by victory plough on 10.8.1952, 1 by cultivator and 3 by desi plough. (b) Line sowing. (c) 80 lb./ac. (d) rows 9" apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 27.3.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties : V₁=C-13 (early) and V₂=NP-125 (medium).
(2) 3 levels of N as A/S: N₀=0, N₁=25 and N₂=50 lb./ac.

3. DESIGN:
(i) 3×2 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 23'×12'/, (b) 19'×10.75'/, (v) One row on each side and 2' at each of the plots; distance between plots 2'/, distance between blocks 4'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Germination and yield of grain. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) The object was to compare the yield of wheat and barley under similar conditions of manuring. In that experiment along with the 3 levels of manuring, two varieties each of wheat and barley were tested giving 12 treatments (in each replication). This proforma is for wheat and another has been filled in for barley. (vii) The experiment was conducted by Economic Botanist to Govt. of U.P., Kanpur.

5. RESULTS:
(i) 2256 lb./ac.
(ii) 242.77 lb./ac.
(iii) Only N effect is highly significant
(iv) Av. yield of grain in lb./ac.

<table>
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<td>2519</td>
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S.E. of marginal mean of N = 85.83 lb./ac.
S.E. of marginal mean of V = 70.08 lb./ac.
S.E. of body of table = 121.38 lb./ac.
Crop :- Wheat (Rabi).
Site :- Govt. Res. Farm, Kanpur.
Ref :- U.P. 53(93).
Type :- 'MV'.

Object :- To study the effect of P\textsubscript{2}O\textsubscript{5} application on earliness, disease resistance, stand, maturity and final yield of Wheat varieties.

1. BASAL CONDITIONS:
   (i) (a) Sanai—wheat. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 2.11.1953.
   (iv) (a) Turning of sanai on 2.9.1953 with victory plough, 2 desi ploughings and pata. (b) N.A. (c) 80 lb./ac.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V\textsubscript{1} = NP-125 (medium) and V\textsubscript{2} = Pb.591 (late).
   (2) 5 applications of P\textsubscript{2}O\textsubscript{5} as Super: P\textsubscript{0} = No P\textsubscript{2}O\textsubscript{5} P\textsubscript{1} = 50 lb./ac. of P\textsubscript{2}O\textsubscript{5} applied in furrows, P\textsubscript{2} = 50 lb./ac. of P\textsubscript{2}O\textsubscript{5} applied broadcast, P\textsubscript{3} = 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} applied in furrows and P\textsubscript{4} = 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} applied broadcast.

3. DESIGN:
   (i) 5 x 2 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 16' x 9'. (b) 12' x 7.5'. (v) 2' x 1'. (vi) Yes.

4. GENERAL:
   (i) Growth good in general. No lodging. (ii) Slight attack of rust. (iii) Germination, grain and straw yield. (iv) (a) 1953—contd. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 1648 lb./ac.
   (ii) 341.8 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

\begin{verbatim}
\begin{tabular}{|c|c|c|c|c|c|}
\hline
 & P_0 & P_1 & P_2 & P_3 & P_4 & Mean \\
\hline
V_1 & 1540 & 1571 & 1447 & 1929 & 1649 & 1627 \\
V_2 & 1447 & 1711 & 1540 & 1602 & 2038 & 1668 \\
Mean & 1494 & 1641 & 1494 & 1766 & 1844 & 1618 \\
\hline
\end{tabular}
\end{verbatim}

S.E. of marginal mean of P = 120.8 lb./ac.
S.E. of marginal mean of V = 76.4 lb./ac.
S.E. of body of table = 170.9 lb./ac.

Crop :- Wheat.
Centre :- Varanasi (U.P.)
Ref :- Complex experiments (T.C.M.), 1953.
Type :- 'MV'.

Object :- VII To study the effect of N and P on different varieties of Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Loam in texture, brownish in colour. (b) Neutral in reaction. (iii) 27.11.1953.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N as A/S: N_0 =0, N_1 =20 and N_2 =40 lb./ac.
   (2) 3 levels of P\textsubscript{2}O\textsubscript{5} as Triple Super: P\textsubscript{0} =0, P\textsubscript{1} =20 and P\textsubscript{2} =40 lb./ac.
   (3) 3 varieties: V_1 =Desi, V_2 =P-52 and V_3 =NP-750.

A/S broadcast before sowing and Triple Super placed deep in bands behind a plough with the help of fertilizer drill.
3. DESIGN:
(i) 3³ Fact. in R.B.D. (confounded). (ii) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) N.A. (b) 20°×37'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Normal, no lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1953—1956. (b) No. (c) N.A. (v) (a) Kotah, Pura, Niphad and Paliad. (b) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:
(i) 542 lb./ac.
(ii) 58.87 lb./ac.
(iii) Main effects of N and V are highly significant. Interaction VN is significant. Other effects are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>P₁</th>
<th>P₂</th>
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S.E. of any marginal mean = 19.62 lb./ac.
S.E. of body of table = 31.98 lb./ac.

Crop :- Wheat.  Ref. :- Complex experiments (T.C.M.), 1953.
Centre :- Pura (Kanpur—U.P.). Type :- ‘MV’.

Object :- VIII, To study the effect of N and P on different varieties of Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A.  (ii) (a) Loam in texture—Grey in colour.  (b) pH.—7.5.  (iii) 3.11.1953.  (iv) N.A.  (v) N.A.  (vi) As under treatments.  (vii) Irrigated.  (viii) N.A.  (ix) 38.18'.  (x) 9.4.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3).
(1) 3 levels of N as A/S : N₀=0, N₁=20 and N₂=40 lb./ac.
(2) 3 levels of P₂O₅ as triple Super : P₀=0, P₁=20 and P₂=40 lb./ac.
(3) 3 varieties :- V₁=Desi, V₂=NP-125 and V₃=C-13.
A/S applied by broadcast before sowing and Triple super placed deep in bands behind a plough, with the help of fertilizer drill.

3. DESIGN:
(i) 3³ Fact. in R.B.D.  (ii) (a) 3 blocks/replication ; 9 plots/block.  (b) N.A.  (iii) 1.  (iv) (a) N.A.  (b) 36.25'×20'.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) Normal. Slight lodging was observed in plots treated with higher doses of N and P along with C-13 and Desi (ii) Attack of wheat rust and slight damage by rats. (iii) Grain yield. (iv) (a) 1953-1956 (b) No. (c) N.A. (v) (a) Kotah, Banaras, Niphad and Paliad. (b) N.A. (vi) Nil. (vii) Nil.
5. RESULTS:
   (i) 1390 lb./ac.
   (ii) 168.6 lb./ac.
   (iii) Main effect of V is highly significant while that of P is significant. Other effects and interactions are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
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<td>1385</td>
<td>1476</td>
<td>1390</td>
<td>1142</td>
<td>1460</td>
<td>1567</td>
</tr>
</tbody>
</table>

S.E. any marginal mean = 56.2 lb./ac.
S.E. of body of table = 97.4 lb./ac.

Crop: Wheat (Rabi).
Site: Allahabad Agricultural Institute, Allahabad.
Ref: U.P. 53(370).
Type: 'C'.

Object: To study the effect of seed rate and spacing between lines on Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sunnhemp. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Allahabad. (iii) 13 and 14.10.1953. (iv) (a) and (b) N.A. (c) and (d) As per treatments. (e) - (v) Good green manure crop of Sunnhemp ploughed in. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) 1.00'. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 spacings between rows: S₁=6', S₂=9', S₃=12' and S₄=15'.

   Sub-plot treatments:
   4 seed rates: R₁=20, R₂=30, R₃=40 and R₄=50 seers/ac.

3. DESIGN:
   (i) Split-plot (L. Sq.) (ii) (a) 4 main-plots/row or col. and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) Main-plot: 16'×16'. Sub 4'×4'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain and straw yield, height of plants etc. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Nil.

5. RESULTS:
   (i) 2478 lb./ac.
   (ii) (a) 205.6 lb./ac.
   (b) 304.2 lb./ac.
   (iii) Only S effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>R₁</th>
<th>R₂</th>
<th>R₃</th>
<th>R₄</th>
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<td>2699</td>
<td>2710</td>
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<tr>
<td>S₂</td>
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<td>2672</td>
<td>2399</td>
<td>2485</td>
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<tr>
<td>S₃</td>
<td>2551</td>
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<td>2748</td>
<td>2633</td>
<td>2530</td>
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<tr>
<td>S₄</td>
<td>2337</td>
<td>2129</td>
<td>1981</td>
<td>1905</td>
<td>2088</td>
</tr>
<tr>
<td>Mean</td>
<td>2576</td>
<td>2404</td>
<td>2502</td>
<td>2430</td>
<td>2478</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of S = 72.67 lb./ac.
2. marginal means of R = 107.56 lb./ac.
3. R means at the same level of S = 215.12 lb./ac.
4. S means at the same level of R = 200.04 lb./ac.

Crop : Wheat (Rabi).

Site : Govt. Agri. Farm, Etawah.

Object : To study the effect of different seed rates on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Sown by seed drill. (c) As per treatments. (d) and (e) N.A. (v) Green manured at 40 lb./ac. of N. (vi) Pb. 591. (vii) N.A. (viii) N.A. (ix) 1.10'. (x) N.A.

2. TREATMENTS:
6 seed rates : R₁=10, R₂=20, R₃=30, R₄=40, R₅=50 and R₆=60 srs./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 32'x54'. (b) 29'x51'. (v) 1.5'x1.5'. (vi) Yes.

4. GENERAL:
   (i) Good, no lodging. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 1139 lb./ac.
   (ii) 268.05 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>R₁</td>
<td>1041</td>
</tr>
<tr>
<td>R₂</td>
<td>1198</td>
</tr>
<tr>
<td>R₃</td>
<td>1005</td>
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<tr>
<td>R₄</td>
<td>1093</td>
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<tr>
<td>R₅</td>
<td>1053</td>
</tr>
<tr>
<td>R₆</td>
<td>1441</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=134.02 lb./ac.</td>
</tr>
</tbody>
</table>
Crop : Wheat (Rabi).
Site : Regional Training Institute, Gazipur.

Ref : U.P. 53(328).
Type : "C".

Object : To study the effect of fallow with or without hot weather cultivation as compared to having legume, green manure or a non-legume crop during kharif on the yield of the subsequent Wheat crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) As per treatments. (c) 20 lb/ac. of N as A/S applied to Maize. (ii) (a) Sandy loam. (b) N.A. (iii) 30, 31, 10, 1953. (iv) (a) 6 ploughings. (b) Line system-behind plough-east to west. (c) N.A. (d) —. (e) —. (f) N.A. (vii) Irrigated. (viii) Nil. (ix) 1.93". (x) 16, 17, 3, 1954.

2. TREATMENTS:
1. Fallow—Wheat.
2. Hot weather cultivation—wheat.
5. Sesam for green manuring—wheat.
6. Moong (T).—wheat.

Maize crop very poor due to water logging and it failed to bear cobs. It was harvested for fodder. After picking of moong, the green matter was turned in.

3. DESIGN:
(i) R.B.D. (ii) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 30°×45'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1953—1954. (b) N.A. (c) Nil. (v) (a) Kalai, Kalvanpur, Barelas and Roya. (b) N.A. (vi) Sesam failed in 3 plots. This had its consequent effect on the succeeding wheat crop. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 1062 lb/ac.
(ii) 207.65 lb/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1078</td>
</tr>
<tr>
<td>2.</td>
<td>1018</td>
</tr>
<tr>
<td>3.</td>
<td>915</td>
</tr>
<tr>
<td>4.</td>
<td>962</td>
</tr>
<tr>
<td>5.</td>
<td>1104</td>
</tr>
<tr>
<td>6.</td>
<td>1297</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>71.42 lb/ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat (Rabi).
Site : Govt. Agri. Farm, Kalai (Aligarh).

Ref : U.P. 49(26).
Type : "C".

Object : To study the effect of fallow as compared to having a legume, non legume or green manure crops in kharif on the yield of Wheat in rabi.

1. BASAL CONDITIONS:
(i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Light loam (Aligarh T-2). (b) N.A. (iii) 5,1, 1949. (iv) (a) Sown in rectangular strips, ploughed and levelling done. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) One weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Fallow—wheat.
2. Hot weather cultivation—fallow—wheat.
5. Sesam for G.M.—wheat.
3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N. A (iii) 8. (iv) (a) N. A. (b) 1/30 ac. (v) N. A. (vi) Yes.

4. GENERAL:
(i) Lodging due to heavy rains; crop satisfactory. (ii) No. (iii) Grain and straw yield, (iv) (a) 1949 to N. A. (b) and (c) N. A. (v) (a) Partapgarh and Kalyanapur. (b) N. A. (vi) Nil. (vii) The experiment was conducted by A.C. Experiment not conducted during the year 1950.

5. RESULTS:
(i) 669 lb./ac. 
(ii) 220.88 lb./ac. 
(iii) Treatment differences are not significant.
(iv) AV. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>AV. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1042</td>
</tr>
<tr>
<td>2.</td>
<td>1084</td>
</tr>
<tr>
<td>3.</td>
<td>859</td>
</tr>
<tr>
<td>4.</td>
<td>1076</td>
</tr>
<tr>
<td>5.</td>
<td>892</td>
</tr>
<tr>
<td>6.</td>
<td>979</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>~78.09 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat (Rabi).
Site : Govt. Agri. Farm, Kalai.
Ref : U.P. 51(100).
Object : To study the effect of fallow with or without hot weather cultivation as compared to having legume for green manure or a non legume crop in kharif on the yield of subsequent wheat crop.

1. BASAL CONDITIONS:
(i) (a) and (b) As per treatments. (c) 50 lb./ac. of N as A/S was broadcast to main crop. (ii) (a) Loam (Allagath Type 2). (b) N. A. (iii) 24.10.1951. (iv) (a) 4 ploughings by desi plough. (b) to (e) N. A. (v) Nil. (vi) N. A. (vii) Irrigated. (viii) N. A. (ix) N. A. (x) 2 and 3.4.1952.

2. TREATMENTS
1. Fallow-wheat.
2. Hot weather cultivation-wheat.
5. Sanai for green manuring-wheat.

In hot weather cultivation plots, 2 ploughings were given during pre-monsoon period. Kharif crop sown in 2nd week of June with irrigation. Mung completely failed and was subsequently reseeded on July 19, kharif crops were poor due to late rainfall. 3 pickings of Mung pods were taken on Aug. 7, 20 and Sept. 7, 1951. Sanai turned in on Aug. 12. Guar harvested from 8 to 12 Aug. Mung plants turned in on Sep. 7; Maize harvested on Sept. 15, 1951.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N. A. (iii) 8. (iv) (a) N. A. (b) 50'X39'. (v) N. A. (vi) Yes.

4. GENERAL:
(i) Pair. (ii) No. (iii) Grain yield. (iv) (a) 1949 to N. A. (b) Yes. (c) N. A. (v) (a) Kaepur, Partapgarh, Banaras and Raya. (b) N. A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1418 lb./ac. 
(ii) 196.05 lb./ac.
(iii) Treatment differences are highly significant.
Object:—To study the effect of fallow with or without hot weather cultivation as compared to having legume green manure or non legume crop during kharif on the yield of subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam (Alligarh type 3). (b) N.A. (iii) 21/22.10.1952. (iv) (a) Only hot weather plots were ploughed, Palewa and plough thrice, once with Watts plough and twice with desi plough 5 ploughings with desi plough and 1 harrowing for wheat. (b) Sown behind the plough in lines. (c) to (e) N.A. (v) Only maize was top dressed with 50 lb./ac. of N on 8.7.1952. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 4.4.1953.

2. TREATMENTS:
   1. Fallow (monsoon cultivated)-wheat.
   2. Hot weather cultivation-wheat.
   3. Maize (harvested on 9/10.9.1952 and used as fodder)-wheat.
   5. Sanai (turned in as green manure)-wheat.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) and (b) 50'×29'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Persistant rains adversely effected kharif crops. Fallow plots infested with weeds. Growth of wheat is very poor. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949-50. (b) Yes. (c) N.A. (v) (a) Kalyanpur, Partapgarh, Banaras, Raya and Matkota. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 763 lb./ac.
   (ii) 137.7 lb./ac.
   (iii) Treatments do not differ significantly.
   (iv) Av. yield of grain in lb./ac.
   Treatment
   1. 690
   2. 746
   3. 765
   4. 776
   5. 848
   6. 754
   S.E./mean = 48.6 lb./ac.
Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Kalai.
Ref: U.P. 53(351).
Type: ‘C’.

Object:—To study the effect of fallow with or without hot weather cultivation as compared to having legume green manure or a non-legume crop during kharif on the yield of subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) As per treatments. (b) As per treatments. (c) A/S applied only to maize plots at 50 lb./ac. of N on 30.7.1953. (ii) (a) Aligarh type 2. (b) N.A. (iii) 27.10.1953. (iv) (a) 5 ploughings each followed by pata, 1 harrowing and 1 palwa. (b) Drilling. (c) N.A. (d) N.A. (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 4.57”. (x) 7.4.1954.

2. TREATMENTS:
   1. Fallow—wheat.
   2. Hot weather cultivation—fallow—wheat.
   5. Sanai for green manure—wheat.
   6. Early moong T1—wheat.

Guar and moong failed to develop because of continuous rains during the early part of the monsoon. Maize crop also failed and was harvested for fodder.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 50’x29’. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Crop progressed well but in the month of February and March 1954 heavy showers accompanied with strong winds caused partial lodging of the crop. (ii) Attack of fungus diseases like rust which caused shriveling of the grain. (iii) Grain and bhusa yield. (iv) (a) 1949—N.A. (b) Yes. (c) Nil. (v) (a) Kalyanpur, Gazipur, Banaras and Raya. (b) Nil. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
   (i) 940.0 lb./ac.
   (ii) 167.92 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment | Av. yield
   ---|---
   1. | 958
   2. | 873
   3. | 1038
   4. | 766
   5. | 1155
   6. | 851
   S.E./mean | 59.37 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Res. Farm, Kalyanpur. 
Ref: U.P. 49(20).
Type: ‘C’.

Object:—To study the effect of fallow as compared to having a legume, non legume or green manure crop in kharif on the yield of Wheat in rabi.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Loam (Kanpur type 2). (b) N.A. (iii) 18.10.1949 and re-sown on 9.11.1949 due to poor germination and due to rains. (iv) (a) Ploughing and levelling done on 29.1.1949. (b) Sown in rectangular strips. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Weeding. (ix) N.A. (x) 5.4.1950.

2. TREATMENTS:
   1. Fallow—wheat.
   2. Hot weather cultivation—fallow—wheat.
   5. Sanai for G.M.—wheat.
Crop :-Wheat (Rabi).
Site :-Govt. Agri. Res. Farm, Kalyanpur.

Object :-To study the effect of fallow with or without hot wheather cultivation as compared to having a non legume, legume or green manure in kharif on the yield of subsequent Wheat crop in rabi.

1. BASAL CONDITIONS:
(i) (a) and (b) As per treatments. (c) 50 lb./ac. of N to maize on 16.6.1950. (ii) (a) Loam (Kanpur Type 2). (b) N.A. (iii) 30.10.1950. (iv) (a) Hot weather cultivation was commenced from 9.6.1950 in the field having this treatment. Final preparation on 19.6.1950 with one ploughing by iron watts plough and cultivation by cultivator and finally levelled. Plots were ploughed with a victory plough after kharif and given one cultivation and finally prepared after rabi. (b) to (e) N.A. (v) (a) Pratapgarh and Banaras. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. (viii) N.A. (ix) N.A. (x) 4.4.1951.

2. TREATMENTS:
1. Fallow—wheat.
2. Hot wheather cultivation—fallow—wheat
5. Sanai for green m1nuring—wheat.

Sowing in kharif was done on 19.6.1950. Sanai turned in after 6 weeks of sowing. Moong pods were picked up 4 times and the plants turned into the soil. Maize crop was poor and was harvested as fodder after removing the green cobs. Sanai and Moong were average.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 27" × 40'-4". (v) N.A. (vi) Yes.

4. GENERAL:
(i) Poor germination. (ii) No. (iii) Grain yield. (iv) (a) 1949 to 1953. (b) Yes. (c) N.A. (v) (a) Pratapgarh and Banaras. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.

5. RESULTS:
(i) 1543 lb./ac.
(ii) 237.7 lb./ac.
(iii) Treatment differences are highly significant.
### BASAL CONDITIONS:

1. **A. V. yield of grain in lb./ac.**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1280</td>
</tr>
<tr>
<td>2.</td>
<td>1465</td>
</tr>
<tr>
<td>3.</td>
<td>1275</td>
</tr>
<tr>
<td>4.</td>
<td>2310</td>
</tr>
<tr>
<td>5.</td>
<td>1650</td>
</tr>
</tbody>
</table>

S.E./mean = 84.05 lb./ac.

### TREATMENTS:

1. Fallow—wheat.
2. Hot weather cultivation—wheat.
4. **Guar** fodder—wheat.
5. **Sanai** for green manuring—wheat.
6. Early **moong**—wheat.

Hot weather cultivation was done on 19.4.1951. Crop sown on 13.7.1951. **Moong** pods were picked up 3 times before turning in on 18.9.1951. **Sanai** was turned in on 3.9.1951. **Guar** was harvested on 3.10.1951 and **maize** was harvested on 8.9.1951.

### DESIGN:

1. R.B.D. (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 27'x40'-4". (v) N.A. (vi) Yes.

### GENERAL:

1. **Good.** (ii) **Nil.** (iii) Grain yield. (iv) (a) 1949 to 1953. (b) **Yes.** (c) N.A. (v) (a) Pratapgarh, Banaras, Kalai and Raya. (b) N.A. (vi) **Nil.** (vii) The expt. was conducted by A.C.

### RESULTS:

1. 1271 lb./ac.
2. 192.6 lb./ac.
3. **Av. yield of grain in lb./ac.**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1190</td>
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<td>2.</td>
<td>1455</td>
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<td>3.</td>
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<td>4.</td>
<td>1295</td>
</tr>
<tr>
<td>5.</td>
<td>1290</td>
</tr>
<tr>
<td>6.</td>
<td>1210</td>
</tr>
</tbody>
</table>

S.E./mean = 68.09 lb./ac.
Crop :-Wheat (Rabi).
Site :-Govt. Agri. Res. Farm, Kalyanpur.
Object :-To study the effect of fallow with or without hot weather cultivation as compared to having legume green manure or non-legume crop during khairf on the yield of subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Loam (Kanpur-type 2). (b) N.A. (iii) 24, 25.10.1952. (iv) (a) Only hot weather cultivated plots were tilled with victory plough. Irrigation followed by Punjab soil turning plough. Watts plough followed by cultivation on 3.7.1952. Kharif crops sown on 5.7.1952. (v) N.A. (vi) Irrigated. (vii) I weeding. (ix) N.A. (x) 28.3.1953.

2. TREATMENTS:
   1. Fallow (monsoon cultivated)—wheat.
   2. Hot weather cultivation—wheat.
   3. Maize (harvested and used as green fodder)—wheat.
   4. Guar (harvested and used as fodder)—wheat.
   5 Sanai (turned in as green manure on 2.9.1953)—wheat.
   6. Early moong (harvested on 7.9.1953 and then buried)—wheat.

3. DESIGN:
   (i) R.B.D. (ii) 6. (b) N.A. (iii) 8. (iv) (a) and (b) 27' x 40.4'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949 to 1953. (b) Yes. (c) N.A. (v) (a) Kalai, Raya, Maskota, Pratapgarh and Banaras. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 1143 lb./ac.
   (ii) 217.2 lb./ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1060</td>
</tr>
<tr>
<td>2.</td>
<td>859</td>
</tr>
<tr>
<td>3.</td>
<td>1510</td>
</tr>
<tr>
<td>4.</td>
<td>1635</td>
</tr>
<tr>
<td>5.</td>
<td>1175</td>
</tr>
<tr>
<td>S E./mean</td>
<td>76.72 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :-Wheat (Rabi).
Site :-Govt. Agri. Farm, Kalyanpur.
Object :-To study the effect of fallow with or without hot weather cultivation as compared to having legume.green manure or a non-legume crop during kharif on the yield of the subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) 20 lb./ac. of N as A/S to maize only. (ii) (a) Kanpur (Type 2). (b) N.A. (iii) 23, 24.12.1953. (iv) (a) Hot weather cultivation fields ploughed on 20.7.1953, 1 victory plough, and 1 watts plough. The field was cultivated and Pata done on 15th, 18th Sept. and 8th Oct. Two ploughings by desi. (b) Behind the plough. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 3.4.1954.

2. TREATMENTS:
   1. Fallow followed by wheat.
   2. Hot weather cultivation followed by wheat.
   3. Early maize followed by wheat.
   4. Guar for fodder followed by wheat.
   5. Sanai for green manuring followed by wheat.
   6. Moong T-1 followed by wheat.

3. DESIGN:
(i) R.B.D. (ii) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 27'x40'4". (v) N.A. (vi) Yes.

4. GENERAL:
(i) Germination was uniform. Growth good. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1949-N.A. (b) N.A. (c) Yes. (v) (a) Kalai, Gazipur, Banaras and Raya. (b) N.A. (vi) Rats damaged the wheat crop. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 581.8 lb./ac. (ii) 93.10 lb./ac. (iii) Treatment differences are highly significant.

### Treatment

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>386.5</td>
<td>=32.92 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>410.0</td>
<td></td>
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<tr>
<td>3.</td>
<td>607.5</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>502.0</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>1036.5</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>548.5</td>
<td></td>
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Crop: - Wheat. *(Rabi)*

Site: - Govt. Res. Farm, Kanpur.

Ref: - U.P. 50(151).

Type: - 'C'.

Object: - To study the effect of spacing and seedlings per hill on yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 14 and 15.11.1950. (iv) (a) One ploughing with victory plough and six with desi plough. (b) Dibbling. (c) N.A. (d) and (e) As per treatments. (v) 4 cart loads of F.Y.M. (vi) C—13 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 8 and 9.5.1951.

2. TREATMENTS:
All combinations of (1) and (2).

(i) Seedling/hill: H1 = 1, H2 = 2 and H3 = 3 seedlings/hill.
(ii) 4 spacings between plants: S1 = 3", S2 = 6", S3 = 9" and S4 = 12".

3. DESIGN:
(i) 3x4 Fact. in R.B.D. (ii) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'x6'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) 1950 to 1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.R.

5. RESULTS:
(i) 1977 lb./ac. (ii) 314.25 lb./ac. (iii) Both H and S effects are highly significant while interaction is not significant.

### Treatment

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
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<td>1893</td>
<td>1322</td>
<td>1037</td>
<td>1601</td>
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<tr>
<td>H2</td>
<td>2645</td>
<td>2308</td>
<td>2048</td>
<td>1659</td>
<td>2165</td>
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<td>H3</td>
<td>2437</td>
<td>2152</td>
<td>2074</td>
<td>1997</td>
<td>2165</td>
</tr>
<tr>
<td>Mean</td>
<td>2411</td>
<td>2118</td>
<td>1815</td>
<td>1564</td>
<td>1977</td>
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</table>

S.E. of marginal mean of H = 78.56 lb./ac.
S.E. of marginal mean of S = 90.72 lb./ac.
S.E. of body of table = 157.12 lb./ac.
Object:—To study the effects of spacing and seedlings per hill on yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Sanai (G.M.). (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 14 and 15.11.1951. (iv) (a) 3 desi, 1 victory and 1 cultivator ploughing. (b) and (c) N.A. (d) and (e) As per treatments. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 19.4.1952.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) Seedlings/hill: \( H_1 = 1 \), \( H_2 = 2 \) and \( H_3 = 3 \).
   (2) 4 spacings between plants: \( S_1 = 3' \), \( S_2 = 6' \), \( S_3 = 9' \) and \( S_4 = 12' \).

3. DESIGN:
   (i) 3 x 4 Fact. in R.B.D. (ii) (a) 12 in two flanks. (b) N.A. (iii) 4. (iv) (a) and (b) 9' x 6'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) No lodging. (ii) At the later stage the leaves and stems of all the plots were attacked by orange rust. (iii) Germination and yield of grain. (iv) (a) 1950 to 1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS:
   (i) 1673 lb./ac.
   (ii) 432.53 lb./ac.
   (iii) S and H effects are highly significant while interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>( S_4 )</th>
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</tr>
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<td>1089</td>
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<td>2411</td>
<td>1634</td>
<td>1672</td>
<td>1361</td>
<td>1770</td>
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<tr>
<td>( H_3 )</td>
<td>2774</td>
<td>1906</td>
<td>1724</td>
<td>1465</td>
<td>1967</td>
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<tr>
<td>Mean</td>
<td>2294</td>
<td>1612</td>
<td>1495</td>
<td>1292</td>
<td>1673</td>
</tr>
</tbody>
</table>

S.E. of H marginal mean = 108.38 lb./ac.
S.E. of S marginal mean = 125.15 lb./ac.
S.E. of body of table = 216.76 lb./ac.
4. GENERAL:
(i) Good. No lodging. (ii) Traces of brown rust. (iii) Germination and grain yield. (iv) (a) 1950 to 1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
(i) 2852 lb./ac.
(ii) 328.0 lb./ac.
(iii) H and S effects are highly significant while their interaction is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>Mean</th>
</tr>
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<td>3189</td>
<td>2723</td>
<td>2126</td>
<td>1763</td>
<td>2450</td>
</tr>
<tr>
<td>H2</td>
<td>3189</td>
<td>2852</td>
<td>2774</td>
<td>2800</td>
<td>2904</td>
</tr>
<tr>
<td>H3</td>
<td>3474</td>
<td>3163</td>
<td>3267</td>
<td>2904</td>
<td>3202</td>
</tr>
<tr>
<td>Mean</td>
<td>3284</td>
<td>2913</td>
<td>2722</td>
<td>2489</td>
<td>2852</td>
</tr>
</tbody>
</table>

S.E. of H marginal mean = 82.00 lb./ac.
S.E. of S marginal mean = 94.68 lb./ac.
S.E. of body of table = 163.99 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Res. Farm, Kanpur.
Ref. :- U.P. 53(90).
Type :- ‘C’.

Object :- To study the effect of spacing and seedlings per hill on yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Sanai—wheat. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 1.11.1953.
(iv) (a) Light Palewa, 1 watts ploughing and pata, 3 desi ploughing and pata. (b) Dibbling. (c) N.A.
(d) and (e) As per treatment. (v) Nil. (vi) C-13 (medium). (vii) Irrigated. (viii) Nil. (ix) N.A.
(x) 10.4.1954.

2. TREATMENTS:
All combinations of (1) and (3)
(1) Seedlings/hill : H1=1, H2=2 and H3=3 seedlings/hill.
(2) 4 spacings between plants : S1=3’, S2=6’, S3=9’ and S4=12’.

3. DESIGN:
(i) 4×3 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) and (b) 9’×6’. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Germination, flowering, tillering, grain and straw yield. (iv) (a) 1950 to 1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
(i) 3490 lb./ac.
(ii) 240.51 lb./ac.
(iii) H and S effects are highly significant while interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>3500</td>
<td>3397</td>
<td>3008</td>
<td>2930</td>
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<tr>
<td>H2</td>
<td>3708</td>
<td>3630</td>
<td>3597</td>
<td>3526</td>
<td>3565</td>
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<tr>
<td>H3</td>
<td>3889</td>
<td>3630</td>
<td>3656</td>
<td>3604</td>
<td>3695</td>
</tr>
<tr>
<td>Mean</td>
<td>3699</td>
<td>3552</td>
<td>3354</td>
<td>3353</td>
<td>3490</td>
</tr>
</tbody>
</table>

S.E. of H marginal mean = 60.13 lb./ac.
S.E. of S marginal mean = 69.43 lb./ac.
S.E. of body of table = 120.26 lb./ac.
Crop :- Wheat (Rabi).  
Site :- Govt. Res. Farm, Kanpur.  
Ref :- U.P. 48(19).  
Type :- ‘C’.  

Object :-To study the effect of depth of sowing and seed rates on the yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A.  (ii) (a) Loam. (b) N.A. (iii) 6.11.1948.  (iv) (a) N.A. (b) Seeds drilled. (c) As per treatments.  (d) N.A.  (e) N.A.  (v) Nil. (vi) C-13 (early). (vii) Unirrigated. (viii) N.A.  (ix) N.A.  (x) 22, 23 4.1949.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 2 seed rates: R1=38 seers/ac. and R2=60 seers/ac.
   (2) 2 depths to which the seed is sown: D1=1½" and D2=2½".

3. DESIGN :
   (i) 2x2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 33’X22.5’. (b) 30’X22.5’. (v) 1.5’ along both sides of breadth. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Attack of rust was not severe except that it was found in traces, but later on, it developed.  (iii) Yield of fresh and dry grain.  (iv) (a) 1948-1950. (b) No. (c) N.A. (v) (a) No. (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by E.B.(R).

5. RESULTS :
   (i) 1974 lb./ac.
   (ii) 136.8 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
<td>R1</td>
<td>1948</td>
<td>2109</td>
<td>2028</td>
</tr>
<tr>
<td>R2</td>
<td>1940</td>
<td>1900</td>
<td>1920</td>
</tr>
<tr>
<td>Mean</td>
<td>1944</td>
<td>2004</td>
<td>1974</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean  = 48.35 lb./ac.
S.E. of body of table      = 68.38 lb./ac.

---

Crop :- Wheat (Rabi).  
Site :- Govt. Res. Farm, Kanpur.  
Ref :- U.P. 49(35).  
Type :- ‘C’.  

Object :-To study the effect of depth of sowing and seed rates on the yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A.  (ii) (a) Loam. (b) N.A. (iii) 27.10.1949.  (iv) (a) 1 ploughing with victory plough, 3 ploughing with cultivator and 1 ploughing with desi plough. (b) Drilling. (c) As per treatments.  (d) N.A.  (e) N.A.  (v) No. (vi) C-13 (early). (vii) Irrigated. (viii) 2 hoeings with man power. (ix) N.A.  (x) 5, 6.4.1950.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 4 seed rates: R1=34, R1=27, R2=17 and R3=11 seers/ac.
   (2) 2 depths to which the seed is sown: D1=1½", and D2=2½".

3. DESIGN :
   (i) 4x2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 42’X15’. (b) 38’X13½’. (v) 2’X1’. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Negligible—only traces of orange rust (small postules) appeared late in the season i.e. during 1st. week of February.  (iii) Grain and bhusha yield.  (iv) (a) 1948—1950. (b) No. (c) N.A. (v) (a) No. (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by E.B.(R).
5. RESULTS:
(i) 1560 lb./ac.
(ii) 236.4 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>R₁</th>
<th>R₂</th>
<th>R₃</th>
<th>R₄</th>
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<td>1594</td>
<td>1419</td>
<td>1534</td>
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<tr>
<td>Mean</td>
<td>1638</td>
<td>1559</td>
<td>1556</td>
<td>1446</td>
<td>1560</td>
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</tbody>
</table>

S.E. of marginal mean of R = 83.56 lb./ac.
S.E. of marginal mean of D = 59.09 lb./ac.
S.E. of body of table = 118.17 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To study the effect of depth of sowing and seed rate on yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 30.10.1950. (iv) (a) 2 ploughings with victory plough and 5 ploughings by desi plough. (b) Behind the plough. (c) As per treatments. (d) Rows 9' apart. (e) N.A. (v) 8 cart loads of F.Y.M. (vi) C-13 (early). (vii) Irrigated. (viii)–Nil. (ix) N.A. (x) 25 and 26.4.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 seed rates: R₁ = 20, R₂ = 40, R₃ = 60 and R₄ = 80 lb./ac.
(2) 2 depths to which the seed is sown: D₁ = 1½", and D₂ = 2½".

3. DESIGN:
(i) 4 X 2 Fact. in R.B.D. (ii) 8. (b) N.A. (iii) 4. (iv) (a) 23' X 17' - 3'. (b) 19' X 15' - 5'. (v) 2' X 1'. (vi) Yes.

4. GENERAL:
(i) Good growth. (ii) No disease except brown rust in traces only. (iii) Grain yield. (iv) (a) 1948—1950. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS:
(i) 1363 lb./ac.
(ii) 181.1 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>R₃</th>
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S.E. of marginal mean of D = 45.27 lb./ac.
S.E. of marginal mean of R = 64.03 lb./ac.
S.E. of body of table = 90.35 lb./ac.

Ref:- U.P. 50(136).
Type := "C".
Object: To study the effect of seed rates and spacings on growth and yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Sanai (G.M.). (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1952. (iv) (a) 2 victory, 3 desi and 1 cultivator ploughing. (b) Sown behind the plough. (c) and (d) As per treatments. (e) N.A. (v) Nil. (vi) N.P. 710. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 10.4.1953.

TREATMENTS:
All combinations of (1) and (2)
(1) 3 row spacings: $S_1=9'$, $S_2=12'$ and $S_3=15'$.
(2) 3 seed rates: $R_1=40$, $R_2=60$ and $R_3=80$ lb./ac.

3. DESIGN:
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9 in 3 flanks. (b) N.A. (iii) 2. (iv) (a) 22'x15'. (b) 18'x15'. (v) 2' at each end of the plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Germination and grain yield. (iv) (a) 1952—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS:
   (i) 2934 lb./ac.
   (ii) 310.1 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>Mean</th>
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<tr>
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<td>$R_2$</td>
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<tr>
<td>$R_3$</td>
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<td>2862</td>
<td>3132</td>
<td>3056</td>
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<tr>
<td>Mean</td>
<td>3098</td>
<td>2918</td>
<td>2786</td>
<td>2934</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 126.6 lb./ac.
S.E. of body of table = 219.3 lb./ac.

Crop: Wheat (Rabi).  
Site: Govt. Res. Farm, Kanpur.  
Ref: U.P. 53(88).  
Type: 'C'.

Object: To study the effect of seed rate and spacing on the growth and yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Sanai-Wheat rotation followed. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1952. (iv) (a) Light palewa on 12.10.1953. Turning in of Sanai on 31.8.1953 with victory plough. Victory plough and pata on 28.9.1953. Desi plough and pata on 10, 23 and 27.10.1953. Spring harrow and pata on 20.10.1953. (b) N.A. (c) and (d) As per treatments. (e) N.A. (v) Nil. (vi) N.P. 710 (vii) Irrigated. (viii) 2 weedings with khurpi. (ix) N.A. (x) 10.4.1954.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 spacings: $S_1=9'$, $S_2=12'$ and $S_3=15'$.
   (2) 3 seed rates: $R_1=40$, $R_2=60$ and $R_3=80$ lb./ac.

3. DESIGN:
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 22'x15'. (b) 18'x15'. (v) 2' at each end of plot. (vi) Yes.
4. GENERAL:
(i) Fair. No lodging. (ii) Slight incidence of rust disease. (iii) Germination, grain and straw yield. (iv) (a) 1952-1953 (Rabi) continued with modification. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
(i) 1121 lb./ac.
(ii) 166.0 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
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<th>S1</th>
<th>S2</th>
<th>S3</th>
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<td>1151</td>
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</tr>
<tr>
<td>Mean</td>
<td>1108</td>
<td>1137</td>
<td>1118</td>
<td>1121</td>
</tr>
</tbody>
</table>
S.E. of any marginal mean = 47.93 lb./ac.
S.E. of body of table = 83.02 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To study the effect of pruning and top dressing on Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) Chari for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 25.10.1951. (iv) (a) 2 ploughings and harrowings with desi plough and 1 with victory plough. (b) N.A. (c) 100 lb./ac. (d) 9" apart. (e) N.A. (v) 24 seers of A/S i.e. 1 sr./plot applied with first irrigation on 22.11.1951. (vi) N.P. 125. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 7.4.1952.

2. TREATMENTS:
1. Control.
2. Pruned and top dressed.
3. Unpruned and top dressed.
A/S at 1 srs./plot top dressed on 10.10.1952. Date of pruning on 29.12.1951 at the height of 9"-10".

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 30' x 12' 9". (b) 26' x 11' 3". (v) 2' x 2'. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) At a later stage the leaves and stem of all the plants of every treatment were affected by orange rust. (iii) Germination and grain yield. (iv) (a) No. (b) 3No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
(i) 1144 lb./ac.
(ii) 169.51 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1122</td>
</tr>
<tr>
<td>2.</td>
<td>1130</td>
</tr>
<tr>
<td>3.</td>
<td>1180</td>
</tr>
</tbody>
</table>
S.E./mean = 59.93 lb./ac.
Crop: Wheat (Rabi).  
Ref: U.P. 48(16).

Site: Govt. Res. Farm, Kanpur.  
Type: 'C'.

Object: To find out the best seed rate for Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil, (b) Sanai for G.M. (c) Nil. (ii) (a) Loam. (b) N.A.  
   (iii) 27.10.1948. (iv) (a) and (b) N.A. (c) As per treatments.  
   (d) Rows 9" apart. (e) N.A. (v) C-13 (early). (vi) N.A. (vii) N.A.  
   (ix) N.A.  
   (x) 26.4.1949.

2. TREATMENTS:
   4 seed rates: R₁ = 40 lb./ac., R₂ = 60 lb./ac., R₃ = 80 lb./ac. and R₄ = 100 lb./ac.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 4.  
   (iii) 4.  
   (iv) (a) 45' × 12'-9".  
   (b) 41' × 12'-9". (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good.  
   (ii) Nil.  
   (iii) Yield of fresh and dry grain.  
   (iv) (a) 1947 to 1948. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 1983 lb./ac.  
   (ii) 105.21 lb./ac.  
   (iii) Treatments are not significantly different.  
   (iv) Av. yield of grain in lb./ac.  
   Treatment Av. yield  
   R₁ 1948  
   R₂ 1948  
   R₃ 2088  
   R₄ 1948  
   S.E./mean = 52.60 lb./ac.

---

Crop: Wheat (Rabi).  
Ref: U.P. 49(38).

Site: Govt. Res. Farm, Kanpur.  
Type: 'C'.

Object: To study the effect of the dibbling on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for G.M. (c) Nil. (ii) (a) Loam. (b) N.A.  
   (iii) 15, 16.11.1949. (iv) (a) 3 ploughings with victory plough, 2 with cultivator and 5 with desi plough. (b) to (e) As per treatments. (v) Sanai for G.M. (vi) C-13 (early). (vii) Irrigated. (viii) One hoeing with manpower. (ix) N.A.  
   (x) 26.4.1950.

2. TREATMENTS:
   All combinations of (1) and (2).  
   (1) 4 levels of seedlings: H₁ = 1, H₂ = 2, H₃ = 3 seedlings/hill and H₄ = As usual behind the plough (80 lb./ac. of seed).  
   (2) 2 depths at which the seeds are sown: D₁ = H' and D₂ = 24".  
   Method of sowing: For D₁H₁—with kudali; D₂H₄—sown behind the plough and rest with dibbling sticks.

3. DESIGN:
   (i) 4 × 2 Fact. in R.B.D.  
   (ii) (a) 8. (b) N.A.  
   (iii) 4. (iv) (a) 35' × 12'. (b) 32' × 10½" (v) 1½' × 1½' (vi) Yes.

4. GENERAL:
   (i) The field was watered on 8th and 10th March with the result crop lodged. (ii) N.A. (iii) Yield of grain and bhusa.  
   (iv) (a) 1949 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 1757 lb./ac.  
   (ii) 163.98 lb./ac.  
   (iii) H and D effects are highly significant but interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>Mean</th>
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<td>1679</td>
<td>1770</td>
<td>1783</td>
<td>1655</td>
</tr>
<tr>
<td>D2</td>
<td>1637</td>
<td>1906</td>
<td>1938</td>
<td>1958</td>
<td>1860</td>
</tr>
<tr>
<td>Mean</td>
<td>1512</td>
<td>1792</td>
<td>1854</td>
<td>1870</td>
<td>1757</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of H = 57.98 lb./ac.
S.E. of marginal mean of D = 41.00 lb./ac.
S.E. of body of table = 81.99 lb./ac.

---

**Crop :** Wheat (*Rabi*).

**Site :** Govt. Res. Farm, Kanpur.

Object :—To study the effect of dibbling on Wheat.

1. **BASAL CONDITIONS :**

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 14 and 15.11.1950. (iv) (a) One ploughing with victory plough and six with *desi* plough. (b) N.A. (c) N.A. (d) Between rows 9" (no. of rows 14); distance between seeds 6". (v) 4 C.L. of F.Y.M. (vi) C-13 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 5.9.1951.

2. **TREATMENTS :**

All combinations of (1) and (2)

1. 4 levels of seedlings: H1=1, H2=2, H3=3 seedlings/hill and H4=seed sown behind the plough (seed rate 80 lb./ac).

(2) 2 depths at which the seed is sown: D1=1½" and D2=2½".

3. **DESIGN :**

(i) 4×2 Fact. in R.B.D. (ii) 8. (b) N.A. (iii) 3. (iv) (a) 20'×10'-5". (b) 16'×9'. (v) 2'×2". (vi) Yes.

4. **GENERAL :**

(i) N.A. (ii) Nil. (iii) Grain yield. (iv) (a) 1949-1950 to 1954-1955. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. **RESULTS :**

(i) 193 lb./ac.
(ii) 215.14 lb./ac.
(iii) Only H effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>Mean</th>
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<tr>
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<td>1303</td>
<td>1449</td>
<td>1556</td>
<td>1354</td>
</tr>
<tr>
<td>D2</td>
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<td>1478</td>
<td>1468</td>
<td>1585</td>
<td>1432</td>
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<tr>
<td>Mean</td>
<td>1152</td>
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<td>1458</td>
<td>1570</td>
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S.E. of marginal mean of H = 76.06 lb./ac.
S.E. of marginal mean of D = 53.79 lb./ac.
S.E. of body of table = 107.57 lb./ac.
Crop :- Wheat (Rabi).
Site :- Govt. Res. Farm, Kanpur.

Object :- To study the effect of dibbling on Wheat.

1. **BASAL CONDITIONS**:
   (i) (a) No. (b) Sanai (Green manuring). (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 15.11.1951. (iv) (a) Ploughings by desi-3 ; victory-2 ; cultivator-1. (b) and (c) As per treatments. (d) 9°x6°. (e) As per treatments. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 19.4.1952.

2. **TREATMENTS**:
   All combinations of (1) and (2)
   (1) 4 levels of seedlings: $H_1=1$, $H_2=2$, $H_3=3$ and $H_4=seed$ sown behind the plough at 80 lb./ac. as seed rate.
   (2) 2 depths to which the seed is sown: $D_1=1^{1/2}$ and $D_2=2^{1/2}$.

3. **DESIGN**:
   (i) 4 X 2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 21'X10^{1/2}'. (b) 17'X9°. (v) 2'X1°. (vi) Yes.

4. **GENERAL**:
   (i) Very good. Lodging in 3 plots. (ii) At a later stage the leaves and stem of every plant were affected by orange rust, ears were not affected (6.3.1952). (iii) Germination and grain yield. (iv) (a) 1949-1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. **RESULTS**:
   (i) 1504 lb./ac.
   (ii) 179.0 lb./ac.
   (iii) $H$ and $D$ effects are highly significant while interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

   \[
   \begin{array}{c|ccc|c}
   & H_1 & H_2 & H_3 & H_4 \hline
   D_1 & 1089 & 1382 & 1519 & 1620 & 1402 \\
   D_2 & 1364 & 1492 & 1647 & 1922 & 1606 \\
   \text{Mean} & 1226 & 1437 & 1583 & 1771 & 1504 \\
   \end{array}
   \]

   S.E. of marginal mean of $H$ = 63.30 lb./ac.
   S.E. of marginal mean of $D$ = 44.76 lb./ac.
   S.E. of body of table = 89.52 lb./ac.

---

Crop :- Wheat (Rabi).
Site :- Govt. Res. Farm, Kanpur.

Object :- To study the effect of dibbling on Wheat.

1. **BASAL CONDITIONS**:
   (i) (a) No. (b) Sanai (G.M.). (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 4 and 5.11.1952. (iv) (a) Ploughings-victory 2, desi 3 and cultivator 2. (b) and (c) As per treatments. (d) 9°x6°. (e) As per treatments. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 11.4.1953.

2. **TREATMENTS**:
   $S_1$ = One seed/hole (1/3 ch. per plot) by dibbling.
   $S_2$ = Two seeds/hole (11/12 ch. per plot) by dibbling.
   $S_3$ = Three seeds/hole (7/6 ch. per plot) by dibbling.
   $S_4$ = Seed sown behind the plough (6 ozs. or 3 chh. per plot).

3. **DESIGN**:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 21'X10^{1/2}'. (b) 17'X9°. (v) 2'X1°. (vi) Yes.

4. **GENERAL**:
   (i) Good. (ii) On leaves and stem 15% attack of brown rust. (iii) Grain yield and germination. (iv) (a) 1949 to 1954. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B. (R).
5. RESULTS:
(i) 2294 lb./ac.
(ii) 199.8 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>Treatment</th>
<th>Av. yield</th>
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<tr>
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</tr>
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<td>S₂</td>
<td>2422</td>
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<tr>
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</tr>
<tr>
<td>S₄</td>
<td>2184</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>89.55 lb./ac.</td>
</tr>
</tbody>
</table>

Object: To study the effect of dibbling on Wheat.

1. BASAL CONDITIONS:
(i) (a) Sanai—wheat. (b) Sanai green manure. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 1.1.1953. (iv) (a) 1 light palewa, 1 watts plough and pata, 3 desi plough and pata. (b) and (c) As per treatments. (d) 9"x6". (e) As per treatments. (v) Nil. (vi) Č. 13 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 7.4.1954.

2. TREATMENTS:
S₁ = 1 seed/hole at 8.45 lb./ac. as seedrate.
S₂ = 2 seeds/hole at 23.26 lb./ac. as seedrate.
S₃ = 3 seeds/hole at 29.62 lb./ac. as seedrate.
S₄ = Sown behind plough at 82.28 lb./ac. as seedrate.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 21'x10.4'. (b) 17'x9'. (v) 2'x1'. (vi) Yes.

4. GENERAL:
(i) Good, lodged on 21.2.1954. (ii) Rust incidence took place on 26.2.1954 after rains. Before rains rust was negligible, medium for S₁, S₂, S₃ and heavy for S₄. (iii) Germination, flowering, sheaf, grain and straw yield. (iv) (a) 1949 to 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).
2. TREATMENTS:

Main-plot treatments:
- 4 previous crops: \( C_0 = \text{Fallow}, \ C_1 = \text{Green manure}, \ C_2 = \text{Guar} \) and \( C_3 = \text{Moong T} \).

Sub-plot treatments:
- 2 weedicings: \( W_0 = \text{No weeding} \) and \( W_1 = \text{Weeding} \).

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/block and 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 30' x 24'. (b) 28' x 22'. (v) 1' around sub-plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (i) (a) 1951 to 1955 (Modified in 1952—1953). (b) Yes. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by P.A.C.

5. RESULTS:

(i) 1407 lb./ac.
(ii) 181.1 lb./ac.
(iii) C and W effects are highly significant, while interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( C_0 )</th>
<th>( C_1 )</th>
<th>( C_2 )</th>
<th>( C_3 )</th>
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<td>1055</td>
<td>1074</td>
<td>1242</td>
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<tr>
<td>( W_1 )</td>
<td>1607</td>
<td>1787</td>
<td>1539</td>
<td>1353</td>
<td>1572</td>
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<tr>
<td>Mean</td>
<td>1526</td>
<td>1592</td>
<td>1297</td>
<td>1214</td>
<td>1407</td>
</tr>
</tbody>
</table>

S.E. of difference of two:
1. Marginal means of C = 73.93 lb./ac.
2. Marginal means of W = 73.45 lb./ac.
3. W means at the same level of C = 177.5 lb./ac.
4. C means at the same level of W = 146.9 lb./ac.

Crop: Wheat (Rabi).
Site: Students' Instructional Farm, Kanpur.
Type: "C".

Object: To study the effect of different rotational and cultural practices on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) and (b) As per treatments. (c) No. (ii) (a) Sand loam. (b) N.A. (iii) N.A. (iv) (a), (b) N.A. (c) 40 yrs. (d) and (e) N.A. (v) N.A. (vi) C-13 (early). (vii) Irrigated. (viii) As per treatments. (ix) N.A. (v) N.A.

2. TREATMENTS:

Main-plot treatments:
- 2 ploughings: \( S_0 = \text{No ploughing} \) and \( S_1 = \text{Summer ploughing} \).

Sub-plot treatments:
- 4 previous crops: \( R_1 = \text{Fallow}, \ R_2 = \text{G.M. (Sanai)}, \ R_3 = \text{Guar} \) and \( R_4 = \text{Moong} \).

Sub-sub-plot treatments:
- 2 weedicings: \( W_0 = \text{No weeding} \) and \( W_1 = \text{Weeding} \).

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block, 3 sub-plots/main-plot and 2 sub-sub-plots/sub-plot. (b) N.A. (ii) 3. (iv) (a) 30' x 24'. (b) 28' x 22'. (v) 1' around. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1951 to 1955 (modified in 1952-1953). (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.A.C.
5. RESULTS:

(i) 1647 lb./ac.
(ii) (a) 148.2 lb./ac.
(b) 213.4 lb./ac.
(c) 237.8 lb./ac.
(iii) R effect is highly significant. W effect is significant others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>R₁</th>
<th>R₂</th>
<th>R₃</th>
<th>R₄</th>
<th>Mean</th>
<th>W₀</th>
<th>W₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₀</td>
<td>1487</td>
<td>1708</td>
<td>1481</td>
<td>1915</td>
<td>1648</td>
<td>1596</td>
<td>1700</td>
</tr>
<tr>
<td>S₂</td>
<td>1615</td>
<td>1894</td>
<td>1438</td>
<td>1638</td>
<td>1646</td>
<td>1534</td>
<td>1759</td>
</tr>
<tr>
<td>Mean</td>
<td>1551</td>
<td>1801</td>
<td>1460</td>
<td>1777</td>
<td>1647</td>
<td>1565</td>
<td>1729</td>
</tr>
<tr>
<td>W₀</td>
<td>1450</td>
<td>1755</td>
<td>1288</td>
<td>1767</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W₁</td>
<td>1652</td>
<td>1847</td>
<td>1631</td>
<td>1787</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. S marginal means = 42.77 lb./ac.
2. R marginal means = 87.09 lb./ac.
3. W marginal means = 68.64 lb./ac.
4. R means at the same level of S = 123.19 lb./ac.
5. S means at the same level of R = 114.95 lb./ac.
6. W means at the same level of S = 97.07 lb./ac.
7. S means at the same level of W = 80.59 lb./ac.
8. W means at the same level of R = 137.29 lb./ac.
9. R means at the same level of W = 130.44 lb./ac.

Crop: Wheat (Rabi).
Site: Students’ Instructional Farm, Kanpur.
Object: To study the effect of different rotational and cultural practices on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) and (b) As per treatments. (c) No manuring. (ii) (a) Sandy loam. (b) N.A. (iii) 31.10.1953. (iv) (a) The fallow plots were ploughed twice during rains. Moong was ploughed in the first week of September in the plots concerned. Four ploughings followed by patta. (b) Sowing behind the plough. (c) 40 seers/ac. (d) N.A. (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Weeding on 3.1.1954. (ix) N.A. (x) 4, 5.4.1954.

2. TREATMENTS:

Main-plot treatments:
2 ploughings: S₀=No ploughing and S₁=Summer ploughing.

Sub-plot treatments:
4 previous crops: R₁=Fallow, R₂=G.M. (sanai), R₃=Guar and R₄=Moong.

Sub-Sub-plot treatments:
2 weedings: W₀=No weeding and W₁=Weeding.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block, 4 sub-plots/main-plot and 2 sub-sub plots/sub-plot. (b) N.A. (iii) 3. (iv) (a) 30'×24'. (b) 28'×22'. (v) 1' around sub-plot. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Wheat grain and bhusa yield separately. (iv) (a) 1951 to 1955. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.A.C.

5. RESULTS:

(i) 1264 lb./ac.
(ii) (a) 603.3 lb./ac.
(b) 176.6 lb./ac.
(c) 150.9 lb./ac.
(iii) R effect is highly significant, W effect is significant while other effects are not significant.
Crop: Wheat (Rabi).

Site: Students' Instructional Farm, Kanpur.

Object: To study the effect of short duration legume in the Fallow-Wheat rotation as judged by the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) to (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Sown behind the plough. (c) 40 sors/ac. (d) N.A. (e) N.A. (f) Nil. (g) C-13 (early). (h) Irrigated. (i) N.A. (j) C.

2. TREATMENTS:
   1. Fallow wheat.
   2. Moong with 80 lb./ac. of P₂O₅—wheat.
   3. Moong without P₂O₅—wheat.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 130' x 19'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1955. (b) Yes. (c) N.A. (d) (a) No. (b) N.A. (v) Nil. (vi) The experiment was conducted by P.A.C.

5. RESULTS:
   (i) 819 lb./ac.
   (ii) 115.2 lb./ac.
   (iii) The treatments differ highly significantly.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>992</td>
</tr>
<tr>
<td>2.</td>
<td>738</td>
</tr>
<tr>
<td>3.</td>
<td>728</td>
</tr>
</tbody>
</table>

S.E./mean = 47.05 lb./ac.
Crop :- Wheat (Rabi).
Site :- Students' Instructional Farm, Kanpur. Type :- 'C'.

Object :- To study the effect of a short duration legume in the Fallow-Wheat rotation as judged by the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) to (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Sown behind the plough. (c) 40 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Fallow-wheat.
   2. Moong with 80 lb./ac. of P₂O₅—wheat.
   3. Moong without P₂O₅—wheat.

3. DESIGN:
   (i) R.B.D. (ii) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 130'x19'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) Grain yield. (iv) (a) 1950 to 1955. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.A.C.

5. RESULTS:
   (i) 881 lb./ac.
   (ii) 151.5 lb./ac.
   (iii) The treatments do not differ significantly.
   (iv) Av. yield of grain in lb./ac.
   Treatment | Av. yield
   --- | ---
   1. | 932
   2. | 909
   3. | 802
   S.E/mean = 61.8 lb./ac.

---

Crop :- Wheat (Rabi).
Site :- Students' Instructional Farm, Kanpur. Type :- 'C'.

Object :- To study the effect of a short duration legume in the Fallow-Wheat rotation as judged by the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) to (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 11.9.1952. (iv) (a) N.A. (b) Sown behind the plough. (c) to (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Fallow—wheat.
   2. Moong with 80 lb./ac. of P₂O₅—wheat.
   3. Moong without P₂O₅—wheat.

3. DESIGN:
   (i) R.B.D. (ii) 3. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) 130'x19'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1950 to 1955. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.A.C.

5. RESULTS:
   (i) 1207 lb./ac.
   (ii) 166.7 lb./ac.
   (iii) The treatments do not differ significantly.
Crop :- Wheat (Rabi). Ref :- U.P. 53(126)/52(190)/51(140)/50(135).

Site :- Students’ Instructional Farm, Kanpur. Type :- ‘C’.

Object :- To study the effect of a short duration legume in the Fallow-Wheat rotation as judged by the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 30.10.1953. (iv) (a) 5 to 7 ploughings. (b) Sown behind the plough. (c) 40 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C-13. (vii) Irrigated. (viii) One weeding and roguing. (ix) N.A. (x) 31.3.1954.

2. TREATMENTS:
   1. Fallow—wheat.
   2. Moong with 80 lb./ac. of P_2O_5—wheat.
   3. Moong without P_2O_5—wheat.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 132' x 21'. (b) 130' x 19'. (v) 1' around. (v) Yes.

4. GENERAL:
   (i) Normal. (ii) Nil. (iii) Grain and bhasa yield. (iv) (a) 1950 to 1955. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.A.C.

5. RESULTS:
   (i) 890.5 lb./ac.
   (ii) 98.51 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>852.0</td>
</tr>
<tr>
<td>2.</td>
<td>1024.8</td>
</tr>
<tr>
<td>3.</td>
<td>794.6</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>40.22 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat. Ref :- U.P. 49(69).

Site :- Crop Physiological Res. Stn., Lucknow. Type :- ‘C’.

Object :- To study the effect of varying seed rates of Wheat on growth and yield.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Uncultivated land. (c) Nil. (ii) (a) Sandy loam. (iii) 8.11.1949. (iv) (a) 2 ploughings by mould board plough, 1 crosswise ploughing by tractor. 2 ploughings by desi plough and planking. (b) dibbling. (c) As per treatments. (d) Rows 9' apart. (e) 1. (v) 40 lb/ac. of N as T.C. on 8.12.1949 +20 lb./ac. of N of A/S top dressed on 29.12.1949. (iv) P&V 591 (mid late). (vii) Irrigated. (viii) 3 hoeings and weedings. (ix) N.A. (x) 5.4.1950.

2. TREATMENTS:
   7 seed rates: R_1=5, R_2=7.5, R_3=10, R_4=12.5, R_5=15, R_6=17.5 and R_7=20 seers/ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 16' x 10'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 2322 lb./ac.
(ii) 265.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>2042</td>
</tr>
<tr>
<td>R2</td>
<td>2439</td>
</tr>
<tr>
<td>R3</td>
<td>2609</td>
</tr>
<tr>
<td>R4</td>
<td>2405</td>
</tr>
<tr>
<td>R5</td>
<td>2359</td>
</tr>
<tr>
<td>R6</td>
<td>2216</td>
</tr>
<tr>
<td>R7</td>
<td>2155</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 151.0 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat.
Site :- Crop Physiological Res. Stn., Lucknow.
Object :- To study the effect of different seed rates on yield and growth of Wheat crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 24.10.1950. (iv) (a) Two ploughings by mould board plough and two by desi plough with cultivator and planking etc. (b) Dibbling. (c) According to treatments. (d) Line to line 9" apart. (e) N.A. (v) 40 mds. stable manure on 15.10.1950. (vi) C-13. (vii) Irrigated. (viii) 3 interculturings. (ix) N.A. (x) 12 and 16.4.1951.

2. TREATMENTS:
6 seed rates: R1 =3, R2=6, R3=9, R4=12, R5=15 and R6=18 lb./ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 20'x21'. (b) 16'x17'. (v) 2' around. (vi) Yes.

4. GENERAL:
(i) Below normal. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 938 lb./ac.
(ii) 123.8 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>727</td>
</tr>
<tr>
<td>R2</td>
<td>809</td>
</tr>
<tr>
<td>R3</td>
<td>878</td>
</tr>
<tr>
<td>R4</td>
<td>933</td>
</tr>
<tr>
<td>R5</td>
<td>1235</td>
</tr>
<tr>
<td>R6</td>
<td>1043</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 71.50 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat.
Site :- Crop Physiological Res. Stn., Lucknow.
Object :- To study the effect of varying seed rates of Wheat on its yield.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 9.11.1950. (iv) (a) Two ploughings by mould board plough, ploughing by desi plough, planking. (b) Behind the plough. (c) to (e) N.A. (v) Stable manure on 15.10.1950. (vi) Pb-591. (vii) Irrigated. (viii) 1 interculturing. (ix) N.A. (x) 12.4.1951.
2. TREATMENTS:
12 seed rates: \( R_1 = 20, R_2 = 25, R_3 = 30, R_4 = 35, R_5 = 40, R_6 = 45, R_7 = 50, R_8 = 55, R_9 = 60, R_{10} = 70, R_{11} = 80 \) and \( R_{12} = 90 \) seers/ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 14' x 11'. (b) 12' x 9'. (v) 1' alround. (vi) Yes.

4. GENERAL:
(i) Below normal. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) No. (b) and (c) No. (v) (a), (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 979 lb./ac.
(ii) 244.0 lb./ac.
(iii) The treatments do not differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>R_1</td>
<td>760</td>
</tr>
<tr>
<td>R_2</td>
<td>795</td>
</tr>
<tr>
<td>R_3</td>
<td>864</td>
</tr>
<tr>
<td>R_4</td>
<td>933</td>
</tr>
<tr>
<td>R_5</td>
<td>1140</td>
</tr>
<tr>
<td>R_6</td>
<td>1175</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=140.9 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat.
Site: Crop Physiological Res. Stn., Lucknow.
Object: To study the effect of rotating Moong T_1 with Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 17.10.1950. (iv) (a) Two ploughings by mould board plough and 3 by desi plough and planking. (b) Sown behind the plough. (c) 50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) NP-52 (medium early). (vii) Irrigated. (viii) 2 intercultures. (ix) N.A. (x) 14 to 16.4.1951.

2. TREATMENTS:
1. Fallow.
2. Moong once.
3. Moong two times.
4. Moong three times.
5. Samai — G.M.
   Three times: — As above + sowing on 24.8.50 and harvested on 15.10.1950.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 16' x 42'. (b) 12' x 38' (v) 2' alround. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 633.7 lb./ac.
(ii) 128.8 lb./ac.
(iii) Treatments are significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>564.5</td>
</tr>
<tr>
<td>2.</td>
<td>405.4</td>
</tr>
<tr>
<td>3.</td>
<td>516.3</td>
</tr>
<tr>
<td>4.</td>
<td>700.0</td>
</tr>
<tr>
<td>5.</td>
<td>982.2</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=64.4 lb./ac.</td>
</tr>
</tbody>
</table>

Ref.: U.P. 50(87)
Type: ‘C’.
Object:—To study the effect of fallow as compared to having a legume, a non-legume or green manure crop in kharif on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) and (b) As under treatments. (c) N.A. (ii) (a) Domat (unclassified). (b) N.A. (iii) 11,11,1939. (iv) (a) Ploughed and levelling done. (b) Sown in rectangular strip. (c) to (e) N.A. (v) No. (vi) N.A. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 18, 23.4.1950.

2. TREATMENTS:
   1. Fallow—Wheat.
   2. Hot weather cultivation—fallow—wheat.
   5. Sanai for G.M.—wheat.
   6. Early moong and Early Udid—wheat.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/29.50 tli ac. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good growth in 3 replicates and poor in other 5. (ii) No. (iii) Yield of grain and straw. (iv) (a) 1949 to 1952. (b) N.A. (c) N.A. (v) (a) Kalai and Kalyanpur. (b) N.A. (vi) Nil. (vii) Conducted by A C.

5. RESULTS:
   (i) 739.9 lb./ac.
   (ii) 286.3 lb./ac.
   (iii) Treatments are not significantly different.
   (iv) Av. yield of grain in lb./ac.
   Treatments Av. yield.
   1. 785.4
   2. 877.6
   3. 800.2
   4. 682.2
   5. 674.8
   6. 623.2
   S E./mean = 101.2 lb./ac.

Crop :—Wheat. Ref.: U.P. 50(60).
Site :—Govt. Agri. Farm, Pratapgarh. Type :—‘C’.

Object:—To study the effect of fallow with or without hot weather cultivation as compared to having a non-legume, a legume or green manure crop in kharif on the yield of subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) Maize plots at 50 lb./ac. of N as compost top dressed. (ii) (a) Loam. (b) N.A. (iii) 20.10.1950. (iv) (a) 3 ploughings and 2 harrowings. (b) to (e) N.A. (v) No. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Fallow—wheat.
   2. Hot weather cultivation—fallow—wheat.
   5. Sanai for green manuring—wheat.

Sanai and guar were sown on 5.7.1950, moong on 7.7.1950 and maize on 8.7.1950. Sanai was turned in on 20.8.1950. Guar harvested as fodder on 23.8.1950; moong pods were picked and plants turned in 1st week of September. Maize completely failed due to excessive rains.
3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 31' x 48'. (v) 1' between plots and 3' between blocks. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1949 to 1952. (b) Yes. (c) N.A. (v) (a) Kalyanpur and Banaras. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 876.4 lb./ac. 
(ii) 298.3 lb./ac. 
(iii) Treatments are significantly different. 
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>662.4</td>
</tr>
<tr>
<td>2.</td>
<td>918.5</td>
</tr>
<tr>
<td>3.</td>
<td>655.0</td>
</tr>
<tr>
<td>4.</td>
<td>962.4</td>
</tr>
<tr>
<td>5.</td>
<td>1101.4</td>
</tr>
<tr>
<td>6.</td>
<td>958.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=105.4 lb./ac.</td>
</tr>
</tbody>
</table>

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Object :- To study the effect of fallow with or without hot weather cultivation as compared to having legume, green manure in *Kharif* or a non-legume crop on the yield of subsequent crop of Wheat.

1. BASAL CONDITIONS:
(i) (a) and (b) As per treatments. (c) Maize plots at 50 lb./ac. of N as A/S broadcast. (ii) (a) Loam. (b) N.A. (iii) 11.11.1951. (iv) (a) 6 ploughings and *palewa*. (b) to (e) N.A. (v) N.A. (vi) Irrigated. (vii) N.A. (ix) N.A. (x) 12.4.1952.

2. TREATMENTS:
1. Fallow—wheat.
2. Hot weather cultivation—wheat.
5. *Sanai* for green manuring—wheat.
6. Early *moong*—wheat.

Hot weather cultivation was done on 26 and 27.5.1951. *Sanai* and *guar* seeds were sown as broadcast on 7.7.1951, while *moong* and maize were sown in lines on 8.7.1951. *Sanai* was ploughed in on 27.8.1951 and *moong* on 13.9.1951. *Guar* and maize harvested on 26.8.1951 and 22.9.1951 respectively. Maize crop failed due to droughty condition.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 30' x 35.5'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Crop affected by white ants and in the late stage by rats also. (iii) Grain yield. (iv) (a) 1949 to 1952. (b) Yes. (c) N.A. (v) (a) Kanpur, Banaras, Kalai and Raya. (b) N.A. (vi) The damage due to rats was maximum in the *sanai* and hot weather cultivated plots. (vii) Conducted by A.C.

5. RESULTS:
(i) 1121 lb./ac. 
(ii) 345.6 lb./ac. 
(iii) Treatments are not significantly different.
Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1150</td>
</tr>
<tr>
<td>2.</td>
<td>1084</td>
</tr>
<tr>
<td>3.</td>
<td>976</td>
</tr>
<tr>
<td>4.</td>
<td>1063</td>
</tr>
<tr>
<td>5.</td>
<td>1391</td>
</tr>
<tr>
<td>6.</td>
<td>1063</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>=122.2 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :-Wheat (Rabi).
Site :-Govt. Agri. Farm, Pratapgarh.
Ref :- U.P. 52(17).
Type :-'C'.

Object :-To study the effect of fallow with or without hot weather cultivation as compared to having legume, green manure or a non-legume crop during kharif on the yield of subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Loam (unclassified).  (b) N.A.  (iii) 5.11.1952.  (iv) Only hot weather plots ploughed in summer, one ploughing before kharif crop was sown, seven ploughings for wheat.  (v) A/S at 50 lb./ac. of N as top dressing to maize crop on 19.7.1952.  (vi) N.A.  (vii) N.A.  (viii) Nil.  (ix) N.A.  (x) 27, 28.3.1953.

2. TREATMENTS:
   1. Fallow (monsoon cultivated)—wheat.
   2. Hot weather cultivation (potato)—wheat.
   3. Maize (harvested on 10, 11.9.1952 and used as green fodder)—wheat.
   4. Guar (harvested and used as G.M. 10.9.1952)—wheat.
   5. Sanai (turned in on 10.9.1952)—wheat.
   6. Early moong (two pickings of pods on 25.8.1952 and 10.9.1952 and then buried after broadcasting)—wheat.

3. DESIGN:
   (i) R.B.D.  (ii) 6.  (b) N.A.  (iii) 8.  (iv) (a) and (b) 43'x27'.3'.  (v) Between plots 1' and between blocks 3'.  (vi) Yes.

4. GENERAL:
   (i) Normal.  (ii) Cobs of maize damaged by birds before maturity.  (iii) Grain and straw yield.  (iv) (a) 1949—1952.  (b) Yes.  (c) N.A.  (v) (a) Kalai, Kalyanpur, Banaras, Raya and Matkota.  (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 1172 lb./ac.
   (ii) 166.7 lb./ac.
   (iii) Treatments are not significantly different.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1032</td>
</tr>
<tr>
<td>2.</td>
<td>1111</td>
</tr>
<tr>
<td>3.</td>
<td>1149</td>
</tr>
<tr>
<td>4.</td>
<td>1186</td>
</tr>
<tr>
<td>5.</td>
<td>1204</td>
</tr>
<tr>
<td>6.</td>
<td>1349</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>=58.92 lb./ac.</td>
</tr>
</tbody>
</table>
Object:—To study the effect of fallow with or without hot weather cultivation as compared to having legume, green manure or a non-legume crop in kharif on the yield of subsequent crop of Wheat.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) 50 lb./ac. of N as A/S was broadcast to maize plots. (ii) (a) Sandy loam (not classified). (b) Refer soil analysis, Raya. (iii) 23.11.1951. (iv) (a) Ploughing. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 17 to 22.4.1952.

2. TREATMENTS:
   1. Fallow—wheat.
   2. Hot weather cultivation—wheat.
   5. Sanai for green manuring—wheat.
   
   Kharif crops sown on August 23.1951, moong pods were picked 3 times and after the 3rd picking plants were buried into the soil on 4.10.1951. Sanai was turned into the soil on 17 and 18.9.1951, guar was harvested on 22 to 24.9.1951 and maize harvested on 16.10.1951.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 50'x29'. (v) 1' between plots and 3' between blocks. (vi) Yes.

4. GENERAL:
   (i) Germination satisfactory. (ii) No. (iii) Grain yield. (iv) (a) 1951—1953. (b) Yes. (c) N.A. (v) (a) Kanpur, Pratapgarh, Banaras and Kalai. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 515.0 lb./ac.
   (ii) 122.0 lb./ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of grain in lb./ac.  

<table>
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<th>Treatment</th>
<th>Av- yield</th>
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<tbody>
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<td>2</td>
<td>860.2</td>
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<tr>
<td>3</td>
<td>296.8</td>
</tr>
<tr>
<td>4</td>
<td>281.1</td>
</tr>
<tr>
<td>5</td>
<td>916.2</td>
</tr>
<tr>
<td>6</td>
<td>364.0</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=43.16 lb./ac.</td>
</tr>
</tbody>
</table>

Object:—To study the effect of fallow with or without hot weather cultivation as compared to having legume, green manure or a non-legume crop during kharif on the yield of subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) 50 lb./ac. of N as A/S applied to maize. (ii) (a) Sandy loam (unclassified). (b) Refer soil analysis, Raya. (iii) N.A. (iv) (a) Only hot weather cultivated plots ploughed twice in summer, palawa followed by two ploughings, Sanai and Guar by broadcast and moong and maize were sown in lines, palawa and ploughing twice, light irrigation and 4 ploughings for Wheat (Rabi). (v) No. (vi) N.A. (vii) Irrigated. (viii) 2 hand weedings and 1 harrowing with lever harrow before sowing wheat. (ix) N.A. (x) 4.4.1953.
2. TREATMENTS:
1. Fallow (monsoon cultivated)—wheat.
2. Hot weather cultivation—wheat.
4. Guar (harvested on 7 to 10.9.1952)—wheat.
5. Sanai (ploughed in on 5, 6.9.1952)—wheat.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 50'×29'. (v) 3' between blocks. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) 1951 to 1953. (b) Yes. (c) N.A. (v) (a) Kalyanpur, Kalai, Pratapgarh and Banaras. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 1167.2 lb./ac.
(ii) 181.4 lb./ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>938.6</td>
</tr>
<tr>
<td>2.</td>
<td>866.9</td>
</tr>
<tr>
<td>3.</td>
<td>1145.8</td>
</tr>
<tr>
<td>4.</td>
<td>976.6</td>
</tr>
<tr>
<td>5.</td>
<td>1678.9</td>
</tr>
<tr>
<td>6.</td>
<td>1396.6</td>
</tr>
</tbody>
</table>

S.E./mean = 64.15 lb./ac.

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Object:—To study the effect of fallow with or without hot weather cultivation as compared to having legume, green manure or a non-legume crop during kharif on the yield of subsequent Wheat crop.

1. BASAL CONDITIONS:
(i) (a) and (b) As per treatments. (c) N applied to maize as top dressing. (ii) (a) Light loam. (b) Refer soil analysis, Raya. (iii) 5.11.1953. (iv) (a) 5 ploughings and 2 palewa. (b) By drilling. (c) to. (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Interculture and one hoeing. (ix) 1.13'. (x) 14.4.1954.

2. TREATMENTS:
1. Fallow—wheat.
2. Hot weather cultivation—wheat.
5. Sanai for green manure—wheat.
6. Early moong T 1—wheat.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 50'×29'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Fair crop. (ii) N.A. (iii) Grain and bhasa yield. (iv) (a) 1951—1953. (b) Yes. (c) Nil. (v) (a) Banaras, Gazipur, Kalai and Kalyanpur. (b) N.A. (vi) Because of the continuance of the experiment in the same field for the last two years, general fertility of the field has gone down. On the whole the wheat crop was fair considering the low fertility of the field. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 720.4 lb./ac.
(ii) 97.43 lb./ac.
(iii) The treatments are highly significantly different.
Crop : Wheat.  
Site : Regional Res. Stn., Varanasi.  
Ref : U.P. 50(65).  
Type : 'C'.

Object : To study the effect of fallow with or without hot weather cultivation as compared to having a non-legume or a legume or green manure crop in kharif on the yield of subsequent wheat crop in Rabi.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) 50 lb./ac. of N as F.Y.M. to maize crop. (ii) (a) Clayey loam (Banaras Type 2). (b) Refer soil analysis, Varanasi. (iii) 1.11.1950. (iv) (a) Field was prepared for Rabi. (b) to (e) N.A. (v) No. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) Middle of April, 1951.

2. TREATMENTS:
   1. Fallow—wheat.
   2. Hot weather cultivation—fallow—wheat.
   5. Sanai for green manuring—wheat.

   Kharif crop sown on July 7,1950, but due to heavy rains the crop completely failed.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 29' x 46'. (v) 1' between plots and 3' between blocks. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) No. (iii) Grain yield. (iv) (a) 1950 to 1953. (b) Yes. (c) N.A. (v) (a) Kalyaupur and Pratapgarh. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
   (i) 1039 lb./ac.
   (ii) 150.7 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>976</td>
</tr>
<tr>
<td>2.</td>
<td>1065</td>
</tr>
<tr>
<td>3.</td>
<td>1016</td>
</tr>
<tr>
<td>4.</td>
<td>1049</td>
</tr>
<tr>
<td>5.</td>
<td>996</td>
</tr>
<tr>
<td>6.</td>
<td>1135</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 53.28 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Wheat (Rabi).
Site :- Regional Res. Stn., Varanasi.
Object :- To study the effect of fallow with or without hot weather cultivation as compared to having legumes for grain, fodder or green manuring in kharif or a non-legume on the yield of subsequent crop of Wheat.

1. BASAL CONDITIONS:
(i) (a) and (b) As per treatments. (c) 50 lb./ac. of N as A/S broadcast to maize crop. (ii) (a) Clayey loam (Varanasi). (b) Refer soil analysis, Varanasi. (iii) 28.10.1951. (iv) (a) 8 ploughings. (b) Sown in lines. (c) to (e) N.A. (vi) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 24.3.1952.

2. TREATMENTS:
1. Fallow—wheat.
2. Hot weather cultivation—wheat.
5. Sanai for green manuring—wheat.

Hot weather cultivation was done on June 1, 1951. Sanai and guar were broadcast on July 4 and moong and maize sown in lines on July 5, 1951. Maize failed due to droughty condition, Sanai was turned in on Aug. 1951. Moong buried on Sept. 18, 19, Guar harvested on Sept. 9, and maize on Aug. 30, 1951.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 43' x 27' - 3' (v) 1' between plots and 8' between blocks. (vi) Yes.

4. GENERAL:
(i) Fair but the plants began to face mortality due to droughty conditions. (ii) No. (iii) Grain yield. (iv) (a) 1950 to 1953. (b) Yes. (c) N.A. (v) (a) Kanpur, Pratapgarh, Kalai and Raya. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 623 lb./ac.
(ii) 111.0 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fallow</td>
<td>483</td>
</tr>
<tr>
<td>2. Hot weather</td>
<td>553</td>
</tr>
<tr>
<td>3. Maize</td>
<td>586</td>
</tr>
<tr>
<td>4. Guar</td>
<td>469</td>
</tr>
<tr>
<td>5. Sanai</td>
<td>1041</td>
</tr>
<tr>
<td>6. Early moong</td>
<td>604</td>
</tr>
</tbody>
</table>

S.E./mean = 39.26 lb./ac.
3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) and (b) 43'x27.25'. (v) 1' apart and blocks 3' apart. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Gr:n and straw yield. (iv) (a) 1950 to 1953. (b) Yes. (c) N.A. (v) (a) Kalyanpur, Kalai, Pratapgarh, Matkota and Raya. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 556.1 lb./ac. (ii) 106.2 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2.</td>
<td>450.7</td>
</tr>
<tr>
<td>3.</td>
<td>543.7</td>
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<tr>
<td>4.</td>
<td>474.0</td>
</tr>
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<td>5.</td>
<td>664.5</td>
</tr>
<tr>
<td>6.</td>
<td>822.5</td>
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<tr>
<td>S.E./mean</td>
<td>=37.54 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat. Ref :- U.P. 53(334)/52(14)/51(103)/50(65).
Site :- Regional Res. Stn., Varanasi. Type :- 'C'.

Object :- To study the effect of fallow with or without hot weather cultivation as compared to having legume, green manure or a non-legume crop during kharif on the yield of subsequent Wheat crop.

1. BASAL CONDITIONS:
(i) (a) and (b) As per treatments. (c) N as A/S top dressed to maize on 12.8.1953. (ii) (a) Loam. (b) Refer soil analysis. Varanasi. (iii) 18.11.1953. (iv) (a) Hot weather cultivation was given on 15.6.1953 after irrigating the 8 plots. Field ploughed on 2, 3.7.1953. 7 ploughings and pa/ewa on 2.11.1953. (b) Seed drilled. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) 1.75'. (x) 3, 4.4.1954.

2. TREATMENTS:
1. Fallow—wheat.
2. Hot weather cultivation—wheat.
5. Sanai green manuring—wheat.
6. Moong T1—wheat.
   Moong after harvest turned in on 6.9.1953.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 43'x27'-3'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Yield poor. The germination was uniform and good but maize and guar could not stand due to water lodging and they were almost completely wiped off. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1950 to N.A. (b) N.A. (c) Nil. (v) (a) Gazipur, Kalai, Kalyanpur and Raya. (vi) Nil. (vii) Experiment was conducted by A.C.

5. RESULTS:
(i) 317.4 lb./ac. (ii) 60.1 lb./ac. (iii) The treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
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<td>266.0</td>
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<td>4.</td>
<td>268.4</td>
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<td>5.</td>
<td>425.2</td>
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<td>6.</td>
<td>371.1</td>
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<tr>
<td>S.E./mean</td>
<td>=21.25 lb./ac.</td>
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</table>
Crop: Wheat (Rabi).
Site: B.R. College, Bichpuri.
Object: To study the effect of harrowing and weeding on different Wheat varieties.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loamy. (b) Refer soil analysis, B.R. College, Bichpuri. (iii) 29.10.1949. (iv) (a) 3 ploughings 5" deep by soil turning plough with no pata. Pata on 5.9.1949, 4 desi ploughings followed by pata, 3 ploughings and 1 harrowing. Last ploughing followed by pata. (b) By help of Nai and plough. (c) 40 seers./ac. (d) Rows 9' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) As under treatments and 1 harrowing on 5th Dec. and cross harrowing on 6th Dec. (ix) N.A. (x) 6, 7.4.1950.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁ = Local, V₂ = C.13 and V₃ = Pb 591.
   (2) 2 weedings: W₀ = No weeding and W₁ = Weeding.
   (3) 3 harrowings: H₀ = No harrowing, H₁ = Harrowing and H₂ = Cross harrowing.

3. DESIGN:
   (i) 3x3x2 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 3. (iv) (a) 19'x53', 21'x55', 21'x53' and 19'x55'. (b) 15'x45' (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) N.A. (iii) Grain and bhusa yield etc. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The exp. was conducted by B.R. College.

5. RESULTS:
   (i) 1550 lb./ac,
   (ii) 166.1 lb./ac.
   (iii) Only V effect is highly significant. All other effects and interactions are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>H₀</th>
<th>H₁</th>
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</table>

S.E. of marginal mean of V or H = 32.02 lb./ac.
S.E. of marginal mean of W = 39.22 lb./ac.
S.E. of body of table V×H = 67.92 lb./ac.
S.E. of body of table V×W or H×W = 55.46 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To study the effect of shrivelled and plump seeds on the yield of Wheat varieties.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Samai for G. M. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1948. (iv) (a) and (b) N.A. (c) 60 lb./ac. (d) and (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 5, 6.4.1949.
2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 varieties: \( V_1 = \text{C-13} \) (early), \( V_2 = \text{NP-125} \) (early) and \( V_3 = \text{Pb 591} \) (medium),
(2) 2 kinds of seeds: \( K_1 = \text{Plump} \) and \( K_2 = \text{Shrivelled} \).

3. DESIGN:
(i) 3 \( \times \) 2 Fact. in R.B.D.
(ii) (a) 6.
(b) N.A.
(iii) 4.
(iv) (a) 36’ \( \times \) 18’ – 9’.
(b) 32’ \( \times \) 17’ – 3’.
(v) 2’ – 3’
(vi) Yes.

4. GENERAL:
(i) Good.
(ii) Brown and black rust have attacked all types of varieties. \( \text{Pb 591} \) is worst effected—
damage is considerable. Helminthosporium also present.
(iii) Yield of fresh grain and bhusa and weight of
dry grain.
(iv) (a) 1947 to 1949.
(b) No.
(c) N.A.
(v) (a) No.
(b) N.A.
(vi) Nil.
(vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1632 lb./ac.
(ii) 253.0 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
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<th></th>
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S.E. of marginal mean of \( V \) = 89.4 lb./ac.
S.E. of marginal mean of \( K \) = 73.0 lb./ac.
S.E. of the body of table = 126.5 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.

Ref: U.P. 49(37).
Type: 'CV'.

Object: To study the effect of shrivelled and plump seeds on the yield of Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) Nil.
(b) Sanai for G.M.
(c) Nil.
(ii) (a) Loam.
(b) N.A.
(iii) 10.11.1949.
(iv) (a) 3 ploughings
with victory plough, 2 ploughings
with cultivator plough, 1 ploughing with deshi plough.
(b) N.A.
(c) 80 lb./ac.
(d) N.A.
(e) N.A.
(v) 4 C.L. of F.Y.M.
As per treatments.
(vi) Irrigated.
(vii) Nil.
(ix) N.A.
(x) 13.4.1953.

2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 varieties: \( V_1 = \text{C-13} \) (early), \( V_2 = \text{NP-125} \) (early) and \( V_3 = \text{Pb 591} \) (medium),
(2) 2 kinds of seeds: \( K_1 = \text{Plump} \) and \( K_2 = \text{Shrivelled} \).

3. DESIGN:
(i) 3 \( \times \) 2 Fact. in R.B.D.
(ii) (a) 6.
(b) N.A.
(iii) 4.
(iv) (a) 36’ \( \times \) 15’ – 9’.
(b) 32’ \( \times \) 14’ – 3’.
(v) 2’ – 3’
(vi) Yes.

4. GENERAL:
(i) Good.
(ii) Mild rust on stems and leaves.
(iii) Grain and bhusa yield.
(iv) (a) 1947 – 1949.
(b) No.
(c) N.A.
(v) (a) No.
(b) N.A.
(vi) Nil.
(vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 2285 lb./ac.
(ii) 190.6 lb./ac.
(iii) Only \( V \) effect is significant.
Av. yield of grain in lb./ac.

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<td>V₃</td>
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Mean 2331

S.E. of marginal mean of V = 67.4 lb./ac.
S.E. of marginal mean of K = 55.0 lb./ac.
S.E. of body of table = 95.3 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To study the effect of shrivelled and plump seed on the yield of Wheat varieties.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) No. (ii) (a) Looam. (b) N.A. (iii) 29.10.1950. (iv) (a) Thorough ploughing with victory plough and 4 ploughings with desi plough. (b) N.A. (c) As per treatments. (d) Rows 9' apart.
   (e) N.A. (v) Sanai as G.M. (vi) As per treatments. (vii) As per treatments. (viii) Nil. (x) N.A. (x) 25 and 26.4.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁ = C-13 (early), V₂ = NP-125 (early) and V₃ = P₉-591 (medium).
   (2) 2 kinds of seeds: K₁ = Plump and K₂ = Shrivelled.
   (3) 2 seed rates: R₁ = 80 and R₂ = 105 lb./ac.

3. DESIGN:
   (i) 3 x 2 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 23' x 12'. (b) 19' x 10.5'. (vi) 2' x 7.5' (vi) Yes.

4. GENERAL:
   (i) Normal growth. C-13 lodged more than the other two varieties. (ii) No. (iii) Grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) The weather through out March has been abnormal.
   In the first half it was quite hot with winds blowing west ward. In the second half it was cloudy through out.
   (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 2188 lb./ac,
   (ii) 214.1 lb./ac.
   (iii) Only V effect is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<td>1874</td>
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R₁  | 2184
R₂  | 2192

S.E. of marginal mean of V = 53.5 lb./ac.
S.E. of marginal mean of K or R = 43.7 lb./ac.
S.E. of body of table V x K or V x R = 75.7 lb./ac.
S.E. of body of table K x R = 61.8 lb./ac.

Ref: U.P. 50(149).
Type: ‘CV’.
Crop:-Wheat (Rabi).
Ref :-U.P. 49(33).
Site :-Govt. Res. Farm, Kanpur.
Type :-'CV'.

Object :-To study the effect of different varieties of Wheat sown on different dates.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 3 ploughings with victory plough. 1 ploughing with cultivator plough, 2 ploughings with desi plough and 1 with spring harrow. (b) N.A. (c) 2 ozs./plot. (d) 18" x 9". (e) N.A. (v) Sanai as G.M. (vi) As per treatments. (vii) Irrigated. (viii) Hand hoeing with hand hoe. (ix) N.A. (x) 27.4.1950.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V1 =NP-125 (early) and V2 =Pb. 591 (late).

3. DESIGN:
   (i) 8 x 2 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 12" x 3'-9". (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Severe attack on leaves. Orange rust attacked the leaves and stem in general and to little extent the ears. Black rust symptoms in V1D3 plot in one replication. (iii) Grain and straw yield. (iv) (a) 1949 to 1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E B (R).

5. RESULTS:
   (i) 1527 lb./ac.
   (ii) 278.1 lb./ac.
   (iii) Only D effect is significant.
   (iv) Av. yield of grain in lb./ac.

```
<table>
<thead>
<tr>
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<th>D3</th>
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<td>1547</td>
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<td>1450</td>
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<td>1460</td>
<td>1233</td>
<td>1124</td>
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S.E. of marginal mean of V = 50.6 lb./ac.
S.E. of marginal mean of D = 101.2 lb./ac.
S.E. of body of table = 139.0 lb./ac.

Crop :-Wheat (Rabi).
Ref :-U.P. 50(145).
Site :-Govt. Res. Farm, Kanpur.
Type :-'CV'.

Object :-To study the effect of different varieties of Wheat sown on different dates.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) No. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 3 ploughings with victory plough and 4 with desi plough. (b) and (c) N.A. (d) Rows 9" apart. (e) N.A. (v) Sanai as G.M. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 1.5.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V1 =NP-125 (early) and V2 =Pb. 591 (late).

3. DESIGN:
   (i) 8 x 2 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9" x 3'-9". (v) N.A. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Rust incidence. (iii) Grain yield. (iv) (a) 1949 to 1951. (b) No. (c) N.A. (v) (a) No, (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 2725 lb./ac.
(ii) 865.9 lb./ac.
(iii) V and D effects are highly significant. Interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
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<th>D3</th>
<th>D4</th>
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S.E. of marginal mean of V = 306.1 lb./ac.
S.E. of marginal mean of D = 153.1 lb./ac.
S.E. of body of table = 433.0 lb./ac.

Crop :-Wheat (Rabi).
Site :-Govt. Res. Farm, Kanpur.
Ref :-U.P. 51(31).
Type :-'CV'.

Object :-To study the effect of different varieties of Wheat sown on different dates.

1. BASAL CONDITIONS:
(i) (a) No. (b) Chari. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) As per treatments. (iv) (a) 2 ploughings with desi plough, 1 with watia, plough and 1 with cultivator. (b) N.A. (c) 80 lb./ac. (d) Rows 9" apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 22.4.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties; V1 = NP-125 (early) and V2 = Pb. 591 (late).

3. DESIGN:
(i) 8 x 2 Fact. in R.B.D. (ii) (a) 16 in two flanks. (b) N.A. (iii) 4. (iv) (a) and (b) 12" x 3.5". (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good; no lodging. (ii) The disease incidence was recorded at an advanced stage of plant growth (later in the season). NP. 125 had heavy attack of orange rust on the leaves and stem, mostly on the lower portions of the plant. Pb. 591 had a mild attack of orange rust only on the leaves in the lower portion of the plants. (iii) Germination and grain yield. (iv) (a) 1949 to 1951. (b) N.A. (c) N.A. (v) (a) No, (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R). The preparation of the field was absolutely neglected. After 2 sowings it was irrigated exactly on the date of 3rd sowing i.e. 26.10.1951 and so the sowing had to be postponed to the next week and during irrigation no care was taken of either the lay out or the sown plots and ridges were formed haphazardly totally injuring the sown plots. The plan was relaid and the experimental area was got levelled with the khurpi. It will be better if the 2 sowings are considered to be lost and the plots are sown on appropriate dates following 7.12.1951 sowing. But actually it was not practiced.

5. RESULTS:
(i) 834 lb./ac.
(ii) 383.2 lb./ac.
(iii) D and V effects are highly significant while interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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<th>D3</th>
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S.E. of marginal mean of V = 67.7 lb./ac.
S.E. of marginal mean of D = 135.5 lb./ac.
S.E. of body of table = 191.6 lb./ac.

Crop :-Wheat (Rabi).
Site :-Govt. Res. Farm, Kanpur.
Ref :-U.P. 48(12).
Type :-'CV'.

Object :-To find out optimum sowing date and seed rate for Wheat varieties.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sanai for G.M. (c) No. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a), (b) N.A. (c)
   As per treatments. (d) and (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A.
   (x) 18, 19.4.1949.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (1) 2 seed rates: \( R_1 = 80 \) and \( R_2 = 100 \) lb./ac.
   (2) 3 sowing dates: \( D_1 = 15.10.1948 \), \( D_2 = 22.10.1948 \) and \( D_3 = 29.10.1948 \).
   (3) 2 varieties: \( V_1 = C-13 \) (early) and \( V_2 = Fb. 591 \) (late).

3. DESIGN :
   (i) 3 x 2 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 28' x 18'. (b) 24' x 16.5'. (v) 2 x 75'. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Fresh and dry grain yield. (iv) (a) 1947 to 1951. (b) No. (c) N.A. (v) (a) No.
   (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS :
   (i) 1678 lb./ac.
   (ii) 294.4 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of the marginal mean of R or V = 60.1 lb./ac.
S.E. of the marginal mean of D = 73.6 lb./ac.
S.E. of body of table \( R \times D \) or \( V \times D \) = 104.1 lb./ac.
S.E. of body of table \( R \times V \) = 85.0 lb./ac.
Crop: - Wheat (Rabi),
Site: - Govt. Res. Farm, Kanpur.

Object: - To find out optimum sowing date and seed rate for Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 5 with victory plough 2 to 3 with cultivator plough, 3 with desi plough. (b) N.A. (c) As per treatments. (d) N.A. (e) N.A. (v) Sanai as G.M. (vi) As per treatments. (vii) Irrigated. (viii) 1 to 2 hoeings with hand hoe. (ix) N.A. (x) 6 to 8.4.1950.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 seed rates: $R_1 = 80$ lb./ac. and $R_2 = 100$ lb./ac.
(2) 3 sowing dates: $D_1 = 17.10.1949$, $D_2 = 24.10.1949$ and $D_3 = 9.11.1949$.
(3) 2 varieties: $V_1 = C-13$ (early) and $V_2 = Pb. 591$ (late).

3. DESIGN:
(i) 3 x 2 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 29'-3' x 17'-3'. (b) 25'-3' x 15-9'. (v) 2' x 4'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Postules of orange rust and black rust spots were observed in traces on few plants. (iii) Grain and straw yield. (iv) (a) 1947 to 1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) $1831$ lb./ac.
(ii) $338.7$ lb./ac.
(iii) Only $V$ effect is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<td>1739</td>
<td>1697</td>
<td>1706</td>
<td>1610</td>
<td>1803</td>
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<tr>
<td>$V_2$</td>
<td>2035</td>
<td>2047</td>
<td>1788</td>
<td>1955</td>
<td>1934</td>
<td>1976</td>
</tr>
<tr>
<td>Mean</td>
<td>1859</td>
<td>1890</td>
<td>1743</td>
<td>1831</td>
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<tr>
<td>$R_1$</td>
<td>1838</td>
<td>1824</td>
<td>1655</td>
<td>1772</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R_2$</td>
<td>1880</td>
<td>1957</td>
<td>1831</td>
<td>1889</td>
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</tbody>
</table>

S.E. of marginal mean of $R$ or $V$ = 69.1 lb./ac.
S.E. of marginal mean of $D$ = 84.7 lb./ac.
S.E. of body of table $R$ x $D$ or $V$ x $D$ = 119.7 lb./ac.
S.E. of body of table $R$ x $V$ = 97.8 lb./ac.
3. DESIGN:
(i) $3 \times 2 \times 2$ Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) $34' \times 12'-9"$. (b) $30' \times 11'-3"$. (v) $2' \times 1'$. (vi) Yes.

4. GENERAL:
(i) Good, about 10% lodging was observed in C-13. (ii) No smut was observed and the rust was also not very prominent. (iii) Yield of dry grain. (iv) (a) 1947–1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1745 lb./ac.
(ii) 270.1 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D_1</th>
<th>D_2</th>
<th>D_3</th>
<th>Mean</th>
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<th>R_2</th>
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<td>1617</td>
<td>1902</td>
<td>1711</td>
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<tr>
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<td>1744</td>
<td>1894</td>
<td>1733</td>
<td>1665</td>
<td>1802</td>
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<tr>
<td>Mean</td>
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<td>1823</td>
<td>1803</td>
<td>1745</td>
<td>1698</td>
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S.E. of marginal mean of R or V = 55.1 lb./ac.
S.E. of marginal mean of D = 67.3 lb./ac.
S.E. of body of table $R \times D$ or $V \times D$ = 95.5 lb./ac.
S.E. of body of table $R \times V$ = 77.9 lb./ac.

Crop : Wheat (Rabi).
Site : Govt. Res. Farm, Kanpur.
Object : To find out optimum sowing date and seed rate for Wheat varieties.

Ref : U.P. 51(32).
Type : 'CV'.

1. BASAL CONDITIONS:
(i) (a) No. (b) Moong. (c) No. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 desi plough, 1 spring fine harrow and 1 victory plough. (b) N.A. (c) As per treatments. (d) Rows 9' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) Not recorded. (x) 21.4.1952.

2. TREATMENTS:
All the combinations of (1), (2) and (3)
(1) 2 seed rates : $R_1=80$ and $R_2=100$ lb./ac.
(2) 3 sowing dates : $D_1=3.11.1951$, $D_2=14.11.1951$ and $D_3=25.11.1951$.
(3) 2 varieties : $V_1=C-13$ and $V_2=Pb. 591$.

3. DESIGN:
(i) $3 \times 2 \times 2$ Fact. in R.B.D. (ii) (a) 12 in two flanks. (b) N.A. (iii) 4. (iv) (a) $34' \times 12'-9"$. (b) $30' \times 11'-3"$. (v) $2' \times 1'$. (vi) Yes.

4. GENERAL:
(i) Good. No lodging except in Block IV, on $R_1D_2V_1$ plots ; only 1/3 plants lodged. (ii) In early stage of growth there was no disease but at the later stage the stem and leaves of each plant was mildly affected by orange rust. (iii) Germination and grain yield. (iv) a) 1947 to 1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B. (R). The 12' gap between blocks is to provide enough turning space for bullocks at different dates of sowing. After the last sowings are over, these gaps are to be sown with C-13 as commercial crop, leaving about 3' on each side of the plot.
5. RESULTS:

(i) 779 lb./ac.
(ii) 360.9 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>V₁</th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>Mean</th>
<th>R₁</th>
<th>R₂</th>
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<td></td>
<td>830</td>
<td>983</td>
<td>788</td>
<td>867</td>
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<td>V₂</td>
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<td>527</td>
<td>811</td>
<td>691</td>
<td>684</td>
<td>697</td>
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<tr>
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<td>782</td>
<td>755</td>
<td>800</td>
<td>779</td>
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S.E. of marginal mean of R or V = 73.67 lb./ac.
S.E. of marginal mean of D = 90.23 lb./ac.
S.E. of body of table R × D or V × D = 127.61 lb./ac.
S.E. of body of table R × V = 104.19 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To find out the optimum sowing date for Wheat varieties.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Sani (G.M.) (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) N.A. (b) Furrows were made with kudali. (c) 80 lb./ac. (d) Row 9" apart. (e) N.A. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) One weeding on 18.12.1952. (ix) N.A. (x) 31.3.1953.

2. TREATMENTS:
   (1) 4 varieties: V₁ = C-13, V₂ = N-125, V₃ = P-710 and V₄ = P691.

3. DESIGN:
   (i) 4×4 Fact. in R.B.D. (ii) (a) 16 in two flanks. (b) N.A. (iii) 4. (iv) (a) and (b) 18'×6'. (v) N.A. (vi) Yes, (vii) The exp't was conducted by E.B. (R).

4. GENERAL:
   (i) Unsatisfactory. Lodging in some plots. (ii) Very little traces of smut disease, rust incidence also to the extent of 1 to 20%. (iii) Germination and grain yield. (iv) (a) 1952—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp't was conducted by E.B. (R).

5. RESULTS:
   (i) 2688 lb./ac.
   (ii) 522.82 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>V₁</th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
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</tr>
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<tbody>
<tr>
<td></td>
<td>3072</td>
<td>2339</td>
<td>2774</td>
<td>2748</td>
<td>2738</td>
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<td>2489</td>
<td>2606</td>
<td>2619</td>
<td>2668</td>
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<tr>
<td>V₃</td>
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<td>2787</td>
<td>3047</td>
<td>3021</td>
<td>2891</td>
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<tr>
<td>V₄</td>
<td>2463</td>
<td>2282</td>
<td>2437</td>
<td>2645</td>
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<tr>
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<td>2800</td>
<td>2479</td>
<td>2716</td>
<td>2758</td>
<td>2688</td>
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S.E. of any marginal mean = 130.70 lb./ac.
S.E. of body of table = 261.41 lb./ac.
Crop :- Wheat (Rabi).
Site :- Govt. Res. Farm, Kanpur.

Object :- To find out optimum sowing dates for wheat varieties.

1. BASAL CONDITIONS :
(i) (a) Sanai-wheat. (b) Sanai green manure. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments.
(iv) (a) 1 ploughing with victory plough and 1 cultivator; 1 spring harrow and *pata* 2 desti plough and *pata*.
(b) Behind the plough. (c) 90 lb./ac. (d) 9' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 12.4.1954.

2. TREATMENTS :
All combinations of (1) and (2)
(1) 4 varieties : $V_1$=C-13, $V_2$=NP-125, $V_3$=NP-710 and $V_4$=Pb. 591.
(2) 4 sowing dates : $D_1$=26.10.1953, $D_2$=2.11.1953, $D_3$=9.11.1953 and $D_4$=16.11.1953.

3. DESIGN :
(i) 4×4 Fact. in R.B.D. (ii) (a) 16 plots (in 2 flanks of 8 plots each). (b) N.A. (iii) 4. (iv) (a) 18'×6'. (b) 18'×6' . (v) Nil. (vi) Yes.

4. GENERAL :
(i) Fair, no lodging was observed at all during the expt. (ii) Nil. (iii) Germination, grain and straw yield. (iv) (a) 1952—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS :
(i) 1794 lb./ac.
(ii) 418.07 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$D_1$</th>
<th>$D_2$</th>
<th>$D_3$</th>
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<td>1996</td>
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<td>1802</td>
<td>1491</td>
<td>1728</td>
</tr>
<tr>
<td>$V_2$</td>
<td>1984</td>
<td>1815</td>
<td>1996</td>
<td>1958</td>
<td>1938</td>
</tr>
<tr>
<td>$V_3$</td>
<td>1893</td>
<td>1569</td>
<td>1906</td>
<td>1556</td>
<td>1731</td>
</tr>
<tr>
<td>$V_4$</td>
<td>1854</td>
<td>2009</td>
<td>1802</td>
<td>1452</td>
<td>1779</td>
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<tr>
<td>Mean</td>
<td>1932</td>
<td>1754</td>
<td>1876</td>
<td>1614</td>
<td>1794</td>
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</table>

S.E. of any marginal mean = 104.52 lb./ac.
S.E. of body of table = 209.04 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Res. Farm, Kanpur.

Object :- To study the effect of seed rate and spacing on the yield of Wheat varieties.

1. BASAL CONDITIONS :
(i) (a) to (e) N.A. (ii) (a) Loam. (b) N.A. (iii) 30.10.1948. (iv) (a), (b) N.A. (c) & (d) As per treatments.
(e) N.A. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) N.A. (a) 2 and 4.4.1949.

2. TREATMENTS :
All combinations of (1), (2) & (3).
(1) 2 seed rates : $R_1$=40 lb./ac. and $R_2$=80 lb./ac.
(2) 2 spacings between rows : $S_1$=9" and $S_2$=18".
(3) 2 varieties : $V_1$=C-13, and $V_4$=Pb. 591.
3. DESIGN:
(i) ² Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 35'×12'—9'. (b) 31'×11'—3' (v) 2'×1'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Yield of fresh and dry grain. (iv) (a) 1948 to 1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS:
(i) 1366 lb./ac.
(ii) 209.60 lb./ac.
(iii) Only S effect is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>S₁</th>
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<th>Mean</th>
<th>R₁</th>
<th>R₂</th>
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<td>1495</td>
<td>1339</td>
<td>1417</td>
<td>1374</td>
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<tr>
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<td>1366</td>
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<td>R₁</td>
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<td>1292</td>
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</table>

S.E. of any marginal mean =52.40 lb./ac.
S.E. of body of any table =74.10 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Res. Farm, Kanpur.
Ref :- U.P. 49(36).
Type :- 'CV'.

Object :- To study the effect of seed rate and spacing on the yield of Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) No. (b) Maize. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 10.11.1949. (iv) (a) Ploughings—2 with victory plough, 4 with cultivator and 1 with desi plough. (b) N.A. (c) [and (d) As per treatments. (c) N.A. (v) Nil.
(vi) As per treatments. (vii) Irrigated. (viii) One earthing. (ix) N.A. (x) 12, 13.4.1950.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 seed rates: R₁ =40 and R₂ =80 lb./ac.
(2) 2 spacings between rows: S₁ =9' and S₂ =18'.
(3) 2 varieties: V₁ =C-13 and V₂ =Pb. 591.

3. DESIGN:
(i) ² Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 35'×12'.9'. (b) 31'×10'.6'. (v) 2'×13'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) A very few pustules of orange rust followed by black rust later on. (iii) Grain and bhusa yield. (iv) (a) 1948 to 1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS:
(i) 1664 lb./ac.
(ii) 298.26 lb./ac.
(iii) None of the effects is significant.
1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) No. (ii) (a) Loam. (b) N.A. (iii) 30.10.1950. (iv) (a) 3 ploughings with victory plough and 5 with desi ploughs. (b) Sown behind the plough. (c) and (d) As per treatments. (e) N.A. (v) Green manuring by *Sanai.* (vi) As per treatments. (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 27, 28.4.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 seedrates: \( R_1 = 40 \) and \( R_2 = 80 \) lb/ac.
   (2) 3 spacings and earthing up: \( S_1 = 9" \) between rows (unearthed), \( S_2 = 18" \) between rows (unearthed) and \( S_3 = 18" \) between rows (earthed).
   (3) 2 varieties: \( V_1 = \text{C-13 (early)} \) and \( V_2 = \text{Pb. 591 (late).} \)

3. DESIGN:
   (i) 2x2x3 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 23'x12'.9". (b) 19'x10'.6". (v) 2'x13'.1". (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
   (i) 2110 lb/ac.
   (ii) 20090 lb/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb/ac.

<table>
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<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
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<th>( R_2 )</th>
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<td>2277</td>
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<td>2288</td>
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<tr>
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<td>2260</td>
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</table>

S.E. of marginal mean of \( V \) or \( R \) = 41.00 lb/ac.
S.E. of marginal mean of \( S \) = 50.22 lb/ac.
S.E. of body of table \( V \times S \) or \( R \times S \) = 71.03 lb/ac.
S.E. of body of table \( V \times R \) = 57.99 lb/ac.
Crop:- Wheat.
Type :- ‘CV’.

Object :- To find out the optimum sowing dates for wheat varieties,

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sawan. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) As per treatments. (iv) (a) Ploughings by desi plough. (b) N.A. (c) 100 lb./ac. (d) and (e) N.A. (v) 6 C.L. of cowdung and 1 md./ac. of A/S. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 2.4.1949.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V₁ = NP-125 (early) and V₂ = NP-52 (early).
   (2) 4 sowing dates: D₁ = 22.10.1948, D₂ = 29.10.1948, D₃ = 5.11.1948, and D₄ = 12.11.1948.

3. DESIGN:
   (i) 2 x 4 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 40' x 21'. (b) 37' x 19.5'. (v) One row on either side and 1.5' at each end of the plot. 2' between varieties and 5' between blocks. (vi) Yes.

4. GENERAL:
   (i) Poor. (ii) Attack of rust-abnormal. (iii) Grain and bhusa yield. (iv) (a) 1945—1948. (b) and (c) No. (v) Meerut, Nagina and Raya. (b) N.A. (vi) Feb. rainfall of 1.66" prolonged maturity and the western winds during the flowering time, all combined together shrivelled the grains very much and hence the poor yield was obtained than expected. (vii) Conducted by E.B. (R).

5. RESULTS:
   (i) 361.9 lb./ac.
   (ii) 78.90 lb./ac.
   (iii) D and V effects are highly significant and interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>V₁</th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
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Mean 361.9

S.E. of marginal mean of D = 27.90 lb./ac.
S.E. of marginal mean of V = 19.73 lb./ac.
S.E. of body of table = 39.45 lb./ac.

Crop :- Wheat.
Type :- ‘CV’.

Object :- To find out the optimum sowing dates for Wheat varieties.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai. (c) No. (ii) (a) Light loam. (b) N.A. (iii) As per treatments. (iv) (a) 9 ploughings by desi plough. (b) Sown behind the plough. (c) 80 lb./ac. (d) Rows 9' apart. (e) N.A. (v) Sanai green manuring ploughed in by victory plough on 30.9.1948. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and weeding on 27.12.1948 by iron tooth bar harrow. (ix) 2.65'. (x) 27, 28.4.1949.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V₁ = Pb-591 (late) and V₂ = NP-125 (medium).
   (2) 5 sowing dates: D₁ = 20.10.1948, D₂ = 27.10.1948, D₃ = 5.11.1948, D₄ = 12.11.1948 and D₅ = 19.11.1948.

3. DESIGN:
   (i) 2 x 5 Fact. in R.B.D. (i) (a) 10. (b) N.A. (iii) 4. (iv) (a) 42' x 10' - 6'. (b) 39' x 9'. (v) One row on either side and 1' at each end of the plot. Blocks 20' apart and plots 4' apart. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Incidence of rust. (iii) Grain yield. (iv) (a) 1948 to 1950. (b) and (c) No. (v) (a) Gorakhpur, Nagina and Raya. (b) N.A. (vi) Nil. (vii) Conducted by E.B.(R).

5. RESULTS:
(i) 2235 lb./ac.
(ii) 146.1 lb./ac.
(iii) V effect is significant, D effect is highly significant while interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
<th>D₅</th>
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</table>

S.E. of marginal mean of V = 32.66 lb./ac.
S.E. of marginal mean of D = 51.63 lb./ac.
S.E. of body of table = 73.02 lb./ac.

Crop: Wheat.
Site: Regional Res. Stn., Meerut.

Object: To find out the optimum sowing dates for Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai (G.M.). (c) No. (ii; (a) Loam (light). (b) N.A. (iii) As per treatments. (iv) (a) 9 times desi plough; ridge making on 19.11.1949. (b) Sown behind the plough. (c) 80 lb./ac. (d) Rows 6" apart. (e) N.A. (v) Sanai green manuring turning with victory plough on 28.8.1949. (vi) As per treatments. (vii) Irrigated. (viii) No. (ix) N.A. (x) 22.4.1950 to 24.4.1950.

2. TREATMENTS:
All combinations of (1) and (2):
(1) 2 varieties: V₁ = Pb. 591 (late) and V₂ = NP-125 (medium).

3. DESIGN:
(i) 2 x 5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 42’ x 10.5’. (b) 39’ x 9’. (v) One row on either side and 1½ at each end of the plot. Blocks 22’ and plots 4’ apart. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight attack of rust in all the plots except in both varieties sown on 5.11.1949 and 12.11.1949 where they were very much affected. (iii) Grain yield. (iv) (a) 1948–1950. (b) No. (c) No. (v) (a) Raya and Kanpur. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 2359 lb./ac.
(ii) 173.99 lb./ac.
(iii) Both V and D effects are highly significant while interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
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<th>D₃</th>
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S.E. of marginal mean of V = 38.90 lb./ac.
S.E. of marginal mean of D = 61.51 lb./ac.
S.E. of body of table = 87.00 lb./ac.
Crop:- Wheat.
Site:- Regional Res. Stn., Meerut.

Object:- To find out optimum sowing dates for Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Cowpea guar. (c) No. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 2 ploughings by victory plough 6 by desi plough. (b) Sown behind the plough. (c) 80 lb/ac. (d) Rows 9' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding by khurpi on 3.1.1951, 7.1.1951. (ix) 4.45'. (x) 24, 25.4.1951.

2. TREATMENTS:
All combinations of (1) and (2):
(1) 2 varieties: \( V_1 = \text{Pb. 591 (late)} \) and \( V_2 = \text{NP-125 (medium)} \).
(2) 5 sowing dates: \( D_1 = 20.10.1950, D_2 = 27.10.1950, D_3 = 5.11.1950, D_4 = 12.11.1950 \) and \( D_5 = 19.11.1950 \).

3. DESIGN:
(i) 2x5 Fac. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 32'x15'-9'. (b) 28'x14'-3'. (v) Distance between block 5; distance between plots 2'. One row on either side at each end of the plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Rust in plots sown on 12.11.1950 and 19.11.1950. (iii) Grain yield. (iv) (a) 1948-1950. (b) No. (c) No. (v) (a) Raya. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
(i) 2698 lb/ac.
(ii) 236.03 lb/ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th></th>
<th>( D_1 )</th>
<th>( D_2 )</th>
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S.E. of marginal mean of \( V \) = 52.80 lb/ac.
S.E. of marginal mean of \( D \) = 83.45 lb/ac.
S.E. of body of table = 118.02 lb/ac.

Crop:- Wheat.
Site:- Rice Res. Stn., Nagina.

Object:- To find out the optimum sowing dates for Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 22, 29.10.1948 and 5, 12.11.1948. (iv) (a) 7 ploughings by desi plough and 1 harrowing. (b) N.A. (c) 106 lb/ac. (d) and (e) N.A. (v) 10 md/ac. as castor cake. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 9.4.1949.

2. TREATMENTS:
All combinations of (1) and (2):
(1) 2 varieties: \( V_1 = \text{Pb. 591 (late)} \) and \( V_2 = \text{NP-125 (early)} \).
(2) 4 sowing dates: \( D_1 = 22.10.1948, D_2 = 29.10.1948, D_3 = 5.11.1948 \) and \( D_4 = 12.11.1948 \).

3. DESIGN:
(i) 2x4 Fac. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) 37'x20.5' (b) 35'x19'. (v) Distance between blocks 3'. Distance between varieties 1'. One row on either side and one foot at each end of the plot. (vi) Yes.
GENERAL:
(i) No lodging. Normal growth. (ii) There was some rust in late sown plots of variety NP-125. (iii) Grain and bhusa yield. (iv) (a) 1945 to 1948. (b) and (c) No. (v) (a) Meerut, Gorakhpur and Raya. (b) N.A. (vi) Nil. (vii) Conducted by E.B.(R).

5. RESULTS:
(i) 1427 lb./ac.  
(ii) 136.64 lb./ac.  
(iii) D effect is highly significant while other effects are not significant.  
(iv) Av. yield of grain in lb./ac.

<table>
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<th></th>
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<tr>
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<tr>
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</tr>
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</table>

S.E. of marginal mean of V = 27.89 lb./ac.  
S.E. of marginal mean of D = 39.44 lb./ac.  
S.E. of body of table = 55.78 lb./ac.

Crop: Wheat.  
Site: Govt. Cotton Res, Sub-Stn., Raya.  
Type: 'CV'.  
Ref: U.P. 48(46).

Object: To find out the optimum sowing date for Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) Nil.  (b) Cotton.  (c) N.A.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Raya. (iii) As per treatments. (iv) (a) 1 ploughing with victory plough; 6 by desi and harrowing on 21.10.1948. (b) Sown behind the plough. (c) 80 lb./ac. (d) Rows 18' apart. (e) N.A. (f) Green manuring with sanai. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and hoeing with khurpi on 12.4.1948 and weeding with khurpi on 22 and 26.1.1949. (ix) N.A. (x) 1, 6 and 11.4.1949.

2. TREATMENTS:
All combinations of (1) and (2)  
(1) 2 varieties: V1 = Pb. 591 (late) and V2 = NP-125 (medium).  
(2) 5 sowing dates: D1 = 25.10.1948, D2 = 1.11.1948, D3 = 8.11.1948, D4 = 22.11.1948 and D5 = 24.11.1948.

3. DESIGN:
(i) 2 x 5 Fact. in R.B.D.  
(ii) (a) 10.  
(iii) 4.  
(iv) (a) 32' x 18' x 9'.  
(v) 17' - 3' x 29'.  
(vi) One row on either side, 1'1' on each side.  
(vii) Yes.

4. GENERAL:
(i) Good.  
(ii) Nil.  
(iii) Yield of dry grain. (iv) (a) 1948 to 1950. (b) and (c) No. (v) (a) Gorakhpur, Nagina and Meerut. (b) N.A. (vi) Nil. (vii) Conducted by E.B.(R).

5. RESULTS:
(i) 1213 lb./ac.  
(ii) 196.81 lb./ac.  
(iii) Only V effect is highly significant.  
(iv) Av. yield of grain in lb./ac.

<table>
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</tr>
<tr>
<td>D5</td>
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<td>1086</td>
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</tr>
<tr>
<td>Mean</td>
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<td>1117</td>
<td>1213</td>
</tr>
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</table>

S.E. of marginal mean of V = 44.06 lb./ac.  
S.E. of marginal mean of D = 69.60 lb./ac.  
S.E. of body of table = 98.40 lb./ac.
Crop: Wheat.
Site: Govt. Cotton Res. Sub-Stn., Raya.
Object: To find out the optimum sowing dates for Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai. (c) No. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) As per treatments. (iv) (a) 1 ploughing by victory plough, 4 ploughings by cultivator and 4 desi ploughings. (b) Sown behind the plough. (c) 80 lb/ac. (d) 9" apart. (e) N.A. (v) Sanai as green manuring. (vi) As per treatments. (vii) Irrigated. (viii) Weeding with khurpi on 20, 22.12.1959. Only weeds taken out on 5, 6.2.1950. (ix) N.A. (x) 14.4.1950 and 22.4.1950.

2. TREATMENTS:
All combinations of (1), and (2)
(1) 2 varieties: V1 = Pb. 591 (late) and V2 = NP-125 (medium).

3. DESIGN:
(i) 2 x 5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 32" x 18'.9". (b) 29' x 17'.3". (v) One row on either side and 14' apart at each end of the plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Dry grain yield. (iv) (a) 1949 to 1950. (b), (c) No. (v) (a) Meerut, Kanpur (with 8 sowing dates). (b) N.A. (vi) Nil. (vii) Conducted by E.B.(R).

5. RESULTS:
(i) 1061 lb/acre.
(ii) 200.01 lb/acre.
(iii) Only D effect is highly significant.
(iv) Av. yield of grain in lb/acre.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
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</table>

S.E. of marginal mean of V = 44.72 lb/acre.
S.E. of marginal mean of D = 70.72 lb/acre.
S.E. of body of table = 100.00 lb/acre.

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Crop: Wheat.
Site: Govt. Cotton Res. Sub-Stn., Raya.
Object: To find out the optimum sowing dates for Wheat varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai. (c) No. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) As per treatments. (iv) (a) 2 victory ploughings and 3 desi ploughings. (b) Sown behind desi plough. (c) 80 srs./ac. (d) Rows 9" apart. (e) N.A. (v) Green manuring by Sanai. (vi) As per treatments. (vii) Irrigated. (viii) Weeding after 25 days of each sowing. (ix) N.A. (x) 21.4.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: V1 = Pb. 591 (late) and V2 = NP-.125 (medium).
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3. DESIGN:

(i) 2 x 5 Fact. in R.B.D. (ii) (a) 10 (b) N.A. (iii) 4. (iv) (a) 32' x 19'.6". (b) 29' x 18'. (v) One row on either side and 1' at each end of the plot. (vi) Yes.

4. GENERAL:

(ii) Satisfactory. (ii) Traces of rust. (iii) Dry grain yield. (iv) (a) 1948 to 1950. (b), (c) No. (v) (a) Meerut. (b) N.A. (vi) Nil. (vii) Conducted by E.B.(R).

5. RESULTS:

(i) 1784 lb./ac.
(ii) 325.4 lb./ac.
(iii) No effect is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>D3</th>
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</table>

S.E. of marginal mean of V = 72.76 lb./ac.
S.E. of marginal mean of D = 115.06 lb./ac.
S.E. of body of table = 162.7 lb./ac.

Crop :- Wheat.

Site :- Govt. Agri. Farm, Atarra.

Ref :- U.P. 52(124).

Type :- 'CM'.

Object :- To study the effect of seed rate, manure and time of sowing on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Light kahar. (b) N.A. (iii) As per treatments. (iv) (a) 5 ploughings with watt plough. (b) N.A. (c) and (d) As per treatments. (e) N.A. (y) Nil. (v) Pb. 591 (mid-late). (vi) Irrigated. (vii) N.A. (ix) N.A. (x) D1 = 4.4.1953 and D2 = 11.4.1953.

2. TREATMENTS:

Main-plot treatments:

All combinations of (1) and (2)
(1) 6 seed rates: S1 = 10, S2 = 20, S3 = 30, S4 = 40, S5 = 50 and S6 = 60 srs./ac.
(2) 2 dates of sowing: D1 = 21.11.1952 and D2 = 5.12.1952.

Sub-plot treatments:

3 manures: N1 = 3 C.L./ac. of F.Y.M., as B.D., N2 = 20 lb./ac. of N + 5 lb./ac. of K2O + 10 lb./ac. of P2O5 + 10 lb./ac. of CaO and N3 = 40 lb./ac. of N + 10 lb./ac. of K2O + 20 lb./ac. of P2O5 + 20 lb./ac. of CaO.

N applied as A/S, K2O as pot. sul., P2O5 as Super and CaO as Gypsum.

3. DESIGN:

(i) Split-plot. (ii) (a) 12 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 20' x 21'. (b) 17' x 18'. (v) 1' on all sides. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Grain and straw yield- (iv) (a) 1952-1956. (b) and (c) No. (v) (a) Banaras, Etawah, Meerut, Aligarh and Bahraich. (vi) Nil. (vii) Conducted by C.P. (R).

5. RESULTS:

(i) 1224 lb./ac.
(ii) (a) 56.44 lb./ac.
(b) 61.82 lb./ac.
(iii) All the effects are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of difference of two
1. S marginal means
2. D marginal means
3. N marginal means
4. N means at a level of S
5. N means at a level of D
6. S means at a level of N
7. D means at a level of N
S.E. of body of D x S table

Crop: Wheat.
Site: Govt. Agri. Farm, Atarra.

Object: To study the effect of seed rate and manure on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Cereal—Cereal. (b) Paddy. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 24.11.1953. (iv) (a) 4 ploughings. (b) Sown by local seed drill. (c), (d) and (e) N.A. (v) Nil. (vi) Fb-591. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 17.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   4 seed rates: S1 = 10, S2 = 20, S3 = 30 and S4 = 40 srs./ac.
   Sub-plot treatments:
   3 manures: N1 = 45 md./ac. of FYM on green manured field applied 2 weeks before sowing as B.D. N2 = 30 lb./ac. of N+20 lb./ac. of P2O5 +15 lb./ac. of K2O +15 lb./ac. of CaO and N3 = 60 lb./ac. of N+40 lb./ac. of P2O5 +30 lb./ac. of K2O +30 lb./ac. of CaO. N applied as A/S, P2O5 as Super, K2O as Pot Sul and CaO as Gypsum.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main: 27' x 84'. Sub: 27' x 28'. (b) Sub-24' x 25'. (v) 1½ on all sides. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952—1956. (b) and (c) No. (v) (a) Banaras, Faizabad, Etawah, Kalyanpur, Kalai, Meerut and Lucknow. (b) N.A. (iv) Nil. (vii) Conducted by C.P. (R).

RESULTS:
(i) 865 lb./ac.
(ii) 19.51 lb./ac.
(b) 15.39 lb./ac.
(iii) All effect are highly significant.

Ref: U.P. 53(156).
Type: 'CM'.
(iv) Av. yield of grain in lb./ac.

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Mean         901  875  820  865

S.E. of difference of two
1. S marginal means = 7.96 lb./ac.
2. N marginal means = 5.44 lb./ac.
3. N means at a level of S = 10.88 lb./ac.
4. S means at a level of N = 11.44 lb./ac.

Crop : Wheat (Rabi).
Site : Govt. Agri. Farm, Baharaich.
Ref : U P, 52(118).
Type : 'CM'.

Object : To study the effect of seed rate, manure and time of sowing on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) As per treatments. (iv) (a) 9 ploughings by desi and victory plough. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Nil. (vi) NP-52 (mid-early). (vii) Irrigated. (viii) N.A. (ix) N.A. (a) 3 and 4.4.1953.

2. TREATMENTS:
   Main-plot treatments:
   All combinations of (1) and (2).
   (1) 6 seed rates: S_1 = 10, S_2 = 20, S_3 = 30, S_4 = 40, S_5 = 50 and S_6 = 60 lb./ac.
   (2) 2 dates of sowing: D_1 = 6.11.1952 and D_2 = 23.11.1952.
   Sub-plot treatments:
   3 manures: N_1 = 3 C.L./ac. of F.Y.M. as B.D., N_2 = 20 lb./ac. of N+5 lb./ac. of K_2O+10 lb./ac. of P_2O_5+10 lb./ac. of CaO and N_3 = 40 lb./ac. of N+20 lb./ac. of P_2O_5+10 lb./ac. of K_2O+20 lb./ac. of CaO.
   N applied as A/S, K_2O as Pot. Sul., P_2O_5 as Super and CaO as Gypsum on 30.10.1952 and 5.11.1952.

3. DESIGN:
   (i) Split-plot. (ii) (a) 12 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 38' x 13'. (b) 35' x 10'. (v) 1½' on either side. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Yellow rust 35%. (iii) Grain and bhurra yield. (iv) (a) 1952 to 1953. (b) and (c) N.A. (v) (a) Banaras, Etawah, Banda, Meerut and Aligarh. (b) N.A. (vi) Nil. (vi) Conducted by C.P.

5. RESULTS:
   (i) 1129 lb./ac.
   (ii) (a) 339.4 lb./ac.
   (b) 203.8 lb./ac.
   (iii) Only main effect of D is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of differences of two
1. S marginal means
2. D marginal means
3. N marginal means
4. N means at a level of S
5. N means at a level of D
6. S means at a level of N
7. D means at a level of N
S.E. of body of D x S table

Crop: Wheat.
Site: Govt. Agri. Farm, Baharaich.
Ref: U.P. 53(210).
Type: ‘CM’.

Object: To study the effect of seedrate and manure on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sandy loam. (c) Nil.
   (ii) (a) Nil. (b) Refer soil analysis, Baharaich.
   (iii) 6.11.1953,
   (iv) (a) 3 ploughings. (b) Sown by seed drill. (c) N.A. (v) N.A. (vi) NP-52.
   (vii) Irrigated.
   (viii) N.A. (ix) N.A. (x) 7.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   4 seed rates: S1 = 10, S2 = 20, S3 = 30 and S4 = 40 srs./ac.
   Sub-plot treatments:
   3 manures: N1 = F.Y.M. at 45 mds./ac, on green manured field applied 2 weeks before sowing as B.D.
   N2 = 30 lb./ac. of N+20 lb./ac. of P2O5+15 lb./ac. of K2O+15 lb./ac. of CaO and N3 = 60
   lb./ac. of N+40 lb./ac. of P2O5+30 lb./ac. of K2O+30 lb./ac. CaO.
   N applied as A/S, P2O5 as Super, K2O as Pot. Sul. and CaO as Gypsum on 2.11.1953.

3. DESIGN:
   (i) Split-plot. (ii) 4 main-plots/block and 3 sub-plots/main-plot. (b) N.A.
   (iii) 4. (iv) (a) 27’ x 28’. (b) 24’ x 25’. (v) 1’ all round the net plot. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Wheat rust. (iii) Grain and fodder yield. (iv) (a) 1952—1953. (b) and (c) No.
   (v) Banaras, Etawah, Kalyanpur, Attara, Kalai, Gorakhpur, Meerut, Faizabad and Lucknow.
   (b) N.A.
   (vi) Nil. (vii) Conducted by C.P.(R).

5. RESULTS:
   (i) 1518 lb./ac.
   (ii) (a) 402.0 lb./ac.
   (b) 315.1 lb./ac.
   (iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two

1. S marginal means = 116.05 lb./ac.
2. N marginal means = 78.78 lb./ac.
3. N means at a level of S = 222.85 lb./ac.
4. S means at a level of N = 247.53 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Farm, Etawah.

Object :- To study the effect of seed rate, manures and time of sowing on the yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sanai. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 6 ploughings with watts cultivator and desi plough and turning of G.M. (b) to (e) N.A. (v) Pb. 591 (mid-late). (vi) Irrigated. (vii) N.A. (ix) N.A. (x) 10, 11, 12.4.1953.

2. TREATMENTS :
   Main-plot treatments:
   All combinations of (1) and (2)
   (1) 6 seed rates: S₁=10, S₂=20, S₃=30, S₄=40, S₅=50 and S₆=60 srs/ac.
   (2) 2 dates of sowing: D₁=31.10.1952 and D₂=15.11.1952.
   Sub-plot treatments:
   3 manures: N₁=3 C.L. ac. of F.Y.M. as B.D., N₂=20 lb./ac. of N+5 lb./ac. K₂O+10 lb./ac. of P₂O₅+10 lb./ac. of CaO, N₃=40 lb./ac. of N+20 lb./ac. of P₂O₅+10 lb./ac. of K₂O+20 lb./ac. of CaO.
   N applied as A/S, P₂O₅ as Super, K₂O as Pot. Sul. and CaO as Gypsum.

3. DESIGN:
   (i) Split-plot. (ii) (a) 12 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 38' x 13'. (b) 35' x 10'. (v) 1' on all sides. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 1295 lb./ac.
   (ii) (a) 357.7 lb./ac.
   (b) 289.3 lb./ac.

   (iii) Main effects of S, D and N are highly significant. All interactions are not significant.

Ref :- U.P. 52(113).
Type :- 'CM'.

Object :- To study the effect of seed rate, manures and time of sowing on the yield of Wheat.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. S marginal means = 103.3 lb./ac.
2. D marginal means = 59.6 lb./ac.
3. N marginal means = 59.1 lb./ac.
4. N means at a level of S = 144.7 lb./ac.
5. N means at a level of D = 83.5 lb./ac.
6. N means at a level of N = 156.9 lb./ac.
7. D means at a level of N = 90.6 lb./ac.
S.E. of body of table = 103.3 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Etawah.

Object: To study the effect of spacing and manures on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 3.11.1953. (iv) (a) 4 ploughings. (b) Sown by seed drill. (c) N.A. (d) N.A. (e) N.A. (v) F.Y.M. applied two weeks before sowing. (vi) P. 591 (late). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 21.4.1954.

2. TREATMENTS:
Main-plot treatments: 4 seed rates: S1 = 10, S2 = 20, S3 = 30 and S4 = 40 srs/ac.
Sub-plot treatments: 3 manures: N1 = F.Y.M. at 45 mds./ac. on green manured field applied 2 weeks before sowing as B.D. N2 = 30 lb./ac. of N + 20 lb./ac. of P2O5 + 15 lb./ac. of K2O + 20 lb./ac. of CaO. N3 = 60 lb./ac. of N + 40 lb./ac. of P2O5 + 30 lb./ac. of K2O + 30 lb./ac. of CaO. N applied as A/S, P2O5 as Super, K2O as Pot. Sul. and CaO as Gypsum.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 27'×28'. (b) 24'×25'. (v) 1½' on all sides. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 1900 lb./ac.
(ii) (a) 401.0 lb./ac.
(b) 329.8 lb./ac.
(iii) S effect is highly significant, N effect is significant; interaction is not significant.
### BASAL CONDITIONS:

(i) (a) Nil. (b) Moong and Labia. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 14.11.1953. (iv) (a) 2 ploughings with *pra*ja cultivator and *desi* plough. (b) Sown behind the plough. (c), (d) and (e) N.A. (v) N.A. (vi) N.P.-52 (medium early). (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) 17.4.1954.

### TREATMENTS:

**Main-plot treatments:**
4 seed rates: $S_1 = 10$, $S_2 = 20$, $S_3 = 30$ and $S_4 = 40$ srs./ac.

**Sub-plot treatments:**
3 manures: $N_1 = F.Y.M.$ at 3 C.L./ac. in case the field is green manured, 6 C.L./ac. in case the field is not green manured, $N_2 = 30$ lb./ac. of $P_2O_5$ and $K_2O$; $N_3 = 60$ lb./ac. of $P_2O_5$ and $K_2O$ and 15 lb./ac. of CaO.

N applied as A/S, $P_2O_5$ as Super, $K_2O$ as Pot. Sul. and CaO as Gypsum.

### DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) Sub-plot: 27'x 28'; main-plot 27'x84'. (b) Sub-plot: 24'x25'. (v) 1/4" on all sides. (vi) Yes.

### GENERAL:

(i) Good. (ii) 30% attack by rust. (iii) Grain and straw yield. (iv) (a), (b) and (c) No. (v) (a) Banaras, Etawah, Kanpur, Banda, Aligarh, Meerut, Baharich, Gorakhpur and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.(R).

### RESULTS:

(i) 537.3 lb./ac.

(ii) (a) 106.7 lb./ac.

(b) 86.43 lb./ac.

(iii) S and N effects are highly significant. Interaction is not significant.

(iv) Av. yield of grain in lb./ac.
Object:—To study the effect of seed rate and manures on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) Last week of October. (iv) (a) N.A. (b) By improved seed drill. (c) to (e) N.A. (v) Nil. (vi) Pb. 592. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 seed rates: \(S_1 = 10, S_2 = 20, S_3 = 30\) and \(S_4 = 40\) srs.
   Sub-plot treatments:
   3 manures: \(N_1 = \text{F.Y.M. at 3 C.L. in case the field is green manured, 6 C.L. in case the field is not green manured}, S_1\) as Super, \(K_2O\) as Pot. Sul. and \(CaO\) as Gypsum.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 27'x29' (b) 24'x25', (v) 1'x2'. (vi) Yes.

4. GENERAL:
   (i) Below normal. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) No. (b), (c) No. (v) (a) Banaras, Faizabad, Etawah, Kalyanpur, Atarra, Kalai, Meerut, Lucknow and Bahraich. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 585 lb./ac.
   (ii) (a) 102.4 lb./ac.
   (b) 108.1 lb./ac.
   (iii) N effect alone is highly significant.
   (iv) Av. yield of grain in lb./ac.

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Mean 594 | 665 | 496 | 585

S.E. of difference of two
1. S marginal means = 29.56 lb./ac.
2. N marginal means = 27.02 lb./ac.
3. N means at a level of S = 76.42 lb./ac.
4. S means at a level of N = 75.10 lb./ac.

Object:—To study the effect of seed rate, manures and date of sowing on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Maize and Kakum. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 9 ploughings with Gujar, desi and cultivator ploughs. (b) to (e) N.A. (v) Nil. (vi) Pb.-591 (mid late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 7.4,1953.
2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 6 seed rates: \( S_1 = 10, S_2 = 20, S_3 = 30, S_4 = 40, S_5 = 50 \) and \( S_6 = 60 \) s.rs./ac.
(2) 2 dates of sowing: \( D_1 = 9.11.1952 \) and \( D_2 = 24.11.1952 \).

Sub-plot treatments:
3 manures: \( N_1 = 3 \) c. of F.Y.M. as B.D., \( N_2 = 20 \) Jb./ac. of \( N+10 \) lb./ac. of \( P_2 O_5 + 5 \) lb./ac. of \( K_2 O + 10 \) lb./ac. of CaO and \( N_3 = 40 \) lb./ac. of \( N+20 \) lb./ac. of \( P_2 O_5 + 10 \) lb./ac. of \( K_2 O + 20 \) lb./ac. of CaO.

N applied as A/S, \( P_2 O_5 \) as Super, \( K_2 O \) as Pot. Sui. and CaO as Gypsum.

3. DESIGN:

(i) Split-plot. (ii) (a) 12 main-plots/block: 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) \( 38\times13 \). (b) \( 35\times10 \). (v) 1" around the net-plot. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Grain and straw yield. (iv) (a) and (b) No. (c) N.A. (v) (a) Banaras, Etawah, Banda, Meerut and Bahraich. (b) N.A. (vi) Nil. (vii) The exp. was conducted by C.P.(R).

5. RESULTS:

(i) 1379 lb./ac.
(ii) (a) 301.2 lb./ac. (b) 233.4 lb./ac.

(iii) Main effects of S, N and D are highly significant. Interaction N x D is significant.

(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. S marginal means = 86.95 lb./ac.
2. D marginal means = 50.20 lb./ac.
3. N marginal means = 47.64 lb./ac.
4. N means at a level of S = 116.70 lb./ac.
5. N means at a level of D = 67.37 lb./ac.
6. S means at a level of N = 128.99 lb./ac.
7. D means at a level of N = 74.47 lb./ac.

S.E. of body of D x S table = 96.68 lb./ac.

Crop := Wheat (Rabi).
Site := Govt. Agri. Farm, Kalai.

Ref := U.P. 53(105).
Type := ‘CM’.

Object := To study the effect of seed rate and manure on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Gsar fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1953. (iv) (a) 6 ploughings. (b) Sown behind the plough. (c) to (e) N.A. (v) N.A. (vi) Pb-591. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 9.4.1954.
2. TREATMENTS:

Main-plot treatments:
- 4 seed rates: $S_1 = 10$, $S_2 = 20$, $S_3 = 30$ and $S_4 = 40$ seeds/ac.

Sub-plot treatments:
- 3 manures: $N_1 = 3$ C.L./ac. of F.Y.M. in case the field is green manured, $N_2 = 30$ lb/ac. of $P_2O_5 + 15$ lb/ac. of $K_2O + 15$ lb/ac. of CaO and $N_3 = 40$ lb/ac. of $P_2O_5 + 10$ lb/ac. of $K_2O + 30$ lb/ac. of CaO.

N applied as A/S, $P_2O_5$ as Super, $K_2O$ as Pot. Sul. and CaO as Gypsum.

3. DESIGN:

(i) Split-plot.
(ii) (a) 4 main-plots/block; 3 sub-plots/main-plot. (b) N.A.
(iii) 4.
(iv) (a) $27' \times 28'$. (b) $24' \times 25'$. (v) 1' around the net-plot. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1953—1954. (b) and (c) N.A. (v) (a) Banaras, Faizabad, Etawah, Kalyanpur, At-arra, Meerut and Lucknow. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.(R).

5. RESULTS:

(i) 121.1 lb/ac.
(ii) (a) 286.3 lb/ac.
(b) 215.0 lb/ac.

(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb/ac.

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S.E. of difference of two:
1. S marginal means = 116.89 lb/ac.
2. N marginal means = 76.01 lb/ac.
3. N means at a level of S = 152.02 lb/ac.
4. S means at a level of N = 170.50 lb/ac.

Crop :-Wheat (Rabi).
Site :-Govt. Agri. Res. Farm, Kalyanpur.
Ref :-U.P. 52(187).
Type :- 'CM'.

Object :-To study the effect of seed rate, manure and date of sowing on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Moong. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) N.A. (b) N.A. (c) As per treatments. (d) :A. (e) N.A. (v) Nil. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 6 seed rates: $S_1 = 10$, $S_2 = 20$, $S_3 = 30$, $S_4 = 40$, $S_5 = 50$ and $S_6 = 60$ seeds/ac.
(2) 2 dates of sowing: $D_1 = 5.11.1952$ and $D_2 = 18.11.1952$.

Sub-plot treatments:
- 3 manures: $N_1 = 3$ C.L./ac. of F.Y.M. as B.D., $N_2 = 20$ lb/ac. of $N+10$ lb/ac. of $P_2O_5+5$ lb/ac. of $K_2O+10$ lb/ac. of CaO, and $N_3 = 40$ lb/ac. of $N+20$ lb/ac. of $P_2O_5+10$ lb/ac. of $K_2O+20$ lb/ac. of CaO.

N applied as A/S, $P_2O_5$ as Super, $K_2O$ as Pot. Sul. and CaO as Gypsum. $N_1$ applied to the entire field, $N_2$ and $N_3$ applied 3 days before sowing. Super placed 3'-4' deep in the soil behind the plough. Gypsum and Pot. Sul. applied as surface dressing.
3. DESIGN:
(i) Split-plot. (ii) 12 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 24' x 23'. (b) 21' x 20'. (v) 11' all around the net plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain and bhusa yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) Banaras, Faizabad, Etawah, Banda, Meerut, Aligarh, Gorakhpur, Bahraich and Lucknow. (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.

5. RESULTS:
(i) 1910 lb./ac.
(ii) (a) 310.1 lb./ac. (b) 136.7 lb./ac.
(iii) Main effect of N is highly significant, S effect is significant while other effect and interactions are not significant.

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S.E. of difference of two
1. S marginal means = 89.50 lb./ac.
2. D marginal means = 51.68 lb./ac.
3. N marginal means = 27.91 lb./ac.
4. N means at a level of S = 39.47 lb./ac.
5. N means at a level of D = 68.37 lb./ac.
6. S means at a level of N = 60.90 lb./ac.
7. D means at a level of N = 105.48 lb./ac.
S.E. of body of D x S table = 89.50 lb./ac.

Crop: - Wheat (Rabi).
Site: - Govt. Agri. Res. Farm, Kalyanpur.
Ref: - U.P. 53(150).
Type: - 'CM'.

Object: - To study the effect of seed rate and manure on the yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Legume-Cereal. (b) Lobia and moong. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 12.11.1953. (iv) (a) 7 ploughings and pata. (b) Sown by seed drill. (c) As per treatments. (d) N.A. (e) N.A. (f) moong and lobia as G.M. (v) C-13 (medium). (vi) Irrigated. (vii) Weeding and hoeing after irrigation. (ix) N.A. (x) 17.4.1954.

2. TREATMENTS:
Main-plot treatments:
4 seed rates: S1 = 10, S2 = 20, S3 = 30 and S4 = 40 srs./ac.
Sub-plot treatments:
3 manures: N1 = F.Y.M. at 3 C.L./ac. in case the field is green manured, 6 C.L./ac. in case the field is not green manured, N2 = 30 lb./ac. of N+20 lb./ac. of P2O5+15 lb./ac. of K2O+15 lb./ac. of CaO, N3 = 60 lb./ac. of N+40 lb./ac. of P2O5+30 lb./ac. of K2O+30 lb./ac. of CaO. N applied as A/S, P2O5 as Super, K2O as Pot. Sul. and CaO as Gypsum. Date of manuring - All manures applied on 30.10.1953. P2O5 applied 3" to 4" deep in the soil behind the plough, Gypsum and potash applied as surface dressing.
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 27' × 29', (b) 24' × 25'. (v) 1' on all sides of the net plot. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Rat attack. (iii) Grain and straw yield and germination per sq. yd. (iv) (a) 1953—N.A. (b) No. (c) N.A. (v) (a) Banaras, Faizabad, Etawah, Atarra, Kalai, Gorakhpur, Meerut and Lucknow. (b) N.A. (vi) Nil. (vii) The expt., was conducted by C.P. (R).

5. RESULTS:
(i) 1289 lb./ac.
(ii) (a) 378.5 lb./ac.
   (b) 191.4 lb./ac.
(iii) Only interaction N × S is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. S marginal means = 154.52 lb./ac.
2. N marginal means = 67.65 lb./ac.
3. N means at a level of S = 135.30 lb./ac.
4. S means at a level of N = 189.95 lb./ac.

Crop : Wheat (Rabi).
Site : Govt. Res. Farm, Kanpur.
Ref : U.P. 50(138).
Type : 'CM'.

Object : To study the effect of N and seed rates on yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Char. (c) No. (ii) (a) Loam. (b) N.A. (iii) 7.11.1950. (iv) (a) 3 ploughings with victor plough and 4 with desi. (b) N.A. (c) N.A. (d) Between rows—9'. (e) N.A. (v) Nil. (vi) NP-125 (medium). (vii) Irrigated. (viii) One weeding with khurpi. (ix) N.A. (x) 3 and 4.5.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 levels of N : N₁ = 25, N₂ = 50, N₃ = 75 and N₄ = 100 lb./ac.
(2) 4 seed rates : S₁ = 40, S₂ = 50, S₃ = 80 and S₄ = 100 lb./ac.

3. DESIGN:
(i) 4 × 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 40' × 9'. (b) 36' × 7.5'. (v) 2' × 9'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil.
(vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 2276 lb./ac.
   (ii) 169.9 lb./ac.
   (iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb/ac.

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Mean: 2261 2289 2332 2222

S.E. of any marginal mean = 42.48 lb/ac.
S.E. of body of table = 84.96 lb/ac.

Crop: Wheat (Rabi).

Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of N and seed rates on yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Charli. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 27.10.1951. (iv) (a) 3 desi, 1 victory and 1 cultivator ploughing. (b) N.A. (c) As per treatments. (d) 9' apart. (e) N.A. (v) 2 srs./plot of A/S as top dressing. (vi) N.P. 125. (vii) Irrigated. (viii) One weeding. (ix) N.A. (x) 7.4.1952.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 levels of N: N₀ = 0, N₁ = 25, N₂ = 50 and N₃ = 75 lb/ac.
   (2) 4 seed rates: S₁ = 40, S₂ = 60, S₃ = 80 and S₄ = 100 lb/ac.

3. DESIGN:
   (i) 4 × 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 40' x 9'. (b) 36' x 7'. (v) 2' x 7'. (vi) Yes.

4. GENERAL:
   (i) Fair. No lodging. (ii) No. (iii) Grain yield. (iv) (a) 1950 – 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 654 lb/ac.
   (ii) 298.9 lb/ac.
   (iii) Only S and N effects are highly significant.
   (iv) Av. yield of grain in lb/ac.

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Mean: 440 694 651 831

S.E. of any marginal mean = 74.7 lb/ac
S.E. of body of table = 149.5 lb/ac.
Crop : Wheat (Rabi).
Site : Govt. Res. Farm, Kanpur.

Object : To study the effect of N and seed rates on yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) No. (b) Chari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 7.11.1952. (iv) (a) 8 desl. 1 victory and 1 cultivator ploughing. (b) Sown behind the plough. (c) As per treatments. (d) 9" apart. (e) N.A. (v) Nil. (vi) N.P. 125. (vii) Irrigated. (viii) One weeding. (ix) N.A. (x) 3.4.1953.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 4 levels of N : $N_0=0, N_1=25, N_2=50$ and $N_3=75$ lb./ac. of N.
   (2) 4 seed rates : $S_1=40, S_2=60, S_3=80$ and $S_4=100$ lb./ac.

3. DESIGN:
   (i) 4 x 4 Fact. in R.B.O. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 18' x 12'. (b) 14' x 10'. (v) 2'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Attack of brown rust—8%. (iii) Germination counts and grain yield. (iv) (a) 1950—1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp't. was conducted by E.B. (R).

5. RESULTS:
   (i) 1808 lb./ac. (ii) 206.4 lb./ac. (iii) S effect is significant. N effect is highly significant while interaction is not significant. (iv) Av. yield of grain in lb./ac.

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<td>2315</td>
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</table>

S.E. of any marginal mean = 51.6 lb./ac.
S.E. of body of table = 103.2 lb./ac.

Crop : Wheat.
Site : Crop Physiological Res. Stn., Lucknow.

Object : To study the effect of seed rate, manure and time of sowing on the yield of Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Paddy—Moong. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings. (b) to (e) N.A. (v) Nil. (vi) C-13 (early). (vii) N.A. (viii) Nil. (ix) N.A. (x) N.A.

2. TREATMENTS :
   Main-plot treatments :
   All combinations of (1) and (2)
   (1) 6 seed rates : $S_1=10, S_2=20, S_3=30, S_4=40, S_5=50$ and $S_6=60$ seeds/ac.
   (2) 2 dates of sowing : $D_1=28.10.1952$ and $D_2=12.11.1952$.

Sub-plot treatments :
3 manures : $N_1=3$ C.L./ac. of F.Y.M. as B.D., $N_2=20$ lb./ac. of $N+5$ lb./ac. of $K_2O+10$ lb./ac. of $P_2O_5+10$ lb./ac. of CaO and $N_3=40$ lb./ac. of $N+20$ lb./ac. of $P_2O_5+10$ lb./ac. of $K_2O+20$ lb./ac. of CaO.

N applied as A/S, $K_2O$ as Pot. Sul., $P_2O_5$ as Super and CaO as Gypsum.
3. DESIGN:
(i) Split-plot. (ii) (a) 12 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 12' x 14'. (b) 9' x 11'. (v) 1' on all sides. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain and bhusa yield. (iv) (a) to (c) No. (v) (a) Banaras, Faizabad, Etawah, Banda, Aligarh, Kanpur, Gorakhpur, Baharaich and Meerut. (b) N.A. (vi) Nil. (vii) Conducted by C.P.,

5. RESULTS:
(i) 955.4 lb./ac.
(ii) (a) 654.7 lb./ac. (b) 353.0 lb./ac.
(iii) Only the interaction N x D x S is significant. Other effects are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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</table>

S.E. of difference of two
1. S marginal means = 189.0 lb./ac.
2. D marginal means = 109.0 lb./ac.
3. N marginal means = 72.1 lb./ac.
4. M means at a level of S = 176.7 lb./ac.
5. N means at a level of D = 102.1 lb./ac.
6. S means at a level of N = 237.8 lb./ac.
7. D means at a level of N = 137.3 lb./ac.
8. S.E. of body of D x S table = 188.9 lb./ac.

Crop :- Wheat.
Site :- Crop Physiological Res. Stn., Lucknow.

Ref :- U.P. 53(144).
Type :- 'CM'.

Object :- To study the effect of N and seed rates on yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) G.M. (b) Soam. (c) 40 lb./ac. of P2O5.
(ii) (a) Loam. (b) N.A. (iii) 30.10.1953. (iv) (a) 7 ploughings. (b) Sown behind the plough. (c) to (e) N.A. (v) N.A. (vi) Pb. 591(late) (vii) Irrigated. (viii) One weeding. (ix) 5.78'. (x) 15.4.1954.

2. TREATMENTS:
Main-plot treatments:
- 4 seed rates: S1 = 10, S2 = 20, S3 = 30 and S4 = 40 srs./ac.

Sub-plot treatments:
- 3 manures: N1 = F.Y.M. at 45 md./ac. on green manured field applied 2 weeks before sowing as B.D., N2 = 30 lb./ac. of N + 15 lb./ac. of K2O + 15 lb./ac. of CaO and N3 = 60 lb./ac. of N + 30 lb./ac. of K2O + 30 lb./ac. of CaO.
N applied as A/S, K2O as Pot. Sul. and CaO as Gypsum.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 81' x 17', Sub-plot: 27' x 17'. (b) Sub-plot: 23' x 13'. (v) 2' around the plot. (vi) Yes.
4. GENERAL:
(i) Fair. (ii) Nil. (iii) Germination count, physiological aspects of plants, grain and straw yield. (iv) (a) 1953—1955. (b) and (c) No. (v) (a) Varanasi, Faizabad, Etawah, Kalyanpur, Banda, Aligarh, Gorakhpur and Meerut. (b) N.A. (vi) Nil. (vii) Conducted by C.P. (R).

5. RESULTS:
(i) 915.9 lb./ac.
(ii) (a) 136.6 lb/ac.
(b) 152.6 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
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<td>730.5</td>
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<td>1002.1</td>
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Mean 713.0 976.4 1058.3 915.9

S.E. of difference of two
1. S marginal means = 55.8 lb./ac.
2. N marginal means = 53.9 lb./ac.
3. N means at a level of S = 107.9 lb./ac.
4. S means at a level of N = 104.3 lb./ac.

Crop :- Wheat.  
Ref :- U.P. 52(168).
Site :- Tarai State Farm, (Eastern block), Matkota.  
Type :- 'CM'.

Object:—To study the effect of different crop rotations along with Super applied to previous crops on the subsequent Wheat crop.

1. BASAL CONDITIONS:
(i) (a) to (c) As per treatments. (ii) (a) Matkota loam. (b) N.A. (iii) 28.11.1952. (iv) (a) One tractor ploughing and one country ploughing followed by harrowing. Tractor ploughing for wheat. (b) Wheat sown behind the plough. (c) to (e) N.A. (v) Nil. (vi) to (ix) N.A. (x) 2 to 4.4.1953.

2. TREATMENTS:
Main-plot treatments:
2 levels of P2O5 as Super : P0 = 0 and P1 = 30 lb./ac.
Sub-plot treatments:
Super applied on 28.6.1952 just before sowing of Kharif crops.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block ; 8 sub-plots/main-plot. (iii) 6. (iv) (a) N.A. (b) 22'×33'. (v) Distance between plots = 1' and between blocks = 3'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Rabi crop severely damaged by rats. (iii) Yield of wheat grain. (iv) (a) No. (b) and (c) Yes. (v) (a) and (b) No. (vi) Nil. (vii) Conducted by A.C.
5. RESULTS:

(i) 1642 lb./ac.
(ii) (a) 359.4 lb./ac.
    (b) 285.1 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>R₂</th>
<th>R₃</th>
<th>R₄</th>
<th>R₅</th>
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S.E. of difference of two
1. P marginal means = 8.15 lb./ac.
2. R marginal means = 116.6 lb./ac.
3. R means at a level of P = 164.6 lb./ac.
4. P means at a level of R = 174.2 lb./ac.

Crop :- Wheat (Rabi).

Object :- To study the effect of seed rate, manuring and time of sowing on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) As per treatments. (iv) (a) One ploughing by victory and 17 by desi plough. (b) to (e) N.A. (v) Nil. (vi) Pb. 591 (mid-late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 10 to 13.4.1953.

2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 6 seed rates: S₁=10, S₂=20, S₃=30, S₄=40, S₅=50 and S₆=60 srs./ac.
(2) 2 dates of sowing: D₁=31.10.1952 and D₂=14.11.1952.

Sub-plot treatments:
3 manures: N₁=3 C L./ac. of F.Y.M as B.D., N₂=20 lb./ac. of N+5 lb./ac. of K₂O+10 lb./ac. of P₂O₅+10 lb./ac. of CaO and N₃=40 lb./ac. of N+20 lb./ac. of P₂O₅+10 lb./ac. of K₂O+20 lb./ac. of CaO.
N applied as A/S, K₂O as Pot. Sul., P₂O₅ as Super and CaO as Gypsum.

3. DESIGN:

(i) Split-plot. (ii) (a) 12 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 19'x26'. (b) 16'x23'. (v) ll' all round the plot. (vi) Yes.

4. GENERAL:


5. RESULTS:

(i) 1603 lb./ac.
(ii) (a) 43.05 lb./ac.
    (b) 40.84 lb./ac.
(iii) All main effects and interactions are highly significant.
Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
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<th>S5</th>
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</table>

S.E. of difference of two
1. S marginal means = 12.43 lb./ac.
2. D marginal means = 7.18 lb./ac.
3. N marginal means = 8.34 lb./ac.
4. N mean at a level of S = 20.42 lb./ac.
5. N mean at a level of D = 11.79 lb./ac.
6. S mean at a level of N = 20.79 lb./ac.
7. D mean at a level of N = 12.01 lb./ac.
S.E. of body of D×S table = 12.43 lb./ac.

Crop: Wheat (Rabi).
Ref: U.P. 53(109).
Type: ‘CM’.

Object: To study the effect of N and seed rates on yield of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Mung. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 31.10.1953. (iv) (a) to (e) N.A. (v) N.A. (vi) Pb. 591 (late). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 2.4.1954.

2. TREATMENTS:
Main-plot treatments:
4 seed rates: S1=10, S2=20, S3=30 and S4=40 seers/ac.
Sub-plot treatments:
3 manures: N1=F.Y.M. at 45 mds/ac. on green manured field applied 2 weeks before sowing as R.D., N2=30 lb/ac. of N+20 lb/ac. of P2O5+15 lb/ac. of K2O+10 lb/ac. of CaO and N3=60 lb/ac. of N+40 lb/ac. of P2O5+20 lb/ac. of K2O+20 lb/ac. of CaO.
N applied as A/S, P2O5 as Super, K2O as Pot. Sul. and CaO as Gypsum.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4: (iv) (a) 27°×28°. (b) 24°×25°. (v) 1½ on all sides of the plot. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 1260 lb/ac.
(ii) (a) 41.64 lb/ac.
(b) 156.81 lb/ac.
(iii) S effect is highly significant. N effect is significant and interaction is not significant.
To study the effect of seed rate, manuring and time of sowing on the yield of Wheat.

### Basal Condition:
1. **(1)** Nil.  
   - **(a)** Clay loam.  
   - **(b)** Sugarcane.  
   - **(c)** N.A.
2. **(ii)** Nil.
3. **(iii)** As per treatments.
4. **(iv)** Nil.
5. **(v)** Nil.
6. **(vi)** N.P. 52 (mid-early).
7. **(vii)** Irrigated.
8. **(viii)** Nil.
9. **(ix)** Nil.
10. **(x)** 29, 30, 31.3.1953.

### Treatments:
1. **Main-plot treatments:**
   - All combinations of (1) and (2)
2. **(1)** 6 seed rates:  
   - **S1** = 10, **S2** = 20, **S3** = 30, **S4** = 40, **S5** = 50 and **S6** = 60 seeds/ac.
3. **(2)** 2 dates of sowing:  
   - **D1** = 20.1.1952 and **D2** = 7.1.1952.

### Sub-plot treatments:
1. **3 manures:**  
   - **N1** = 3 C.L. of F.Y.M./ac. as B.D., **N2** = 20 lb./ac. of N + 5 lb./ac. of K2O + 10 lb./ac. of P2O5 + 10 lb./ac. of CaO.  
   - **N3** = 40 lb./ac. of N + 20 lb./ac. of P2O5 + 10 lb./ac. of K2O + 20 lb./ac. of CaO.  
   - N applied as A/S, K2O as Pot. Sul., P2O5 as Super and CaO as Gypsum.

### Design:
1. **Split-plot.**
2. **(i)** 12 main-plots/block and 3 sub-plots/main-plots.
4. **(iii)** 24" x 23'.
5. **(iv)** 21' x 20'.
6. **(v)** 11' on all sides of the plot.
7. **(vi)** Yes.

### General:
1. Satisfactory.
2. Slight attack of rats.
3. Grain and straw yield.
4. No.
5. No. Etauh, Banda, Meerut, Aligarh and Baharaich.
6. N.A.
7. Conducted by C.P. (R)

### Results:
1. **(i)** 1468 lb./ac.
2. **(ii)** 288.3 lb./ac.
3. **(b)** 246.5 lb./ac.
4. **(iii)** S effect is highly significant while N effect is significant. Others are not significant.
Crop: Wheat (Rabi).
Ref: U.P. 53(153)
Type: 'CM'.

Object: To study the effect of seed rate and manuring on the yield of Wheat.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Sugarcane-Sugarcane-Sugarcane, Moong-Wheat. (b) Moong. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 16.11.1953. (iv) (a) 8 Ploughings. (b) to (e) N.A. (v) F.Y.M. 3 C.L. if green manured otherwise 6 C.L. (iv) C-13. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   4 seed rates: \( S_1 = 10, S_2 = 20, S_3 = 30 \) and \( S_4 = 40 \) srs./ac.
   Sub-plot treatments:
   3 manures: \( N_1 = \) F.Y.M. 45 md/ac. on green manured field applied 2 weeks before sowing as B.D. \( N_2 = 30 \) lb./ac. of N+30 lb./ac. of \( P_2O_5 + 15 \) lb./ac. of \( K_2O + 15 \) lb./ac. of CaO; \( N_3 = 60 \) lb./ac. of \( N+40 \) lb./ac. of \( P_2O_5 + 30 \) lb./ac. of \( K_2O + 30 \) lb./ac. af CaO. N applied as A/S; \( P_2O_5 \) as Super, \( K_2O \) as Pot. Sul. and CaO as Gypsum.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 27' x 28'. (b) 24' x 25'. (v) 1' on all sides of the plot. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Attack of rust and damage by hail storm. (iii) Grain and bhura yield. (iv) (a) 1952-N.A. (b) and (c) No. (v) (a) Faizabad, Etwah, Kalyanpur, Atarra, and Kalai. (b) Nil. (vi) Nil. (vii) Conducted by C.P. (R)

5. RESULTS:
   (i) 1762 lb./ac.
   (ii) (a) 380.7 lb./ac. (b) 167.2 lb./ac.
   (iii) Only main effects of N and S are highly significant.
(iv) Av. yield of grain in lb./ac.

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<th>N₃</th>
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S.E. of difference of two:
1. S marginal means = 155.4 lb./ac.
2. N marginal means = 59.1 lb./ac.
3. N means at a level of S = 118.2 lb./ac.
4. S means at a level of N = 182.9 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Atarra.
Object: To find the optimum time and intensity of irrigating Wheat.

1. BASAL CONDITIONS:
   (i) to (c) N.A. (ii) Heavy parva. (b) N.A. (iii) 7.12.1948/N.A. (iv) 3 times with Watt’s plough. Palewa done in November. Field was then ploughed thrice with country plough before sowing.
   (b) to (e) N.A. (v) Green manured with Sanai in Kharif. (vi) Pb. 50. 2. (vii) As per treatments. (viii) Weeding. (ix) Nil. (x) April, 1949.

2. TREATMENTS:
   All combinations of (1) and (2):
   (1) 3 intensities of irrigation: L₁=2", L₂=3" and L₃=4".
   (2) 2 intervals of irrigation: I₁=4 weeks and I₂=5 weeks.

3. DESIGN:
   (i) 3 x 2 Pact in R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) 3 x 16.5. (v) 74 x 15. (v) 3 x 0.75. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Not recorded. (iii) Grain yield. (iv) No. (b) No. (c) Nil. (v) (a) No. (b) Nil.
   (vi) Nil. (vii) The exp. was conducted by I.R.I.

5. RESULTS:
   (i) 511 lb./ac
   (ii) 60.36 lb./ac.
   (iii) Main effect of L is highly significant while others are not significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of marginal mean of I = 21.34 lb./ac.
S.E. of marginal mean of L = 17.42 lb./ac.
S.E. of body of table = 30.18 lb./ac.
Crop :- Wheat (Rahi).
Site :- Field Res. Sta., Bahadrabad.
Object :- To find the optimum time and intensity of irrigating Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam mixed with sand. (b) Refer soil analysis, Bahadrabad. (iii) 29 and 30.11.1948. (iv) (a) Ploughing by local practice, polewa before last ploughing. (b) Seeds sown by desi plough as per local practice. (c) to (e) N.A. (v) 100 fnds./ac. of cowdung manure was applied before ploughing. (vi) Pb. 591. (vii) As per treatments. (viii) Weeding after first irrigation. (ix) 3.1". (x) 17 to 26.4.1949.

2. TREATMENTS:
Main-plot treatments:
- 3 intensities of irrigation: \( L_1 = 2', L_2 = 3' \) and \( L_3 = 4' \) depth.
Sub-plot treatments:
- All combinations of (1) and (2)
  - (1) 4 dates of irrigation: \( D_1 = 1.1.1949, D_2 = 11.1.1949, D_3 = 21.1.1949 \) and \( D_4 = 31.1.1949 \).
  - (2) 3 intervals of irrigation: \( I_1 = 4 \) weeks, \( I_2 = 5 \) weeks and \( I_3 = 6 \) weeks.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/block and 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) \( 73' \times 15' \). (b) \( 67' \times 13.5' \). (v) \( 3' \times 0.75' \). (vi) Yes.

4. GENERAL:
(i) Germination, flowering, maturing and stand of the wheat crop was very good. It was damaged by the winter winds at the time of maturing. (ii) No. (iii) Grain yield. (iv) (a) 1947-1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by I.R.I.

5. RESULTS:
(i) 897 lb./ac.
(ii) (a) 285.4 lb./ac.
(b) 88.9 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. L marginal means = 67.28 lb./ac.
2. D marginal means = 24.20 lb./ac.
3. I marginal means = 20.95 lb./ac.
4. means in \( D \times I \) table = 29.63 lb./ac.
5. D means at the same level of L = 41.91 lb./ac.
6. I means at the same level of L = 36.29 lb./ac.
7. L means at the same level of I = 73.51 lb./ac.
8. L means at the same level of D = 76.44 lb./ac.
Crop: Wheat (Rabi).

Site: Field Res. Stn., Bahadrabad.

Object: To find the optimum time and intensity of irrigating Wheat.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Wheat. (c) 100 mds/ac. of cowdung manure was applied before ploughing. (ii) (a) Loam mixed with sand. (b) Refer soil analysis, Bahadrabad. (iii) 9.11.1949. (iv) (a) The field has been levelled properly and well prepared with cowdung manure. It was ploughed 7 times both ways before sowing. (b) Sowing was done by desi plough according to local practice. (c), (d) and (e) N.A. (v) 100 mds/ac. of cowdung manure applied before sowing. (vi) Pb. 591. (vii) As, per treatments. (viii) Weeding after first irrigation. (ix) 4.2". (x) 18.4.1950 to 30.4.1950.

2. TREATMENTS:
   Main-plot treatments:
   3 intensities of irrigation: L1=2", L2=3" and L3=4" depth.

   Sub-plot treatments:
   All combinations of (1) and (2)


   (2) 3 intervals of irrigation: I1=4 weeks, I2=5 weeks and I3=6 weeks.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block; 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 33'x33'. (b) 31.5'x27'. (v) 3'x0.75' (vi) Yes.

4. GENERAL:
   (i) Germination, flowering, maturing, and stand were very good. (ii) Nil. (iii) Grain yield. (iv) 1947—1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by I.R.I.

5. RESULTS:
   (i) 1643 lb./ac.
   (ii) (a) 280.3 lb./ac.
   (b) 236.4 lb./ac.
   (iii) Only D x I is significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. L marginal means = 66.1 lb./ac.
2. D marginal means = 64.3 lb./ac.
3. I marginal means = 55.7 lb./ac.
4. means in D x I table = 78.8 lb./ac.
5. D means at the same level of L = 111.4 lb./ac.
6. I means at the same level of L = 96.5 lb./ac.
7. L means at the same level of I = 102.8 lb./ac.
8. L means at the same level of D = 117.0 lb./ac.
Crop: Wheat.
Site: Govt. Agri. Farm, Atarra.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Bajra + Moong (mixed). (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 2.11.1949. (iv) (a) Palowa, 3 times ploughing by wall's plough followed by two ploughings with cultivator and 4 plankings. (b) N.A. (c) 45 srs./ac. (d) and (e) N.A. (v) Nil. (vii) C-13 (early). (viii) Irrigated. (ix) N.A. (ix) 2.21°. (x) First week of April 1950.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation: I_1 = Irrigation 3 weeks after germination (at tillering stage), I_2 = I_1 + irrigation 9 weeks after germination (at flowering stage) and I_3 = I_2 + irrigation 12 weeks after germination (at milkey stage).

Sub-plot treatments:
All combinations of (1) and (2) + a control (N_0 T_0 = no manure)

(i) 2 levels of N: N_1 = 30 lb./ac. of N and N_2 = 60 lb./ac. of N.
(ii) 2 times of application: T_1 = full at sowing and T_2 = half at sowing and half at first irrigation.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/blocks; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Sub-plot: 26' x 33' main-plot: 165' x 26', (b) 20' x 27', (v) 3' all round the net plot. (vi) Yes.

4. GENERAL:
(i) Crop damaged by hail storm. (ii) N.A. (iii) No. of tillers per plant, no. of green leaves per plant, no. of dry leaves per plant, shoot length of green leaves, breadths of leaf and length of roots etc. Grain and bhusa yield. (iv) (a) 1949 - 1953. (b), (c) No. (v) (a) Kunraghat, Katyanpur, Bharari, Meerut, Muzaffarnagar, Lucknow and Hawaiabag. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1037 lb./ac.
(ii) (a) 162.3 lb./ac. (b) 133.6 lb./ac.
(iii) Effects of N and ‘control vs treatments’ are highly significant. All other effects are not significant.
(iv) Av. yield of grain in lb./ac.

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<th>N_0 T_0</th>
<th>N_1 T_1</th>
<th>N_2 T_1</th>
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S.E. of difference of two
1. I marginal means = 59.28 lb./ac.
2. NT marginal means = 62.99 lb./ac.
3. NT means at the same level of I = 109.11 lb./ac.
4. I means at the same level of NT = 114.18 lb./ac.

Crop: Wheat.
Site: Govt. Agri. Farm, Atarra.

Ref: U.P. 49(84).
Type: 'IM'.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 1.11.1950. (iv) (a) Preparation of land-five times ploughed with wall's plough and once with deshi plough. (b) Sown by seed drill. (c) 50 srs./ac. (d) N.A. (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Nil. (ix) 3.01°. (x) 30.3.1951.
2. TREATMENTS:

Main-plot treatments:
4 levels of irrigation: $I_0 =$ No irrigation, $I_1 =$ Irrigation 3 weeks after germination (at tillering), $I_2 = I_1 +$ irrigation 9 weeks after germination (at flowering) and $I_3 = I_2 +$ irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2) + a control ($N_0 T_0 =$ no manure).

(1) 2 levels of $N: N_1 = 30$ and $N_2 = 60$ lb./ac. of $N$.
(2) 2 times of application: $T_1 =$ full at sowing and $T_2 =$ half at sowing and half at 1st irrigation.

3. DESIGN:
(i) Split-plot. (ii) 4 main-plots/block; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 27'x30'. (b) main-plot 27'x150'; Sub-plot 24'x27'; (v) Sub-plot border 1' around; field border 3' around; sown space left between main-plots-3' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) No. (v) (a) Kalyanpur, Kunraghat, Etawah, Muzzafarnagar, Meerut, Bharari and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1442 lb./ac.
(ii) (a) 195.7 lb./ac.
(Ref: U.P. 51(79). Type: 'IM'.
Object: —To study the effect of application of $N$ to Wheat at different levels and at different times in combination with different levels of irrigation.

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S E. of difference of two
1. marginal means of $I$ = 71.4 lb./ac.
2. marginal means of $N$ = 74.9 lb./ac.
3. $N T$ means at the same level of $I$ = 149.9 lb./ac.
4. $I$ means at the same level of $N T$ = 151.9 lb./ac.
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 27'x30'. (b) main-plot 27'x150' sub-plot 24'x27'. (v) Sub-plot border 14' around. Field border 3' around; irrigation channel 3'; sown space left between main-plots-8' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
(i) No lodging. Good. (ii) No. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) No. (v) (a) Hawalbagh Etawah, Bharari, Faizabad, Kunraghat, Muzaffarnagar, Lucknow, Meerut and Kalyanpur. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1748 lb./ac. (ii) 149.6 lb./ac. (iii) Effect of N is significant and effects of T and ‘control vs treatment’ are highly significant while all other effects are not significant. (iv) Av. yield of grain in lb./ac.

<table>
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<th></th>
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Mean 1748

S.E. of difference of two
1. marginal means of I = 47.32 lb./ac.
2. marginal means of NT = 45.30 lb./ac.
3. NT means at the same level of I = 50.59 lb./ac.
4. I means at the same level of NT = 93.83 lb./ac.

Crop :- Wheat. Site :- Govt. Agri. Farm, Atarra. Object :- To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Early paddy. (c) N.A. (ii) (a) Light kabar. (b) N.A. (iii) 22.11.1952. (iv) (a) 5 ploughings with Watt’s plough and levelling by pata. (b) N.A. (c) 7 chs./plot. (d) and (e) N.A. (v) Nil. (vi) C-13 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A.- (x) 3.4.1953.

2.5. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I₀—No irrigation, I₁—Irrigation 3 weeks after germination (at tillering), I₂=I₁+ irrigation 9 weeks after germination (at flowering) and I₃=I₁+irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)+ a control (N₀T₀=no manure)
(1) 2 levels of N: N₁=30 and N₂=60 lb./ac. of N.
(2) 2 times of application: T₁=Full at sowing and T₂=Half at sowing and half at 1st irrigation. I₁ give on 19.1.1953. I₂ and I₃ were not given as canal water was not available. Hence I₂ and I₃ are identical to I₁.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 34’x14’. (b) 31’x11’. (v) Sub-plot border = 14’. Distance between main-plots=-3’. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Etawah, Kalyanpur, Meerut, Bharari, Faizabad, Muzaffarnagar and Kunraghat. (b) N.A. (vi) Nil. (vii) Conducted by C.P. (R).
5. RESULTS:

(i) 1911 lb./ac.
(ii) (a) 124.7 lb./ac.
(b) 69.8 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I  = 32.2 lb./ac.
2. marginal means of N  = 24.7 lb./ac.
3. NT means at the same level of I₀  = 49.4 lb./ac.
4. NT means at the same level of I₁  = 28.5 lb./ac.
5. I means at the same level of NT  = 48.4 lb./ac.

Crop : - Wheat.
Site : - Govt. Agri. Farm, Atarra.

Ref : - U.P. 53(154).
Type : - 'IM'.

Object : - To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:

(i) (a) Cereal—Cereal. (b) Paddy. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 23.11.1953. (iv) (a) Palewa on 22.11.1953, farm ploughings after the harvest of paddy on 1st, 6th, 12th, and 20th November 1953. (b) Sown by local seed drill. (c) 7 (chk. sown in each field. (d) and (e) N.A. (v) Nil. (vi) C-13. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 17.4.1954.

2. TREATMENTS:

Main-plot treatments :
4 levels of irrigation : I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments :
All combinations of (1) and (2) + a control (N₀T₀ = no manure)
(1) 2 levels of N : N₁ = 30 and N₂ = 60 lb./ac. of N.
(2) 2 times of application : T₁ = Full at sowing and T₂ = Half at sowing and half at 1st irrigation.

3. DESIGN:

(i) Split-plot. (ii) 4 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 170' x 14' and sub-plot 34' x 14'. (b) Sub-plot 31' x 11'. (v) Sub-plot border 11'. Field border 3'. Sown place left between main-plots = 3' also be used as irrigation channel. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) There was no attack of any disease or pest. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Faizabad, Etawah, Kalyanpur, Bharari, Meerut, Kunraghat and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Conducted by C.P. (R).

5. RESULTS:

(i) 2063 lb./ac.
(ii) (a) 28.87 lb./ac.
(b) 33.42 lb./ac.
(iii) Effects of I, N, T and 'control vs treated' are highly significant. I x control vs treated, N x T and T x I are significant. I x N, I x N x T are highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I
2. marginal means of NT
3. NT means at the same level of I
4. I means at the same level of NT

Crop :- Wheat.
Site :- Govt. Agri. Farm, Atarra.

Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Bajra+Moong (mixed). (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 1 and 2.11.1949.
   (iv) (a) 4 ploughings with Watt’s plough followed by levelling with pata and 4 plankings. Two ploughings with cultivator and 4 plankings. (b) N.A. (c) 45 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) 2.21". (x) 1st week of April 1950.

2. TREATMENTS :
   Main-plot treatments:
   3 levels of irrigation: I₁=Irrigation 3 weeks after germination (at tillering), I₂=Irrigation 9 weeks after germination (at flowering) and I₃=Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combination of forms and levels of N: N₀=0, N₁=60 lb./ac. of N as A/S and N₂=60 lb./ac. of N as castor cake.

3. DESIGN :
   (i) (a) Split-plot. (ii) (a) 3 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot—54’x40’. Sub-plot 18’x40’. (b) 12’x34’. (v) 3’ all round the net plot. (vi) Yes.

4. GENERAL :
   (i) Crop damaged by frost and hail. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1953. (b) and (c) No.
   (v) (a) Varanasi, Kalyanpur, Bharari, Meerut, Kunraghat, Muzaffarnagar, Lucknow, Bulandshahr and Hawalbagh. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS :
   (i) 1291 lb./ac.
   (ii) (a) 213.7 lb./ac.
   (b) 119.1 lb./ac.
   (iii) Levels of N differ highly significantly. Others are not significant.
Crop: Wheat.
Site: Govt. Agri. Farm, Atarra.

Object: To study the effect of different forms and levels of N in combination with different levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Parwa. (b) N.A. (iii) 1.11.1950. (iv) (a) Five times ploughed with Watt’s plough and once with cultivator. (b) Sown by seed drill. (c) 50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (erly). (vii) Irrigated. (viii) Nil. (ix) 3.0". (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: \( I_0 = N_0 \) irradiation, \( I_1 = I_2 + \) Irrigation 3 weeks after germination (at tillering), \( I_2 = I_3 + \) Irrigation 9 weeks after germination (at flowering) and \( I_3 = I_4 + \) irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combinations of levels and forms of N: \( N_0 = \) No manure, \( N_1 = 60 \) lb./ac. of N as A/S and \( N_2 = 60 \) lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 23’X34’. (b) Sub-plot: 20’X31’ and Main-plot: 69’X34’ (v) Sub-plot border=11’ around. Field border=3’ around. Sown space left between main-plots=4’, sown space left between blocks=8’ also to be used for irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Bharari, Varanasi, Kunrhat, Kalayanpur, Kalai, Etawah, Muzzaffarnagar, Meerut and Lucknow. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 1793 lb./ac.
   (ii) (a) 96.1 lb./ac.
   (b) 123.2 lb./ac.
   (iii) Forms and levels of N are highly significant. Others are not significant.
Object:—To study the effect of different forms and levels of N in combination with different levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari. (c) No. (ii) (a) Parwa kabar. (b) N.A. (iii) 13.11.1951. (iv) (a) 4 ploughings with Watt’s plough. (b) Sown by seed drill. (c) 11 ebb/plot. (d) and (e) N.A. (vi) C-13 (early). (vii) Irrigated. (viii) 1 hoeing. (ix) 2.20’. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigations: I₀-No irrigation, I₁-Irrigation 3 weeks after germination (at tillering), I₂=I₁+irrigation 9 weeks after germination (at flowering), I₃=I₂+irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 combinations of levels and forms of N: N₀-No manure, N₁=60 lb./ac. of N as A/S and N₂=60 lb./ac. of N as castor cake.
   I₁ given on 15.1.1952. I₂ and I₃ not given at all due to the non-availability of canal water i.e. only one irrigation was given to the experiment, hence I₂ and I₃ both are identical to I₁.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 19’×42’ (b) 16’×39’. Main-plot size: 57’×42’. (v) Sub-plot border: 1’ around. Field border: 3’ around. Sown space left between main-plots-5’. Sown space left between blocks-8’ also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Good. No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1949 to 1953. (b) and (c) No. (v) (a) Varanasi, Faizabad, Kunrahat, Kalyanpur, Bharari, Kalai, Meerut, Muzaffarnagar, Hawaiabgh. Lucknow and Etawah. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
   (i) 819.6 lb./ac.
   (ii) 70.07 lb./ac.
   (b) 95.69 lb./ac.
   (iii) Levels of irrigations and forms of N are highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I
2. marginal means of N
3. N means at the same level of I₀
4. N means at the same level of I₁
5. I means at the same level of N

Crop: Wheat.
Site: Govt. Agri. Farm, Atarra.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Early paddy. (c) N.A. (ii) (a) Light kabar. (b) N.A. (iii) 23.11.1952. (iv) (a) 5 ploughings with Watt's plough and levelling by para. (b) N.A. (c) 40 to 50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (v) 2.4.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = Irrigation 9 weeks after germination (at flowering) and I₃ = Irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 combinations of levels and forms of N: N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake. I₁ given on 18.1.1953. I₂ and I₃ not given as water was not available in the canal. So I₂ and I₃ are identical to I₁.

3. DESIGN:
   (i) Split plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plots. (b) N.A. (iii) 4. (iv) (a) 19'x42' (b) 16'x39'. Main-plot=57'X42'. Sub-plot border=1½' around. Field border=3' around. Between main-plots=5'. Between blocks=8'. (vii) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949-1953. (b) and (c) No. (v) (a) Varanasi, Faizabad, Etawah, Kalyanpur, Meerut, Hwalbagh, Muzzafarnagar, Bharari, Kunraghat, and Kalai. (b) N.A. (vi) Nil. (vii) Conducted by C.P.(R).

5. RESULTS:
   (i) 1113 lb./ac.
   (ii) (a) 181.6 lb./ac.
   (b) 108.4 lb./ac.
   (iii) Effect of I is highly significant. Forms and levels of N are both highly significant. I x Forms of N and I x levels of N are also highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 60.5 lb./ac.
2. marginal means of N = 38.3 lb./ac.
3. N means at the same level of I₀ = 76.7 lb./ac.
4. N means at the same level of I₁ = 44.3 lb./ac.
5. I means at the same level of N = 79.2 lb./ac.

Crop: Wheat.
Site: Govt. Agri. Farm, Atarra.
Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Cereal—Cereal. (b) Paddy. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 23.11.1953. (iv) (a) Palewa on 22.10.1953. 4 ploughings after the harvest of paddy on 2, 7, 13 and 21.11.1953. (b) Sown by local seed drill. (c), (d) and (e) N.A. (v) Nil. (vi) C-13. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 17.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) sub-plot 19' x 42'; main-plot 57' x 42'. (b) Sub-plot 16' x 39'. (x) Sub-plot border 1.5'. Field border 3'. Sowing space left between main-plots 5'. Sowing space left between blocks—8' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 1246 lb./ac.
   (ii) (a) 31.00 lb./ac.
   (b) 23.01 lb./ac.
   (iii) I, N, Forms of N, I × N, I × Forms of N are all highly significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 12.66 lb./ac.
2. marginal means of N = 8.14 lb./ac.
3. N means at the same level of I = 16.27 lb./ac.
4. I means at the same level of N = 8.35 lb./ac.
Crop :- Wheat.

Site :- Govt. Agri. Farm, Barabanki.

Object :- To study the effect of different levels of irrigation in combination with \( \text{P}_2\text{O}_5 \) and Gypsum on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sann for G.M. (c) N.A. (ii) (a) Loam soil. (b) N.A. (iii) 15.11.1949. (iv) (a) 5 ploughings on 20, 25, 10, 1949, and 10, 11, 12.11.1949. (b) N.A. (c) 50 srs./ac. (d) and (e) N.A. (v) G.M. by Sannhemp. (vi) C-13. (vii) Irrigated. (viii) Nil. (ix) 2.31". (x) 27, 28.4.1950.

2. TREATMENTS :
   Main-plot treatments : 
   2 levels of irrigation : \( I_1 \) = Irrigation 9 weeks after germination (at flowering). \( I_2 \) = Irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments :
   All combinations of (1) and (2)
   (1) 3 levels of \( \text{P}_2\text{O}_5 \) as Super : \( P_0 = 0, P_1 = 20 \text{ and } P_2 = 40 \text{ lb./ac.} \)
   (2) 3 levels of CaO as Gypsum : \( G_0 = 0, G_1 = 25 \text{ and } G_2 = 50 \text{ lb./ac.} \)

3. DESIGN :
   (i) Split-plot. (ii) (a) 2 main-plots/block ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) Main-plot size 162'x40'. Sub-plot 18'x40'. (b) 12'x34'. (v) All round the net plot. (vi) Yes.

4. GENERAL :
   (i) Not good due to bad weather conditions and much moisture in the soil which was the result of heavy rains before sowing. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) 1949—1950. (b), (c) No. (v) (a) Varanasi, Kalyanpur, Bulandshahar and Lucknow. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS :
   (i) 692.0 lb./ac.
   (ii) (a) 167.0 lb./ac.
   (b) 91.6 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

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S. E. of difference of two
1. marginal means of I = 55.7 lb./ac.
2. marginal means of P or G = 37.4 lb./ac.
3. G or P means at the same level of I = 52.9 lb./ac.
4. I means at the same level of G or P = 70.4 lb./ac.
5. means in body of G x P table = 64.8 lb./ac.

Crop :- Wheat (Rabi).

Site :- Govt. Agri. Farm, Barabanki.

Object :- To study the effect of different levels of irrigation in combination with \( \text{P}_2\text{O}_5 \) and Gypsum on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 510.15.50. (iv) (a) Preparation of land was good. (b) Sowing by seed drill. c/ 50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (medium-late). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 18.4.1951.
2. TREATMENTS:

Main-plot treatments:
2 levels of irrigation: $I_1 =$ Irrigation 9 weeks after germination (at flowering), $I_2 =$ $I_1 +$ irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of $P_2O_5$ as Super: $P_0 = 0, P_1 = 20$ and $P_2 = 40$ lb./ac.
(2) 3 levels of Ca as Gypsum: $G_0 = 0, G_1 = 25$ and $G_2 = 50$ lb./ac.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) Main-plot: 17'×32'; sub-plot: 19'×32'. (b) 16'×29'. (v) 1' all round the net plot. (vi) Yes.

4. GENERAL:

(i) Poor. No lodging. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) 1949 to 1950. (b) and (c) No. (v) (a) Kalyanpur and Varanasi. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:

(i) 1125 lb./ac.
(ii) (a) 267.0 lb./ac.
(b) 259.8 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>$G_0$</th>
<th>$G_1$</th>
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S.E. of difference of two
1. 1 marginal means = 72.7 lb./ac.
2. P or G marginal means = 86.6 lb./ac.
3. P or G means at the same level of I = 122.5 lb./ac.
4. 1 means at the same level of P or G = 123.6 lb./ac.
5. means in body of P×G table = 150.0 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Farm, Baharaich.
Object :- To study the effect of different levels of irrigation in combination with $P_2O_5$ and Gypsum on Wheat.

1. BASAL CONDITIONS :-

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 9.11.1950. (iv) (a) Preportion of land was good. (b) Sowing by seed drill. (c) 30 seers/ac. (d) and (e) N.A. (v) Nil. (vi) N.P.S2 (medium-late) (vii) Irrigated. (viii) 2 harrowings. (ix) N.A. (x) 21, 22.4.1951.

2. TREATMENTS:

Main-plot treatments:
3 levels of irrigation: $I_0 =$ No irrigation, $I_1 =$ Irrigation 3 weeks after germination (at tillering) and $I_2 =$ $I_1 +$ irrigation 9 weeks after germination (at flowering).

Sub-plot treatments:
All combination of (1) and (2)
(1) 3 levels of $P_2O_5$ as Super: $P_0 = 0, P_1 = 20$ and $P_2 = 40$ lb./ac.
(2) 3 levels of Ca as Gypsum: $G_0 = 0, G_1 = 25$ and $G_2 = 50$ lb./ac.
3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 171' x 35'. (b) 16' x 32'. (v) Sub-plot border = 3'. (vi) Irrigation channel = 3'. Sown space left between main-plots = 8' also to be used as irrigation channel. (vii) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Brown rust has affected the crop. (iii) Grain yield. (iv) (a) 1950—1953. (b) and (c) No. (v) (a) Kalai and Pratapgarh. (b) N.A. (vi) Nil. (vii) Conducted by C.P.

5. RESULTS:
(i) 1237 lb./ac. (ii) 369.1 lb./ac. (iii) 196.2 lb./ac. (iv) None of the effect is significant.

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<tr>
<th></th>
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S.E. of difference of two:
1. I marginal means = 100.5 lb./ac.
2. P or G marginal means = 53.4 lb./ac.
3. I means at the same level of P or G = 125.6 lb./ac.
4. P or G means at the same level of I = 92.5 lb./ac.
5. means in body of G x P table = 92.5 lb./ac.

Crop:—Wheat.  
Ref:—U.P. 51(76).  
Type:—'IM'.  
Object:—To study the effect of different levels of irrigation in combination with $P_2O_5$ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) Nil. (b) Fallow. (c) Nil. (ii) Sandy loam. (b) N.A. (iii) 3.11.1951. (iv) (a) to (e) N.A. (v) Nil. (vi) N.P. 52 (mid-early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation: $I_0$—No irrigation. $I_1$—Irrigation 3 weeks after germination (at tillering) and $I_2$—$I_1$ irrigation 9 weeks after germination (at flowering).

Sub-plot treatments:
All combinations of (1) and (2)
1) 3 levels of $P_2O_5$ as Super: $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.
2) 3 levels of Ca as Gypsum: $G_0=0$, $G_1=25$ and $G_2=50$ lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 171' x 35'. (b) 16' x 32'. (v) Sub-plot border 3', irrigation channel 3', sown space left between main-plots 8' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Rust in 2 plots, plants were dried. (iii) Grain yield. (iv) (a) 1950—1953. (b) Nil. (c) No. (v) (a) Pratapgarh and Kalai. (b) N.A. (vi) Nil. (vii) Conducted by C.P.
5. RESULTS:
(i) 562 lb./ac.
(ii) (a) 298.0 lb./ac.
(b) 164.0 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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<th>G₂</th>
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S.E. of difference of two
1. marginal means of I = 70.3 lb./ac.
2. marginal means of P or G = 38.7 lb./ac.
3. G or P means at the same level of I = 67.0 lb./ac.
4. I means at the same level of G or P = 89.0 lb./ac.
5. means in body of P × G table = 67.0 lb./ac.

Ref: U.P. 52(116).
Type: 'IM'.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Baharaich.

Object: To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 3.11.1952. (iv) (a) Ploughing on 26, 27, 28, 30.10.1951. (b) N.A. (c) 40-50 seers/ac. in general. (d) N.A. (e) N.A. (v) Nil. (vi) N.P. 52 (mid early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 5.4.1953.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering).
Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.
(2) 3 levels of Ca as Gypsum: G₀ = 0, G₁ = 25 and G₂ = 50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 19' × 35'. (b) 16' × 35'. (v) Sub-plot border 16' field border 3' between main-plots. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) Yellow rust 35% on stem. (iii) Grain and straw yield. (iv) (a) 1950-1953. (b) No. (c) No. (v) (a) Kalsi. (b) N.A. (vi) Nil. (vii) Conducted by C.P. (R).

5. RESULTS:
(i) 313.4 lb./ac.
(ii) (a) 148.6 lb./ac.
(b) 96.5 lb./ac.
(iii) None of the effects is significant.
Object: To study the effect of different levels of irrigation in combination with $P_0$ and Gypsum on Wheat.

1. BASAL CONDITIONS:

2. TREATMENTS:
   Main-plot treatments:
   3 levels of Irrigation, $I_0$ = No Irrigation, $I_1$ = Irrigation 3 weeks after germination (at tillering) and $I_2 = I_1 +$ Irrigation 9 weeks after germination (at flowering).

   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 levels of $P_0$ as Super: $P_0 = 0$, $P_1 = 20$ and $P_2 = 40$ lb./ac.
   (2) 3 levels of Ca as Gypsum: $G_0 = 0$, $G_1 = 25$ and $G_2 = 50$ lb./ac.

3. DESIGN:
   (i) Split-plot, (ii) a) 3 main-plots/repliication ; 9 sub-plots/main-plot. (b) N.A. (iii) 4, (iv) (a) main-plot : $171' \times 35'$, sub-plot : $19' \times 35'$. (b) 16 $\times 32'$. (v) Sub-plot border=1$, field border=3' allround. Sown space left between main-plots-4' also to be used as irrigation channel. Irrigation channel 3' allround. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Wheat rust. (iii) Grain yield. (iv) (a) 1950—1953. (b), (c) No. (v) (a) Pratappgarh and Kalai. (b) N.A. (vi) Nil. (vii) Expt. was conducted by C.P.

5. RESULTS:
   (i) 672.9 lb./ac.
   (ii) (a) 252.5 lb./ac.
   (b) 172.0 lb./ac.
   (iii) Only the interaction $I \times P$ is significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th></th>
<th>G0</th>
<th>G1</th>
<th>G2</th>
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<th>I1</th>
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S.E. of difference of two
1. I marginal means
2. P or G marginal means
3. I means at the same level of P or G
4. P or G means at the same level of I
5. means in the body of P x G table

---

Crop: Wheat.
Site: State Mechanised Farm, Bharari.
Ref: U.P. 49(77).
Type: 'IM'.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a), (b) and (c) N.A. (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) N.A. (v) N.A. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of irrigation: I1 = Irrigation 3 weeks after germination (at tillering stage), I2 = I1 + irrigation 9 weeks after germination (at flowering stage) and I3 = I2 + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combination of (1) and (2) + a control (N0T0 = no manure)
   (1) 2 levels of N as A/S: N1 = 30 lb./ac. of N and N2 = 60 lb./ac. of N.
   (2) 2 times of application of N: T1 = All at sowing and T2 = half at sowing and half at first irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 22 x 165'; sub-plot: 22' x 33'. (b) 16' x 27'. (v) 3' ring round the net-plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1953. (b), (c) No. (v) (a) Kunrathat, Kalyanpur, Atarra, Meerut, Muzaffarnagar, Lucknow and Hauaiabagh. (b) N.A. (vi) Nil. (vii) Expt. was conducted by C.P.

5. RESULTS:
   (i) 1245 lb./ac.
   (ii) (a) 346.4 lb./ac.
   (b) 270.4 lb./ac.
   (iii) Only control vs. treated effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
<th>(N_0T_0)</th>
<th>(N_1T_1)</th>
<th>(N_2T_1)</th>
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<td>1106</td>
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Mean: \(948\) 1245 1504 1198 1308 1245

S.E. of the difference of two
1. \(I\) marginal means =126.5 lb./ac.
2. \(NT\) marginal means =127.5 lb./ac.
3. \(NT\) means at the same level of \(I\) =220.8 lb./ac.
4. \(I\) means at the same level of \(NT\) =199.7 lb./ac.

Crop : - Wheat.

Site : - State Mechanised Farm, Bharari.

Ref : - U.P. 50(76).

Type : - 'IM'.

Object : - To study the effect of application of \(N\) to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Maize. (c) N.A. (ii) (a) Parw soil. (b) N.A. (iii) 24.11.1950. (iv) (a) 3 harrowings. (b) Sown by seed drill. (c) 50 seer/ac. (d) and (e) N.A. (v) Nil. (vi) Nil. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 16.4.1951.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: \(I_0=\text{No irrigation}, I_1=\text{Irrigation 3 weeks after germination (at tillering)}\), \(I_2=I_1+\text{Irrigation 9 weeks after germination (at flowering)}\) and \(I_3=I_1+\text{Irrigation 12 weeks after germination (at milky stage)}\).

Sub-plot treatments:
All combinations of (1) and (2) + a control (\(N_0T_0=\text{no manure}\)).
   (1) 2 levels of \(N\) as A/S: \(N_1=30\) and \(N_2=60\) lb./ac. of \(N\).
   (2) 2 times of application of \(N\): \(T_1=\text{All at sowing and} T_2=\text{Half at sowing and half at 1st irrigation}\).

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/repllication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 27' x 150' and Sub-plot: 27' x 30'. (b) 24' x 27'. (v) Sub-plot border=1' alround. Field border=3' alround. Irrigation channel=3'. Sown space left between main-plots=8', also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Slightly below normal. (ii) Nil. (iii) Grain yield. (iv) (a) 1949-1953. (b) and (c) No. (v) (a) Kalyanpur, Kunrathat, Etawah, Muzafarnagar, Meerut, Atarra, and Lucknow. (b) N.A. (vi) Nil. (vii) Expt. was conducted by C.P.

5. RESULTS:
   (i) 699.5 lb./ac.
   (ii) (a) 149.4 lb./ac.
   (b) 189.9 lb./ac.
   (iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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<th>$N_1T_1$</th>
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S.E. of difference of two
1. I marginal means = 54.54 lb./ac.
2. NT marginal means = 77.73 lb./ac.
3. NT means at the same level of I = 155.07 lb./ac.
4. I means at the same level of NT = 149.03 lb./ac.

Crop: Wheat.
Site: State Mechanised Farm, Bharari.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil, (b) Fallow. (c) No. (ii) (a) Rankar, porwa soil. (b) N.A. (iii) 1.12.1951. (iv) (a) N.A. (b) Sown by seed drill. (c) 40-50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: $I_0$=No irrigation, $I_1$=Irrigation 3 weeks after germination (at tillering), $I_2$=$I_1$+Irrigation 9 weeks after germination (at flowering) and $I_3$=$I_2$+Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2) + a control ($N_0T_0$=no manure).
(1) 2 levels of N as A/S: $N_1=30$ and $N_2=60$ lb./ac. of N.
(2) 2 times of application of N: $T_1$=All at sowing and $T_2$=Half at sowing and half at 1st irrigation.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: $24'\times150'$ and Sub-plot: $24'\times30'$. (b) $21'\times27'$. (v) Sub-plot border = $1'$ allround. Field border allround = $3'$, Irrigation channel = $3'$. Sowing space left between main-plots = $4'$ also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Poor. No lodging. (ii) No. (iii) Grain yield. (iv) (a) 1949-1953. (b) and (c) No. (v) (a) Hawalbagh, Etawah, Kalyanpur, Faizabad, Meerut, Atarra, Kunrathat, Muzaffarnagar and Lucknow. (b) N.A. (vi) The crop was sown late and hence poor yield. (vii) Expt. was conducted by C.P.

5. RESULTS:
(i) 1989 lb./ac.
(ii) (a) 238.7 lb./ac.
(b) 270.1 lb./ac.
(iii) Main effect of I is significant. Interaction I x N x T is significant. Others are not significant.
Crop: Wheat.  Site: State Mechanised Farm, Bharari.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Sanai—Wheat. (b) Sanai. (c) N.A.  (ii) (a) Parwa soil. (b) N.A.  (iii) 8.11.1952. (iv) (a) Ploughing on 29.7.1952 and two harrowings on 31.10.1952. (b) N.A.  (c) 40 to 50 srs./ac. (d) and (e) N.A.  (v) Nil.  (vi) Pb. 591 (mid-late). (vii) Irrigated. (viii) N.A.  (ix) N.A. (x) 25.3.1953.

2. TREATMENTS:
   Main-plot treatments: 4 levels of irrigation: I₀= No Irrigation, I₁= Irrigation 3 weeks after germination (at tillering), I₂= I₁+ Irrigation 9 weeks after germination (at flowering) and I₃= I₂+ Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2)+a control (N₀ₐ₀=no manure).
   (1) 2 levels of N as A/S: N₁=30 and N₂=60 lb./ac. of N.
   (2) 2 times of application of N: T₁= All at sowing and T₂= Half at sowing and half at 1st irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 24' x 150' and sub-plot: 24' x 30'. (b) 21' x 27'. (v) Sub-plot border=1', main-plot border=4' and between blocks=4'. (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) Slight rust disease was traceable during February. (iii) Grain and straw yield. (iv) (a) 1949—1953.  (b) and (c) No.  (v) (a) Etawah, Kalyanpur, Meerut, Atarra, Faizabad, Muzaffarnagar and Kunracht. (vi) Nil. (vii) Expt. was conducted by C.P. (R).

5. RESULTS:
   (i) 2016 lb./ac.
   (ii) (a) 331.6 lb./ac.
   (b) 358.8 lb./ac.
   (iii) Only the interaction I x T is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two

1. I marginal means
2. NT marginal means
3. NT means at the same level of I
4. I means at the same level of NT

Crop: Wheat.

Site: State Mechanised Farm, Bharari.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Sanai—Wheat. (b) Sanai. (c) Nil. (ii) (a) Parwa soil. (b) N.A. (iii) 19.11.1953. (iv) (a) Ploughing on 23.8.1953, harrowing on 17.10.1953 and 28.10.1953. (b) Improved seed drill used for sowing. (c) 40—50 srs/ac. (d) and (e) N.A. (v) N.A. (vi) Pb. 591 (mid-late). (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) 4.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I<sub>0</sub>=No irrigation, I<sub>1</sub>=Irrigation 3 weeks after germination (at tillering), I<sub>2</sub>=I<sub>1</sub>+Irrigation 9 weeks after germination (at flowering) and I<sub>3</sub>=I<sub>2</sub>+Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2) + a control (N<sub>0</sub>T<sub>0</sub>=no manure).
   (1) 2 levels of N as A/S: N<sub>1</sub>=30 and N<sub>2</sub>=60 lb./ac. of N.
   (2) 2 times of application of N: T<sub>1</sub>=All at sowing and T<sub>2</sub>=Half at sowing and half at 1st irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot size: 24'×150' and Sub-plot: 24'×30'. (b) 21'×27'. (v) Plot border 1.5' and field border 3'. Sown space left between main-plots to serve as irrigation channel 4'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Slight rust attack. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Faizabad, Etawah, Kalyanpur, Atarra, Meerut, Kunraghat and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
   (i) 1'92 lb./ac.
   (ii) a) 228.0 lb./ac.
   (b) 255.0 lb./ac.
   (iii) None of the effects is significant.
Crop: Wheat.  
Site: State Mechanised Farm, Bharari.  
Type: 'IM'.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil.  
   (b) Paddy.  
   (c) N.A.  
   (ii) (a) and (b) N.A.  
   (iii) 9.11.1949.  
   (iv) (a) N.A.  
   (b) Drilling by seed drill.  
   (c) 45 seeds/ac.  
   (d) N.A.  
   (e) N.A.  
   (f) Nil.  
   (g) C-13 (early).  
   (h) Irrigated.  
   (i) N.A.  
   (j) N.A.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of irrigation:  
   I₁ = Irrigation 3 weeks after germination (at tillering),  
   I₂ = Irrigation 9 weeks after germination (at flowering),  
   I₃ = Irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 applications of N:  
   N₀ = No manure,  
   N₁ = 60 lb./ac. of N as A/S,  
   N₂ = 60 lb./ac. of N as Castor cake.

3. DESIGN:
   (i) Split-plot.  
   (ii) 3 main-plots/block; 3 sub-plots/main-plot.  
   (b) N.A.  
   (iii) 3.  
   (iv) (a) main-plot 34'x40', Sub-plot 18'x40'.  
   (b) 12'x34'.  
   (v) 3' around.  
   (vi) Yes.

4. GENERAL:
   (i) Poor.  
   (ii) Nil.  
   (iii) No. of tillers/plant, no. of green leaves/plant, no. of dry leaves/plant, height of plant, length of leaf and breadth of leaf.  
   (iv) (a) 1949—1953.  
   (b) No.  
   (c) No.  
   (v) (a) Banaras, Kalyanpur, Atarra, Meerut, Kunraghat, Muzaffarnagar, Lucknow, Bulandshahr and Haukibagh.  
   (b) N.A.  
   (vi) Nil.  
   (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 989.3 lb./ac.
   (ii) (a) 281.6 lb./ac.  
   (b) 154.4 lb./ac.
   (iii) Levels of N are highly significant and interaction I x forms of N is significant. Others are not significant.  
   (iv) Av. yield of grain in lb./ac.

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Mean | 1847 | 1776 | 1847 | 1753 | 1739 | 1792 |       |

S.E. of difference of two
1. marginal means of I = 72.10 lb./ac.
2. marginal means of N = 90.14 lb./ac.
3. N means at the same level of I = 180.28 lb./ac.
4. I means at the same level of N = 176.65 lb./ac.
Crop: - Wheat.  
Site: - State Mechanised Farm, Bharari.  
Object: — To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Maize. (c) N.A.  
   (ii) (a) Parwa soil. (b) N.A.  
   (iii) 14.11.1950. (iv) (a) 3 harrowings.  
   (b) Sown by seed drill. (c) 50 seeds/ac. (d) N.A.  
   (e) N.A.  
   (f) Nil.  
   (g) C-13 (early).  
   (h) Irrigated.  
   (i) N.A.  
   (ii) 30.11.1951.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + Irrigation 9 weeks after germination (at flowering), I₃ = I₂ + Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 applications of N: N₀ = No manure, N₁ = 60 lb/ac of N as A/S, N₂ = 60 lb/ac of N as Castor cake.

3. DESIGN:
   (i) Split-plot. (ii) 4 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 60' x 40'. Sub-plot 20' x 49'. (b) 17' x 37'. (v) Sub-plot border 1½' around. Field border 3' around. Sown space left between main-plots 5', sown space left between blocks 8' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Average growth. (ii) Nil. (iii) Grain yield. (iv) (a) 1949-1954. (b) No.  
   (c) No. (v) (a) Banaras, Kunraghat, Kalyanpur, Kalai, Etawah, Muzaffarnagar, Meerut, Atarra and Lucknow. (b) N.A.  
   (vi) Nil.  
   (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 1187 lb/ac.  
   (ii) (a) 423.3 lb/ac.  
   (b) 283.8 lb/ac.  
   (iii) Only I x forms of N is significant.  
   (iv) Av. yield of grain in lb/ac.

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S.E. of difference of two
1. marginal means of I = 199.06 lb/ac.  
2. marginal means of N = 115.87 lb/ac.  
3. N means at the same level of I = 231.74 lb/ac.  
4. I means at the same level of N = 274.64 lb/ac.

Crop: - Wheat (Rabi).  
Site: - State Mechanised Farm, Bharari.  
Object: — To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) N.A.  
   (ii) (a) Runkar and Kahar.  
   (b) N.A.  
   (iii) 30.11.1951. (iv) (a) One ploughing and 2 harrowings.  
   (b) Sown by seed drill. (c) 40-50 seeds/ac. (d) and (e) N.A.  
   (f) Nil.  
   (g) C-13 (early).  
   (h) Irrigated.  
   (i) N.A.  
   (ii) 1.98'.  
   (iii) N.A.
2. TREATMENTS:

Main-plot treatments:
4 levels of Irrigation: 
- I\(_0\) = No irrigation,
- I\(_1\) = Irrigation 3 weeks after germination (at tillering),
- I\(_2\) = I\(_1\) + Irrigation 9 weeks after germination (at flowering),
- I\(_3\) = I\(_2\) + Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 applications of N: 
- N\(_0\) = No manure, 
- N\(_1\) = 60 lb./ac. of N as A/S, and 
- N\(_2\) = 60 lb./ac. of N as Castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/repliication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot size: 60' x 40' and sub-plot: 20' x 40'. (b) 17' x 37'. (v) Sub-plot border = 11' alround. Field border = 3' alround. Sown space left between main plots = 5'. Sown space left between blocks = 6' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) No. (iii) Grain yield. (iv) (a) 1949—1953 (b) and (c) No. (v) (a) Banaras, Faizabad, Kunraghat, Kalayamapur Atarla, Etawah, Kalai, Meerut, Muzaffarnager, Hawalbagh and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 1349 lb./ac.
(ii) (a) 452.9 lb./ac.
(b) 240.0 lb./ac.
(iii) Only levels of N are highly significant. No other effect is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 184.9 lb./ac.
2. marginal means of N = 84.8 lb./ac.
3. N means at the same level of I = 169.7 lb./ac.
4. I means at the same level of N = 231.0 lb./ac.

Crop: Wheat.
Site: State Mechanised Farm, Bharari.
Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Sanai—Wheat. (b) Sanai. (c) Nil. (ii) (a) Parwa soil. (b) N.A. (iii) 13.11.1952. (iv) (a) One ploughing on 29.7.1952 and 2 barrowings on 31.10.1952. (b) N.A. (c) 9 chh./plot. (d) and (e) N.A. (v) Nil. (vi) Pb-591 (medium late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 25.3.1953.

2. TREATMENTS:
Main-plot treatments:
4 levels of Irrigation: 
- I\(_0\) = No irrigation, 
- I\(_1\) = Irrigation 3 weeks after germination (at tillering), 
- I\(_2\) = I\(_1\) + Irrigation 9 weeks after germination (at flowering) and 
- I\(_3\) = I\(_2\) + Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 applications of N: 
- N\(_0\) = No manure, 
- N\(_1\) = 60 lb./ac. of N as A/S, and 
- N\(_2\) = 60 lb./ac. of N as Castor cake.
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 60' x 40'; sub-plot: 20' x 40'. (b) 17' x 37'. (v) Sub-plot border ½'; between main-plots 5'; between blocks 6'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight incidence or rust was traceable during February. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Banaras, Faizabad, Etawah, Kalayanpur, Meerut, Kaloi, Atarra, Hawalbagh, Kunraghat and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 1376 lb./ac.
(ii) (a) 280.6 lb./ac.
(b) 224.2 lb./ac.
(iii) Only levels of N are highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 114.6 lb./ac.
2. marginal means of N = 79.3 lb./ac.
3. N means at the same level of I = 158.5 lb./ac.
4. I means at the same level of N = 172.9 lb./ac.

Site :- State Mechanised Farm, Bharari. Type :- 'IM'.
Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

I. BASAL CONDITIONS:
(i) (a) Sanai—Wheat. (b) Sanai. (c) Nil. (ii) (a) Parwa soil. (b) N.A. (iii) 20.11.1953. (iv) (a) Ploughing on 22.8.1953 and harrowings on 28.10.1953, and 16.11.1953. (b) Sown by seed drill. (c) 4-5 srs/ac. (d), (e) N.A. (v) N.A. (vi) Pb. 591 (medium late). (vii) Irrigated. (viii) Weeding and hoeing at proper time. (ix) N.A. (x) 5, 6.4.1954.

2. TREATMENTS:
Main-plot treatments:
. 4 levels of Irrigation: \( I_0 = \text{No irrigation}, \ I_1 = \text{Irrigation 3 weeks after germination (at tillering)}, \ I_2 = I_1 + \text{Irrigation 9 weeks after germination (at flowering)} \) and \( I_3 = I_2 + \text{Irrigation 12 weeks after germination (at milky stage)} \).

Sub-plot treatments:
3 applications of N: \( N_0 = \text{No manure}, \ N_1 = 60 \text{ lb./ac. of N as A/S} \) and \( N_2 = 60 \text{ lb./ac. of N as Caster cake} \).

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 24' x 150'. sub-plot: 20' x 40'. (b) 17' x 37'. (v) Plot border 1.5' and field border 3' around. Sown \( S_1 \) ace left between main-plot 5'; block partition 6' serving as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight incidence of rust. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b), (c) No. (v) (a) Faizabad, Etawah, Kalayanpur, Atarra, Meerut, Kunraghat, Muzaffarnagar, Banaras and Kalai. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).
5. RESULTS:
(i) 1150 lb./ac.
(ii) (a) 574.8 lb./ac.
(b) 189.0 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 234.6 lb./ac.
2. marginal means of N = 66.8 lb./ac.
3. N means at the same level of I = 133.7 lb./ac.
4. I means at the same level of N = 258.8 lb./ac.

Crop: Wheat.
Site: Govt. Agri. School Farm, Bulandshahr.
Object: To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Green manuring (Sanai). (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 27, 28.10.1949. (iv) (a) 6 ploughings by desi plough. (b) to (e) N.A. (v) Green manuring of Sanai by ploughing in on 9.8.1949. (vi) Pq. 591. (vii) Irrigated. (viii) Hoeing and weeding on 29, 30.1.1950. (ix) N.A. (x) 14, 15.4.1950.

2. TREATMENTS:
Main-plot treatments:
2 levels of irrigation: I₁ = Irrigation 9 weeks after germination (at flowering) and I₂ = I₁ + Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.
(2) 3 levels of Ca as Gypsum: G₀ = 0, G₁ = 25 and G₂ = 50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot size: 162' × 40' and sub-plot: 18' × 40'. (b) 12' × 34'. (v) 3' ring round the net-plot. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) and (c) No. (v) (a) Banaras, Kalyanpur, Barabanki and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 2151 lb./ac.
(ii) (a) 568.5 lb./ac.
(b) 315.4 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means = 154.7 lb./ac.
2. P or G marginal means = 105.1 lb./ac.
3. P or G means at the same level of I = 148.7 lb./ac.
4. I means at the same level of P or G = 196.7 lb./ac.
5. means in body of G x P table = 182.1 lb./ac.

---

Crop: Wheat.
Site: Govt. Agri. School Farm, Bulandshahr.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Green manure (Sanai). (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 27.10.1949. (iv) (a) Ploughing in Sanai on 9.8.1949, 6 ploughings by deshi plough. (b) N.A. (c) 50 srs./ac. (d) and (e) N.A. (v) Field green manured by Sanai. (vi) Ph. 591 (mid-late). (vii) Irrigated. (viii) Hoeing and weeding on 29, 31.1.1950. (ix) N.A. (x) 14, 15,4.1950.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of irrigation: I₁=Irrigation 3 weeks after germination (at tillering), I₂=Irrigation 9 weeks after germination (at flowering) and I₃=Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 applications of N: N₀=No manure, N₁=60 lb./ac. of N as A/S and N₂=60 lb./ac. of N as Castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot size: 54' x 40' and Sub-plot: 18' x 40'. (b) 12' x 34'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) Banaras, Kalyanpur, Atarra, Bharari, Meerut, Muzaffarnagar, Lucknow, Hawallag and Kunraghat. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 2245 lb./ac.
   (ii) (a) 240.0 lb./ac.
   (b) 179.3 lb./ac.
   (iii) Forms of N and interaction X forms of N are significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means = 113.1 lb./ac.
2. N marginal means = 84.5 lb./ac.
3. N means at the same level of I = 146.4 lb./ac.
4. I means at the same level of N = 164.6 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Etawah.
Ref: U.P. 50(74).
Type: 'IM'.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Clayey loam. (b) N.A. (iii) Last week of October, (iv) (a) N.A. (b) Sown by seed drill. (c) 40–50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (mid-late). (vii Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + Irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2) + a control (N₀T₀ = no manure)
   (1) 2 levels of N as A/S: N₁ = 30 and N₂ = 60 lb./ac. of N.
   (2) 2 times of application of N: T₁=All at sowing and T₂=Half at sowing and half at 1st irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 25' x 175' and Sub-plot: 25' x 35'. (b) 22' x 32'. (v) Sub-plot border = 1½' around. Field border = 3' around. Irrigation channel = 3'. Sown space left between main-plots = 8' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1950–1954. (b) and (c) No. (v) (a) Kunraghat, Kalyanpur, Muzaffarnagar, Meerut, Bharari, Atarra and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 1204 lb./ac.
   (ii) (a) 359.5 lb./ac.
   (b) 245 lb./ac.
   (iii) Only main effect of I is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 135.0 lb./ac.
2. marginal means of NT = 100.1 lb./ac.
3. NT means at the same level of I = 200.1 lb./ac.
4. I means at the same level of NT = 224.2 lb./ac.

Crop : Wheat (Rahi).
Site : Govt. Agri. Farm, Etawah.
Ref. : U.P. 51(72).
Type : 'IM'.

Object :—To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) Last week of October, sowing was delayed.
(iv) (a) N.A. (b) Sown by seed drill. (c) 40-50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Ph.591 (medium late). (vii) Irrigated. (viii) N.A. (ix) 1.10". (x) N.A.

2. TREATMENTS :
   Main-plot treatments :
   4 levels of irrigation: I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering stage), I₂=I₁+Irrigation 9 weeks after germination (at flowering stage) and I₃=I₂+Irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments : All combinations of (1) and (2)+a control (N₂To=no manure).
   (1) 2 levels of N as A/S: N₁=30 lb./ac. and N₂=60 lb./ac.
   (2) 2 times of application of N : T₁=All at sowing and T₂=half at sowing and half at first irrigation.

3. DESIGN :
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4, (iv) (a) Main-plot size: 20'x175' and sub-plot: 20'x35'. (b) 17'x32'. (v) Sub-plot border: 1' around, field border 3' allround. Irrigation channel 3', sown space left between main-plots: 4' also to be used as irrigation channel. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1950—1954. (b), (c) No. (v) (a) Kalyanjpur, Faizabad, Muzaffarnagar, Meerut, Atarra, Kunraghat, Hawalbagh and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS :
   (i) 725 lb./ac.
   (ii) (a) 433.7 lb./ac.
   (b) 270.6 lb./ac.
   (iii) Only main effect of I is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of the difference of two
1. marginal means of I  = 137.1 lb./ac.
2. marginal means of NT = 95.7 lb./ac.
3. NT means at the same level of I  = 191.4 lb./ac.
4. I means at the same level of NT  = 219.3 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Farm, Etawah.
Ref :- U.P. 52(132).
Type :- 'IM'.

Object :- To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Chari-Wheat. (b) Chari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 11.11.1952. (iv) (a) 3 ploughings with waters plough, 2 ploughings with cultivator, 2 ploughings with desi plough. (b) N.A. (c) 40 to 50 srs./ac. (d), (e) N.A. (v) Nil. (vi) P9-391 (late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 13.4.1953.

2. TREATMENTS:
Main-plot treatments :
- 4 levels of irrigation : I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering stage), I₂ = I₁ + Irrigation 9 weeks after germination (at flowering stage) and I₃ = I₂ + Irrigation 12 weeks after germination (at milky stage).
Sub-plot treatments :
- All combinations of (1) and (2) + a control (N₀T₀ = no manure).
  1. 2 levels of N as A/S : N₁ = 30 lb./ac. of N and N₂ = 60 lb./ac. of N.
  2. 2 times of application of N : T₀ = All at sowing and T₁ = half at sowing and half at first irrigation.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 30' x 175' and sub-plot : 20' x 35'. (b) 17' x 32'. (v) Sub-plot border 1/4' around; distance between main-plots is 4'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950-1954. (b), (c) No. (v) (a) Kalyanpur, Meerut, Atarra, Bharari, Faizabad, Muzaffarnagar and Kunraghat. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS
(i) 232 lb./ac.
(ii) (a) 271.6 lb./ac.
    (b) 210.8 lb./ac.
(iii) Main effect of I and the control vs. treated effect are both highly significant. Others are not significant.
Crop : Wheat (Rabi).
Site : Govt. Agri. Farm, Etawah.

Object :—To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS :

2. TREATMENTS :
   Main plot treatments :
   4 levels of irrigation : I₀=No Irrigation, I₁=Irrigation 3 weeks after germination (at tillering stage), I₂=I₁+Irrigation 9 weeks after germination (at flowering stage) and I₃=I₂+Irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments :
   All combinations of (1) and (2)+a control (N₀T₀=no manure)
   (1) 2 levels of N as A/S : N₁=30 lb./ac. of N and N₂=60 lb./ac. of N.
   (2) 2 times of application of N : T₁=All at sowing and T₂=half at sowing and half at first irrigation.

3. DESIGN :
   (i) Split-plot. (ii) (a) 4 main plots replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) Main-plot : 20'×75'; sub-plot : 20'×35'. (b) 17'×32'. (v) Sub-plot border 1.5' and field border 3' around. Sown space left between main-plots to serve as irrigation channel 4.5' (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1954. (b) and (c) No. (v) (a) Faizabad, Kunraghat, Kalvanpur, Atarra, Bharari, Meerut and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS :
   (i) 1297 lb./ac.
   (ii) (a) 319.5 lb./ac.
   (b) 356.8 lb./ac.
   (iii) Main effect of I is highly significant and the interaction Ix 'control x2, treated' is significant.

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S.E. of difference of two
1. marginal means of I = 85.9 lb./ac.
2. marginal means of NT = 74.5 lb./ac.
3. NT means at the same level of I = 149.0 lb./ac.
4. I means at the same level of NT = 158.6 lb./ac.
Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Green manure. (c) Nil. (ii) (a) Clayey loam. (b) N.A. (iii) 1.11.1950. (iv) (a) Ploughings on 24.6.1950, 9.9 1950, 28.9.1950, 7.10.1950 and 30.10.1950. (b) Sown by seed drill. (c) 50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (mid late). (vii) Irrigated. (viii) Harrowing on 15.12.1950. (ix) N.A. (x) 23,24.4.1951.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: 10 = No irrigation, 11 = Irrigation 3 weeks after germination (at tillering), 12 = Irrigation 9 weeks after germination (at flowering) and 13 = 12 + Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 applications of N: N0= No manure, N1=60 lb./ac. of N as A/S and N2=60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 60'x 40'; sub-plot 20'x 40'. (b) 17'x 37'. (v) Sub-plot border = 1' around. Field border = 2' around. Sow space left between main-plots = 5', sown space left between blocks = 5'—also to be used as irrigation channel. (v) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) After germination, crop was attacked by kala which disappeared after 1st irrigation. (iii) Grain yield. (iv) (a) 1950 1954. (b) and (c) No. (v) (a) Kunraghat, Banaras, Kalyanpur, Kala, Muzzafarragar, Meerut, Bharari, Atarra and Lucknow. (vi) Nil. (vii) Expt. was conducted by C.P.

5. RESULTS:
   (i) 1526 lb./ac.
   (ii) (a) 150.7 lb./ac.
   (b) 210.1 lb./ac.

   (iii) Main effects of I and levels of N are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two.
1. marginal means of I = 71.1 lb./ac.
2. marginal means of N = 85.8 lb./ac.
3. N means at the same level of I = 171.5 lb./ac.
4. I means at the same level of N = 157.1 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Farm, Etawah.

Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 17.11.1951. (iv) (a) N.A. (b) Sown by seed drill. (c) 40—50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (mid-late). (vii) Irrigated, (viii) N.A. (ix) 1.10". (x) N.A.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation:
- I₀ = No irrigation
- I₁ = Irrigation 3 weeks after germination (at tillering)
- I₂ = Irrigation 9 weeks after germination (at flowering)
- I₃ = Irrigation 12 weeks after germination (at milky stage)

Sub-plot treatments:
3 applications of N:
- N₀ = No manure
- N₁ = 60 lb./ac. of N as A/S
- N₂ = 60 lb./ac. of N as Castor cake

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 60'×40' and Sub-plot: 20'×40'. (b) 17'×37'. (v) Sub-plot border = 1' around. Field border = 7' around. Sown space left between blocks = 5' also used as irrigation channel. Sown space left between main-plots = 5'. (vi) Yes.

4. GENERAL:
(i) Percentage of germination was poor (70%) general stand was good ; no lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1950—1954. (b) and (c) No. (v) (a) Bararas, Faizabad, Kunraghat, Kalyanpur Atarra, Bharari, Kala, Meerut, Muzaffarnagar, Hawalbagh and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 726 lb./ac.
(ii) (a) 308.3 lb./ac.
(b) 196.7 lb./ac.
(iii) Main effect of I is highly significant and forms of N effect is significant. Other effect are not significant.
(v) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
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<th>N₁</th>
<th>N₂</th>
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<td>I₁</td>
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<td>I₂</td>
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<td>I₃</td>
<td>872</td>
<td>801</td>
<td>966</td>
<td>880</td>
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</table>

Mean 676 678 823 726

S.E. of difference of two
1. marginal means of I = 125.9 lb./ac.
2. marginal means of N = 69.5 lb./ac.
3. N means at the same level of I = 139.1 lb./ac.
4. I means at the same level of N = 169.5 lb./ac.

Crop: - Wheat (Rabi).
Site: - Govt. Agri. Farm, Etawah.

Object: - To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Chari—Wheat. (b) Chari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 11.11.1952. (iv) (a) 3 ploughings with Watts plough, two ploughings with cultivator and 2 with desi plough. (b) N.A. (c) 40 to 50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (medium late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14.4.1953.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering), I₂=Irrigation 9 weeks after germination (at flowering) and I₃=Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 of N: N₀=No manure, N₁=60 lb./ac. of N as A/S and N₂=60 lb./ac. of N as Castor cake.

3. DESIGN:
(i) Split-plot. (ii) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 60' x 40' and sub-plot: 20' x 40'. (b) 17' x 37'. (v) Sub-plot border=14' around. Field border=24' around. Between main-plots=5'. Between blocks=5'. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1954. (b) and (c) No. (v) (a) Ban ras, Faltab, Kalyanpur, Meerut, Kalai, Atarra, Haukibagh, Kunraghat and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
(i) 954 lb./ac.
(ii) 285.3 lb./ac.
(b) 2660 lb./ac.
(iii) Only main effect of I is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
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<th>(N_1)</th>
<th>(N_2)</th>
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<td>(I_3)</td>
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<tr>
<td>Mean</td>
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<td>902</td>
<td>976</td>
<td>954</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of \(I\) = 116.5 lb./ac.
2. marginal means of \(N\) = 94.0 lb./ac.
3. \(N\) means at the same level of \(I\) = 188.1 lb./ac.
4. \(I\) means at the same level of \(N\) = 192.7 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Etawah.
Ref: U.P. 53(107).
Type: 'IM'.

Object: To study the effect of different forms and levels of \(N\) in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: \(I_0\) = No irrigation, \(I_1\) = Irrigation 3 weeks after germination (at tillering), \(I_2\) = \(I_1\)+ irrigation 9 weeks after germination (at flowering), \(I_3\) = \(I_2\)+irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 combinations of forms and levels of \(N\): \(N_0\) = No manure, \(N_1\) = 60 lb./ac. of \(N\) as A/S and \(N_2\) = 60 lb./ac. of \(N\) as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main -plot: 40'x60', sub-plot: 20'x40'. (b) 17'x37'. (v) Sub-plot border 1.5' and field border 2.5' around. Sowing space left between main-plots 5' and between blocks is 5' which serves as irrigation channel also. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Effected by rust. (iii) Grain and straw yield. (iv) (a) 1950-1954. (b) No. (c) No. (v) (a) Varanasi, Faizabad, Kunraghat, Kalvanpur, Atarra, Bharari, Meerut, Muzaffarnagar and Kalai. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
   (i) 1235 lb./ac.
   (ii) (a) 433.0 lb./ac.
   (b) 270.2 lb./ac.
   (iii) Main effect of \(I\) is highly significant and forms of \(N\) effect is significant.
- **Object:** To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

### 1. BASAL CONDITIONS:

(i) (a) Nil. (b) G.M. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 4.11.1951. (iv) (a) 10 ploughings. (b) Sown by seed drill. (c) 40-50 srs/ac. (d) N.A. (e) N.A. (f) Nil. (g) N.P.52 (medium). (h) Irrigated. (i) N.A. (j) 2.31'.

### 2. TREATMENTS:

**Main-plot treatments:**

- 4 levels of irrigation: \( I_0 \) = No irrigation, \( I_1 \) = Irrigation 3 weeks after germination (at tillering), \( I_2 \) = \( I_1 \) + irrigation 9 weeks after germination (at flowering) and \( I_3 \) = \( I_2 \) + irrigation 12 weeks after germination (at milky stage).

**Sub-plot treatments:**

All combinations of (1) and (2)+a control (N\(_0\)T\(_0\)=no manure).

- (1) 2 levels of N as A/S: N\(_1\) = 30 and N\(_2\) = 60 lb./ac. of N.
- (2) 2 times of application: T\(_1\) = Full at sowing and T\(_2\) = half at sowing and half at 1st irrigation.

\( I_0 \) given on 28.12.1951. \( I_2 \) given on 13.2.1952. \( I_3 \) could not be given due to western winds which ripened the plants. Hence \( I_3 \) is identical to \( I_2 \).

### 3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot 18'\times225', sub-plot 18'\times45'. (b) 15'\times42'. (v) Sub-plot border 14' around; field border 5' around; irrigation channel 3'; sown space left between main-plots 4' also to be used as irrigation channel. (vi) Yes.

### 4. GENERAL:

(i) Good No lodging. (ii) Slight attack of rust in some plots. (iii) Grain yield. (iv) (a) 1951—1953. (b) No. (c) No. (d) (a) Hawaltbeg, Etawah, Mezaffernagar, Meerut, Bharari, Atarra, Kunraghat, Lucknow and Kalyanpur. (b) N.A. (vi) Considerable damage has been done due to rats in most of the plots. (vii) Experiment conducted by C.P.

### 5. RESULTS:

(i) 595.6 lb./ac.

(ii) (a) 133.8 lb./ac.

(b) 119 8 lb./ac.

(iii) Main effect of \( N \) doses \& control \( v_r \) treated are both highly significant. None of the other effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>(N_0T_0)</th>
<th>(N_1T_1)</th>
<th>(N_2T_1)</th>
<th>(N_1T_2)</th>
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<td>726.7</td>
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<td>733.4</td>
<td>617.8</td>
<td>584.0</td>
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<td>366.7</td>
<td>677.8</td>
<td>615.6</td>
<td>677.8</td>
<td>655.6</td>
<td>598.7</td>
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<tr>
<td>(I_2)</td>
<td>445.6</td>
<td>725.6</td>
<td>574.5</td>
<td>643.4</td>
<td>610.0</td>
<td>599.8</td>
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<tr>
<td>Mean</td>
<td>388.9</td>
<td>713.9</td>
<td>577.3</td>
<td>674.5</td>
<td>623.4</td>
<td>595.6</td>
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</table>

S.E. of difference of
1. \(I_0\) and \(I_1\) marginal means = 4.2 lb./ac.
2. \(I_0\) and \(I_1\) or \(I_1\) and \(I_2\) marginal means = 3.6 lb./ac.
3. two marginal means of NT = 4.2 lb./ac.
4. two NT-means at the same level of \(I_0\) or \(I_1\) = 8.4 lb./ac.
5. two NT means at the same level of \(I_2\) = 5.9 lb./ac.
6. \(I_0\) and \(I_1\) means at the same level of NT = 8.6 lb./ac.
7. \(I_0\) and \(I_2\) or \(I_1\) and \(I_2\) means at the same level of NT = 7.5 lb./ac.

Crop :-Wheat (Rabi).
Site :-Govt. Agri. Farm, Faizabad.
Object :-To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 12.11.1952. (iv) (a) Ploughings by pariza and desi plough on 6, 29.9.1952; 2, 9, 16.10.1952 and 9, 11.11.1952, Shur plough on 14.10.1952 and 10.11.1952. (b) N.A. (c) 17 chak/plot. (d) and (e) N.A. (v) N.A. (vi) N.P. 52 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 22.4.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: \(I_0\)=No irrigation, \(I_1\)=Irrigation 3 weeks after germination (at tillering stage), \(I_2\)=\(I_1\)+irrigation 9 weeks after germination (at flowering stage) and \(I_3\)=\(I_1\)+irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2) + a control (\(N_0T_0\)=no manure).
   (1) 2 levels of N as A/S: \(N_1\)=30 lb./ac. of N and \(N_2\)=60 lb./ac. of N.
   (2) 2 times of application: \(T_1\)=Full at sowing and \(T_2\)=Half at sowing and half at first irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: \(15'\times240'\); sub-plot: \(15'\times45'\). (b) 12'\times45' (v) Sub-plot border 14', field border 3' around, distance between main-plots 4', distance between blocks 4'. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 717 lb./ac.
   (ii) (a) 180.1 lb./ac.
   (b) 133.0 lb./ac.
   (iii) Main effect of N and control vs treated are both highly significant. Time of application and interaction I\(\times\)N\(\times\)T are both significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>$N_0T_9$</th>
<th>$N_1T_1$</th>
<th>$N_2T_1$</th>
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<td>710</td>
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<td>$I_2$</td>
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<td>846</td>
<td>706</td>
<td>764</td>
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<td>861</td>
<td>737</td>
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<td>771</td>
<td>868</td>
<td>669</td>
<td>717</td>
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</table>

S.E. of the difference of two
1. marginal means of $I$ = 57.0 lb./ac.
2. marginal means of $NT$ = 47.0 lb./ac.
3. $NT$ means at the same level of $I$ = 94.1 lb./ac.
4. $I$ means at the same level of $NT$ = 101.6 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Faizabad.
Ref: U.P. 53(62).
Type: ‘1M’.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 14.11.1953. (iv) (a) Ploughing with praja plough, cultivator and desi plough. (b) Sown by seed drill. (c) 40-50 yrs./ac. (d) N.A. (v) N.A. (vi) N.P. 52 (medium). (vii) Irrigated. (viii) Weeding and hoeing at the proper time are common in practice. (ix) N.A. (x) 23.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: $I_0$=No irrigation, $I_1$=Irrigation 3 weeks after germination (at tillering stage), $I_2$=$I_1+$ irrigation 9 weeks after germination (at flowering stage) and $I_3$=$I_1+$ irrigation,12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combination of (1) and (2)+a control ($N_0T_6$=no manure).
   (1) 2 levels of N as A/S: $N_1$=30 lb./ac. of N and $N_2$=60 lb./ac. of N.
   (2) 2 times of application: $T_1$=Full at sowing and $T_2$=Half at sowing and half at first irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 15’x220’; sub-plot 15’x48’. (b) 12’x45’. (v) Plot border 1.5’ and field border 4’ around. Sown space left between main plots 4’ also to serve as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) 15-20 % attacked by rust. (iii) Grain and straw yield. (iv) (a) 1951—1953. (b), (c) No. (v) (a) Etawah, Kalyanpur, Attara, Bharari, Meerut, Kunraghat and Muzaffarnagar. (b) N.A. (vi) Due to constant heavy rains, plots could not be prepared properly. (vii) Experiment conducted by C.F.(R).

5. RESULTS:
   (i) 581 lb./ac.
   (ii) (a) 140.0 lb./ac.
   (b) 91.8 lb./ac.
   (iii) Control vs. treated, $I\times N$, $I\times T$ and $I$ x control vs treated are all highly significant. Interaction $I\times N\times T$ is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>N₁T₁</th>
<th>N₂T₂</th>
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<td>623</td>
<td>622</td>
<td>636</td>
<td>581</td>
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</table>

S.E. of the difference of two
1. marginal means of I = 44.3 lb./ac.
2. marginal means of NT = 32.5 lb./ac.
3. NT means at the same level of I = 64.9 lb./ac.
4. I means at the same level of NT = 73.0 lb./ac.

---

Crop :- Wheat (Rabi).
Site :- Govt. Agric. Farm, Faizabad.
Ref :- U.P. 51(64).
Type :- 'IM'.

Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Green manure. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 27.11.1951. (iv) (a) 6 ploughings by desi plough and 4 ploughings by pariza plough. (b) Sown by seed drill. (c) 50 yrs./ac. (d) and (e) N.A. (v) Nil. (vi) N.P.S (medium). (vii) Irrigated. (viii) N.A. (ix) 2.31'. (x) N.A.

TREATMENTS :

Main-plot treatments :
   4 levels of irrigation : I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments :
   3 combinations of forms and levels of N : N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake. I₁ given on 27.12.1951, I₂ given on 12.2.1952 and I₃ not given due to western winds which ripened the plants after 2nd irrigation. Hence I₂ is identical to I₃.

3. DESIGN :
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 57' x 41' and sub-plot 22' x 44'. (b) 19' x 41'. (v) Sub-plot border = 1' around, field border = 3' around. Sown space left between main-plots = 5', sown space left between blocks = 10' also to be used as irrigation channel. (vi) Yes.

4. GENERAL :
   (i) Poor due to late sowing. No lodging except in one plot receiving A/S. (ii) There was slight attack of rust in some of the plots. (iii) Grain yield. (iv) (a) 1951-1953. (b) and (c) No. (v) (a) Varanasi, Kunrathat, Kalyanpur, Bharari, Etawah, Kali, Meerut, Muzaffarnagar, Haveli and Lucknow (b) N.A. (vi) Damage done by rats in most of the plots. (vii) Experiment conducted by C.P.

5. RESULTS :
   (i) 612.6 lb./ac.
   (ii) (a) 141.7 lb./ac.
   (b) 128.6 lb./ac.

Only main effect of I is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>$N_1$</th>
<th>$N_2$</th>
<th>Mean</th>
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<td>816.9</td>
<td>671.3</td>
<td>735.1</td>
<td>741.1</td>
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Mean 616.4 548.6 627.7 612.6

S.E. of difference of
1. $I_0$ and $I_1$ marginal means = 57.8 lb./ac.
2. $I_0$ and $I_2$ or $I_1$ and $I_2$ marginal means = 50.1 lb./ac.
3. two $N$ marginal means = 45.5 lb./ac.
4. two $N$ means at the same level of either $I_0$ or $I_1$ = 90.9 lb./ac.
5. two $N$ means at the same level of $I_2$ = 64.3 lb./ac.
6. $I_0$ and $I_1$ means at the same level of $N$ = 94.1 lb./ac.
7. $I_0$ and $I_2$ or $I_1$ and $I_2$ means at the same level of $N$ = 81.5 lb./ac.

**Crop:** Wheat (Rabi).

**Site:** Govt. Agri. Farm, Faizabad.

**Object:** To study the effect of different forms and levels of $N$ in combination with levels of irrigation on Wheat.

1. **Basal Conditions:**
   (i) (a) Charli—Wheat. (b) Charli. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 15.11.1952. (iv) (a) Ploughing by *Pariza* on 6, 11.11.1952. (b) N.A. (c) 40 to 50 hrs./ac. (d) and (e) N.A. (v) N.A. (vi) N.P.52 (medium-early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 21.4.1953.

2. **Treatments:**
   Main-plot treatments:
   4 levels of irrigation: $I_0$ = No irrigation, $I_1$ = Irrigation 3 weeks after germination (at tillering), $I_2$ = $I_1$ + irrigation 9 weeks after germination (at flowering) and $I_3$ = $I_2$ + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combinations of forms and levels of $N$: $N_0$ = No manure, $N_1$ = 60 lb./ac. of $N$ as A/S and $N_2$ = 60 lb./ac. of $N$ as castor cake.

3. **Design:**
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (iii) 4. (iv) (a) Main-plot: $57' \times 41'$ sub-plot: $22' \times 44'$. (b) $19' \times 41'$. (v) Sub-plot border = 14' around, field border = 3', distance between main-plots = 5' and distance between blocks = 10'. (vi) Yes.

4. **General:**
   (i) Poor. (ii) Attack of rust yellow, black and orange. (iii) Grain and straw yield. (iv) (a) 1951—1953. (b) and (c) No. (v) (a) Varanasi, Etawah, Kalyaspur, Meerut, Kalai, Atarra, Hauli Bagh, Bharari, Kunrarghat and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. **Results:**
   (i) 537.2 lb./ac.
   (ii) 169.0 lb./ac.
   (b) 115.7 lb./ac.
   (iii) Only main effect of $N$ is highly significant.
(iv) Av. yield of grain in lb./ac.

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Mean: 319.0, 657.7, 616.3, 537.7

S.E. of difference of two
1. I marginal means = 69.0 lb./ac.
2. N marginal means = 40.9 lb./ac.
3. N means at the same level of I = 81.8 lb./ac.
4. I means at the same level of N = 96.0 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Faizabad.
Ref: U.P. 52(60).
Type: 'IM'.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Moong—Lobia. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 14.11.1953. (iv) (a) Ploughing and harrowing 8-10 times. (b) Sown by seed drill. (c) 40-50 srs/ac. (d) and (e) N.A. (v) N.A. (vi) N.P. 52 (medium). (vii) Irrigated. (viii) Weeding and hoeing at the proper time are common in practice. (ix) N.A. (x) 27.4.1954.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I_0 = No irrigation, I_1 = Irrigation 3 weeks after germination (at tillering), I_2 = I_1 + irrigation 9 weeks after germination (at flowering), I_3 = I_2 + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 combinations of forms and levels of N: N_0 = No manure. N_1 = 60 lb./ac. of N as A/S and N_2 = 60 lb./ac. of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main plot: 66' x 44'; sub-plot: 22' x 44'. (v) Plot border 1.5' and field border 3' around. Sown space left between main-plots 5'; block partition 10' to serve as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. (ii) 15-20% rust incidence. (iii) Grain and straw yield. (iv) (a) 1951—1953. (b) and (c) No. (v) (a) Varanasi, Etawah, Kalyanpur, Atarra, Bharari, Meerut, Kanraghat, Kalai and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
(i) 492 lb./ac.
(ii) (a) 61.6 lb./ac.
(b) 117.6 lb./ac.
(iii) Only main effect of levels of N is highly significant.
Crop: Wheat (Rabi).
Site: Govt. Agri. School Farm, Hauwalbagh.
Ref: U.P. 49(82).
Type: 'IM'.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 11.11.1949. (iv) (a) Once ploughed by victor plough, 4 times ploughed by desi plough. (b) Broadcasting (c) 40 lbs./ac. (d) and (e) N.A. (v) Nil. (vi) N.P.A. (vii) Irrigated. (viii) N.A. (ix) 5).90°. (x) 8 and 9.5.1950.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of irrigation: I₁ - Irrigation 3 weeks after germination (at tillering stage), I₂ = I₁ + irrigation 9 weeks after germination (at flowering stage), and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2) + a control (N₀T₀ = no manure).
   (1) 2 levels of N as A/S: N₁ = 30 and N₂ = 60 lbs./ac. of N.
   (2) 2 times of application: T₁ = full at sowing and T₂ = ⅓ at first irrigation.

3. DESIGN:
   (i) Split-plot (ii) (a) 3 main-plots /block; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 22' x 165'. Sub-plot: 22' x 33'. (b) 16' x 27'. (v) 3' all round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Length of roots per plant, length of shoot per plant, length of leaf, breadth of leaf, fresh wt. of shoot, dry wt. of shoot, no of dry leaves, green leaves, no of grains per ear and grain and bhusha yield. (iv) (a) 1947—1951. (b) and (C) No. (v) (a) Kunraghat, Kalyanpur, Atarra, Bharari, Meerut Muzaffarnagar and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

RESULTS:
(i) 960.2 lb./ac.
(ii) 462.7 lb./ac.
(b) 308.7 lb./ac.
(iii) Only the interaction I × N is highly significant. Others are not significant.

(iv) Av. yield of grain in lb./ac.

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Mean 303 570 603 492

S.E. of the difference of two
1. marginal means of I = 25.2 lb./ac.
2. marginal means of N = 41.6 lb./ac.
3. N means at the same level of I = 83.2 lb./ac.
4. I means at the same level of N = 72.4 lb./ac.
(iv) Av. yield of grain in lb/ac.

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S.E. of the difference of two
1. marginal means of I  = 169.0 lb/ac.
2. marginal means of NT = 145.5 lb/ac.
3. NT means at the same level of I  = 252.0 lb/ac.
4. I means at the same level of NT  = 281.7 lb/ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. School Farm, Hawalbagh.
Ref: U.P. 51(66).
Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Paddy. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 11, 12, 12, 1951. (iv) (a) N.A. (b) Broadcasting. (c) 40-50 sers/ac. (d) N.A. (e) N.A. (f) Nil. (vi) N.P. 4 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = no irrigation I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2) + a control (N₀T₀ = no manure).
1. 2 levels of N as A/S: N₁ = 30 and N₀ = 60 lb/ac of N.
2. 2 times of application: T₁ = Full at sowing and T₀ = Half at sowing and half at 1st irrigation.

3. DESIGN:
   (i) Split-plot.  (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot.  (b) N.A. (iii) 4.  (iv) (a) Main-plot: 150' x 15'. Sub-plot: 15' x 30'. (b) 12' x 27'. (v) Sub-plot border 1' around. Irrigation channel 3'. space between main-plots 6'. (vi) Yes.

4. GENERAL:
   (i) Poor due to late sowing. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1951. (b) N.A. (v) (a) Etawah, Faizabad, Muzaffarnagar, Meerut, Kalyanpur, Bharatpur, Atur, Kunera, and Lucknow. (b) N.A.
   (vi) Poor yield due to rains at harvesting. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 68.49 lb/ac.
   (ii) (a) 138.0 lb/ac.
       (b) 35.9 lb/ac.
   (iii) None of the effects is significant.
Crop: Wheat (Rabi).
Site: Govt. Agri. School Farm, Hawalbagh.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 10.11.1949. (iv) (a) Ploughing by U.P. plough No. 1; it was ploughed by desi plough twice before sowing and planking. (b) N.A. (c) 40 srs/ac. (d) N.A. (e) N.A. (v) Nil. (vi) N.P.4 (medium). (vii) Irrigated. (viii) N.A. (ix) 5.90'. (x) 8, 10.5.1950.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation: I₁ = Irrigation 1 week after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering), I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 combination of forms and levels of N: N₀ = No manure, N₁ = 60 lb/ac. of N as A/S. N₂ = 60 lb/ac. of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/repetition and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 54' x 34'; Sub-plot: 18' x 34'. (b) 12' x 28', (v) 3' all round the net plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949 – 1951. (b) No. (c) No. (v) (a) Varanasi, Kalyanpur, Atarra, Bharatpur, Meerut, Karthagat, Muzaffarnagar, Lucknow and Bulpundra. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 979 lb/ac.
(ii) (a) 221.8 lb/ac. (b) 338.5 lb/ac.
(iii) Only main effect of levels of N is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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Mean | 639 | 1051 | 1237 | 979

S.E. of the difference of two
1. marginal means of I = 1660 lb./ac.
2. marginal means of N = 159.6 lb./ac.
3. N means at the same level of I = 276.4 lb./ac.
4. I means at the same level of N = 249.3 lb./ac.

Crop: Wheat (Rabi).

Site: Govt. Agri. School Farm, Hawalbagh.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:

2. TREATMENTS:

Main-plot treatments:
- 4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
- 3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb/ac. of N as A/S and N₂ = 60 lb/ac. of N as castor cake.

3. DESIGN:

(i) Split-plot. (ii) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot size 45' x 40' and sub-plot: 16' x 40'. (b) 13' x 37'. (v) Sub-plot border 1' around. Field border 3' around. Sown spacing left between main-plots 4'. Sown space left between blocks 8' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:

(i) Very poor growth due to late sowing. Stems very slender. There was no lodging. (ii) Rust infection (iii) Grain yield. (iv) (a) 1951-1952. (b). (c) No. (v) (a) Varanasi, Faizabad, Kutrughat, Kalyanpur, Atarra, Bharari, Etawah, Meerut, Muzaffarnagar and Lucknow. (b) N.A. (vi) Poor yield due to excessive rains. (vii) Experiment conducted by C.P.

5. RESULTS:

(i) 48.88 lb./ac.
(ii) 38.35 lb./ac.
(b) 33.0 lb./ac.

(iii) Effects of forms of N is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of $I$ = 15.66 lb./ac.
2. marginal means of $N$ = 11.70 lb./ac.
3. $N$ means at the same level of $I$ = 23.39 lb./ac.
4. $I$ means at the same level of $N$ = 24.70 lb./ac.

Crop :- Wheat (Rabi).

Site :- Govt. Agri. School Farm, Hawalbagh.

Object :- To study the effect of different forms and levels of $N$ in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 4.12.1952. (iv) (a) Ploughing by U. P. No. 1 plough on 3.8.1952. Ploughings on 28, 29, 11.1952.; 1, 3.12.1952 by desi plough. (b) N.A. (c) 40 to 50 cm. (d) and (e) N.A. (v) Nil. (vi) N.P.4. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 7.5.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: $I_0$ = No irrigation. $I_1$ = Irrigation 3 weeks after germination (at tillering). $I_2$ = $I_1$ + irrigation 9 weeks after germination (at flowering) and $I_3$ = $I_2$ + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combinations of forms and levels of $N$: $N_0$ = No manure, $N_1$ = 30 lb./ac. of $N$ as A/S and $N_2$ = 60 lb./ac. of $N$ as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) (iv) (a) Main-plot 40’ x 47’. Sub-plot 14’ x 43’. (b) 11’ x 37’. (v) Sub-plot border 18’. Field border 3’. Between main-plots 3’. Between blocks 6’. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 708 lb./ac.
   (ii) (a) 221.3 lb./ac.
   (b) 168.8 lb./ac.
   (iii) Forms of $N$ and levels of $N$ are both highly significant.
(iv) Av. yield of grain in lb/ac.

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S.E. of difference of two
1. marginal means of I = 90.4 lb/ac.
2. marginal means of N = 59.7 lb/ac.
3. N means at the same level of I = 119.4 lb/ac.
4. I means at the same level of N = 132.9 lb/ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Farm, Kalai.
Ref :- U.P. 59(80).
Type :- 'IM'.

Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) G.M. (c) Nil. (ii) (a) Domat—Loam. (b) N.A. (iii) 3.10.1950. (iv) (a) 7 ploughings by turn west. (b) Sown by seed drill. (c) 50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 409. (medium). (vii) Irrigated. (viii) 1 weeding and hoeing on 12 and 15.12.1950. (ix) 3.55. (x) 26.4.1951.

2. TREATMENTS :
Main-plot treatments: 4 levels of irrigation : I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = Irrigation 9 weeks after germination (at flowering) and I₃ = Irrigation 12 weeks after germination (at milky stage).
Sub-plot treatments: 3 combinations of forms and levels of N : N₀ = No manure, N₁ = 60 lb/ac. of N as A/S and N₂ = 60 lb/ac. of N as castor cake.

3. DESIGN :
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot : 60'x40' and sub-plot : 20'x40'. (b) N.A. (v) 1/4 all round the net plot. (vi) Yes.

4. GENERAL :
(i) Fair. (ii) Attack of rust 30%. (iii) Grain yield. (iv) (a) 1950—1954. (b) N.A. (c) N.A. (v) (a) Kunraghat, Varanasi, Kalyanpur, Etawah, Muzzafarnagar, Meerut, Bharati, Atarra and Lucknow. (b) N.A. (vi) Nil. (vii) The exp. was conducted by C.P.

5. RESULTS :
(i) 1243 lb/ac.
(ii) (a) 165.1 lb/ac.
(b) 202.3 lb/ac.
(iii) Only main effect of I is highly significant.
(v) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 77.8 lb./ac.
2. marginal means of N = 82.6 lb./ac.
3. N means at the same level of I = 165.2 lb./ac.
4. I means at the same level of N = 155.7 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Farm, Kalai.

Ref. :- U.P. 51(58).
Type :- 'IM'.

Object :- To study the effect of different forms and levels of N in combinations with levels of irrigation on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Charri—Wheat. (b) Charri. (c) No. (ii) (a) Loam. (b) N.A. (iii) 4.11.1951. (iv) (a) N.A. (b) Sown by seed drill. (c) 50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (medium). (vii) As per treatments. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   Main-plot treatments :
   4 levels of irrigation : I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments :
   3 combinations of forms and levels of N : N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and I₄ = 60 lb./ac. of N as castor cake.

3. DESIGN :
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 60' x 40' and Sub-plot : 20' x 40'. (b) 17' x 37'. (v) 1' all round the net plot. (vi) Yes.

4. GENERAL :
   (i) Good. No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1950—1954. (b) No. (c) N.A. (v) (a) Varanasi, Faizabad, Kunraihat, Kalyanpur, Atarra, Bharari, Eswah, Meerut, Muzaffarnagar, Haveli and Lucknow. (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.

5. RESULTS :
   (i) 1113 lb./ac.
   (ii) (a) 229 lb./ac.
   (b) 136.0 lb./ac.
   (iii) Main effect of I is highly significant. Main effect of forms of N is highly significant and levels of N is significant. Interactions are not significant.
Object:—To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fodder. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 9.11.1952. (iv) (a) Ploughing with grey plough on 15.10.1952, ploughing with desi plough on 16.10.1952, ploughing with double cultivator on 26.10.1952 and ploughing with desi plough on 3.11.1952. (b) N.A. (c) 14.8 chk. (d) and (e) N.A. (v) Application of compost on 2.11.1952 to the entire field. (vi) P 591 (medium-late). (vii) Irrigated, as per treatments. (viii) Harrowing with lever harrow on 29.12.1952. (ix) N.A. (x) 7.4.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 combinations of forms and levels of N: N₀ = No manure, N₁ = 0 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 60'x40' and sub-plot: 20'x30'. (b) 17'x37' (v) 15' all round the net plot. (vi) Yes.

4. GENERAL:
   (i) Poor. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1954. (b) No. (c) N.A. (v) (a) Varanasi, Faizabad, Etawah, Kalyanpur, Meerut, Attara, Hawalbagh, Bharari, Kunraghat, and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 524.6 lb./ac.
   (ii) (a) 210.8 lb./ac. (b) 95.9 lb./ac.
   (iii) Main effect of I and main effect of levels of N are highly significant. Interaction IX levels of N is significant.

(iv) Av. yield of grain in lb./ac.

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Mean | 1049| 1040| 1250| 1113 |

S.E. of difference of two
1. marginal means of I = 93.6 lb./ac.
2. marginal means of N = 48.1 lb./ac.
3. N means at the same level of I = 96.2 lb./ac.
4. I means at the same level of N = 12.2 lb./ac.

Crop:—Wheat.
Site:—Govt. Agri. Farm, Kalai. Ref:—U.P. 52(131).
Type:—‘IM’.

Object:—To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.
(iv) Av. yield of grain in lb./ac.

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<td>418.5</td>
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<td>757.5</td>
<td>524.6</td>
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S.E. of difference of two means:
1. I marginal means = 86.1 lb./ac.
2. N marginal means = 33.9 lb./ac.
3. N means at the same level of I = 67.8 lb./ac.
4. I means at the same level of N = 102.3 lb./ac.

Crop: Wheat (Rabi).
Site: Govt. Agri. Farm, Kalai.
Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 1.11.1953. (iv) (a) 9 ploughings and harrowings (b) Sown behind the plough. (c) 40–50 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Pb. 591 (late). (vii) N.A. (viii) Nil. (ix) N.A. (x) 4-4.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 40' x 60' and sub-plot 20' x 40'. (b) 17' x 37'. (v) (i) all round the net plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950–1954. (b) No. (c) N.A. (v) (a) Varanas Faizabad, Etawah, Kalyanpur, Atbara, Bharari, Meerut, Kunraghat and Muzaffarnagar. (i) N.A. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 1293 lb./ac.
   (ii) (a) 546.0 lb./ac.
   (b) 457.5 lb./ac.
   (iii) Only main effect of I is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<th>N₂</th>
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<td>418.5</td>
<td>703.4</td>
<td>757.5</td>
<td>524.6</td>
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S.E. of difference of two means:
1. I marginal means = 222.9 lb./ac.
2. N marginal means = 161.0 lb./ac.
3. N means at the same level of I = 322.1 lb./ac.
4. I means at the same level of N = 344.7 lb./ac.
Object:—To study the effect of different levels of irrigation in combination with $P_2O_5$ and Gypsum on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) G.M. (c) Nil. (ii) (a) Damat. (b) N.A. (iii) 14.11.1950. (iv) (a) 7 ploughings. (b) By seed drill. (c) 5 scers/ac. (d) and (e) N.A. (v) N.A. (vi) Pb. 409. (vii) Irrigated. (viii) Weeding and hoeing on 25-29.12.1950. (ix) N.A. (x) 25.4.1951.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of irrigation: $I_0=$No irrigation. $I_1=$Irrigation 3 weeks after germination (at tillering) and $I_2=I_1$ + irrigation 9 weeks after germination (at flowering).
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 levels of $P_2O_5$ as Super: $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.
   (2) 3 levels of Ca as Gypsum: $G_0=0$, $G_1=25$ and $G_2=50$ lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 171' x 35'. sub-plot: 19' x 35'. (b) 16' x 32'. (v) Yes. (vi) Nil.

4. GENERAL:
   (i) Fair. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) 1950—1954. (b) No. (c) N.A. (v) (a) Partapgarh, Baharain. (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.

5. RESULTS:
   (i) 1334 lb./ac.
   (ii) (a) 290.6 lb./ac.
   (b) 293.9 lb./ac.
   (iii) Main effects of I and P are both highly significant. All others are not significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 79.1 lb./ac.
2. marginal means of G or P = 80.0 lb./ac.
3. G or P means at the same level of I = 138.5 lb./ac.
4. I means at the same level of G or P = 138.0 lb./ac.
5. means of the body of G × P table = 138.5 lb./ac.
Crop :-Wheat (Rabi).
Site :-Govt. Agri. Farm, Kalai.
Object :-To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS :
(i) (a) Chari-Wheat. (b) Chari. (c) No. (ii) (a) Loam. (b) N.A. (iii) 5.11.1951. (iv) (a) N.A. (b) Seed drill. (c) 40-50 srs/ac. (d) and (e) N.A. (v) Nil. (vi) Pb.409 (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
Main-plot treatments :
3 levels of irrigation: I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering), I₂=Irrigation 9 weeks after germination (at flowering).
Sub-plot treatments :
All combinations of (1) and (2)
(1) 3 levels of P₂O₅ as Super : P₀=0, P₁=20 and P₂=40 lb/ac.
(2) 3 levels of Ca as Gypsum : G₀=0, G₁=25 and G₂=50 lb/ac.

3. DESIGN :
(i) Split-plot. (ii) (a) 3 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot 171'x35'. sub-plot : 19'x35'. (b) 16'x32'. (v) 14' all round the net plot. (vi) Yes.

4. GENERAL :
(i) Good. No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1950—1954. (b) N.A. (c) N.A. (v) Baharaich and Partapgarh. (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.

5. RESULTS :
(i) 1048 lb/ac.
(ii) (a) 416.5 lb/ac.
(b) 203.1 lb/ac.
(iii) Main effects of I and P are highly significant. All other effects are not significant.
(iv) Av. yield of grain in lb/ac.

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S.E. of difference of two
1. marginal means of I = 98.2 lb/ac.
2. marginal means of G or P = 47.9 lb/ac.
3. G or P means at the same level of I = 82.9 lb/ac.
4. I means at the same level of G or P = 119.2 lb/ac.
5. means of the body of G×P table = 82.9 lb/ac.
Crop : Wheat (Rabi).
Site : Govt. Agri. Farm, Kalai.

Object: - To study the effect of different levels of irrigation in combination with $P_2O_5$ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 11.11.1952. (iv) (a) Ploughing with desi plough on 10, 13 and 16.10.1952. Ploughing with double cultivator on 26.10.1952. Ploughing with double desi plough on 1.11.1952. (b) N.A. (c) 40-50 seers/ac. in general-exact amount/plot is N.A. (d) and (e) N.A. (v) Compost on 27.10.1952, 31.10.1952 and 1.11.1952. (vi) Pb. 591 (mid-late). (vii) Irrigated as per treatments. (viii) N.A. (ix) N.A. (x) 7.4.1953.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation: $I_0 =$ No irrigation, $I_1 =$ Irrigation 3 weeks after germination (at tillering), $I_2 =$ Irrigation 9 weeks after germination (at flowering).
Sub-plot treatments:
All combinations of (1) and (2)
(i) 3 levels of $P_0$ as 'upper:
$P_0 =$ 0, $P_1 =$ 20 and $P_2 =$ 40 lb./ac.
(ii) 3 levels of Ca as Gypsum:
$G_0 =$ 0, $G_1 =$ 25 and $G_2 =$ 50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a)19'x35'. (b) 16'x32' (v) 3/4 all round the test plot. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950-1954. (b) N.A. (c) N.A. (v) (a) Baharaich. (b) N.A. (vii) The experiment was conducted i. y C.P. (R). $I_0$ was rejected, hence the experiment was analysed with two main-plot treatments only.

5. RESULTS:
(i) 3.5.5 lb./ac.
(ii) (a) 98.90 lb./ac.
(b) 76.96 lb./ac.
(iii) Main effect of G is significant. All other effects are not significant.
(iv) Ave. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = $23.31$ lb./ac.
2. marginal means of G or P = $22.22$ lb./ac.
3. G or P means at the same level of I = $31.42$ lb./ac.
4. I means at the same level of G or P = $34.66$ lb./ac.
5. means of the body of G x P table = $38.48$ lb./ac.
Crop: Wheat (Rabi).

Site: Govt. Agri. Farm, Kalai.

Object: To study the effect of different levels of irrigation in combination with $P_2O_5$ and Gypsum on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 26.10.1953. (iv) (a) 6 ploughings and harrowings. (t) Sown by seed drill. (d) 40-50 hrs/ac. (e) N.A. (f) N.A. (g) Pb. 591 (late). (h) Irrigated as per treatments. (vii) Nil. (ix) N.A. (x) 2.3.1954.

2. TREATMENTS:
   **Main-plot treatments:**
   - 3 levels of irrigation: $I_0$ = No irrigation, $I_1$ = Irrigation 3 weeks after germination (at tillering), $I_2$ = $I_1$ + irrigation 9 weeks after germination (at flowering).

   **Sub-plot treatments:**
   All combination of (1) and (2)
   - (1) 3 levels of $P_2O_5$ as Super: $P_0$ = 0, $P_1$ = 20, $P_2$ = 40 lb./ac.
   - (2) 3 levels of Ca as Gypsum: $G_0$ = 0, $G_1$ = 25, $G_2$ = 50 lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main plot: 171' x 35'. Sub-plot: 15' x 35'. (b) 16' x 32'. (v) 1' all round the net-plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1954. (b) No. (c) N.A. (v) (a) Partapgarh, Baharaich. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 986.1 lb./ac.
   (ii) (a) 860.6 lb./ac.
   (b) 275.1 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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S.E. of the difference of two
1. marginal means of I
2. marginal means of $G$ or $P$
3. $G$ or $P$ means at the same level of I
4. I means at the same level of $G$ or $P$
5. means of the body of $G \times P$ table

S.E. of the difference of two:
1. marginal means of I = 202.8 lb./ac.
2. marginal means of $G$ or $P$ = 64.8 lb./ac.
3. $G$ or $P$ means at the same level of I = 112.3 lb./ac.
4. I means at the same level of $G$ or $P$ = 222.6 lb./ac.
5. means of the body of $G \times P$ table = 112.3 lb./ac.
Object:—To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Urd. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 14.11.1949. (iv) (a) One ploughing by Watt's plough, one by desi plough and pata, one harrowing by tractor and 4 pata by cultivator. (b) By seed drill. (c) 45 srs/ac. (d) N.A. (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Inter-culture on 17.12.1949. (ix) N.A. (x) 22.4.1950.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of irrigation: 1 = Irrigation 3 weeks after germination (at tillering), 1 = Irrigation 9 weeks after germination (at flowering), 1 = Irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 combinations of forms and levels of N: 
   - N₀ = No manure, N₁ = 60 lb./ac. of N as A/S, N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 50' x 40' Sub-plot 18' x 40'. (b) 12' x 34'. (v) 3' all round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) N.A. (v) (a) Varanasi, Atarar, Bharari, Meerut, Kunraghat, Muzaffarnagar, Lucknow, Bulandshahar and Hawalbagh. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.

5. RESULTS:
   (i) 2101 lb./ac.
   (ii) (a) 141.0 lb./ac.
   (b) 134.0 lb./ac.
   (iii) Effect of forms of N is significant and effect of levels of N is highly significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

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S E. of the difference of two
1. marginal means of I = 66.4 lb./ac.
2. marginal means of N = 72.6 lb./ac.
3. N means at the same level of I = 125.8 lb./ac.
4. I means at the same level of N = 122.3 lb./ac.
2. TREATMENTS:

Main-plot treatments:
4 levels of irrigation: \( I_0 = \text{No irrigation}, \ I_1 = \text{Irrigation 3 weeks after germination (at tillering)}, \ I_2 = \text{Irrigation 9 weeks after germination (at flowering)} \) and \( I_3 = \text{Irrigation 12 weeks after germination (at milky stage)} \).

Sub-plot treatments:
3 combinations of forms and levels of \( N \): \( N_0 = \text{No manure}, \ N_1 = 60 \text{ lb./ac. of N as A/S} \) and \( N_2 = 60 \text{ lb./ac. of N as castor cake} \). 

\( I_1 \) given on 25.11.1950, \( I_2 \) not given due to rains from 23.12.1950 to 16.1.1951 and \( I_3 \) given on 3, 4, 3.1951. Hence \( I_2 \) becomes identical to \( I_1 \).

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot=57'x 35' sub-plot=19'x 35'. (b) 19'x 32'. (v) Sub-plot border=11' around. Field border=3' around. Sown space left between main-plots=5'. Sown space left between blocks=8'—also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Fairly good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) No. (c) N.A. (v) (a) Kunraghat, Banaras, Etawah, Kalai, Muzzafarnagar, Meerut, Bharari, Atarra and Lucknow. (b) N.A. (vi) Plots of \( I_0 N_1, I_1 N_0, I_2 N_0, I_3 N_1 \) were damaged by rats. (vii) The experiment was conducted by C.P.

5. RESULTS:
(i) 2045 lb./ac. 
(ii) (a) 229.5 lb./ac. 
(b) 228.6 lb./ac.

(iii) Only the effect of levels of \( N \) is highly significant. All other effects are not significant.

(iv) Av. yield of grain in lb./ac.

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Mean 1495 2361 2279 2045

S.E. of difference of
1. \( I_0 \) and \( I_2 \) marginal means = 108.2 lb./ac.
2. \( I_0 \) and \( I_1 \) or \( I_1 \) and \( I_3 \) marginal means = 93.7 lb./ac.
3. two marginal means of \( N \) = 94.2 lb./ac.
4. two \( N \) means at the same level of \( I_0 \) or \( I_2 \) = 186.7 lb./ac.
5. two \( N \) means at the same level of \( I_1 \) = 102.0 lb./ac.
6. \( I_0 \) and \( I_2 \) means at the same level of \( N \) = 186.9 lb./ac.
7. \( I_0 \) and \( I_1 \) or \( I_1 \) and \( I_3 \) means at the same level of \( N \) = 161.9 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Res. Farm, Kalyanpur.
Ref :- U.P. 51(61).
Type :- 'IM'.

Object :- To study the effect of different forms and levels of \( N \) in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Kakun. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 7.11.1951. (iv) (a) 4 ploughings with desi plough, 1 ploughing with watts plough and tractor harrowings—2. (b) Seed drilled. (c) 40-50 srs./ac. 
(d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated as per treatments. (viii) N.A. (ix) 1.07'.

2. TREATMENTS:
Main-plot treatments:
4 levels of Irrigation: \( I_0 = \text{No Irrigation}, \ I_1 = \text{Irrigation 3 weeks after germination (at tillering)}, \ I_2 = \text{Irrigation 9 weeks after germination (at flowering)} \) and \( I_3 = \text{Irrigation 12 weeks after germination (at milky stage)} \).
Sub-plot treatments:
3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb/acre of N as A/S and N₂ = 60 lb/acre of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot = 57' x 35'; and sub-plot = 19' x 35'. (b) 16' x 32'. (v) 1/4 ring round the net-plot. (vi) Yes.

4. GENERAL:
(i) N₁₁₁, N₁₂, N₁₄ showed poor tillering otherwise crop condition was good. (ii) Nil. (iii) Grain yield. (iv) (a) 1940—1953. (b) N.A. (c) N.A. (v) (a) Banaras, Faizabad, Kunraghat, Atarra, Bharari, Etawah, Kalai, Meerut, Muzaffarnagar, Hawalbagh and Lucknow. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.

RESULTS:
(i) 1014 lb/acre. (ii) (a) 279.4 lb/acre. (b) 135.5 lb/acre. (iii) Effects of forms of N and levels of N are both highly significant. Others are not significant. (iv) Av. yield of grain in lb/acre.

<table>
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S.E. of difference of two
1. marginal means of I  = 114.1 lb/acre.
2. marginal means of N  = 47.89 lb/acre.
3. N means at the same level of I  = 95.78 lb/acre.
4. I means at the same level of N  = 138.3 lb/acre.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Res. Farm, Kalyanpur.
Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

4. BASAL CONDITIONS:

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb/acre of N as A/S and N₂ = 60 lb/acre of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (iii) 4. (iv) (a) Main-plot : 57' x 35'; sub-plot : 19' x 35'. (b) 16' x 32'. (v) 1/4 ring round the net plot. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and maw yield. (iv) (a) 1949-1953. (b) No. (c) N.A. (v) (a) Banaras, Faizabad, Etawah, Meerut, Kalai, Atarra, Hawaiabagh, Bharari, Kunraghat and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.(R).

5. RESULTS:
(i) 1786 lb./ac.
(ii) (a) 320.1 lb./ac.
(b) 175.3 lb./ac.
(iii) Effect of levels of N is highly significant and I x forms of N is significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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Mean 1148 2142 2069 1786

S.E. of difference of two
1. I marginal means =130.7 lb./ac.
2. N marginal means = 62.0 lb./ac.
3. N means at the same level of I =124.0 lb./ac.
4. I means at the same level of N =165.3 lb./ac.

Crop : Wheat (Rah).
Site :-Govt. Agri. Res. Farm, Kalyanpur.
Ref :-U.P. 53(145).
Type :-'IM'.

Object :-To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS :
(i) (a) Legume and Cereal. (b) Lobia and Moong. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 30.10.1953. (iv) (a) 6 ploughings followed by pata on 17, 19, 22.9.1953 ; 8 and 26.10.1953. (b) Sown by seed drill. (c) 40 to 50 srs./ac. (11 chh /plot.) (d), (e) N.A. (v) Green manure with Lobia (turned in). (vi) C-13 (medium). (vii) Irrigated—as per treatments. (viii) Interculturing with cultivator on 30.12.1953. (ix) N.A. (x) 17.4.1954.

2. TREATMENTS :
Main-plot treatments :
4 levels of Irrigation : I0=No Irrigation, I1—Irrigation 3 weeks after germination (at tillering), I2—Irrigation 9 weeks after germination (at flowering) and I3—Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments :
3 combinations of forms and levels of N : N0=Control, N1=60 lb./ac. of N as A/S and N2=60 lb./ac. of N as Castor cake. N1 given on 13.12.53, I2 was not given due to rains, I3 was given on 12.3.54. The experiment is analysed with I0, I2 and N3 ; I2 becoming identical with I1.

3. DESIGN :
(i) Split-plot. (ii) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 5'x35' and sub-plot 19'x35'. (b) 16'x32'. (v) 1' ring round the net plot. (vi) Yes.

4. GENERAL :
(i) Satisfactory. Crop lodged. (ii) Black and brown rust attack. (iii) Germination per sq. yd. grain and straw yield. (iv) (a) 1949-1953. (b) No. (c) N.A. (v) (a) Banaras, Faizabad, Etawah, Atarra, Bharari, Meerut, Kunraghat, Muzaffarnagar and Kalai. (b) N.A. (vi) Plots which were manured with A/S were more damaged by rats due to greater lodging. (vii) The experiment was conducted by C.P.(R).
5. RESULTS:

(i) 1198 lb./ac.
(ii) (a) 212.2 lb./ac.
(b) 198.4 lb./ac.
(iii) Only effect of levels of N is highly significant.
(iv) Av. yield of grain in lb./ac.

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<th>N₂</th>
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S.E. of difference of
1. I₃ and I₄ marginal means = 86.62 lb./ac.
2. I₄ and I₅ or I₁ and I₂ marginal means = 75.01 lb./ac.
3. two N marginal means = 70.16 lb./ac.
4. two N means at the same level of I₀ or I₁ = 140.3 lb./ac.
5. two N means at the same level of I₁ = 99.22 lb./ac.
6. I₀ and I₄ means at the same level of N = 143.6 lb./ac.
7. I₀ and I₁ or I₁ and I₂ means at the same level of N = 123.4 lb./ac.

Crop: Wheat (Rabi).

Site: Govt. Agri. Res. Farm, Kalyanpur.

Ref: U.P. 49(3).

Type: 'IM'.

Object:—To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Urd. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 24.10.1949. (iv) (a) One ploughing by wets plough, one by desi plough and patra; 4 ploughing by cultivators and 4 patra. (b) Drilling. (c) 45 srs./ac. (d) N.A. (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated as per treatments. (viii) Interculturing on 17.12.1949. (ix) N.A. (x) 23.4.1950.

2. TREATMENTS:

Main-plot treatments:
3 levels of irrigation: I₁=Irrigation 3 weeks after germination (at tillering), I₂=Irrigation 9 weeks after germination (at flowering), I₃=Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)+a control (NₐTₐ=no manure).
(1) 2 levels of N as A/S: N₁=30 and N₂=60 lb./ac. of N.
(2) 2 times of application: T₁=all at sowing and T₂=Half at sowing and half at 1st irrigation.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 22'×15'. Sub-plot: 22'×33'. (b) 16'×27'. (v) 3' ring round the net-plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Ht. of plant, leaf length, no. of tillers, no. of green leaves, length of roots, no. of dry leaves, wt. of shoot etc. grain and bhuna yield. (iv) (a) 1949—1953. (b) No. (c) N.A. (v) (a) Gorakhpur, Atarra, (Jhansi), Bharati, Meerut, Murzaffarnagar, Lucknow and Havalbagh. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.

5. RESULTS:

(i) 1666. lb./ac.
(ii) (a) 303.1 lb./ac.
(b) 257.2 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means = 110.7 lb./ac.
2. NT marginal means = 140.1 lb./ac.
3. NT means at the same level of I = 242.6 lb./ac.
4. I means at the same level of NT = 243.6 lb./ac.

Site: -> Govt. Agri. Res. Farm, Kalyanpur.  Type: -> 'IM'.

Object: -> To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Maize and mustard. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 25, 27.10.1950. (iv) (a) Ploughing with watts plough on 28.9.1950, tractor harrowing on 31.9.1950, palaewa on 10, 12.10.1950, dest ploughing and pata on 23.10.1950 and 26.10.1950. (b) Sow drilled. (c) 43 srs./ac. (d) N.A. (e) N.A. (f) Nil. (g) C-13 (early). (h) Irrigated as per treatments. (i) Nil. (j) 3.45'. (k) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + Irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combination of (1) and (2) + a control (N₁T₀ = no manure)
   (1) 2 levels of N as A/S: N₁ = 30 and N₂ = 60 lb./ac. of N.
   (2) 2 times of application: T₁ = All at sowing and T₂ = Half at sowing and half at 1st irrigation, I₁ on 25.11.1950, I₂ not given due to rains from 23.12.1950 to 16.1.1951; I₃ on 3.4.1951. Hence I₃ becomes identical to I₁.

3. DESIGN:
   (i) Split-split. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 175' x 19'. Sub-plot 19' x 35'. (b) 16' x 32'. (v) 14' ring round the net-plot. (vi) Yes.

4. GENERAL:
   (i) Fairly good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1951. (b) No. (c) N.A. (v) (a) Kunraghat, Etawah, Muzaffarnagar, Meerut, Bharati, Atarra and Lucknow. (b) N.A. (vi) Some plots were badly damaged by rats. (vii) The experiment was conducted by C.P.

5. RESULTS:
   (i) 1958 lb./ac.
   (ii) (a) 301 6 lb./ac.
   (b) 202 8 lb./ac.
   (iii) Main effect of levels of N and control vs. treated are highly significant and interaction I x N is significant.
   All others are not significant.
Av. yield of grain in lb./ac.

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<th>N₂T₂</th>
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Mean 1334 2020 2147 1971 2315 1958

S E. of difference of
1. I₀ and I₂ marginal means = 110.1 lb./ac.
2. I₁ and I₁ or I₁ and I₂ marginal means = 95.38 lb./ac.
3. two marginal means of NT = 82.78 lb./ac.
4. two NT means at the same level of I₂ or I₀ = 165.6 lb./ac.
5. two NT means at the same level of I₁ = 117.1 lb./ac.
6. I₂ and I₂ means at the same level of NT = 181.6 lb./ac.
7. I₀ and I₁ or I₁ and I₂ means at the same level of NT = 159.8 lb./ac.

Crop : Wheat (Rabi).
Site : Govt. Agri. Res. Farm, Kalyanpur.
Ref : U.P. 51(80).
Type : '1M'.

Object : To study the effect of application of N to Wheat at different levels and at different times in combinations with different levels of irrigation.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Loam. (b) N.A. (iii) 28.10.1951. (iv) (a) N.A. (b) Sown behind the plough. (c) 40—50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
Main-plot treatments :
4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + Irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + Irrigation 12 weeks after germination (at milk stage).

Sub-plot treatments :
All combinations of (1) and (2) + a control (N₀T₀ = no manure)
(1) 2 levels of N as A/S: N₁ = 30 and N₂ = 60 lb./ac. of N.
(2) 2 times of application : T₁ = All at sowing and T₂ = Half at sowing and half at 1st irrigation.

3. DESIGN :
(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot size : 175' x 19' and sub-plot : 19' x 35'. (b) 16' x 32'. (v) 1½' ring round the net plot. (vi) Yes.

4. GENERAL :
(i) No lodging. Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) N.A. (v) (a) Hawahbagh, Etawah, Faizabad, Bharari, Atterra, Kunravghat, Muzaffarnagar, Lucknow and Meerut, (b) N.A. (vi) Nil. (vii) The exp. was conducted by C.P.

5. RESULTS:
(i) 1081 lb./ac.
(ii) (a) 309.8 lb./ac.
(b) 206.9 lb./ac.
(iii) Main effects of I, levels of N and control vs. treated are highly significant. Others are not significant.
Crop:-Wheat (Rabi).

Site :-Govt. Agri. Res. Farm, Kalyanpur.

Ref :-U.P. 52(76).

Type :-‘IM’.

Object :-To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:

(i) (a) Moong T1—Wheat. (b) Moong T1. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 29.10.1952. (iv) (a) 4 ploughings and palewa; pata after every ploughing and palewa. (b) to (e) N.A. (v) C-13 (medium). (vi) Irrigated as per treatments. (vii) N.A. (viii) N.A. (x) 16.4.1953.

2. TREATMENTS:

Main-plot treatments:
4 levels of irrigation:
- I0=No irrigation, I1=Irrigation 3 weeks after germination (at tillering), I2=Irrigation 9 weeks after germination (at flowering) and I3=Irrigation 12 weeks after germination (at milk stage).

Sub-plot treatments:
All combinations of 1) and (2)+a control (N0T0=no manure)
- (1) 2 levels of N as A/S: N1=30 and N2=60 lb./ac. of N.
- (2) 2 times of application: T1=all at sowing and T2=Half at sowing and half at 1st irrigation.

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 15’×19’ and sub-plot: 19’×35’. (b) 16’×32’. (v) 1’ ring round the net plot. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) No. (c) N.A. (v) (a) Etawah, Meerut, Atarra, Bharari, Faizabaid, Muzaffarnagar and Kunraghat. (b) N.A. (vi) Nil. (vii) The exp. was conducted by C.P.I.R.

5. RESULTS:

(i) 1428 lb./ac.
(ii) (a) 333.7 lb./ac.
- (b) 252.2 lb./ac.

(iii) Effects of levels of N and control vs treated are highly significant. Others are not significant.
Crop: Wheat (Rabi).
Site: Govt. Agri. Res. Farm, Kalyanpur.

Ref: U.P. 53(141).
Type: 'IM'.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Legume and cereal. (b) Lobia and moong. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1953.
   (iv) (a) 7 ploughings followed by pata on 18, 23.9.1953, 9, 24, 25, 27, and 28.10.1953. (b) Seed drilled. (c) 40—50 yrs./ac. (11 chs/plot). (d) and (e) N.A. (v) Lobia and moong turned in. (vi) C-13 (medium). (vii) Irrigated as per treatments. (viii) Interculturing with cultivator. (ix) N.A. (x) 19.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: \( I_0 = \text{No irrigation}, \ I_1 = \text{Irrigation 3 weeks after germination (at tillering)}, \ I_2 = I_1 + \text{Irrigation 9 weeks after germination (at flowering)}, \ I_3 = I_2 + \text{Irrigation 12 weeks after germination (at milky stage)}. \)

   Sub-plot treatments:
   All combinations of (1) and (2) + a control (\( N_0 T_0 = \text{no manure} \)).
   (1) 2 levels of N as A/S: \( N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
   (2) 2 times of application: \( T_1 = \text{all at sowing} \) and \( T_2 = \text{Half at sowing and half at 1st irrigation} \).
   \( I_1 \) applied on 17.12.1953; \( I_2 \) not applied because of rains and \( I_3 \) applied on 9.3.1954. Hence \( I_2 \) becomes identical to \( I_1 \).

3. DESIGN:
   (i) Split-plot. (ii) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 95° × 35' and sub-plot: 19° × 35'. (b) 16° × 32'. (v) Sub-plot border 1.5' and field border 3' around. Sown space left between main-plots 8' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Nil. (iii) Germination per sq. yd., grain and straw yield in chhs/plot. (iv) (a) 1949—1951. (b) No. (c) N.A. (v) (a) Faizabad, Etawah, Atarra, Banda, Bharari, Meerut, Kunraghat, and Muzaffarnagar. (b) N.A. (vi) Plots with 60 lb./ac. of A/S are best of all. Average yield of crop at the farm = 18 mds/acre, and in the surrounding area = 15—18 mds/acre. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 1175 lb./ac.
   (ii) 272.1 lb./ac.
   (b) 197.5 lb./ac.
   (iii) Effects of levels of N and control as treated are both highly significant. All others are not significant.
(iv) Av. yield of grain in lb./ac.

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<tr>
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Mean 912 1097 1304 1118

S.E. of difference of
1. $I_0$ and $I_2$ marginal means
2. $I_0$ and $I_1$ or $I_1$ and $I_2$ marginal means
3. two marginal means of $NT$
4. $NT$ means at the same level of $I_0$ or $I_1$
5. $I_0$ and $I_2$ means at the same level of $NT$
6. $I_0$ and $I_1$ or $I_1$ and $I_2$ means at the same level of $NT$

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Res. Farm, Kalyanpur.
Object :- To study the effect of different levels of irrigation in combination with $P_2O_5$ and Gypsum on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil (b) Urd. (c) N.A. (iii) (a) Loam. (b) N.A. (iii) 14.11.1949.
   (iv) (a) One ploughing with water plough, one tractor tilling and pata, 5 ploughings by cultivator and pata. (b) Seed drilled. c. 45 srs/ac. (d) and (e) N.A. (v) Nil. (vi) C-13. (vii) Irrigated. (viii) Intercultu.e by plane: Junior on 15.12.1949.
   (ix) N.A. (x) 24.4.1950.

2. TREATMENTS:
   Main-plot treatments:
   2 levels of irrigation: $I_1$ = Irrigation 9 weeks after germination (at flowering), and $I_2$ = Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 eves of $P_2O_5$ as Super: $P_1=0$, $P_2=20$ and $P_2=40$ lb./ac.
(2) 3 levels of $G_2$ as Gypsum: $G_0=0$, $G_1=25$ and $G_2=50$ lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 162' x 40' and sub-plot: 18' x 40'. (b) 12' x 34'. (v) 3' ring round the set plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) 1949-1953. (b) N.A. (c) N.A. (v) (a) Banaras, Baratpuri, Belandshahar and Lucknow. (b) N.A. (vi) Nil. (vii) The ext.p. was conducted by C.P.

5. RESULTS:
   (i) 2295 lb./ac.
   (ii) 792.1 lb./ac.
   (b) 831.5 lb./ac.
   (iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of difference of two
1. marginal means of I = 212.9 lb./ac.
2. marginal means of G or P = 127.8 lb./ac.
3. G or P means at the same level of I = 180.8 lb./ac.
4. I means at the same level of G or P = 259.0 lb./ac.
5. means in the body of G×P table = 221.4 lb./ac.

Crop :-Wheat (Rabi).
Site :-Govt. Agri. Res. Farm, Kalyanpur.
Object :-To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) and (b) N.A. (c) 45 srs./ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) 3.45' (x) N.A.

2. TREATMENTS :
Main-plot treatments :
2 levels of irrigation: 1 = Irrigation 9 weeks after germination (at flowering) and I₂= I₁ + Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments :
All combinations of (1) and (2)
(1) 3 levels of P₂O₅ as Super : P₀=0, P₁=20 and P₂=40 lb./ac.
(2) 3 levels CaO as Gypsum : G₀=0, G₁=25 and G₂=50 lb./ac.

3. DESIGN :
(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 171'x35' and sub-plot : 19'x35'. (b) 16'x32'. (v) 1' ring round the net plot. (vi) Yes.

4. GENERAL :
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) N.A. (v) (a) Barabanki, Banaras. (b) N.A. (vi) Nil. (vii) The exp. was conducted by C.P.

5. RESULTS :
(i) 1521 lb./ac.
(ii) (a) 265.3 lb./ac.
(b) 137.3 lb./ac.
(iii) None of the effects is significant.

Ref :-U.P. 50(132).
Type :-'IM'.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two:
1. I marginal means = 62.53 lb./ac.
2. G or P marginal means = 39.64 lb./ac.
3. G or P means at the same level of I = 55.06 lb./ac.
4. I means at the same level of G or P = 77.50 lb./ac.
5. means in the todo of G×P table = 63.66 lb./ac.

Crop :-Wheat (Rabi).
Site :-Govt. Agri. Res. Farm, Kalyanpur.
Object :-To study the effect of different levels of irrigation in combination with $P_2O_5$ and Gypsum on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Kakun. (c) No. (ii) (a) Loam. (b) N.A. (iii) 28.10.1951. (iv) (a) N.A. (b) Seed drilled. (c) 40-50 srs/ac. (d) and (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   2 levels of irrigation: $I_1$=Irrigation 9 weeks after germination (at flowering) and $I_2$=Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2).
   (1) 3 levels of $P_2O_5$ as Super: $P_0$=0, $P_1$=20 and $P_2$=40 lb./ac.
   (2) 3 levels CaO as of Gypsum: $G_0$=0, $G_1$=25 and $G_2$=50 lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot=71'×35' and sub-plot 19'×35'. (b) 16'×32'. (v) 1½ ring round ths net plot. (vi) Yres.

4. GENERAL:
   (i) Satisfactory. (ii) Nil. (iii) Grv in yield. (iv) (a) 1949—1953. (b) No. (c) N.A. (v) (a) Banaras. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.

5. RESULTS:
   (i) 846.4 lb./ac.
   (ii) (a) 176.7 lb./ac.
   (b) 103.6 lb./ac.
   (iii) Main effects of I, G and P and interactions G×P, I×G×P are all significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<th>P₂</th>
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S.E. of difference of two
1. marginal means of I = 41.64 lb./ac.
2. marginal means of G or P = 29.90 lb./ac.
3. G or P means at the same level of I = 42.38 lb./ac.
4. I means at the same level of G or P = 54.09 lb./ac.
5. means in the body of G x P table = 51.77 lb./ac.

Crop : Wheat (Rabi).
Site : Govt. Agri. Res. Farm, Kalyanpur.

Object : To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Moong. (c) N.A.
   (ii) (a) Loam. (b) N.A.
   (iii) 27.10.1952.
   (b) N.A.
   (c) 12.7 lb./plot.
   (d) and (e) N.A.
   (v) Nil.
   (vi) C-13 (medium).
   (vii) Irrigated.
   (viii) N.A.
   (ix) N.A.
   (x) 1.4.1953.

2. TREATMENTS:
Main-plot treatments:
   2 levels of irrigation: I₁ = Irrigation 9 weeks after germination (at flowering) and I₂ = I₁ + Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2).
(1) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.
(2) 3 levels of CaO as Gypsum: G₀ = 0, G₁ = 25 and G₂ = 50 lb./ac.

3. DESIGN:
   (i) Split-plot.
   (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot.
   (b) N.A.
   (iii) 4.
   (iv) (a) 19' x 35'.
   (b) 16' x 32'.
   (v) 1½ ring round the net plot.
   (vi) Yes.

4. GENERAL:
   (i) Fair.
   (ii) Nil.
   (iii) Grain and straw yield.
   (iv) (a) 1949—1953.
   (b) No.
   (c) N.A.
   (v) (a) Banaras.
   (b) N.A.
   (vi) Nil.
   (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 869.8 lb./ac.
   (ii) 431.2 lb./ac.
   (b) 162.2 lb./ac.
   (iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two:
1. marginal means of I = 101.6 lb./ac.
2. marginal means of G or P = 46.81 lb./ac.
3. G or P means at the same level I = 66.20 lb./ac.
4. I means at the same level of G or P = 115.1 lb./ac.
5. means of the body of G x P table = 81.08 lb./ac.

Crop :- Wheat (Rabi).
Site :- Govt. Agri. Res. Farm, Kalyanpur.
Ref :- U.P. 53(143).
Type :- 'IM'.

Object :- To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Legume—Cereal. (b) Lobia and Moong. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 29.10.1953
   (iv) (a) 7 ploughings and pata after every ploughing. (b) N.A. (c) 40 srs./ac. (d) and (e) N.A. (v) Lobia and moong turned in on 2.9.1953. (vi) C-13 (medium). (vii) Irrigated. (viii) Interculturing with cultivator on 1.2.1954. (ix) N.A. (x) 18.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   2 levels of irrigation: I₁ = Irrigation 9 weeks after germination (at flowering) and I₂ = I₁ + Irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.
   (2) 3 levels of CaO as Gypsum: G₀ = 0, G₁ = 25 and G₂ = 50 lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 35' x 171' and sub-plot: 19' x 33'. (b) 16' x 32'. (v) 1' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Nil, slight damage by rats in few plots. (iii) Germination, grain and straw yield.
   (iv) (a) 1949—1953. (b) N.A. (c) N.A. (v) (a) Banaras. (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.(R).

5. RESULTS:
   (i) 1165 lb./ac.
   (ii) (a) 150.2 lb./ac.
   (b) 170.3 lb./ac.
   (iii) Only interaction I x P x G is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means =35.40 lb./ac.
2. G or P marginal means =35.55 lb./ac.
3. P or G means at the same level of I =69.52 lb./ac.
4. I means at the same level of P or G =66.89 lb./ac.
5. means in the body of $G\times P$ table =61.57 lb./ac.

Crop: Wheat (Rabi).
Site: Sugarcane Res. Sub-Stn., Kunraghat.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) 12.11.1949. (iv) (a) 2 ploughings and pata. (b) N.A. (c) 40 seers/ac. (d) and (e) N.A. (v) G.M. by sanai. (vi) NP-52 (medium). (vii) Irrigated. (viii) Interculture with one harrow on 13.12.1949. (ix) N.A. (x) 4.4.1950.

2. TREATMENTS:
Main-plot treatments: 3 levels of irrigation: $I₁=Irrigation$ 3 weeks after germination (at tillering), $I₂=Irrigation$ 9 weeks after germination (at flowering) and $I₃=I₂+Irrigation$ 12 weeks after germination (at milky stage).

Sub-plot treatments: All combinations of (1) and (2)+a control (N₀T₀=no manure)
(1) 2 levels of N as A/S: N₁=30 and N₂=60 lb./ac. of N.
(2) 2 times of application: $T₁=All$ at sowing and $T₂=Half$ at sowing and half at 1st irrigation.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/block and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot size: 22'×165' and sub-plot: 22'×33'. (b) 16'×27'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of tillers, length of leaves etc. Grain and bhusa yield. (iv) (a) to (c) N₀ = No. (v) (a) Kalyanpur, Atarra, Bharari, Meerut, Muzaffarnagar, Lucknow and Haulbagh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 1008 lb./ac.
(ii) (a) 166.5 lb./ac.
(b) 232.3 lb./ac.
(iii) Main effect of N and T and 'control vs treated' are all highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of $I$ = 60.80 lb./ac.
2. marginal means of NT = 109.5 lb./ac.
3. NT means at the same level of $I$ = 189.6 lb./ac.
4. $I$ means at the same level of NT = 180.2 lb./ac.

Crop : Wheat (Rabi).
Site : Sugarcane Res. Sub-Stn., Kunraghat.

Object : To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Chari. (c) No. (ii) (a) Loam. (b) N.A. (iii) 30.11.1950. (iv) (a) Preparation to crumbling stage by 6 ploughings and 2 harrowings and 2 harrowings for taking out grass and hand weeding after irrigation. (b) Seed drilled. (c) 40-50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) NP. 52 (medium). (vii) Irrigated. (viii) One weeding. (ix) 1.69”. (x) 14 and 15.4.1951.

2. TREATMENTS :
   Main-plot treatments : 4 levels of irrigation : $I_0$ = No irrigation, $I_1$ = Irrigation 3 weeks after germination (at tillering), $I_2$ = $I_1$ + irrigation 9 weeks after germination (at flowering) and $I_3$ = $I_1$ + irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments : All combinations of (1) and (2) + a control ($N_0T_0$ = No manure),
   (1) 2 levels of N A/S : $N_1$ = 30 and $N_2$ = 60 lb./ac. of N.
   (2) 2 times of application : $T_1$ = All at sowing and $T_2$ = half at sowing and half at first irrigation.

3. DESIGN :
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 16’ x 175’ and sub-plot 16’ x 33’. (b) 13’ x 32’. (v) 1’ around. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Stray attack of rust with negligible effect. (iii) Grain yield, (iv) (a) 1950—1953, (b) (c) N.A. (v) (a) Kalyanpur, Etawah, Muzaffarnagar, Meerut, Bharari, Atarra and Lucknow. (b) N.A. (vi) Nil. (vii) The expit. was conducted by C.P.

5. RESULTS :
   (i) 1249 lb./ac.
   (ii) (a) 144.5 lb./ac.
   (b) 244.2 lb./ac.
   (iii) Main effect of $I$ is significant. ‘Control vs treated’ effect is highly significant. No other effect is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means = 52.67 lb./ac.
2. NT marginal means = 99.68 lb./ac.
3. NT means at the same level of I = 199.4 lb./ac.
4. I means at the same level of NT = 183.9 lb./ac.

Crop: Wheat (Rabi).
Site: Sugarcane Res. Sub-Stn., Kunraghat.
Ref: U.P. 51(81).
Type: "IM".

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (p) Nil. (b) Fallow. (c) No. (ii) (a) Loam. (b) N.A. (iii) 6.11.1951. (iv) (a) N.A. (b) Seed drill.
   (c) 40-50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) NP-52 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A.
   (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (I) and (2) + a control (N₀T₀ = no manure)
   (1) 2 levels of N as A/S: N₁ = 30 and N₂ = 60 lb./ac. of N.
   (2) 2 times of application: T₁ = All at sowing and T₂ = half at sowing and half at first irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 16' × 17½', sub-plot: 16' × 35', (b) 13' × 32', (v) 1½' around.

4. GENERAL:
   (i) Good. No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1950—1953. (b), (c) No. (v) (a) Hawalīgh, Etawah, Faizabad, Muzzafarnagar, Lucknow, Meerut, Kalyanpur, Atarra and Bharari. (b) N.A. (vi) Nil. Experiment was conducted by C.P.

5. RESULTS:
   (i) 711 lb./ac.
   (ii) (a) 147.8 lb./ac.
   (b) 166.9 lb./ac.
   (iii) Main effects of land N and 'control vs treated' are all highly significant. Other effects are not significant.
Object:—To study the effect of application N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 6.11.1952. (iv) (a) 4 ploughings. (b) N.A. (c) 40 to 50 srs/ac. (d) N.A. (e) N.A. (f) Nil. (g) NP-52 (medium). (h) Irrigated. (i) N.A. (j) 0.84'. (k) 10, 12.4.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: \( I_0 = \) No irrigation, \( I_1 = \) Irrigation 3 weeks after germination (at tillering), \( I_2 = I_1 + \) Irrigation 9 weeks after germination (at flowering) and \( I_3 = I_2 + \) Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2)+a control \( (N_0T_0 = \) no manure).
   (1) 2 levels of N as A/S: \( N_1 = 30 \) and \( N_2 = 60 \) lb./ac. of N.
   (2) 2 times of application: \( T_1 = \) Full at the sowing and \( T_2 = \) half at sowing and half at 1st irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replcation and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: \( 16' \times 175' \), sub-plot: \( 16' \times 35' \). (b) \( 13' \times 32' \). (v) 1½' aloud. (vi) Yes.

4. GENERAL:
   (i) Poor. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1953. (b) No. (c) No. (v) (a) Etawah, Kalyanpur, Meerut, Atarra, Bharari, Faizabad and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
   (i) 464 lb./ac.
   (ii) (a) 133.3 lb./ac.
   (b) 82.50 lb./ac.
   (iii) Only control vs. treated is highly significant.

Crop:—Wheat \((Rabi)\).

Site:—Sugarcane Res. Sub-Stn., Kunraghat.

Ref:—U.P. 52(128).

Type:—‘IM’.
Crop: Wheat (Rabi).

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Cowpea for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 2.11.1953. (iv) (a) 6 ploughings, rolling on 16.10.1953; Palewa on 27.10.1953. (b) Seed drill. (c) 40-50 srs/ac. (1.16 lb./plot). (d) N.A. (e) N.A. (v) N.A. (vi) NP-52 (medium). (vii) Irrigated. (viii) Weeding and hoeing are in common practice. (ix) 0.51'. (x) 31.3.1954 and 1.4.1954.

2. TREATMENT S:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + Irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2) + a control (N₀ T₀ = no manure)
   (1) 2 levels of N as A/S: N₁ = 30 and N₂ = 60 lb./ac. of N.
   (2) 2 times of application: T₁ = Full at sowing and T₂ = half at sowing and half at 1st irrigation.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plot/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 16' x 175', sub-plot: 16' x 35'. (b) 13' x 32'. (v) Plot border 1.5' and field border 3' arounds. Sown space left between main-plots to be used as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Good. No lodging. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1953. (b) No. (c) No. (v) Faizabad, Etawah, Kalyanpur, Atarra, Bharari, Meerut and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
   (i) 1298 lb./ac.
   (ii) (a) 216.8 lb./ac.
   (b) 273.2 lb./ac.
   (iii) None of the effects is significant.
Crop: Wheat (Rabi).
Site: Sugarcane Res. Sub-Stn., Kunrghat.
Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 11.11.1949. (iv) (a) 8 ploughings and pata. (b) N.A. (c) 40 srs./ac. (d) and (e) N.A. (v) G.M. by sanai. (vi) NP-52 (medium). (vii) Irrigated. (viii) Harrowing on 13.12.1949. (ix) N.A. (x) 4.4.1950.

2. TREATMENTS:
   Main-plot treatments: 3 levels of Irrigation: I_1 = Irrigation 3 weeks after germination (at tillering), I_2 = I_1 + irrigation 9 weeks after germination (at flowering) and I_3 = I_1 + irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments: 3 combination of forms and levels of N: N_0 = N_0 manure; N_1 = 60 lb./ac. of N as A/S and N_1 = 60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/ block, and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 54'x40' and sub-plot 18'x40'. (b) 12'x34'. (v) 3' ring round the net-plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) Banaras, Kalyanpur, Atarra Bharari, Meerut, Muzaffarnagar, Lucknow, Bulandshahr and Haukibagh. (b) N.A. (vi) Nil (vii) The experiment was conducted by C.P.

5. RESULTS:
   (i) 1053 lb./ac.
   (ii) (a) 144.8 lb./ac.
   (b) 244.8 lb./ac.
   (iii) Forms of N are significant. Levels of N are highly significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

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<td>1260</td>
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S.E of the difference of two
1. marginal means of I = 111.5 lb./ac.
2. marginal means of NT = 79.17 lb./ac.
3. NT means at the same level of I = -223.1 lb./ac.
4. I means at the same level of NT = -214.6 lb./ac.

Ref: U.P. 49(74).
Type: 'IM'.
S.E. of difference of two
1. marginal means of I = 68.25 lb./ac.
2. marginal means of N = 115.4 lb./ac.
3. N means at the same level of I = 199.9 lb./ac.
4. I means at the same level of N = 176.9 lb./ac.

Crop: Wheat (Rabi).
Site: Sugarcane Res. Sub-Stn., Kunraghat.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Seed drill. (c) 40—50
   seers/acre. (d) and (e) N.A. (v) Nil. (vi) NP-52 (medium). (vii) Irrigated. (viii) N.A. (ix) 1.69°.
   (x) N.A.

2. TREATMENTS:

   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + Irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-
   plot: 162' x 31' and sub-plot: 18' x 31'. (b) 15' x 28'. (e) 1½' around. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) 1950—1953. (b) and (c) No. (v) (a) Banaras,
   Kalyanpur, Etawah, Kalsi, Muzzafarnagar, Meerut, Bharari, Atarra and Lucknow. (b) N.A. (vi) N.A. (vii)
   Experiment conducted by C.P.

5. RESULTS:
   (i) 1218 lb./ac.
   (ii) (a) 177.2 lb./ac.
   (b) 180.8 lb./ac.
   (iii) Forms of N and levels of N are both highly significant. Others are not significant.

   (iv) Av. yield of grain in lb./ac.

<table>
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<th>N₀</th>
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<th>N₂</th>
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<td>Mean</td>
<td>804</td>
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</table>

S.E. of difference of two
1. marginal means of I = 83.54 lb./ac.
2. marginal means of N = 73.82 lb./ac.
3. N means at the same level of I = 147.6 lb./ac.
4. I means at the same level of N = 146.6 lb./ac.
Crop: Wheat (Rabi).

Site: Sugarcane Res. Sub-Stn., Kunraghat.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 5.11.1951. (iv) (a) Ploughings, pata and harrowings. (b) to (e) N.A. (v) Nil. (vi) NP-52 (medium). (vii) Irrigated. (viii) Weeding. (ix) N.A. (x) 23 and 24.3.1952.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation:
- I<sub>0</sub> = No irrigation
- I<sub>1</sub> = Irrigation 3 weeks after germination (at tillering)
- I<sub>2</sub> = I<sub>1</sub> + Irrigation 9 weeks after germination (at flowering)
- I<sub>3</sub> = I<sub>2</sub> + Irrigation 12 weeks after germination (at milky stage)

Sub-plot treatments:
3 combinations of forms and levels of N:
- N<sub>0</sub> = No manure
- N<sub>1</sub> = 60 lb./ac. of N as A/S
- N<sub>2</sub> = 60 lb./ac. of N as castor cake

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) Main-plot: 54' x 31' and sub-plots: 18' x 31'. (b) 15' x 28'. (v) 14' around. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1950-1953. (b) and (c) No. (v) (a) Bararas, Faizabad, Kalianpur, Atarra, Bharari, Etawah, Kalai, Meerut, Muzaffarnagar, Hawalbagh and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 738 lb./ac.
(ii) (a) 111.0 lb./ac.
(b) 116.8 lb./ac.
(iii) Main effect of I is significant and forms of N and levels of N are both highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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<tr>
<th></th>
<th>N&lt;sub&gt;0&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
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S.E. of difference of two
1. marginal means of I = 71.16 lb./ac.
2. marginal means of N = 47.67 lb./ac.
3. N means at the same level of I = 95.33 lb./ac.
4. I means at the same level of N = 105.5 lb./ac.

---

Crop: Wheat (Rabi).

Site: Sugarcane Res. Sub-Stn., Kunraghat.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Chari. (c) Nil. (ii) (a) Loam (b) N.A. (iii) 7.11.1952. (iv) (a) Palewa on 24, 25.10.1952, ploughings on 30, 31.10.1952 and 3, 5.11.1932 Harrowings on 2, 3.11.1952. (b) N.A. (c) 40 to 50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) NP-52 (medium). (vii) Irrigated. (viii) N.A. (ix) 3.84'. (x) 12, 13.4.1953.
2. **TREATMENTS:**

**Main-plot treatments:**

4 levels of irrigation: 
- \(I_0\) = No irrigation,
- \(I_1\) = Irrigation 3 weeks after germination (at tillering),
- \(I_2\) = \(I_1\) + irrigation 9 weeks after germination (at flowering),
- \(I_3\) = \(I_2\) + irrigation 12 weeks after germination (at milky stage).

**Sub-plot treatments:**

3 combinations of forms and levels of N: 
- \(N_0\) = No manure,
- \(N_1\) = 60 lb./ac. of N as A/S,
- \(N_2\) = 60 lb./ac. of N as castor cake.

3. **DESIGN:**

(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 18’x172’ and sub-plot 18’x40’. (b) 15’x37’. (v) 1½ around. (vi) Yes.

4. **GENERAL:**

(i) Poor. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1953. (b) (c) No. (v) (a) Muzaffarnagar, Banaras, Faizabad, Etawah, Kalyanpur, Meerut, Kalai, Atarra, Hawaiaghan and Bharari. (b) N.A. (vi) Nil. (vii) Experiment was conducted by C.P.(R).

5. **RESULTS:**

(i) 409.0 lb./ac.
(ii) (a) 77.38 lb./ac.
(b) 143.7 lb./ac.
(iii) Only effect of levels of N is highly significant.
(iv) Av. yield of grain in lb./ac.

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<tr>
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<th>(N_2)</th>
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S.E. of difference of two
1. I marginal means = 36.47 lb./ac.
2. N marginal means = 58.67 lb./ac.
3. N means at the same level of I = 117.3 lb./ac.
4. I means at the same level of N = 102.51 lb./ac.

---

**Crop:** Wheat (Rabi).

**Site:** Sugarcane Res. Sub-Stn., Kunraghat.

**Ref:** U.P. 53(57).

**Type:** 'IM'.

**Object:** To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. **BASAL CONDITIONS:**

(i) (a) Legume-Cereal. (b) Cow pea for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 10.11.1953. (iv) (a) Ploughing on 15, 16, 24 and 31.10.1953; 8, 9, 11.1953. Rollering on 1.11.1953 and palewa 3.11.1953. (b) Seed drill. (c) 40-50 srs./ac. (1.28 lb./plot). (d) and (e) N.A. (v) N.A. (vi) NP, 52 (medium). (vii) Irrigated. (viii) Weeding and hoeing at the proper time. (ix) 0.51“. (x) 31.3.1954 and 1.4.1954.

2. **TREATMENTS:**

**Main-plot treatments:**

4 levels of irrigation: 
- \(I_0\) = No Irrigation,
- \(I_1\) = Irrigation 3 weeks after germination (at tillering),
- \(I_2\) = \(I_1\) + 9 weeks after germination (at flowering),
- \(I_3\) = \(I_2\) + irrigation 12 weeks after germination (at milky stage).

**Sub-plot treatments:**

3 combinations of forms and levels of N: 
- \(N_0\) = No manure,
- \(N_1\) = 60 lb./ac. of N as A/S,
- \(N_2\) = 60 lb./ac. of N as castor cake.
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot : 54'×40 ; sub-plot 15'×37'. (v) 1½ around. (vi) Yes.

4. GENERAL:
(i) Good lodging. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 150-1953. (b), (c) No. (v) (a) Banaras, Faizabad, Etawah, Atarra, Meerut, Muzafarnagar, Bharari and Kaai. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 143 lb./ac.
(ii) (a) 150.9 lb./ac.
(b) 153.3 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
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<th>N₂</th>
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S.E. of difference of two
1. 1 marginal means = 71.15 lb./ac.
2. N marginal means = 62.57 lb./ac.
3. N means at the same level of I = 125.1 lb./ac.
4. I means at the same level of N = 124.5 lb./ac.

Crop :- Wheat (Rabi).
Site :- Physiological Res. Stn., Lucknow.
Ref :- U.P. 49(79).
Type :- 'IM'.

Object :- To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Bhindi. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 27.10.1949. (iv) (a) Harrowing by tractor, two ploughing by mould-board plough and two by desi ploughs. (b) Behind desi plough. (c) 50 lb./ac. (d) N.A. (e) N.A. (v) T.C. at 42 mds. in whole field on 20.9.1949. (vi) C-13 (early). (vii) Irrigated. (viii) Weeding and hoeing on 6.12.1949. (ix) N.A. (x) 20.3.1950.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation : I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + Irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2) + a control (N₁T₀ = no manure).
(1) 2 levels of N as A₁F : N₁ = 30 and N₂ = 60 lb./ac.
(2) 2 times of application : T₁ = Full at sowing and T₂ = half at sowing and half at 1st irrigation.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/block ; 5 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 13'×11'. (b) 11'×10'. (v) 1'×1'. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Length of plants, no. of tillers, length of main ear per average plant, no. of grains per main ear per plant, weight of grain per ear per plant. Grain and fodder yield. (iv) (a) 1949—1951. (b) N.A. (c) Nil. (v) (a) Kunraghat, Kalyanpur, Atarra, Bharari, Meerut, Muzaffarnagar and Hawalbagh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 2420 lb./ac.
(ii) (a) 32.2 lb./ac.
(b) 233.3 lb./ac.
(iii) Main effects of I, levels of N, times of application and 'control not treated' are all highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th>N0T0</th>
<th>N1T1</th>
<th>N2T1</th>
<th>N3T2</th>
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<td>1901</td>
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<td>2597</td>
<td>2393</td>
<td>2420</td>
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</table>

S.E. of difference of two
1. marginal means of I = 14.4 lb./ac.
2. marginal means of NT = 134.7 lb./ac.
3. NT means at the same level of I = 233.3 lb./ac.
4. I means at the same level of NT = 20.92 lb./ac.

Crop:—Wheat (Rabi).
Site:—Crop Physiological Res. Stn., Lucknow.
Ref:—U.P. 50(116).
Type:—'IM'.
Object:—To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Moong T1. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 20.10.1950. (iv) (a) Two ploughings by mould board, two by desi and one by cultivator. (b) N.A. (c) 40 srs/ac. (d) N.A. (e) N.A. (v) G.M. after moong and the crop turned in soil. (vi) C-13 (early). (vii) Irrigated as per treatments. (viii) Interculturings on 30.11.1950 and 29.1.1951. (ix) N.A. (x) 4.4.1951.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I0—No irrigation, I1=Irrigation 3 weeks after germination (at tillering), I2=I1+irrigation 9 weeks after germination (at flowering) and I3=I1+irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)+a control (N0T0=no manure).
(1) 2 levels of N as A/S: N1=30 and N2=60 lb./ac. of N.
(2) 2 times of application of A/S: T1=Full at sowing and T2=Half at sowing and half at 1st irrigation.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 34' x 14'. (b) 31' x 11'. (v) 1 1/2' ring round the net-plot. (vi) Yes.

4. GENERAL:
(i) The germination of the crop was poor due to early stopping of rains. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) 1949—1951. (v) No. (c) No. (v) (a) Etawah, Kalyanpur, Bharati, Meerut, Kunraghat, Muzaffarnagar and Atarra. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.
5. RESULTS:

(i) 874 lb./ac.
(ii) (a) 529.6 lb./ac.
(b) 464.9 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

\[
\begin{array}{c|ccccc|c}
N_0T_0 & N_1T_1 & N_2T_1 & N_1T_2 & N_2T_3 & \text{Mean} \\
\hline
I_0 & 914 & 854 & 454 & 678 & 947 & 769 \\
I_1 & 810 & 722 & 711 & 328 & 1029 & 720 \\
I_2 & 843 & 1072 & 941 & 1401 & 930 & 1037 \\
I_3 & 1018 & 1138 & 865 & 1018 & 810 & 970 \\
\hline
\text{Mean} & 896 & 947 & 743 & 856 & 929 & 874 \\
\end{array}
\]

S.E. of difference of two

1. marginal means of I = 193.4 lb./ac.
2. marginal means of NT = 189.8 lb./ac.
3. NT means at the same level of I = 379.6 lb./ac.
4. I means at the same level of NT = 390.7 lb./ac.

Crop: Wheat (Rabi).
Site: Crop Physiological Res. Stn., Lucknow.
Ref: U.P.51(133).
Type: 'IM'.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Maize. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 16.11.1951. (iv) (a) 3 ploughings (b) to (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) Intercultural operations on 3, 4, 12, 1951.

2. TREATMENTS:

Main-plot treatments:

4 levels of irrigation: I_0 = No irrigation, I_1 = Irrigation 3 weeks after germination (at tillering), I_2 = I_1 + irrigation 9 weeks after germination (at flowering) and I_3 = I_1 + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:

All combinations of (1) and (2) + a control (N_0T_0 = no manure).

(1) 2 levels of N as A/S: N_1 = 30 and N_2 = 60 lb./ac. of N.

(2) 2 times of application of A/S: T_1 = full at sowing and T_2 = Half at sowing and half at 1st irrigation

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 112' x 34'. (b) 1/143.2 ac. (v) between main plots 3' and between blocks = 4'. (vi) Yes.

4. GENERAL:

(i) Below normal. (ii) N.> (iii) Grain yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) Faizabad, Etawah, Kalyanpur, Atarra, Bharari, Meerut, Kunraghat, Muzaffarnagar and Hawalbagh. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.

5. RESULTS:

(i) 458.2 lb./ac.
(ii) (a) 216.1 lb./ac.
(b) 220.2 lb./ac.
(iii) None of the effects is significant.
Av. yield of grain in lb./ac.

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<th>N1T1</th>
<th>N2T1</th>
<th>N3T2</th>
<th>N4T2</th>
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S.E. of difference of two
1. marginal means of I = 74.7 lb./ac.
2. marginal means of NT = 77.9 lb./ac.
3. NT means at the same level of I = 155.7 lb./ac.
4. I means at the same level of NT = 158.0 lb./ac.

Crop: Wheat (Rabi).
Site: Crop Physiological Res. Stn., Lucknow.
Ref: U.P. 49(86).
Type: 'IM'.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A.
   (ii) (a) Sandy loam. (b) N.A.
   (iii) 26.10.1949.
   (iv) (a) Tractor harrowing crosswise. Three times by desi plough. (b) Sown behind the plough (c) 50 srs./ac. (d) and (e) N.A.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of irrigation: I1 = Irrigation 3 weeks after germination (at tillering), I2 = I1 + irrigation 9 weeks after germination (at flowering) and I3 = I2 + irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 combinations of form and levels of N: N0 = No manure, N1 = 60 lb./ac. of N as A/S and N2 = 60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 22' x 12' (b) 20' x 10' (v) Y' all round the net-plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) Banaras, Kalyanpur, Atarra, Bharati, Meerut, Muzaffarnagar, Bulandshahr, Hauwlabg, and Kunraghat. (vi) Nil. (vii) The experiment was conducted by C.P.

5. RESULTS:
   (i) 1363 lb./ac.
   (ii) (a) 156.6 lb./ac.
   (b) 55.2 lb./ac.
   (iii) Main effect of I is significant. Effects of forms of N, levels of N and interaction I x levels of N are highly significant. Other are not significant.
   (iv) Av. yield of grain in lb./ac.

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<td>1363</td>
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S.E. of difference of two
1. marginal means of I = 73.8 lb./ac.
2. marginal means of N = 26.0 lb./ac.
3. N means at the same level of I = 45.1 lb./ac.
4. I means at the same level of N = 82.5 lb./ac.

Crop :- Wheat (Rabi).
Site :- Crop Physiological Res. Stn., Lucknow.
Ref :- U.P. 50(120).
Type :- "IM".

Object :—To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS :
(i) (a) Nil. (c) Moong-Maize. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 26.10.1950. (iv) (a) Four ploughings by desi and victory plough, one by cultivator. (b) Sown behind desi plough. (c) 50 seers/ac. (d) and (e) N.A. (v) V.C. applied on 30.9.1950. (vi) C-13 (early). (vii) Irrigated. (viii) Date of interculturing 22.11.1950 and 1.1.1951. (ix) N.A. (x) 14.4.1951.

2. TREATMENTS :
Main-plot treatments :
4 levels of irrigation : \( I_0 = \) No irrigation, \( I_1 = \) Irrigation 3 weeks after germination (at tillering), \( I_2 = I_1 + \) irrigation 9 weeks after germination (at flowering) and \( I_3 = I_2 + \) irrigation 12 weeks after germination (at milky stage).
Sub-plot treatments :
3 combinations of form and levels of N : \( N_0 = \) No manure, \( N_1 = 60 \) lb./ac. of N as A/S and \( N_4 = 60 \) lb./ac. of N as castor cake.

3. DESIGN :
(i) Split-plot. (ii) (a) 4 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 20' x 12'. (b) 18' x 10'. (v) 1' all round the net plot. (vi) Yes.

4. GENERAL :
(i) The crop was poor due to late rains. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) Banaras, Etawah, Katayanpur, Atarra, Bharari, Meerut, Konraghat, Muzaffarnagar and Kalai. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS :
(i) 985 lb./ac.
(ii) (a) 343.5 lb./ac.
(b) 304.7 lb./ac.
(iii) Only main effect of forms of N is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 162.0 lb./ac.
2. marginal means of N = 124.4 lb./ac.
3. N means at the same level of I = 248.8 lb./ac.
4. I means at the same level of N = 296.8 lb./ac.
Crop :-Wheat.  
Site :-Crop Physiological Res. Stn., Lucknow. 
Object :-To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) Nil. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
- 4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage). 

Sub-plot treatments:
- 3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/167 th ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) to (c) N.A. (v) (a) Banaras, Faizabad, Kunraghat; Kalyanpur, Agra, Bharati, Etawah, Katai, Meerut, Muzaffarnagar and Hauwalbagh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 560.2 lb./ac. 
(ii) (a) 418.9 lb./ac. 
(b) 135.5 lb./ac. 
(iii) Only the interaction I x levels of N is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E of difference of two:
1. I marginal means = 171.0 lb./ac.
2. N marginal means = 47.91 lb./ac.
3. N means at the same level of I = 95.83 lb./ac.
4. I means at the same level of N = 188.0 lb./ac.
2. TREATMENTS:

Main-plot treatments:
2 levels of irrigation: I_1 = Irrigation 9 weeks after germination (at flowering) and I_2 = I_1 + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of P_2O_5 as Super: P_0 = 0, P_1 = 20 and P_2 = 40 lb./ac.
(2) 3 levels of CaO as Gypsum: G_0 = 0, G_1 = 25 and G_2 = 50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block, 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 15' x 15'. (b) 13' x 13'. (v) 1' ring round the net plot. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) N.A. (iii) Grain and bhuso yield. (iv) (a) 1949—1950. (b), (c) No. (v) (a) Banaras, Katyapanpur, Barabanki and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) (a) 1175 lb./ac.
(ii) (a) 56.63 lb./ac.
(iii) Levels of irrigation, doses of P and doses of C are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 15.39 lb./ac.
2. marginal means of G or P = 45.93 lb./ac.
3. G or P means at the same level of I = 112.5 lb./ac.
4. I means at the same level of G or P = 55.22 lb./ac.
5. means in the body of G x P table = 79.56 lb./ac.

Crop: Wheat (Rabi).
Site: Crop Physiological Res. Stn., Lucknow.
Object: To study the effect of different levels of irrigation in combination with P_2O_5 and Gypsum on Wheat.
2. TREATMENTS:

Main-plot treatments:
- 3 levels of irrigation: $I_0$ = No irrigation, $I_1$ = Irrigation 9 weeks after germination (at flowering), and $I_2$ = $I_1$ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
- All combinations of (1) and (2)
  - (1) 3 levels of $P_2O_5$ at Super: $P_0$ = 0, $P_1$ = 20 and $P_2$ = 40 lb./ac.
  - (2) 3 levels of CaO as Gypsum: $G_0$ = 0, $G_1$ = 25 and $G_2$ = 50 lb./ac.

3. DESIGN:
- (i) Split-plot
- (ii) (a) 3 main-plots/block; 9 sub-plots/main-plot. (b) N.A.
- (iii) 3
- (iv) (a') 25' X 12'. (b) 23' x 10', (v) 1' ring round the net-plot. (vi) Yes.

4. GENERAL:
- (i) Below normal.
- (ii) N.A.
- (iii) Grain and fodder yield.
- (iv) (a) 1949-1950. (b), (c) N.A.
- (v) (a) Banaras, Kalyanpur (Kanpur), Pratapgarh, Bahraich, Kalai (Aligarh) and Barabanki. (b) N.A. (vi) Nil. (vii) Expt. was conducted by C.P.

5. RESULTS:
- (i) 566.4 lb./ac.
- (ii) (a) 196.0 lb./ac.
- (b) 259.6 lb./ac.
- (iii) None of the effects is significant.
- (iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 53.35 lb./ac.
2. marginal means of G or P = 70.66 lb./ac.
3. G or P means at the same level of I = 122.4 lb./ac.
4. I means at the same level of G or P = 113.3 lb./ac.
5. means in the body of G x P table = 131.0 lb./ac.

Crop :- Wheat (Rabi).
Site :- National Botanical Gardens, Lucknow.
Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
- (i) (a) Nil. (b) Three years old guava orchard. Chari for fodder. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 15, 16.11.1948. (iv) (a) Two disc ploughings by tractor on 21.10.1948, one ploughing by desi plough on 9, 10.11.1948 one disc ploughing by tractor on 12.8.1948. (b) N.A. (c) 50 ars/ac. (d) N.A. (e) N.A. (v) 6 tons of municipal load on the whole field on 12.11.1948. (vi) C-13 (early). (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) 1st week of April 1949.
2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of irrigation: I₁ = One irrigation 3 weeks after germination (at tillering), I₂ = I₁ + one irrigation 9 weeks after germination (at flowering), I₃ = I₂ + one irrigation 12 weeks after germination (at milky stage).

(2) 3 combination of forms and levels of N: N₀ = No manure, N₁ = A/S at 50 lb./ac. of N, N₂ = castor cake at 50 lb./ac. of N.

3. DESIGN:

(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) 40' x 23'. (b) 34' x 17'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Slight attack of rust in some plants. (iii) Grain yield. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:

(i) 984 lb./ac.
(ii) 241.4 lb./ac.
(iii) Only effect of levels of N is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean = 80.48 lb./ac.
S.E. of body of table = 139.4 lb./ac.

Crop: Wheat (Rabi).
Site: Regional Res. Stn., Meerut.
Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Early moong. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 31.10.1949. (iv) (a) 3 ploughings by victor plough and pata, 2 by desii and pata, paye on 7.8.1949, 3 ploughings by desii and pata. (b) N.A. (c) 50 lb./ac. (d) N.A. (e) N.A. (f) Nil. (vi) Pb-591 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14, 15.4.1950.

2. TREATMENTS:

Main-plot treatments: 3 levels of irrigation: I₁ = Irrigation 3 weeks after germination (at tillering stage), I₂ = I₁ + irrigation 9 weeks after germination (at flowering stage), and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments: All combinations of (1) and (2)+a control (N₀T₀ = no manure)

(1) 2 levels of N as A/S: N₁ = 30 and N₂ = 60 lb./ac. of N.
(2) 2 time of application of N: T₁ = Full at sowing and T₂ = half at sowing and half at 1st irrigation.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/block; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 22' x 165', sub-plot: 22' x 33'. (b) 16' x 27'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Height of plants, length and breadth of leaf; root length. No. of tillers, dry wt. of shoot of green and dry leaf yield of grain. (iv) (a) 1949—1953. (b) No. (c) No. (v) (a) Gorakhpur, Kalyanpur, (Kanpur), Atarra (Banda), Bharari (Jhansi), Muzaffarnagar, Lucknow and Hawalbagh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.
5. RESULTS:

(i) 1690 lb./ac.
(ii) (a) 244.9 lb./ac.
(b) 272.2 lb./ac.
(iii) Effect of time of application is significant and control vs. treated is highly significant. Others are not significant.
(iv) Avg. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 89.4 lb./ac.
2. marginal means of NT = 128.3 lb./ac.
3. NT means at the same level of I = 222.3 lb./ac.
4. I means at the same level of NT = 218.0 lb./ac.

Crop: Wheat (Rabi).
Site: Regional Res. Stn., Meerut.
Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) Last week of Oct. 1950. (iv) (a) N.A. (b) Seed drill. (c) 40-50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) NP.52 (medium). (vii) Irrigated. (viii) N.A. (ix) 3.61*. (x) 13 and 14.4.1951.

2. TREATMENTS:

Main-plot treatments:
4 levels of irrigation: I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering), I₂=I₁+irrigation 9 weeks after germination (at flowering) and I₃=I₂+irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)+a control (N₀T₀=no manure)
(1) 2 levels of N as A/S : N₁=30 and N₂=60 lb./ac. of N.
(2) 2 times of application of N : T₁=full at sowing and T₂=Half at sowing and half at first irrigation.

3. DESIGN:

(i) Split-plot. (ii) (a)-4 main-plots/replication; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 19'×110'; sub-plot: 19'×22'. (b) 16'×19'. (v) 1½' around. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1954. (b), (c) No. (v) (a) Kalyanpur, Etawah, Kunraghat, Muzaffaragar, Bharari, Atarra and Lucknow. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.

5. RESULTS:

(i) 1873 lb./ac.
(ii) (a) 1050 lb./ac.
(b) 273.3 lb./ac.
(iii) Effect of 'control vs treated' and interaction I×'control vs treated' are highly significant.
(iv) Av. yield of grain in lb./ac.

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<th>( N_1T_1 )</th>
<th>( N_2T_1 )</th>
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S.E. of difference of two
1. I marginal means = 383.6 lb./ac.
2. NT marginal means = 111.6 lb./ac.
3. NT means at the same level of I = 223.1 lb./ac.
4. I means at the same level of NT = 432.4 lb./ac.

Crop: Wheat (Rabi).
Site: Regional Res. Stn., Meerut.
Ref: U.P. 51(82).
Type: IM'.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) No. (b) Maize and Moong. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 10.11.1951. (iv) (a) N.A. (b) Sown by seed drill. (c) 40-50 srf./ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (medium). (vii) Irrigated. (viii) N.A. (ix) 4.15°. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: \( I_0 = \) No irrigation, \( I_1 = \) Irrigation 3 weeks after germination (at tillering), \( I_2 = I_1 + \) irrigation 9 weeks after germination (at flowering) and \( I_3 = I_2 + \) irrigation 12 weeks after germination (at milky stage).
Sub-plot treatments:
All combinations of (1) and (2)+a control (\( N_0T_2 = \) no manure)
(1) 2 levels of N as A/S: \( N_1 = 30 \) and \( N_2 = 60 \) lb./ac.
(2) 2 times of application of N: \( T_1 = \) full at sowing and \( T_2 = \) Half at sowing and half at first irrigation.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 67' × 28'; sub-plot: 13½' × 28'. (b) 10½' × 25'. (v) 1½' alround. (vi) Yes.

4. GENERAL:
(i) Good, no lodging. (ii) No. (iii) Grain yield. (iv) (a) 1949—1954. (b), (c) No. (v) (a) Hawalbagh, Etawah, Kalyanpur, Faizabad, Bharari, Atarra, Kusurghat, Muzaffarnagar and Lucknow. (b) N.A. (vi) Nil. (vii) Expt. conducted by C.P.

5. RESULTS:
(i) 1558 lb./ac.
(ii) (a) 577.9 lb./ac.
(b) 261.0 lb./ac.
(iii) Effect of 'control vs treated' is highly significant and interaction \( I \times \) 'control vs treated' is significant. Others are not significant.
Crop: Wheat (Rabi).

Site: Regional Res. Stn., Meerut.

Ref: U.P. 52(115).

Type: ‘IM’.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Moong and Maize. (c) N.A.
   (ii) (a) Loam. (b) N.A.
   (iii) 31.10.1952.
   (iv) (a) One metory plough and 7 desi ploughings.
   (b) N.A.
   (c) 40—50 srs./ac.
   (d) and (e) N.A.
   (v) Ph. 591 (mid-late).
   (vi) Irrigated.
   (vii) Weeding.
   (ix) N.A.
   (x) 19 and 12.4.1953.

2. TREATMENTS:
   Main-plot treatments:
   
   4 levels of irrigation:
   
   I0 = No irrigation, I1 = Irrigation 3 weeks after germination (at tillering), I2 = I1 + irrigation 9 weeks after germination (at flowering) and I3 = I2 + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2) + a control (N0T0=N0 manure)
   
   (1) 2 levels of N as A/S: N1 = 30 and N2 = 60 lb./ac. of N.
   
   (2) 2 times of application of N: T1 = Full at sowing and T2 = Half at sowing and half at 1st irrigation.

   I2 was not given because of rains; therefore I2 becomes identical with I1.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A.
   (iii) 4. (iv) (a) 19’×34’. (b) 16’×31’. (v) 1.5’ around. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Il. (iii) Grain and straw yield. (iv) (a) 1949—1954. (b) and (c) No. (v) (a) Etawah, Atarra, Bharari, Faizabad, Kalianpur, Muzaffarnagar and Kunraghat. (b) N.A.
   (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
   (i) 1617 lb./ac.
   (ii) (a) 328.4 lb./ac.
   (b) 126.5 lb./ac.
   (iii) Only main effects of I levels of N4 times of application (T) and ‘control vs treated’ are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
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<th>N₁T₁</th>
<th>N₂T₂</th>
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</table>

S.E. of difference of
1. I₃ and I₁ marginal means = 103.9 lb./ac.
2. I₀ and I₁ or I₁ and I₃ marginal means = 89.94 lb./ac.
3. two marginal means of NT = 44.76 lb./ac.
4. two NT means at the level I₀ or I₃ = 89.52 lb./ac.
5. two NT means at the level I₁ = 63.30 lb./ac.
6. I₀ and I₃ means at the same level of NT = 131.1 lb./ac.
7. I₀ and I₁ or I₁ and I₃ means at the same level of NT = 127.0 lb./ac.

Crop :-Wheat (Rabi).

Site :-Regional Res. Stn., Meerut.

Object :-To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Moorpy. (c) Nil.- (ii) (a) Loam. (b) N.A. (iii) 31.10.1953. (iv) (a) N.A. (b) Sown behind the plough. (c) 12 chs./plot. (d) and (e) N.A. (v) N.A. (vi) Pb. 591 (late). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 21.4.1954.

2. TREATMENTS :
   Main-plot treatments :
   4 levels of irrigation: I₀= No irrigation, I₁=Irrigation 3 weeks after germination (at flowering), I₂=I₁ +irrigation 9 weeks after germination (at flowering) and I₃=I₂ +irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments :
   All combinations of (1) and (2)+a control (N₀T₀=No manure)
   (1) 2 levels of N as A/S : N₁=30 and N₂=60 lb./ac. of N.
   (2) 2 times of application of N : T₁=Full at sowing and T₂=Half at sowing and half at 1st irrigation.

3. DESIGN :
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Mainplot : 19'x170' and sub-plot : 19'x34'. (b) 16'x31'. (v) 1.5' around. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1954. (b) and (c) No. (v) (a) Faizabad, Etawah, Kalyanpur, Atarra, Bharari, Kunraghat and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS :
   (i) 1350 lb./ac.
   (ii) (a) 98.56 lb./ac.
   (b) 72.80 lb./ac.
   (iii) Main effects of I, levels of N, times of application, 'control vs treated' and interactions IxN and Ix 'control vs treated' are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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Mean

1072 1260 1482 1334 1599 1350

S.E. of difference of two
1. 1 marginal means = 31.17 lb./ac.
2. NT marginal means = 25.74 lb./ac.
3. NT means at the same level of I = 51.48 lb./ac.
4. 1 means at the same level of NT = 55.60 lb./ac.

Crop :- Wheat (Rabi).
Ref :- U.P. 48(80).
Site :- Regional Res. Stn., Meerut.
Type :- 'IM'.

Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Early moong. (c) Nil. (ii) (a) Light loam soil. (b) N.A. (iii) 31.10.1949. (iv) (a) 3 ploughings by victory plough and para, two by desi and para, palawa on 7, 8.10.1949, 3 ploughings by desi plough and pata. (b) N.A. (c) 50 srs/ac. (d) N.A. (e) N.A. (v) Nil. (vi) Pb-591 (mid. late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 16, 17.4.1950.

2. TREATMENTS :
   Main-plot treatments :
   3 levels of irrigation : I₁=Irrigation 3 weeks after germination (at tillering), I₂=Irrigation 9 weeks after germination (at flowering) and I₃=Irrigation 12 weeks after germination (at milky-stage).
   Sub-plot treatments :
   3 combinations of forms and levels of N : N₀=No manure, N₁=60 lb./ac. of N as A/S and N₂=60 lb./ac. of N as castor cake.

3. DESIGN :
   (i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot : 54'x40'; Sub-plot : 18'x40'. (b) 12'x34'. (v) 3' ring round the net plot. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Height of plants, root length, shoot length, leaf length and breadth, tillers, green leaves and shoot length, ear length. wt. of shoot, no. of grains; grain and bhusa yield. (iv) (a) 1949-1953. (b) N.A. (c) N.A. (v) (a) Banaras, Kalyanpur, Kunraghat, Atarra, Bharari, Muzaffarnagar, Lucknow, Bulandshahr and Haukalagh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS :
   (i) 1513 lb./ac.
   (ii) (a) 321.0 lb./ac.
   (b) 184.3 lb./ac.
   (iii) Only effect of levels of N is highly significant.
Crop: Wheat (Rabi).

Site: Regional Res. Stn., Meerut.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai. (c) No. (ii) (a) Loam. (b) N.A. (iii) 27.10.1950. (iv) (a) 14 ploughings by desi plough, 2 ploughings with victory plough. (b) Seed drill. (c) 50 srs/ac. (d) N.A. (e) N.A. (v) Nil. (vi) Pb-591 (medium). (vii) Irrigated. (viii) Weeding on 15.1.1951. (ix) 3.61'.
   (x) 14.4.1951.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering), I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb/ac. of N as A/S and N₂ = 60 lb/ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 45' x 24'; Sub-plot 15' x 24'. (b) 12' x 21' (v) Sub-plot border 1/3' all around. Field border 3' all around. Sown space left between main-plot 5', sown space left between blocks 8' also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) No. (c) No. (v) (a) Kunraghat, Kalyanpur, Etawah, Kalai, Banaras, Muzaffarnagar, Bharati, Atarra and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 1657 lb/ac.
   (ii) (a) 261.0 lb/ac.
   (b) 244.2 lb/ac.
   (iii) Only effect of I is significant.
   (iv) Av. yield of grain in lb/ac.

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Mean 1541 1659 1771 1557
Object:—To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Moong and maize. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 6.11.1951. (iv) (a) 8 ploughings with desi plough. (b) Sown by seed drill. (c) 50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (medium). (vii) Irrigated. (viii) N.A. (ix) 4.15". (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I0 = No irrigation, I1 = irrigation 3 weeks after germination (at tillering), I2 = I3 = irrigation 9 weeks after germination (at flowering) and I3 = irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of forms and levels of N : N0 = No manure, N1 = 60 lb./ac. of N as A/S and N2 = 60 lb./ac. of N castor cake.

   I3 given on 16.12.1951. I2 given on 1.2.1952 and I3 not given because of rains on 2.3.1952. Hence I3 becomes identical with I2.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/173 acre. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good, no lodging. (ii) No. (iii) Grain yield. (iv) (a) 1949—1953. (b), (c) No. (v) (a) Banaras, Faizabad, Kunraghat, Kalyanpur, Atarra, Bharari, Etawah, Kalai, Muzaffarnagar, Haulbagh and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 1667 lb./ac.
   (ii) (a) 388.2 lb./ac.
   (b) 427.4 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of difference of:
1. I0 and I1 marginal means = 158.5 lb./ac.
2. I0 and I2 or I1 and I2 marginal means = 137.3 lb./ac.
3. two marginal means of N = 151.1 lb./ac.
4. two N means at the level I0 or I1 = 302.3 lb./ac.
5. two N means at the same level I2 = 213.7 lb./ac.
6. I0 or I1 means at the level N = 293.3 lb./ac.
7. I0 and I2 or I1 and I2 means at the same level of N = 254.0 lb./ac.
Crop : - Wheat (Rabi).

Site : - Regional Res. Stn., Meerut.

Object : - To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane ratoon. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 31.10.1952. (iv) (a) Ploughing by Victory plough on 18.9.1952, ploughing by desi plough on 28.9.1952, 10, 13, 19, 26 and 29.10.1952. (b) N.A. (c) 40 to 50 srs/ac. (d) and (e) N.A. (v) 9 C.L./ac. of F.Y.M. on 17.10.1952. (vi) Pb. 591 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14, 15.4.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of Irrigation: I0 = No irrigation, I1 = irrigation 3 weeks after germination (at tillering), I2 = I1 + irrigation 9 weeks after germination (at flowering) and I3 = I2 + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combinations of forms and levels of N : N0 = No manure, N1 = 60 lb./ac. of N A/S and N2 = 60 lb./ac. of N castor cake.

   I1 given on 5.12.1951, I2 not given due to rains on 15 and 16.1.1953 and I3 given on 10.3.1953. Hence I2 becomes identical with I1.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 28'x25'. (b) 25'x22'. (v) 1§ around. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b), (c) Nil. (v) (a) Banaras, Faizabad, Etawah, Kalyanpur, Kalai, Hauwalbagh, Bharari, Kurna and Muzaffarnagar. (b) N.A. (vi) Nil. (vii) Experiment was conducted by C.P.(R).

5. RESULTS:
   (i) (a) 1607 lb./ac. (b) 96.61 lb./ac.
   (iii) Only effects of levels of I, forms of N, levels of N and I x forms of N are highly significant.
   (iv) Av. y;eld of grain in lb./ac.

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<th></th>
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<th>N2</th>
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S.E. of difference of
1. I0 and I3 marginal means =-49.21 lb./ac.
2. I0 and I1 or I2 and I3 marginal means =-42.62 lb./ac.
3. two N marginal means =-34.16 lb./ac.
4. two N means at the level I0 or I3 =-68.31 lb./ac.
5. two N means at the level I1 =-48.30 lb./ac.
6. I0 and I3 means at the same level of N =-74.38 lb./ac.
7. I0 and I1 or I2 and I3 means at the same level of N =-64.42 lb./ac.
Crop: -Wheat (Rabi).
Site :- Regional Res. Stn., Meerut.
Object: - To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Moong. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 7.11.1953. (iv) (a) 7 ploughings and harrowings. (b) to (e) N.A. (v) Nil. (vi) Pb. 591 (medium). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 24.4.1954.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I_0 = No irrigation, I_1 = Irrigation 3 weeks after germination (at tillering), I_2 = Irrigation 9 weeks after germination (at flowering) and I_3 = Irrigation 12 weeks after germination (at milky stage).
Sub-plot treatments:
3 combinations of forms and levels of N: N_0 = No manure, N_1 = 60 lb./ac. of N as A/S and N_2 = 60 lb./ac. of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 84' x 25' and sub-plot: 28' x 25'. (b) 25' x 22'. (v) 1.5' around the plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1954. (b) and (c) No. (v) (a) Banaras, Faizabad, Etawah, Kalyanpur, Atarra, Bharat; Muzaffarnagar, Kalai and Kunrashat. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 1334 lb./ac.
(ii) (a) 62.72 lb./ac.
(b) 59.36 lb./ac.
(iii) Main effects of I and levels of N and interactions I x forms of N and I x levels of N are highly significant.
(iv) Av. yield of grain in lb./ac,

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Mean 1116 1435 1450 1334
S.E. of difference of two
1. I marginal means =25.61 lb./ac.
3. N means at the same level of I =41.97 lb./ac.
4. I means at the same level of N =42.78 lb./ac.

Crop: -Wheat (Rabi).
Site: - Sugarcane Res. Sub-Stn., Muzaffarnagar.
Object: - To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai. (c) No. (ii) (a) Loam. (b) Refer soil analysis. Muzaffarnagar. (iii) 14.11.1949.
2. **TREATMENTS:**

**Main-plot treatments:**
3 levels of irrigation: $I_1$—irrigation 3 weeks after germination (at tillering), $I_2=I_1+$ irrigation 9 weeks after germination (at flowering stage), and $I_3=I_1+$ irrigation 12 weeks after germination (at milky stage).

**Sub-plot treatments:**
All combinations of (1) and (2)+a control ($N_0 T_0$—no manure).
1. 2 levels of N as A/S: $N_1=30$ and $N_2=60$ lb/ac. of N.
2. 2 times of application of N: $T_1$—Full at sowing and $T_2$—half at sowing and half at 1st irrigation.

3. **DESIGN:**
(i) Split-plot. (ii) (a) 3 main-plots/block; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 20'x170'. Sub-plot 20'x34'. (b) 17'x31'. (v) 1½ ring round the net plot. (vi) Yes.

4. **GENERAL:**
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949-1953. (b) No. (c) No. (v) (a) Kunraghat, Kalyanpur, Atarra, Bharrri, Meerut, Lucknow and Hawalbagh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.,

5. **RESULTS:**
(i) 1566 lb./ac.
(ii) (a) 533.2 lb./ac. 
(b) 208.3 lb./ac.
(iii) Effects of levels of N and 'control vs treated' are significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two:
1. marginal means of I = 194.7 lb./ac.
2. marginal means of NT = 98.17 lb./ac.
3. NT means at the same level of I = 170.0 lb./ac.
4. I means at the same level of NT = 247.1 lb./ac.

---

**Crop:** Wheat (Rabi). **Ref:** U.P. 50(72). **Site:** Sugarcane Res. Sub-Stn., Muzaffarnagar. **Type:** 'IM'.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. **BASAL CONDITIONS:**
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis, Muzaffarnagar. (iii) N.A. (iv) (a) N.A. (b) Sown by seed drill. (c) 40-50 srs./ac. (d) N.A. (e) N.A. (v) Nil. (vi) Pb-591 (medium). (vii) Irrigated. (viii) N.A. (ix) 3.62'. (x) N.A.

2. **TREATMENTS:**

**Main-plot treatments:**
4 levels of irrigation: $I_0$—No irrigation, $I_1$—irrigation 3 weeks after germination (at tillering), $I_2=I_1+$ irrigation 9 weeks after germination (at flowering stage) and $I_3=I_2+$ irrigation 12 weeks after germination (at milky stage).

**Sub-plot treatments:**
All combination of (1) and (2)+a control ($N_0 T_0$—no manure).
1. 2 levels of N as A/S: $N_1=30$ and $N_2=60$ lb/ac. of N.
2. 2 times of application of N: $T_1=Full$ at sowing and $T_2=half$ at sowing and half at 1st irrigation.
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot=175'x14' sub-plot=14'x35'. (b) 11'x32'. (v) 1½ around the net plot. (vi) Yes.

4. RESULTS:
(i) 2614 lb./ac. (ii) (a) 490.6 lb./ac. (b) 359.5 lb./ac.
(iii) Main effects of I and T are highly significant. 'control vs. treated' and interaction I x 'control vs. treated' are significant. Others are not significant.
(iv) Av. yield of grain in lb./ac,

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<th>N_2T_1</th>
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Mean: 2421 2454 2531 2877 2788 2614

S.E. of difference of two
1. I marginal means =179.2 lb./ac.
2. NT marginal means =146.7 lb./ac.
3. NT means at the same level of I =293.4 lb./ac.
4. I means at the same level of NT =318.1 lb./ac.

Crop :– Wheat (Rabi).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Ref :- U.P. 51(53).
Type :-'IM'.

Object :-To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 25.10.1951.
(iv) (a) N.A. (b) Sown by seed drill. (c) 40 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Pb. 591 (medium). (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:
Main-plot treatments
4 levels of irrigation : I_0=No irrigation, I_1=Irrigation 3 weeks after germination (at tillering), I_2=I_1 +irrigation 9 weeks after germination (at flowering) and I_3=I_2+irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments :
All combinations of (1) and (2)+a control (N_0T_0=No manure)
(1) 2 levels of N as A/S : N_1=30 and N_2=60 lb./ac. of N.
(2) 2 times of application of N : T_1=Full at sowing and T_2=Half at sowing and half at 1st irrigation.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot : 175'x14' and sub-plot : 14'x35'. (b) 11'x32'. (v) 1½ around: (vi) Yes.

4. GENERAL:
(i) Good, no lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1949–1953. (b) and (c) N.A. (v) (a) Hawahlagh, Etawah, Faizabad, Kalianpur, Meerut, Bharari, Atarra, Kunraghat and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.
5. RESULTS:

(i) 1816 lb./ac.
(ii) (a) 480.5 lb./ac.
(b) 282.2 lb./ac.
(iii) Only control vs treated is significant.
(iv) Av. yield of grain in lb./ac.

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<td>1768</td>
<td>1700</td>
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S.E. of difference of two
1. I marginal means = 175.8 lb./ac.
2. NT marginal means = 115.3 lb./ac.
3. NT means at the same level of I = 230.7 lb./ac.
4. I means at the same level of NT = 271.0 lb./ac.

Crop :- Wheat (Rabi).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Ref ::= U.P. 52(n).

Type ::-'IM'.
Crop: Wheat (Rabi).
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.
Ref: U.P. 53(101).
Type: ‘IM’.

Object: To study the effect of application of N to Wheat at different levels and at different times in combination with different levels of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 25.10.1953. (iv) (a) Palewa on 14.6.1953, 13 ploughings and 11 pata. (b) Seed drill. (c) 40–50 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Pb. 591. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 18-21.4.1954.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering), I₂=I₁+ irrigation 9 weeks after germination (at flowering) and I₃=I₂+irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   All combinations of (1) and (2) + a control (N₀T₀=no manure).
   (1) 2 levels of N: N₁=30 and N₂=60 lb./ac. of N.
   (2) 2 times of application: T₁=Full at sowing and T₂=Half at sowing and half at 1st irrigation. I₁ given on 25.11.1953, I₂ and I₃ not given due to heavy rains in January and February. Hence I₄ and I₅ become identical to I₁.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 14’x175’ and sub-plot 14’x35’. (b) 11’x32’ (v) Plot border 1.5’ and field border 3’ around. Sown space left between main-plots and blocks= 6’ which also serves as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Crop effected by bunt. (iii) Grain and straw yield. (iv) (a) 1949–1953. (b) and (c) No. (v) (a) Faizabad, Etawah, Kalyanpur, Attara, Bharari, Meerut and Kunraghat. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 2078 lb./ac.
   (ii) (a) 303.8 lb./ac.
   (b) 233.9 lb./ac.
   (iii) Levels of irrigation are significant, others not significant.
(iv) Av. yield of grain in lb./ac.

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1. S.E. for I₀ marginal mean = 78.4 lb./ac.
2. S.E. for I₁ marginal mean = 45.3 lb./ac.
3. NT marginal means = 95.5 lb./ac.
4. NT means at the same level of I₀ = 191.0 lb./ac.
5. NT means at the same level of I₁ = 110.2 lb./ac.
6. I means at the same level of NT = 166.3 lb./ac.

Crop :- Wheat (Rabi).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.
Type :- 'IM'.
Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sanai. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 14.11.1949.
   (iv) (a) 4 ploughings by S.T. plough, 9 by desi plough and 2 by cultivator and 7 plankings. (b) to (e) N.A.

2. TREATMENTS :
   Main-plot treatments :
   3 levels of irrigation : I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments :
   3 combinations of forms and levels of N : N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN :
   (i) Split-plot. (ii) (a) 3 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 54'x30' and sub-plot 18'x30'. (b) 12'x24'. (v) 3' all round the net plot. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Banaras, Kalyanpur, Atarra, Bharari, Meerut, Kunraghat, Lucknow, Bulandshahr and Hawalbagh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS :
   (i) 2308 lb./ac.
   (ii) (a) 269.8 lb./ac.
   (b) 219.0 lb./ac.
   (iii) Effects of forms of N and levels of N are significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

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Crop: Wheat (Rabi).

Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Moong. (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 31.10.1950. (iv) (a) 2 ploughings with soil turning plough. 8 ploughings with desi plough and pata, 6 ploughings with cultivator. (b) Seed drill. (c) 40 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Pb.-591 (medium). (vii) Irrigated. (viii) One harrowing by lever harrow. (ix) 3.62°. (x) 17 to 19.4.1951.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation: I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering), I₂=I₁+irrigation 9 weeks after germination (at flowering) and I₃=I₂+irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   3 combinations of forms and levels of N: N₀=No manure, N₁=60 lb./ac. of N as A/S and N₂=60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-Plot. (ii) (a) 4 main-plots/replication and 3 sub-plot/main-plots (b) N.A. (iii) 3. (iv) (a) Main-plot: 54' x 27'. sub-plot: 18' x 27'. (b) 15' x 24'. (v) 1/4' around. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Nothing very significant. (iii) Grain yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Meerut, Kunraghat, Kalyanpur, Etawah, Kalai, Banaras, Bharari, Atarra and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 2314 lb./ac.
   (ii) (a) 246.4 lb./ac. (b) 163.5 lb./ac.
   (iii) Only sub-plot treatments are highly significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of difference of two:
   1. I marginal means = 116.5 lb./ac.
   2. N marginal means = 67.2 lb./ac.
   3. N means at the same level of I = 133.3 lb./ac.
   4. I means at the same level of N = 159.0 lb./ac.
Crop :- Wheat (Rabi).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Object :- To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Medium loam. (b) Refer soil analysis, Muzaffarnagar.
(iii) 25.10.1951. (iv) (a) 10 ploughings. (b) Seed drill. (c) 40 srs./ac. (d) and (e) N.A. (v) Nil.
(vi) Pb.591 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering), I₂=I₁+irrigation 9 weeks after germination (at flowering) and I₃=I₂+irrigation 12 weeks after germination (at milky stage).
Sub-plot treatments:
3 combinations of forms and levels of N: N₀=No manure, N₁=60 lb./ac. of N as A/S and N₂=60 lb/ac. of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 54'x27'. Sub-plot: 18'x27'. (b) 12'x21'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Very good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949–1953. (b) and (c) No. (v) (a) Banaras, Faizabad, Kunraghat, Kalyanpur, Atarra, Bharari, Etawah, Kalai, Meerut, Hauilbagh and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 2619 lb./ac.
(ii) (a) 282.2 lb./ac.
(b) 389.8 lb./ac.
(iii) Main effect of 1 is highly significant and effect of levels of N is significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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Mean 2839 2369 2650 2619
S.E. of difference of two
1. I marginal means =133.3 lb./ac.
2. N marginal means =159.0 lb./ac.
3. N means at the same level of I =318.1 lb./ac.
4. I means at the same level of N =292.3 lb./ac.
2. TREATMENTS:

Main-plot treatments:
4 levels of irrigation: $I_0$ = No irrigation, $I_1$ = Irrigation 3 weeks after germination (at tillering), $I_2$ = $I_1$ + irrigation 9 weeks after germination (at flowering), $I_3$ = $I_2$ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 combinations of forms and levels of N: $N_0$ = No manure, $N_1$ = 60 lb./ac. of N as A/S and $N_2$ = 60 lb./ac. of N as castor cake.

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 18' x 27'. (b) 15' x 24'. (v) 1' around. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Smut was seen in very mild form which was rouged out. (iii) Grain and straw yield. (iv) (a) 1949-1953. (b), (c) No. (v) (a) Kunraghat, Banaras, Faizabad, Etawah, Kalyanpur, Meerut, Kathal, Atarra, Hauralbagh and Bharari. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:

(i) 2429 lb./ac.
(ii) (a) 653.2 lb./ac.
(b) 305.8 lb./ac.
(iii) Only effect of N is highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means = 307.9 lb./ac.
2. N marginal means = 124.3 lb./ac.
3. 'N means at the same level of I = 249.8 lb./ac.
4. 1 means at the same level of N = 369.6 lb./ac.

Crop: - Wheat (Rabi).
Site: - Sugarcane Res. Sub-Stn., Muzaffarnagar.
Type: - 'IM'.

Object: - To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 25.10.1953. (iv) (a) 12 ploughings. (b) Seed drill. (c) 40-50 sms./ac. (6.3 chh./plot). (d) and (e) N.A. (vi) Nil. (vi) Pb. 591. (vii) Irrigated. (viii) Nil. (ix) Heavy rain in the month of January. Details N.A. (x) 18 to 21.4.1954.

2. TREATMENTS:

Main-plot treatments:
4 levels of irrigation: $I_0$ = No Irrigation, $I_1$ = Irrigation 3 weeks after germination (at tillering), $I_2$ = $I_1$ + irrigation 9 weeks after germination (at flowering), $I_3$ = $I_2$ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 combinations of forms and levels of N: $N_0$ = No manure, $N_1$ = 60 lb./ac. of N as A/S and $N_2$ = 60 lb./ac. of N as castor cake.
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot : 27'×54'; sub-plot : 18'×27'. (b) 15'×24'. (v) 1½' around. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Crop affected by bunt. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b), (c) No. (e) Faizabad, Kunraghat, Etawah, Kalyanpur, Atarra, Bharari, Meerut, Kalai and Varanasi. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 1902 lb./ac.
(ii) (a) 472.8 lb./ac. (b) 229.6 lb./ac.
(iii) Only effect of N is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. 1 marginal means =223.3 lb./ac.
2. N marginal means = 93.7 lb./ac.
3. N means at the same level of I =187.5 lb./ac.
4. 1 means at the same level of N =270.7 lb./ac.

Crop :--Wheat (Rabi).
Site :--Govt. Agri. Farm, Pratapgarh.

Ref :--U.P. 50(134).
Type :--'IM'.

Object :--To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 14.11.1950. (iv) (a) Palewa and 3 ploughings by dest plough. (b) N.A. (c) 40 srs./ac. (d) N.A. (e) N.A. (v) Manuring by G.M. on 12.11.1950. (vi) N.P.52 (mid-late). (vii) Irrigated. (viii) Nil. (ix) 3.19'. (x) 24, 25.4.1951.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation : I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering), I₂=I₁+irrigation 9 weeks after germination (at flowering).

Sub-plot treatments:
All combinations of (1) and (2)

(1) 3 levels of P₂O₅ as Super : P₀=0, P₁=20 and P₂=40 lb./ac.
(2) 3 levels of Ca as Gypsum : G₀=0, G₁=25 and G₂=50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 153'×39' sub-plot 17'×39'. (b) 14'×36'. (v) 1½' around. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1950—1953. (b) No. (c) No. (v) (a) Kalai and Baharaich. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.
5. RESULTS:

(i) 1787 lb./ac.
(ii) (a) 209.7 lb./ac.
(b) 347.8 lb./ac.

(iii) None of the effects and their interactions is significant.

(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two

1. 1 marginal means = 57.1 lb./ac.
2. P or G marginal means = 94.6 lb./ac.
3. I means at the same level of P or G = 145.5 lb./ac.
4. P or G means at the same level of I = 163.9 lb./ac.
5. means in the body of P×G table = 163.9 lb./ac.

Crop: - Wheat (Rabi).
Site: - Govt. Agri. Farm, Pratapgarh.

Ref: - U.P. 51(74).
Type: - 'IM'.

Object: - To study the effect of different levels of irrigation in combination with P₂₀₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:

(i) (a) Sanai-wheat. (b) Sanai for fibre. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) Last week of October 1951. (iv) (a) N.A. (b) Seed drill. (c) 40-50 srs/ac. (d) N.A. (e) N.A. (v) Nil. (vi) Pb.591 (mid-late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

Main-plot treatments: 3 levels of irrigation: I₀=No irrigation, I₁=Irrigation 3 weeks after germination (at tillering), I₂=Irrigation 9 weeks after germination (at flowering).

Sub-plot treatments: All combinations of (1) and (2)
(1) 3 levels of P₂₀₅ as Super : P₀=0, P₁=20 and P₂=40 lb./ac.
(2) 3 levels of CaO as Gypsum : G₀=0, G₁=25 and G₂=50 lb./ac.

3. DESIGN:

(i) Split-plot. (ii) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot 36’x 153’. sub-plot 36’x 17’. (b) 33’x 14’. 1’ apart. (vi) Yes.

4. GENERAL:

(i) Poor stand. (ii) Nil. (iii) Grain yield. (iv) (a) 1950-1953. (b) No. (c) No. (v) (a) Baharianch and Kalai. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:

(i) 850.1 lb./ac.
(ii) (a) 405.0 lb./ac.
(b) 189.5 lb./ac.

(iii) Only the effect of I is significant. All others are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means = 95.5 lb./ac.
2. P or G marginal means = 44.7 lb./ac.
3. P or G means at the same level of I = 77.4 lb./ac.
4. I means at the same level of P or G = 114.5 lb./ac.
5. means in body of P×G table = 77.4 lb./ac.

Crop : Wheat (Rabi).
Site : Govt. Agri. Farm, Pratapgarh.

Object : To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Charri. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 8.11.1952. (iv) (a) 4 ploughings. Palewa on 25, 26.10.1952. (b) N.A. (c) 12 chkj/plot. (d) and (e) N.A. (v) Nil. (vi) C-13 (medium) (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1, 2.4.1953.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation: I₁=Irrigation 3 weeks after germination (at tillering), I₂=Irrigation 9 weeks after germination (at flowering) and I₃=Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of P₂O₅ as Super: P₀=0, P₁=20 and P₂=40 lb./ac.
(2) 3 levels of Ca as Gypsum: G₀=0, G₁=25 and G₂=50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (iii) 4. (iv) (a) 36' x 17'. (b) 33' x 14'. (v) 1½' around. (vi) Yes.

4. GENERAL:
(i) Damage about 10%. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1953. (b) and (c) N.A. (v) (a) Baharaich and Aligarh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
(i) 953.3 lb./ac.
(ii) (a) 227.5 lb./ac.
(b) 97.3 lb./ac.
(iii) Main effects of I, P and G and interactions I×P, I×G are highly significant.
(iv) Av. yield of grain in lb./ac.

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Mean av. yield 953 lb./ac.

S.E. of difference of two
1. I marginal means = 53.6 lb./ac.
2. P or G marginal means = 22.9 lb./ac.
3. P or G means at the same level of I = 39.7 lb./ac.
4. I means at the same level of P or G = 62.6 lb./ac.
5. Means in body of P or G table = 39.7 lb./ac.

Crop: - Wheat (Rabi).
Site: - Govt. Agri. Farm, Pratapgarh.

Object: - To study the effect of different levels of irrigation in combination with P2O5 and Gypsum on Wheat.

1. BASAL CONDITIONS:

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation: I0=No Irrigation, I1=Irrigation 3 weeks after germination (at tillering), I2=I1+ irrigation 9 weeks after germination (at flowering).
Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of P2O5 as Super: P0=0, P1=20 and P2=40 lb./ac.
(2) 3 levels of Ca as Gypsum: G0=0, G1=25 and G2=50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 36°x153° and sub-plot : 36°x17°. (b) 33°x14°. (v) 1.5° alround. (vi) Yes.

4. GENERAL:
(i) Good. Nil. (ii) Nil. (iii) Grain yield only. (iv) (a) 1950–1953. (b) and (c) No. (v) (a) Kala and Baharaich. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
(i) 1107 lb./ac.
(ii) (a) 307.2 lb./ac.
(b) 107.0 lb./ac.
(iii) Effects of I and C are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means = 72.4 lb./ac.
2. P or G marginal means = 25.2 lb./ac.
3. P or G means at the same level of I = 43.7 lb./ac.
4. I means at the same level of P or G = 80.7 lb./ac.
5. Means in body of P x G table = 43.7 lb./ac.

Crop: - Wheat (Rabi).
Site: - Regional Res. Stn., Varanasi.

Object: - To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 29.10.1949. (iv) (a) 4 ploughings and 1 harrowing. (b) N.A. (c) 59 seers/ac. (d) and (e) N.A. (v) Nil. (vi) N.P.52 (medium). (vii) Irrigated. (viii) 2 weedings on 5.12.1949 and 19.12.1949. (ix) N.A. (x) 4 and 6.4.1950

2. TREATMENTS:
   Main-plot treatments: 3 levels of irrigation: I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments: 3 combinations of forms and levels of N: No = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) 3 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 54' x 40' and sub-plot: 18' x 40'. (b) 12' x 34'. (v) 3' all round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Height of plants, length of leaves, no. of tillers etc. Grain and bhusa yield. (iv) (a) 1949-1953. (b) and (c) No. (v) (a) Kalyanpur, Atarra, Bharari, Meerut, Kunraghat, Muzaffarnagar, Lucknow, Bulandshahr and Hawalbagh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 1456 lb./ac.
   (ii) 105.7 lb./ac.
   (b) 59.4 lb./ac.

(iii) Effects of forms and levels of N are highly significant and interaction I x levels of N is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of difference of two
1. I marginal means
2. N marginal means
3. N means at the same level of I
4. I means at the same level of N

Crop: Wheat (Rabi).
Site: Regional Res. Stn., Varanasi.

Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) Last week of October.
(iv) (a) N.A. (b) Sown by seed drill. (c) 40–50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) N.P.52 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/sub-plot and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: 60'x40' and sub-plot: 20'x40'. (b) 17°37'. (v) 1½' around. (vi) Yes.

4. GENERAL:
(i) No lodging. For I₀ and I₁ treatments plants were yellowish and poor in growth. (ii) Nil. (iii) Grain yield. (iv) (a) 1949–1953. (b) and (c) No. (v) A/S. (vi) N.A. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 1244 lb./ac.
(ii) (a) 241.5 lb./ac.
(b) 226.9 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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Object: To study the effect of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) Fallow. (c) No. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 3.11.1951. (iv) (a) N.A. (b) Sown by seed drill. (c) 40-50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.P. 52 (medium). (vii) Irrigated. (viii) N.A. (ix) 1.1. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
4 levels of irrigation: I₀ = No irrigation, I₁ = Irrigation 3 weeks after germination (at tillering), I₂ = I₁ + irrigation 9 weeks after germination (at flowering) and I₃ = I₂ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
3 combinations of forms and levels of N: N₀ = No manure, N₁ = 60 lb./ac. of N as A/S and N₂ = 60 lb./ac. of N as castor cake.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 60'×40'; sub-plot: 20'×40'. (b) 17'×37'. (v) 1½' around. (vi) Yes.

4. GENERAL:
(i) Normal, no lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b), (c) No. (v) (a) Faizabad, Kunrghat, Kalyanpur, Bharari, Etawah, Kalai, Meerut, Muzaffarnagar, Hawalbagh and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 950 lb./ac.
(ii) (a) 307.3 lb./ac.
(b) 189.7 lb./ac.
(iii) Effects of I, forms of N, levels of N and interaction I×forms of N are all highly significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 125.4 lb./ac.
2. marginal means of N = 67.1 lb./ac.
3. N means at the same level of I = 134.2 lb./ac.
4. I means at the same level of N = 166.5 lb./ac.
Object:—To study the effects of different forms and levels of N in combination with levels of irrigation on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Fallow—Sugarcane—Sugarcane—Sugarcane, moong—wheat. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 5.11.1952.
   (iv) (a) 2 ploughings by victory plough, 7 ploughings by desi plough. (b) N.A. (c) 40-50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.P. 52. (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 2.4.1953.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of irrigation : Io—No irrigation, I1—Irrigation 3 weeks after germination (at tillering), I2—Irrigation 9 weeks after germination (at flowering), I3—Irrigation 12 weeks after germination (at milky stage).

   Sub-plot treatments:
   3 combinations of forms and levels of N : N0—No manure, N1=60 lb./ac. of N as A/S and N2=60 lb./ac. N as castor cake.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 18’×40’. (b) 15’×37’. (v) 1’ around. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b), (c) No. (v) (a) Faizabad, Etawah, Kalyanpur, Kalai, Atarra, Havelibagh, Bharari, Kunraghat and Muzaffarnagar. (b) N.A. (vi) NIL. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
   (i) 1617 lb./ac.
   (ii) (a) 322.9 lb./ac.
   (b) 229.0 lb./ac.
   (iii) Effects of I and levels of N are highly significant and interaction I×levels of N is significant.
   (iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I =131.8 lb./ac.
2. marginal means of N = 80.9 lb./ac.
3. N means at the same level of I =161.9 lb./ac.
4. I means at the same level of N =186.7 lb./ac.
2. TREATMENTS:

Main-plot treatments:
- 4 levels of irrigation: \( I_0 = \text{No irrigation}, I_1 = \text{Irrigation 3 weeks after germination (at tillering)}, I_2 = I_1 + \text{irrigation 9 weeks after germination (at flowering)}, I_3 = I_2 + \text{irrigation 12 weeks after germination (at milky stage)}. \)

Sub-plot treatments:
- 3 combinations of forms and levels of N: \( N_0 = \text{No manure}, N_1 = 60 \text{ lb./ac. of N as A/S}, N_2 = 60 \text{ lb./ac. of N as castor cake}. \)

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot 54'x40', sub-plot 18'x43'. (b) 15'x37'. (v) Unequal. (vi) Yes.

4. GENERAL:


5. RESULTS:

(i) 1734 lb./ac.
(ii) (a) 243.2 lb./ac.
(b) 179.8 lb./ac.

(iii) Main effect of I and interaction ‘I x forms of N’ are highly significant. Effects of forms of N and levels of N are both significant. Other effects are not significant.
(iv) Av. yield of grain in lb./ac.

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Mean 1637 1698 1868 1734

S.E. of difference of two
1. marginal means of I = 99.3 lb./ac.
2. marginal means of N = 63.6 lb./ac.
3. \( N \) means at the same level of I = 127.2 lb./ac.
4. I means at the same level of \( N \) = 143.6 lb./ac.

Crop: Wheat (Rabi).

Site: Regional Res. Stn., Varanasi. Type: ‘IM’.

Ref: U.P. 49(99).

Object: To study the effect of different levels of irrigation in combination with \( P_2O_5 \) and Gypsum on Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sandy. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 2.11.1949. (iv) (a) 4 ploughings. (b) to (e) N.A. (v) G.M. of Sandy. (vi) N.P.52. (vii) Irrigated. (viii) Weedings on 5, and 19.12.1949. (ix) N.A. (x) 7, and 12.4.1950.

2. TREATMENTS:

Main-plot treatments: 2 levels of irrigation: \( I_1 = \text{Irrigation 9 weeks after germination (at flowering)}, I_2 = I_1 + \text{irrigation 12 weeks after germination (at milky stage)}. \)

Sub-plot treatments:
- All combinations of (1) and (2)
  (1) 3 levels of \( P_2O_5 \) as Super: \( P_0 = 0, P_1 = 20 \) and \( P_2 = 40 \) lb./ac.
  (2) 3 levels of Ca as Gypsum: \( G_0 = 0, G_1 = 25 \) and \( G_2 = 50 \) lb./ac.
3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 162'×40' sub-plot : 18'×40'. (b) 12'×34'. (v) 3' all round the net plot. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) N.A. (iii) Grain and fodder yield. (iv) (a) 1949—1953. (b) No. (c) No. (v) (a) Kalyanpur, Barabanki, Bulandshahr and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 1030 lb./ac.
(ii) (a) 22.05 lb./ac.
(b) 16.07 lb./ac.
(iii) Main effect of I is significant, main effect of P and G and interactions P×G and I×P×G are all highly significant. Interactions I×P and I×G are not significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. marginal means of I = 6.00 lb./ac.
2. marginal means of G or P = 5.36 lb./ac.
3. G or P means at the same level of I = 7.58 lb./ac.
4. I means at the same level of G or P = 8.62 lb./ac.
5. means in body of G×P table = 9.28 lb./ac.

Crop :- Wheat (Rabî).
Site :- Regional Res. Stn., Varanasi.

Object :- To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) (a) No. (b) and (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) N.A. (iv) (a) N.A. (b) Sown by seed drill. (c) 50 yrs./ac. (d) and (e) N.A. (v) Nil. (vi) N.P.52 (mid-late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments :
-2 levels of irrigation : I₁—Irrigation 9 weeks after germination (at flowering) and I₂—Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of P₂O₅ as Super : P₀=0, P₁=20 and P₂=40 lb./ac.
(2) 3 levels of Ca as Gypsum : G₀=0, G₁=25 and G₂=50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 171'×40', and sub-plot : 19'×40'. (b) 16'×37'. (v) 1' all round. (vi) Yes.
4. GENERAL:
(i) Slight lodging (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Kalyanpur and Barabanki. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 1101 lb./ac.
(ii) (a) 448.1 lb./ac. (b) 154.5 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

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S.E. of difference of two
1. I marginal means = 105.6 lb./ac.
2. P or G marginal means = 44.6 lb./ac.
3. P or G means at the same level of I = 63.1 lb./ac.
4. I means at the same level of P or G = 83.1 lb./ac.
5. means in body of P x G table = 77.26 lb./ac.

Crop :- Wheat (Rabi).
Site :- Regional Res. Stn., Varanasi.
Ref :- U.P. 51(73).
Type :- 'IM'.

Object :- To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Loam. (a) Reier soil analysis, Varanasi. (iii) Last week of October, 1951 (iv) (a) N.A. (b) Sown by seed drill. (c) 40—50 seers/ac. (d) and (e) N.A. (v) Nil. (vi) N.P.52 (mid-early). (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:
Main-plot treatments:
2 levels of irrigation: I₁ = Irrigation 9 weeks after germination (at flowering) and I₂ = I₁ + irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of P₂O₅ as Super: P₀=0, P₁=20 and P₂=40 lb./ac.
(2) 3 levels of Ca as Gypsum: G₀=0, G₁=25 and G₂=50 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 17' x 40'. and sub-plot: 19' x 40'. (b) 16' x 37'. (v) 1½' around. (vi) Yes.

4. GENERAL:
(i) Satisfactory. No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Kalyanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.
5. RESULTS:

(i) 1041 lb./ac.
(ii) (a) 447.1 lb./ac.
(b) 242.1 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>Mean</th>
<th>$I_1$</th>
<th>$I_2$</th>
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<td>888</td>
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</table>

S.E. of difference of two
1. marginal means of $I$ = 105.4 lb./ac.
2. marginal means of $P$ or $G$ = 69.90 lb./ac.
3. $P$ or $G$ means at the level of $I$ = 98.86 lb./ac.
4. $I$ means at the same level of $P$ or $G$ = 132.7 lb./ac.
5. means in the body of $P \times G$ table = 121.0 lb./ac.

Crop: Wheat (Rabi).
Site: Regional Res. Stn., Varanasi.
Object: To study the effect of different levels of irrigation in combination with $P_2O_5$ and Gypsum on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane and wheat (field in two parts). (c) N.A. (ii) (a) Loan. (b) Refer soil analysis, Varanasi. (iii) 9.11.1952. (iv) (a) Ploughed by victory plough 9 times. (b) N.A. (c) 40—50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) NP-52 (mid-early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1.4.1953.

2. TREATMENTS:
Main-plot treatments:
- 2 levels of irrigation: $I_1$—Irrigation 9 weeks after germination (at flowering) and $I_2$—Irrigation 12 weeks after germination (at milky stage).

Sub-plot treatments:
- All combinations of (1) and (2)
  - (1) 3 levels of $P_2O_5$ as Super: $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.
  - (2) 3 levels of CoO as Gypsum: $G_0=0$, $G_1=25$ and $G_2=50$ lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 19'x35'. (b) 16'x32'. (v) 1.5' around. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Kalyanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 1628 lb./ac.
(ii) (a) 208.9 lb./ac.
(b) 131.1 lb./ac.
(iii) Main effects of $P$ and $G$ and interaction $P \times G$ are highly significant. All others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>G₀</th>
<th>G₁</th>
<th>G₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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<td>1542</td>
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<td>1735</td>
<td>1628</td>
<td>1549</td>
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</tr>
</tbody>
</table>

S.E. of difference of two
1. I marginal means = 49.25 lb./ac.
2. G or P marginal means = 37.84 lb./ac.
3. G or P means at the same level of I = 53.52 lb./ac.
4. I means at the same level of G or P = 65.83 lb./ac.
5. means in the body of P × G table = 65.54 lb./ac.

Crop: - Wheat (Rabi).
Site: - Regional Res. Stn., Varanasi.
Ref: - U.P. 53(149).
Type: - 'IM'.

Object: - To study the effect of different levels of irrigation in combination with P₂O₅ and Gypsum on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Fallow—Sugarcane—Sugarcane, Fallow—Wheat. (b) Fallow. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 9.11.1953. (iv) (a) 13 ploughings. (b) Sown by seed drill. (c) to (e) N.A. (v) N.A. (vi) NP-12. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 31.3.1954.

2. TREATMENTS:
   Main-plot treatments:
   2 levels of irrigation: I₁ = Irrigation 9 weeks after germination (at flowering) and I₂ = I₁ + irrigation 12 weeks after germination (at milky stage).
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 20 and P₂ = 40 lb./ac.
   (2) 3 levels of CaO as Gypsum: G₀ = 0, G₁ = 25 and G₂ = 50 lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot: 35' × 17' and sub-plot 19' × 35'. (b) 16' × 32'. (v) 1 Y' around. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Attacked by rust. Damaged by hail storm. (iii) Grain and straw yield. (iv) (a) 1949—1953. (b) and (c) No. (v) (a) Kalyanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
   (i) 1695 lb./ac.
   (ii) 267.0 lb./ac.
   (b) 146.0 lb./ac.
   (iii) Effect of P and interactions P × G and P × I are significant, while interaction I × G is highly significant. Others are not significant.
(iv) Average yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
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<td></td>
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<td>1633</td>
<td>1814</td>
</tr>
</tbody>
</table>

S.E. of difference of two:
1. I marginal means = 62.93 lb./ac.
2. P or G marginal means = 42.14 lb./ac.
3. P or G means at the same level of I = 59.60 lb./ac.
4. I means at the same level of P or G = 79.55 lb./ac.
5. Means in the body of $P \times G$ table = 72.98 lb./ac.

Crop: Wheat.  
Ref: Complex experiments (T.C:M.), 1953.  
Centre: Varanasi (U.P.). Type: 'IM'.

Object: VII-To study the effect of irrigation along with manures.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Loam in texture, brownish in colour and neutral in reaction.  (b) Refer soil analysis, Varanasi.  (iii) 16.11.1953.  (iv) N.A.  (v) N.A.  (vi) P. 52: (vii) Irrigated. (viii) N.A. (ix) 39.75°.  (x) 7.4.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: $N_0=0$, $N_1=20$ and $N_2=40$ lb./ac.
   (2) 3 levels of $P_2O_5$: $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.
   (3) 3 irrigations: $I_1=1$, $I_2=2$ and $I_3=3$ times.

N as A/S and $P_2O_5$ as Triple Super. A/S broadcast before sowing and Triple super placed in bands behind a plough with the help of a fertilizer drill.

3. DESIGN:
   (i) 9 plots/block and 3 blocks/replication.  (b) N.A.  (iii) 1.  (iv) (a) N.A.  (b) 20'x37'.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) Normal, no lodging.  (ii) Nil.  (iii) Yield data:  (iv) (a) 1953—1956.  (b) No.  (c) N.A.  (v) (a) Kotah, Pura, Santa, Pallad and Obdullaganj.  (b) N.A.  (vi) Nil.  (vii) Nil.

5. RESULTS:
   (i) 470 lb./ac.
   (ii) 61.22 lb./ac.
   (iii) Main effects of N and $I^4$ are highly significant. Interaction $I \times N$ is significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>I₁</th>
<th>I₂</th>
<th>I₃</th>
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<td>464</td>
<td>488</td>
<td>470</td>
<td>280</td>
<td>572</td>
<td>557</td>
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</tbody>
</table>

S.E. of any marginal mean = 20.40 lb./ac.
S.E. of any mean in body of table = 35.34 lb./ac.

Crop :- Wheat.  Ref :- Complex experiments (T.C.M.), 1853.
Centre :- Pura. Type :- 'TM',

Object :- VII-To study the effect of irrigation along with manures.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam in texture—grey in colour. (b) pH 7.5. (iii) 12.11.1953. (iv) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N :  N₀=0, N₁=20 and N₂=40 lb./ac.
   (2) 3 levels of P₂O₅ :  P₀=0, P₁=20 and P₂=40 lb./ac.
   (3) 3 irrigations :  I₁=1, I₂=2 and I₃=3 times.

A/S as A/S and P₂O₅ as Triple Super.
A/S applied by broadcast before sowing and Triple Super placed deep in bands behind a plough with the help of fertilizer drill.

3. DESIGN:
   (i) 3³ fact. confd. (ii) (a) 9 plots block and 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) N.A. (b) 44'x16.5'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. Lodging was observed in plots treated with N₃P₂, N₄P₃ and N₅P₅. (ii) Slight damage by rats. (iii) Yield of grain. (iv) (a) 1953—1956. (b) No. (c) N.A. (v) (a) Kotah, Banaras, Satna, [Pulwad and Obedulaganj. (b) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:
   (i) 1039 lb./ac.
   (ii) 140.4 lb./ac.
   (iii) Main effects of N and P are highly significant. Other effect and interactions are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>I₁</th>
<th>I₂</th>
<th>I₃</th>
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<td>1039</td>
<td>1053</td>
<td>998</td>
<td>1066</td>
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</table>

S.E. of any marginal mean = 46.8 lb./ac.
S.E. of any mean in the body of table = 81.1 lb./ac.

---

**Crop:** Wheat (Rabi).

**Site:** B.R. College Res. Farm, Bichpuri (Agra).

**Object:** To study the response of three varieties of Wheat to three forms of Nitrogen in three different doses at three levels of irrigation.

1. **BASAL CONDITIONS**:

(i) (a) Nil. (b) Jowar fodder. (c) Nil. (ii) (a) Light loam, medium texture. (b) Refer soil analysis, Bichpuri (Agra). (iii) 5.11.1948. (iv) (a) Ploughing by Meston plough on 5.8.1948. Seven more ploughings by Meston plough and 4 ploughings applied to mix and bury the organic manures. (Castor cake and compost) (b) Sown by Nat behind the plough. (2" thick soil fell from the sides of the furrow). (c) 50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Harrowing was done on 13.12.1948. (ix) 20". (x) N.A.

2. **TREATMENTS**:

All combinations of (1), (2), (3) and (4)

(1) 3 irrigations := 1 = low, 2 = medium and 3 = high.
(2) 3 varieties := V₁ = C-13, V₂ = Pb. 591 and V₃ = Local.
(3) 3 sources of N := S₁ = Compost, S₂ = Castor cake and S₃ = A/S.
(4) 3 doses of N := N₁ = 30, N₂ = 60 and N₃ = 90 lb./ac.

Organic manures were applied 15 days before sowing (i.e. castor cake on 17.10.1948 and compost on 18.10.1948). After application, the field was ploughed 4 times to mix these manures completely with the soil. A/S was applied as top-dressing on 24.10.1948. Followed by 2nd irrigation on 28.10.1948.

3. **DESIGN**:

(i) 3 x (3³) half plaid square in 9 x 9 square in which whole of each column is subjected to same irrigational treatment. (ii) 9 x 9. (b) N.A. (iii) 1. (iv) (a) N.A. (b) 36 x 15'. (v) 3' x 2'. (vi) Yes.

4. **GENERAL**:

(i) Satisfactory. (ii) Nil. (iii) Germination, ht. of the plant; tillers, green and dry leaves in the bush, fresh and dry wt. of the plant, studies of ear emergence. No. of grains per main shoot ear, wt. of grain per main shoot ear, yield and bhuse. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The expt. was conducted by B.R.C.

5. **RESULTS**:

(i) 1949 lb./ac.
(ii) (a) 265.1 lb./ac.
   (b) 311.3 lb./ac.
(iii) Main effects of S is highly significant and that of V is significant. Others are not significant.
Crop :- Wheat (Rabi).

Av. yield of grain in lb./ac.

<table>
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<tr>
<th>Level</th>
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<th>V</th>
<th>S</th>
<th>N</th>
</tr>
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<td>1601</td>
<td>1531</td>
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<tr>
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<tr>
<td>(3)</td>
<td>1402</td>
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<td>1313</td>
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<tr>
<td>S.E./mean</td>
<td>72.12</td>
<td></td>
<td>90.13</td>
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</table>

Crop :- Wheat (Rabi).

Av. yield of grain and weeds corresponding to the different treatments were given in mds./ac. The Av. yield of grain as given above have been converted from the yields given in mds./ac. S.E. of the experiment or S.E. per treatment mean were not given in the "Allahabad Farmer". Experiment conducted by the Head Agronomy Department, Allahabad Agricultural Institute, Allahabad.

Site :- Agricultural Institute, Allahabad.

Object :- To test the effect of chemical herbicides on weeds and the Wheat crop in comparison with hand weeding.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) and (b) Refer soil analysis, Allahabad. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) N.P. 720. (vii) N.A. (viii) N.A. (ix) 1.00'. (x) N.A.

2. TREATMENTS:
   1. No weeding (control).
   2. 1½ lb. of Esteron 245 (an ester of 2, 4, 5-T) in 163 gallons of water per acre.
   3. 2.4 lb. of Dicotox in 163 gallons of water per acre.
   4. Hand weeding.


3. DESIGN:
   (i) Latin square. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) Plot size : 10' x 10'. (v) N.A. (vi) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) No. (c) Nil. (v) (a), (b) No. (vi) Nil. (vii) Information collected from the "Allahabad Farmer". No original records or the plotwise yield data were available. The Av. yield of grain and weeds corresponding to the different treatments were given in mds./ac. The Av. yield of grain as given above have been converted from the yields given in mds./ac. S.E. of the experiment or S.E. per treatment mean were not given in the "Allahabad Farmer". Experiment conducted by the Head Agronomy Department, Allahabad Agricultural Institute, Allahabad.

5. RESULTS:
   (i) 933.9 lb./ac.
   (ii) N.A.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

   Treatment | Av. yield |
   ----------|----------|
   1.        | 954.5    |
   2.        | 872.2    |
   3.        | 946.3    |
   4.        | 962.7    |
   S.E./mean | N.A.     |

Crop :- Wheat (Rabi).

Ref :- U.P. 48(90).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'D'.

Object :- To determine the efficacy of fungus sulphur in controlling rust of Wheat.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 29.10.1948. (iv) (a) to (e) N.A. (v) N.A. (vi) N.P.-126. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
1. Control (undusted).
2. Sulphur dusted at 4 days interval; total number of dustings—10.
3. Sulphur dusted at 7 days interval; total number of dustings—6.
4. Sulphur dusted at 10 days interval; total number of dustings—4.
Sulphur dusted at 30 lb./ac. starting on 24.1.1949.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 75' × 9'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) % infection (100 leaves examined) and yield of grain. (iv) (a) 1948—1950. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.P. Transformation has been applied as suggested by the chief statistician to Govt., U.P.

5. RESULTS:
(i) 16.62°
(ii) 2.8°
(iii) Treatment differences are highly significant.
(iv) Mean of angle corresponding to % infection in degree.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Mean angle</th>
<th>Transformed back mean per-centages of infection after applying bias correction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Control</td>
<td>= 9.60°</td>
<td>2.27</td>
</tr>
<tr>
<td>2. Sulphur dusted at 4 days interval</td>
<td>= 13.92°</td>
<td>6.24</td>
</tr>
<tr>
<td>3. Sulphur dusted at 7 days interval</td>
<td>= 16.52°</td>
<td>8.52</td>
</tr>
<tr>
<td>4. Sulphur dusted at 10 days interval</td>
<td>= 26.43°</td>
<td>20.10</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.99°</td>
<td></td>
</tr>
</tbody>
</table>

Crop:— Wheat (Rabi).
Site:— Govt. Res. Farm, Kanpur.
Object:— To determine the efficacy of fungus sulphur in controlling rusts of Wheat.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 15.11.1949. (iv) (a) to (e) N.A. (v) N.A. (vi) N-P 125. (vii) N.A. (viii) N.A. (ix) N.A. (x) 3.4.1950.

2. TREATMENTS:
1. Control (undusted).
2. Sulphur dusted at 4 days interval, starting from 23 February 1950 (subsequently dusted on 27, 3, 7, 11, 15.3.1950).
3. Sulphur dusted at 7 days interval, starting from 23.2.1950 (subsequently on 2, 9, 16.3.1950).
4. Sulphur dusted at 10 days interval, starting from 23.2.1950 (subsequently on 5, 15.3.1950). Dusting at 30 lb./ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 60' × 12'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Mild rust pustule started appearing on 21.2.1950; Pustules of brown rust appeared on 23.2.1950. (iii) Grain yield. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) Nil. (vii) The experiment was conducted by P.P.

5. RESULTS:
(i) 2886 lb./ac.
(ii) 146.8 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2765</td>
</tr>
<tr>
<td>2.</td>
<td>2901</td>
</tr>
<tr>
<td>3.</td>
<td>2956</td>
</tr>
<tr>
<td>4.</td>
<td>2921</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>51.92 lb./ac.</td>
</tr>
</tbody>
</table>
Crop : - Wheat (Rabi).
Site : - Govt. Res. Farm, Kanpur.
Object : - To determine the efficacy of fungus sulphur dusting in controlling rusts on Wheat.

1. BASAL CONDITIONS :
(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 2.11.1950. (iv) (a) and (b) N.A. (c) 25 lb./ac. (d) and (e) N.A. (v) N.A. (vi) NP-125. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :
1. Control.
2. Dusting at 4 days intervals. (Number of dusting—12)
3. Dusting at 7 days intervals. (Number of dusting—7)
4. Dusting at 10 days intervals. (Number of dusting—6)
Dusting at 30 lb./ac. (6 oz./plot).

3. DESIGN :
(i) R.B.D. (ii) 4. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 45'×12'. (v) N.A. (vi) Yes.

4. GENERAL :
(i) N.A. (ii) Appearance of rust, only one pustule was found. (iii) Grain yield. (iv) (a) 1948—1950. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil (vii) The expt. was conducted by P.P.

5. RESULTS :
(i) 3390 lb./ac.
(ii) 268.4 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3356</td>
</tr>
<tr>
<td>2.</td>
<td>3408</td>
</tr>
<tr>
<td>3.</td>
<td>3373</td>
</tr>
<tr>
<td>4.</td>
<td>3422</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=94.90 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : - Wheat (Rabi).
Site : - Govt. Res. Farm, Kanpur.
Object : - To study the effect of spraying trace elements on the yield of Wheat.

1. BASAL CONDITIONS :
(i) (a) Wheat—Moong. (b) Moong. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 4.11.1950. (iv) (a) and (b) N.A. (c) 50 seers/ac. (d) and (e) N.A. (v) N.A. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 25.4.1951.

2. TREATMENTS :
1. 5 lb./ac. of Manganese chloride.
2. 5 lb./ac. of Zinc sulphate.
3. 5 lb./ac. of Copper sulphate.
4. 1 lb./ac. of Boric acid.
5. No spray—control.
Date of spraying 19.12.1950.

3. DESIGN :
(i) R.B.D. (ii) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36.3'×20'. (v) N.A. (vi) Yes.

4. GENERAL :
(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.
5. RESULTS:

(i) 2291 lb./ac.
(ii) 431.3 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2530</td>
</tr>
<tr>
<td>2.</td>
<td>2214</td>
</tr>
<tr>
<td>3.</td>
<td>1970</td>
</tr>
<tr>
<td>4.</td>
<td>2259</td>
</tr>
<tr>
<td>5.</td>
<td>2484</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>215.6 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Wheat (Rabi).

Site: - Govt. Res. Farm, Kanpur.

Object: - To study the effect of spraying trace elements on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Wheat—Moong. (b) Moong. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 27.10.1951. (iv) (a) and (b) N.A. (c) 40 srs./ac. (d) and (e) N.A. (v) A/S at 50 lb./ac. of N on 27.11.1952, (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 15.4.1952.

2. TREATMENTS:

1. 5 lb./ac. of Manganese chloride.
2. 5 lb./ac. of Zinc sulphate.
3. 5 lb./ac. of Copper sulphate.
4. 1 lb./ac. of Boric acid.
5. Control—no spraying.

Date of spraying: 10.1.1952.

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36.3' x 20'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1954. (b) Yes, (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:

(i) 1224 lb./ac.
(ii) 325.9 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1407</td>
</tr>
<tr>
<td>2.</td>
<td>1287</td>
</tr>
<tr>
<td>3.</td>
<td>954</td>
</tr>
<tr>
<td>4.</td>
<td>1206</td>
</tr>
<tr>
<td>5.</td>
<td>1268</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>162.9 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Wheat (Rabi).

Site: - Govt. Res. Farm, Kanpur.

Object: - To study the effect of spraying trace elements on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Wheat—Moong. (b) Moong. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 3.11.1952. (iv) (a) and (b) N.A. (c) 40 srs./ac. (d) and (e) N.A. (v) F.Y.M. and G.M. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14.4.1953.
2. **TREATMENTS:**
1. 5 lb./ac. of Manganese chloride.
2. 5 lb./ac. of Zinc sulphate.
3. 5 lb./ac. of Copper sulphate.
4. 1 lb./ac. of Boric acid.
5. Control—No spraying.
   Date of spraying: 7.1.1953.

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36.3'×20'. (v) N.A. (vi) Yes.

4. **GENERAL:**
   (i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. **RESULTS:**
   (i) 1158 lb./ac.
   (ii) 325.6 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment | Av. yield
   --- | ---
   1. | 1317
   2. | 1172
   3. | 906
   4. | 1194
   5. | 1200
   S.E./mean = 162.8 lb./ac.

---

**Crop:** Wheat (*Rabi*).

**Site:** Govt. Res. Farm, Kanpur.

**Object:** To study the effect of spraying trace elements on the yield of Wheat.

---

1. **BASAL CONDITIONS:**
   (i) (a) Wheat—Moong. (b) Moong. (c) Top dressing with A/S at 50 lb./ac. of N on 13.8.1953. (ii) (a) Loam. (b) Refer scil analysis, Kanpur. (iii) 4.11.1953. (iv) (a), (b) N.A. (c) 50 srs./ac. (d) and (e) N.A. (v) N.A. (vi) C-13 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 11.4.1954.

2. **TREATMENTS:**
   1. 5 lb./ac. of Manganese chloride.
   2. 5 lb./ac. of Zinc sulphate.
   3. 5 lb./ac. of Copper sulphate.
   4. 1 lb./ac. of Boric acid.
   5. Control—No spraying.
   Date of spraying 29.12.1953.

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36.3'×20'. (v) Distance between plots=4'. Distance between blocks=4'. (vi) Yes.

4. **GENERAL:**
   (i) Satisfactory. (ii) N.A. (iii) Grain yield. (iv) (a) 1950—1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. **RESULTS:**
   (i) 927.3 lb./ac.
   (ii) 427.3 lb./ac.
   (iii) Treatment differences are not significant.
Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1021.5</td>
</tr>
<tr>
<td>2.</td>
<td>916.5</td>
</tr>
<tr>
<td>3.</td>
<td>732.0</td>
</tr>
<tr>
<td>4.</td>
<td>972.0</td>
</tr>
<tr>
<td>5.</td>
<td>994.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>213.6 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Wheat (Rabi).
Site: - Govt. Res. Farm, Kanpur.

Ref: - U.P. 50(142).
Type: - 'D'.

Object: - To study the effect of sulphur dusting and spraying on rust attack of wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) 1 cm. (b) Refer soil analysis, Kanpur. (iii) 13.11.1950. (iv) (a) One ploughing by victory plough and two ploughings by desi plough. (b) N.A. (c) 80 srs./ac. (d) Spraying between rows - 9" (19 rows). (e) N.A. (v) A/S at 6 srs./plot. (vi) P 125 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 4.5.1951.

2. TREATMENTS:
1. Control.
2. Sulphur dusting at 6 oz./plot.
3. Sulphur spraying (spraying on leaves).

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 30' X 14'.3. (b) 26' X 12'.9. (v) 2' X 3/4'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
(i) 1830 lb./ac.
(ii) 143.2 lb./ac.
(iii) The treatments do not differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1802</td>
</tr>
<tr>
<td>2.</td>
<td>1891</td>
</tr>
<tr>
<td>3.</td>
<td>1796</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>50.64 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Wheat (Rabi).
Site: - Govt. Res. Farm, Kanpur.

Ref: - U.P. 48(20).
Type: - 'D'.

Object: - To study the effect of Methoxone as weed killer against Cyperus roodundus and Asphodelus Tentiformis of Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanal. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 27.10.1948. (iv) (a) and (b) N.A. (c) 80 lb./ac. (d) and (e) N.A. (v) Sanal as G.M. (vi) C-13 (early). (vii) N.A. (viii) N.A. (ix) N.A. (x) 26.4.1949.

2. TREATMENTS:
1. 1% dust at the rate of 200 lb./ac.
2. 10% spray at 1 gallon/ac. diluted with 30 gallons of water.
3. 10% spray at 2 gallons/ac. diluted with 30 gallons of water.
4. Control.

Date of application of Methoxone 27.12.1948.
3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 26' x 8'-3". (b) 23' x 8'-3". (v) 1' at either end of length. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Only rust was visible in traces. (iii) Grain and straw yield. (iv) (a) 1946—1948. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
   (i) 1982 lb./ac.
   (ii) 188.3 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1970</td>
</tr>
<tr>
<td>2.</td>
<td>1999</td>
</tr>
<tr>
<td>3.</td>
<td>2037</td>
</tr>
<tr>
<td>4.</td>
<td>1923</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>76.86 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :-Wheat (Rabi).
Site :-Govt. Res. Farm, Kanpur.

Object :-To study the effect of hormone treatment of seed on the Wheat yield.

1. BASAL CONDITIONS:
   (i) (a) Wheat followed by sanai. (b) Sanai for G.M. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 12.11.1953. (iv) (a) Turning of sanai on 6 and 7.9.1953; palewa on 21.10.1953; desi plough on 12.11.1953; cultivator on 29.9.1953 and cultivator and pata on 1.11.1953. (b) Sown behind the plough. (c) 80 lb./ac. (d) 9' apart. (e) N.A. (f) Nil. (g) As per treatments. (h) Irrigated. (i) Weeding on 22.1.1954 with khurpi. (j) N.A. (k) 12.4.1954.

2. TREATMENTS:
   All combination of (1) and (2)
   (1) 2 varieties: V1 =NP-125 and V2 =NP-710.
   (2) 4 hormone levels: C0 =Control, C1 =0.01 p.p.m. for 20 hours, C3 =0.10 p.p.m. for 20 hours and C3 =10.00 p.p.m. for 20 hours.
   Seed soaked in hormone solution.

3. DESIGN:
   (i) 4 x 2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 17' x 12'. (b) 13' x 10.5'. (v) 2' x 1'. (vi) Yes.

4. GENERAL:
   (i) Good. No lodging. (ii) Nil. (iii) Germination, grain, straw and dry grain yield. (iv) (a) 1953—continued. (b) No. (c) N.A. (d) V1 =NP. (e) No. (b) N.A. (f) Nil. (g) The expt. was conducted by E.B.(R). Due to unsatisfactory results the experiment is to be repeated next year. Maturing date of N.P.-125 is 21.3.1954 and that of N.P.-710 is 14.3.1954.

5. RESULTS:
   (i) 1487 lb./ac.
   (ii) 389.0 lb./ac.
   (iii) Only the effect of V is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>C0</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>1569</td>
<td>1672</td>
<td>1744</td>
<td>1518</td>
<td>1626</td>
</tr>
<tr>
<td>V2</td>
<td>1477</td>
<td>1405</td>
<td>1169</td>
<td>1344</td>
<td>1349</td>
</tr>
<tr>
<td>Mean</td>
<td>1523</td>
<td>1538</td>
<td>1456</td>
<td>1431</td>
<td>1487</td>
</tr>
</tbody>
</table>

S.E. of difference of two
   1. C marginal means =137.5 lb./ac.
   2. V marginal means =194.5 lb./ac.
   3. means in the body of table =275.0 lb./ac.

Ref :-U.P. 53(96).
Type :-'DV'.
Crop :- Wheat (Rabi).

Site :- Agri. College Farm, Varanasi.

Object :- To study the effect of electro-chemical treatment of Wheat on its yield and quality.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sanai. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, Varanasi.  
   (iii) 12.11.1950.  
   (iv) (a) 6 ploughings with desi plough followed each time by a planker in order to crush lumps. (b) By 
   Lyallpur seed drill. (c) 40 hrs./ac. (d) N.A. (e) ——. (v) Sanai ploughed in on 27.7.1950.  
   (vi) As per treatments. (vii) Irrigated. (viii) 2 hand hoeings. (ix) N.A.  
   (x) 25.3.1951.

2. TREATMENTS :
   All combinations of (1) and (2) 
   (1) 2 varieties : V1 = I.P. 52 and V2 = C-13.  
   (2) 9 seed treatments: T1 = Soaked for 6 hours in 2.5% sodium chloride solution and later treated for 
   5 minutes, T2 = Soaked for 6 hours in 2.5% Na Cl and later treated electro-chemically for 10 minutes, T3 = Soaked for 6 hours in 5% Na Cl and later treated electro-chemically for 5 minutes, T4 =Soaked for 6 hours in 5% Na Cl and later treated electro-chemically for 10 minutes, T5 =Soaked for 6 hours in 2.5% calcium chloride solution and later treated electro-chemically for 5 minutes, T6 =Soaked for 6 hours in 2.5% CaCl2 and later electro-chemically treated for 10 minutes, T7 =Soaked for 6 hours in 5% CaCl2 and treated electro-chemically for 5 minutes, T8 =Soaked for 6 hours in 5% CaCl2 and later treated electro-chemically for 10 minutes, T9 =Control—Soaked for 6 hours in water.

3. DESIGN :
   (i) 2 x 9 Fact. in R.B.D. (ii) (a) 18. (b) 205.5'x49.5'. (iii) 4. (iv) (a) 191'x231', (b) 171'x211'.  
   (v) 2' wide strip on each side of the plot and 4' all round the field. Water channel 4' wide. (vi) Yes.

4. GENERAL :
   (i) N.A.  
   (ii) N.A.  
   (iii) Grain yield. (iv) (a) No. (b) No.  
   (v) (a) Nil. (b) Nil.  
   (vi) Nil.  
   (vii) The experiment was conducted by B.H.U.

5. RESULTS :
   (i) 1423 lb./ac.  
   (ii) 115.6 lb./ac.
   (iii) Main effect V and of T are both highly significant. Interaction VxT is not significant. 
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>Mean</th>
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</thead>
<tbody>
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<td>1256</td>
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<tr>
<td>V2</td>
<td>1479</td>
<td>1497</td>
<td>1669</td>
<td>1473</td>
<td>1432</td>
<td>1396</td>
<td>1605</td>
<td>1303</td>
<td>1434</td>
</tr>
<tr>
<td>Mean</td>
<td>1442</td>
<td>1478</td>
<td>1619</td>
<td>1364</td>
<td>1339</td>
<td>1412</td>
<td>1543</td>
<td>1218</td>
<td>1392</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of V = 19.62 lb./ac.  
S.E. of marginal mean of T = 40.87 lb./ac.  
S.E. of body of table = 57.80 lb./ac.

Object :- To study the effect of pre-sowing seed treatments on the germination and yield of Pb. 591 Wheat under different irrigations.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Early guar for fodder. (c) Nil. (ii) (a) and (b) N.A.  
   (iii) 10.11.1948.  
   (iv) (a) Punjab plough on 16.8.1948, ploughing 5" deep and 6 desi ploughings, harrowing on 19.8.1948. 
   (b) By country seed drill 3" to 4" deep in furrows. (c) 43.6 hrs./ac. (d) and (e) N.A. (v) 100 mds. of M.C. on 27 and 28.10.1948. 
   mixed by hand with soil. (vi) Pb. 591. (vii) Irrigated, as per treatments. (viii) Weeding done after the 
2. TREATMENTS:

Main-plot treatments:
3 levels of irrigation: Io = rainfed (no irrigation), I1 = Canal irrigation and I2 = Well irrigation (saline water).

Sub-plot treatments:
3 pre-treatments of seed: T1 = control, T2 = continuous soaking and T3 = repeated soaking.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 34' x 19'. (v) Block border 4', plot border 2' and breadth of irrigation channel 3'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain and dhusa yield. (iv) (a) No. (b) —. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R.C.

5. RESULTS:
(i) 1155 lb./ac.
(ii) (a) 341.3 lb./ac.
(b) 108.7 lb./ac.
(iii) Main-effect of I is highly significant and T is significant, while interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I0</td>
<td>244</td>
<td>358</td>
<td>366</td>
<td>323</td>
</tr>
<tr>
<td>I1</td>
<td>1424</td>
<td>1695</td>
<td>1819</td>
<td>1646</td>
</tr>
<tr>
<td>I2</td>
<td>1302</td>
<td>1599</td>
<td>1590</td>
<td>1497</td>
</tr>
<tr>
<td>Mean</td>
<td>990</td>
<td>1217</td>
<td>1258</td>
<td>1155</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. I marginal means = 139.4 lb./ac.
2. T marginal means = 44.39 lb./ac.
3. T means at the same level of I = 76.87 lb./ac.
4. I means at the same level of T = 152.9 lb./ac.

Crop :- Jowar (Kharif).
Site :- Agri. Institute, Allahabad.
Ref :- U.P. 53(364).
Type :- 'M'.

Object :- To test the effect of N manures and fertilizers on the yield of Jowar (sorghum) green fodder.

1. BASAL CONDITIONS:
(i) (a) No. (b) Barley. (c) N.A. (ii) (a) Fine sandy loam. (b) Refer soil analysis, Allahabad. (iii) 29 and 30.6.1953. (iv) (a) and (b) N.A. (c) 12 lb./ac. (d) Rows 2' apart. (e) —. (v) N.A. (vi) Farm selection (N.A.) (vii) N.A. (viii) Weeding on 16.7.1953, interculture (cultivator used) on 18 and 20.7.1953 and interculture and earthing (cultivator used) on 30.7.1953. (ix) N.A. (x) 19.9.1953.

2. TREATMENTS:
1. Control (no manure).
2. 40 lb./ac. of N as A/S.
3. 40 lb./ac. of N as C/N.
4. 40 lb./ac. of N as Castor cake.
5. 40 lb./ac. of N as Farm compost.
6. 20 lb./ac. of N as A/S + 20 lb./ac. of N as Castor cake.
7. 20 lb./ac. of N as A/S + 20 lb./ac. of N as Farm compost.
8. 20 lb./ac. of N as C/N + 20 lb./ac. of N as Castor cake.
9. 20 lb./ac. of N as C/N + 20 lb./ac. of N as Farm compost.
10. 20 lb./ac. of N as Farm compost + 20 lb./ac. of N as Castor cake.

Castor cake applied on 25.7.1953 and others applied on 21.7.1953.
3. DESIGN:
(i) R.B.D. (ii) (a) 10. (b) 180' x 45'. (iii) 6. (iv) (a) 45' x 18'. (b) 41' x 14'. (v) 2' around the net plot. (vi) Yes.

4. GENERAL:
(i) Germination and stand very thin due to water logging in treatment 8 (block I) and treatment 9 (block VI). The yields of these two plots have been estimated. (ii) N.A. (iii) Height, stand and yield of green fodder. (iv) (a) and (b) No. (c) Nil. (v) (a) Nil. (b) N.A. (vi) Nil. (vii) The land for the above experiment was for the first time being used for experimental purposes. In the previous year this plot received a heavy application of farm compost. It seems from the growth of the crop and the yield data that there was a high residual effect of compost this year bringing in the yield figure of all the treatments to a uniform level. Field record register and the "Allahabad Farmer" were consulted. Expt. conducted by Agronomy Dept. A.A.I., Allahabad.

5. RESULTS:
(i) 36514 lb./ac.
(ii) 4206.9 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of green fodder in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>35438</td>
<td>6.</td>
<td>34320</td>
</tr>
<tr>
<td>2.</td>
<td>36050</td>
<td>7.</td>
<td>35282</td>
</tr>
<tr>
<td>3.</td>
<td>39537</td>
<td>8.</td>
<td>36594</td>
</tr>
<tr>
<td>4.</td>
<td>36427</td>
<td>9.</td>
<td>39110</td>
</tr>
<tr>
<td>5.</td>
<td>35751</td>
<td>10.</td>
<td>36635</td>
</tr>
</tbody>
</table>

S.E./mean excluding treatment 8 and 9 = 1717.46 lb./ac.
S.E./mean of treatment 8 and 9 = 1898.73 lb./ac.

Crop : Jowar (Kharif).
Site : Govt. Agri. Farm, Atarra.
Ref : U.P. 51(93).
Type : 'M'.

Object : To study the effect of N and P₂O₅ fertilizers, alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Parwa. (b) N.A. (iii) 10.7.1951. (iv) (a) 3 ploughings by watts' plough were given to the field for preparation. (b) Sown behind the desi plough. (c) to (e) N.A. (v) Nil. (vi) to (ix) N.A. (x) 17.11.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N : N₀ = 0, N₁ = 15 and N₂ = 30 lb./ac.
(2) 3 levels of P₂O₅ : P₀ = 0, P₁ = 30 and P₂ = 60 lb./ac.
N as A/S applied by broadcast and P₂O₅ as Super placed 3" - 4" deep in furrows behind desi plough and then pata applied. Date of manuring 9.7.1951.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 38' x 28' - 8". (v) A distance of 1' to 3' from plot to plot and 3' to 4' from block to block was left out. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 476.1 lb./ac.
(ii) 34.63 lb./ac.
(iii) Main effects of N and P are highly significant. Interaction N x P is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Crop : Jowar (Kharif)</th>
<th>Site : Govt. Agri. Farm, Atarra</th>
<th>Ref : U.P. 52(4)</th>
<th>Type : 'M'.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object : To study the effect of N and P$_2$O$_5$ fertilizer, alone and in combination on the yield of Jowar.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 6.7.1952. (iv) (a) 2 ploughings with watts plough (1 before and 1 after breakage of monsoon). (b) Sown behind dest plough. (c) N.A. (d) In lines 2' apart. (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 30.11 to 2.12.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N : $N_0=0$, $N_1=15$ and $N_2=30$ lb./ac.
(2) 3 levels of P$_2$O$_5$: $P_0=0$, $P_1=30$ and $P_2=60$ lb./ac.
N as A/S applied as surface dressing by broadcast and P$_2$O$_5$ as Super drilled in furrows 4' deep behind the plough. Date of manuring 5.7.1952.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 38' x 28.67'. (b) 38' x 28.67'. (v) Between plots 1' and between blocks 3'. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) Damaged by birds. (iii) Grain and straw yield. (iv) (a) 1950—1952. (b) Yes. (c) N.A. (v) (a) Kalyanpur, Partapgarh, Nawabganj, Bharari, Banaras and Matkota. (b) N.A. (vi) Nil. (vii) The experiment conducted by Agricultural Chemist.

5. RESULTS:
(i) 199.9 lb./ac.
(ii) 54.39 lb./ac.
(iii) Main effect of N alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>$N_0$</th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
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</tr>
</thead>
<tbody>
<tr>
<td>116.6</td>
<td>153.3</td>
<td>196.6</td>
<td></td>
<td>155.5</td>
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<td>239.9</td>
<td>246.6</td>
<td>276.6</td>
<td></td>
<td>261.0</td>
</tr>
<tr>
<td>Mean</td>
<td>188.8</td>
<td>188.8</td>
<td>222.2</td>
<td>199.9</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 12.82 lb./ac.
S.E. of body of table = 22.20 lb./ac.
Crop :- Jowar (Kharif).  
Site :- State Mechanised Farm, Bharari.  
Ref :- U.P. 50(59).  
Type :- 'M'.

Object :- To study the effect of N and P₂O₅ fertilizers applied alone and in combination on the yield of Jowar crop.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Parwa (Bundelkhand type 2). (b) N.A. (iii) 17.7.1950. (iv) (a) One hot weather ploughing and one harrowing was given by tractor. (b) to (c) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) Thinning one and weeding one. (ix) N.A. (x) 22 to 28.11.1950.

2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 levels of N:
N₀ = 0, N₁ = 15 and N₂ = 30 lb./ac.
(2) 3 levels of P₂O₅:
P₀ = 0, P₁ = 30 and P₂ = 60 lb./ac.
N as A/S applied by broadcast and P₂O₅ as Super placed in bands 3'-4' deep in the soil and 1'-2' below the seed.

3. DESIGN:
(i) 3 X 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/40 ac. (v) One foot from plot to plot and three feet from block to block was left out. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1950—1952. (b) No. (c) No. (v) (a) Kalyanpur, Partapgarh and Varanasi. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist.

5. RESULTS:
(i) 1553 lb./ac. (ii) 380.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
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<td>1560</td>
<td>1307</td>
<td>1429</td>
</tr>
<tr>
<td>N₁</td>
<td>1420</td>
<td>1767</td>
<td>1493</td>
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</tr>
<tr>
<td>N₂</td>
<td>1773</td>
<td>1467</td>
<td>1767</td>
<td>1669</td>
</tr>
</tbody>
</table>

Mean 1538 1598 1522 1553

S.E. of any marginal mean = 89.6 lb./ac.
S.E. of body of table = 155.1 lb./ac.
3. DESIGN:
(i) 3×3 Fact. in R.B.D. (ii) (a) N.A. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 33'×33'. (v) A distance of 1' to 3' from plot to plot and 3' to 4' from block to block was left out. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Grain yield. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) Kanpur, Raya, Kalai, Varanasi, Partapgarh, Atarra, and Chirgaon. (b) N.A. (vi) Nil. (vii) Experiment conducted by Agricultural Chemist.

5. RESULTS:
(i) 2198 lb./ac. (ii) 237.1 lb./ac. (iii) Main effects of N and P are highly significant. Interaction N×P is not significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
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<td>1987</td>
<td>2087</td>
<td>1980</td>
</tr>
<tr>
<td>N₁</td>
<td>2000</td>
<td>2280</td>
<td>2347</td>
<td>2209</td>
</tr>
<tr>
<td>N₂</td>
<td>2233</td>
<td>2433</td>
<td>2547</td>
<td>2404</td>
</tr>
<tr>
<td>Mean</td>
<td>2033</td>
<td>2233</td>
<td>2327</td>
<td>2198</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 55.89 lb./ac.
S.E. of body of table = 96.79 lb./ac.

Crop :- Jowar (Kharif).
Site :- State Mechanised Farm, Bharari.
Ref :- U.P. 52(7).
Type :- 'M'.

Object :- To study the effect of N and P₀₁₀₂ fertilizers applied alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Rakar and parwa. (b) N.A. (iii) 10.7.1952. (iv) (a) 1 ploughing and harrowing by tractor. (b) Sown behind plough in lines 2' apart. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 21 to 24.11.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N : N₀=0, N₁=15 and N₂=30 lb./ac.
(2) 3 levels of P₀₁₀₂ : P₀=0, P₁=30 and P₂=60 lb./ac.
N as A/S applied as surface dressing by broadcast and P₀₁₀₂ as Super drilled in furrows 4' deep behind the plough. Date of manuring 4.5.7.1952.

3. DESIGN:
(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 33'×33'. (b) 33'×33'. (v) Distance between plots 1' and between blocks 3'. (vi) Yes.

4. GENERAL:
(i) Normal. Water logging in 2 replications which stunned the growth of the crop. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) Varanasi, Partapgarh, Nawabganj, Matkota, Atarra and Kabyapur. (b) N.A. (vi) Nil. (vii) Experiment conducted by Agricultural Chemist.

5. RESULTS:
(i) 1018 lb./ac. (ii) 92.35 lb./ac. (iii) Main effects of N and P are highly significant. Interaction N×P is not significant.
Object: To study the effect of N and P2O5 fertilizer applied alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light kharar. (b) Refer soil analysis, Chirgaon. (iii) 25.7.1951. (iv) (a) Ploughed twice by kharar, during rainy season. (b) Sown in lines 2' apart behind desi plough. (c) to (o) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) One interculture by cultivator and one thinning was done. (ix) N.A. (x) 27 and 28.11.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: N₀ = 0, N₁ = 15 and N₂ = 30 lb./ac.
(2) 3 levels of P₂O₅: P₀ = 0, P₁ = 30 and P₂ = 60 lb./ac.
N as A/S applied by broadcast and P₂O₅ as Super placed 3'–4' deep in furrows behind the desi plough and then pata applied. Date of manuring 15.7.1951.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 46.5' x 23.5'. (v) A distance of 1' to 3' from plot to plot and 3' to 4' from block to block was left out. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) No. (c) No. (v) Kanpur, Raya, Kalai, Varanasi, Pratapgarh, Atirra and Bharari. (b) N.A. (vi) Nil. (vii) Experiment conducted by Crop Physiologist (Research).

5. RESULTS:
(i) 1355 lb./ac.
(ii) 278.4 lb./ac.
(iii) Main effect of N alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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<tr>
<td>N₁</td>
<td>1206</td>
<td>1286</td>
<td>1385</td>
<td>1292</td>
</tr>
<tr>
<td>N₂</td>
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<td>1684</td>
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<td>1601</td>
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<tr>
<td>Mean</td>
<td>1209</td>
<td>1395</td>
<td>1462</td>
<td>1355</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 80.4 lb./ac.
S.E. of body of table = 139.2 lb./ac.

Crop : Jowar (Kharif).
Site : Govt. Agri. Farm, Chirgaon.
Ref : U.P. 51(96).
Type : 'M'.
Crop :- Jowar (Kharif).
Site :- Regional Training Institute, Gazipur.
Object :- To study the effects of N and P₂O₅ fertilizer applied alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Barley and Pea. (c) N.A. (ii) (a) Light sandy loam. (b) N.A. (iii) 14.7.1953. (iv) (a) 3 ploughings. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) Nil. (viii) Weeding and thinning between 31.7.53 and 5.8.1953. (ix) 21, 22 and 23.11.1953.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀ =0, N₁ =15 and N₂ =30 lb./ac.
   (2) 3 levels of P₂O₅ : P₀ =0, P₁ =30 and P₂ =60 lb./ac.
   N as A/S broadcast and P₂O₅ as Super placed in 4' deep bands 9’ apart. P₂O₅ placed in about 1” to 2” below the seed.

3. DESIGN :
   (i) 3 X 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 25' X 42’. (v) Nil. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS :
   (i) 926 lb./ac.
   (ii) 221.1 lb./ac.
   (iii) Interaction N X P alone is highly significant.
   (iv) Av. yield of grain in lb./ac.

   \[
   \begin{array}{cccc|c}
   & P₀ & P₁ & P₂ & \text{Mean} \\
   N₀ & 809 & 1196 & 837 & 947 \\
   N₁ & 989 & 871 & 906 & 922 \\
   N₂ & 1093 & 761 & 871 & 908 \\
   \hline
   \text{Mean} & 964 & 943 & 871 & 926 \\
   \end{array}
   \]

   S.E. of any marginal mean =52.1 lb./ac.
   S.E. of body of table =90.2 lb./ac.

Crop :- Jowar (Kharif).
Site :- Govt. Agri. Farm, Kalai.
Object :- To study the effects of N and P₂O₅ fertilizers applied alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) Loam, type 3. (b) N.A. (iii) 9.7.1951. (iv) (a) Two ploughings, one with desi plough in the middle of June, and another with turnwrest plough in the first week of July, 2 desi ploughings for application of phosphatic fertilizer. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) One weeding and hoeing was done. (ix) N.A. (x) 25.11.1951 to 9.12.1951.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀ =0, N₁ =15 and N₂ =30 lb./ac.
   (2) 3 levels of P₂O₅ : P₀ =0, P₁ =30 and P₂ =60 lb./ac.
   N as A/S applied by broadcast and P₂O₅ as Super placed 3”–4’ deep in furrows behind the desi plough and then pata applied. Date of manuring 8.7.1951.
3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 40.3'x27'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Due to drought conditions, because of the absence of rains, proper grain formation did not take place and the crop was harvested at green stage. (ii) Nil. (iii) Fodder yield. (iv) (a) 1950—1951. (b) No. (c) N.A. (v) (a) Kanpur, Raya, Varanasi, Pratapgarh, Atarra, Chirgaon and Bharari. (b) N.A. (vi) Experiment failed in the year 1950. (vii) The experiment was conducted by Agricultural Chemist.

5. RESULTS:
(i) 18486 lb./ac. (ii) 1928.4 lb./ac. (iii) All effects are highly significant. (iv) Av. yield of green fodder in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
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<td>18622</td>
<td>10429</td>
<td>12748</td>
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<tr>
<td>N1</td>
<td>13304</td>
<td>19149</td>
<td>24760</td>
<td>19071</td>
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<tr>
<td>N2</td>
<td>21544</td>
<td>22358</td>
<td>27099</td>
<td>23637</td>
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<tr>
<td>Mean</td>
<td>14681</td>
<td>20043</td>
<td>20733</td>
<td>18486</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 454.58 lb./ac.
S.E. of body of table = 787.26 lb./ac.

Crop := Jowar (Kharif).
Site := Govt. Agri. Farm, Kalai.
Ref := U.P. 53(349).
Type := 'M'.

Object := To study the residual effect of N and P2O5 applied to previous Wheat crop on Jowar.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Aligarh type 2. (b) N.A. (iii) 3.6.1953. (iv) (a) One ploughing and one plowage. (b) Broadcast. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 19'. (x) 29.8.1953.

2. TREATMENTS:
Main-plot treatments:
2 levels of N as A/S: N0 = 0 and N1 = 30 lb./ac.
Sub-plot treatments:
All combinations of (1) and (2) + a control (P0 = no P2O5).
(1) 2 levels of P2O5: P1 = 60 and P2 = 120 lb./ac.
(2) 2 sources of P2O5: S1 = Super and S2 = B.M.
These manures were applied in the rabi season of 1952—1953 to wheat crop.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 51.9'x21'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of green matter only. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) Varanasi. (b) N.A. (vi) Nil. (vii) Experiment was conducted by Agricultural Chemist.

4. RESULTS:
(i) 11855 lb./ac. (ii) (a) 2369.5 lb./ac. (b) 1733.4 lb./ac. (iii) None of the effects is significant.
(iv) Av. yield of green fodder in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>S₁P₁</th>
<th>S₂P₁</th>
<th>S₂P₂</th>
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<td>10002</td>
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<td>N₁</td>
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<td>13000</td>
<td>12051</td>
<td>12051</td>
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<td>11501</td>
<td>11432</td>
<td>12266</td>
<td>12640</td>
<td>11855</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. main-plot treatment marginal means = 749.3 lb./ac.
2. sub-plot treatment marginal means = 866.7 lb./ac.
3. sub-plot means at a level of main-plot treatment = 1225.7 lb./ac.
4. main-plot means at a level of sub-plot treatment = 1327.9 lb./ac.

Crop : Jowar (Kharif).
Site : Govt. Agri. Res. Farm, Kalyanpur.
Ref : U.P. 50(57).
Type : 'M'.

Object : To study the effect of N and P₂O₅ applied alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS:
(i) N.A. (b) N.A. (c) N.A. (ii) (a) Loam (Kanpar Type 2). (b) N.A. (iii) 12.7.1950. (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 25 to 30.11.1950.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: N₀=0, N₁=15 and N₂=30 lb./ac.
(2) 3 levels of P₂O₅: P₀=0, P₁=30 and P₂=60 lb./ac.
N as A/S broadcast before sowing and P₂O₅ as Super placed in bands 3' to 4' deep in the soil. Manures applied on 11.7.1950.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 55' x 20'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) The crop in some fields of the first 2 blocks was very patchy due to the presence of saline patches in this portion of the field. On the whole, a good crop was obtained. (ii) No. (iii) Grain yield. (iv) (a) 1950–1952. (b) No. (c) N.A. (v) (a) Bharari, Pratapgarh, Varanasi, Kalsi, Aligarh and Atarra. (vi) Nil. (vii) The expt. conducted by A.C.

5. RESULTS:
(i) 1239 lb./ac.
(ii) 240.3 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>P₁</th>
<th>P₂</th>
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<tr>
<td>Mean</td>
<td>1219</td>
<td>1267</td>
<td>1230</td>
<td>1239</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 56.6 lb./ac.
S.E. of body of table = 98.1 lb./ac.
Crop: Jowar (Kharif).
Site: Govt. Agri. Res. Farm, Kalyanpur.
Object: To study the effect of N and P₂O₅ applied alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam (Kanpur type 2). (b) N.A. (iii) 20.7.1951. (iv) (a) Tractor used during hot weather. In second week of July it was ploughed by Punjab plough. Field levelled. (b) Sown behind desi plough. (c) N.A. (d) N.A. (e) N.A. (f) Nil. (vi) N.A. (vii) Irrigated. (viii) Thinning and interculture operation were done towards the end of August. Earthing on 25th August. (ix) N.A. (x) 25 and 26.11.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N: N₀ = 0, N₁ = 15 and N₂ = 30 lb. /ac.
   (2) 3 levels of P₂O₅: P₀ = 0, P₁ = 30 and P₂ = 60 lb. /ac.

   N as A/S was broadcast before sowing and P₂O₅ as Super was placed 3' to 4' deep in furrows behind the plough and then pata applied. Date of manuring 13.7.1951.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 33' x 33'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Germination was good. (ii) No. (iii) Grain yield. (iv) (a) 1950-1952. (b) No. (c) N.A. (v) (a) Raya, Kalai, Varanasi, Pratagarh, Atarra, Chirgaon and Bharari. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. S.

5. RESULTS:
   (i) 911 lb. /ac.
   (ii) 73.65 lb. /ac.
   (iii) Mean of any marginal mean = 17.36 lb. /ac.
   (iv) Mean of body of table = 30.07 lb. /ac.

### Table

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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</thead>
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<td>1007</td>
<td>1067</td>
<td>1029</td>
</tr>
<tr>
<td>Mean</td>
<td>862</td>
<td>909</td>
<td>960</td>
<td>911</td>
</tr>
</tbody>
</table>
3. DESIGN:
(i) 3×3 Factorial in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 50'×21.8'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good, except for low lying plots where growth was patchy and stunted due to waterlogging. (ii) Nil. (iii) Grain yield. (vi) (a) 1950-1952. (b) Yes. (c) N.A. (v) (a) Varanasi, Pratapgarh, Nawabganj, Matkota, Bharari and Atarra. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.

5. RESULTS:
(i) 1806 lb./ac. (ii) 154.1 lb./ac. (iii) Main effects of N and P are highly significant. Interaction N×P is not significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
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<tr>
<td>N₀</td>
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<td>1385</td>
<td>1565</td>
<td>1381</td>
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<td>N₁</td>
<td>1792</td>
<td>1858</td>
<td>2051</td>
<td>1900</td>
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<td>N₂</td>
<td>1992</td>
<td>2145</td>
<td>2271</td>
<td>2136</td>
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</tbody>
</table>

Mean: 1659 1796 1962 1806

S.E. of any marginal mean = 36.3 lb./ac. S.E. of body of table = 62.9 lb./ac.


Object: To study the residual effect of Super applied to wheat at different depths on subsequent Jowar fodder crop.

1. BASAL CONDITIONS:
(i) (a) Jowar—Wheat. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 19.6.1948. (iv) (a) and (b) N.A. (c) 25 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Jowar—desi (N.A.). (vii) to (ix) N.A. (x) 3 and 4.8.1948.

2. TREATMENTS:
All combinations of (1) and (2)+a control (no P₂O₅).
(1) 2 levels of Super: P₁=125 and P₂=250 lb./ac.
(2) 3 methods of application of Super: M₁=applied at surface, M₂=applied at 2½ deep and M₃=applied at 4½ deep.
Super applied to wheat crop in Rabi and residual effect studied this year.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 52'×21'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Yield of fodder. (iv) (a) 1948—1949. (b) Yes. (c) No. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.

5. RESULTS:
(i) 18127 lb./ac. (ii) 2381.1 lb./ac. (iii) None of the effects is significant.
Crop: Jowar (Kharif).
Site: Govt. Dairy Farm, Kanpur.
Object: To study the residual effect of Super applied to wheat at different depths on subsequent crop.

1. BASAL CONDITIONS:
   (i) (a) Jowar fodder-wheat. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 15.6.1949.
   (iv) (a) and (b) N.A. (c) 25 srs/ac. (d) and (e) N.A. (v) Nil. (vi) Jowar local (N.A.) (vii) N.A. (viii) N.A. (ix) N.A. (x) 16 and 17.9.1949.

2. TREATMENTS:
   All combinations of (1) and (2) + a control (no P<sub>2</sub>O<sub>5</sub>)
   (1) 2 levels of Super: P<sub>1</sub> = 125 and P<sub>2</sub> = 250 lb/ac.
   (2) 3 methods of application of Super: M<sub>1</sub> = applied at surface, M<sub>2</sub> = applied 2′ deep and M<sub>3</sub> = applied 4′ deep.

Super applied to wheat crop in Rabi and residual effect studied this year.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 52′ × 21′. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) No. (iii) Fodder yield. (iv) (a) 1948-1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist.

5. RESULTS:
   (i) 15379 lb/ac.
   (ii) 2999.0 lb/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of fodder in lb/ac.

<table>
<thead>
<tr>
<th>Control = 16275 lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>M&lt;sub&gt;1&lt;/sub&gt;</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>P&lt;sub&gt;1&lt;/sub&gt;</td>
</tr>
<tr>
<td>P&lt;sub&gt;2&lt;/sub&gt;</td>
</tr>
<tr>
<td>Mean</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of M = 1060.8 lb/ac.
S.E. of marginal mean of P = 865.6 lb/ac.
S.E. of body of table = 1500.0 lb/ac.
Crop : Jowar (Kharif).
Site :- Govt. Dairy Farm, Kanpur.

Ref :- U.P. 48 (33)
Type :- 'M'.

Object :—To study the residual effect of different N manures applied to wheat during the previous Rabi, on subsequent Jowar fodder crop.

1. BASAL CONDITIONS :
(i) (a) Wheat—Jowar fodder. (b) Wheat. (c) As per treatments. (ii) (a) Loam (b) N.A. (iii) 19.6.1948 resown on 4.7.1948 (iv) (a) (c) N.A. (v) Nil. (vi) Local (late). (vii) N.A. (viii) N.A. (ix) N.A. (x) 14 to 16.9.1948.

2. TREATMENTS :
1. Control (no manure).
2. Compost at 25 lb./ac. of N.
3. Compost at 50 lb./ac. of N.
4. F.Y.M. at 50 lb./ac. of N.

These treatments were applied to Wheat crop.

3. DESIGN :
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) 1/40 ac. (v) No. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Fodder yield. (iv) 1946-1949. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil (vii) The experiment was conducted by A.C.

5. RESULTS :
(i) 12,338 lb./ac.
(ii) 1,588.2 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of fodder in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>2.</td>
<td>14030</td>
</tr>
<tr>
<td>3.</td>
<td>10510</td>
</tr>
<tr>
<td>4.</td>
<td>12550</td>
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<tr>
<td>5.</td>
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<td>6.</td>
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<td>7.</td>
<td>13100</td>
</tr>
<tr>
<td>8.</td>
<td>12570</td>
</tr>
</tbody>
</table>

S.E./mean = 794.1 lb./ac.

Crop : Jowar (Kharif).
Site :- Govt. Res. Farm, Kanpur.

Ref :- U.P. 49(89).
Type :- 'M'.

Object :—To study the residual effect of optimum doses of F.Y.M., compost and A/S applied to Wheat crop in rabi. on Jowar fodder

1. BASAL CONDITIONS :
(i) (a) Jowar fodder-Wheat. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 13.7.1949. (iv) (a) to (c) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
1. Control.
2. F.Y.M. at 100 lb./ac. of N.
3. F.Y.M. at 150 lb./ac. of N.
4. F.Y.M. at 200 lb./ac. of N.

These treatments were applied to Wheat crop.

3. DESIGN :
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 29'x25'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Fodder yield. (iv) 1949-1954 (modified in 1951). (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.
5. RESULTS:

(i) 11080 lb./ac.
(ii) 4077.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of fodder in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<td>11416</td>
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</table>

S.E./mean = 2038.0 lb./ac.

Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To study the residual effect of F.Y.M., compost and A/S, applied to Wheat crop in Rabi, on Jowar fodder.

1. BASAL CONDITIONS:

Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To study the residual effect of F.Y.M., compost and A/S, applied to Wheat crop in Rabi, on Jowar fodder.

2. TREATMENTS:

1. Control
2. F.Y.M. at 100 lb./ac. of N.
3. F.Y.M. at 150 lb./ac. of N.
4. F.Y.M. at 200 lb./ac. of N.
5. Compost at 100 lb./ac. of N.
6. Compost at 150 lb./ac. of N.
7. Compost at 200 lb./ac. of N.
8. A/S at 50 lb./ac. of N.

These treatments were applied to Wheat crop.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 29 x 25. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) No. (iii) Fodder yield. (iv) (a) 1949–1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil.

5. RESULTS:

(i) 17912 lb./ac.
(ii) 5506.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
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<tr>
<td>2.</td>
<td>16733</td>
<td>6.</td>
<td>19512</td>
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<tr>
<td>3.</td>
<td>16117</td>
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<tr>
<td>4.</td>
<td>20593</td>
<td>8.</td>
<td>17544</td>
</tr>
</tbody>
</table>

S.E./mean = 2753.0 lb./ac.

Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To study the residual effect of F.Y.M., compost and A/S, applied to Wheat crop in Rabi, on Jowar fodder.

BASAL CONDITIONS:

Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To study the residual effect of F.Y.M., compost and A/S, applied to Wheat crop in Rabi, on Jowar fodder.

BASAL CONDITIONS:

(i) (a) Jowar fodder—Wheat. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 22.7.1951.
2. TREATMENTS:

1. Control.
2. F.Y.M. at 100 lb./ac. of N.
3. F.Y.M. at 125 lb./ac. of N.
4. F.Y.M. at 150 lb./ac. of N.

Treatments applied to Wheat crop.

5. F.Y.M. at 175 lb./ac. of N.
6. F.Y.M. at 200 lb./ac. of N.
7. F.Y.M. at 225 lb./ac. of N.
8. A/S at 50 lb./ac. of N.

3. DESIGN:

(i) R.B.D.  (ii) (a) 8.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 29'x25'.  (v) N.A.  (vi) Yes.

4. GENERAL:

(i) Good.  (ii) No.  (iii) Yield of fodder.  (iv) (a) 1951—1955 (in modified form from 1949—50).  (b) upto 1952 on one field and from 1953 on another field.  (c) N.A.  (v) (a) No.  (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by A.C.

5. RESULTS:

(i) 17,371 lb./ac.
(ii) 2837.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of fodder in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
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<td>16973</td>
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<td>2.</td>
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<td>18551</td>
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<td>3.</td>
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<td>7.</td>
<td>19226</td>
</tr>
<tr>
<td>4.</td>
<td>16583</td>
<td>8.</td>
<td>16583</td>
</tr>
</tbody>
</table>

S.E./mean = 1686.0 lb./ac.

---

Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.
Object: To study the residual effect of F.Y.M. and A/S, applied to Wheat crop in Rabi, on Jowar fodder.

Ref: U.P. 52(163).
Type: 'M'.
Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.
Object: To study the residual effect of F.Y.M. and A/S, applied to Wheat crop in Rabi, on Jowar fodder.

1. BASAL CONDITIONS:
   (i) (a) Jowar fodder—wheat. (b) Wheat. (c) As per treatments.
   (ii) (a) Loam. (b) N.A. (iii) 5.7.1953.
   (iv) (a) to (e) N.A. (v) N.A. (x) 26.9.1953.

2. TREATMENTS:
   1. Control.
   2. F.Y.M. at 100 lb./ac. of N.
   3. F.Y.M. at 125 lb./ac. of N.
   4. F.Y.M. at 150 lb./ac. of N.

   Treatments applied to previous wheat crop.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36' x 20'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Yield of fodder.
   (b) Yes. (upto 1952—1953 on one field and from 1953—1954 on another field.) (b) N.A. (vi) Nil. (vii) The expt. was conducted by A.C.

5. RESULTS:
   (i) 24191 lb./ac.
   (ii) 5074.0 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of fodder in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
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<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<tr>
<td></td>
<td>S.E./mean</td>
<td>=2537.0 lb./ac.</td>
<td></td>
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</table>

Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.
Object: To study the residual effect of manuring linseed during last Rabi with A/S at different times on the yield of Jowar fodder.

1. BASAL CONDITIONS:
   (i) (a) Linseed—Jowar fodder. (b) Linseed. (c) As per treatments.
   (ii) (a) Loam. (b) N.A. (iii) 16.7.1948.
   (iv) (a) and (b) N.A. (c) 25 seers/ac. (d) and (e) N.A. (v) N.A. (vi) to (ix) N.A. (x) 16 and 17.9.1948.

2. TREATMENTS:
   1. Control (no manure).
   2. A/S at 40 lb./ac. of N at sowing.
   3. A/S at 40 lb./ac. of N at one month after germination.
   4. A/S at 40 lb./ac. of N at flowering.
   5. A/S at 20 lb./ac. of N at sowing and 20 lb./ac. of N at one month after germination.
   6. A/S at 20 lb./ac. of N at sowing and 20 lb./ac. of N at flowering.
   7. A/S at 20 lb./ac. of N at one month after germination and 20 lb./ac. of N at flowering.

   Only residual effect of treatments applied to Kharif crop studied.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 29' x 30'. (v) N.A. (vi) Yes.
4. GENERAL:
   (i) N.A.  (ii) No.  (iii) Yield of fodder.  (iv) (a) 1946—1948.  (b) Yes.  (c) N.A.  (v) (a) No.  (b) N.A.  
   (vi) Nil.  (vi) The experiment was conducted by Agricultural Chemist.

5. RESULTS:
   (i) 10285 lb./ac.
   (ii) 3361.2 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of fodder in lb./ac.  
   Treatment | Av. yield  
   --- | ---  
   1. | 11165  
   2. | 11115  
   3. | 11045  
   4. | 9613  
   5. | 10464  
   6. | 7961  
   7. | 10615  
   S.E./mean = 1680.6 lb./ac.

Crop: Jowar (Kharif).  
Site: Govt. Res. Farm, Kanpur, U.P. (Ref: 53(199))  
Type: 'M'.

Object: To study the residual effect of P_{2}O_{5} applied broadcast and placed deep to previous Wheat crop on the yield of Jowar.

1. BASAL CONDITIONS:
   (i) (a) Jowar fodder—Wheat. (b) Wheat. (c) As per treatments.  
   (ii) (a) Loam.  (b) N.A.  (iii) 11.7.1953.  
   (iv) (a) and (b) N.A. (c) 30 srs./ac.  
   (v) N.A.  (vi) N.A.  (vii) N.A. (viii) N.A. (ix) N.A.  
   (x) 23 to 25.9.1953.

2. TREATMENTS:
   All combinations of (1) and (2)  
   (1) 2 levels of N as A/S: N_0 = 0 and N_1 = 50 lb./ac. of N.  
   (2) 4 phosphatic treatments: P_0 = 0, P_1 = 100 lb./ac. of P_{2}O_{5} by broadcast, P_2 = 100 lb./ac. of P_{2}O_{5} by victory plough and P_3 = 100 lb./ac. of P_{2}O_{5} by U.P. plough with funnel.

Manures applied to wheat crop.

3. DESIGN:
   (i) 4 x 2 Fact. in R.B.D.  
   (ii) 8.  (b) N.A.  
   (iii) S.  
   (iv) (a) N.A.  
   (b) 30' x 20'.  
   (v) N.A.  
   (vi) Yes.

4. GENERAL:
   (i) Good.  
   (ii) Nil.  
   (iii) Fodder yield.  
   (iv) (a) 1953—1955.  
   (b) Yes.  
   (c) N.A.  
   (v) (a) No.  
   (b) N.A.  
   (vii) N.A.  
   (viii) The experiment was conducted by Agricultural Chemist.

5. RESULTS:
   (i) 25,941 lb./ac.  
   (ii) 2,506.1 lb./ac.  
   (iii) None of the effects is significant.  
   (iv) Av. yield of fodder in lb./ac.  
   
<table>
<thead>
<tr>
<th>P_0</th>
<th>P_1</th>
<th>P_2</th>
<th>P_3</th>
<th>Mean</th>
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<td>25855</td>
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</tr>
<tr>
<td>Mean</td>
<td>26262</td>
<td>24731</td>
<td>25532</td>
<td>27239</td>
</tr>
</tbody>
</table>

   S.E. of marginal mean of P = 793.1 lb./ac.
   S.E. of marginal mean of N = 560.4 lb./ac.
   S.E. of body of table = 1120.8 lb./ac.
Crop : Jowar (Kharif).

Site :- Tarai State Farm, (Western Block), Matkota. Type :- 'M'.

Object :- To study the residual effect of N and P₂O₅ applied to Wheat on Jowar crop.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Matkota clay loam, calcarious. (b) N.A. (iii) N.A. (iv) (a) Tractor harrowing once, ploughing by local plough once and mixing by cultivator. (b) Broadcasting. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Nil. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N₀ =0, N₁ =30 and N₂ =60 lb./ac.
   (2) 3 levels of P₂O₅ as Super : P₀ =0, P₁ =60 and P₂ =120 lb./ac.
   The treatments were applied during rabi 1952–1953 to wheat crop.

3. DESIGN :
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 49.5'×22'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Due to weeds, the germination was poor and uneven in growth. The effect was more serious in replications 1 and 2. (ii) N.A. (iii) As the grain formation of Jowar delayed too much only green fodder weighed and recorded. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) Varanasi. (b) N.A. (vi) Due to heavy rains, uneven germination and weeds, the experiment failed. As the yields were missing in them, the analysis has been done after rejecting two blocks. Experiment conducted by Agricultural Chemist.

5. RESULTS :
   (i) 5883 lb./ac.
   (ii) 1625.5 lb./ac.
   (iii) Only main effect of P is highly significant.
   (iv) Av. yield of green fodder in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
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<th>P₂</th>
<th>Mean</th>
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<td>6180</td>
<td>5590</td>
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<tr>
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</tr>
<tr>
<td>Mean</td>
<td>4383</td>
<td>6487</td>
<td>6780</td>
<td>5883</td>
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</tbody>
</table>

S.E. of any marginal mean = 469.3 lb./ac.
S.E. of body of table = 812.7 lb./ac.

Crop : Jowar (Kharif).

Site :- Govt. Agri. Res. Farm, Pratapgarh. Type :- ‘M’.

Object :- To study the effect of N and P₂O₅ applied alone and in combination on the yield of Jowar crop.

1. BASAL CONDITIONS :

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀ =0, N₁ =15 and N₂ =30 lb./ac.
   (2) 3 levels of P₂O₅ : P₀ =0, P₁ =30 and P₂ =60 lb./ac.
   N as A/S was broadcast before sowing. P₂O₅ and Super placed in bands 3"—4" deep in soils 1"—2" below the seed.
3. **DESIGN:**
   (i) $3 \times 3$ Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) $35' \times 26'$. (v) N.A. (vi) Yes.

4. **GENERAL:**
   (i) Poor stand due to abnormal weather conditions. Yield very poor. (ii) No. (iii) Grain yield. (iv) (a) 1950-1952. (b), (c) No. (v) (a) Kalyanpur, Bharari and Varanasi. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. **RESULTS:**
   (i) 130.3 lb./ac.  
   (ii) 43.08 lb./ac.  
   (iii) Main effect of $P$ and interaction $N \times P$ are highly significant. Main effect of $N$ is significant.  
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>Mean</th>
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<td>135.6</td>
<td>119.7</td>
</tr>
<tr>
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<td>154.3</td>
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<tr>
<td>Mean</td>
<td>122.3</td>
<td>109.0</td>
<td>159.6</td>
<td>130.3</td>
</tr>
</tbody>
</table>

S.E. any marginal mean = 10.16 lb./ac.  
S.E. of body of table = 17.59 lb./ac.

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**Crop:** Jowar *(Kharif).*  
**Site:** Govt. Agri. Farm, Pratapgarh.  
**Ref:** U.P. 51(90).  
**Type:** 'M'.

Object: To study the effect of $N$ and $P_2O_5$ [applied alone and in combination on the yield of Jowar.

1. **BASAL CONDITIONS:**
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.7.1951. (iv) (a) Field prepared after two ploughings. (b) Broadcasting. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) No. (viii) N.A. (ix) N.A. (x) 20, 21.11.1951.

2. **TREATMENTS:**
   All combinations of (1) and (2)
   (1) 3 levels of $N$: $N_0 = 0$, $N_1 = 15$ and $N_2 = 30$ lb./ac.  
   (2) 3 levels of $P_2O_5$: $P_0 = 0$, $P_1 = 30$ and $P_2 = 60$ lb./ac.
   N as A/S applied as broadcast and $P_2O_5$ as Super was placed 3'-4' deep in furrows [behind the victory plough and then *para* applied.

3. **DESIGN:**
   (i) $3 \times 3$ Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) $21' \times 334'$. (v) A 'distance of 1' to 3' from plot to plot and 3' to 4' from block to block was left out. (vi) Yes.

4. **GENERAL:**
   (i) Crop suffered due to inadequate moisture, as the rains were insufficient. (ii) Nil. (iii) Grain yield. (iv) (a) 1950-1952. (b), (c) No. (v) (a) Kanpur, Raya, Kalai, Varanasi, Atarra, Chirgaon and Bharari. (b) N.A. (vi) The ripe crop was damaged by birds and the resultant yield especially of grain was very poor. (vii) Expt. conducted by A.C.

5. **RESULTS:**
   (i) 202.9 lb./ac.  
   (ii) 42.55 lb./ac.  
   (iii) Main effects of $N$ and $P$ are significant. Interaction $N \times P$ is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
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<td>199.5</td>
<td>227.0</td>
<td>203.0</td>
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</tbody>
</table>

S.E. of any marginal mean = 10.03 lb./ac.
S.E. of body of table = 17.37 lb./ac.

_Crop_ :- Jowar (_Kharif_).
_Site_ :- Govt. Agri. Farm, Pratapgarh

Object:—To study the effect of N and $P_2O_5$ applied alone and in combination on the yield of Jowar.

1. **BASAL CONDITIONS:**
   - (i) (a) N.A. (b) Barley. (c) N.A. (ii) (a) Sandy Loam. (b) N.A. (iii) 5.7.1952. (iv) (a) 2 ploughings and harrowing with the first shower of rains. (b) to (c) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 19 to 27.11.1952.

2. **TREATMENTS:**
   - All combinations of (1) and (2).
   - (1) 3 levels of N : $N_0=0$, $N_1=15$ and $N_4=30$ lb./ac.
   - (2) 3 levels of $P_2O_5$ : $P_0=0$, $P_1=30$ and $P_2=60$ lb./ac.
   - $N$ as A/S was applied as surface dressing and $P_2O_5$ as Super was drilled in furrows behind the plough 4' deep in soil. (Fertilizers applied on 4.7.52).

3. **DESIGN:**
   - (i) $3 \times 3$ Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 30' x 31'. (v) Nil. (vi) Yes.

4. **GENERAL:**
   - (i) Normal. (ii) Nil. (iii) Grain of straw yield. (iv) (a) 1950-1952. (b) Yes. (c) N.A. (v) (a) Kalyanpur, Vararasi, Nawabganj, Matkota, Bharari and Atarra. (b) N.A. (vi) Yield per plot is lower because of _usar_ patches and droughty conditions at the time of maturity of crop. (vii) experiment conducted by Agricultural Chemist.

5. **RESULTS:**
   - (i) 742.7 lb./ac.
   - (ii) 124.5 lb./ac.
   - (iii) Main effects of N and P are highly significant. Interaction N X P is not significant.
   - (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
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<td>819.0</td>
<td>915.2</td>
<td>742.7</td>
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</table>

S.E. of any marginal mean = 29.39 lb./ac.
S.E. of body of table = 51.01 lb./ac.
Crop: Jowar (Kharif).  
Site: Govt. Agri. Farm, Pura.  

Object: To study the effect of N, P\textsubscript{2}O\textsubscript{5} and K\textsubscript{2}O applied alone and in combination on the yield of Jowar crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Kampil Type 2 loam. (b) Refer soil analysis, Pura. (iii) 16.7.1953. (iv) (a) Ploughing by Gajjar plough on 6.7.1953. Ploughing with cultivator on 8.7.1953. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 38.9° (x) 30.11.1953 and 1.12.1953.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 levels of N as A/S: N\textsubscript{0}=0 and N\textsubscript{1}=15 lb./ac. of N.
   (2) 2 levels of P\textsubscript{2}O\textsubscript{5} as Super: P\textsubscript{0}=0 and P\textsubscript{1}=30 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
   (3) 3 levels of K\textsubscript{2}O as Pot-Sulphate: K\textsubscript{0}=0 and K\textsubscript{1}=30, K\textsubscript{2}=60 lb./ac. of K\textsubscript{2}O.

3. DESIGN:
   (i) 3 x 2 x 2 partially balanced as only one replication of balanced set has been repeated 4 times as well as partially confounded design in which one degree of freedom corresponding to F and NPK interaction is partially confounded. (ii) (a) 6 plots/block and 2 blocks/replication. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 45' x 24'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Germination and growth was good. (ii) Attack of stem borer. After ripening of grain, it was totally destroyed and eaten away by the birds and monkeys. (iii) Yield of grain and straw. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) Varanasi. (b) N.A. (vi) Nil. (vii) Experiment was conducted by Agricultural Chemist.

5. RESULTS:
   (i) 136.7 lb./ac.
   (ii) 120.3 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
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<th></th>
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<th>P\textsubscript{1}</th>
<th>Mean</th>
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<th>N\textsubscript{1}</th>
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<td>147.5</td>
<td>126.7</td>
<td>105.9</td>
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<td>S.E. of body of table N×K or P×K=42.54 lb./ac.</td>
<td>S.E. of body of table N×P=34.73 lb./ac.</td>
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2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N : N₀=0, N₁=15 and N₂=30 lb./ac.
   (2) 3 levels of P₂O₅ : P₀=0, P₁=30 and P₂=60 lb./ac.
   N as A/S applied by broadcast and P₂O₅ as Super placed 3'-4' deep in furrows behind the desi plough and then pata applied. Date of manuring 4.8.1951.

3. DESIGN:
   (i) 3×3 Fact. in R.B.D.  
   (ii) (a) 9  
   (b) N.A.  
   (iii) 6  
   (iv) (a) N.A.  
   (b) 77'×14'.  
   (v) A distance of 1' to 3' from plot to plot and 3' to 4' from block to block was left out.  
   (vi) Yes.

4. GENERAL:
   (i) No setting of grain took place and therefore the experiment had to be harvested at green stage for fodder.  
   (ii) Nil.  
   (iii) Yield of green matter only.  
   (iv) (a) No.  
   (b) No.  
   (c) No.  
   (v) (a) Kanpur, Kalsi, Varanarsi, Pratapgarh, Atarra, Chirgaon and Bharari.  
   (b) N.A.  
   (vi) Nil.  
   (vii) Experiment conducted by Agricultural Chemist.

5. RESULTS:
   (i) 5296 lb./ac.  
   (ii) 829.9 lb./ac.
   (iii) Main effects of N and P are highly significant; interaction NxP is significant.
   (iv) Av. yield of green fodder in lb./ac.

<table>
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S.E. of any marginal mean  =195.6 lb./ac.
S.E. of body of table    =339.4 lb./ac.

Crop :- Jowar (Kharif).
Site :- Regional Res. Stn., Varanasi.

Ref :- U.P. 53(330).
Type :- 'M'.

Object :-To study the residual effect of Super and B.M. along with A/S applied to Wheat crop on Jowar.

1. BASAL CONDITIONS:
   (i) (a) Nil.  
   (b) Wheat.  
   (c) As per treatments.  
   (ii) (a) Loam.  
   (b) Refer soil analysis, Varanasi.  
   (iii) 28.6.1953.  
   (iv) (a) Floughings on 4.6.1953 (once) and 27.6.1953 (twice).  
   (b) In lines behind plough.  
   (c) to (e) N.A.  
   (v) Nil.  
   (vi) N.A.  
   (vii) Nil.  
   (viii) N.A.  
   (ix) 39.79'.  
   (x) 19.10.1953.

2. TREATMENTS:
   Main-plot treatments:
   2 levels of N as A/S : N₀=0 and N₁=30 lb./ac.
   Sub-plot treatments:
   All combinations of (1), (2) + a control (P₀=No P₂O₅)
   (1) 2 levels of P₂O₅ : P₁=60 and P₂=120 lb./ac.
   (2) 2 sources of P₂O₅ : S₁=Super and S₂=B.M.
   These manures were applied in the Rabi season of 1952-1953 to wheat crop.

3. DESIGN:
   (i) Split-plot.  
   (ii) (a) 2 main plots/block ; 5 sub-plots/main-plot.  
   (b) N.A.  
   (iii) 4.  
   (iv) (a) N.A.  
   (b) 1/40th ac.  
   (v) N.A.  
   (vi) Yes.

4. GENERAL:
   (i) N.A.  
   (ii) The crop was affected by grass hoppers when it had grown to full height. The damage was 6 annas in a rapea.  
   (iii) yield of fodder only.  
   (iv) (a) 1953-N.A.  
   (b) N.A.  
   (c) Nil.  
   (v) (a) Kalsi.  
   (b) N.A.  
   (vi) Nil.  
   (vii) Experiment was conducted by Agricultural Chemist.
5. RESULTS:
(i) 11710 lb./ac.
(ii) (a) 4413.3 lb./ac.
(b) 1489.9 lb./ac.
(iii) Effects of levels of P and Source of P are highly significant. Others are not significant.
(iv) Av. yield of fodder in lb./ac.

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<td>12040</td>
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S.E. of difference of two
1. main-plot treatment means = 1395.6 lb./ac.
2. sub-plot treatment means = 744.9 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment = 1053.6 lb./ac.
4. main-plot treatment means at the same level of sub-plot treatment = 1683.9 lb./ac.

Crop: Jowar (Kharif).
Site: Regional Res. Stn., Varanasi.
Object: To study the effect of N, P₂O₅ and K₂O applied alone and in combination on the yield of Jowar crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Berseem in one portion and wheat in the other. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 1.7.1953. (iv) (a) 2 ploughings on 29.6.1953. (b) Line sowing. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Nil. (viii) Thinning was done on 12.8.1953 weeding on 14 and 16.8.1953. Field drained on 22.8.1953. (ix) 37.52". (x) 26 to 30.11.1953.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of N as A/S: N₀=0 and N₁=15 lb./ac.
(2) 2 levels of P₂O₅ as Super: P₀=0 and P₁=30 lb./ac.
(3) 3 levels of K₂O as Pot. Sol: K₀=0, K₁=30 and K₂=60 lb./ac.
Manuring with P and K on 30.6.1953 and manuring with N on 1.7.1953. P₂O₅ placed in 4" deep bands 9" apart P₂O₅ is about 1" to 2" below the seed. K₂O applied as deep placement with seed.

3. DESIGN:
(i) 3 × 2 × 2 partially balanced (as only one replication of balanced set has been repeated 4 times) as well as partially confounded design in which 1 d.f. corresponding to PK and NPK interaction is partially confounded. (ii) (a) 6 plots/block and 2 blocks/replication. (b) N.A. (iii) 4. (iv) (a) and (b) 40" × 27'-3". (v) N.A. (vi) Yes.

4. GENERAL:
(i) Germination uniform. The southern four plots, two of control, one of K₁ and one of K₂ were badly affected due to heavy rains and mortality was 50% and rest of the plants in them had grown pale. (ii) Attack of grass hoppers—3 plots from each block from the north were affected. Dusting with 5% B.H.C. on 4.9.1953. The damage was mild. (iii) Grain and straw yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) Pura (Kanpur). (b) N.A. (vi) During the adolescent stage the border plants of north, east and south were damaged by farm cattle damage to the eastern and southern plots was considerable (about 25%). At the flowering stage and maturity stage attacked by wild birds. (vii) The experiment was conducted by Agricultural Chemist.

5. RESULTS:
(i) 296.7 lb./ac.
(ii) 111.1 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of marginal mean of K = 27.78 lb./ac.
S.E. of marginal mean of N or P = 22.68 lb./ac.
S.E. of body of table K x N or K x P = 39.28 lb./ac.
S.E. of body of table N x P = 32.07 lb./ac.

Crop: Jowar (Kharij).
Site: Regional Res. Stn., Varanasi.
Object: To study the residual effect of N and P₂O₅ applied to wheat crop, on Jowar.

1. BASAL CONDITIONS:
- (i) N.A. (a) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Varanasi.
- (iii) 1.7.1953. (iv) (a) Ploughing on 28, 29 and 30.6.1953. (b) Line sowing. (c) to (e) N.A. (y) A/S at 15 lb./ac. of N top dressed.

2. TREATMENTS:
- All combinations of (1) and (2)
  - (1) 3 levels of N as A/S: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
  - (2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
- Treatments were given during Rabi 1952–53 to wheat crop.

3. DESIGN:
- (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 42' x 25'. (v) N.A. (vi) Yes.

4. GENERAL:
- (i) The crop was affected due to water logging after hardly a month had passed. (ii) At grain formation, the crop was attacked by birds. The effect was quite severe on grains. (iii) Grain and straw yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) Matkota. (b) N.A. (vi) Nil. (vii) Expt. was conducted by A.C.

5. RESULTS:
- (i) 232.6 lb./ac.
- (ii) 71.07 lb./ac.
- (iii) Main effect of P alone is significant.
- (iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean = 16.75 lb./ac.
S.E. of body of table = 29.02 lb./ac.
Crop: Jowar (Kharif).

Site: Regional Res. Stn., Varanasi.

Ref: U.P. 50(92).

Type: ‘M’.

Object: To study the effect of N and P_2O_5 applied alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Clay loam (Varanasi type 2). (b) Refer soil analysis, Varanasi. (iii) 7.7.1950. (iv) (a) to (c) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 27.11.1950.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: N_0=0, N_1=15 and N_2=30 lb./ac.
(2) 3 levels of P_2O_5: P_0=0, P_1=30 and P_2=60 lb./ac.

N as A/S broadcast and P_2O_5 as Super placed in bands 3”-4” deep in the soil. Date of manuring 7.7.1950.

3. DESIGN:
(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 35.5’×27’. (v) 1’ from plot to plot and 3’ from block to block was left out. (vi) Yes.

4. GENERAL:
(i) Due to uneven level, badly effected by water logging in the centre. Germination was fair but due to bad weather, the crop could not progress well. (ii) No. (iii) Grain yield. (iv) (a) 1950-1952. (b) and (c) No. (v) (a) Kalyanpur, Bharari, Pratapgarh, Kalai, Aligarh and Atarra. (b) N.A. (vi) A portion of crop was damaged by cattle which has considerably effected final results. (vii) Experiment conducted by Agricultural Chemist.

5. RESULTS:
(i) 1137 lb./ac.
(ii) 346.4 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean = 81.6 lb./ac.
S.E. of body of table = 141.4 lb./ac.
2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of N: N₀ = 0, N₁ = 15 and N₂ = 30 lb./ac.
(2) 3 levels of P₂O₅: P₀ = 0, P₁ = 30 and P₂ = 60 lb./ac.

N as A/S broadcast and P₂O₅ as Super placed 3'-4' deep in furrows behind the plough and then pata applied. Date of manuring 9.7.1951.

3. DESIGN:

(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/40 ac. (v) A distance of 1' to 3' from plot to plot and 3' to 4' from block to block was left out. (vi) Yes.

4. GENERAL:

(i) Growth affected in early stages due to the failure of early monsoon. (ii) Nil. (iii) Grain yield. (iv) (a) 1950-1952. (b) and (c) No. (v) (a) Kanpur, Raya, Kalai, Pratapgarh, Atarra, Chirgaon and Bharari. (b) N.A. (vi) Nil. (vii) Experiment was conducted by Agricultural Chemist.

5. RESULTS:

(i) 638.5 lb./ac.
(ii) 144.1 lb./ac.
(iii) Main effect of N alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
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Mean 604.4 655.5 655.5 638.5
S.E. of any marginal mean =33.98 lb./ac.
S.E. of body of table =58.84 lb./ac.

Crop :-Jowar (Kharif).
Ref :- U.P. 52(2).
Site :-Regional Res. Stn., Varanasi.
Type :-‘M’.

Object :-To study the effect of N and P₂O₅ applied alone and in combination on the yield of Jowar.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Loam (Varanasi type 2). (b) Refer soil analysis, Varanasi.
(iii) 2.7.1952. (iv) (a) 4 ploughings after first shower. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of N: N₀ = 0, N₁ = 15 and N₂ = 30 lb./ac.
(2) 3 levels of P₂O₅: P₀ = 0, P₁ = 30 and P₂ = 60 lb./ac.

N as A/S applied on the surface by broadcast and P₂O₅ as Super drilled in furrows behind the plough. Date of manuring 26.12.1952.

3. DESIGN:

(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a), (b) 42'×26'. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Not satisfactory. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950-1952. (b), (c) No. (v) (a) Kalyanpur, Pratapgarh, Nawabganj, Matkota, Bharari and Atarra. (b) N.A. (vi) Just after sowing when seed had not even completely sprouted there was about 2.5° of rains resulting in water logging at numerous places. The crop subsequently became very patchy and stunted and could not recover afterwards. Flowering was also scanty and the effect of treatments were not appreciable. (vii) Experiment was conducted by A.C.

5. RESULTS:

(i) 246.0 lb./ac.
(ii) 55.13 lb./ac.
(iii) Main effects of N and P are highly significant. Interaction N×P is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
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S.E. of any marginal mean = 12.99 lb./ac.
S.E. of body of table = 22.51 lb./ac.

Crop :- Jowar (Kharif).
Site :- Kannauj, Chibbraman (Farukhabad).

Object :- To study the optimum dose of N and P₂O₅ for Jowar.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A (ii) Sandy loam to Domat and Balal Domat (iii) N.A. (iv) Improved.
   (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   1. Control. (no manure)
   2. 15 lb./ac. of N as A/S.
   3. 15 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.

3. DESIGN :
   (i), (ii) Fields selected randomly in a randomly selected village in the District. No. of villages 30. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b), (c) N.A. (v) N.A. (vi) Nil. (vii) Experiment was conducted by A.C. on cultivators' field.

5. RESULTS :
   (i) 392 lb./ac.
   (ii) 43.12 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>340</td>
</tr>
<tr>
<td>2.</td>
<td>392</td>
</tr>
<tr>
<td>3.</td>
<td>443</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=7.87 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Jowar (Kharif).
Site :- Mahrani Lalitpur (Jhansi).

Object :- To study the optimum dose of N and P₂O₅ for Jowar.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) July. (vii) N.A. (viii) N.A. (ix) N.A. (x) December.

2. TREATMENTS :
   1. Control (no manure).
   2. 15 lb./ac. of N as A/S.
   3. 15 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.

3. DESIGN :
   (i), (ii) Fields selected randomly in a randomly selected village. No. of villages—8. (iii) (a) N.A. (b) N.A. (iv) N.A.
4. GENERAL:
(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. on cultivator’s fields.

5. RESULTS:
(i) 707 lb./ac,
(ii) 40.56 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>644</td>
</tr>
<tr>
<td>2.</td>
<td>711</td>
</tr>
<tr>
<td>3.</td>
<td>766</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>14.34 lb./ac</td>
</tr>
</tbody>
</table>

Crop :- Jowar (Kharif).
Site :- Jhansi, Lalitpur and Moth (Jhansi).
Object :- To study the optimum dose of N and P2O5 for Jowar.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (no manure).
2. 15 lb./ac. of N as A/S.
3. 15 lb./ac. of N as A/S + 30 lb./ac. of P2O5 as Super.

3. DESIGN:
(i), (ii) Fields selected randomly in a randomly selected village in the district. No. of villages—29. (iii) (a), (b) N.A. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. conducted by A.C. in cultivator’s fields.

5. RESULTS:
(i) 968 lb./ac.
(ii) 63.41 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>843</td>
</tr>
<tr>
<td>2.</td>
<td>1003</td>
</tr>
<tr>
<td>3.</td>
<td>1057</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>11.77 lb./ac</td>
</tr>
</tbody>
</table>

Crop :- Jowar (Rabi).
Site :- Moth, Man Ranipur and Gortha (Jhansi).
Object :- To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Parwa and Domat. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) Generally irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (no manure).
2. 60 lb./ac. of P2O5.

3. DESIGN:
(i) and (ii) R.B.D. in which villages have been taken as replications (No of villages—12). Also in each village control was tried in one plot while P was tried in two plots. Field selected randomly in a randomly selected village in the Distt. (iii) (a) N.A. (b) N.A. (iv) N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. on cultivator's fields.

5. RESULTS:
(i) 628 lb./ac.
(ii) 50.19 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Average yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>505</td>
</tr>
<tr>
<td>2.</td>
<td>690</td>
</tr>
</tbody>
</table>

S.E. for control = 14.49 lb./ac.
S.E. for P mean = 10.24 lb./ac.

Crop :- Jowar (Kharif).
Site :- Kanpur and Bilhaur (Kanpur).

Object :- To study the optimum dose of N and P₂O₅ for Jowar.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) July. (vii) N.A. (viii) N.A. (ix) N.A. (x) November.

2. TREATMENTS:
1. Control (no manure).
2. 15 lb./ac. of N as A/S.
3. 15 lb./ac. of N as A/5 + 30 lb./ac. of P₂O₅ as Super.

3. DESIGN:
(i) and (ii) Fields selected randomly in a randomly selected village in the district. No. of villages—6. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
(i) Good crop. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist on cultivator's fields.

5. RESULTS:
(i) 789 lb./ac.
(ii) 41.09 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>680</td>
</tr>
<tr>
<td>2.</td>
<td>793</td>
</tr>
<tr>
<td>3.</td>
<td>893</td>
</tr>
</tbody>
</table>

S.E./mean = 16.77 lb./ac.

Crop :- Jowar (Kharif).
Site :- Ghatanpur, Kanpur (Kanpur).

Object :- To study the optimum dose of N and P₂O₅ for Jowar.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Kanpur type 1, type 2 and type 3 soils. (iii) N.A. (iv) Improved. (v) (a) As practised locally. After application of manure, the field was levelled by drawing a pata. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) At a distance of 1"—2" away from the fertilizer line. (e) N.A. (v) 10.7.1949 to 28.11.1949. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (no manure).
2. 15 lb./ac. of N as A/S.
3. 15 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.
3. DESIGN:
(i) and (ii) Villages selected in the district and unreplicated experiment laid out in 24 villages or fields were laid out, but only 17 trials were harvested. (iii) (a) N.A. (b) N.A. but is taken to be about 1/40 ac. (iv) N.A.

4. GENERAL:
(i) Stand of the crop was from good to satisfactory. (ii) N.A. (iii) Grain and straw yield. (iv) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by Agricultural Chemist on cultivators' fields.

5. RESULTS:
(i) 516 lb./ac.
(ii) 57.55 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>388</td>
</tr>
<tr>
<td>2.</td>
<td>517</td>
</tr>
<tr>
<td>3.</td>
<td>642</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=13.96 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :-Jowar (Kharif).
Site :- Varanasi and Chandauli (Varanasi).

Ref :- U.P. 50 (243).
Type :- 'M'.

Object :- To study the optimum dose of N and P₂O₅ for Jowar.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. Control (no manure).
2. 15 lb./ac. of N as A/S.
3. 15 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.

3. DESIGN:
(i) and (ii) Fields selected randomly in a randomly selected village. No. of villages—3. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
(i) Generally good. (ii) N.A. (iii) Grain yield. (iv) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist on cultivators' fields.

5. RESULTS:
(i) 768 lb./ac.
(ii) 224.7 lb./ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>459</td>
</tr>
<tr>
<td>2.</td>
<td>818</td>
</tr>
<tr>
<td>3.</td>
<td>1027</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=129.7 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Jowar (Kharif).
Site :- Kiehha. (Nainital)

Ref :- U.P. 53 (409)
Type :- 'M'.

Object :- To study the optimum dose of N and P₂O₅ for Jowar.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Barley. (c) N.A. (ii) Sandy loam in one trial and loam (slightly calcareous) in one trial. (iii) Nil. (iv) N.A. (v) (a) to (e) N.A. (vi) 7.7.1953 and 8.7.1953. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
1. Control.
2. 15 lb./ac. of N.
3. 15 lb./ac. of N.+30 lb./ac. of P2O5
   N as A/S broadcast and P2O5 as Super applied behind the plough.

3. DESIGN:
   (i) and (ii) One village was selected in the tahsil. 2 fields were selected in the village. In each field, 3 plots were taken to which 3 treatments were assigned. (iii) (a) 55°×65°. (b) 33°×33°. (iv) N.A.

4. GENERAL:
   (i) Good in 1 trial. N.A. in 1 trial. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Light kaurs weeds in one trial. (vii) Expt. Conducted by A.C. on cultivators' fields.

5. RESULTS:
   (i) 1962 lb./ac.
   (ii) 193.3 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

   Treatment   | Av. yield | S.E./mean
   -----------|-----------|------------
   1.         | 1641      | 1893       |
   2.         | 2352      | 2352       |
   3.         |            | 136.7      |

Crop: Jowar (Kharif).  
Site: Allahabad Agri. Institute, Allahabad.  
Object: To study the optimum seed rate and spacing for Jowar.  
Ref: U.P. 52(324).  
Type: 'C'.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Sandy loam and Clay loam. (b) Refer soil analysis, Allahabad. (iii) 30.6.1952.
   (iv) (a) N.A. (b) N.A. (c) and (d) As per treatments. (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A.  
   (ix) 24.73°. (x) 22.9.1952.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 seed rates: R1=8, R2=10 and R3=12 srs./ac.
   (2) 5 spacing between rows: S1=1', S2=2', S3=3', S4=3' and S5=Broadcasting.

3. DESIGN:
   (i) 3×5 Fact. in R.B.D. (ii) (a) 15. (b) 189'×48'. (iii) 4. (iv) (a) and (b) 48'×12'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Green fodder yield (harvested at booting stage). (iv) (a) No. (b) No. (c) Nil.  
   (v) (a), (b) No. (vi) Nil. (vii) Experiment conducted by the Head, Agronomy Department, Allahabad, Agricultural Institute, Allahabad.

5. RESULTS:
   (i) 34467 lb./ac.
   (ii) 4884.44 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of green fodder in lb./ac.

<table>
<thead>
<tr>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>35276</td>
<td>36501</td>
<td>39807</td>
</tr>
<tr>
<td>S2</td>
<td>39165</td>
<td>32923</td>
<td>41926</td>
</tr>
<tr>
<td>S3</td>
<td>36112</td>
<td>32378</td>
<td>30473</td>
</tr>
<tr>
<td>S4</td>
<td>28489</td>
<td>33448</td>
<td>36501</td>
</tr>
<tr>
<td>S5</td>
<td>34284</td>
<td>29909</td>
<td>29811</td>
</tr>
<tr>
<td>Mean</td>
<td>34665</td>
<td>33032</td>
<td>35704</td>
</tr>
</tbody>
</table>
Crop: Jowar (Kharij).

Site: Allahabad Agri. Institute, Allahabad.

Object: To find out the optimum spacing for Jowar.

1. **BASAL CONDITIONS**:
   - (i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Sandy loam to Clay loam. (b) Refer soil analysis, Allahabad. (iii) 9.7.1953. (iv) (a) Ploughing on 16.6.1953; on 7.7.1953 field ploughed and harrowed before resowing. (b) Sown by Malahara. (c) 10 yrs./ac. (for all spacings). (d) As per treatments. (e) N.A. (v) N.A. (vi) Farm selection (N.A.). (vii) N.A. (viii) On 1 and 3.8.1953 weeding and interculture (weeding in broadcasted plots with kharif and interculture with hand cultivator). (ix) 48.03. (x) 6.10.1953.

2. **TREATMENTS**:
   - 5 spacings between rows: S₁ = 1.5', S₂ = 2.0', S₃ = 2.5', S₄ = 3.0' and S₅ = Broadcast.

3. **DESIGN**:
   - (i) Latin square. (ii) 5. (b) 132' x 34'. (iii) 6. (iv) (a) 31' x 24'. (b) 1/80.668 acre. (v) N.A. (vi) Yes.

4. **GENERAL**:
   - (i) N.A. (ii) N.A. (iii) Germination and green fodder yield. (iv) (a) No. (b) No. (c) Nil. (v) (a), (b) No. (vi) Nil. (vii) The crop was sown on 24.6.1953, but the seed did not germinate well in many of the plots. So the field was ploughed and harrowed and the sowing was done again. (First sowing discarded).

5. **RESULTS**:
   - (i) 15405 lb./ac. (ii) 3701.14 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of green fodder in lb./ac.
     | Treatment | Av. yield |
     |-----------|-----------|
     | S₁        | 17211     |
     | S₂        | 16431     |
     | S₃        | 16431     |
     | S₄        | 12066     |
     | S₅        | 14887     |
     | S.E./mean | 1658.78 lb./ac. |

Crop: Jowar.

Site: State Mechanised Farm, Bharari.

Object: To study the dressing of seed with Agrosan G.N. vs. cold water and solar treatment for the control of grain smut of Jowar.

1. **BASAL CONDITIONS**:
   - (i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) 13.7.1949. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. **TREATMENTS**:
   - 1. Control.
   - 2. Treated with Agrosan G.N.
   - 3. Treated with Ceresan.
   - 4. Treated with cold water and dried in sun.
   - 5. Treated with cold water and dried in shade.

3. **DESIGN**:
   - (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 54' x 20'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) Satisfactory. (ii) Attack of smut. (iii) % of infection and grain yield. (iv) (a) 1949—1950. (b) No. (c) N.A. (v) (a) Kanpur, Gorakhpur and Meerut. (b) N.A. (vi) Nil. (vii) Experiment conducted by P.P.

5. RESULTS:
(i) 8.37 degrees.
(ii) 6.5939 degrees.
(iii) Treatment differences are highly significant.
(iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean % of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.58</td>
<td>16.34</td>
</tr>
<tr>
<td>2.</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>3.</td>
<td>9.06</td>
<td>2.98</td>
</tr>
<tr>
<td>4.</td>
<td>5.34</td>
<td>1.35</td>
</tr>
<tr>
<td>5.</td>
<td>3.89</td>
<td>0.95</td>
</tr>
</tbody>
</table>

S.E./mean = 2.6919 degrees

Note:— (1) Mean (angles) after transformation back to percentages are given after applying bias correction and hence 0.50 mean percent corresponds to 0.00 mean angle.
(2) The data is converted into \( \sin^{-1} \sqrt{P} \) and then analysed where \( P \) is percent infection.

Crop :- Jowar (\textit{Kharif}).

Site :- Govt. Res. Farm, Kanpur.

Object :- To study the dressing of seed with Agrosan G.N. vs cold water and solar treatments for the control of grain smut of Jowar.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
Seeds treated with:
1. Control.
2. Agrosan G.N.
3. Ceresan.
4. Cold water treatment and dried in sun.
5. Cold water treatment and dried in shade.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 32' x 39.5'. (b) 30' x 38'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) % infection and grain yield. (iv) (a) 1948—1950. (b) No. (c) N.A. (v) (a) Gorakhpur and Meerut. (b) N.A. (vi) Nil. (vii) The exp. was conducted by P.P.

5. RESULTS:
(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield of grain in lb./ac.</th>
<th>Mean value of ( \log_e (1+x)/\text{plot} )</th>
<th>Mean % infection/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>708</td>
<td>0.33929</td>
<td>0.45</td>
</tr>
<tr>
<td>2.</td>
<td>825</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>3.</td>
<td>786</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>4.</td>
<td>747</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>5.</td>
<td>707</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>G.M.</td>
<td>755</td>
<td>0.06786</td>
<td>0.09</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>105.61</td>
<td>0.051575</td>
<td></td>
</tr>
</tbody>
</table>

On the basis of yield analysis: treatment differences are not significant. On the basis of analysis of \( \log_e (1+x) \); treatment differences are highly significant.

Note:—The data has been converted into \( \log_e (1+x) \) and then analysed, where \( x \) is % infection.
Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object:—To study the dressing of seed with Agrosan G.N., and Ceresan vs. cold water and solar treatments for the control of Jowar smut.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) 28.6.1949.  (iv) (a) to (e) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   Seeds treated with:
   1. Control.
   2. Treated with Agrosan G.N.
   3. Treated with Ceresan.
   4. Treated with cold water and dried in sun.
   5. Treated with cold water and dried in shade.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 35' x 33' for replication 1, 2 and 3 and 37' x 28' for replication 4, 5 and 6.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) Satisfactory.  (ii) N.A.  (iii) % infection and grain yield.  (iv) (a) 1948—1950.  (b) No.  (c) N.A.  (v) (a) Meerut, Gorakhpur and Bharari.  (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by P.P.

5. RESULTS:
   (i) to (iv)
   Treatment:  Av. yield of grain in lb./ac.
   Mean value in log e (1+x)/plot  Av. % infection per plot
   1. 357.9  2.12054  9.37
   2. 553.3  0.00000  0.00
   3. 501.3  0.00000  0.00
   4. 490.3  0.26143  0.35
   5. 529.4  0.12841  0.16
   G.M. 486.4  0.50208  1.98
   S.E./mean 38.44 lb./ac.  0.143870

Note:—On the basis of yield analysis, treatment differences are significant. On the basis of analysis of log e (1+x), treatment differences are highly significant. The % infection (i.e., x) was converted to log e (1+x) and then analysed.

Crop: Jowar (Kharif).
Site: Govt. Res. Farm Kanpur.

Object:—To study the dressing of seed with Agrosan G.N. and Ceresan vs. cold water and shade and cold solar treatment for the control of Jowar smut.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) 11.7.1950.  (iv) (a) to (e) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. Control (infection with smut spores).
   2. Treated with Agrosan G.N.
   3. Treated with Ceresan.
   4. Treated with cold water and dried in sun.
   5. Treated with cold water and dried in shade.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 44' x 22'.  (v) N.A.  (vi) Yes.
4. GENERAL:
(i) Good. (ii) Attack of smut. (iii) Percentage of infection. (iv) (a) 1948—1950. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.P.

5. RESULTS:
(i) 3.10 degree
(ii) 1.5295 degree
(iii) Treatment differences are highly significant.
(iv) Treatment Mean Angle in degrees % of affected plants

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean Angle</th>
<th>Transformed back mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10.50</td>
<td>3.77</td>
</tr>
<tr>
<td>2.</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>3.</td>
<td>0.80</td>
<td>0.52</td>
</tr>
<tr>
<td>4.</td>
<td>0.95</td>
<td>0.53</td>
</tr>
<tr>
<td>5.</td>
<td>3.23</td>
<td>0.82</td>
</tr>
</tbody>
</table>

S.E./mean = 0.6244 degree

Note:—Transformed back mean % are given after applying bias correction and that is why 0.05 mean % corresponds to 0.00 mean angle. The data has been converted into sin⁻¹√p and then analysed where p = % infection.

Crop:—Jowar (Kharif).
Site:—Govt. Res. Farm, Kanpur.
Object:—To conduct insecticidal trials against Jowar stem-borer.

Crop:—Jowar (Kharif).
Site:—Govt. Res. Farm, Kanpur.
Object:—To conduct insecticidal trials against Jowar stem-borer.

Ref:—U.P. 53 (162).
Type:—‘D’.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam (b) N.A. (iii) 21.7.1953. (iv) (a) one ploughing and harrowing. (b) to (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) One hoeing with desi plough. (ix) 33.60° (July to Nov.) (x) 6.12.1953.

2. TREATMENTS:
1. Spraying with 0.25% D.D.T.
2. Spraying with 0.25% B.H.C.
3. Dusting with 5.0% B.H.C.
4. Dusting with 5.0% D.D.T.
5. Control (no treatment).

Spray liquid at 40 and 60 gallons and dust at 20 and 30 lb./ac. in first and second application respectively.

3. DESIGN:
(i) R.B.D. (ii) 5. (b) N.A. (iii) 5. (iv) (a) 29.90’x25’. (b) 25.90’x21.’ (v) 2’ ring round the net plot. (vi) Yes.

4. GENERAL:
(i) Very poor and lodged also. (ii) Dusting and spraying was done on 25.8.1953 to 16.9.1953. (iii) % of plants attacked and no. of borers formed on both the above dates. (iv) (a) 1953—continued. (b) N.A. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Ento. (K). The reduction in the incidence and population of the pest in the treated plots and control was determined one week after last treatment and at harvest by dissecting 50 plants which were cut from ground level from each plot. Transformation done after applying bias correction.

5. RESULTS:
(i) to (iv).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean Angle in degrees % of affected plants</th>
<th>Transformed back mean %</th>
<th>Av. number of borers in 50 affected plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>37.32</td>
<td>36.88</td>
<td>98.60</td>
</tr>
<tr>
<td>2.</td>
<td>37.50</td>
<td>37.19</td>
<td>102.60</td>
</tr>
<tr>
<td>3.</td>
<td>38.02</td>
<td>38.05</td>
<td>105.40</td>
</tr>
<tr>
<td>4.</td>
<td>38.74</td>
<td>39.28</td>
<td>107.20</td>
</tr>
<tr>
<td>5.</td>
<td>41.54</td>
<td>44.04</td>
<td>114.60</td>
</tr>
<tr>
<td>G.M.</td>
<td>38.62</td>
<td></td>
<td>105.68</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.6643</td>
<td></td>
<td>6.9602</td>
</tr>
<tr>
<td>Significance</td>
<td>N.S.</td>
<td></td>
<td>N.S.</td>
</tr>
</tbody>
</table>
Object:—To study the dressing of seed with Agrosan G.N. and Ceresan vs cold water and solar treatment on control of Jowar smut.

1. **BASAL CONDITIONS**:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. **TREATMENTS**:
   Seeds treated with:
   1. Control.
   2. Agrosan G.N.
   3. Ceresan.
   4. Cold water treated and dried in sun.
   5. Cold water treated and dried in shade.

3. **DESIGN**:
   (i) R.B.D. (ii) 5. (b) N.A. (iii) 6. (iv) (a) 32’x39.5’. (b) 30’x38’. (v) Distances between plots = 4’x3’ on either sides. Field border 4’ lengthwise and 5’ breadthwise. (vi) Yes.

4. **GENERAL**:
   (i) N.A. (ii) Under study. (iii) % infection and yield of grain. (iv) (a) 1948—1950. (b) and (c) N.A. (v) (a) Kanpur and Meerut. (b) N.A. (vi) Nil. (vii) Experiment conducted by P.P.

5. **RESULTS**:
   (i) to (iv).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield of grain in lb./ac</th>
<th>Mean value of loge (1+x)/plot</th>
<th>Av. % infection/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>777</td>
<td>0.36590</td>
<td>0.78</td>
</tr>
<tr>
<td>2.</td>
<td>1046</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>3.</td>
<td>937</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>4.</td>
<td>1094</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>5.</td>
<td>969</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>G.M.</td>
<td>965</td>
<td>0.07318</td>
<td>0.16</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>79.85</td>
<td>0.11724</td>
<td></td>
</tr>
</tbody>
</table>

Note:—On the basis of yield analysis treatment differences are not significant. On the basis of analysis of loge (1+x) treatment differences are not significant. The % infection (x) has converted to loge (1+x) and then analysed.
4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) % infection and grain yield. (iv) (a) 1948—1950. (b), (c) N.A. (v) (a) Kanpur, Meerut and Bharari. (b) N.A. (vi) Nil. (vii) Experiment was conducted by P.P.

5. RESULTS:
(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Mean value of log_(e) (1+x) per plot</th>
<th>Av. % infection per plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1037</td>
<td>0.97788</td>
<td>1.70</td>
</tr>
<tr>
<td>2.</td>
<td>1064</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>3.</td>
<td>1053</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>4.</td>
<td>1039</td>
<td>0.00000</td>
<td>0.00</td>
</tr>
<tr>
<td>5.</td>
<td>1002</td>
<td>0.10785</td>
<td>0.15</td>
</tr>
<tr>
<td>G.M.</td>
<td>1039</td>
<td>0.21715</td>
<td>0.37</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>61.12</td>
<td>0.061485</td>
<td></td>
</tr>
</tbody>
</table>

On the basis of the yield analysis treatment differences are not significant. On the basis of analysis of log_\(e\) (1+x) treatment differences are highly significant.

Note:—The % infection (x) was converted to log_\(e\) (1+x) and then analysed.

Crop :-Jowar (Kharif).
Site :-Sugarcane Res. Sub-Stn., Kunraghat.
Object :-To study the dressing of seed with Agrosan G.N. and Ceresan vs cold water and solar treatment for the control of Jowar smut.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) and (b) N.A. (iii) 6.7.1950. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (inoculated with smut spores).
2. Treated with Agrosan G.N.
3. Treated with Ceresan.
4. Treated with cold water and dried in sun.
5. Treated with cold water and dried in shade.

3. DESIGN:
(i) R.B.D. (ii) 5. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 54'x20'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Attack of smut. (iii) Percentage of infection. (iv) (a) 1948—1950. (b) N.A. (c) N.A. (v) (a), (b) N.A. (vi) Nil. (vii) Experiment conducted by P.P.

5. RESULTS:
(i) 3.57 degree.
(ii) 2.0238 degree.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentage of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.73</td>
<td>4.56</td>
</tr>
<tr>
<td>2.</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>3.</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>4.</td>
<td>4.08</td>
<td>1.00</td>
</tr>
<tr>
<td>5.</td>
<td>2.02</td>
<td>0.62</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.8993</td>
<td></td>
</tr>
</tbody>
</table>

Note:—Transformed back mean percentages of infection are given after applying bias correction and that is why 0.5 mean percent infection corresponds to 0.00 mean angle. The data is converted into sin^-1p and then analysed.
Crop :- Jowar (Kharif).
Site :- Regional Res. Stn., Meerut.

Object :- To study the dressing of seed with Agrosan G.N. or cold water and solar treatment for the control of grain smut of Jowar.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   Seeds treated with :
   1. Control.
   2. Agrosan G.N.
   3. Ceresan.
   4. Cold water treatment and dried in sun.
   5. Cold water treatment and dried in shade.

3. DESIGN :
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 32' × 39.5'. (b) 30' × 38'. (v) Distance between plots 4' and 3' on either side of the plot. Field border 4' length wise and 5' breadth wise. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) % of infection and grain yield. (iv) (a) 1948—1950. (b) and (c) No. (v) (a) Gorakhpur and Kanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by P.P.

5. RESULTS :
   (i) to (iv)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield of grain in lb./ac.</th>
<th>Mean value of loge (1+x)/plot</th>
<th>Mean % infection/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>604</td>
<td>1.60104</td>
<td>4.24</td>
</tr>
<tr>
<td>2.</td>
<td>791</td>
<td>0.61294</td>
<td>0.92</td>
</tr>
<tr>
<td>3.</td>
<td>714</td>
<td>0.62677</td>
<td>1.04</td>
</tr>
<tr>
<td>4.</td>
<td>649</td>
<td>1.30608</td>
<td>2.95</td>
</tr>
<tr>
<td>5.</td>
<td>383</td>
<td>0.81990</td>
<td>1.54</td>
</tr>
<tr>
<td>G.M.</td>
<td>668</td>
<td>0.99326</td>
<td>2.14</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>-30.80</td>
<td>0.138628</td>
<td></td>
</tr>
</tbody>
</table>

Note :- On the basis of yield analysis—Treatment differences are highly significant. On the basis of loge (1+x) analysis where x is % infection—Treatment differences are highly significant.
### RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield of grain in lb./ac.</th>
<th>Mean value of log $e^{(1+x)}$/plot</th>
<th>Av.%infection/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>421.6</td>
<td>3.14036</td>
<td>23.77</td>
</tr>
<tr>
<td>2.</td>
<td>496.0</td>
<td>0.68799</td>
<td>1.14</td>
</tr>
<tr>
<td>3.</td>
<td>481.2</td>
<td>0.07033</td>
<td>0.08</td>
</tr>
<tr>
<td>4.</td>
<td>401.7</td>
<td>0.33296</td>
<td>0.43</td>
</tr>
<tr>
<td>5.</td>
<td>307.5</td>
<td>0.20397</td>
<td>0.26</td>
</tr>
<tr>
<td>G.M.</td>
<td>421.6</td>
<td>0.88712</td>
<td>5.14</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>38.40</td>
<td>0.111722</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Significant</td>
<td>Highly significant</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Jowar (*Kharif*).  
Site: Regional Res. Stn., Meerut.  
Ref: U.P. 50(256).  
Type: 'D'.

Object: To study the dressing of seed with Agrosan G.N. vs cold water and solar treatment for the control of grain smut of Jowar.

1. **BASAL CONDITIONS:**
   - (i) (a) to (c) N.A.  
   - (ii) (a) and (b) N.A.  
   - (iii) N.A.  
   - (iv) (a) to (e) N.A.  
   - (v) N.A.  
   - (vi) N.A.  
   - (vii) N.A.  
   - (viii) N.A.  
   - (ix) N.A.  
   - (x) N.A.

2. **TREATMENTS:**
   1. Control (incultated with smut spores).
   2. Treated with Agrosan G.N.
   3. Treated with Ceresan.
   4. Treated with cold water and dried in sun.
   5. Treated with cold water and dried in shade.

3. **DESIGN:**
   - (i) R.B.D.  
   - (ii) (a) 5.  
   - (b) N.A.  
   - (iii) 6.  
   - (iv) (a) N.A.  
   - (b) 30'x30'.  
   - (v) N.A.  
   - (vi) Yes.

4. **GENERAL:**
   - (i) Poor.  
   - (ii) Attack of smut.  
   - (iii) Percentage of infection.  
   - (iv) (a) 1948—1950.  
   - (b) and (c) N.A.  
   - (v) (a) and (b) N.A.  
   - (vi) Nil.  
   - (vii) The data has been converted into sin$^{-1}$v/p and then analysed. Transformed back, mean % are given after applying bias correction. Experiment conducted by P.P.

5. **RESULTS:**
   - (i) to (iv).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back</th>
<th>Mean % of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.47</td>
<td>16.24</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0.00</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>2.19</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>11.80</td>
<td>4.66</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>8.70</td>
<td>2.78</td>
<td></td>
</tr>
<tr>
<td>G.M.</td>
<td>9.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.2293</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop: Jowar (*Kharif*).  
Site: Azamgarh.  
Ref: U.P. 49(209).  
Type: 'D'.

Object: To test efficacy of Hexyclan 'dust against the Kharif grass hopper (*Hiroglyphus banius* Fabr).

1. **BASAL CONDITIONS:**
   - (i) (a) to (c) N.A.  
   - (ii) N.A.  
   - (iii) N.A.  
   - (iv) N.A.  
   - (v) (a) to (e) N.A.  
   - (vi) N.A.  
   - (vii) N.A.  
   - (viii) N.A.  
   - (ix) N.A.  
   - (x) N.A.
2. TREATMENTS:
1. No treatment (Control)
2. Dusting with 5% Hexyclan (5% B.H.C.) at 40 lb./ac.
3. Dusting with 5% B.H.C. (Gamaxene D. 025) at 40 lb./ac.
4. Dusting with 5% D.D.T. at 40 lb./ac.
5. Treating with poison bait (Sodium fluosilicate 1 seer, carbon 20 seers, molasses 2½ seers and water 7 seers).
6. Dusting with B.H.C. (5% Hexyclan) at 20 lb./ac.
7. Dusting with 5% B.H.C. (5% Hexyclan) at 10 lb./ac.
8. Spraying with 1% D.D.T. suspension at 150 gallon/ac.

3. DESIGN:
(i) and (ii) N.A. (R.B.D. with 4 replications). (iii) (a) N.A. (b) 48'×18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Population of grass hopper before and after application of treatments. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The data was converted into $\sin^{-1}(Y/P)$ and then analysed; transformed back means have been presented after applying bias correction. The experiment was conducted by Ento. (K) on cultivators' fields.

5. RESULTS:
(i) 60.70 degree.
(ii) 4.3704 degree.
(iii) Treatment differences are highly significant.
(iv) Treatments: Mean angle: Transformed back mean % of reduction of grass hoppers seen at 16 yards of walk, 36 hours after application of treatments.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Mean angle</th>
<th>Transformed back mean % of reduction of grass hoppers seen at 16 yards of walk, 36 hours after application of treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.46</td>
<td>10.40</td>
</tr>
<tr>
<td>2.</td>
<td>79.05</td>
<td>95.94</td>
</tr>
<tr>
<td>3.</td>
<td>78.52</td>
<td>95.54</td>
</tr>
<tr>
<td>4.</td>
<td>64.52</td>
<td>81.19</td>
</tr>
<tr>
<td>5.</td>
<td>48.06</td>
<td>55.25</td>
</tr>
<tr>
<td>6.</td>
<td>72.90</td>
<td>90.94</td>
</tr>
<tr>
<td>7.</td>
<td>49.77</td>
<td>58.22</td>
</tr>
<tr>
<td>8.</td>
<td>74.32</td>
<td>92.27</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>$\pm 2.1852$ degree</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Jowar (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of seed dressing and sowing dates on the incidence of Jowar smut.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) As per treatments. (iv) (a) to (e) N.A. (v) N.A. (vi) 8-B. (vii) to (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 methods of seed dressing: $M_1$ = control (seeds inoculated with smut spores and) and $M_2$ = seeds treated with Agrosan G.N.
(2) 8 dates of sowing: $D_1 = 27.6.1951$, $D_2 = 3.7.1951$, $D_3 = 9.7.1951$, $D_4 = 16.7.1951$, $D_5 = 23.7.1951$, $D_6 = 31.7.1951$, $D_7 = 8.8.1951$ and $D_8 = 17.8.1951$.

3. DESIGN:
(i) 3×2 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 20'×8'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Attack of jowar smut. (iii) Percentage of infection. (iv) (a) 1951—1952. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The exp. was conducted by P.P.
5 RESULTS:

(i) 8.75 degree.
(ii) 4.0669 degree.
(iii) Effect of M alone is highly significant.
(iv) 

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>D6</th>
<th>D7</th>
<th>D8</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>34.14</td>
<td>11.63</td>
<td>6.12</td>
<td>2.22</td>
<td>13.50</td>
<td>28.90</td>
<td>25.76</td>
<td>11.24</td>
<td>16.69</td>
</tr>
<tr>
<td>M2</td>
<td>0.00</td>
<td>0.00</td>
<td>6.46</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.81</td>
</tr>
<tr>
<td>Mean</td>
<td>17.07</td>
<td>5.82</td>
<td>6.29</td>
<td>1.11</td>
<td>6.75</td>
<td>14.45</td>
<td>12.88</td>
<td>5.62</td>
<td>8.75</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of D = 2.0209 degree
S.E. of marginal mean of M = 1.0169 degree
S.E. of body of table = 2.8757 degree

Transformed back mean percentage

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>D6</th>
<th>D7</th>
<th>D8</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>31.68</td>
<td>4.51</td>
<td>1.59</td>
<td>0.65</td>
<td>4.89</td>
<td>23.67</td>
<td>19.21</td>
<td>4.30</td>
</tr>
<tr>
<td>M2</td>
<td>0.50</td>
<td>0.50</td>
<td>1.80</td>
<td>1.80</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Note:—Transformed back mean percentages are given after applying bias correction and hence 0.50 mean percent corresponds to 0.00 mean angle. The data has been converted into $\sin^{-1}$ and then analysed.

Crop :—Jowar (Kharif).
Site :—Govt. Res. Farm, Kanpur.
Ref :—U.P. 52(290).
Type :—‘CD’.

Object:—To study the effect of seed dressing and sowing dates on the incidence of Jowar smut.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) As per treatments. (iv) (a) to (e) N.A. (v) N.A. (vi) 8-B. (vii) to (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 methods of seed dressing: $M_1$=control (seeds inoculated with smut spores) and $M_2$=seeds treated with Agroson G.N.
(2) 5 dates of sowing: $D_1=5.7.1952$, $D_2=11.7.1952$, $D_3=19.7.1952$, $D_4=31.7.1952$ and $D_5=23.8.1952$.

3. DESIGN:
(i) 5 x 2 Fact. in R.B.O. (ii) (a) 10. (b) N.A. (iii) 2. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Attack of smut. (iii) Percentage of infection. (iv) (a) 1951—1952. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The expt. was conducted by P.P.

5. RESULTS:
(i) 7.34 degrees
(ii) 3.3725 degrees
(iii) Main effects of M and D and interaction $M \times D$ are highly significant.
Crop : Bajra (Kharif).

Site : Allahabad Agri. Institute, Allahabad.

Object : To study the effect of different green manure crops on Bajra.

1. (a) Nil. (b) Wheat. (c) As per treatments. (ii) (a) N.A. (b) N.A. (ii) 2.7.1953. (iv) (a) N.A. (b) N.A. (c) 8 srs./ac. (d) 6 rows/plot. (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) Thinning on 29.7.1953 and 1.8.1953. (ix) 47.62°. (x) 23, 24 and 25.9.1953.

2. TREATMENTS:
   1. Control.
   2. Sannhemp.
   3. Cow pea.
   5. Dhaincha.


3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) 60' x 73'. (iii) 6. (iv) (a) 73' x 12'. (b) 69' x 8'. (v) Between blocks = 4.3' on either side. Between plots = 1.5'. 2' around the net-plot. (vi) Yes.

4. GENERAL:
   (i) Germination very good. (ii) N.A. (iii) Germination and yield of green fodder only. (iv) (a) No. (b) No. (c) Nil. (v) (a), (b) Nil. (vi) Nil. (vii) Experiment conducted by the Head, Agronomy Department, Allahabad Agricultural Institute, Allahabad.

5. RESULTS:
   (i) 23711 lb./ac.
   (ii) 3152.7 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21793</td>
</tr>
<tr>
<td>2</td>
<td>24972</td>
</tr>
<tr>
<td>3</td>
<td>24025</td>
</tr>
<tr>
<td>4</td>
<td>24228</td>
</tr>
<tr>
<td>5</td>
<td>23538</td>
</tr>
</tbody>
</table>

S.E./mean = 1287.1 lb./a².
Crop :- Bajra.  
Site :- Sikandra Rao and Hathras (Aligarh).  
Object :- To draw out fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Aligarh type 1 and type 2 soils. (iii) N.A. (iv) Improved. (v) (a) As practised locally. (b) Sown in lines parallel to the fertilizer band. (c) N.A. (d) Distance of 1'-2' away from the fertilizer line. (e) N.A. (vi) 26.6.1949 to 1.8.1949. (vii) N.A. (viii) N.A. (ix) N.A. (x) 11.9.1949 to 20.11.1949.

2. TREATMENTS:
   1. Control.
   2. 15 lb./ac. of N as A/S.
   3. 15 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super. A/S added to surface at sowing time. Super placed at a depth of about 3'-4' at the sole of the furrow and in the side of the seed row made by either an iron plough or two desi ploughs one behind the other in the same furrow.

3. DESIGN:
   (i), (ii) Villages selected in the district and unreplicated expt. laid out. 12 replications or trials were laid out. (iii) (a) N.A. (b) 1/40 acre.

4. GENERAL:
   (i) Satisfactory. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b), (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. conducted by A.C. on cultivators’ fields.

5. RESULTS:
   (i) 580 lb./ac.
   (ii) 1460 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>429</td>
</tr>
<tr>
<td>2.</td>
<td>618</td>
</tr>
<tr>
<td>3.</td>
<td>693</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>42.16 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Bajra (Kharif).  
Site :- In all tehsils of Aligarh.  
Object :- To draw out fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) July (vii) N.A. (viii) N.A. (ix) N.A. (x) October.

2. TREATMENTS:
   1. Control.
   2. A/S at 15 lb./ac. of N.
   3. A/S at 15 lb./ac. of N+Super at 30 lb./ac. of P₂O₅.

3. DESIGN:
   (i) and (ii) Field selected randomly in a randomly selected village in the district. No. of villages—23. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:
   (i) Generally crop damaged by rains. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. on cultivators’ fields.
5. Results:

(i) 1053 lb.ac.
(ii) 210.3 lb.ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>785</td>
</tr>
<tr>
<td>2.</td>
<td>1110</td>
</tr>
<tr>
<td>3.</td>
<td>1265</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>43.86 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Bajra (Kharif).
Site : Nawabganj (Bareilly).

Ref : U.P. 50 (237).
Type : ‘M’.

Object : To draw out fertilizer schedules for agriculturally important soil types.

1. Basal Conditions:

(i) (a) N.A. (b) N.A. (c) N.A. (ii) N.A. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. Treatments:

1. Control.
2. A/S at 15 lb./ac. of N.
3. A/S at 15 lb./ac. of N + Super 30 lb./ac. of P₂O₅.

3. Design:

(i) and (ii) Fields selected randomly in a randomly selected village in the district. No. of villages—4. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. General:

(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. on cultivators’ fields.

5. Results:

(i) 146 lb./ac.
(ii) 29.84 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>130</td>
</tr>
<tr>
<td>3.</td>
<td>208</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>14.92 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Bajra (Kharif).
Site : Bareilly and Aonla (Bareilly).

Ref : U.P. 51(240).
Type : ‘M’.

Object : To draw out fertilizer schedules for agriculturally important soil types.

1. Basal Conditions:

(i) (a) to (c) N.A. (ii) Bareilly type 3C and Bareilly type 3D. (iii) N.A. (iv) Improved. (v) (a) As practised locally. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) At a distance of 1”—2” away from the fertilizer line. (e) N.A. (vi) to (x) N.A.
2. TREATMENTS:
1. Control.
2. 15 lb./ac. of N as A/S.
3. 15 lb./ac. of N as A/S+30 lb./ac. of P₂O₅ as Super.
A/S broadcasted at the time of sowing and Super is applied to one of the plots over the N dose. Super is placed at a depth of 3"-4" at the sole of the furrow and in the sides of the furrows made either by an iron plough or two desli ploughs—one behind the other in the same field.

3. DESIGN:
(i) and (ii) Villages selected in the district and unreplicated expt. with the above 3 treatments laid out. 12 replications or trials. (iii) (a) N.A. (b) 1/40 ac. (iv) N.A.

4. GENERAL:
(i) Uniform and good condition. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. on cultivators' fields.

5. RESULTS:
(i) 1081 lb./ac.
(ii) 62.84 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>926</td>
</tr>
<tr>
<td>2.</td>
<td>1101</td>
</tr>
<tr>
<td>3.</td>
<td>1216</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=18.14 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :-Bajra (Kharif).
Site :-Etah and Jalesar (Etah).
Object :-To draw out fertilizer schedules for agriculturally important soil types.

2. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Domat. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

3. TREATMENTS:
1. Control.
2. A/S at 15 lb./ac. of N.
3. A/S at 15 lb./ac. of N+Super at 30 lb./ac. of P₂O₅.

3. DESIGN:
(i) and (ii) Field selected randomly in a randomly selected village in the district. No. of villages—15. (iv) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) N.A. (vii) Nil. (vii) The expt. was conducted by A.C. on cultivators' fields.

5. RESULTS:
(i) 911 lb./ac.
(ii) 81.90 lb./ac.
(iii) Treatment differences are highly significant.
(v) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>797</td>
</tr>
<tr>
<td>2.</td>
<td>930</td>
</tr>
<tr>
<td>3.</td>
<td>1005</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 21.15 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Bajra (Kharif).

Ref :- U.P. 53(578).

Site :- Institutional Research Farm, Bichpuri.

Type :- 'C'.

Object :- To study the effect of different spacings on yield of Bajra.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Wheat. (c) Sanai. (i) (a) Sandy loam. (b) Refer soil analysis, Bichpuri. (iii) 20.7.1953.
   (iv) (a) Ploughing by tractor and offset disc harrow. (b) Behind the plough shaped furrow at 3' depth. (c) 2
   hrs./ac. (d) As per treatments. (e) N.A. (v) Manuring on 18.7.1953 by farm compost at 400 lb./ac. by
   mixing it thoroughly with the soil. 10 lb./ac. of N as A/S at the time of tillering given on 16.8.1953 by
   putting fertilizer round each plant. (vi) Local varieties. (vii) Nil. (viii) Thinning, gapfilling, and hand
   weeding. (ix) 13.05°. (x) 10.10.1953.

2. TREATMENTS :
   Main-plot treatments :
   3 row to row spacings: S1 = 1', S2 = 1.5' and S3 = 2'.
   Sub-plot treatments :
   3 plant to plant spacings: P1 = 6', P2 = 12' and P3 = 18'.

3. DESIGN :
   (i) Split-plot. (ii) (a) 3 main-plots/block and 3 sub-plots/main-plot. (b) 70'x88'. (iii) (replication no. 2
discarded after sowing as sowing was wrongly done, hence effective replications are 5.). (iv) (a) N.A.
   (b) 24'x13'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Satisfactory. (ii) A mild attack of jowar grass hopper and top borer—plants removed. Infection of
   green ear disease and grain smut of bajra on the earheads. (iii) Grain and straw yield. (iv) (a) and (b)
   No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R. College, Agra.

5. RESULTS :
   (i) 906.2 lb./ac.
   (ii) (a) 69.1 lb./ac.
       (b) 213.5 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>913.4</td>
<td>979.2</td>
<td>822.9</td>
<td>905.2</td>
</tr>
<tr>
<td>S2</td>
<td>890.3</td>
<td>958.6</td>
<td>884.5</td>
<td>911.2</td>
</tr>
<tr>
<td>S3</td>
<td>872.2</td>
<td>880.5</td>
<td>954.5</td>
<td>902.4</td>
</tr>
<tr>
<td>Mean</td>
<td>892.0</td>
<td>939.4</td>
<td>887.3</td>
<td>906.2</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. S marginal means = 25.24 lb./ac.
2. P marginal means = 77.94 lb./ac.
3. P means at the same level of S = 135.0 lb./ac.
4. S means at the same level of P = 113.0 lb./ac.

Crop :- Bajra (Kharif).

Ref :- U.P. 48(191).

Site :- Agri. Res. Farm, Kalyanpur.

Type :- 'D'.

Object :- To study the best seed dressing for control of smut disease of Bajra.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) N.A. (b) Refer soil analysis, Kalyanpur. (iii) 3.7.1949. (iv) (a) to (c) N.A.
   (v) N.A. (vi) 8-B. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
1. Control.
2. Seeds treated with Agrosan G.N.
4. Seeds treated with cold water and dried in sun.
5. Seeds treated with cold water and dried in shade.
Each chemical at 1.52 gns./lb. of seed.

3. DESIGN:
(i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 50'×22'.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) Attack of smut.  (iii) % infection and grain yield.  (iv) (a) No.  (b) and (c) N.A.  (v) (a) and (b) N.A.  (vi) Nil.  (vii) Transform:ed back mean percentages are given after applying bias correction. The data has been converted into sin⁻¹√p and then analysed where p—percentage of infection. The experiment was conducted by P.P.

5. RESULTS:
(i) 10.80  (ii) 5.2273 degrees.
(iii) Treatment differences are highly significant.
(iv) 
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentage of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.39</td>
<td>11.39</td>
</tr>
<tr>
<td>2.</td>
<td>12.36</td>
<td>5.05</td>
</tr>
<tr>
<td>3.</td>
<td>5.14</td>
<td>1.29</td>
</tr>
<tr>
<td>4.</td>
<td>8.05</td>
<td>2.43</td>
</tr>
<tr>
<td>5.</td>
<td>9.08</td>
<td>2.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.1340 lb./ac.</td>
<td></td>
</tr>
</tbody>
</table>

Crop:— Bajra (Khadir).
Site:—Govt. Res. Farm, Kanpur.
Object:—To study the best seed dressing for control of smut disease of Bajra.

Ref:—U.P. 51(243).
Type:—‘D’.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) 8.8.1951.  (iv) (a) to (e) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
1. Control (untreated healthy seed).
2. Inoculated seed+Agrosan G.N.
3. Seed inoculated.
4. Hot water treated seed.
5. Soil inoculated.

3. DESIGN:
(i) R.B.D.  (ii) (a) and (b) 5.  (iii) 4.  (iv) (a) N.A.  (b) 34'×16'.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Percentage of infection.  (iv) (a) No.  (b) No.  (c) N.A.  (v) (a) and (b) No.  (vi) Nil.  (vii) The experiment was conducted by P.P.

5. RESULTS:
(i) 20.03  (ii) 4.5282 degrees.
(iii) Treatment differences are not significant.
Crop: Bajra (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of chemicals in controlling green ear diseases.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 5.8.1953. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (untreated seeds).
2. Sterilized inoculated with oosporic material.
3. Inoculated seeds with oosporic material + Agrosan G.N.
4. Soil inoculated with oosporic material.
5. Hot water treated seeds.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 30' x 12'. (b) 28' x 10'. (v) 1' all round the net plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) % of green ear disease infection. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.F.

5. RESULTS:
(i) 3.70 degrees.
(ii) 2.2091 degrees.
(iii) Treatment differences are highly significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees) corresponding to percentage infection</th>
<th>Transformed back mean percentages after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.70</td>
<td>10.68</td>
</tr>
<tr>
<td>2.</td>
<td>23.38</td>
<td>16.09</td>
</tr>
<tr>
<td>3.</td>
<td>15.92</td>
<td>7.95</td>
</tr>
<tr>
<td>4.</td>
<td>18.95</td>
<td>10.93</td>
</tr>
<tr>
<td>5.</td>
<td>23.18</td>
<td>15.83</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>-2.2641 degrees</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Bajra (Kharif).
Site :- Govt. Agri. Res. Farm, Kanpur.

Object :- To study the effect of seed dressing for controlling smut disease.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 29th July 1950. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
1. Control (untreated).
2. Seeds treated with Agrosan G.N.
3. Treated with Ceresan.
4. Treated with cold water and dried in sun.
5. Treated with cold water and dried in shade.
Chemical used at 1.52 gms. per lb. of seed.

3. DESIGN:
(i) R.B.D. (ii) 5 (b) N.A. (iii) 4. (iv) (a) N.A. (b) 34' x 16'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) % infection and yield of grain. (iv) (a) No. (b) JNo. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.P.

5. RESULTS:
(i) 22.95 degree.
(ii) 3.7282 degree.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean Angles</th>
<th>Transformed back mean % of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23.42</td>
<td>15.46</td>
</tr>
<tr>
<td>2</td>
<td>20.56</td>
<td>11.92</td>
</tr>
<tr>
<td>3</td>
<td>24.00</td>
<td>16.16</td>
</tr>
<tr>
<td>4</td>
<td>23.95</td>
<td>16.16</td>
</tr>
<tr>
<td>5</td>
<td>22.82</td>
<td>14.65</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>1.8641 degree.</td>
</tr>
</tbody>
</table>

Note:—The data has been converted into sin^-1 √p and then analysed. Transformed back mean percents are given after applying bias correction.

---

Crop : Barley (Rabi).
Site : Central Dairy Farm, Aligarh.
Object :-To study the effect of N and P₂O₅ applied alone and in combination on the yield of Barley.

1. BASAL CONDITIONS:

2. TREATMENTS:
All combinations of (1) and (2)
1. 3 levels of N : N₀=0, N₁=30 and N₂=60 lb./ac.
2. 3 levels of P₂O₅ : P₀=0, P₁=60 and P₂=120 lb./ac.
A/S was top dressed; P₂O₅ as Super was applied in deep furrows (3' x 4' deep) so that it was not in contact with seeds; manures applied on 1.11.1949.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) 9. (b) N.A. (iii) 6. (iv) N.A. (b) 1/40 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1949 -1951. (b) N.A. (c) N.A. (v) (a) No. (b) N.A. (vi) The field received washing from cattle shed, hence half of the field was highly manured. (vii) The experiment was conducted by Agricultural Chemist.

5. RESULTS:
(i) 1403 lb./ac.
(ii) 358.6 lb./ac.
(iii) Main effect of N alone is highly significant.
Crop :- Barley (Rabi).
Site :- Central Dairy Farm, Aligarh.

Object :- To study the effects of N and P₂O₅ applied alone and in combination on the yield of Barley crop.

1. BASAL CONDITIONS:
(i) (a) No. (b) Jowar fodder. (c) N.A. (ii) (a) Heavy loam. (Aligarh, type 3) (b) N.A. (iii) 18.11.1951.
(iv) (a) Four ploughings in all, two by Watt’s plough and two by desi plough, followed by harrowing and levelling. (b) Sown in lines. (c) to (e) N.A. (vi) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 26 and 27.3.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N :— N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
(2) 3 levels of P₂O₅ : P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
N as AJS was broadcast while P₂O₅ as Super was placed deep in bands near the root zone, through fertilizer drill and then pata applied.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 48’ x 23’. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Normal. (b) No. (iii) Grain yield. (iv) (a) 1949—1951. (b) No. (c) N.A. (v) (a) Varanasi. (b) (vi) Nil. (vii) The exp. was conducted by A.C.

5. RESULTS:
(i) 700.7 lb./ac.
(ii) 202.8 lb./ac.
(iii) Main effect of N is highly significant. Interaction N x P is significant. P effect is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>506.4</td>
<td>637.9</td>
<td>644.5</td>
<td>596.3</td>
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<tr>
<td>N₁</td>
<td>499.8</td>
<td>782.6</td>
<td>756.3</td>
<td>679.6</td>
</tr>
<tr>
<td>N₂</td>
<td>874.6</td>
<td>624.7</td>
<td>979.8</td>
<td>826.4</td>
</tr>
<tr>
<td>Mean</td>
<td>626.9</td>
<td>681.7</td>
<td>793.5</td>
<td>700.7</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean  = 47.80 lb./ac.
S.E. of body of table     = 82.80 lb./ac.
Crop : Barley (Rabi).  
Site : Agri. Institute, Allahabad.  
Object : To study the effect of organic manures on the yield of Barley.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Allahabad.  (iii) N.A.  (iv) (a) to (e) N.A.  
   (v) N.A.  (vi) N.A.  (vii) Irrigated.  (viii) N.A.  (ix) 1.23'.  (x) 17.3.1952.

2. TREATMENTS:
   1. Control.
   2. Farm compost at 60 lb./ac. of N.
   3. Castor cake at 60 lb./ac. of N.
   4. T.C. at 60 lb./ac. of N.
   5. T.C. at 30 lb./ac. of N.
   Manures applied as top dressing in standing crop on 5.12.1951.

3 DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 6.  (iv) (a) 49'×23'.  (b) 40'×18'.  (v) N.A.  (vi) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Grain yield.  (iv) (a) No.  (b) No.  (c) Nil.  (v) (a) No.  (b) N.A.  (vi) Nil. 
   (vii) The expt. was conducted by the Head, Agronomy Department, Allahabad (A.A.I).

5. RESULTS:
   (i) 1707 lb./ac.
   (ii) N.A.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1628</td>
</tr>
<tr>
<td>2.</td>
<td>1784</td>
</tr>
<tr>
<td>3.</td>
<td>1981</td>
</tr>
<tr>
<td>4.</td>
<td>1535</td>
</tr>
<tr>
<td>5.</td>
<td>1608</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>
5. RESULTS:
(i) 2121 lb./ac.
(ii) 177.6 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2111</td>
<td>72.5 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>2028</td>
<td>72.5 lb./ac.</td>
</tr>
<tr>
<td>3.</td>
<td>2123</td>
<td>72.5 lb./ac.</td>
</tr>
<tr>
<td>4.</td>
<td>2221</td>
<td>72.5 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Barley (Rabi).
Site : Govt. Res. Farm, Kanpur.

Object : To study the effect of coconut oil cake on Barley crop.

1. BASAL CONDITIONS:
(i) Nil. (b) Sanai for G.M. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 12.11.1949. (iv) (a) 4 ploughings with Watt's and victory plough; 3 ploughings with cultivator plough and 4 ploughings with desi plough.
(b) N.A. (c) 20 oz./plot. (d) and (e) N.A. (v) Nil. (vi) C-251 (early). (vii) Irrigated (viii) One hand weeding. (ix) N.A. (x) 29.3.1950.

2. TREATMENTS:
1. Control.
2. 25 lb./ac. of N as coconut oil cake.
3. 50 lb./ac. of N as coconut oil cake.
4. 75 lb./ac. of N as coconut oil cake.
Date of manuring : 1.12.1949.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 42.5' x 12.8'. (b) 39.5' x 11.3'. (v) 1.5' x 0.75'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight attack of smut. (iii) Grain yield, fresh and dry. (iv) (a) 1948—1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B.(R).

5. RESULTS:
(i) 2961 lb./ac.
(ii) 251.8 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2940</td>
<td>102.8 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>3055</td>
<td>102.8 lb./ac.</td>
</tr>
<tr>
<td>3.</td>
<td>3006</td>
<td>102.8 lb./ac.</td>
</tr>
<tr>
<td>4.</td>
<td>2843</td>
<td>102.8 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Barley (Rabi).
Site : Govt. Res. Farm, Kanpur.

Object : To study the residual effect of Mung T1, Sanai and Jowar fodder crops sown in Kharif 1950.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) As per treatments. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 3.11.1950. (iv) (a) 2 ploughings each with victory plough and desi plough.
(b) N.A. (c) 100 lb./ac. (d) 9* (e) N.A. (v) Nil. (vi) C-591. (vii) Irrigated. (viii) Irrigated. (vii) Hoeing and weeding once—28.2.1951. (ix) N.A. (x) 9, 10.4.1951.
2. TREATMENTS:
1. Fallow.
2. *Mung* T₁ (seed sown and straw ploughed in).
3. *Sanai* green manuring.
4. *Jowar* fodder.

3. DESIGN:
(i) R.B.D.  (ii) (a) 4.  (b) N.A.  (iii) 6.  (iv) (a) 30'×15'.  (b) 26'×13.5'.  (v) 2'×0.75'.  (vi) Yes.

4. GENERAL:
(i) Condition of *sanai* plots at time of turning—fair growth in all plots, some of them were diseased and showed uneven growth. The crop was full of weeds. *Barley* crop—good. (ii) Nearly all the treatments have been affected by stiple disease equally (about 2% incidence). *Smut* incidence is about 0.5% in all the plots. (iii) Germination and grain yield. (iv) (a) 1950—1953. (b) Yes. (c) N.A.  (v) (a) No. (b) N.A.  (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 2342 lb./ac.
(ii) 168.7 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2652</td>
</tr>
<tr>
<td>2.</td>
<td>1606</td>
</tr>
<tr>
<td>3.</td>
<td>2659</td>
</tr>
<tr>
<td>4.</td>
<td>2643</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>68.98 lb./ac</td>
</tr>
</tbody>
</table>

Crop: *Barley* (*Rabi*).  
Ref: U.P. 51(14) 50(22).  
Site: Govt. Res. Farm, Kanpur.  
Type: 'M'.

Object: To study the residual effect of *Mung* T₁, *Sanai* and *Jowar* fodder crops sown in *Kharif* 1950.

1. BASAL CONDITIONS:
(i) (a) No. (b) As per treatments. (c) Nil.  (ii) (a) Loam. (b) N.A.  (iii) 29.10.1951.  (iv) (a) 2 ploughings each with victory plough and desi plough. (b) N.A.  (c) 100 lb./ac.  (d) 9'.  (e) N.A.  (v) Nil.  (vi) C-251.  (vii) Irrigated.  (viii) Nil.  (ix) N.A.  (x) 1.4.1952.

2. TREATMENTS:
1. Fallow during *kharif*.
2. *Mung* T₁—pods picked up and plants turned in during *kharif*.
3. *Sanai* (G.M.) during *kharif*.
4. *Chari* for fodder during *kharif*.
   *Sanai* and *Jowar* were broadcasted and *Mung* was sown in lines 1½' apart.

3. DESIGN:
(i) R.B.D.  (ii) (a) 4.  (b) N.A.  (iii) 6.  (iv) (a) 30'×15.7'.  (b) 26'×14.25'.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) *Sanai* crop was below normal nearly in all the blocks due to poor rains and late sowing and *chari* crop was very poor in block no. 5 due to water logging. *Barley*—good. (ii) No. (iii) Germination and grain yield. (iv) (a) 1950—1953. (b) Yes. (c) N.A.  (v) (a) No. (b) N.A.  (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1201 lb./ac.  
117.1 lb./ac.  
Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>776</td>
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<tr>
<td>2.</td>
<td>1305</td>
</tr>
<tr>
<td>3.</td>
<td>1491</td>
</tr>
<tr>
<td>4.</td>
<td>1232</td>
</tr>
</tbody>
</table>

S.E./mean = 47.81 lb./ac.

Crop: Barley (Rabi).  
Ref: U.P. 52(47)/51(14)/50(22)  
Site: Govt. Res. Farm, Kanpur.  
Type: 'M'.

Object: To study the residual effect of mung T1, Sanai and Jowar fodder crops sown in Kharif 1950.

1. BASAL CONDITIONS:
   (i) (a) No. (b) As per treatments. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 29.10.1952. (iv) (a) 2 ploughings each with victory plough and desi plough. (b) N.A. (c) 100 lb./ac. (d) 9°. (e) N.A. (v) Nil. (vi) C-251. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 28.3.1953.

2. TREATMENTS:
   1. Fallow during kharif.
   2. Mung T1, pods picked up and plants turned in during kharif.
   3. Sanai green manuring during kharif.
   4. Chari during kharif.
   Amount N.A.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4 (in two flanks). (b) N.A. (iii) 6. (iv) (a) 30' x 15.75'. (b) 26' x 14.25'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Very good. (ii) No. (iii) Germination and yield of grain. (iv) (a) 1950—1953. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
   (i) 1310 lb./ac.
   (ii) 180.2 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1172</td>
</tr>
<tr>
<td>2.</td>
<td>1570</td>
</tr>
<tr>
<td>3.</td>
<td>1847</td>
</tr>
<tr>
<td>4.</td>
<td>650</td>
</tr>
</tbody>
</table>

S.E./mean = 73.58 lb./ac.

Crop: Barley (Rabi).  
Ref: U.P. 53(87)/52(47)/51(14)/50(22).  
Site: Govt. Res. Farm, Kanpur.  
Type: 'M'.

Object: To study the residual effect of mung T1, Sanai and Jowar fodder crops sown in kharif 1950.

1. BASAL CONDITIONS:
   (i) (a) No. (c) As per treatments. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1953. (iv) (a) 2 ploughings each with victory plough and desi plough. (b) N.A. (c) 100 lb./ac. (d) 9°. (e) N.A. (v) Nil. (vi) C-251 (medium). (vii) Irrigated. (viii) Weeding in mung T1 on 7.8.1953 and turning in of Sanai 8 times. (ix) N.A. (x) 29.3.1954.

2. TREATMENTS:
   1. Fallow (during kharif).
   2. Mung T1, pods picked up and plants turned in during kharif, sown on 4.7.1953 and harvested on 6.8.1953.
   3. Sanai green manure during kharif.
3. DESIGN:
(i) R.B.D. (ii) (a) 4 in two flanks. (b) N.A. (iii) 6. (iv) (a) 30' × 15.75' (b) 26' × 14.25' (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good; None of the plants showed any lodging. (ii) Nil. (iii) Germination, flowering and yield. (iv) (a) 1950—1953. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 849 lb./ac.
(ii) 333.5 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>796</td>
</tr>
<tr>
<td>2.</td>
<td>841</td>
</tr>
<tr>
<td>3.</td>
<td>897</td>
</tr>
<tr>
<td>4.</td>
<td>862</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>136.2 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Barley (Rabi).
Site : Govt. Res. Farm, Kanpur.

Object :—To study the N, P and K requirements of Barley.

1. BASAL CONDITIONS:
(i) (a) No. (b) Char for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 11.11.1951. (iv) (a) 2 ploughings each by victory plough, Watt's plough and desi plough. (b) N.A. (c) 100 lb./ac. (d) 9°. (e) N.A. (v) Nil. (vi) N.P. 2. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 25, 26 and 27.3.1952.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N : N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
(2) 3 levels of P₂O₅ : P₀ = 0, P₁ = 50 and P₂ = 100 lb./ac.
(3) 3 levels of K₂O : K₀ = 0, K₁ = 50 and K₂ = 100 lb./ac.
N as A/S and K₂O as pot. sulphate were dusted and P₂O₅ as Super applied in furrows before sowing.

3. DESIGN:
(i) 3×3×3 Fact. in R.B.D. (ii) (a) 27 in 3 flanks. (b) N.A. (iii) 3. (iv) (a) 40' × 11.25'. (b) 36' × 9.75'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Incidence of smut was observed. (iii) Germination and grain yield. (iv) (a) 1951—continued. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The ext. was conducted by E.B. (R).

5. RESULTS:
(i) 2615 lb./ac.
(ii) 383.6 lb./ac.
(iii) Main effect of N is highly significant. All others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
<th>P₀</th>
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Ref :—U.P. 51(15).
Type : 'M'.

Object:—To study the N, P and K requirements of Barley.
Crop: Barley (Rabi).

Site: Govt. Res. Farm, Kanpur.

Ref: U.P. 52(50)/51(15).

Type: 'M'.

Object: To study the N, P and K requirements of Barley.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Chari for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 2.11.1952. (iv) (a) 2 ploughings each by victory plough; Watt's plough and desi plough. (b) N.A. (c) 100 lb./ac. (d) 9". (e) N.A. (vi) Nil. (vii) N.P. 21 (viii) Irrigated. (vii) Weeding on 4.2.1953. (ix) N.A. (x) 25, 26.3.1953.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
   (2) 3 level of P₂O₅: P₀ = 0, P₁ = 50 and P₂ = 100 lb./ac.
   (3) 3 levels of K₂O: K₀ = 0, K₁ = 50 and K₂ = 100 lb./ac.
   N as A/S and K₂O as Pot. Sulphate were dusted and P₂O₅ as Super applied in furrows before sowing.

3. DESIGN:
   (i) 3 x 3 x 3 Fact. in R.B.D. (ii) (a) 27 in 3 flanks. (b) N.A. (iii) 3. (iv) (a) 15' x 10.5'. (b) 11' x 9'. (v) 2' x 0.75'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Germination and grain yield. (iv) (a) 1951—continued. (b) Yes. (c) No. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B.(R).

5. RESULTS:
   (i) 3132 lb./ac.
   (ii) 368.1 lb./ac.
   (iii) Main effect of N is highly significant; P effect is significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
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<td>3132</td>
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</table>

S.E. of any marginal mean = 72.5 lb./ac.
S.E. of body of table = 127.9 lb./ac.
Crop : Barley (Rabi).
Site : Govt. Res. Farm, Kanpur.
Object : To study the effects of N, P and K fertilizers on Barley.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Charai for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 12.11.1953. (iv) (a) Victory plough on 18.9.1953 ; cultivator on 30.9.1953 ; desi plough and pata on 29.10.1953, 1 and 12.11.1953. (b) N.A. (c) 80 lb./ac. (d) and (e) N.A. (v) Nil. (vi) N.P. 21 (medium). (vii) Irrigated. (viii) Weeding on 23.1.1954. (ix) N.A. (x) 31.3.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N : N₀=0, N₁=25, N₂=50 lb./ac.
(2) 3 levels of P₂O₅ : P₀=0, P₁=50 and P₂=100 lb./ac.
(3) 3 levels of K₂O : K₀=0, K₁=50 and K₂=100 lb./ac.
N as A/S and K₂O as pot. sulphate were dusted and P₂O₅ as Super applied in furrows before sowing.

3. DESIGN:
(i) 3×3×3 Fact. in R.B.D. (ii) (a) 27 in 3 flanks of 9 plot each. (b) N.A. (iii) 3. (iv) (a) 15′×10.5′. (b) 11′×9′. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Smut incidence affected the grain moderately. (iii) Germination, grain and straw yield. (iv) (a) 1951—continued. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B.(R). Although design is termed randomised block yet 27 treatments are not taken in a single block but in 3 blocks each containing 9 treatments (no confounding). So efficiency of design thus decreases.

5. RESULTS:
(i) 1840 lb./ac.
(ii) 254.11 lb./ac.
(iii) Main effects of N and P and interaction N×K are highly significant. Main effect K and other interactions are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
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<td>1829</td>
<td>2037</td>
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<tr>
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<td>2577</td>
<td>2414</td>
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<td>1903</td>
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</table>

S.E. of any marginal mean = 48.91 lb./ac.
S.E. of body of table = 84.71 lb./ac.

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Crop : Barley (Rabi).
Site : Govt. Res. Farm, Kanpur.
Object : To study the effect of N and P₂O₅ manures applied alone and in combination on the yield of Barley.

1. BASAL CONDITIONS:
(i) (a) No. (b) Jowar fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 26.10.1950. (iv) (a) 1 ploughing with victory and 4 ploughings with desi plough. (b) N.A. (c) 80 lb./ac. (d) and (e) N.A. (v) Nil. (vi) N.P.21. (vii) 1st irrigated. (viii) Weeding and hoeing on 28.2.1951. (ix) N.A. (x) 13 and 14.4.1951.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N: \( N_0 = 0, N_1 = 25 \) and \( N_2 = 50 \) lb./ac.
(2) 3 levels of \( P_2O_5 \): \( P_0 = 0, P_1 = 25 \) and \( P_2 = 50 \) lb./ac.
N as A/S broadcast and \( P_2O_5 \) as Super applied in furrows at sowing time.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 24' x 18'. (b) 20' x 16.5'. (v) 2' x 0.75'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) 1% to 2% smut diseased plants in all the treatments were observed. (iii) Germination and grain yield. (iv) (a) and (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B. (R).

5. RESULTS:
(i) 1702 lb./ac.
(ii) 292.4 lb./ac.
(iii) Only main effect N is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
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<tr>
<td>Mean</td>
<td>1594</td>
<td>1747</td>
<td>1765</td>
<td>1702</td>
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</table>

S.E. of any marginal mean = 84.4 lb./ac.
S.E. of body of table = 146.2 lb./ac.

---

Crop: Barley (Rabi).
Site: Govt. Res. Farm, Kanpur.
Ref: U.P. 50 (37).
Type: 'M'.

Object: To study the manurial value of coconut oil cake and castor cake on Barley.

1. BASAL CONDITIONS:
(i) (a) No. (b) Jowar for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 8.11.1950. (iv) (a) 1 ploughing with victory plough and 3 ploughings with desi plough. (b) N.A. (c) 80 lb./ac. (d) 9' apart. (e) N.A. (v) Nil. (vi) C-251. (vii) Irrigated. (viii) Weeding on 28.2.1951. (ix) N.A. (x) 10/11.4.1951.

2. TREATMENTS:
All combinations of (1) and (2) + a control (no manure).
1. 3 levels of N: \( N_1 = 25, N_2 = 50 \) and \( N_3 = 75 \) lb./ac.
2. 2 sources of N: \( S_1 \) = coconut oil cake and \( S_2 \) = castor cake.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (a) 36' x 14.25'. (b) 32' x 12.75'. (v) 2' x 0.75'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Plants were diseased—5% (stripe and smut). (iii) Germination and grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1189 lb./ac.
(ii) 130.9 lb./ac.
(iii) Levels of \( N \), source of N and control vs others effects are highly significant. Interaction levels x source is significant.
(iv) Av. yield of grain in lb./ac.

Control = 518 lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>N₂</th>
<th>N₃</th>
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<td>Mean</td>
<td>888</td>
<td>1396</td>
<td>1620</td>
<td>1301</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of S = 37.8 lb./ac.
S.E. of marginal mean of N = 46.3 lb./ac.
S.E. of body of table or control mean = 65.5 lb./ac.

Crop = Barley.
Site = Crop Physiological Res. Stn., Lucknow.
Ref = U.P. 53 (209).
Type = ‘M’.

Object: The study the effect of different sources of P₂O₅ fertilizer (in presence of adequate quantities of N, K and Ca) on growth and yield of Barley.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Jowar+Guar.  (c) N.A.  (ii) (a) Sandy loam.  (b) N.A.  (iii) 15.10.53.  (iv) (a) N.A.  
(b) Sown behind the desi plough.  (c) 40 sr./ac.  (d) and (e) N.A.  (v) A/S at 50 lb./ac. of N+Gypsum at 10 lb./ac. of Ca + Pot. Sul. at 20 lb./ac.  (vi) C-251 (Medcm).  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 7.4.1954.

2. TREATMENTS:
1. Control (no manure).
2. Super at 40 lb./ac. of P₂O₅.
3. Kotka phosphate at 40 lb./ac. of P₂O₅.
4. B.M. at 40 lb./ac. of P₂O₅.
Manuring on 14 and 15.10.1953 by placement.

3. DESIGN:
(i) R.B.D.  (ii) 4.  (b) N.A.  (iii) 3.  (iv) (a) 26’×20’.  (b) 22’×16’.  (v) 2’ all round the net plot.  (vi) Yes.

4. GENERAL:
(i) Lodging due to rains on 10.1.1954, and 20.2.1954.  (ii) N.A.  (iii) Grain and bhuna yield.  (iv) (a) No.  (b) and (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) The experiment was conducted by Crop Physiologist.

5. RESULTS:
(i) 995 lb./ac.
(ii) 107.1 lb./ac.
(iii) Treatments differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
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<tr>
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<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3.</td>
<td>976</td>
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<tr>
<td>4.</td>
<td>1146</td>
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<tr>
<td>S.E./mean</td>
<td>=61.8 lb./ac.</td>
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</table>
Crop :- Barley (Rabi).
Site :- Crop Physiological Res. Stn., Lucknow.
Object :-To study the effect of placement of fertilizers on growth and yield of Barley.

1. BASAL CONDITIONS :
   (i) (a) Green manure-Barley. (b) Sanai G.M. (c) Nil. (j) (a) Sandy loam. (b) N.A. (iii) 1.11.1953.
   (iv) (a) N.A. (b) Seeds were sown behind dest plough. (c) N.A. (d) Lines 9" apart. (e) N.A. (v) Nil.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 fertilizers : F1 = 60 lb./ac. of N as A/S, F2 = 50 lb./ac. of P2O5 as Super, F3 = 40 lb./ac. of K2O as
       Pot. sulphate and F4 = 6 lb./ac. of CaO as Gypsum.
   (2) 3 methods of application of the above fertilizers: M1 = By broadcast, M2 = Placement behind plough in
       furrows and M3 = Drilled mixed with seed through improved seed drill.

3. DESIGN:
   (i) 3x4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 32'x25'. (b) 29'x22'. (v) Plot border 2' and
       field border 5' around; block partition 3' and irrigation channel 3'. (vi) Yes.

4. GENERAL:
   (i) Unsatisfactory. Heavy lodging due to rain and wind on 10.1.1954 and 20.2.1954. (ii) Slight attack of
       smut. (iii) Grain and straw yield. (iv) (a) 1953—1957. (b) No. (c) No. (v) (a) Farrukhabad, Atarra
       and Pratapgarh. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
   (i) 1399 lb./ac. (ii) 355.04 lb./ac. (iii) Only M effect is significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
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<tr>
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</tr>
<tr>
<td>F4</td>
<td>1644</td>
<td>1802</td>
<td>1381</td>
<td>1609</td>
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</table>

Mean = 1310
S.E. of marginal mean of F = 118.4 lb./ac.
S.E. of marginal mean of M = 102.5 lb./ac.
S.E. of body of table = 205.0 lb./ac.

Crop :- Barley (Rabi).
Site :- Govt. Agri. Farm, Pura.
Object :-To study the effect of lime, iron and F.Y.M. and their combinations on Barley.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Jowar. (c) N.A. (ii) (a) Kanpur type 2—loam. (b) Refer soil analysis, Pura. (iii) 4.12.1953.
   (iv) (a) Paewa; field ploughed by dest plough. (b) Behind the plough. (c) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) 4.7°. (x) 14 and 15.4.1954.

2. TREATMENTS:
   1. Control (no manure).
   2. FeSO4 at 61 lb./ac. + lime at 13 lb./ac.
   3. F.Y.M. at 50 lb./ac. of N-f-treatment No. (2).
   4. F.Y.M. at 50 lb./ac. of N.
   Date of manuring 2.12.1953.
3. DESIGN:
   (i) Latin square. (ii) (a) N.A. (iii) 4. (iv) (a) N.A. (b) 26' × 42' (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Germination was good. Growth was very poor due to late sowing and late preparation of the field.
   (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) Experiment conducted by Agricultural Chemist.

5. RESULTS:
   (i) 430.8 lb./ac.
   (ii) 75.09 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
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<tr>
<td>3.</td>
<td>424.8</td>
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<tr>
<td>4.</td>
<td>529.5</td>
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<tr>
<td>S.E./mean</td>
<td>=37.54 lb./ac.</td>
</tr>
</tbody>
</table>

Crop := Barley (Rabi).
Site := Regional Res. Stn., Varanasi.

Object := To study the effect of N and P$_2$O$_5$ applied alone and in combination on the yield of Barley crop.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam (Varanasi type 2). (b) Refer soil analysis, Varanasi. (iii) 28.10.1951 and resown on 28.11.1951. (iv) (a) 8 preparatory ploughings given. (b) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 1". (x) 25 to 30.3.1952.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N : N$_1$=0, N$_2$=30 and N$_3$=60 lb./ac. of N.
   (2) 3 levels of P$_2$O$_5$ : P$_1$=0, P$_2$=60 and P$_3$=120 lb./ac.
   N as A/S broadcast and P$_2$O$_5$ as Super placed deep in bands near the root zone. Manuring on 26.10.1951.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 4' × 26'. (v) A distance of 1' to 3' from plot to plot and 3' to 4' from block to block was left out. (vi) Yes.

4. GENERAL:
   (i) Crop failed due to droughty conditions and hence crop was resown after palewa—progress satisfactory but stunted due to late sowing. (ii) No. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) Aligarh. (b) N.A. (vi) Nil. (vii) Experiment conducted by Agricultural Chemist.

5. RESULTS:
   (i) 1686 lb./ac.
   (ii) 220.3 lb./ac.
   (iii) N and P effects are highly significant. Interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P$_0$</th>
<th>P$_1$</th>
<th>P$_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N$_0$</td>
<td>1070</td>
<td>1137</td>
<td>1270</td>
<td>1159</td>
</tr>
<tr>
<td>N$_1$</td>
<td>1616</td>
<td>1782</td>
<td>1908</td>
<td>1769</td>
</tr>
<tr>
<td>N$_2$</td>
<td>1881</td>
<td>2187</td>
<td>2327</td>
<td>2132</td>
</tr>
<tr>
<td>Mean</td>
<td>1522</td>
<td>1702</td>
<td>1835</td>
<td>1686</td>
</tr>
<tr>
<td>S.E. of any marginal mean</td>
<td>=51.9 lb./ac.</td>
<td></td>
<td></td>
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<tr>
<td>S.E. of body of table</td>
<td>=89.9 lb./ac.</td>
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<td></td>
</tr>
</tbody>
</table>
Crop: Barley (Rabi).  
Site: Aonla (Bareilly).  

Object: To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  
   (ii) N.A.  
   (iii) N.A.  
   (iv) Improved.  
   (v) (a) to (e) N.A.  
   (vi) November 1950.  
   (vii) Generally irrigated.  
   (viii) N.A.  
   (ix) N.A.  
   (x) March—April.

2. TREATMENTS:
   1. Control (no manure).
   2. A/S at 30 lb./ac. of N.
   3. A/S at 30 lb./ac. of N+Super at 60 lb./ac. of P2O5.

3. DESIGN:
   (i) and (ii) Field selected randomly in a randomly selected village in the district. No. of villages—4.
   (iii) (a) and (b) N.A.  
   (iv) N.A.

4. GENERAL:
   (i) Generally average to poor growth.  
   (ii) N.A.  
   (iii) Grain yield.  
   (iv) (a) No.  
   (b) and (c) N.A.  
   (v) N.A.  
   (vi) Nil.  
   (vii) The experiment was conducted by Agricultural Chemist on cultivators' fields.

5. RESULTS:
   (i) 1252 lb./ac.
   (ii) 21.94 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
      Treatment  Av. yield
      1. 979
      2. 1248
      3. 1530
      S.E./mean = 10.97 lb./ac.

Crop: Barley (Rabi).  
Site: Bareilly and Baheri (Bareilly).  

Object: To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) to (c) N.A.  
   (ii) Bareilly soil type 7 (A and B combined).  
   (iii) N.A.  
   (iv) Improved.  
   (v) (a) As practised locally. After application of manure, the field is levelled by drawing a pata.  
   (b) Seeds sown in lines parallel to the fertilizer band.  
   (c) N.A.  
   (d) At a distance of 1" to 2" away from the fertilizer line.  
   (e) N.A.  
   (vi) N.A.  
   (vii) N.A.  
   (viii) N.A.  
   (ix) N.A.  
   (x) N.A.

2. TREATMENTS:
   1. Control.
   2. A/S at 30 lb./ac. of N.
   3. A/S at 30 lb./ac. of N+Super at 60 lb./ac. of N.

3. DESIGN:
   (i) and (ii) Villages selected in the district and unreplicated experiment laid out. 3 [replications or trials.  
   (iii) (a) and (b) N.A.  
   (iv) N.A.

4. GENERAL:
   (i) One trial has poor growth and the other two trials were sown late and were damaged by frost.  
   (ii) N.A.  
   (iii) Grain and straw yield.  
   (iv) (a) No.  
   (b) and (c) N.A.  
   (v) N.A.  
   (vi) Nil.  
   (vii) The experiment was conducted by Agricultural Chemist on cultivators' fields.
5. RESULTS:

(i) 799 lb./ac.
(ii) 20.28 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>647</td>
</tr>
<tr>
<td>2.</td>
<td>817</td>
</tr>
<tr>
<td>3.</td>
<td>933</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>11.71 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Barley (Rabi).
Site :- Ghazipur (Ghazipur).
Object: -To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) 1 trial in loam and 1 trial in sandy loam. (iii) N.A. (iv) N.A. (v) (a) 7 to 8 ploughings by desi plough. (b) Sown behind the plough. (c) 30 to 40 srs./ac. (d) 4" to 6" between rows. (e) N.A. (vi) 24 and 25.10.1953. (vii) Irrigated by well. (viii) N.A. (ix) N.A. (x) 14 and 15.3.1954.

2. TREATMENTS:

1. Control.
2. 25 lb./ac. of N.
3. 25 lb./ac. of N+30 lb./ac. of P₂O₅.
4. 25 lb./ac. of N+60 lb./ac. of P₂O₅.

N as A/S applied broadcast before sowing. P₂O₅ as Super, placed deep in furrows behind the plough before sowing.

3. DESIGN:

(i) and (ii) 2 villages were selected in the tehsil. In both the villages, one field each was selected. (iii) (a) N.A. (b) Different sizes, area=1/40 ac. (iv) N.A.

4. GENERAL:

(i) Good. (ii) One trial damaged by rats. (ii) Grain and straw yield. (iv) (a) 1953—continued. (b) and (c) N.A. (v) N.A. (vi) Interaction village×treatment has been taken as the error. (vii) Exp. conducted by A.C. on cultivators’ fields.

5. RESULTS:

(i) 1030 lb./ac.
(ii) 132.7 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>820</td>
</tr>
<tr>
<td>2.</td>
<td>1080</td>
</tr>
<tr>
<td>3.</td>
<td>1060</td>
</tr>
<tr>
<td>4.</td>
<td>1160</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>93.80 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: -Barley.
Site: -Saidpur (Ghazipur).
Object: -To draw out fertilizer schedules for agriculturally important soil types.

1. BASAL CONDITIONS:

(i) N.A. (b) Fallow for 3 trials, early paddy for 1 trial, Sanai fibre for 1 trial and Jowar for 1 trial. (c) N.A. (ii) 4 trials in clayey loam to clayey, 2 trials in loam. (iii) N.A. (iv) N.A. (v) (a) 7 to 8 ploughings by desi plough. (b) Sown behind the plough. (c) 30 to 40 srs./ac. (d) 4" to 6" between rows. (e) N.A. (vi) 24.10.53 to 13.11.53. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 8.3.1954 to 24.3.1954.
2. TREATMENTS:
1. Control.
2. 25 lb./ac. of N.
3. 25 lb./ac. of N+30 lb./ac. of P₂O₅
4. 25 lb./ac. of N+60 lb./ac. of P₂O₅
N as A/S applied broadcast before sowing. P₂O₅ as Super placed deep in furrows behind the plough.

3. DESIGN:
(i) and (ii) 5 villages were selected in the Tehsil. In 1 village 2 fields were selected and in 4 villages, one field was selected. (ii) (a) N.A. (b) Different plot sizes; area 1/40 acre. (iv) N.A.

4. GENERAL:
(i) Fair in 3 trials, good in 2 trials and poor in 1 trial. (ii) N.A. (iii) Grain and straw yield. (iv) (a) 1953-1954. (v) N.A. (vi) Interaction village×treatment has been taken as error because it comes out to be significant when tested against interaction treatment×fields within villages. (vii) Expt. conducted by A.C. on cultivators’ fields.

5. RESULTS:
(i) 955.8 lb./ac.
(ii) 197.83 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>610.0</td>
</tr>
<tr>
<td>2.</td>
<td>830.0</td>
</tr>
<tr>
<td>3.</td>
<td>1076.7</td>
</tr>
<tr>
<td>4.</td>
<td>1306.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 80.76 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Barley (Rabi).
Site :- Bilhaur and Ghatampur (Kanpur).

Ref. :- U.P. 49(188).

Type :- ‘M’.

Object :- To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Kanpur type 1 soils, type 2 soils and type 3 soils. (iii) N.A. (iv) Improved. (v) (a) As practised locally. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) At a distance of 1"-2" away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (ix) N.A. (x) 23.2.1950 to 9.4.1950.

2. TREATMENTS:
1. Control.
2. A/S at 30 lb./ac. of N.
3. A/S at 30 lb./ac. of N+Super at 60 lb./ac. of P₂O₅
N added to surface at sowing time. Super placed at a depth of 3'-4' deep in the sole of the furrow and in the side of the seed row made by either an iron plough or two desi ploughs one behind the other in the same furrow.

3. DESIGN:
(i) and (ii) Villages selected in the district and unreplicated expt. with the above three treatments laid out. 3 replications or trials were laid. (iii) (a) N.A. (b) N.A. but is taken to be about 1/40 ac. (iv) N.A.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b), (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. on cultivators’ fields.

5. RESULTS:
(i) 1423 lb./ac.
(ii) 167.5 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1148</td>
</tr>
<tr>
<td>2.</td>
<td>1366</td>
</tr>
<tr>
<td>3.</td>
<td>1756</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 74.90 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Barley (Rabi).  
Site :- Chunar and Mirzapur. (Mirzapur).  
Object — To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) Type 1 B (Southern Flats) Type 1C (Karail), Type 1D (Northern up-lands), Type 1 E (Eastern low lands), Type 2 A (Vindhyan up-lands), Type 2 B (Vindhyan Flats), Type 2 C (Vindhyan low lands). (iii) N.A. (iv) Improved. (v) (a) As practised locally. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) At a distance of 1' to 2' away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control.
   2. A/S at 30 lb./ac. of N.
   3. A/S at 30 lb./ac. of N + Super at 60 lb./ac. of P$_{2}$O$_{5}$.

3. DESIGN:
   (i) and (ii) Villages selected in the district and unreplicated experiment with the 3 treatments conducted. (iii) (a) and (b) N.A. but roughly about 1/40 ac. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain and bhuna yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist on cultivators' fields.

5. RESULTS:
   (i) 1010 lb./ac.
   (ii) 177.1 lb./ac.
   (iii) Treatment differences are highly significant.  

   Treatment | Av. yield |
   -----------|-----------|
   1.         | 754       |
   2.         | 992       |
   3.         | 1285      |
   S.E./mean | 44.28 lb./ac. |

---

Crop :- Barley (Rabi).  
Site :- Robertsganj and Dudhi (Mirzapur).  
Object — To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Domat, Karail and Dhanaswar. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control.
   2. 30 lb./ac. of N as A/S.
   3. 30 lb./ac. of N as A/S + 60 lb./ac. of P$_{2}$O$_{5}$ as Super.

3. DESIGN:
   (i) and (ii) Field selected randomly in a randomly selected village in the district. N. of villages—9. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:
   (i) Good to poor growth. (ii) N.A. (iii) Grain yield. (iv) (a) no. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist on cultivators' fields.
5. RESULTS:

(i) 1773 lb./ac.
(ii) 149.6 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1538</td>
</tr>
<tr>
<td>2.</td>
<td>1787</td>
</tr>
<tr>
<td>3.</td>
<td>1993</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>49.85</td>
</tr>
</tbody>
</table>

Crop: Barley (Rabi).
Site: Varanasi and Chandauli (Varanasi).
Ref: U.P. 50(235).
Type: 'M'.

Object: To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) November. (vii) Generally irrigated. (viii) N.A. (ix) N.A. (x) March—April.

2. TREATMENTS:

1. Control (no manure).
2. A/S at 30 lb./ac. of N.
3. A/S at 30 lb./ac. of N-Super at 60 lb./ac. of P₂O₅.

3. DESIGN:

(i) and (ii) Field selected randomly in randomly selected village in the district. No. of villages—14. (iii) (a) N.A. (b) N.A. but generally 1/40 ac. (iv) N.A.

4. GENERAL:

(i) Generally good. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist on cultivators' fields.

5. RESULTS.

(i) 1629 lb./ac.
(ii) 184.7 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1296</td>
</tr>
<tr>
<td>2.</td>
<td>1577</td>
</tr>
<tr>
<td>3.</td>
<td>2015</td>
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<tr>
<td>S.E./mean</td>
<td>49.37</td>
</tr>
</tbody>
</table>

Crop: Barley (Rabi).
Site: Govt. Res. Farm, Kanpur.
Ref: U.P. 50(23).
Type: 'MV'.

Object: To study the optimum dose of N along with varieties of Barley.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Jowar for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 5.11.1950. (iv) (a) One ploughing with victory plough. Two ploughings by desi plough. (b) Line sowing. (c) 80 lb./ac. (d) Rows 9" apart. (v) Nil. (vi) C·251 and NP-21. (vii) Irrigated on 30.11.1950. (viii) Weeding on 28.2.1951. (ix) N.A. (a) 16-4-1951.

2. TREATMENTS:

All combinations of (1) and (2)
(1) 2 varieties: V₁=C·251 and V₂=NP-21.
(2) 3 levels of N as A/S: N₀=0, N₁=25 and N₂=50 lb./ac.
3. DESIGN:
(i) 3 x 2 Fact. in R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) 24' x 12.75'. (b) 20' x 11.25'. (v) One row on either side and 2' at each end of the plot. Between plots = 2' and between blocks 4'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Barley C-25 had strip disease about 2.0% and smut 0.5%. Barley NP-21 was badly affected by smut (up to 20% in some of the plots) and strip disease (0.5%). (iii) Germination and grain yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) The experiment was to compare the yield of wheat and barley under similar conditions of manuring. In the experiment along with the 3 levels of manuring, 2 varieties each of wheat and barley were tested giving 12 treatments in each replication. This proforma has been filled in for barley and another proforma has been filled in for wheat crop. (vii) Experiment conducted by E.B. (Rabi cereals and potatoes) to Government U.P., Kanpur.

5. RESULTS:
(i) 1225 lb./ac. (ii) 149.9 lb./ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>635</td>
<td>548</td>
<td>592</td>
</tr>
<tr>
<td>N1</td>
<td>1332</td>
<td>1232</td>
<td>1282</td>
</tr>
<tr>
<td>N2</td>
<td>1718</td>
<td>1886</td>
<td>1802</td>
</tr>
<tr>
<td>Mean</td>
<td>1228</td>
<td>1222</td>
<td>1225</td>
</tr>
<tr>
<td>S.E. of marginal mean of N</td>
<td>53.0 lb./ac.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.E. of marginal mean of V</td>
<td>43.3 lb./ac.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.E. of body of table</td>
<td>75.0 lb./ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop := Barley (Rabi).
Site := Govt. Res. Farm, Kanpur.

Object :- To study the optimum dose of N along with varieties of barley.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Chaff. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 12.11.1951. (iv) Ploughings by victory plough on 4.10.51, cultivator on 7.10.51, desi plough on 26, 27.10.51. (b) Line sowing. (c) 100 lb./ac. (d) 9' apart. (e) N.A. (f) Nil. (g) C-251 and N.P.21. (h) Irriga ted. (i) Weeding on 14.12.51, and 1.1.1952. (ix) N.A. (x) 1 and 2.4.1952.

2. TREATMENTS:
All combinations of (1) and (2): (i) 2 varieties : V1=C-251 and V2=N.P.-21. (ii) 3 levels of N : N0=0, N1=25 and N2=50 lb./ac.

3. DESIGN:
(i) 3 x 2 Fact in R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) 23' x 12.75'. (b) 19' x 11.25'. (c) One row on either side and 2' at each end of the plot. Between plots = 2', between blocks 4'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Germination and grain yield. (iv) (a) 1950-1952. (b) N.A. (c) Nil. (v) (a) No. (b) No. (v) The experiment was to compare the yield of wheat and barley under similar conditions of manuring. In the experiment along with the 3 levels of manuring, 2 varieties each of wheat and barley were tested giving 12 treatments (in each replication). This proforma is for barley and another has been filled in for wheat crop. (vii) Experiment conducted by E.B. (Rabi cereals and potatoes) to Govt., U.P., Kanpur.
5. RESULTS:

(i) 1464 lb./ac.
(ii) 339.9 lb./ac.
(iii) Only main effect of N is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>819</td>
<td>1022</td>
<td>920</td>
</tr>
<tr>
<td>N₁</td>
<td>1697</td>
<td>1421</td>
<td>1559</td>
</tr>
<tr>
<td>N₂</td>
<td>2063</td>
<td>1762</td>
<td>1912</td>
</tr>
</tbody>
</table>

Mean = 1526 lb./ac. = 1464 lb./ac.

S.E. of marginal mean of N = 120.2 lb./ac.
S.E. of marginal mean of V = 98.1 lb./ac.
S.E. of body of table = 169.9 lb./ac.

Crop: Barley (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the optimum dose of N for different varieties of Barley.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Charli. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 3.11.1952. (iv) (a) Ploughings and harrowing by victory on 10.8.1952. by cultivator on 20.9.1952 and by desi on 4.5.10.1952, 28.10.1952 and 2.11.1952.
(b) Line sowing. (c) mixture of 80 lb./ac. (d) rows 9" apart. (e) Nil. (vi) C-251. (vii) Irrigated. (viii) Nil.

2. TREATMENTS:

All combinations of (1) and (2).
(1) 2 varieties: V₁=C-251 and V₂=NP-21.
(2) 3 levels of N: N₀=0, N₁=25 and N₂=50 lb./ac.

3. DESIGN:

(i) 3×2 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 23×12.75'. (b) 19×10.75'. (v) One row on either side and at each end of the plot. Between plots 2' and between blocks 4'. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Attack of rust. (iii) Germination and grain yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) and (b). (vi) The experiment was to compare the yield of wheat and barley under similar conditions of manuring. In that experiment along with the 3 levels of manuring, 2 varieties each of wheat and barley were tested giving 12 treatments (in each replication). This proforma has been filled for barley and another has been filled in for wheat. (vii) The experiment is conducted by E.B. (Rabi cereals and potatoes) to Govt., U.P. Kanpur.

5. RESULTS:

(i) 2571 lb./ac.
(ii) 283.0 lb./ac.
(iii) Main effects of N and V are highly significant. Interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
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<td>2392</td>
<td>2262</td>
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<tr>
<td>N₁</td>
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<td>2666</td>
</tr>
<tr>
<td>N₂</td>
<td>2619</td>
<td>2948</td>
<td>2784</td>
</tr>
</tbody>
</table>

Mean = 2390 lb./ac. = 2751 lb./ac. = 2571 lb./ac.

S.E. of marginal mean of N = 100.1 lb./ac.
S.E. of marginal mean of V = 81.7 lb./ac.
S.E. of body of table = 141.5 lb./ac.
Crop :-Barley (Rabi).

Site :-Govt. Res. Farm, Kanpur.

Ref .:-U.P. 53(94).

Type :-‘MV’.

Object :-To study the effect of application of P₂O₅ on yield of Barley varieties.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 2.11.1953. (iv) (a) Turning in of sanai on 2.9.1953 with victory plough ; desi plough and pata on 25 and 30.10.1953. (b) Sown behind plough. (c) 4.25 oz./plot. (d) Rows 9’ apart. (e) N.A. (v) Nil.(vi) C-251 and NP-21 (vii) Irrigated. (viii) Weeding on 18.1.1954. (ix) N.A. (x) 6.4.1954.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 2 varieties: V₁ =C-251 and V₂ =NP-21.
   (2) 5 phosphate treatments : P₀ =Control, P₁ =50 lb./ac. of P₂O₅ as Super in furrows, P₂ =50 lb./ac. of P₂O₅ as Super broadcast, P₃ =100 lb./ac. of P₂O₅ as Super in furrows and P₄ =100 lb./ac. of P₂O₅ as Super broadcast.

3. DESIGN :
   (i) 5x2 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 16’x9’. (b) 12’x7.5’. (v) 2’x0.75’ (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Slight incidence of smut and rust. (iii) Grain and bhusha yield. (iv) (a) 1953—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B.(R).

5. RESULTS :
   (i) 1987 lb./ac. (ii) 795.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>P₄</th>
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<tr>
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<td>1431</td>
<td>1758</td>
<td>2007</td>
<td>1556</td>
<td>2131</td>
<td>1777</td>
</tr>
<tr>
<td>V₂</td>
<td>2099</td>
<td>2100</td>
<td>1805</td>
<td>1960</td>
<td>2909</td>
<td>2197</td>
</tr>
<tr>
<td>Mean</td>
<td>1820</td>
<td>1929</td>
<td>1906</td>
<td>1758</td>
<td>2520</td>
<td>1987</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of P =281.3 lb./ac.
S.E. of marginal mean of V =177.8 lb./ac.
S.E. of body of table =397.8 lb./ac.

---

Crop :-Barley (Rabi).

Site :-Govt. Res. Farm, Kanpur.

Ref .:-U.P. 53(91).

Type :-‘C’.

Object :-To study dibbling as a method of sowing Barley.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sanai (green manure). (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 1.11.1953. (iv) (a) Light palewa on 12.101953. Watt’s plough and pata on 11.10.1953. (b) As per treatments. (c) N.A. (d) 9”x6”. (e) N.A. (v) Nil. (vi) K-12 (medium). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 29.3.1954.

2. TREATMENTS :
   5 methods of sowing : S₁ =1 seed/hole, S₂ =2 seeds/hole, S₃ =3 seeds/hole, S₄ =4 seeds/hole and S₅ =80 lb./ac. broadcast.

3. DESIGN :
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 10”x6”. (v) Nil. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Slight attack of smut and rust. (iii) Grain, straw and dry grain yield. (iv) (a) 1953—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B.(R).

5. RESULTS:
(i) 4475 lb./ac.
(ii) 497.0 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of straw in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
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</tr>
<tr>
<td>S₂</td>
<td>4807</td>
</tr>
<tr>
<td>S₃</td>
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<tr>
<td>S₄</td>
<td>4270</td>
</tr>
<tr>
<td>S₅</td>
<td>4060</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 248.5 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Barley (Rabi).
Site: Govt. Res. Farm, Kanpur.
Ref.: U.P. 51(13).
Type: ‘CV’.

Object: To study the optimum sowing date for different varieties of Barley.

1. BASAL CONDITIONS:
(i) (a) No. (b) Sanai. (c) Nil.  (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 1 ploughing each with victory, desi and cultivator. (b) N.A. (c) 100 lb./ac. (d) Rows 9” apart. (e) N.A. (v) Nil.  (vi) As per treatments. (vii) Irrigated. (viii) Nil.-(ix) N.A. (x) 1.4.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 varieties: V₁ = NP-21, V₂ = CN-292 and V₃ = CN-294.
(2) 3 sowing dates: D₁ = 19.10.1951, D₂ = 3.11.1951 and D₃ = 20.11.1951.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D.  (ii) (a) 9.  (b) N.A. (iii) 4. (iv) (a) 28’ x 12’. (b) 24’ x 10.5’. (v) 2’ x 0.75’. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Traces of smut disease were observed. (iii) Germination and grain yield. (iv) (a) 1951—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1248 lb./ac.
(ii) 319.5 lb./ac.
(iii) Main effect of V alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
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</tr>
<tr>
<td>V₂</td>
<td>722</td>
<td>906</td>
<td>733</td>
<td>787</td>
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<tr>
<td>V₃</td>
<td>806</td>
<td>1256</td>
<td>956</td>
<td>1006</td>
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<tr>
<td>Mean</td>
<td>1200</td>
<td>1365</td>
<td>1180</td>
<td>1248</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 92.3 lb./ac.
S.E. of body of table = 159.8 lb./ac.
Crop: Barley (Rabi).

Site: Govt. Res. Farm, Kanpur.

Object: To study the optimum sowing date for different varieties of Barley.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Sanai. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 2 ploughings with victory plough, 4 with desi and 1 with cultivator. (b) N.A. (c) 80 lb./ac. (d) Rows 9' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding on 18.12.1950. (ix) N.A. (x) 31.3.1953.

2. TREATMENTS:
   All combinations of (1) and (2)

3. DESIGN:
   (i) 4x4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) and (b) 18' x 6'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good, but lodging took place when the field was irrigated and followed by strong wind. (ii) Traces of smut disease were seen. (iii) Germination and yield of grain. (iv) (a) 1951—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 2688 lb./ac.
   (ii) 360.7 lb./ac.
   (iii) Main effect of V alone is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>Mean</th>
</tr>
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<tr>
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<td>3993</td>
<td>4239</td>
<td>3513</td>
<td>3896</td>
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<tr>
<td>V2</td>
<td>1867</td>
<td>1828</td>
<td>1776</td>
<td>1906</td>
<td>1844</td>
</tr>
<tr>
<td>V3</td>
<td>1646</td>
<td>1659</td>
<td>1556</td>
<td>1335</td>
<td>1549</td>
</tr>
<tr>
<td>V4</td>
<td>3436</td>
<td>3371</td>
<td>3345</td>
<td>3695</td>
<td>3462</td>
</tr>
</tbody>
</table>

Mean 2696 2713 2729 1612 2688

S.E. of any marginal mean = 90.2 lb./ac.
S.E. of body of table = 180.4 lb./ac.

---

Crop: Barley (Rabi).

Site: Govt. Res. Farm, Kanpur.

Object: To study the optimum sowing dates for Barley varieties.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for G.M. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) Light palowa on 12.10.1953, victory plough on 19.9.1953; cultivator on 30.9.1953, spring harrowing and pata on 18.10.1953; desi plough and pata on 24.10.1953 and 26.10.1953. (b) N.A. (c) 80 lb./ac. (d) Rows 8' apart. (*) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 30.3.1954.

2. TREATMENTS:
   All combinations of (1) and (2)

3. DESIGN:
   (i) 4x4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) and (b) 18' x 6'. (v) Nil. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Slight attack of smut rust. (iii) Grain and straw yield. (iv) (a) 1951—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1792 lb./ac.
(ii) 372.9 lb./ac.
(iii) Main effect of V alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
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<th>D₃</th>
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<tr>
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<td>1063</td>
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<td>Mean</td>
<td>1834</td>
<td>1686</td>
<td>1769</td>
<td>1880</td>
<td>1792</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 93.2 lb./ac.
S.E. of body of table = 186.5 lb./ac.

Crop: Barley (Rabi).
Site: Govt. Res. Farm, Kanpur.
Object: To study on the effect of cold storage on Barley varieties.

1. BASAL CONDITIONS:
(i) (a) No. (b) Sanai for G.M. (c) No. (ii) (a) Loam. (b) N.A. (iii) 15.11.1950. (iv) (a) 3 ploughings with victory plough, 4 ploughings with desl plough. (b) N.A. (c) 1 oz/plot. (d) Between rows 1'. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding on 26.2.1951. (ix) N.A. (x) 10, 11.4.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(2) 2 methods of storage of seed: M₁=Cold storage and M₂=Ordinary.
variety CN-293 was untreated and hence excluded from analysis.

3. DESIGN:
(i) 6 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 7' x 5'. (b) 7' x 3'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Very good. (ii) No. (iii) Germination and grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1930 lb./ac.
(ii) 273.8 lb./ac.
(iii) Main effect of V alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>V₄</th>
<th>V₅</th>
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<td>M₂</td>
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<td>2333</td>
<td>2512</td>
<td>2074</td>
<td>843</td>
<td>1426</td>
<td>1939</td>
</tr>
<tr>
<td>Mean</td>
<td>2520</td>
<td>2512</td>
<td>2382</td>
<td>2018</td>
<td>826</td>
<td>1320</td>
<td>1930</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of V = 96.8 lb./ac.
S.E. of marginal mean of M = 55.9 lb./ac.
S.E. of body of table = 136.9 lb./ac.
Crop: Barley (Rabi).

Object: To study the optimum sowing date for Barley varieties.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Cow peas. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) As per treatments. (iv) (a) 3 ploughings by desi plough. (b) to (e) N.A. (v) 1.5 md./ac. of A/S, top dressed. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 31.3.1949.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: \( V_1 = \text{N.P.21} \) and \( V_2 = \text{C-251} \).
   (2) 4 sowing dates: \( D_1 = 22.10.1948 \), \( D_2 = 29.10.1948 \), \( D_3 = 5.11.1948 \) and \( D_4 = 12.11.1948 \).

3. DESIGN:
   (i) \( 2 \times 4 \) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 40' X 21'. (b) 37' X 19.5'. (v) One row on either side and 11' at each end of the plot. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Attack by rust. (iii) Grain and straw yield. (iv) (a) 1944—1948. (b) and (c) No. (v) (a) and (b) No. (vi) The crop did not attain as much height as during the previous year. Yellow rust was plenty and hence the yield was somewhat below expectation. (vii) Expt. was conducted by E.B.(R).

5. RESULTS:
   (i) 1568 lb./ac.
   (ii) 319.7 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
</tr>
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<tbody>
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<td>( D_1 )</td>
<td>1934</td>
<td>1246</td>
<td>1590</td>
</tr>
<tr>
<td>( D_2 )</td>
<td>1400</td>
<td>1482</td>
<td>1441</td>
</tr>
<tr>
<td>( D_3 )</td>
<td>1749</td>
<td>1609</td>
<td>1679</td>
</tr>
<tr>
<td>( D_4 )</td>
<td>1637</td>
<td>1485</td>
<td>1561</td>
</tr>
</tbody>
</table>

   S.E. of marginal mean of \( V \) = 79.9 lb./ac.
   S.E. of marginal mean of \( D \) = 113.0 lb./ac.
   S.E. of body of table = 159.8 lb./ac.

---

Crop: Barley (Rabi).

Object: To study the optimum dose of N in combination with seed rates for Barley.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Jowar for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 5.11.1950. (iv) (a) One ploughing with victory plough and two ploughings with desi plough. (b) N.A. (c), (d) and (e) N.A. (v) Nil. (vi) N.P.-21. (vii) Irrigated. (viii) Weeding on 28.2.1951. (ix) N.A. (x) 15, 16.4.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 levels of N as A/S: \( N_1 = 25 \), \( N_2 = 50 \), \( N_3 = 75 \) and \( N_4 = 100 \) lb./ac.
   (2) 4 seed rates: \( S_1 = 40 \), \( S_2 = 60 \), \( S_3 = 80 \) and \( S_4 = 100 \) lb./ac.

A/S broadcast at the time of sowing.
3. DESIGN:
(i) 4 x 4 Fact. in R.B.D. (ii) (a) 16 plots in two flanks. (b) N.A. (iii) 4. (iv) (a) 38' x 12.75'. (b) 34' x 11.25'.
(v) 2' x 0.75'. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Smut incidence is about 4 to 5% in all the plots of different treatments. Different doses of manuring and seed rates do not seem to have any effect on disease incidence. (iii) Germination and grain yield. (iv) (a) 1950—1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment conducted by E.B. (R).

5. RESULTS:
(i) 2037 lb./ac.
(ii) 274.9 lb./ac.
(iii) Main effect of N alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N_1</th>
<th>N_2</th>
<th>N_3</th>
<th>N_4</th>
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</tr>
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<td>Mean</td>
<td>1484</td>
<td>2056</td>
<td>2296</td>
<td>2312</td>
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S.E. of any marginal mean = 68.7 lb./ac.
S.E. of body of table = 137.4 lb./ac.

Crop: Barley (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the optimum dose of N in combination with seed rates for Barley.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Jowar for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 12.11.1951. (iv) (a) 2 ploughings by victory plough, 1 by cultivator and 2 by desi plough. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Nil. (vi) C-251. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 28,29,3.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 levels of N as A/S: N_0 = 0, N_1 = 25, N_2 = 50 and N_3 = 75 lb./ac.
(2) 4 seed rates: S_1 = 40, S_2 = 60, S_3 = 80 and S_4 = 100 lb./ac.
A/S broadcast at sowing time.

3. DESIGN:
(i) 4 x 4 Fact. in R.B.D. (ii) (a) 16 in 2 flanks. (b) N.A. (iii) 4. (iv) (a) 38' x 12.75'. (b) 34' x 11.25'.
(v) 2' x 0.75'. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Disease of smut was observed. (iii) Germination and grain yield. (iv) (a) 1950—1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 1550 lb./ac.
(ii) 284.2 lb./ac.
(iii) Main effect of N alone is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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Mean: 1163, 1480, 1764, 1795, 1550

S.E. of any marginal mean = 71.0 lb./ac.
S.E. of body of table = 142.1 lb./ac.

Crop: Barley (Rabi).
Site: Govt. Res. Farm, Kanpur.
Ref: U.P. 52(48).
Type: ‘CM’.

Object: To study the optimum dose of N in combination with seed rates for Barley.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Charī (Jowar for fodder). (ii) (a) Loam. (b) N.A. (iii) 3.11.1952. (iv) (a) One ploughing with victory plough and two with desī plough. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Nil. (vi) C-251. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 26/27.3.1953.

2. TREATMENTS:
   (1) 4 levels of N as A/S: N₀ = 0, N₁ = 25, N₂ = 50 and N₃ = 75 lb./ac.
   (2) 4 seed rates: S₁ = 40, S₂ = 60, S₃ = 80 and S₄ = 100 lb./ac.

A/S broadcast at sowing time.

3. DESIGN:
   (i) 4 x 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 18’ x 12’. (b) 14’ x 10.5’. (v) 2’ x 0.75’. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Traces of rust. (iii) Germination and grain yield. (iv) (a) 1950–1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 2418 lb./ac.
   (ii) 373.1 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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Mean: 2298, 2446, 2455, 2472, 2418

S.E. of any marginal mean = 92.8 lb./ac.
S.E. of body of table = 186.6 lb./ac.
Crop :-Barley (Rabi).  
Site :-Govt. Res. Farm, Kanpur.  
Object :-To study the optimum dose of N in combination with seedrates for Barley.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari (for fodder). (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 27.10.1953. (iv) (a) Light palewa on 12.10.1953, victory plough on 18.9.1953, cultivator on 30.9.1953, spring harrow and pata on 20.1.1953; desi plough and pata on 26 and 27.10.1953. (b) Sown behind the plough. (c) N.A. (d) 9' apart. (e) N.A. (vi) C-251 (early). (vii) Irrigated. (viii) Weeding on 30.1.1954. (ix) N.A. (x) 31.3.1954.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 levels of N as A/S: N₀=0, N₁=25, N₂=50 and N₃=75 lb./ac.
   (2) 4 seed rates: S₁=40, S₂=60, S₃=80 and S₄=100 lb./ac. A/S broadcast at sowing time.

3. DESIGN:
   (i) 4 x 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 18' x12'. (b) 14' x10.5' (v) 2' x0.75'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Slight attack of rust and smut. (iii) Germination, sheaf, grain and straw yield. (iv) (a) 1950-1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) No interculture. (viii) The expt. was conducted by E.B. (R).

5. RESULTS:
   (i) 1486 lb./ac. (ii) 205.1 lb./ac. (iii) Main effect of N is highly significant; effect of S is significant. Interaction is not significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
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<th>N₃</th>
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<tr>
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<td>1736.0</td>
<td>1486.0</td>
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</tbody>
</table>

S.E. of any marginal mean = 51.3 lb./ac.
S.E. of body of table = 102.6 lb./ac.

Crop :-Barley (Rabi).  
Site :-Students' Instructional Farm, Kanpur.  
Object :-To study the jowar+guar mixtures for fodder along with levels of N and their residual effect on Barley.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Jowar+guar. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 23.10.1952. (iv) (a) After preparatory irrigation (palewa) the field was ploughed with a watt's plough, followed by planking on 14.10.1952. Next day a cultivator was given followed by planking. On 20 to 22.10.1952, a second ploughing with desi plough followed by planking. (b) Seeds drilled. (c) 30 seers/ac. (d) and (e) N.A. (vi) Nil. (vi) C-251 (early). (vii) Irrigated. (viii) No interculture. (ix) N.A. (x) 9 to 11.3.1953
2. TREATMENTS:

Main-plot treatments:
4 levels of N: N₀ = 0, N₁ = 30, N₂ = 60 and N₃ = 90 lb./ac.

Sub-plot treatments:
5 mixtures of jowar and guar in the following ratios to give 40 lb./ac. of seed rate:
M₁ = jowar only, M₂ = 1 : 1, M₃ = 1 : 3 and M₄ = guar only.
N as A/S and castor cake in 1 : 1 ratio applied to jowar and guar.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/block and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 54.5' × 16'. (b) 52.5' × 14'. (v) 1' ring round the net plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) and (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by P.A.C. Plot wise yield data are not available at the station. Only the analysis of variance table and the summary table were available.

5. RESULTS:
(i) 1072 lb./ac.
(ii) (a) 258.0 lb./ac.
(b) 109.9 lb./ac.
(iii) Main effect of M and interaction M × N are highly significant. N effect is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
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<th>M₃</th>
<th>M₄</th>
<th>M₅</th>
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<td>930</td>
<td>964</td>
<td>1054</td>
<td>1551</td>
<td>1072</td>
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</table>

S.E. of difference of two
1. N marginal means = 57.7 lb./ac.
2. M marginal means = 27.5 lb./ac.
3. M means at the same level of N = 77.7 lb./ac.
4. N means at the same level of M = 107.2 lb./ac.

---

Crop: Barley (Rabi).
Site: Govt. Res. Farm, Kanpur.
Ref: U.P. 53(121).
Type: 'D'.

Object: To test the efficiency of various solar treatments for the control of covered smut of barley.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Lobia and Pea. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 25.11.1953. (iv) (a) 4 ploughings with desi plough and one with victory plough. (b) Behind the plough in lines. (c) N.A. (d) 2 rows per plot 1' apart. (e) —. (v) Nil. (vi) C-251. (vii) Irrigated. (viii) One weeding on 5.2.1954. (ix) N.A. (x) 7.4.1954.

2. TREATMENTS:
1. Control.
2. 4 hours soaking of seeds and drying in sun covered with sand.
3. 4 hours soaking of seeds and drying uncovered.
4. Overnight soaking of seeds and drying in shade.
5. Sun soaking of seeds and overnight drying.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 2. (iv) (a) N.A. (block size = 18' × 20'). (b) N.A. (v) N.A. (vi) No.
4. GENERAL:

(i) Good. (ii) Smut incidence. (iii) Percentage infection. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by Plant Pathologist to Govt., U.P., Kanpur.

5. RESULTS:

(i) to (iv).

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Mean value of loge (1+x)/plot</th>
<th>Mean infection</th>
</tr>
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</tr>
<tr>
<td>2.</td>
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<td>3.</td>
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<td>G.M.</td>
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<td>S.E./mean</td>
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</table>

Note: The data has been converted into loge (1+x) and then analysed, where x is the % of infection.

Crop: Barley (Rabi). Site: Govt. Res. Farm, Kanpur. Object: To test the efficiency of various chemical treatments for the control of covered smut of Barley.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Lobia and Pea. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 25.11.1953. (iv) (a) 4 ploughings with desi plough and one with victory plough. (b) Behind the plough in lines. (c) N.A. (d) 2 rows/plot 1' apart. (e) —. (f) Nil. (vi) C-251 (N.A.) (vii) Irrigated. (viii) One weeding on 5.2.1954. (ix) N.A. (x) 7.4.1954.

2. TREATMENTS:

1. Control. (Inoculated seed)
3. Ceresan 1 : 300.
6. Agrosan 1 : 300.

3. DESIGN:

(i) R.B.D. (ii) 7. (b) N.A. (iii) 2. (iv) (a) N.A. (block size= 19'x20'). (b) N.A. (v) N.A. (vi) No.

4. GENERAL:

(i) Good. (ii) Smut incidence. (iii) Percentage infection. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by P.P. to Govt U.P., Kanpur.

5. RESULTS:

(i) 7.36 Sin-T p/plot.

(ii) 1.9628 Sin-T p/plot.

(iii) Treatment differences are highly significant.

(iv) Treatments

<table>
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<th>Mean value of sin^-1(1/p/plot)</th>
<th>% infection/plot (transformed value)</th>
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<td>3. 1.44</td>
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<td>6. 7.72</td>
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<td>7. 10.20</td>
<td>3.61</td>
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</table>

S.E./mean 1.3879

Note: — p is percentage of infection.
Object: To find out the effect of vernalisation on vegetative phase and yield of different varieties of Barley.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Maize. (c) 200 mds. of compost, 4 mds. of castor cake and 2 mds of a mixture of A/S+ Super. (ii) (a) Loam. (b) N.A. (iii) 27.10.1953. (iv) (a) N.A. (b) Dibbled. (c) N.A. (d) 3'x9'. (e) N.A. (v) 200 mds. of compost and 5 mds of castor cake per acre. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing done whenever necessary. (ix) 13.08'. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   3 varieties: V₁=C-293 (early), V₂=T-5 (early) and V₃=Colonial (late).
   Sub-plot treatments:
   2 methods: M₁=Control and M₂=Vernalised.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a), (b) 5'x9'. (single row plot). (v) One border row in each flank. (vi) Yes.

4. GENERAL:
   (i) Good crop. No lodging. (ii) Yellow rust on both the treatments in each variety; in case of Colonial barley attack of rust very severe. (iii) Vegetative phase (from sowing to ear emergence) and yield data plot wise. (iv) (a) No. (b), (c) No. (v) (a), (b) N.A. (vi) Colonial barley is a late variety and is very susceptible to rust. Its low yield in control plots is only due to severe attack of rust. In other treatment i.e. vernalised, the yield is comparatively very high because the vernalisation shortens the vegetative phase and the plants escape much of the damage caused by the rust in later period. (vii) Although design is given as paired plot design but it was to be split-plot design as in the last years it has been mentioned as split-plot design.

5. RESULTS:
   (i) 4381 lb./ac.
   (ii) (a) 2736.0 lb./ac.
   (b) 1542.0 lb./ac.
   (iii) Only the interaction VxM is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th></th>
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<tr>
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S.E. of difference of two
1. V marginal means =1368.0 lb./ac.
2. M marginal means = 630.0 lb./ac.
3. M means at the same level of V =1090.0 lb./ac.
4. V means at the same level of M =1571.0 lb./ac.

Object: To study the effect of seeds treated with Agrosan on the yield of different varieties of Barley.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Jowar for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) Ploughings 1 with victory plough, ploughings 3 with desi plough. (b) N.A. (c) 89 lb./ac. (d) Rows 9" apart. (e) N.A. (v) N.A. (vi) N.A. (vii) Irrigated. (viii) Weeding and hoeing on 10, 11.1.1951 and 25.2.1951. (ix) N.A. (x) N.A.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 6 varieties: $V_1 = \text{NP.21, } V_2 = \text{C-251, } V_3 = \text{C-84, } V_4 = \text{C-50, } V_5 = \text{K-12 and } V_6 = \text{CN-294.}$
(2) 2 methods of treating the seed: $M_1 = \text{untreated and } M_2 = \text{treated with Agrosan.}$
The seed was treated one or two days before sowing.

3. DESIGN:
(i) 6x2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 24' x 10.5'. (b) 20' x 9'. (v) 2' x 0.75'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) In untreated Agrosan G.N. plots there was effect of smut. (iii) Germination and grain yield. (iv) (a) to (c) No. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exppt. was conducted by E.B. (R).

5. RESULTS:
(i) 1113 lb./ac. (ii) 156.8 lb./ac. (iii) Main effect of $V$ alone is highly significant. (iv) Av. yield of grain in lb./ac.

<table>
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<td>M_1</td>
<td>1353</td>
<td>1073</td>
<td>1175</td>
<td>1213</td>
<td>1136</td>
<td>607</td>
<td>1093</td>
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<tr>
<td>M_2</td>
<td>1175</td>
<td>1252</td>
<td>1299</td>
<td>1182</td>
<td>1229</td>
<td>653</td>
<td>1132</td>
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<tr>
<td>Mean</td>
<td>1264</td>
<td>1162</td>
<td>1237</td>
<td>1198</td>
<td>1183</td>
<td>630</td>
<td>1113</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of $V$ = 55.4 lb./ac.
S.E. of marginal mean of $M$ = 32.0 lb./ac.
S.E. of body of table = 78.4 lb./ac.

Crop :- Maize ($kharif$).
Site :- B.R. College Farm, Bichpuri (Agra).
Ref :- U.P. 53(377).
Type :- 'M'.

Object :- To study the effect of application of A/S and Super by furrow placement and broadcasting on growth, development and yield of Maize.

1. BASAL CONDITIONS:
(i) (a) Maize ($kharif$)—wheat. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Agra. (iii) 22.7.1953. (iv) (a) Hot weather cultivation given. 2 ploughings in 2nd week of July. (b) As per treatments. (c) 8 srs./ac. (d) Row to row—2' and plant to plant—1' (after thinning). (e) —. (v) Nil. (vi) T-414 (N.A.). (vii) Nil. (viii) Thinning on 2.8.1953 and 1 weeding on 6.8.1953 by $kharpi$. (ix) 8.48'. (x) 26.9.1953.

2. TREATMENTS:
1. No manure (control).
2. N+P mixture at 3' depth in furrows.
3. N+P mixture at 3' depth to the sides of the planting row.
4. N+P mixture broadcast and harrowed into a depth of 3'.
N+P = 45 lb./ac. of N as A/S+60 lb./ac. of P$_2$O$_5$ as Super.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 38' x 26'. (b) 36' x 24'. (v) Block border=4', plot border=2' and main channel=4'. (vi) Yes.

4. GENERAL:
(i) Germination—normal. (ii) N.A. (ii) Germination counts, stand of the crop, shoot height and grain yield etc. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by Head of Agronomy department B.R. College, Agra.
5. RESULTS:
(i) 1826 lb./ac.
(ii) 453.7 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1307</td>
</tr>
<tr>
<td>2.</td>
<td>1861</td>
</tr>
<tr>
<td>3.</td>
<td>2354</td>
</tr>
<tr>
<td>4.</td>
<td>1784</td>
</tr>
</tbody>
</table>

S.E./mean = 185.2 lb./ac.

Crop: Maize (Kharif).
Site: Govt. Agri. Farm, Atarra.

Object: To study the effect of N and P<sub>2</sub>O<sub>5</sub> manures applied alone and in combination on the yield of Maize.

1. BASAL CONDITIONS:

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N<sub>0</sub>=0, N<sub>1</sub>=15 and N<sub>2</sub>=30 lb./ac.
   (2) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super: P<sub>0</sub>=0, P<sub>1</sub>=30 and P<sub>2</sub>=60 lb./ac.
   Manuring on 6.7.1949.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 68'X 16'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Yield of straw. (iv) (a) No. (b) and (c) N.A. (v) (a) Kalai, Saidpur, Bharari Pratapgarh and Kalyanpur. (b) N.A. (vi) Nil. (vii) Expt. conducted by Agricultural Chemist.

5. RESULTS:
   (i) 5251 lb./ac.
   (ii) 361.4 lb./ac.
   (iii) N effect is highly significant, P effect is significant. Interaction N x P is not significant.
   (iv) Av. yield of straw in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P&lt;sub&gt;0&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N&lt;sub&gt;0&lt;/sub&gt;</td>
<td>4291</td>
<td>4564</td>
<td>4844</td>
<td>4566</td>
</tr>
<tr>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>4965</td>
<td>5278</td>
<td>5251</td>
<td>5165</td>
</tr>
<tr>
<td>N&lt;sub&gt;2&lt;/sub&gt;</td>
<td>5979</td>
<td>5939</td>
<td>6146</td>
<td>6021</td>
</tr>
<tr>
<td>Mean</td>
<td>5078</td>
<td>5260</td>
<td>5414</td>
<td>5251</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 85.2 lb./ac.
S.E. of body of table = 147.5 lb./ac.
Crop :- Maize (Kharif).
Site :- Govt. Agri. Farm, Bahraich.

Object :- To study the effect of trace elements in presence of adequate quantities of N, P$_2$O$_5$ and K$_2$O on the growth and yield of Maize.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 15.7.1952.
   (iv)(a) N.A. (b) Digging. (c) 6 to 8 seers/ac. (d) Line to line 1' and seed to seed 1' apart. (e) N.A.

2. TREATMENTS:
   1. Control.
   2. Molybdenum (Mo) as molybdic acid at 6 lb./ac. of Mo.
   3. Copper (Cu) as Copper sulphate at 6 lb./ac. of Cu.
   4. Boron (B) as Commerical Borax at 1 lb./ac. of B.
   5. Sulphur (S) as Commerical Sulphur at 50 lb./ac. of S.
   6. Zinc (Zn) as Zinc sulphate at 4 lb./ac. of Zn.
   A basal dose of A/S at 50 lb./ac. of N+Super at 25 lb./ac. of P$_2$O$_5$+Pot. Sulphate at 25 lb. K$_2$O/ac. is applied to all plots
   Trace elements are mixed with fine earth and applied as surface dressing. Date of manuring 12.7.1952.

3. DESIGN:
   (i) L. Sq. (a) 6x. (b) N.A. (iii) 6. (iv) (a) 37'x27'. (b) 33'x23'. (v) Plot border 2' around, field border 4' around, plot bund 1'x1' high and irrigation channel=2'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) No. (b) N.A. (c) No. (v) (a) Hardoi, Etawah and Banar. (b) N.A. (vi) Nil. (vii) Experiment conducted by Crop Physiologist.

5. RESULTS:
   (i) 2905 lb./ac.
   (ii) 167.7 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment   | Av. yield
   1.          | 2145
   2.          | 2071
   3.          | 2125
   4.          | 2100
   5.          | 1943
   6.          | 2184
   S.E./mean  | -68.5 lb./ac.

Crop :- Maize (Kharif).
Site :- State Mechanised Farm, Bharari.

Object :- To study the effect of N and P$_2$O$_5$ manures applied alone and in combination on the yield and quality of Maize.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Rakar (Bundelkhand Type 1). (b) N.A. (iii) 12.7.1949. (iv) (a) to (e) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S : N$_0$=0, N$_1$=15 and N$_2$=30 lb./ac.
   (2) 3 levels of P$_2$O$_5$ as Super : P$_0$=0, P$_1$=30 and P$_2$=60 lb./ac.
   Date of manuring 8. 9.7.1949.

3. DESIGN:
   (i) 3x3 Fact. in R.B.D. (ii) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 16'x68'. (v) N.A. (vi) Yes.
4. GENERAL:

(i) The rains were scarce. Germination was good due to initial good rains. Scarcity of moisture resulted in stunted growth and the grain formation was poor. (ii) N.A. (iii) Yield of straw. (iv) (a) No. (b) N.A. (c) N.A. (v) (a) Kalai, Saidpur, Pratapgarh, Kalyanpur and Atarra. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:

(i) 3601 lb./ac.  
(ii) 1060 lb./ac.  
(iii) P effect is significant; N effect is highly significant; interaction is not significant.  
(iv) Av. yield of straw in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>2763</td>
<td>3630</td>
<td>2803</td>
<td>3065</td>
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<td>$N_1$</td>
<td>2709</td>
<td>3563</td>
<td>3837</td>
<td>3370</td>
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<tr>
<td>$N_2$</td>
<td>3657</td>
<td>4918</td>
<td>4531</td>
<td>4369</td>
</tr>
</tbody>
</table>

Mean  

S.E. of any marginal mean = 249.9 lb./ac.  
S.E. of body of table = 432.9 lb./ac.

Crop :- Maize (Kharif).  
Site :- Govt. Agri. Res. Farm, Etawah.  
Ref:- U.P. 52(155).  
Type :- 'M'.

Object:—To study the effect of trace elements in presence of adequate quantities of N, $P_2O_5$ and $K_2O$ on growth and yield of Maize.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Pea. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Dibbling. (c) 6 to 8 yrs./ac. (d) Line to line 15' and seed to seed 1' apart. (e) N.A. (v) Nil. (vi) T-41 (medium). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Control.  
2. Molybdenum (Mo) as molybdic acid at 6 lb./ac. of Mo.  
3. Copper (Cu) as copper sulphate at 6 lb./ac. of Cu.  
4. Boron (B) as commercial borax at 1 lb./ac. of B.  
5. Sulphur (S) as commercial sulphur at 50 lb./ac. of S.  
6. Zinc (Zn) as zinc sulphate at 4 lb./ac. of Zn.  

A basal dose of A/S at 50 lb./ac. of N+Super at 25 lb./ac. of $P_2O_5$+Pot. sulphate at 25 lb. $K_2O$/ac. is applied to all plots.

3. DESIGN:

(i) Latin square. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 35’×27’. (b) 31’×23’. (v) Plot border 2’ around, field border 4’ around, plot bund 1’×1’ high and irrigation channel=2’. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) No. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) Bahraich, Hardoi and Varanasi. (b) N.A. (vi) Nil. (vii) Experiment conducted by Crop Physiologist.

5. RESULTS:

(i) 1197 lb./ac.  
(ii) 263.6 lb./ac.  
(iii) Treatment differences are not significant.
Object: To study the effect of trace elements in presence of adequate quantities of N, P₂O₅ and K₂O on growth and yield of Maize.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) 14.7.1952.  (iv) (a) N.A.  (b) Dibbling.  (c) 6–8 srs./ac.
   (d) Line to line 1½" and seed to seed 1½ apart.  (e) N.A.  (v) Nil.  (vi) Maize T-41 (medium).  (vii) N.A.

2. TREATMENTS:
   1. Control.
   2. Molybdenum (M₀) as molybdic acid at 6 lb./ac. of Mo.
   3. Copper (Cu) as copper sulphate at 6 lb./ac. of Cu.
   4. Boron (B) as commercial borax at 1 lb./ac. of B.
   5. Sulphur (S) as commercial sulphate at 50 lb./ac. of S.
   6. Zinc (Zn) as zinc sulphate at 4 lb./ac. of Zn.
   A basal dose of A/S at 50 lb./ac. of N+Super at 25 lb./ac. of P₂O₅+Pot. sulphate at 25 K₂O/ac. is applied to all plots. Trace elements mixed with fine earth and then applied uniformly all over plot before sowing.

3. DESIGN:
   (i) L. Sq.  (ii) (a) 6.  (b) N.A.  (iii) 6.  (iv) (a) 43'×23'.  (b) 39'×19'.  (v) Plot border=2' around, field border=3½', irrigation channel=2' and bund=1½×1½ high.  (vi) Yes.

4. GENERAL:
   (i) Satisfactory.  (ii) Nil.  (iii) Grain yield.  (iv) (a) to (c) No.  (v) (a) Baharaich, Etawah, Banda and Varanasi.  (vi) Nil.  (vii) Experiment conducted by Crop Physiologist.

5. RESULTS:
   (i) 1829 lb./ac.
   (ii) 234.2 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1771</td>
</tr>
<tr>
<td>2.</td>
<td>1973</td>
</tr>
<tr>
<td>3.</td>
<td>1722</td>
</tr>
<tr>
<td>4.</td>
<td>1756</td>
</tr>
<tr>
<td>5.</td>
<td>1740</td>
</tr>
<tr>
<td>6.</td>
<td>2012</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=95.60 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Maize (Kharif).
Site :- Govt. Agri. Farm, Kalai.
Object :- To study the effect of N and P<sub>2</sub>O<sub>5</sub> manures applied alone and in combination on the yield and quality of Maize.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) Loam (Aligarh type). (b) N.A. (iii) 14.7.1949. (iv) (a) to (c) N.A. (v) Nil. (vi) to (ix) N.A. (x) 2.11.1949.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S : N<sub>0</sub> = 0, N<sub>1</sub> = 15 and N<sub>2</sub> = 30 lb./ac.
   (2) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub> = 0, P<sub>1</sub> = 30 and P<sub>2</sub> = 60 lb./ac.
   Date of manuring — 13.7.1949.

3. DESIGN :
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 40' x 27'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) No. (b) and (c) N.A. (v) (a) Bharari, Saidpur, Pratapgarh, Kalyanpur and Atarra. (b) N.A. (vi) The season was abnormal. Late and excessive rains, with very short interval throughout the season, affected the crop very adversely. Due to heavy and continuous rains throughout the growing season no interculture or weeding could be done, hence the general crop was very poor. (vii) The exp. was conducted by A.C.

5. RESULTS :
   (i) 2198 lb./ac.
   (ii) 657.7 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.
   
<table>
<thead>
<tr>
<th>P&lt;sub&gt;0&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
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<td>1869</td>
<td>2178</td>
<td>2353</td>
</tr>
<tr>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>1983</td>
<td>2528</td>
<td>1963</td>
</tr>
<tr>
<td>N&lt;sub&gt;2&lt;/sub&gt;</td>
<td>2151</td>
<td>2339</td>
<td>2420</td>
</tr>
<tr>
<td>Mean</td>
<td>2001</td>
<td>2348</td>
<td>2245</td>
</tr>
</tbody>
</table>

   S.E. of any marginal mean = 155.1 lb./ac.
   S.E. of body of table = 268.5 lb./ac.

---

Crop :- Maize (Kharif).
Site :- Govt. Agri. Farm, Kalai.
Object :- To study the effect of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O fertilizers applied alone and in combination on the yield of Maize crop.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Aligarh type 2. (b) N.A. (iii) 23.6.1953. (iv) (a) The field was ploughed 6 times. In addition one ploughing was given by way of drilling of fertilizer. (b) Sown in lines behind the plough. (c) to (e) N.A. (v) Nil. (vi) and (vii) N.A. (viii) One hoeing and one weeding. (ix) 19'. (x) 10 and 11.9.1953.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (1) 2 levels of N as A/S : N<sub>0</sub> = 0 and N<sub>1</sub> = 15 lb./ac. of N.
   (2) 2 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub> = 0 and P<sub>1</sub> = 30 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   (3) 3 levels of K<sub>2</sub>O as sulphate of potash : K<sub>0</sub> = 0, K<sub>1</sub> = 30 and K<sub>2</sub> = 60 lb./ac.
   A/S broadcasted, P placed 4" deep in bands 9" apart. Potash applied as deep placement along with phosphate.
3. DESIGN:
(i) 3 \times 2 \times 2 partially balanced (as only one replication of balanced set has been repeated 4 times) as well as partially confounded design in which one degree of freedom corresponding to PK and NPK interaction is partially confounded. (ii) (a) 6 plots/block and 2 blocks/replication. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 45'x24'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Growth was irregular due to water logging. (ii) N.A. (iii) Yield of cobs and dry stalk. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) and (b) Nil. (vi) The crop was sown rather late as there were heavy rains. The crop was badly effected and the growth was irregular due to water logging etc. Hence the results obtained are erratic. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 1919 lb./ac.
(ii) 235.6 lb./ac.
(iii) Main effects of N and K are highly significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>Mean</th>
<th>N₀</th>
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</tr>
<tr>
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<td>2080</td>
<td>2145</td>
<td>2112</td>
<td>1850</td>
<td>2375</td>
</tr>
<tr>
<td>K₂</td>
<td>1810</td>
<td>1730</td>
<td>1780</td>
<td>1595</td>
<td>1965</td>
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<tr>
<td>Mean</td>
<td>1957</td>
<td>1882</td>
<td>1919</td>
<td>1668</td>
<td>2170</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N or P = 48.1 lb./ac.
S.E. of marginal mean of K = 58.9 lb./ac.
S.E. of body of table N x P = 67.9 lb./ac.
S.E. of body of table K x P or K x N = 83.2 lb./ac.

Crop: Maize (Kharif)
Site: Govt. Agri. Res. Farm, Kalyanpur.
Object: To study the effect of N and P₂O₅ manures applied alone and in combination on the yield and quality of Maize.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam (Kanpur type 2). (b) N.A. (iii) 12.7.1949. (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (x) N.A. (x) 26, 27.9.1949.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: N₀ = 0, N₁ = 15 and N₂ = 30 lb./ac.
(2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 30 and P₂ = 60 lb./ac.
Date of manuring 27, 28.6.1949.

3. DESIGN:
(i) 3 \times 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 22'x49.5'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Green matter yield. (iv) (a) No. (b) N.A. (c) N.A. (v) (a) Kalai, Saidpur, Bharari, Atarra and Pratapgarh. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist.
5. RESULTS:
(i) 2185 lb./ac.
(ii) 1065.4 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of green matter in lb./ac.

\[
\begin{array}{cccc}
P_0 & P_1 & P_2 & \text{Mean} \\
N_0 & 1853 & 1773 & 2320 & 1982 \\
N_1 & 2413 & 1933 & 1960 & 2102 \\
N_2 & 2560 & 2600 & 2253 & 2471 \\
\text{Mean} & 2275 & 2102 & 2178 & 2185 \\
\end{array}
\]

S.E. of any marginal mean = 251.2 lb./ac.
S.E. of body of table = 434.9 lb./ac.

Crop :- Maize (Kharif).
Ref :- U.P. 50(310).
Site :- Govt. Agri. College, Kanpur.
Type :- 'M'.

1. BASAL CONDITIONS:
(a) Nil. (b) Brinjal. (c) Nil. (ii) (a) and (b) N.A. (iii) 9.7.1950. (iv) (a) Palewa on 28.5.1950, Punjab plough on 30.5.1950, 5.7.1950 and planked, two subsequent ploughings by desi plough. (b) Behind the desi plough. (c) 12 seers/ac. (d) Lines 2' apart, plant to plant after thinning from 6' to 11'. (e) N.A. (v) 100 mds/ac. of F.Y.M. spread on 27.5.1950. (vi) T-41. (vii) Unirrigated. (viii) Thinning was done on 22.7.1950. One weeding by khurpi to remove Hazardana (Phyllanthus niruri) and hirakhuri (Convolvulus arvensis) on 3.8.1950. Earthing done on 6.8.1950 with a high double mould board plough. (ix) 26.72'. (x) 26.9.1950.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: N_0 =0, N_1 =40 and N_2 =80 lb./ac.
(2) 3 levels of P_2O_5 as Super: P_0 =0, P_1 =50 and P_2 =100 lb./ac.
Fertilizers mixed with sand (3 times) and evenly broadcasted by the side of the plant row. Next day a cultivator was used to incorporate them in the soil.

3. DESIGN:
(i) 3×3 Fact. in R.B.D. (ii) 9. (b) N.A. (iii) 4. (iv) (a) 64'×15'. (b) 61'×12'. (v) Discarded two rows on either side and 11' at each end of the plot. (vi) Yes.

4. GENERAL:
(i) Lodging index :- From 24.9% to 32.0% being highest for N_2 and lowest with N_2P_2 and N_1P_1 treatments. (ii) Mild attack of grass hopper in the 2nd week after sowing. (iii) Grain yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R. College.

5. RESULTS:
(i) 2496 lb./ac.
(ii) 111.9 lb./ac.
(iii) Effects of N and P are highly significant. Interaction is not significant.

<table>
<thead>
<tr>
<th>(N_0)</th>
<th>(N_1)</th>
<th>(N_2)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>2078</td>
<td>2292</td>
<td>2114</td>
</tr>
<tr>
<td>2449</td>
<td>2569</td>
<td>2762</td>
<td>2593</td>
</tr>
<tr>
<td>2620</td>
<td>2754</td>
<td>2972</td>
<td>2782</td>
</tr>
<tr>
<td>Mean</td>
<td>2347</td>
<td>2467</td>
<td>2675</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 32.31 lb./ac.
S.E. of body of table = 55.96 lb./ac.
Crop: Maize (Kharif).

Site: Crop Physiological Res. Stn., Lucknow.

Type: M.

Object: To study the effect of trace elements in presence of adequate quantities of N, P and K on growth and quality of Maize.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Sandy loam.  (b) N.A.  (iii) N.A.  (iv) (a) N.A.  (b) Dibbling  (c) 5 srs./ac.
   (d) Seed to seed 9' apart and row to row 11' apart.  (e) N.A.  (v) Phosphate to be applied in furrows while preparing the field and A/S and Pot. Sul. as top dressing one week before sowing: (vi) Jaunpuri (medium).
   (vii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. Control.
   2. Molybdenum (Mo) as Molybdic acid at 6 lb./ac. of Mo.
   3. Copper (Cu) as Copper sulphate at 6 lb./ac. of Cu.
   4. Boron (B) as Commercial Borax at 1 lb./ac. of B.
   5. Sulphur (S) as Commercial Sulphur at 50 lb./ac. of S.
   6. Zinc (Zn) as Zinc sulphate at 4 lb./ac. of Zn.

A basal dose of A/S at 50 lb./ac. of N+Super at 25 lb./ac. of P2O5 + Pot. sulphate at 25 lb./ac. of K2O is applied to all plots.

Trace elements were mixed with fine earth and applied as surface dressing 5-6 days before sowing.

3. DESIGN:
   (i) L. Sq.  (ii) 6. (b) N.A.  (iii) 6.  (iv) (a) 13' x 12'.  (b) 12' x 11'.  (v) Irrigation channel 2', Plot bund 1' x 1' and Field border 4' around. (vi) 'Yes.

4. GENERAL:
   (i) Satisfactory.  (ii) Nil.  (iii) Grain yield.  (iv) (a) No.  (b), (c) No.  (v) (a), (b) Varanasi, Baharaich, Etawah and Hardoi.  (vi) Nil.  (vii) Expt. conducted by C.P.

5. RESULTS:
   (i) 1987 lb./ac.
   (ii) 367.8 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1622</td>
</tr>
<tr>
<td>2.</td>
<td>1457</td>
</tr>
<tr>
<td>3.</td>
<td>2241</td>
</tr>
<tr>
<td>4.</td>
<td>1967</td>
</tr>
<tr>
<td>5.</td>
<td>1829</td>
</tr>
<tr>
<td>6.</td>
<td>2804</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>231.8 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Maize (Kharif).

Site: Govt. Agri. Farm, Pratapgarh.

Ref: U.P. 52(176).

Type: M.

Object: To study the effect of N and P2O5 manures applied alone and in combination on the yield and quality of Maize.

1. BASAL CONDITIONS:

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N0 = 0, N1 = 15 and N2 = 30 lb./ac.
   (2) 3 levels of P2O5 as Super: P0 = 0, P1 = 30 and P2 = 60 lb./ac.

Date of manuring 20.6.1949.
3. **DESIGN:**
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 30'x30'. (v) N.A. (vi) Yes.

4. **GENERAL:**
   (i) Good. (ii) Nil. (iii) Straw yield. (iv) (a) to (c) N.A. (v) (a) Kalai, Saidpur, Bharari, Kalyanpur and Atarra. (b) N.A. (vi) Nil. (vii) Expt. conducted by A.C.

5. **RESULTS:**
   (i) 4235 lb./ac.
   (ii) 1497 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of straw in lb./ac.

   \[
   \begin{array}{c|ccc|c}
   P_0 & P_1 & P_2 & \text{Mean} \\
   \hline
   N_0 & 3565 & 3392 & 4505 & 3821 \\
   N_1 & 4969 & 4388 & 4251 & 4536 \\
   N_2 & 4082 & 4493 & 4469 & 4348 \\
   \hline
   \text{Mean} & 4205 & 4091 & 4408 & 4235 \\
   \end{array}
   \]

   S.E. of any marginal mean =352.9 lb./ac.
   S.E. of body of table =611.2 lb./ac.

---

Crop :- Maize *(Kharif)*.
Site :- State Mech. Farm, Saidpur.
Type :- U.P. 49(18).
Ref :-

Object :- To study the effect of N and P$_2$O$_5$ manures applied alone and in combination on the yield and quality of Maize.

1. **BASAL CONDITIONS:**

2. **TREATMENTS:**
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N$_0=0$, N$_1=15$ and N$_2=30$ lb./ac.
   (2) 3 levels of P$_2$O$_5$ as Super : P$_0=0$, P$_1=30$ and P$_2=60$ lb./ac.
   Manuring on 9.7.1949.

3. **DESIGN:**
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 40'x27'. (v) N.A. (vi) Yes.

4. **GENERAL:**
   (i) Poor. (ii) Nil. (iii) Grain and straw yield. (iv) (a) No. (b) and (c) N.A. (v) (a) Kalai, Bharari, Pratapgarh, Kalyanpur and Atarra. (v) N.A. (vi) and (vii) Nil.

5. **RESULTS:**
   (i) 1363 lb./ac.
   (ii) 565.6 lb./ac.
   (iii) Main effect of N is significant. Main effect P and interaction NxP are not significant.
   (iv) Av. yield of straw in lb./ac.

   \[
   \begin{array}{c|ccc|c}
   P_0 & P_1 & P_2 & \text{Mean} \\
   \hline
   N_0 & 1014 & 1066 & 993 & 1024 \\
   N_1 & 1427 & 1253 & 1273 & 1318 \\
   N_2 & 1360 & 2134 & 1747 & 1747 \\
   \hline
   \text{Mean} & 1267 & 1484 & 1338 & 1363 \\
   \end{array}
   \]

   S.E. of any marginal mean =153.3 lb./ac.
   S.E. of body of table =230.9 lb./ac.
Object: To study the effect of trace elements in presence of adequate quantities of N, P and K on growth and yield of Maize.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 16.7.1952.
   (iv) (a) N.A. (b) Dibbling. (c) 6—8 srs./ac. (d) Line to line 1' and seed to seed 1'. (e) N.A. (v) Nil.
   (vi) T-41 (late). (vii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control.
   2. Molybdenum (Mo) as Molybdic acid at 6 lb./ac. of Mo.
   3. Copper (Cu) as Copper Sulphate at 6 lb./ac. of Cu.
   4. Borax (B) as Commercial Borax at 1 lb./ac. of B.
   5. Sulphur (S) as Commercial Sulphur at 50 lb./ac. of S.
   6. Zinc (Zn) as Zinc Sulphate at 4 lb./ac. of Zn.

A basal dose of A/S at 50 lb./ac. of N+Super at 25 lb./ac. of P2O5 + Pot. Sulphate at 25 lb./ac. of K2O is applied to all treatments. Date of manuring 15.7.1952.

3. DESIGN:
   (i) L. Sq: 6. (b) N.A. (iii) 6. (iv) (a) 37'X27'. (b) 33'X23'. (v) Plot border=2' around, field border=4' around, plot bund=1'x1' high and irrigation channel=2'. (vi) Yes.

4. GENERAL:
   (i) Below normal. (ii) No. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) Hardoi, Baharaich and Etawah. (b) N.A. (vii) Nil. (vii) Expt. conducted by Crop Physiologist.

5. RESULTS:
   (i) 437.8 lb./ac.
   (ii) 144.3 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>305.0</td>
</tr>
<tr>
<td>2.</td>
<td>466.8</td>
</tr>
<tr>
<td>3.</td>
<td>393.5</td>
</tr>
<tr>
<td>4.</td>
<td>499.3</td>
</tr>
<tr>
<td>5.</td>
<td>516.5</td>
</tr>
<tr>
<td>6.</td>
<td>415.7</td>
</tr>
</tbody>
</table>

   S.E./mean = 58.90 lb./ac.

Crop: Maize (Kharif).
Site: Regional Res. Stn., Varanasi.

Crop: Maize (Kharif).
Site: Koil, Sikandra Rao (Aligarh).

Object: To draw out fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) Aligarh soil type 1 and type 2. (iii) N.A. (iv) Improved. (v) (a) As practised locally. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) 1"—2" away from the fertilizer line. (e) N.A. (vi) (a) 26.6.1949 to 1.8.1949. (vii) N.A. (viii) N.A. (ix) N.A. (x) 11.9.1949 to 20.11.1949.

2. TREATMENTS:
   1. Control.
   2. 15 lb./ac. of N as A/S.
   3. 15 lb./ac. of N as A/S+30 lb./ac. of P2O5 as Super.

N added to surface at sowing time. Super is placed at a depth of 3"—4" at the sole of the furrow and in the side of the seed row made by either an iron plough or two desi plough one behind the other in the same furrow.
3. DESIGN:
(i) and (ii) Villages selected in the district and unreplicated experiment with the above 3 treat. laid out. Four replications or trials were laid out. (iii) N.A., but roughly about 1/40 ac. (net area). (iv) N.A.

4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Agricultural Chemist on cultivators’ fields.

5. RESULTS:
(i) 744 lb./ac.
(ii) 236.1 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>501</td>
</tr>
<tr>
<td>2.</td>
<td>859</td>
</tr>
<tr>
<td>3.</td>
<td>871</td>
</tr>
</tbody>
</table>

S.E./mean =118.0 lb./ac.

Crop :- Maize (Kharif).
Site :- Govt. Res. Farm, Kalyanpur.
Object :- To find out the optimum spacing for Maize crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) N.A. (iii) 21.7.1950. (iv) (a) N.A. (b) to (e) As per treatments. (v) N.A. (vi) T-41 (medium late). (vii) N.A. (viii) N.A. (ix) N.A. (x) 5.10.1950.

2. TREATMENTS:
1. 2’×1’—30 hills—3 rows with one seed/hill.
2. 2’×2’—15 hills—3 rows with two seeds/hill.
3. 3’×1’—two rows—1st row 30 hills with two seeds and 2nd row 30 hills with one seed/hill.
4. 3’×2’—two rows—1st row 15 hills with 3 seeds and 2nd row 15 hills with 3 seeds/hill.
5. 3’×3’—two rows—1st row 10 hills with 4 seeds each and 2nd row 10 hills with 5 seeds/hill.
6. Control (broadcast).

No. of plants/plot=90 and seed rate=180 sq./ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 30’×6’. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. Blocks No. V and VI completely lodged hence rejected for analysis. (ii) N.A. (iii) Stand at harvest and grain yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by E.B.(O), experiment was designed with 6 replications, but 2 replications rejected as data was N.A.

5. RESULTS:
(i) 710.9 lb./ac.
(ii) 433.6 lb./ac.
(iii) Treatment differences are not significant.
(vi) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>926.3</td>
</tr>
<tr>
<td>2.</td>
<td>778.0</td>
</tr>
<tr>
<td>3.</td>
<td>428.3</td>
</tr>
<tr>
<td>4.</td>
<td>762.9</td>
</tr>
<tr>
<td>5.</td>
<td>505.8</td>
</tr>
<tr>
<td>6.</td>
<td>863.9</td>
</tr>
</tbody>
</table>

S.E./mean =710.9 lb./ac.
Object: - To find out the optimum spacing for Maize crop.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) and (b) N.A.  (iii) 24.7.1951.  (iv) (a) N.A. (b) to (e) As per treatments.  (v) N.A.  (vi) T-41 (medium-late).  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 17.12.1951.

2. TREATMENTS:
   1. 2‘ x 1’—30 hills—3 rows with one seed/hill.
   2. 2‘ x 1.5’—15 hills—3 rows with two seeds/hill.
   3. 3‘ x 1’—two rows—1st row 30 hills with two seeds and 2nd row 30 hills with one seed/hill.
   4. 3‘ x 2’—two rows—1st row 15 hills with 3 seeds and 2nd row 15 hills with 3 seeds/hill.
   5. 3‘ x 3’—two rows—1st row 10 hills with 4 seeds and 2nd row 10 hills with 5 seed each/hill.
   6. Control (broadcast).
   No. of plants/plot = 90 and seed with rate = 180 srs./ac.

3. DESIGN:
   (i) L. Sq.  (ii) A. (a) 6. (b) N.A.  (iii) 6.  (iv) (a) and (b) 30’ x 6’. (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1950—1952. (b) and (c) No.  (v) (a) and (b) None.  (vi) Nil.  (vii) The experiment was conducted by E.B. (O). Analysis of co-variance was performed but regression coefficient was not significant hence the results are based on usual analysis.

5. RESULTS:
   (i) 1325 lb./ac.
   (ii) 139.0 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
      Treatment | Av. yield
      ----------|----------
        1. | 1310
        2. | 1412
        3. | 1209
        4. | 1311
        5. | 1114
        6. | 1593
   S.E./mean = 56.76 lb./ac.

Crop: Maize (Kharif).
Site: Govt. Agri. Res. Farm, Kalyanpur.
Object: — To find out the optimum spacing for Maize crop.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) 1950–1952. (b) No. (c) Nil. (v) (a) and (b) No. (vi) N.A. (vii) The experiment was conducted by E.B. (O). Analysis of co-variance was performed but regression was not significant. Hence the results are based on usual analysis.

5. RESULTS:
(i) 1903 lb./ac.
(ii) 284.8 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2208</td>
</tr>
<tr>
<td>2.</td>
<td>1684</td>
</tr>
<tr>
<td>3.</td>
<td>2057</td>
</tr>
<tr>
<td>4.</td>
<td>1958</td>
</tr>
<tr>
<td>5.</td>
<td>1754</td>
</tr>
<tr>
<td>6.</td>
<td>1754</td>
</tr>
</tbody>
</table>

S.E./mean = 116.3 lb./ac.

Crop: Maize (Kharif).
Site: Govt. Agri. Res. Farm, Kalyanpur.
Object: To study the effect of seed dressings on the yield of Maize.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. Control.
2. Agrosan G.N.
3. Ceresan.
4. Fernasan.
6. Harvosan (1 : 400).
7. Tritisan.
8. Agrosan Special.

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) 6'×34'. (b) 4'×34'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Lodged on 28.7.1953. (ii) N.A. (iii) Stand /per plot/ was taken and no. of cobs and yield. (iv) (a) 1953-continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B. (O).

5. RESULTS:
(i) 523 lb./ac.
(ii) 216 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>440</td>
<td>5.</td>
<td>500</td>
</tr>
<tr>
<td>2.</td>
<td>647</td>
<td>6.</td>
<td>474</td>
</tr>
<tr>
<td>3.</td>
<td>634</td>
<td>7.</td>
<td>467</td>
</tr>
<tr>
<td>4.</td>
<td>574</td>
<td>8.</td>
<td>447</td>
</tr>
</tbody>
</table>

S.E./mean = 88.4 lb./ac.
Crop: Maize (Kharif).
Site: Govt. Agri. Res. Farm, Kalyanpur.

Object: To see the effect of fungicides on the grain yield of Maize.

1. BASAL CONDITIONS:
   (i) (a) No. (b) N.A. (c) N.A. (d) (a) Sandy loam. (b) N.A. (ii) 5.7.1952. (iv) (a) to (e) N.A. (v) No. (vi) As per treatments. (vii) Unirrigated. (viii) Hand weedings and earthing up. (ix) N.A. (x) 8, 16.9.1952 and 24.9.1952.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 varieties: $V_1$ = T-41, $V_2$ = T-4111 and $V_3$ = K-local.
   (2) 4 fungicides: $F_0$ = Control, $F_1$ = Agrosan, $F_2$ = Tillex and $F_3$ = Ceresan.

3. DESIGN:
   (i) 4 x 3 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a), (b) 45' x 4'. (v) No. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Grain yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expct. was conducted by E.R. (O).

5. RESULTS:
   (i) 2479 lb./ac.
   (ii) 403.8 lb./ac.
   (iii) N effect is highly significant. F is significant and interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$F_0$</th>
<th>$F_1$</th>
<th>$F_2$</th>
<th>$F_3$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
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<td>2602</td>
<td>3252</td>
<td>2677</td>
<td>3343</td>
<td>2968</td>
</tr>
<tr>
<td>$V_2$</td>
<td>2057</td>
<td>2269</td>
<td>2284</td>
<td>2556</td>
<td>2292</td>
</tr>
<tr>
<td>$V_3$</td>
<td>1936</td>
<td>2269</td>
<td>2254</td>
<td>2254</td>
<td>2178</td>
</tr>
<tr>
<td>Mean</td>
<td>2198</td>
<td>2597</td>
<td>2405</td>
<td>2718</td>
<td>2479</td>
</tr>
</tbody>
</table>

S.E. of marginal-mean of $V$ = 100.9 lb./ac.
S.E. of marginal-mean of $F$ = 116.8 lb./ac.
S.E. of body of table = 201.9 lb./ac.

Crop: Maize (Kharif).
Site: Govt Res. Farm, Kanpur.

Object: To study the effect of fungicides on the grain yield of Maize.

1. BASAL CONDITIONS:
   (i) (a) No. (b) and (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 22.7.1951. (iv) (a) to (c) N.A. (v) N.A. (vi) As per treatments. (vii) N.A. (vii) N.A. (ix) N.A. (x) 29.9.1951, 3 and 15.10.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 varieties: $V_1$ = T-41, $V_2$ = T-4111 and $V$ = K-local.
   (2) 4 fungicides: $F_0$ = Control, $F_1$ = Agrosan, $F_2$ = Tillex and $F_3$ = Ceresan.

3. DESIGN:
   (i) 4 x 3 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) and (b) 6' x 47'. (v) Nil. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by E.B. (O). The yield of plot containing the variety T-41 and treatment Fa was missing in Replication II. Hence the analysis was done by applying missing plot technique.

5. RESULTS:
(i) 1476 lb./ac.
(ii) 186.2 lb./ac.
(iii) V effect is highly significant. F effect is significant. Interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>F₀</th>
<th>F₁</th>
<th>F₂</th>
<th>F₃</th>
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<td>1632</td>
<td>1883</td>
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<td>V₂</td>
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<td>1617</td>
<td>1738</td>
<td>1600</td>
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<td>V₃</td>
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<td>1207</td>
<td>1178</td>
<td>1101</td>
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<td>1513</td>
<td>1476</td>
<td>1574</td>
<td>1476</td>
</tr>
</tbody>
</table>

S.E. of difference of two V marginal means, one of them containing a missing value = 67.46 lb./ac.
S.E. of difference of two V marginal means (none of them contains a missing value) = 65.84 lb./ac.
S.E. of difference of two F marginal means one of them containing a missing value = 78.28 lb./ac.
S.E. of difference of two F marginal means (none of them containing missing value) = 76.02 lb./ac.
S.E. of any mean, not containing the missing value, in the body of table = 93.10 lb./ac.
S.E. of mean of missing value in the body of table = 94.50 lb./ac.

Site :- Crop Physiological Res. Stn., Lucknow. Type :- 'IM'.
Object :- To study the effect of varying doses of Calcium, Sulphur, trace elements and iron on growth and yield of Lobia.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 12.16.7.1953. (iv) (a) Ploughing on 15,19.6.1953. (b) Dibbling. (c) N.A. (d) Spacing between rows—2", and between plants—2" to 3". (e) N.A. (v) 60 lb./ac. of P₄O₅ and T.C. 100 cu. ft. on 5.7.1953. (v) T-1. (vii) N.A. (viii) N.A. (ix) N.A. (a) 17.9.1953.

2. TREATMENTS:
1. Control.
2. Calcium at 40 lb./ac. of Ca.
3. Sulphur at 50 lb./ac. of S.
4. Borax at 1 lb./ac. of B.
5. Zinc at 4 lb./ac. of Zn.
6. Copper at 6 lb./ac. of Cu.
7. Molybdenum at 6 lb./ac. of Mo.
8. Iron at 2 lb./ac. of Fe.

Date of manuring 5.7.1953 and 2.8.1953 (trace elements).

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) 34'×134'. (v) No. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 236 lb./ac.
(ii) 64.36 lb./ac.
(iii) Treatments are not significant.
Crop: Lobia.  
Site: Crop Physiological Res. Stn., Lucknow.  
Ref: U.P. 50(95).  
Type: ‘M’.

Object: To study the effect of varying doses of N fertilizers on the yield of *Lobia*.

### 1. BASAL CONDITIONS:

- (i) (a) Nil.  
  (b) Gram and Linseed.  
- (ii) (a) Sandy loam.  
  (b) N.A.  
- (iii) 7.7.1950.  
- (iv) (a) Two ploughings by mould board and two by desi and one by cultivator plough and plankings.  
  (b) Broadcasting.  
- (c) 6 yrs./ac.  
- (d) and (e) N.A.  
- (v) Nil.  
- (vi) Jhansi (medium).  
- (vii) Unirrigated.  
- (viii) 2 intercultures.  
- (ix) N.A.  
- (x) 8.10.1950.

### 2. TREATMENTS:

- 7 doses of N as A/N: N₀ = 0, N₁ = 15, N₂ = 30, N₃ = 45, N₄ = 60, N₅ = 75, and N₆ = 90 lb./ac.  
N applied as top dressing on 6.7.1950.

### 3. DESIGN:

- (i) R.B.D.  
- (ii) (a) 7.  
  (b) N.A.  
- (iii) 4.  
- (iv) (a) N.A.  
  (b) 15' × 29'.  
  (v) N.A.  
  (vi) Yes.

### 4. GENERAL:

- (i) Poor.  
- (ii) Nil.  
- (iii) Grain yield.  
- (iv) (a) 1950—1951.  
  (b) and (c) No.  
- (v) (a) and (b) No.  
- (vi) Nil.  
- (vii) Experiment conducted by C.P.

### 5. RESULTS:

- (i) 214.4 lb./ac.  
- (ii) 43.68 lb./ac.  
- (iii) Treatments are highly significant.  
- (iv) 

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
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</tr>
<tr>
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<tr>
<td>N₂</td>
<td>187.0</td>
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<tr>
<td>N₃</td>
<td>199.4</td>
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<tr>
<td>N₄</td>
<td>267.7</td>
</tr>
<tr>
<td>N₅</td>
<td>309.1</td>
</tr>
<tr>
<td>N₆</td>
<td>280.0</td>
</tr>
</tbody>
</table>

S.E./mean = 21.84 lb./ac.

---

Crop: Lobia.  
Site: Crop Physiological Res. Stn., Lucknow.  
Ref: U.P. 51(126).  
Type: ‘M’.

Object: To study the effect of varying doses of N fertilizers on the yield of *Lobia*.

### 1. BASAL CONDITIONS:

- (i) (a) Nil.  
  (b) Wheat.  
- (ii) (a) Sandy loam.  
  (b) N.A.  
- (iii) 26.7.1951.  
- (iv) (a) Hot weather cultivation.  
  Details N.A.  
- (v) N.A.  
- (vi) Jhansi (medium).  
- (vii) N.A.  
- (viii) 2 intercultures.  
- (ix) N.A.  
- (x) 28.10.1951.
2. TREATMENTS:

7 doses of N as A/S: N₀ = 0, N₁ = 15, N₂ = 30, N₃ = 45, N₄ = 60, N₅ = 75 and N₆ = 90 lb./ac.
N applied as top dressing on 26.7.1951.

3. DESIGN:

(i) R.B.D. (ii) 7. (b) N.A. (iii) 3. (iv) (a) 30' x 20'. (b) 27' x 17'. (v) 1' around the plot. (vi) Yes.

4. GENERAL:

(i) Crop dried due to lack of rains. (ii) Nil. (iii) Yield of grain. (iv) (a) 1950—1951. (b) and (c) N₀, (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:

(i) 342.6 lb./ac.
(ii) 100.8 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
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</tr>
<tr>
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<tr>
<td>N₃</td>
<td>353.9</td>
</tr>
<tr>
<td>N₄</td>
<td>426.7</td>
</tr>
<tr>
<td>N₅</td>
<td>414.4</td>
</tr>
<tr>
<td>N₆</td>
<td>349.4</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>58.20</td>
</tr>
</tbody>
</table>

Crop :- Moong (Khafir).
Site :- Govt. Agri. Farm, Atarra.
Object :- To study the residual effect of N and P on the yield of Moong.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Wazat. (c) As per treatments. (ii) (a) Parwa. (b) N.A. (iii) 28.5.1953. (iv) (a) 2 plough with Watt's plough. (b) Broadcasting. (c) N.A. (d) and (e) - (v) Nil. (vi) Moong Type 1 (early). (vii) Nil. (viii) N.A. (ix) 33.28. (x) 1.7.1953 to 15.7.1953 every 2nd day.

2. TREATMENTS:

All combinations of (1) and (2)
(1) 3 levels of N as A/S: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.
(2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 60 and P₂ = 120 lb./ac.
The manures were applied in rabi—1952-53 to wheat crop.

3. DESIGN:

(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 20' x 54.5'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Moong grain yield. (iv) (a) 1953—N.A. (b) N.A. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:

(i) 152.6 lb./ac.
(ii) 9.226 lb./ac.
(iii) Both N and P effects are highly significant. The interaction N x P is not significant.
(iv) Av. yield of moong grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
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<td>141.5</td>
<td>163.2</td>
<td>144.9</td>
</tr>
<tr>
<td>N₁</td>
<td>136.5</td>
<td>154.9</td>
<td>168.2</td>
<td>153.2</td>
</tr>
<tr>
<td>N₂</td>
<td>146.5</td>
<td>156.5</td>
<td>176.5</td>
<td>159.8</td>
</tr>
<tr>
<td>Mean</td>
<td>137.6</td>
<td>151.0</td>
<td>169.3</td>
<td>152.6</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 2.175 lb./ac.
S.E. of body of table = 3.767 lb./ac.
Crop :- Moong (Kharif).  
Site :- Institutional Res. Farm, B. R. College, Bichpuri.  
Type :- 'M'.

Object :- To study the effect of P with and without basal dressing of N on Moong crop and its residual effect on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Wheat.  (c) N.A.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Bichpuri (Agra).  (iii) 1.6.1952.  (iv) (a) Palewa, 1 ploughing and pata each by disc harrow and desi plough.  (b) Behind the plough in lines.  (c) 6 seeds/ac.  (d) Rows 18' apart.  (e)…. (vii) Moong T1 (early).  (viii) Unirrigated.  (ix) Hoing of the plots with 'Panchangura' done on 10th and 11th June, again weeding and hoeing carried out when the crop was 1/4 month old.  (ix) 43.03'.  (x) Pickings on 25, 30.7.1952, 4 and 12.8.1952.

2. TREATMENTS:
   Main-plot treatments:
   2 basal dressings of Farm compost:
   B0 = No basal dressing and B1 = Basal dressing at 20 lb./ac. of N.

   Sub-plot treatments:
   5 levels of P2O5 as Super: P0 = 0, P1 = 32, P2 = 64, P3 = 96 and P4 = 128 lb./ac.

   Vegetative portion for green manures turned down on 20.8.1952. Compost and Super broadcast on 30.5.1952 followed by plough and pata to mix the manure.

3. DESIGN:
   (i) Split-plot.  (ii) (a) 2 main-plots replication and 5 sub-plots/main-plot.  (b) 99'x84'.  (iii) 4.  (iv) (a) 42'x21' and 42'x19'.  (b) 15'x36'.  (v) Block border 4', plot border 2', channel effect 4' and channel 3'.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Yield of grain and dry weight of shoot.  (iv) (a) No.  (b)…. (c) Nil.  (v) (a) and (b) Nil.  (vi) Nil.  (vii) The experiment was conducted by B.R.C.

5. RESULTS:
   (i) 407.9 lb./ac.  (ii) 67.82 lb./ac.  (b) 76.26 lb./ac.
   (iii) Only P effect is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
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<tr>
<th>Treatment</th>
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</tr>
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<tbody>
<tr>
<td>P0</td>
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</tr>
<tr>
<td>P1</td>
<td>341.2</td>
</tr>
<tr>
<td>P2</td>
<td>409.0</td>
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<tr>
<td>P3</td>
<td>457.2</td>
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<tr>
<td>P4</td>
<td>518.3</td>
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<tr>
<td>S.E./mean</td>
<td>26.96 lb./ac.</td>
</tr>
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</table>

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Crop :- Moong.  
Site :- Crop Physiological Res. Stn., Lucknow.  
Ref :- U.P. 50(96).  
Type :- 'M'.

Object :- To study the effect of organic and inorganic manures on the nodulation, yield and growth of Moong.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Wheat.  (c) N.A.  (ii) (a) Sandy loam.  (b) N.A.  (iii) 24.7.1950.  (iv) (a) Hot weather cultivation done in the field. The field was prepared by two ploughings by mould board plough, one by cultivator, two by desi. One desi ploughing was given to mix fertilizers and manures in the field.  (b) Dibbling.  (c) 4 seers/ac.  (d) 18'x9'.  (e) N.A.  (v) 40 mds/ac. stable manure was mixed in the field as basal manuring.  (vi) T1 (medium).  (vii) 2 hoeing and 1 weeding.  (ix) N.A.  (x) 1st picking on 6.10.1950 and 2nd picking on 9.10.1950.

2. TREATMENTS:
   10 sources of 40 lb./ac. of N: S0 = Control (no manure), S1 = Castor cake, S2 = Linseed cake, S3 = G.N.C., S4 = Neem cake, S5 = F.Y.M., S6 = T.C. S7 = A/S, S8 = A/N, and S9 = C/N.
3. DESIGN:
(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 2. (iv) (a) and (b) 17' x 12'. (v) No. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 649.3 lb./ac.
(ii) 85.12 lb./ac.
(iii) Treatments are significantly different.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<td>S₈</td>
<td>590.2</td>
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<td>S₉</td>
<td>507.4</td>
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<tr>
<td></td>
<td></td>
<td>S.E./mean</td>
<td>= 60.19 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Moong (Kharif).
Site: - Crop Physiological Res. Stn., Lucknow.
Object: - To study the residual effect of N applied to previous crop, Wheat on the growth and yield of the following Kharif crop Moong.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Wheat. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 3.7.1950. (iv) (a) One ploughing by mould board plough, one by cultivator, one cross wise ploughing by desi plough and one planking. (b) Dibbling. (c) 3 seers/ac. (d) 17' x 9'. (e) N.A. (v) Nil. (vi) T₃ (medium). (vii) N.A. (viii) 1 hoeing and 1 weeding. (ix) N.A. (x) 21, 28.8.1950 and 7.9.1950.

2. TREATMENTS:
16 sources to give 60 lb./ac. of N: S₀ = control (no manure), S₁ = A/S, S₂ = A/N, S₃ = Ammo. Phos. S₄ = F.Y.M., S₅ = T.C., S₆ = Stable manure, S₇ = Poultry manure, S₈ = ZOO excreta, S₉ = Castor cake, S₁₀ = G.N.C., S₁₁ = Neem cake, S₁₂ = Mohawa cake, S₁₃ = Mustard cake, S₁₄ = Linseed cake and S₁₅ = Kurdi cake.

Manures applied to wheat crop during 1949-1950.

3. DESIGN:
(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b) 20' x 30'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 436 lb./ac.
(ii) 41.26 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<td>302</td>
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<td>S₁₂</td>
<td>392</td>
</tr>
</tbody>
</table>

S.E./mean = 23.82 lb./ac.
Object:—To study the effect of different trace elements on growth and quality of Moong.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Barley+Pea and Mustard. (c) N.A. (ii) (a) Sandy Loam. (b) N.A. (iii) 7.7.1952. (iv) (a) 2 ploughings. (b) In lines by dibbling. (c) 4 sr./ac. (v) 25 lb./ac. of N as, 15 lb./ac. of P₂O₅ as Super and 15 lb./ac. of K₂O as Pot. Sul. (double). Phosphate will be applied 6' deep in furrows while preparing the field and A/S and Pot. Sulphate as top dressing one week before sowing of Moong. (vi) T1 (medium). (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 10.9.1952.

2. TREATMENTS:
   1. Control.
   2. Calcium at 40 lb./ac. of Ca.
   3. Sulphur at 50 lb./ac. of S.
   4. Boron at 2 lb./ac. of B.
   5. Zinc at 4 lb./ac. of Zn.
   6. Copper at 6 lb./ac. of Cu.
   7. Manganese at 5 lb./ac. of Mn.
   8. Molybdenum at 6 lb./ac. of Mo.
   9. Ferreous sulphate at 2 lb./ac. of Fe.
   10. Fallow.
   Elements will be applied mixed with fine earth as surface dressing 5 to 6 days before sowing as to secure uniform distribution within the plot.

3. DESIGN:
   (i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 16'×25'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) Nil. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by C.P.

5. RESULTS:
   (i) 484.8 lb./ac.
   (ii) 131.8 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>381.3</td>
<td>6</td>
<td>612.5</td>
</tr>
<tr>
<td>2</td>
<td>637.6</td>
<td>7</td>
<td>346.9</td>
</tr>
<tr>
<td>3</td>
<td>481.3</td>
<td>8</td>
<td>612.5</td>
</tr>
<tr>
<td>4</td>
<td>459.4</td>
<td>9</td>
<td>368.8</td>
</tr>
<tr>
<td>5</td>
<td>462.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>=65.9 lb./ac.</td>
<td></td>
</tr>
</tbody>
</table>

Object:—To study the effect of P₂O₅, Boron and Calcium on nodulation and yield of Moong.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.7.1950. (iv) (a) Two ploughings by mould board plough, one by cultivator, 3 by desl plough [and planking] (b) Dibbling in rows. (c) 3 sr./ac. (d) 18'×9'. (e) N.A. (v) 60 mds. stable manure mixed by desl plough. (vi) T3 (medium). (vii) N.A. (viii) 2 hoeings and weedings. (ix) N.A. (x) 9.14.9.1950.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of P₂O₅ as Super : P₀=0, P₁=25 and P₂=50 lb./ac.
   (2) 2 levels of Gypsum as Ca : C₀=0 and C₁=40 lb./ac.
   (3) 2 levels of Boron as Borax : B₀=0 and B₁=50 lb./ac.

3. DESIGN:
   (i) 3×2×2 Fact in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) and (b) 20'×30'. (v) Nil. (vi) Yes.
4. GENERAL:
(i) N.A.  (ii) No.  (iii) No. of nodules per 3 plants, fresh weight of nodules, volume of nodules, dry weight of nodules and yield of grain.  (iv) (a) No.  (b) and (c) N.A.  (v) (a) and (b) Nil.  (vi) Nil.  (vii) The experiment was conducted by C.P.

5. RESULTS:
(i) 366 lb./ac.
(ii) 35.04 lb./ac.
(iii) Main effects of B and interactions P x C and P x C x B are highly significant, where as main effect of P and interaction C x B are significant. Others are not significant.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
<th>C0</th>
<th>C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>B0</td>
<td>386</td>
<td>368</td>
<td>432</td>
<td>396</td>
<td>399</td>
<td>392</td>
</tr>
<tr>
<td>B1</td>
<td>331</td>
<td>325</td>
<td>350</td>
<td>336</td>
<td>308</td>
<td>363</td>
</tr>
<tr>
<td>Mean</td>
<td>359</td>
<td>347</td>
<td>391</td>
<td>366</td>
<td>354</td>
<td>378</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of P = 10.11 lb./ac.
S.E. of marginal mean of C or B = 8.25 lb./ac.
S.E. of body of table P x C or P x B = 14.30 lb./ac.
S.E. of body of table C x B = 11.68 lb./ac.

Crop :- Moong (Rabi).
Site :- Institutional Res. Farm, Bichpuri (Agra).
Ref :- U.P. 53(379).
Type :- 'MV'.

Object :- To study the effect of different methods of placement of Super on the growth, development and yield of Moong and the residual effect on Wheat.

1. BASAL CONDITIONS:
(i) (a) Nil.  (b) Wheat.  (c) N.A.  (ii) Sandy loam.  (b) Refer soil analysis, B.R. College, Bichpuri (Agra).
(iii) 20.7.1953.  (iv) (a) 2 ploughings by disc harrow and pata.  (b) By desi plough in furrows 1" deep.
(c) 14.6.1953.  (d) 2'x9'.  (e) 2'x9'.  (f) Nil.  (vi) As per treatments.  (vii) Nil.  (viii) Thinning done on 4.8.1953, and 9" distance between plants were maintained within the row. Attack of weeds like Motha (Cyperus rotundus) and other annual weeds (mostly grown in inter spaces) and so weedings done by hand labour on 4, 5, 8.1953 and 2, 3, 9.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties of Moong : V1=Moong T1 and V2=China moong.
(2) 3 applications of P2O5 at Super : P0=0, P1=120 lb./ac. of P2O5 applied at 3' depth in furrows directly below the seed and P2=120 lb./ac. of P2O5 applied at 3' depth in two bands, 3' away on either side of sowing line. P2O5 applied on 30.7.1953. Super finely powdered and sieved before application.

3. DESIGN:
(i) 2 x 3 Fact. in R.B.D.  (ii) (a) 6.  (b) 84' x 61'.  (iii) 4.  (iv) (a) 42'x21' and 42'x19'.  (b) 36'x15'.  (v) Block border 4', Plot border 2', channel effect 4' and channel 4'.  (vi) Yes.

4. GENERAL:
(i) Due to heavy rains on 26.8.1953. water logging occured for few days, some leaves of China moong plants showed dark colour and began to dry up due to water logging condition.  (ii) Entire crop of China moong was heavily attacked by the green caterpillars and adults of Blister Beetle (Mylabria). Leaves were eaten up by these insects on 28.8.1953.  (iii) Pod, grain yield/plant, grain yield/plot etc.  (iv) (a), (b) No.  (c) Nil.  (v) (a), (b) No.  (vi) Nil.  (vii) The expt. was conducted by B.R.C. Plotwise yield data-N.A.
5. RESULTS:

(i) 225.9 lb./ac.
(ii) 63.36 lb./ac.
(iii) V effect is highly significant. P vs control is significant. Others are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>178.0</td>
<td>V₁</td>
<td>358.1</td>
</tr>
<tr>
<td>P₁</td>
<td>250.5</td>
<td>V₂</td>
<td>93.6</td>
</tr>
<tr>
<td>P₂</td>
<td>249.1</td>
<td>S.E./mean</td>
<td>18.29 lb./ac.</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>22.40 lb./ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

611

(iii) Treatment differences are not significant.

5. RESULTS:

(i) 606.0 lb./ac.
(ii) 121.2 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>630.0</td>
</tr>
<tr>
<td>2.</td>
<td>585.0</td>
</tr>
<tr>
<td>3.</td>
<td>510.0</td>
</tr>
<tr>
<td>4.</td>
<td>660.0</td>
</tr>
<tr>
<td>5.</td>
<td>645.0</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>60.6 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Moong (Rabi).
Site : Govt. Res. Farm, Kanpur.

BASAL CONDITIONS:

(i) (a) Moong—Wheat. (b) Wheat. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 26.6.1951. (iv) (a), (b) N.A. (c) 3.75 srs./ac. (d), (e) N.A. (v) No. (vi) Moong type 1 (medium early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 17.9.1951.

TREATMENTS:

1. 5 lb./ac. of Manganese chloride.
2. 5 lb./ac. of Zinc sulphate.
3. 5 lb./ac. of Copper sulphate.
4. 1 lb./ac. of Boric Acid.
5. No spraying—control.

Date of spraying is 14.8.1951,

DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 35.3'x20'. (v) N.A. (vi) Yes.

GENERAL:

(i) Good. (ii) N.A. (iii) Moong yield. (iv) (a) 1951 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.
2. TREATMENTS:
1. 5 lb./ac. of Manganese chloride.
2. 5 lb./ac. of Zinc sulphate.
3. 5 lb./ac. of Copper sulphate.
4. 1 lb./ac. of Boric acid.
5. Control—no spraying.
Date of spraying: 26.7.1952.

3. DESIGN:
(i) R.B.D. (ii) (a) N.A. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36.3'x20'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) N.A. (iii) Grain yield. (iv) (a) 1951-1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 139.8 lb./ac.
(ii) 40.69 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>174.0</td>
</tr>
<tr>
<td>2.</td>
<td>69.0</td>
</tr>
<tr>
<td>3.</td>
<td>112.5</td>
</tr>
<tr>
<td>4.</td>
<td>180.0</td>
</tr>
<tr>
<td>5.</td>
<td>163.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>20.35 lb./ac.</td>
</tr>
</tbody>
</table>

Object: To study the effect of spraying trace elements on the yield of Moong.

1. BASAL CONDITIONS:
(i) (a) Wheat—Moong. (b) Wheat. (c) F.Y.M. and G.M. (ii) (a) Loam. (b) N.A. (iii) 5.7.1953. (iv) (a) and (b) N.A. (c) 6 srs./ac. (d) and (e) N.A. (v) Top dressing with 50 lb./ac. of NaN on 13.8.1952. (vi) Moong type 1 (medium-early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 5.9.1953.

2. TREATMENTS:
1. 5 lb./ac. of Manganese chloride.
2. 5 lb./ac. of Zinc sulphate.
3. 5 lb./ac. of Copper sulphate.
4. 1 lb./ac. of Boric acid.
5. Control.
Date of spraying: 18.8.1953.

3. DESIGN:
(i) R.B.D. (ii) (a) N.A. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36.3'x20'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) Grain yield. (iv) (a) 1951 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 198.6 lb./ac.
(ii) 18.97 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>220.5</td>
</tr>
<tr>
<td>2.</td>
<td>139.5</td>
</tr>
<tr>
<td>3.</td>
<td>178.5</td>
</tr>
<tr>
<td>4.</td>
<td>222.0</td>
</tr>
<tr>
<td>5.</td>
<td>232.5</td>
</tr>
</tbody>
</table>

S.E./mean = 9.48 lb./ac.

Crop : Gram.
Site : Crop Physiological Res. Stn., Lucknow.

Object : To study the effect of N, P, K and Ca on the yield of Gram.

1. BASAL CONDITIONS:
(i) (a) Maize-Gram. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 21.10.1953. (iv) (a) 3 ploughings (b) Sown behind the plough. (c) 56 mdn./ac. (d) N.A. (e) N.A. (v) Nil. (vi) Gram T-87. (vii) Irrigated. (viii) One weeding. (ix) 5.48". (x) 6.4.1954.

2. TREATMENTS:
1. A/S at 40 lb./ac. of N.
2. Super at 50 lb./ac. of \(P_2O_5\).
3. Pot. Sul. at 40 lb./ac. of \(K_2O\).
4. Gypsum at 60 lb./ac. of Ca.
5. Control (no manure).

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 25' x 20'. (b) 21' x 16'. (v) 2' around. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1953 - N.A. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
(i) 1212 lb./ac.
(ii) 24.63 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1359</td>
</tr>
<tr>
<td>2.</td>
<td>1509</td>
</tr>
<tr>
<td>3.</td>
<td>1184</td>
</tr>
<tr>
<td>4.</td>
<td>1124</td>
</tr>
<tr>
<td>5.</td>
<td>884</td>
</tr>
</tbody>
</table>

S.E./mean = 17.42 lb./ac.

Crop : Gram (Rabi).
Site : Govt. Agri. Farm, Pura.

Object : To study the residual effect of N and P on Gram crop, having already tested the residual effect on Paddy crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy crop. (c) Nil. (ii) (a) Kanpur type 2, loam. (b) Refer soil analysis, Pura. (iii) N.A. (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: No=0, N1=30 and N2=60 lb./ac.
(2) 3 levels of P2O5 as Super: P0=0, P1=60 and P2=120 lb./ac.
These manures were applied in rabi 1952-1953 to the wheat crop. Then residual effect tested on Paddy crop. Then again the present experiment (residual effect).

3. DESIGN:
(i) 3x3 Fact. in R.B.D.  (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 53'x15'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Grain and straw yield. (iv) (a) 1953—N.A.  (b) N.A.  (c) Nil. (v) (a) N.A.  (b)—. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:
(i) 1478 lb./ac.
(ii) 276.4 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1666</td>
<td>1459</td>
<td>1636</td>
<td>1587</td>
</tr>
<tr>
<td>1235</td>
<td>1718</td>
<td>1485</td>
<td>1479</td>
</tr>
<tr>
<td>1223</td>
<td>1378</td>
<td>1502</td>
<td>1368</td>
</tr>
<tr>
<td>Mean</td>
<td>1375</td>
<td>1518</td>
<td>1541</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 65.1 lb./ac.
S.E. of body of table =112.8 lb./ac.

Crop :- Gram (Rabi).
Site :-Orai (Jalaun).

Ref :- U.P. 52(276).
Type :- 'M'.

Object :-To draw out fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A.  (ii) Bundelkhand type 2 soils and Bundelkhand type 3 soils.  (iii) N.A.  (iv) Improved.
(v) (a) After application of manure, the field was levelled by drawing a pata. (b) Seeds sown in lines parallel to the fertilizer band.  (c) N.A.  (d) At a distance of 1' to 2' away from the fertilizer line.  (e) N.A.  (v) to (x) N.A.

2. TREATMENTS:
1. Control.
2. 60 lb./ac. of P2O5 as Super (2 plots each replication).
Super in placed at a depth of about 3'-4' in the sole of the furrows and in the side of the seed row made by either an iron plough or two desi ploughs one behind the other in the same furrow.

3. DESIGN:
(i) and (ii) 12 villages selected in the district and an unreplicated experiment laid out in each village. (iii) (a) N.A.  (b) N.A. but is taken to be about 1/40 ac.  (iv) N.A. on cultivators' fields.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Gram and straw yield. (iv) (a) No. (b) and (c) N.A.  (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 587 lb./ac.
(ii) 68.55 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E. for treatment 1</th>
<th>S.E. for treatment 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>497</td>
<td>-19.79 lb./ac.</td>
<td>-13.99 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>632</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop :-Gram (Rabi).

Site :-Kichha (Nainital).

Object :-To draw out fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Maize in case of 2 trials and fallow in case of 2 trials. (c) N.A. (ii) Dumat II in one trial, loamy in one, sandy loam in one and loam (slightly calcareous) in one. (iii) Nil. (iv) N.A. (v) About 6 to 8 ploughings by desi plough. (b) to (e) N.A. (vi) 25.9.1953 to 6.10.1953. (vii) Un-irrigated. (viii) N.A. (ix) N.A. (x) 18.4.1954 to 3.5.1954.

2. TREATMENTS :
   1. Control (no manure).
   2. 25 lb./ac. of P$_2$O$_5$ as Super.
   3. 50 lb./ac. of P$_2$O$_5$ as Super.
P$_2$O$_5$ applied deep behind victory plough in furrows.

3. DESIGN :
   (i) and (ii) Two villages with 2 fields/village were selected in the Tahsil. 3 plots/field. (iii) (a) N.A. (b) 33'x33'. (iv) N.A.

4. GENERAL :
   (i) Satisfactory in 1 trial, good in 2 trials, good (poor germination) in 1 trial. (ii) Attack of gram caterpillar in all the trials. (iii) Yield of grain & Straw (iv) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Severe weeds in all the 4 trials water logging in one trial (in P$_2$ treatments), 1 trial damaged by hailstorm. Expt. conducted by A.C. on cultivators' fields.

5. RESULTS :
   (i) 564 lb./ac.
   (ii) 94.28 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>454</td>
<td>47.14 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>552</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>685</td>
<td></td>
</tr>
</tbody>
</table>

Crop :-Gram (Rabi).

Site :-Allahabad Agri. Institute, Allahabad.

Object :-To study the effect of spacing and seed rate on gram yield.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Jowar. (c) N.A. (ii) (a) Loamy. (b) Refer soil analysis, Allahabad. (iii) 4.11.1953. (iv) (a) N.A. (b) N.A. (c) and (d) As per treatments. (e) N.A. (v) N.A. (vi) T-87 (N.A.). (vii) Irrigated. (viii) N.A. (ix) 1.00". (x) 30.3.1954.
2. **TREATMENTS:**

**Main-plot treatments:**
- 3 row spacings: $S_1 = 8''$, $S_2 = 12''$ and $S_3 = 16''$.

**Sub-plot treatments:**
- 3 seed rates: $R_1 = 20$, $R_2 = 25$ and $R_3 = 30$ sr./ac.

3. **DESIGN:**
(i) Split-plot.  
(ii) (a) 3 main-plots/replication and 3 sub-plots/main-plot. (b) Sub-plot 30'×12' (v) Replications 4' apart, main-plots 2' apart and sub-plots 2' apart. 
(vi) Yes.

4. **GENERAL:**
(i) N.A.  
(ii) N.A.  
(iii) Grain yield.  
(iv) (a) No.  
(b) No.  
(c) Nil.  
(v) (a) and (b) Nil.  
(vi) Nil. 
(vii) Treatment values of $S_1R_2$ in replication III and $S_2R_3$ in replication IV were estimated as the crop in these two plots had been stolen. Experiment conducted by the Head, Department of Agronomy (A.A.I.)

5. **RESULTS:**
(i) 1030 lb./ac.  
(ii) (a) 332.1 lb./ac.  
(b) 158.4 lb./ac.  
(iii) None of the effects is significant.  
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>R_1</th>
<th>R_2</th>
<th>R_3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1120</td>
<td>1195</td>
<td>1170</td>
<td>1162</td>
</tr>
<tr>
<td>1045</td>
<td>921</td>
<td>1145</td>
<td>1037</td>
</tr>
<tr>
<td>871</td>
<td>921</td>
<td>881</td>
<td>891</td>
</tr>
</tbody>
</table>

| Mean | 1012 | 1012 | 1065 | 1030 |

S.E of difference of
1. $S_1$ and $S_2$ or $S_2$ and $S_3$ marginal means = 122.13 lb./ac.
2. $S_1$ and $S_3$ marginal means = 123.00 lb./ac.
3. $R_1$ and $R_3$ or $R_1$ and $R_3$ marginal means = 59.99 lb./ac.
4. $R_2$ and $R_3$ marginal means = 61.73 lb./ac.
5. $R_1$ and $R_3$ means or $R_3$ and $R_3$ means at the same level of $S_2$ = 103.90 lb./ac.
6. $R_2$ and $R_3$ or $R_2$ and $R_3$ means at the same level of $S_3$ = 103.90 lb./ac.
7. Two $R$ means at the same level of $S_3$ = 100.80 lb./ac.
8. $R_1$ and $R_2$ means at the same level of $S_1$ = 100.80 lb./ac.
9. $R_4$ and $R_4$ means at the same level of $S_3$ = 100.80 lb./ac.
10. $S_1$ and $S_2$ or $S_1$ and $S_3$ means at the same level of $R_2$ = 152.91 lb./ac.
11. $S_1$ and $S_2$ or $S_3$ and $S_3$ means at the same level of $R_2$ = 152.91 lb./ac.
12. Two $S$ means at the same level of $R_1$ = 146.56 lb./ac.
13. $S_2$ and $S_2$ means at the same level of $R_2$ = 146.56 lb./ac.
14. $S_1$ and $S_2$ means at the same level of $R_3$ = 146.56 lb./ac.

---

**Crop:** Gram (Rabi).  
**Site:** Students' Instructional Farm, Kanpur.  
**Object:** To study the effect of topping on Gram yield.  
**Ref:** U.P. 52(248).  
**Type:** 'C'.
3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 48'×40'. (v) N/A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil.
   (vii) The experiment was conducted by P.A.C. (K), plotwise data N.A.

5. RESULTS:
   (i) 735.9.
   (ii) and (iii) N.A.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>773.5</td>
</tr>
<tr>
<td>2.</td>
<td>818.7</td>
</tr>
<tr>
<td>3.</td>
<td>615.5</td>
</tr>
</tbody>
</table>

Crop :-Gram (Rabi). Site :-Raghunath Purwa (Gonda). Ref :-U.P. 53(308). Type :-‘D’.

Object :-To test the effectiveness of insecticides for the control of cut worms- Agrotis Spp.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) to (iv) N.A. (v) (a) to (e) N.A. (vi) to (x) N.A.

2. TREATMENTS:
   1. Dusting the soil with 10% D.D.T. at 25 lb./ac.
   2. Dusting the soil with 10% B.H.C. at 25 lb./ac.
   3. Dusting the soil with 10% Toxaphene at 20 lb./ac.
   4. Poison bait with 5% B.H.C. and bran (1 part 5% B.H.C. in 10 parts of bran) at 30 lb./ac.
   5. Control (no treatment).

Treatments applied on 23.1.1953.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 33'×37'. (b) 33'×33'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Under study. (iii) Population of cutworms on different dates, % of mortality 2 days after
   application of treatment on 25.1.1953 and 8 days after application of treatment on 1.2.1953. (iv) (a) No. (b)
   and (c) N.A. (v) N.A. (vi) Nil. (vii) p is % mortality. Expt. conducted by Fno. (K) on cultivators’ fields.

5. RESULTS:
   (i) 40.88 sin⁻¹v/p/plot.
   (ii) 7.96 sin⁻¹v/p/plot.
   (iii) Treatment differences are highly significant.
   (iv) Treatment differences, Mean value (sin⁻¹v/p) and Av. % mortality (transformed back)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value (sin⁻¹v/p)</th>
<th>Av. % mortality (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>60.46</td>
<td>75.43</td>
</tr>
<tr>
<td>2.</td>
<td>59.14</td>
<td>73.45</td>
</tr>
<tr>
<td>3.</td>
<td>39.15</td>
<td>39.97</td>
</tr>
<tr>
<td>4.</td>
<td>42.68</td>
<td>45.99</td>
</tr>
<tr>
<td>5.</td>
<td>2.99</td>
<td>0.77</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=3.98</td>
<td></td>
</tr>
</tbody>
</table>
Crop :- Gram (Rabi).
Site :- Bardari Farm, (Rampur).

Object :- To find out a suitable control measure against Gram pod borer—Heliothis armigora Hulen.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) Loam. (iii) Nil. (iv) Improved. (v) (a) to (c) N.A. (vi) October, 1953. (vii) Unirrigated. (viii) and (ix) N.A. (x) April, 1954.

2. TREATMENTS :
   1. Dusting the crop with 5% B.H.C. at 25 lb./ac.
   2. Dusting the crop with 5% D.D.T. at 25 lb./ac.
   3. Spraying the crop with 0.25% D.D.T. suspension at 50 gallons/ac.
   4. Spraying the crop with 0.25% B.H.C. suspension at 50 gallons/ac.
   5. Control (no treatment).

3. DESIGN :
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 37' x 37'. (b) 33' x 33'. (iv) N.A.

4. GENERAL :
   (i) Not good. (ii) Incidence of grain-pod borer observed. (iii) Incidence (%) of gram borer. (iv) (a) 1953 - continued. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Expt. conducted by Ento (K). on cultivators' fields. The incidence was very low during the season, hence conclusive results could not be drawn.

5. RESULTS :
   (i) 14.50 degree.
   (ii) 2.2414 degree.
   (iii) Treatments are significantly different.
   (iv) Treatment | Mean value (sin^-1√p) | Transformed back mean percentages
                   |                     |                            
   1.             | 14.04                | 5.32                        
   2.             | 11.80                | 4.65                        
   3.             | 12.89                | 5.43                        
   4.             | 16.37                | 8.37                        
   5.             | 17.41                | 9.36                        
   S.E./mean     | = 1.1207 degrees     |                            

Crop :- Lahi (Rabi).
Site :- Kichha (Nainital.)

Object :- To draw out fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS :

2. TREATMENTS :
   1. Control.
   2. 25 lb./ac. of P₂O₅ as Super.
   3. 50 lb./ac. of P₂O₅ as Super.

Super applied 4" deep behind the plough.

3. DESIGN :
   (i) and (ii) 3 villages were selected in the Tahsil. In first village 7 fields, in second, one field and in the third village, 5 fields were selected with 3 plots/field. (iii) (a) N.A. (b) 33' x 33'. (iv) N.A.

4. GENERAL :
   (i) Good in 11 trials, normal in 2 trials, occurrence of lodging in 4 trials. (ii) Slight damage by pests in 4 trials and N.A. for 9 trials. (iii) Grain and straw yield. (iv) (a) 1952-1953—continued. (b), (c) N.A. (v) N.A. (vi) Nil. (vii) Expt. conducted by A.C. on cultivators' fields.
5. **RESULTS:**

(i) 842 lb./ac.
(ii) 92.89 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>693</td>
</tr>
<tr>
<td>2.</td>
<td>864</td>
</tr>
<tr>
<td>3.</td>
<td>970</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=25.76 lb./ac.</td>
</tr>
</tbody>
</table>

**Crop:** Lahi and Gram (*Rabi*).  
**Site:** Kichha (Nainital).  
**Ref:** U.P. 53(410).  
**Type:** 'M'.

Object: To draw out fertilizer schedule for agriculturally important soil types.

1. **BASAL CONDITIONS:**

(i) (a) N.A.  
(b) Maize.  
(c) N.A.  
(ii) Sandy loam for 4 trials and loam for 2 trials.  
(iii) Nil.  
(iv) N.A.  
(v) (a) About 6 to 8 ploughings by *desi* plough.  
(b) N.A.  
(c) Gram and Lahi in the ratio of 8:3.  
(d) and  
(e) N.A.  
(vi) 27.9.1953 to 30.9.1953.  
(vii) Unirrigated.  
(viii) N.A.  
(ix) N.A.  
(x) 13.1.1954 to 10.2.1954.

2. **TREATMENTS:**

1. Control.  
2. 25 lb./ac. of P$_2$O$_5$ as Super.  
3. 50 lb./ac. of P$_2$O$_5$ as Super.  
Super applied 4" deep in bands behind the victory plough.

3. **DESIGN:**

(i) and (ii) 6 fields selected in the village in Tehsil with 3 plots/field.  
(iii) (a) N.A.  
(b) 33'×33'.  
(iv) N.A.

4. **GENERAL:**

(i) Good in case of 5 trials, Poor to good in case of 1 trial.  
(ii) Caterpillar and cut worm to green crop.  
(iii) Grain and straw yield.  
(iv) (a) N.A.  
(b) N.A.  
(c) N.A.  
(v) N.A.  
(vi) Nil.  
(vii) Only yield data for lahi crop has been analysed. The gram crop has failed completely in 5 out of 6 trials. Due to caterpillar and cut worm the gram crop failed completely in case of 3 trials.  
One trial was not harvested because of poor yield.  
One trial was spoiled by wild animals.  
Expt. conducted by A.C. on cultivators' fields.

5. **RESULTS:**

(i) 1080 lb./ac.  
(ii) 40.85 lb./ac.  
(iii) Treatments are highly significantly different.  
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>969</td>
</tr>
<tr>
<td>2.</td>
<td>1094</td>
</tr>
<tr>
<td>3.</td>
<td>1176</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=16.68 lb./ac.</td>
</tr>
</tbody>
</table>

**Crop:** Peas.  
**Site:** Govt. Botanical Gardens, Agri College, Kanpur.  
**Ref:** U.P. 51(145).  
**Type:** 'CV'.

Object: To find out the inter-relation of varieties and spacings on early and total yield of Peas.

1. **BASAL CONDITIONS:**

(i) (a) N.A.  
(b) Fallow in *kharif*.  
(c) N.A.  
(ii) (a) Gangetic alluvial type, light loam brown in colour and of fine texture.  
(b) N.A.  
(iii) 7.11.1953.  
(iv) (a) Ploughing.  
(b) Dibbling.  
(c) N.A.  
(d) As per treatments.  
(e) N.A.  
(v) N.A.  
(vi) As per treatments.  
(vii) Irrigated.  
(viii) One weeding with *kharpi*.  
(ix) N.A.  
(x) N.A.
2. TREATMENTS:

Main-plot treatments:
2 spacings: \( S_1 = 6' \) and \( S_2 = 9' \).

Sub-plot treatments:
3 varieties: \( V_1 = N?\text{-29} \) (early), \( V_2 = 4493 \) (late) and \( V_3 = E.A \) (late).

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block and 3 sub-plots/main-plot. (b) 57' x 44.5'. (iii) 6. (iv) (a) N.A. (b) 26' x 13'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Early and total grain yield. (iv) (a) to (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) In all three pickings were done by hand. Plot wise yield. The experiment was conducted by P.A.C.

5. RESULTS:

(i) 2051.2 lb./ac.
(ii) (a) 754.1 lb./ac.  
(b) 334.1 lb./ac.
(iii) Only \( V \) effect is significant.
(iv) Av. yield of pods in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>( V_3 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( S_1 )</td>
<td>2298</td>
<td>2029</td>
<td>2029</td>
<td>2119</td>
</tr>
<tr>
<td>( S_2 )</td>
<td>2323</td>
<td>1786</td>
<td>1843</td>
<td>1984</td>
</tr>
<tr>
<td>Mean</td>
<td>2310</td>
<td>1907</td>
<td>1936</td>
<td>2051</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. \( S \) marginal means = 251.3 lb./ac.
2. \( V \) marginal means = 136.4 lb./ac.
3. \( V \) means at the same level of \( S \) = 192.9 lb./ac.
4. \( S \) means at the same level of \( V \) = 296.7 lb./ac.

---

Crop: Peas.
Site: Govt. Vegetable Res. Stn., Lucknow.

Ref: U.P. 51(220).
Type: 'D'.

Object: To study the effect of Agrosan G.N. and ceresan on yield of Pea.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) (a) Clayey loam. (b) N.A. (iii) 3.11'1951. (iv) (a) to (c) N.A. (v) N.A. (vi) T-18 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 2, 12, 22.2.1952 and 3.3.1952.

2. TREATMENTS:
1. Seed treated with Agrosan G.N. with the ratio of 2 : 1000 parts by weight of fungicide to seed.
2. Seed treated with Ceresan with the ratio 2 : 1000 parts by weight of fungicide to seed.
3. Control.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) 49' x 23'. (iii) 4. (iv) (a) N.A. (b) 15'8" x 7'-2". (v) N.A. (vi) Yes.

4. GENERAL:
(i) No lodging. Crop condition N.A. (ii) N.A. (iii) Green pea yield. (iv) (a) N.A. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:
(i) 9.05 ton/ac.
(ii) 0.6053 ton/ac.
(iii) Treatment differences are not significant.
Crop :- Peas. (Rabi).
Site :- Castle Grant. Orchard, B. R. College, Agra.
Type :- "CDV".

Object :- To study vernalisation response in relation to the yield of green pods of the two varieties of garden Pea.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) N.A. (b) N.A. (iii) As per treatments. (iv) (a) Cultivated in summer months, ploughed twice with soil turning plough and 3 times with desi plough, every time followed by levelling with pada. (b) Dibbling. (c) N.A. (d) 3' x 1'. (e) —. (v) Compost at 18 seers/plot. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings and hoeings. (ix) N.A. (x) 26.1.1950, 3.2.1950 and then pickings at an interval of 7 days upto 5.3.1950.

2. TREATMENTS:
Main-plot treatments:
- 2 sowing dates: D1 = 20.10.1949 and D2 = 5.11.1949.
Sub-plot treatments:
- All combinations of (1) and (2)
  (1) 2 varieties: V1 = I.P. 29 and V2 = English abundance.
  (2) 2 vernalisation (doses of chilling): C0 = No chilling (control) and C1 = 21 days chilling.
Vernalised seeds were sown and also control seeds which were brought to the same stage of germination.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block and 4 sub-plots/main-plot. (b) 63' x 37 '. (iii) 4. (iv) (a) 15' x 17'. (b) 12' x 14'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Total yield of green pods and straw and other characters studied. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.R.C. No plot wise yield were available.

5. RESULTS:
(i) 183.3 lb./ac.
(ii) (a) 50.67 lb./ac.
(b) 20.08 lb./ac.
(iii) C effect is significant and interaction D x V is highly significant. Other effects are not significant.
(iv) Av. yield of green pods in lb./ac.

<table>
<thead>
<tr>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>215.2</td>
<td>174.4</td>
</tr>
<tr>
<td>D2</td>
<td>162.2</td>
<td>181.5</td>
</tr>
<tr>
<td>Mean</td>
<td>188.7</td>
<td>178.0</td>
</tr>
</tbody>
</table>

S.E. of difference of two.
1. D marginal means = 17.91 lb./ac.
2. V marginal means = 7.10 lb./ac.
3. V means at the same level of D. = 10.04 lb./ac.
4. D means at the same levels of V = 19.27 lb./ac.
Crop :- Garden Pea (Rabi).

Site :- Institutional Farm, B.R. College Bichpuri, Agra.

Object :- To study the effect of different dates of sowing and staking on the germination, growth, yield and quality of Garden Pea.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Wheat and the Fallow. (c) Nil. (ii) (a) and (b) N.A. (iii) As per treatments. (iv) (a) Field ploughed four times with disc harrow drawn by tractor. Each ploughing was followed by planking to make the soil fine and compact. (b) Seed drill (nai) attached behind a deshi plough. (c) to (e) N.A. (v) Top dressing at 20 lb./ac. of N as A/3 after one and a half month of sowing under each date of sowing. The fertilizer was placed in bands in between two rows and mixed in soil by hoeing 120 mdf/ac. of M.C. before last ploughings. (vi) English Abundance (N.A.). (vii) Irrigated. (viii) One weeding after irrigation. (ix) N.A. (x) From 30.1.1953 to 3.3.1953 at week intervals.

2. TREATMENTS:
   Sub-plot treatments : 2 levels of staking : S0 = No staking and S1 = Staking.
   Staking : When the seedlings attained a height of 6" support was given for further growth.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication, 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 24' x 16'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Crop stand, yield of Pea. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.R.C. No plotwise yield data was available.

5. RESULTS:
   (i) 3572 lb./ac. (ii) (a) 434.9 lb./ac. (b) 685.8 lb./ac.
   (iii) D effect is highly significant, S effect is significant while interaction D x S is not significant.
   (iv) Av. yield of pea in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>2678</td>
<td>S0</td>
<td>3192</td>
</tr>
<tr>
<td>D2</td>
<td>4908</td>
<td>S1</td>
<td>3952</td>
</tr>
<tr>
<td>D3</td>
<td>3131</td>
<td>S.E./mean</td>
<td>197.98 lb./ac.</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>153.77 lb./ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Masoor (Rabi).

Site :- Malkota (Nainital).

Object :- To draw out fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) 2 blocks on loam (non calcareous) and block on loam (slightly calcareous). (iii) N.A. (iv) Improved. (v) (a) As practised locally. No details available. After application of manure, the field was levelled by drawing a pata. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) At a distance of 1"—2" away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control.
   2. 25 lb./ac. of P2O5 as Super.
   3. 50 lb./ac. of P2O5 as Super.
   Super placed at depth of about 3"—4" deep at sole of the furrow and in the side of the seed row made either by the iron plough or two deshi ploughs one behind the other in the same furrow.

3. DESIGN:
   (i) and (ii) R.B.D. with 3 replications. (iii) (a) and (b) N.A. (iv) N.A.
4. GENERAL:
(i) Very poor and stunted growth. (ii) N.A. (iii) Mesoor grain and straw yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. on cultivator’s fields.

5. RESULTS:
(i) 115 lb./ac.
(ii) 20.07 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>80</td>
</tr>
<tr>
<td>2.</td>
<td>123</td>
</tr>
<tr>
<td>3.</td>
<td>143</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>11.59 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: - Potato (Rabi).

Site: - Castle Grant Orchard B.R. College, Agra.

Object: - To study the effect of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O applied singly and in combination on Potato crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, B.R. College, Agra.
(iii) 10 and 11.10.1950. (iv) (a) 4 ploughings with soil turning ploughing pasta. (b) Sowing in ridges by hand at 4’ depth. (c) 15 mds./ac. (d) 15’ x 9’. (e) — (f) Nil. (v) Gola (early). (vi) Irrigated. (vii) 1 hoeing, 1 weeding and 1 earthing. (ix) N.A. (x) 25 to 28.1.1951.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N as A/S : N<sub>0</sub>=0, N<sub>1</sub>=100 and N<sub>2</sub>=200 lb./ac. of N.
(2) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=150 and P<sub>2</sub>=300 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
(3) 3 levels of K<sub>2</sub>O as Pot. Sul. K<sub>0</sub>=0, K<sub>1</sub>=75 and K<sub>2</sub>=150 lb./ac. of K<sub>2</sub>O.
Super spread in rows at a distance of 11’ where the ridges were to be prepared for planting tutors on 7 and 8.10.1950. A/S and Pot. Sub. as top dressing after 40 days of sowing i.e. on 28.11.1950.

3. DESIGN:
(i) 3<sup>rd</sup> Conf. (ii) (a) 3 blocks/replication and 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 15’ x 12’. (b) 12’ x 9’.
(v) 11’ x 11’’. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) Fresh and dry wt. of tutors, yield per plot etc. (iv) (a) to (c) No. (v) (a) Nil (b) No. (vi) Nil. (vii) The experiment was conducted by B.R.C.

5. RESULTS:
(i) 3.39 ton/ac.
(ii) 1.6156 ton/ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>N&lt;sub&gt;0&lt;/sub&gt;</td>
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</tr>
<tr>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>3.53</td>
</tr>
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<td>N&lt;sub&gt;2&lt;/sub&gt;</td>
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<td>K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>3.18</td>
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S.E./of any mean = 0.3808 ton/ac.
Crop: Potato (Rabi).

Ref: U.P. 50(307).

Site: Castle Grant Orchard, B.R. College, Agra.

Type: 'M'.

Object: To study the effect of N, P\textsubscript{2}O\textsubscript{5} and K\textsubscript{2}O applied singly and in combination on Potato crop.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Light sandy loam. (b) Refer soil analysis, B.R. College, Agra. (iii) 1 and 2.11.1950. (iv) (a) Ploughing by desi plough followed by pata on 12.10.1950, cross ploughing by desi plough followed by pata on 13 and 18.10.1950, ploughing by soil turning plough, followed by pata on 17.10.1950. (b) On ridges by hand at 4' depth. (c) 5 mds./ac. (d) 18'x10'. (e) 1. (v) N.A. (vi) Phulwa. (N.A.) (vii) Irrigated. (viii) 1 weeding and 1 earthing. (ix) N.A. (x) 28 and 29.3.1951.

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 levels of N as A/S: N\textsubscript{0} = 0, N\textsubscript{1} = 80 and N\textsubscript{2} = 160 lb./ac. of N.

(2) 3 levels of P\textsubscript{2}O\textsubscript{5} as Super: P\textsubscript{0} = 0, P\textsubscript{1} = 240 and P\textsubscript{2} = 480 lb./ac. of P\textsubscript{2}O\textsubscript{5}.

(3) 3 levels of K\textsubscript{2}O as Pot. Sol.: K\textsubscript{0} = 0, K\textsubscript{1} = 107 and K\textsubscript{2} = 214 lb/ac.

Fertilizers mixed with soil by means of rakes on 21.10.1950 and then ridges made on 26.10.1950.

3. DESIGN:

(i) 3\textsuperscript{3} confounded. (ii) (a) 3 blocks/replication and 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 24'x15'. (b) 21'x12'. (v) 1.5' around. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) N.A. (iii) Height of the plant, no. of green leaves per plant, no. of dry leaves per plant, no. of branches per plant, dry weight of plant, total no. of tubers per plant, fresh wt. of tubers, dry wt. of tubers and yield per plot. (iv) (a) and (b) Nil. (c) Nil. (v) (a) and (b), Nil. (vi) Nil. (vii) The expt. was conducted by B.R.C. Plot wise yield N.A.

5. RESULTS:

(i) 6.00 ton/ac.

(ii) 0.5616 ton/ac.

(iii) N, P, K effects and interactions N\times P and N\times K are all highly significant. Other effects are not significant.

(iv) Av. yield of potato in ton/ac.

\begin{table}
<table>
<thead>
<tr>
<th></th>
<th>P\textsubscript{0}</th>
<th>P\textsubscript{1}</th>
<th>P\textsubscript{2}</th>
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<td>2.73</td>
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<td>6.30</td>
<td>7.38</td>
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</tbody>
</table>

S.E. of any marginal mean = 0.1872 ton/ac.

S.E. of body of any table = 0.2293 ton/ac.

Crop: Potato (Rabi).

Ref: U.P. 48(128).

Site: Institutional Res. Farm, B.R. College, Bichpuri (Agra). Type: 'M'.

Object: To study the effect of different N manures on the yield of Potato.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Light loam, deficient in nitrogen and humus. (b) Refer soil analysis, B.R. College, Bichpuri. (iii) 8 and 9.10.1948. (iv) (a) Ploughings on 13.8.1948 and 6.9.1948, by soil turning plough, on 26.8.1948, 23, 28 and 29.9.1948 by desi plough followed by pata. (b) Sown behind the plough 6' deep. (c) 6 mds./ac. (d) 18'x12'. (e) N.A. (vi) Phulwa (in good sprouting condition). (vii) Irrigated. (viii) 2 earthings and 1 weeding. (ix) 3.20'. (x) 1 to 9.3.1954.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 sources of N: $S_1 = A/S$, $S_2 = $castor cake and $S_3 = $municipal compost.
(2) 4 levels of N: $N_0 = 0$, $N_1 = 60$, $N_2 = 80$ and $N_3 = 100$ lb./ac.
Manuring on 6.10.1948 with compost and powdered cake by spreading. A/S top dressed on 20.11.1948.

3. DESIGN:
(i) $3 \times 4$ Fact. in R.B.D. (ii) (a) 12. (b) $25' \times 267'$. (iii) 6. (iv) (a) $26' \times 21'$. (b) $22' \times 18'$. (v) $2' \times 1'$. (vi) Yes.

4. GENERAL:
(i) Good growth. (ii) Nil. (iii) Weights of plants, no. of leaves of the plants, no. of branches, fresh and dry wt. of the plant, no. of tubers for two plants, moisture % and yield and gradation in big, medium and small tubers. (iv) (a) No. (b) --. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The exp. was conducted by B R.C. Neither plot wise yield data nor two way table is given.

5. RESULTS:
(i) 2.07 ton/ac.
(ii) 0.5298 ton/ac.
(iii) N and S effects are highly significant. Interaction is not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
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<td>2.16</td>
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<td></td>
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<td>$N_3$</td>
<td>2.31</td>
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<tr>
<td>S.E./mean</td>
<td>0.1081 ton/ac.</td>
<td>S.E./mean</td>
<td>0.1248 ton/ac.</td>
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Crop : Potato.
Site : Govt. Potato Res. Farm, Farrukhabad.
Ref : U.P. 51(8)
Type : 'M'.

Object : To study the effect of N and P applied alone and in combination on the yield of Potato.

1. BASIC CONDITIONS:
   (i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 3.11.1951. (iv) (a) 2 ploughings by tractor and 2 by desi plough. (b) N.A. (c) 25 seeds/rows with 12 rows/plot. (d) $2' \times 9'$. (e) N.A. (v) Nil. (vi) Phulwa (Dohan). (vii) Irrigated. (viii) 1 earthing up. (ix) N.A. (x) 9 and 10.3.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S : $N_0 = 0$, $N_1 = 100$ and $N_2 = 200$ lb./ac.
(2) 3 levels of $P_2O_5$ as Super : $P_0 = 0$, $P_1 = 150$ and $P_2 = 300$ lb./ac.
All manures applied by broadcast at the time of spray.

3. DESIGN:
(i) $3 \times 3$ Fact. in R.B.D. (ii) (a) 9. (b) $233' \times 20'$. (iii) 4. (iv) (a) and (b) $25' \times 20'$. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Traces of mosaic incidence. (iii) Germination and Potato yield. (iv) (a) 1951—continued. (b), (c) No. (v) (a), (b) No. (vi) Nil. (vii) Experiment conducted by E.B.(B).

5. RESULTS:
(i) 7.28 ton/ac.
(ii) 0.7047 ton/ac.
(iii) NP and effects are highly significant while interaction is not significant.
Crop :- Potato.  
Site: - Govt. Potato Res. Farm, Farrukhabad.  
Ref :- 52(38).  
Type :- 'M'.

Object: - To study the effect of N and P. applied alone and in combinations on the yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) N.A.  (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) 24.10.1952.  (iv) (a) 4 ploughings.  (b) N.A.  
   (c) 24 seeds/row in 16 rows/plot.  (d) 1.5' x 9'.  (e) N.A.  (v) Nil.  (vi) Phulwa (cold storage).  (vii) Irrigated.  
   (viii) 2 weedings.  (ix) N.A.  (x) 14.3.1953.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N₀ = 0, N₁ = 100 and N₂ = 200 lb./ac.  
   (2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 150 and P₂ = 300 lb./ac.  
   Manures applied by broadcast at sowing time.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D.  (ii) (a) 9.  (b) 230' x 20'.  (iii) 4.  (iv) (a) and (b) 25' x 20'.  (v) Nil.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) Nil.  (iii) Germination and potato yield.  (iv) (a) 1951—continued.  (b) and (c) No.  (v) (a) and  
   (b) No.  (vi) Nil.  (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
   (i) 6.16 ton/ac.  
   (ii) 1.0401 ton/ac.  
   (iii) Only N effect is significant.  
   (iv) Av. yield of potato in ton/ac.

<table>
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<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
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<td>N₁</td>
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<td>N₂</td>
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<tbody>
<tr>
<td>Mean</td>
<td>5.56</td>
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</tbody>
</table>

S.E. of any marginal mean = 0.3003 ton/ac.

S.E. of body of table = 0.5200 ton/ac.
Crop :- Potato. Ref :- U.P. 53(15). Site :- Govt. Potato Res. Farm, Farrukhabad. Type :- 'M'.

Object :- To study the effect of N and P fertilizers applied alone and in combination on the yield of Potato.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sunai for green manuring. (c) Nil. (ii) (a) Loam (b) N.A. (iii) 25-26.10.1953. (iv) (a) and (b) N.A. (c) and (d) 16 rows per plot and 26 seeds per row, total seed used=7.70 mds. (e) N.A. (v) N.A. (vi) Phulwa (cold storage) in sprouted condition. (vii) Irrigated. (viii) 2 earthing and 1 hoeing and 2 weeding. (ix) 2.79'. (x) 7, 8.3.1954.

2. TREATMENTS :
   All combinations of (1) and (2).
   (1) 3 levels of N as A/S: N0 =0, N1=100 and N2=200 lb./ac. of N. (2) 3 levels of P2O5: P0 =0, P1=150 and P2=300 lb./ac. of P2O5. N as A/S and P2O5 as super applied on 24/25 oct. 1953.

3. DESIGN :
   (i) 3 x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) (a) 4. (iv) (a) N.A. (b) 24'x20'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Mosaic infection below 5% checked by using bigger and cut seed. (iii) Germination and yield of potato. (iv) (a) 1951-continued. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by E.B. (R)

5. RESULTS :
   (i) 5.50 ton./ac.
   (ii) 0.5009 ton./ac.
   (iii) N and P effects are highly significant while interaction is not significant.
   (iv) Av. yield of potato in ton./ac.

<table>
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<tr>
<th></th>
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<th>P2</th>
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<td>N2</td>
<td>5.27</td>
<td>5.67</td>
<td>6.25</td>
<td>5.73</td>
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</table>

   Mean | 4.97 | 5.69 | 5.83 | 5.50 |

   S.E. of any marginal mean = 0.1446 ton./ac.
   S.E. of the body of table = 0.2504 ton./ac.

Crop :- Potato. Ref :- U.P. 51(105). Site :- Govt. Potato Res. Farm, Farrukhabad. Type :- 'M'.

Object :- To study the effect of N and P applied alone and in combination on the yield of Potato.

1. BASAL CONDITIONS :
   (i) (a) No. (b) Maize. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 3.11.1951. (iv) (a) 2 ploughings with tractor and another 2 by desi plough. (b) Seeds were put in the lines. (c) to (e) N.A. (v) Nil. (vi) Phulwa (Dohan) seeds in sprouted condition. (vii) Irrigated. (viii) 1 earthing and 1 weeding. (ix) N.A. (x) 9.10.1952.

2. TREATMENTS :
   All combinations of (1) and (2).
   (1) 3 levels of N as A/S: N0=0, N1=100 and N2=200 lb./ac. of N. (2) 3 levels of P2O5 as Super: P0 =0, P1=150 and P2=300 lb./ac. of P2O5. Super applied beneath the ridges. A/S applied by broadcast on 2.11.1951.
3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) N.A. (iii) 4. (iv) (a) N.A. (b) 25' x 20' (v) 1' to 3' between plots and 3' to 4' between blocks. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) No. (iii) Potato yield. (iv) (a) 1951-N.A. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by A.C.

5. RESULTS:
(i) 7.09 ton./ac.
(ii) 0.6478 ton./ac.
(iii) N and P effects are highly significant while interaction is not significant.
(iv) Av. Yield of potato in ton./ac.

<table>
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<tr>
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<td>6.51</td>
<td>7.42</td>
<td>7.35</td>
<td>7.09</td>
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</table>

S.E. of any marginal mean = -0.1870 ton./ac.
S.E. of body of table = 0.3239 ton./ac.

Crop :- Potato.
Site :- Govt. Potato Res. Farm, Farrukhabad.
Object :-To study the effect of N and P applied alone and in combination on the yield of Potato.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam (Farrukhabad type 2). (b) N.A. (iii) 24, 25.10.1952. (iv) (a) 2 ploughings followed by pata towards the end of Sept., 4 further ploughings followed by pata. (b) Seed sown on ridges. (c) N.A. (d) 2' apart. (e) N.A. (v) Sanai turned in after 6 weeks of growth. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 11.3.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S : N_0 =0, N_1 =100 and N_3 =200 lb./ac.
(2) 3 levels of P_2O_5 as Super : P_0 =0, P_1 =150 and P_2 =300 lb./ac.
A/S applied as surface dressing by broadcast and Super placed in bands beneath the ridges on 24, 25.10.1952.

3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 25' x 20'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (treated plots appeared to be 3-4 times more vigorous than the control plots). (ii) Nil. (iii) Weight of potato. (iv) (a) 1951-N.A. (b), (c) Yes. (v) (a) Kahl, Raya, Varanasi, Tissuhi, Matkota, Bharari, Atarra and Pura. (b) N.A. (vi) Nil. (vii) The extp. conducted by A.C.

5. RESULTS:
(i) 5.99 ton/ac.
(ii) 1.0114 ton/ac.
(iii) Only N effect is significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
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<th>$P_2$</th>
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<td>6.21</td>
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</table>

S.E. of any marginal mean = 0.2920 ton/ac.
S.E. of body of table = 0.5057 ton/ac.

Crop :- Potato (Rabi).
Ref :- U.P. 53(360).
Site :- Govt. Potato Res. Farm, Farrukhabad. Type :- 'M'.

Object :- To study the effects of N and P applied alone and in combination on the yield of Potato.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Rabi—Potato and then Sanai. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 25, 26.10.1953,
(iv) (a) 1 ploughing by victory, 2 by Meston and 3 by desi plough. Para also applied. (b) Sown on ridges.
(c) N.A. (d) 18”x 9”. (e) N.A. (v) Sanai turned in. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 2.69”. (x)
7, 8.3.1954.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: $N_0$ = 0, $N_1$ = 100 and $N_2$ = 200 lb./ac.
(2) 3 levels of $P_2$ as Super: $P_0$ = 0, $P_1$ = 150 and $P_2$ = 300 lb./ac.
Super applied through dibbling beneath the ridges, before field preparation. A/S broadcasted on 24.10.1953.

3. DESIGN :
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (e) N.A. (b) 24’x20’. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good growth. (ii) N.A. (iii) Potato tuber yield. (iv) (a) 1951—N.A. (b) N.A. (c) Nil. (v) (a) and (b)
No. (vi) There was rain during the growth period of the potato tubers which made the soil compact from
the top. The tubers could not get the chance to develop freely. (vii) Experiment conducted by A.C.

5. RESULTS :
(i) 5.46 ton/ac.
(ii) 0.3046 ton/ac.
(iii) $N$ and $P$ effects are highly significant while interaction is not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
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<th>$P_2$</th>
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<tr>
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<td>5.65</td>
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<td>5.46</td>
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</table>

S.E. of any marginal mean = 0.1457 ton/ac.
S.E. of body of table = 0.2523 ton/ac.
Crop : Potato.  
Site : Govt. Potato Res. Farm, Farrukhabad.  
Ref : U.P. 49(54).  
Type : 'M'.

Object :— To study the effect of different doses of Super on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jowar. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 24.11.1949. (iv) (a) 4 ploughings. (b) to (c) N.A. (v) F.Y.M. at 200 mds/ac. applied on 19.11.1949. Castor cake at 10 mds/ac. on 21.11.1949, 1 md. 14 seers 4 chs. Super on 22.11.1949 and A/S at 2½ mds/ac. on 2, 3.1.1950. (vi) Phulwa (large size 1½-2") in sprouted condition. (vii) Irrigated. (viii) 1 weeding and 2 earthings. (ix) N.A. (x) 23, 25.3.1950.

2. TREATMENTS :

5 doses of P₂O₅ as Super : P₀ = 0, P₁ = 25, P₂ = 50, P₃ = 75 and P₄ = 100 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 26'×20'. (v) Plots 3' apart and blocks 4' apart. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of potato. (iv) (a) 1949—1950. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Experiment conducted by E.B. (R).

5. RESULTS :

(i) 7.41 ton/ac.  
(ii) 0.4680 ton/ac.

(iii) Treatment differences are significant.  
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
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</tr>
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<td>P₁</td>
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<tr>
<td>P₂</td>
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</tr>
<tr>
<td>P₃</td>
<td>7.54</td>
</tr>
<tr>
<td>P₄</td>
<td>7.78</td>
</tr>
</tbody>
</table>

S.E./mean = 0.1911 ton/ac.

Crop : Potato.  
Site : Govt. Potato Res. Farm, Farrukhabad.  
Ref : U.P. 50(14).  
Type : 'M'.

Object :— To study the effect of different doses of Super on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Ghunyan (vegetable). (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 14, 15.11.1950. (iv) (a) 6 ploughings before sowing. (b) N.A. (c) 9' apart. (d) 2'×9'. (e) N.A. (v) City refuse at 350 mds/ac. on 2, 3.10.1950. A/S as top dressing at 1½ seer/plot on 3, 4.1.1951. (vi) Phulwa (cold storage). (vii) Irrigated. (viii) 2 earthings up. (ix) N.A. (x) 11 to 20.4.1951.

2. TREATMENTS :

5 doses of P₂O₅ as Super : P₀ = 0, P₁ = 25, P₂ = 50, P₃ = 75 and P₄ = 100 lb./ac. 
All manures applied at the time of sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) and (b) 26'×20'. (v) plots 2.5' apart and blocks 2' apart. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination and yield of potato. (iv) (a) 1949—1950. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B.(R).

5. RESULTS :

(i) 11.81 ton/ac.  
(ii) 0.9591 ton/ac.

(iii) Treatment differences are not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
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<tr>
<td>P₃</td>
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<tr>
<td>P₄</td>
<td>12.08</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.4289 ton/ac.</td>
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</tbody>
</table>

Crop :- Potato (Rabi).

Site :- Govt. Res. Farm, Kanpur.

Object :- To study effect of N, P and K on quality and yield of Potato.

1. BASAL CONDITIONS :
(i) (a) No. (b) Jowar. (c) No. (ii) (a) Loam. (b) N.A. (iii) 25.26.10.1951. (iv) (a) to (c) N.A. (d) 1.75' x 9'. (e) N.A. (v) No. (vi) Kalmi Dosola and Kalmi new for 2 replications each. (vii) Irrigated' (viii) 2 earthings. (ix) N.A. (x) 10 to 13.3.1952.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N as A/S: N₀=0, N₁=50 and N₂=100 lb./ac.
(2) 3 levels of P₂O₅ as Super: P₀=0, P₁=75'and P₂=150 lb./ac.
(3) 3 levels of K₂O as Potash: K₀=0, K₁=75 and K₂=150 lb./ac.
N and P broadcast, K applied in furrows at the time of sowing.

3. DESIGN:
(i) 3³ Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 18' x 15' (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1951 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R):

5. RESULTS:
(i) 5.53 ton/ac.
(ii) 0.7192 ton/ac.
(iii) N and P effects are highly significant. Other effect and interactions are not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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<tr>
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<td>6.00</td>
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S.E. of any marginal mean = 0.1199 ton/ac.
S.E. of body of table = 0.2076 ton/ac.
Crop: Potato (Rabi).

Object: To study the effect of N, P and K on quality and yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 31.10.1953 and 1.11.1953. (iv) (a) to (c) N.A. (d) 1.75'x9'. (e) N.A. (v) Nil. (vi) Phulwa large. (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 18 to 23.2.1953.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N as A/S: N₀ = 0, N₁ = 50 and N₂ = 100 lb./ac.
   (2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 75 and P₂ = 150 lb./ac.
   (3) 3 levels of K₂O as Potash: K₀ = 0, K₁ = 75 and K₂ = 150 lb./ac.
   N and P broadcast, K applied in furrows at the time of sowing.

3. DESIGN:
   (i) 3³ Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 18'x15'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Mosaic incidence in minute form (traces). (iii) Potato yield. (iv) (a) 1951 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 9.07 ton/ac.
   (ii) 0.8803 ton/ac.
   (iii) N and P effects are highly significant. Other effects and interactions are not significant.
   (iv) Av. yield of potato in ton./ac.

   \[
   \begin{array}{cccccc}
   & P₀ & P₁ & P₂ & \text{Mean} & K₀ & K₁ & K₂ \\
   N₂ & 10.70 & 11.15 & 11.19 & 11.01 & 10.96 & 10.93 & 11.15 \\
   K₀ & 8.91 & 9.09 & 9.33 & & & & \\
   K₁ & 8.55 & 9.11 & 9.36 & & & & \\
   K₂ & 8.83 & 8.89 & 9.61 & & & & \\
   \end{array}
   \]

   S.E. of any marginal mean = 0.1467 ton/ac.
   S.E. of body of table = 0.2541 ton/ac.

---

Crop: Potato (Rabi).

Object: To test the effect of N, P and K on quality and yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 31.10.1953 and 1.11.1953. (iv) (a) and (b) N.A. (c) 10.01 cwt./ac. (d) 21'x6'. (e) N.A. (v) 50 lb./ac. of N as castor cake. (vi) Phulwa. (vii) Irrigated. (viii) 2 earthings. (ix) Not recorded. (x) 10.3.1954 to 14.3.1954.
2. TREATMENTS:
All combinations of (1), (2) and (3).
(1) 3 levels of N as A/S: \( N_0 = 0, N_1 = 50 \) and \( N_2 = 100 \) lb./ac.
(2) 3 levels of \( P_2 O_5 \) as Super: \( P_0 = 0, P_1 = 75 \) and \( P_2 = 150 \) lb./ac.
(3) 3 levels of \( K_2 O \) as Pot. Sul.: \( K_0 = 0, K_1 = 75 \) and \( K_2 = 150 \) lb./ac.
N and P broadcast, K applied in furrows at the time of sowing.

3. DESIGN:
(i) 3\(^3\) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 18'x15'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination and yield of potato. (iv) (a) 1951 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R)

5. RESULTS:
(i) 12.06 ton./ac. (ii) 1.1368 ton./ac. (iii) N and P effects are highly significant. Other effect and interactions are not significant. (iv) Avg. yield of potato in ton./ac.

<table>
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<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>Mean</th>
<th>( K_0 )</th>
<th>( K_1 )</th>
<th>( K_2 )</th>
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<td>10.04</td>
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<td>12.07</td>
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<td>12.62</td>
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<tr>
<td>( K_2 )</td>
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<td>13.57</td>
<td>13.50</td>
<td>13.42</td>
<td>13.79</td>
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</table>

S.E. of any marginal mean =0.1893 ton./ac.
S.E. of body of table =0.3282 ton./ac.

Crop :- Potato (Rabi).
Site :- Govt. Res. Farm, Kanpur.

Object :-To study the effect of N applied at different times on yield of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 4,5,11.1948. (iv) (a) to (c) N.A. (d) 2'x9'. (e) N.A. (v) Nil. (vi) Phulwa. (vii) Irrigated. (viii) 2 earings. (ix) N.A. (x) 18 to 20.3.1949.

2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 levels of N as A/S applied at 1st earthing: \( N_0 = 0, N_1 = 25 \) and \( N_2 = 50 \) lb./ac.
(2) 3 levels of N as A/S applied at 2nd earthing: \( M_0 = 0, M_1 = 25 \) and \( M_2 = 50 \) lb./ac.

3. DESIGN:
(i) 3\times3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 38'x24'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Yield of potato. (iv) (a) 1948 to 1952. (b) No. (c) Nil. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).
5. RESULTS:

(i) 5.28 ton./ac.
(ii) 0.6865 ton./ac.
(iii) None of the effects is significant.
(iv) Av. yield of potato in ton./ac.

<table>
<thead>
<tr>
<th></th>
<th>M₀</th>
<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
</tr>
</thead>
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<td>N₂</td>
<td>5.25</td>
<td>5.59</td>
<td>5.58</td>
<td>5.47</td>
</tr>
</tbody>
</table>

Mean: 5.41 5.22 5.20 5.28

S.E. of any marginal mean = 0.1982 ton./ac.
S.E. of body of table = 0.3432 ton./ac.

Crop: Potato (Rabi).
Site: Govt. Res. Farm, Kanpur.

Ref: U.P. 49(47).
Type: 'M'.

Object: To study the effect of N applied at different times on yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) No. (b) and (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 28.10.1949. (iv) (a) to (e) N.A. (v) Nil. (vi) Phulwa large: (ordinary store). (vii) Irrigated. (viii) 3earthings. (ix) N.A. (x) 6 to 9.4.1950.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S applied at 1st earthing: N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
   (2) 3 levels of N as A/S applied at 2nd earthing: M₀ = 0, M₁ = 25 and M₂ = 50 lb./ac.

3. DESIGN:
   (i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 30' x 23'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Potato yield. (iv) (a) 1948 to 1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:

<table>
<thead>
<tr>
<th></th>
<th>M₀</th>
<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
</tr>
</thead>
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</tr>
<tr>
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<tr>
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<td>9.96</td>
<td>9.91</td>
<td>9.30</td>
</tr>
</tbody>
</table>

Mean: 7.02 8.25 8.61 7.96

S.E. of any marginal mean = 0.5035 ton./ac.
S.E. of body of table = 0.8720 ton./ac.
Crop: Potato (Rabi).
Site: Govt. Res. Farm, Kanpur.

Ref: U.P. 50(3).
Type: 'M'.

Object: To study the effect of N applied at different times on yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Blank. (c) No. (ii) (a) Loam. (b) N.A. (iii) 4.11.1950. (iv) (a) to (c) N.A. (d) 18"x9". (e) N.A. (v) Nil. (vi) Kalmi sala (late). (vii) Irrigated. (viii) 2 earthing. (ix) N.A. (x) 24 to 28.4.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S applied at 1st earthing: N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
   (2) 3 levels of N as A/S applied at 2nd earthing: M₀ = 0, M₁ = 25 and M₂ = 50 lb./ac.

3. DESIGN:
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 28'x24'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1948 to 1951. (b) and (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B. (R).

5. RESULTS:
   (i) 8.09 ton/ac.
   (ii) 0.7323 ton/ac.
   (iii) N effect is significant, M effect is highly significant while interaction is not significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M₀</th>
<th>M₁</th>
<th>M₂</th>
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</tr>
<tr>
<td>N₁</td>
<td>8.04</td>
<td>8.32</td>
<td>8.62</td>
<td>8.33</td>
</tr>
<tr>
<td>N₂</td>
<td>8.20</td>
<td>9.30</td>
<td>9.47</td>
<td>8.99</td>
</tr>
<tr>
<td>Mean</td>
<td>7.63</td>
<td>8.21</td>
<td>8.43</td>
<td>8.09</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.2114 ton/ac.
S.E. of body of table = 0.3662 ton/ac.

---

Crop: Potato (Rabi).
Site: Govt. Res. Farm, Kanpur.

Ref: U.P. 51(3).
Type: 'M'.

Object: To study the effect of N applied at different times on yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Blank. (c) No. (ii) (a) Loam. (b) N.A. (iii) 25.10.1951. (iv) (a) to (c) N.A. (d) 2'x9". (e) N.A. (v) Nil. (vi) Kalmi Dosala. (vii) Irrigated. (viii) 2 earthing. (ix) N.A. (x) 7, 8 and 9.3.1952.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S applied at first earthing: N₀ = 0, N₁ = 25 and N₂ = 50 lb./ac.
   (2) 3 levels of N as A/S applied at second earthing: M₀ = 0, M₁ = 25 and M₂ = 50 lb./ac.

3. DESIGN:
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 24'x20'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) Good. (ii) No. (iii) Potato yield. (iv) a) 1948 to 1951. (b) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. conducted by E.B.(R).

5. RESULTS:
(i) 7.86 ton/ac.
(ii) 0.8158 ton/ac.
(iii) N effect is highly significant, M effect is significant while interaction is not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$M_0$</th>
<th>$M_1$</th>
<th>$M_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>6.66</td>
<td>7.42</td>
<td>8.13</td>
<td>7.40</td>
</tr>
<tr>
<td>$N_1$</td>
<td>7.00</td>
<td>7.96</td>
<td>7.71</td>
<td>7.56</td>
</tr>
<tr>
<td>$N_2$</td>
<td>8.15</td>
<td>8.75</td>
<td>9.00</td>
<td>8.63</td>
</tr>
<tr>
<td>Mean</td>
<td>7.27</td>
<td>8.04</td>
<td>8.28</td>
<td>7.86</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.2355 ton/ac.
S.E. of body of table = 0.4079 ton/ac.

Crop :- Potato (Rabi).
Site :- Govt. Res. Farm, Kanpur.
Ref :- U.P. 52(29).
Type :- 'M'.

Object :- To study the effect of different sources of N on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Moong type-1. (c) Castor cake at 10 mds./ac. (ii) (a) Loam. (b) N.A. (iii) 15.11.1952. (iv) (a) to (c) N.A. (d) 18°×9°. (e) N.A. (v) N.A. (vi) Phulwa (well sprouted). (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) 21 and 22.3.1953.

2. TREATMENTS:
   1. C/N at 50 lb./ac. of N.
   2. A/S/N at 50 lb./ac. of N.
   3. A/S at 50 lb./ac. of N.
   4. Control (no manure).

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 60°×18°. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Very good. (ii) No. (iii) Potato yield. (iv) a) 1952—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. conducted by E.B.(R).

5. RESULTS:
(i) 8.62 ton/ac.
(ii) 0.7591 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.11</td>
</tr>
<tr>
<td>2.</td>
<td>8.88</td>
</tr>
<tr>
<td>3.</td>
<td>9.34</td>
</tr>
<tr>
<td>4.</td>
<td>7.14</td>
</tr>
</tbody>
</table>

S.E./mean = 0.3796 ton/ac.
Crop: Potato (Rabi),
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of different sources of N on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 24.10.1953. (iv) (a) and (b) N.A. (c) 3.32 cwt/ac. (d) 18"×6". (e) N.A. (v) 50 md/ac. of night soil. (vi) Phulwa. (vii) Irrigated. (viii) 2 earthings (ix) N.A. (x) 4.3.1954.

2. TREATMENTS:
   1. C/N at 50 lb./ac. of N.
   2. A/S/N at 50 lb./ac. of N.
   3. A/S at 50 lb./ac. of N.
   4. Control (no manure).

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 17.5′×30.5′. (b) 15′×28′ (v) 1.25′ around. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Mosaic incidence below 5% which was checked by using bigger seed size and cut seed. (iii) Germination and yield of potato. (iv) (a) 1952—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 13.67 ton/ac.
   (ii) 0.4937 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of Potato in ton/ac.
   Treatment | Av. yield
   1. | 14.11
   2. | 13.35
   3. | 14.08
   4. | 13.13
   S.E./mean = 0.2016 ton/ac.

---

Crop: Potato (Rabi),
Site: Govt. Res. Farm, Kanpur.

Object: To study the efficacy of different manures and fertilizers on quality and yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Green manuring with Sanai (c) No. (ii) (a) Loam. (b) N.A. (iii) 8.11.1952. (iv) (a) to (c) N.A. (d) 18′×9′. (e) N.A. (v) Sanai was turned in at the sowing time. (vi) Phulwa large. (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 11.3.1953.

2. TREATMENTS:
   1. Control.
   2. F.Y.M. at 246 lb./plot.
   3. Castor cake at 17.56 lb./plot.
   4. A/S at 4.82 lb./plot.
   5. A/S/N at 3.94 lb./plot.

Treatments 2 to 6 give 100 lb. of N, while 7 to 9 give 100 lb. of N+100 lb./ac. of P₂O₅. Castor cake was applied a day before sowing on 7.11.1952 in finely powdered form.

3. DESIGN:
   (i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 21′×20′. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Very good. (ii) No. (iii) Potato yield. (iv) (a) 1952—contd. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).
5. RESULTS:

(i) 13.12 ton/ac.
(ii) 0.5377 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of potato in ton./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12.26</td>
</tr>
<tr>
<td>2.</td>
<td>12.72</td>
</tr>
<tr>
<td>3.</td>
<td>13.60</td>
</tr>
<tr>
<td>4.</td>
<td>13.38</td>
</tr>
<tr>
<td>5.</td>
<td>13.95</td>
</tr>
</tbody>
</table>

S.E./mean = 0.2688 ton/ac.

Crop :- Potato (Rabi).
Site :- Govt. Res. Farm, Kanpur.

Object :- To find the efficacy of different manures and fertilizers on quality and yield of Potato.

1. BASAL CONDITIONS:

   (i) (a) Nil. (b) San u for green manuring. (c) Nil.  
   (ii) (a) Loam. (b) N.A. (iii) 20.10.1953. (iv) (a) and (b) N.A.  
   (c) 5.77 cwt./ac. (d) 18'×6". (e) N.A. (v) N.A.  

2. TREATMENTS:

   1. Control.
   2. F.Y.M. at 246 lb./plot.
   3. Castor cake at 17.56 lb./plot.
   4. A/S at 4.82 lb./plot.
   5. A/S/N at 3.94 lb./plot.
   8. F.Y.M. at 205 lb./plot. and B.M. at 4.62 lb./plot.

Treatments 2 to 6 give 100 lb./ac. of N while 7 to 9 give 100 lb./ac. of N+100 lb./ac. of P₂O₅ applied on 17.10.1953.

3. DESIGN:

   (i) R.B.D. (ii) 9. (b) N.A. (iii) 4. (iv) (a) 23.5'×22.5' (b) 21'×23'. (v) 1.25' around. (vi) Yes.

4. GENERAL:

   (i) Good. (ii) Incidence of mosaic below 5% and checked by using bigger seed size and cut seed. (iii) Germination and yield. (iv) (a) 1952 –contd. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:

(i) 11.16 ton/ac.
(ii) 0.8983 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of potato in ton./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10.05</td>
</tr>
<tr>
<td>2.</td>
<td>10.36</td>
</tr>
<tr>
<td>3.</td>
<td>12.57</td>
</tr>
<tr>
<td>4.</td>
<td>11.55</td>
</tr>
<tr>
<td>5.</td>
<td>10.48</td>
</tr>
</tbody>
</table>

S.E./mean = 0.4492 ton/ac.
Crop :- Potato (Rabi).

Site :- Govt. Res. Farm, Kanpur.

Object :- To study the effect of N and \( \text{P}_2\text{O}_5 \) on the quality and yield of Potato.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 3.11.1950. (iv) (a) to (c) N.A. (d) 2'x9'
   (e) N.A. (v) Nil. (vi) *Kalmi Sala*. (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) 18 to 20.4.1951.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 3 levels of N : \( N_0=0, N_1=50 \) and \( N_2=100 \) lb./ac.
   (2) 3 levels of \( \text{P}_2\text{O}_5 : P_0=0, P_1=50 \) and \( P_2=100 \) lb./ac.

   N as A/S, \( \text{P}_2\text{O}_5 \) as Super applied just before sowing.

3. DESIGN :
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 24'x21'. (v) Nil. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Traces of mosaic incidence. (iii) Potato and tuber yield. (iv) (a) and (b) No. (c) N.A. (v) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS :
   (i) 8.73 ton/ac.
   (ii) 0.7516 ton/ac.
   (iii) Only N effect is highly significant.
   (iv) Av. yield of potato in ton/ac.

\[
\begin{array}{cccc|c}
P_0 & P_1 & P_2 & \text{Mean} \\
7.50 & 6.81 & 6.89 & 7.07 \\
8.53 & 9.35 & 9.70 & 9.19 \\
9.45 & 10.14 & 10.16 & 9.92 \\
8.49 & 8.77 & 8.92 & 8.73 \\
\end{array}
\]

S.E. of any marginal mean =0.2169 ton/ac.
S.E. of body of table =0.3758 ton/ac.

Crop :- Potato (Rabi).

Site :- Govt. Res. Farm, Kanpur.

Ref :- U.P. 49(51).

Object :- To study the effect of N and \( \text{P}_2\text{O}_5 \) on quality and yield of *Kalmi* Potato.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.11.1949. (iv) (a) to (c) N.A. (v) Nil. (vi) *Kalmi* (large). (vii) Irrigated. (viii) 2 earthing. (ix) N.A. (x) 14 and 15.4.1950.

2. TREATMENTS :
   All combinations of (1) and (2).
   (1) 3 levels of N : \( N_0=0, N_1=25 \) and \( N_2=50 \) lb./ac.
   (2) 3 levels of \( \text{P}_2\text{O}_5 : P_0=0, P_1=25 \) and \( P_2=50 \) lb./ac.

   N as A/S and \( \text{P}_2\text{O}_5 \) as B.M. applied on 16.12.1949.

3. DESIGN :
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20'x24'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Yield of potato. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).
5. RESULTS:
(i) 9.04 ton/ac.
(ii) 1.0784 ton/ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of potato in ton./ac.

<table>
<thead>
<tr>
<th></th>
<th>$N_0$</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_0$</td>
<td>8.09</td>
<td>10.00</td>
<td>10.36</td>
<td>9.48</td>
</tr>
<tr>
<td>$P_1$</td>
<td>7.88</td>
<td>8.56</td>
<td>9.96</td>
<td>8.80</td>
</tr>
<tr>
<td>$P_2$</td>
<td>7.81</td>
<td>9.67</td>
<td>9.00</td>
<td>8.83</td>
</tr>
<tr>
<td>Mean</td>
<td>7.93</td>
<td>9.41</td>
<td>9.77</td>
<td>9.04</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean $= 0.3113$ ton./ac.
S.E. of body of table $= 0.5392$ ton./ac.

Crop: Potato (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of blood manure on quality and yield of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Groundnut. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 23.11.1950. (iv) (a) to (c) N.A. (d) 18" x 9". (e) N.A. (v) Nil. (vi) *Kalai sala*. (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 11/19 and 29.4.1951.

2. TREATMENTS:
4 doses of N: $N_0 = 0$, $N_1 = 50$, $N_2 = 75$ and $N_3 = 100$ lb./ac.
Blood manure applied as powder at the time of planting.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 35' x 32.5'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Yield of tubers/plot. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R)

5. RESULTS:
(i) 3.63 ton/ac.
(ii) 0.5872 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of potato in ton./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>2.72</td>
</tr>
<tr>
<td>$N_1$</td>
<td>3.82</td>
</tr>
<tr>
<td>$N_2$</td>
<td>4.03</td>
</tr>
<tr>
<td>$N_3$</td>
<td>3.97</td>
</tr>
</tbody>
</table>
S.E./mean $= 0.2936$ ton/ac.
2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 manures: \( S_1 \) = castor cake and \( S_2 \) = coconut cake.

(2) 3 times of application of manures: \( T_1 \) = 3 weeks before sowing, \( T_2 \) = one week before sowing and \( T_3 \) = at sowing.

3. DESIGN:

(i) \( 3 \times 2 \) Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) \( 12^\circ \times 49' \). (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Potato yield. (iv) (a) and (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:

(i) 7.96 ton/ac.

(ii) 0.8190 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( S_1 )</td>
<td>8.32</td>
<td>8.06</td>
<td>8.10</td>
<td>8.16</td>
</tr>
<tr>
<td>( S_2 )</td>
<td>7.87</td>
<td>7.35</td>
<td>8.08</td>
<td>7.77</td>
</tr>
<tr>
<td>Mean</td>
<td>8.10</td>
<td>7.70</td>
<td>8.09</td>
<td>7.96</td>
</tr>
</tbody>
</table>

S.E. of \( T \) marginal means = 0.2364 ton/ac.
S.E. of \( S \) marginal means = 0.2896 ton/ac.
S.E. of body of table = 0.4095 ton/ac.

Crop :- Potato (Rabi).

Site :- Govt. Res. Farm, Kanpur.

Object :- To study the effect of ash (minerals) as top dressing on yield of Potato.

1. BASAL CONDITIONS:

(i) (a) No. (b) Moong type I. (c) Castor cake at 10 md./ac. (ii) (a) Loam. (b) N.A. (iii) 8 and 9.11.1952. (iv) (a) to (c) N.A. (d) \( 18^\circ \times 9' \). (e) \( 18^\circ \times 9' \). (e) N.A. (f) Nil. (vi) Phulwa. (vii) Irrigated. (viii) 2 earthing.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 levels of N as A/S: \( N_0 = 0 \), and \( N_1 = 25 \) lb./ac.

(2) 2 levels of Ash: \( A_0 = 0 \) and \( A_1 = 10 \) md./ac.

Manures applied on 29.12.1952.

3. DESIGN:

(i) \( 2 \times 2 \) Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) \( 30^\circ \times 10.5' \). (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) No. (iii) Potato yield. (iv) (a) and (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:

(i) 11.22 ton/ac.

(ii) 0.8195 ton/ac.

(iii) None of the effects is significant.
(iv) **Av. yield of potato in ton/ac.**

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₀</td>
<td>11.18</td>
<td>11.84</td>
<td>11.51</td>
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<tr>
<td>A₁</td>
<td>10.57</td>
<td>11.30</td>
<td>10.93</td>
</tr>
<tr>
<td>Mean</td>
<td>10.87</td>
<td>11.57</td>
<td>11.22</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.2898 ton/ac.
S.E. of body of table = 0.4098 ton/ac.

---

**Crop :- Potato (Kharif).**

**Site :- Potato Sub-Stn., Kausani.**

Ref :- U.P. 53(13)

Type :- 'M'.

Object :- To determine the comparative efficiency of leaf mold and castor cake.

1. **BASAL CONDITIONS :**
   (i) (a) No. (b) Fallow. (c) No. (ii) (a) Hilly tract—6075' high. (b) N.A. (iii) 10.4.1953. (iv) (a) to (c) N.A. (d) 24'' x 9''. (e) N.A. (v) Castor cake at 20 mds./ac. in treatment (2) only on 3.3.1953. (vi) Garhwal. (vii) Irrigated. (viii) 2 weedicides and 2 earthings. (ix) N.A. (x) 4.9.1953.

2. **TREATMENTS :**
   1. Leaf mold at 225 mds./ac.
   2. Castor-cake at 20 mds./ac.
   3. Control (no manure).

3. **DESIGN :**
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) 24' x 12'. (v) Nil. (vi) Yes.

4. **GENERAL :**
   (i) Good. (ii) No. (iii) Germination and potato yield. (iv) (a) 1933—continued. (b), (c) N.A. (v) (a) No, (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. **RESULTS :**
   (i) 1.37 ton/ac.
   (ii) 0.7143 ton/ac.
   (iii) Treatments differences are not significant.
   (iv) **Av. yield of potato in ton/ac.**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.67</td>
</tr>
<tr>
<td>2</td>
<td>1.32</td>
</tr>
<tr>
<td>3</td>
<td>1.11</td>
</tr>
</tbody>
</table>

S.E./mean = 0.3572 ton/ac.

---

**Crop :- Potato (Kharif).**

**Site :- Crop Physiological Res. Stn., Lucknow.**

Ref :- U.P. 49(64).

Type : 'M'.

Object :- To study the effect of N on tuber formation and Potato yield.

1. **BASAL CONDITIONS :**
   (i) (a) Nil. (b) Uncultivated. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 8.11.1949. (iv) (a) One ploughing by tractor, one cross harrowing by tractor and one ploughing by desi plough. (b) Sowing on ridges. (c) N.A. (d) 18''x6''. (e) N.A. (v) Nil. (vi) Military (late). (vii) Irrigated. (viii) 3 earthings. (ix) N.A. (x) 14.3.1950.
2. TREATMENTS:
4 levels of N: \( N_0 = 0, N_1 = 40, N_2 = 80 \) and \( N_3 = 120 \) lb./ac.
N as A/S applied on 15.11.1949.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) and (b) 9' x 8'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Potato yield. (iv) (a) to (c) No. (v) (a), (b) No. (vi) Nil. (vii) The experiment was conducted by C.P.

5. RESULTS:
(i) 8.47 ton/ac.
(ii) 0.97 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( N_0 )</td>
<td>6.11</td>
</tr>
<tr>
<td>( N_1 )</td>
<td>8.46</td>
</tr>
<tr>
<td>( N_2 )</td>
<td>10.86</td>
</tr>
<tr>
<td>( N_3 )</td>
<td>8.44</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.5629 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Potato.  
Site :- Crop Physiological Res. Stn., Lucknow.  
Object :- To study the effect of N on tuber formation and yield of Potato.

Ref :- U.P. 57(132).  
Type :- 'M'.

1. BASAL CONDITIONS:
(i) (a) No. (b) Sanai. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 26.10.1951. (iv) (a) 3 ploughings. (b) to (e) N.A. (v) 60 lb./ac. of N as F.Y.M. and 60 lb./ac. of N as Ammo. Phos. on 20.10.1951. (vi) Military (late). (vii) Irrigated. (viii) 1 weeding and hoeing. (ix) N.A. (x) 8 to 15.3.1952.

2. TREATMENTS:
4 doses of N: \( N_0 = 0, N_1 = 40, N_2 = 80 \) and \( N_3 = 120 \) lb./ac.
N applied on 22.10.1951. Source of N is N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 11' x 5'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Below normal. (ii) N.A. (iii) Potato yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 3.27 ton/ac.
(ii) 0.9805 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( N_0 )</td>
<td>3.43</td>
</tr>
<tr>
<td>( N_1 )</td>
<td>3.70</td>
</tr>
<tr>
<td>( N_2 )</td>
<td>2.82</td>
</tr>
<tr>
<td>( N_3 )</td>
<td>3.13</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.4902 ton/ac.</td>
</tr>
</tbody>
</table>
Site : Crop Physiological Res. Stn., Lucknow.  Type :-'M'.

Object :—To study the effect of application of Pot. Sul. on growth, performance and yield of Potato.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Sanai for green manuring. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) 26.10.1951. (iv) (a) 4 times by cultivator and 2 times by desi plough and planking etc. (b) On ridges. (c) N.A. (d) 18" × 6'. (e) 1. (v) Sanai turned in, 60 lb./ac. of N as F.Y.M., 60 lb./ac. of N as Ammo. Phos. applied on 22, 23.10.1951 and 14.12.1951. (vi) Military (late). (vii) Irrigated. (viii) 3 earthings and intercultural operations. (ix) N.A. (x) 15.3.1952.

2. TREATMENTS :
4 levels of K as Pot Sul.: K_0=0, K_1=30, K_2=60 and K_3=90 lb./ac. Pot. Sul. applied on 23.10.1951.

3. DESIGN :
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 11' × 5'. (b) 11' × 4!'. (v) N.A. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Nil. (iii) Potato yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS :
(i) 6.62 ton/ac. (ii) 1.9536 ton/ac. (iii) Treatments are not significantly different. (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>K_0</td>
<td>6.01</td>
</tr>
<tr>
<td>K_1</td>
<td>6.47</td>
</tr>
<tr>
<td>K_2</td>
<td>6.82</td>
</tr>
<tr>
<td>K_3</td>
<td>7.17</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.9838 ton/ac.</td>
</tr>
</tbody>
</table>

Site : Crop Physiological Res. Stn., Lucknow.  Type :-‘M’.

Object :—To study the effect of different doses of K on Potato in presence of N, P and calcium as basal dressing.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Maize. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 3.11.1953. (iv) (a) 2 ploughings by mould board plough and 3 by cultivator. Digging by Kudali on 2.11.1953. (b) Sowing under ground in lines. (c) 12 tubers of diameter 1' sown/plot. (d) 12' × 9". (e) N.A. (v) 75 lb./ac. of P_2O_5 as Super, 30 lb./ac. of CaO as Calcium, 150 lb./ac. of N as A/S applied on 3.11.1953. (vi) Potato Phulwa (early). (vii) Irrigated. (viii) 2 earthings. (ix) 5.78". (x) 2.4.1954.

2. TREATMENTS :
5 levels of K_2O as Pot Sul.: K_0=0, K_1=30, K_2=60, K_3=90 and K_4=120 lb./ac.

3. DESIGN :
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 15' × 75'. (v) Nil. (vi) Yes.

4. GENERAL :
(i) Good. No lodging. (ii) Nil. (iii) Yield of tubers. (iv) (a) No. (b) No. (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS :
(i) 7.32 ton/ac. (ii) 0.65 ton/ac. (iii) Treatments are not significantly different.
Object: To study the effect of N, P and Ca applied alone and in combination on the growth and yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Juar, Lobia and Maize. (c) N.A. (ii) (a) Sandey loam. (b) N.A. (iii) 29, 30.11.1952 and 1.12.1952. (iv) (a) Ploughings in September and October. (b) Sown behind the plough in lines. (c) N.A. (d) 18"x9". (e) N.A. (v) 60 lb./ac. of N as F.Y.M. and compost+40 lb./ac. of K2O as Pot. Sulf. applied on 24, 25.11.1952. (vi) Gola potato (vii) N.A. (viii) N.A. (ix) N.A. (x) 25.2.1953 to 5.3.1953.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 levels of N: N0=0 and N1=150 lb./ac.
   (2) 2 levels of P2O5: P0=0 and P1=75 lb./ac.
   (3) 2 levels of Ca: C0=0 and C1=50 lb./ac.
   N as A/S+Castor cake in 1:1 ratio, P2O5 as Super and Ca as Gypsum applied on 27, 28.11.1952.

3. DESIGN:
   (i) 2^3 Factorial in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 29'x28'. (b) 27'x26'. (v) 1' all round. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Incidence of mosaic. (iii) Potato yield. (iv) (a) 1952—1955: (b) No. (c) No. (v) (a) No. (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 5.40 ton/ac.
   (ii) 0.76 ton/ac.
   (iii) Only N effect is highly significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>C0</th>
<th>C1</th>
<th>Mean</th>
<th>P0</th>
<th>P1</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>4.77</td>
<td>5.21</td>
<td>4.99</td>
<td>5.06</td>
</tr>
<tr>
<td>N1</td>
<td>5.88</td>
<td>5.71</td>
<td>5.80</td>
<td>5.58</td>
</tr>
<tr>
<td>Mean</td>
<td>5.33</td>
<td>5.46</td>
<td>5.40</td>
<td>5.32</td>
</tr>
<tr>
<td>P0</td>
<td>5.20</td>
<td>5.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td>5.46</td>
<td>5.48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.1909 ton/ac.
S.E. of body of tables = 0.2700 ton/ac.
Crop :- Potato (Rabi).
Site :- Crop Physiological Res. Stn., Lucknow.
Type :- 'M'.

Object :- To study the effect of N, P and Ca applied singly and in combination on Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Lobia. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 28.10.1953. (iv) (a) Two ploughings by mould board plough on 18.9.1953 and 4.10.1953, and 4 by cultivator, 4 cross wise ploughings and planking on 20.9.1953 and 18.10.1953. (b) Sown behind the plough in lines. (c) 320 tubers of 1" diameter each/plot. (d) 18" X 9". (e) N.A. (v) T.C. and G.N.C. on 21 and 26.10.1953. (vi) Phulwa (Patna). (vii) Irrigation (viii) 2 earthing up. (ix) 5.78'. (x) 30.3.1954 and 1.4.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of N as A/S+G.N.C. in 1 : 1 ratio : N₀ =0 and N₁ =150 lb./ac.
(2) 2 levels of P₂O₅ as Super : P₀ =0 and P₁ = 75 lb./ac.
(3) 2 levels of Ca as Gypsum : C₀ =0 and C₁ =50 lb./ac.

3. DESIGN:
(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 24' X 15'. (b) 21' X 12' (v) 1.5' X 1.5'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Tuber yield. (iv) (a) 1952 to 1955. (b) and (c) No. (v) (a) and (b) None. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 7.44 ton/ac.
(ii) 0.72 ton/ac.
(iii) N effect is highly significant, P effect is significant while other effect and interactions are not significant. (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>C₀</th>
<th>C₁</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>6.87</td>
<td>7.00</td>
<td>6.94</td>
<td>6.69</td>
</tr>
<tr>
<td>N₁</td>
<td>8.10</td>
<td>7.80</td>
<td>7.95</td>
<td>7.52</td>
</tr>
<tr>
<td>Mean</td>
<td>7.48</td>
<td>7.40</td>
<td>7.44</td>
<td></td>
</tr>
<tr>
<td>P₀</td>
<td>7.04</td>
<td>7.16</td>
<td>7.10</td>
<td></td>
</tr>
<tr>
<td>P₁</td>
<td>7.92</td>
<td>7.64</td>
<td>7.78</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.1802 ton/ac.
S.E. of body of table = 0.2548 ton/ac.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 levels of Ca as Gypsum: C_0 = 0 and C_1 = 60 lb./ac.
(2) 6 sources of applications of fertilizers: M_0 = 0, M_1 = 75 lb./ac. of P_2O_5 as single Super, M_2 = 75 lb./ac. of P_2O_5 as Ammo. Phos., M_3 = 75 lb./ac. of P_2O_5 as B.M., M_4 = 75 lb./ac. of P_2O_5 as Fish Guano and M_5 = 120 lb./ac. of N as F.Y.M.
Manures applied on 22 and 23.10.1951.

3. DESIGN:
(i) 2 × 6 Fact. in R.B.D. (ii) 12. (b) N.A. (iii) 4. (iv) (a) and (b) 9′×6′. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Ordinary. (ii) Nil. (iii) Potato yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 3.66 ton/ac.
(ii) 1.4425 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of potato in ton/ac.

\[
\begin{array}{cccccc}
 & M_0 & M_1 & M_2 & M_3 & M_4 & M_5 \\
C_0 & 2.89 & 3.03 & 4.10 & 4.31 & 2.94 & 4.66 \\
C_1 & 3.43 & 4.00 & 4.03 & 4.03 & 2.92 & 3.61 \\
\hline
\text{Mean} & 3.16 & 3.52 & 4.06 & 4.17 & 2.93 & 4.13 & 3.66 \\
\end{array}
\]

S.E. of marginal mean of C = 0.2944 ton/ac.
S.E. of marginal mean of M = 0.5100 ton/ac.
S.E. of body of table = 0.7212 ton/ac.

Crop :-Potato.
Site :-Crop Physiological Res. Stn., Lucknow.
Object: To study the effect of different dosages of super on growth and Potato yield.

1. BASAL CONDITIONS:
(i) (a) No. (b) Sandy loam. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 26.10.1951. (iv) (a) 3 ploughings. (b) over ridgs. (c) N.A. (d) 18′×6′. (e) N.A. (v) F.Y.M. at 60 lb./ac. of N as A/S applied on 20.10.1951. (vi) Military (late). (vii) Irrigated. (viii) 1 weeding and hoeing. (ix) N.A. (x) 8 to 15.3.1952.

2. TREATMENTS:
4 levels of P_2O_5 as Super : P_0 = 0, P_1 = 25, P_2 = 50 and P_3 = 75 lb./ac.
Super applied on 22.10.1951.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 11′×5′. (v) Nil. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Potato yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment conducted by C.P.

5. RESULTS:
(i) 3.92 ton/ac.
(ii) 1.44 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>P&lt;sub&gt;0&lt;/sub&gt;</td>
<td>3.39</td>
</tr>
<tr>
<td>P&lt;sub&gt;1&lt;/sub&gt;</td>
<td>4.64</td>
</tr>
<tr>
<td>P&lt;sub&gt;2&lt;/sub&gt;</td>
<td>3.36</td>
</tr>
<tr>
<td>P&lt;sub&gt;3&lt;/sub&gt;</td>
<td>4.30</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.72 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Potato.
Site :-College Farm, B.H.U., Varanasi.

Ref :-U.P. 51/294).
Type :-M.

Object :-To study the effect of different times of application of fertilizers.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) 23.10.1951. (iv) (a) Field levelled thoroughly. (b) Planted in lines, ridges made by kudali to cover tubers. (c) N.A. (d) 14<sup>x</sup>9<sup>y</sup>. (e) N.A. (v) 100 mds. of well rotten F.Y.M. mixed with soil at the time of preparing the field, 90 lb./ac. of N as A/S+60 lb./ac. of P<sub>2</sub>O<sub>5</sub> was given at the time of sowing. (vi) Patna white variety (Phulwa variety). (vii) Irrigated. (viii) After every irrigation the field was intercultured with kudali and weeds removed. Only one earthing up was done after 45 days of sowing. (ix) N.A. (x) First week of April 1952.

2. TREATMENTS:
60 lb./ac. of K<sub>2</sub>O as Pot. Sul. applied as follows:
1. All at sowing.
2. All at germination (20 days after sowing with first irrigation).
3. All at earthing (45 days after sowing with first earthing).
4. Half at sowing+half at germination.
5. Half at sowing+half at earthing.
6. Half at germination+half at earthing.
7. 1/3rd at sowing+1/3 at germination+1/3 at earthing.

3. DESIGN:
(i) R.B.D. (ii) 7. (b) 126<sup>x</sup>19.5<sup>y</sup>. (iii) 4. (iv) (a) 19.5<sup>x</sup>16<sup>y</sup>. (b) 16.5<sup>x</sup>13<sup>y</sup>. (v) 1<sup>y</sup> alround. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Fresh weight of top, root, tubers and no. of tillers and tubers etc. (iv) (a) No. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The expt. conducted by B.H.U.

5. RESULTS:
(i) 7.35 ton/ac.
(ii) 0.7243 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.82</td>
</tr>
<tr>
<td>2</td>
<td>6.07</td>
</tr>
<tr>
<td>3</td>
<td>7.68</td>
</tr>
<tr>
<td>4</td>
<td>7.62</td>
</tr>
<tr>
<td>5</td>
<td>8.64</td>
</tr>
<tr>
<td>6</td>
<td>8.81</td>
</tr>
<tr>
<td>7</td>
<td>6.78</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.3622 ton/ac.</td>
</tr>
</tbody>
</table>
Crop: Potato (Rabi).

Site: College Farm, B.H.U., Varanasi.

Object: To study the effect of different times of application of fertilizers.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, B. H. U., Varanasi. (iii) 23.10.1951. (iv) (a) Field levelled thoroughly. (b) Planted in lines. (c) Ridges made by kudali to cover tubers. (d) 1½' x 9". (e) N.A. (v) 100 mds. of well rotten F.Y.M. mixed with soil at the time of preparing the field. 60 lb./ac. of P₂O₅ + 60 lb./ac. of K₂O at the time of sowing. (vi) Patna white variety (Phulwa variety) (vii) Irrigated. (viii) After every irrigation the field was intercultured with kudali and weeds removed. Only one earthing up was done after 45 days of sowing. (ix) N.A. (x) 7.4.1952.

2. TREATMENTS:
   90 lb./ac. of N as A/S top dressed at different stages as follows:
   1. All at sowing.
   2. All at germination (20 days after sowing with first irrigation).
   3. All at earthing (45 days after sowing with first earthing).
   4. Half at sowing + half at germination.
   5. Half at sowing + half at earthing.
   6. Half at germination + half at earthing.
   7. 1½ at sowing + 1½ at germination + 1½ at earthing.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) 126' x 19.5'. (iii) 4. (iv) (a) 19.5' x 16'. (b) 16.5' x 13'. (v) 1½' around. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Fresh weight of root, top, tubers and no. of tillers and tubers. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:
   (i) 5.70 ton./ac.
   (ii) 0.9724 ton./ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of potato in ton./ac.
   Treatment | Av. yield
   1. | 7.52
   2. | 5.89
   3. | 4.08
   4. | 5.26
   5. | 6.07
   6. | 5.12
   7. | 5.98
   S.E./mean = 0.4862 ton./ac.

Crop: Potato (Rabi).

Site: College Farm, B.H.U., Varanasi.

Object: To study the effect of different times of application of fertilizers.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) 23.10.1951. (iv) (a) Field levelled thoroughly, given necessary agricultural operations and made fit for conducting the experiment. (b) Planted in lines, ridges made by kudali to cover tubers. (c) N.A. (d) 1½' x 9". (e) N.A. (v) 100 mds. of well rotten F.Y.M. mixed with soil at the time of preparing the field, 90 lb./ac. of N as A/S + 60 lb./ac. of K₂O as Pot. Sulphate at the time of sowing. (vi) Patna white variety (Phulwa variety). (vii) Irrigations given at an interval of 10 days. (viii) After every irrigation the field was intercultured with kudali and weeds removed. Only one earthing up was done after 45 days of sowing. (ix) N.A. (x) 7.4.1952.
2. TREATMENTS:
60 lb./ac of P2O5 as Super top dressed at different stages as follows:
1. All at sowing:
2. All at germination (20 days after sowing with first irrigation).
3. All at earthing (45 days after sowing with first earthing).
4. Half at sowing+half at germination.
5. Half at sowing+half at earthing.
6. Half at germination+half at earthing.
7. 1rd at sowing+1rd at germination+1rd at earthing.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) 126' x 19.5'. (iii) 4. (iv) (a) 19.5' x 16'. (b) 16.5' x 13'. (v) 1½' alround. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Fresh weight of top, root, tubers and no. of tillers and tubers. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:
(i) 7.38 ton/ac.
(ii) 0.8399 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>7.86</td>
</tr>
<tr>
<td>2.</td>
<td>7.59</td>
</tr>
<tr>
<td>3.</td>
<td>6.41</td>
</tr>
<tr>
<td>4.</td>
<td>6.80</td>
</tr>
<tr>
<td>5.</td>
<td>8.02</td>
</tr>
<tr>
<td>6.</td>
<td>7.66</td>
</tr>
<tr>
<td>7.</td>
<td>7.30</td>
</tr>
</tbody>
</table>
S.E./mean = 0.4200 ton./ac.

650

Crop :- Potato (Rabi).
Site :- College Farm, B.H.U., Varanasi.
Ref :- U.P. 53(387).
Type :- 'M'.

Object :- To study the effect of N, P and K applied alone and in combination on growth and yield of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) 23.10.1953. (iv) (a) 2 meston plough, 4 deshi ploughs and 3 ladders. (b) Sown in furrows and then ridges made. (c) N.A. (d) 18' x 9'. (e) N.A. (v) Green manuring with Sanai at 50 srs./ac. (vi) N.A. (vii) Irrigated. (viii) 1 hoeing and 1 earthing up after 1 month of sowing. (ix) N.A. (x) 22.2.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N as A/S: N0 = 0, N1 = 60 and N2 = 120 lb./ac. of N.
(2) 3 levels of P2O5 as Super: P0 = 0, P1 = 30 and P2 = 60 lb./ac. of P2O5.
(3) 3 levels of K2O as Pot. Sul.: K0 = 0, K1 = 20 and K2 = 40 lb./ac. of K2O.
N applied at the earthing stage (after one month of sowing). P2O5 applied at the time of sowing on 22.10.1953. K2O applied at the time of sowing with Super.

3. DESIGN:
(i) 3 Conf. (ii) (a) 3 blocks/replication and 9 plots/block. (b) 220' x 16'. (iii) 4. (iv) (a) 24' x 16'. (b) 21' x 13'. (v) 1½' alround. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Fresh weight of root, top and tubers/plot. (iv) (a) N. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:
(i) 3.91 ton/ac.
(ii) 0.5374 ton/ac.
(iii) N.A.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>2.13</td>
<td>2.37</td>
<td>2.88</td>
<td>2.46</td>
<td>2.49</td>
<td>2.49</td>
<td>2.39</td>
</tr>
<tr>
<td>N₁</td>
<td>3.76</td>
<td>4.58</td>
<td>5.88</td>
<td>4.41</td>
<td>4.22</td>
<td>4.59</td>
<td>4.41</td>
</tr>
<tr>
<td>N₂</td>
<td>4.25</td>
<td>4.87</td>
<td>5.50</td>
<td>4.87</td>
<td>4.21</td>
<td>5.28</td>
<td>5.14</td>
</tr>
<tr>
<td>Mean</td>
<td>3.38</td>
<td>3.94</td>
<td>4.42</td>
<td>3.91</td>
<td>3.64</td>
<td>4.12</td>
<td>3.98</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.0896 ton/ac.
S.E. of body of table = 0.1551 ton/ac.

Crop: Potato (Rabi).
Ref: U.P. 53(395).
Type: 'M'.

Crop: Potato (Rabi).
Ref: U.P. 53(395).
Type: 'M'.

Object: To study the effect of N applied at different times on yield of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sannhemp for green manuring. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) 10.11.1953. (iv) (a) First ploughing was done with desi plough 3 weeks prior to sowing. Subsequent ploughings with desi ploughs followed by planking. (b) Sown in furrows. (c) →. (d) 12' × 9'. (e) 1. (f) 60 lb./ac. of P₂O₅ as Super and 40 lb./ac. of K₂O as Pot. Sul. were added to all the plots. (vi) Phulwa (Patna white). (vii) Irrigated. (viii) Weeds removed during early stage by manual labour, earthing done after 30 days and hoeing 45 days after sowing. (ix) N.A. (x) 17.3.1954.

2. TREATMENTS:
All combinations of (1) and (2) + one control (no manure)
(1) 3 doses of N: N₀ = 60, N₁ = 90 and N₂ = 120 lb./ac.
(2) 3 times of application of N: T₁ = Single dose at the time of planting, T₂ = ½ dose at the time of planting + ½ dose 30 days after planting and T₃ = ½ dose at the time of planting + ½ dose 30 days after planting + ½ dose 45 days after planting.

3. DESIGN:
(i) R.B.D. (ii) (a) 10' × 92' × 64'. (iii) 4. (iv) (a) 30' × 16'. (b) 26' × 12'. (v) 2' around. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Fresh weight of tops, roots, mean no. of tubers/plot and yield of tubers. (iv) (a) No. (b), (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:
(i) 5.75 ton/ac.
(ii) and (iii) N.A.


(iv) Av. yield of potato in ton/ac.

\[ \text{Control} = 3.36 \text{ ton/ac.} \]

<table>
<thead>
<tr>
<th></th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N_1</td>
<td>5.33</td>
<td>5.64</td>
<td>5.33</td>
<td>5.43</td>
</tr>
<tr>
<td>N_2</td>
<td>5.88</td>
<td>6.07</td>
<td>5.76</td>
<td>5.90</td>
</tr>
<tr>
<td>N_3</td>
<td>6.61</td>
<td>7.16</td>
<td>6.34</td>
<td>6.70</td>
</tr>
<tr>
<td>Mean</td>
<td>5.94</td>
<td>6.29</td>
<td>5.81</td>
<td>6.01</td>
</tr>
</tbody>
</table>

---

**Crop :- Potato (Rabi).**

**Site :- Chhibraman (Farrukhabad).**

Ref :- U.P. 51(230).

Type :- 'M'.

Object :- To draw out fertilizer schedules for agriculturally important soil type.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) Sandy loam to *domat*. (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   1. Control (no manure).
   2. 30 lb./ac. of N.
   3. 30 lb./ac. of N + 60 lb./ac. of P_2O_5.

3. DESIGN :
   (i) and (ii) R.B.D. in which villages have been taken as replications (No. of villages= 6) ; field selected in a randomly selected village in the district). (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Yield of early potato. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. on cultivators' fields.

5. RESULTS :
   (i) 1.91 ton/ac.
   (ii) 0.1005 ton/ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of potato in ton/ac.

   \[
   \text{Treatment} \quad \text{Av. yield} \\
   1. \quad 1.67 \\
   2. \quad 1.94 \\
   3. \quad 2.11
   \]

   \[
   \text{S.E./mean} = 0.0410 \text{ ton/ac.}
   \]

---

**Crop :- Potato (Rabi).**

**Site :- Kannauj (Farrukhabad).**

Ref :- U.P. 51(231).

Type :- 'M'.

Object :- To draw out fertilizer schedules for agriculturally important soil type.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) Sandy to sandy loam and loamy soil. (iii) N.A. (iv) Improved. (v) (a) to (c) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   1. Control (no manure).
   2. 30 lb./ac. of N.
   3. 30 lb./ac. of N + 60 lb./ac. of P_2O_5.
3. DESIGN:
(i) and (ii) R.B.D. in which villages have been taken as replications (No. of villages 5). Field selected randomly in the randomly selected village in the district. (iii) (a) N.A. (b) N.A. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of late potato. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. on cultivators' fields.

5. RESULTS:
(i) 9.85 ton/ac.
(ii) 0.4665 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8.73</td>
</tr>
<tr>
<td>2.</td>
<td>10.12</td>
</tr>
<tr>
<td>3.</td>
<td>10.71</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.2086 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Potato (Rabi).
Site :- Chhibraman and Karimganj (Farrukhabad). Type :- 'M'.

Object :- To draw out a fertilizer schedules for agriculturally important soil type.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Farrukhabad type 2 soil. (iii) N.A. (iv) Phulwa improved. (v) (a) After application of P2O5 the field was levelled by drawing a pata. (b) Seeds sown in lines parallel to the fertilizer band. (c) N.A. (d) 1" to 2" away from the fertilizer line. (e) N.A. (vi) N.A. (vii) to (x) N.A.

2. TREATMENTS:
1. Control.
2. 30 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S + 60 lb./ac. of P2O5 as Super.

N added to surface at sowing time. Super is placed a depth of about 3"—4" deep at the sole of the furrow and in the side of the seed row made by either an iron plough or two desi plough— one behind the other in the same furrow.

3. DESIGN:
(i) and (ii) Villages selected in the district and unreplicated expt. with 3 treatments conducted; 12 replications. (iii) (a) and (b) N.A., but roughly about 1/40 ac. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Potato yield. (iv) (a) to (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. on cultivators' fields.

5. RESULTS:
(i) 4.59 ton/ac.
(ii) 0.8732 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of potato in ton/ac:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3.59</td>
</tr>
<tr>
<td>2.</td>
<td>4.57</td>
</tr>
<tr>
<td>3.</td>
<td>5.62</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.2521 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Potato (Rabi).
Site :- Govt. Potato Res. Farm, Farrukhabad.
Object :- To study the effect of different sizes of Potato seeds on its yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 30.10.1950. (iv) (a) 4 ploughings. (b) N.A. (c) 9 rows/plt with 20 seeds/row. (d) 2'x9". (e) N.A. (v) City refuse at 480 mds./ac. on 18 and 19.10.1950 and A/S at 1.5 srs./plt on 15 and 16.12.1950. (vi) Phulwa. (vii) Irrigated. (viii) 1 earthing up. (ix) N.A. (x) 13.4.1951.

2. TREATMENTS:
   3 seed sizes : \( S_1 = \text{Large}, S_2 = \text{Small} \) and \( S_3 = \text{Chhari} \).

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) 18'x49'. (iii) 4. (iv) (a) and (b) 18'x15'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination and potato yield. (iv) (a) 1950 to 1951. (b) and (c) No. (v) (a) No. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 8.22 ton/ac.
   (ii) 0.7338 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of tubers in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.89</td>
</tr>
<tr>
<td>2.</td>
<td>7.52</td>
</tr>
<tr>
<td>3.</td>
<td>7.26</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.3669 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Potato.
Site :- Govt. Potato Res. Farm, Farrukhabad.
Object :- To study the effect of different sizes of potato seeds on its yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 17.11.1951. (iv) (a) 4 ploughings. (b) N.A. (c) 9 rows/plt with 24 seeds/row. (d) 2'x9". (e) N.A. (v) City refuse at 89 mds./ac. on 14.11.1951. A/S at 20 srs./plt on 21.1.1952. (vi) Phulwa. (vii) Irrigated. (viii) One earthing up. (ix) N.A. (x) 31.3.1952.

2. TREATMENTS:
   3 seed sizes : \( S_1 = \text{Large}, S_2 = \text{Small} \) and \( S_3 = \text{Chhari} \).

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) 59'x18'. (iii) 4. (iv) (a) and (b) 18'x18'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination and potato yield. (iv) (a) 1950 to 1951. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment conducted by E.B.(R).

5. RESULTS:
   (i) 5.55 ton/ac.
   (ii) 0.4782 ton/ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of tubers in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6.14</td>
</tr>
<tr>
<td>2.</td>
<td>5.77</td>
</tr>
<tr>
<td>3.</td>
<td>4.75</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.2391 ton/ac.</td>
</tr>
</tbody>
</table>
Crop : Potato. 
Site : Govt. Potato Res. Farm, Farrukhabad.

Object : To see the effect of earthings on the yield of potato.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Jowar. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 6.11.1952. (iv) (a) 4 ploughings. (b) N.A. (c) 10 rows/plot with 16 seeds/row. (iv) N.A. (v) City refuse at 400 mds./ac. on 26.10.1952. A/S at 2 hrs./plot at the time of earthing. (vi) Phulwa (cold storage). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 11.3.1953.

2. TREATMENTS :

3. DESIGN :
(i) R.B.D. (ii) (a) 3. (b) 62.5'x12'. (iii) 5. (iv) (a) and (b) 17.5'x12'. (v) Nil. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Nil. (iii) Germination and potato yield. (iv) (a) 1952—continued. (b), (c) No. (v) (a) No. (b) No. (vi) Nil. (vii) The exp. was conducted by E.B. (R).

5. RESULTS :
(i) 5.58 ton/ac.
(ii) 0.9884 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of tubers in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5.30</td>
</tr>
<tr>
<td>2.</td>
<td>5.94</td>
</tr>
<tr>
<td>3.</td>
<td>5.49</td>
</tr>
</tbody>
</table>

S.E./mean = -0.4420 ton/ac.

---

Crop : Potato. 
Site : Govt. Potato Res. Farm., Farrukhabad.

Object : To see the effect of earthing on the yield of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 31.10.1953. (iv) (a) 5 ploughings. (b) N.A. (c) Total seed used 2.125 md. (d) 2' x 9'. (e) N.A. (v) Castor cake at 30 mds./ac. on 31.10.1953. A/S at 1 sr./plot on 8.12.1953, 12.12.1953 and 16.12.1953. (vi) Phulwa (cold storage) in sprouted condition. (vii) Irrigated. (viii) 1 weeding and hoeing. (ix) 2.79'. (x) 8.3.1954.

2. TREATMENTS :

3. DESIGN :
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 20'x12'. (v) N.A. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Mosaic incidence below 5% checked by using bigger and cut seed. (iii) Germination and yield of potato. (iv) (a) 1952—continued. (b) and (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS :
(i) 5.70 ton/ac.
(ii) 0.6490 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of tuber in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5.80</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>5.53</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>5.77</td>
<td>=0.2902 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Potato.
Site :- Govt. Potato Res. Farm, Farrukhabad.

Object :- To study the effect of storage method on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai (G.M.) (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 4.5.12.1949. (iv) (a) 8 ploughings.
   (b) to (e) N.A. (v) Castor cake at 17½ md./ac. on 3.11.1949 and A/S at 9 seers 5 chh./ac. on 5.11.1949. (vi) Kalmi
   (vii) Irrigated. (viii) 2 weedings and 2 earthing up. (ix) N.A. (x) 7.3.1950.

2. TREATMENTS:
   All combinations of (1) and (2).
   (1) 2 storage methods : T1 = Kalmi cold storage and T2 = Kalmi sand store.
   (2) 2 seed sizes in sprouted condition : S1 = Large and S2 = Small.

3. DESIGN:
   (i) 2x2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 30' x 18'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Very good. (ii) Nil. (iii) Germination and yield of potato. (iv) (a) 1949 to 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 9.15 ton/ac.
   (ii) 0.6835 ton/ac.
   (iii) T effect is highly significant, S effect is significant while interaction is not significant.
   (iv) Av. yield of potato in ton/ac.

<table>
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<th></th>
<th>S1</th>
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S.E. of any marginal mean =0.1973 ton/ac.
S.E. of body of table =0.2790 ton/ac.
2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 storage methods: $T_1=$ Cold and $T_2=$ Ordinary.

(2) 2 seed sizes: $S_1=$ Large and $S_2=$ Small.

3. DESIGN:

(i) $2 \times 2$ Fact. in R.B.D.  (ii) (a) 4. (b) $50' \times 26'$. (iii) 6. (iv) (a) and (b) $24' \times 12'$.  (v) Nil.  (vi) Yes.

4. GENERAL:

(i) Good.  (ii) Nil.  (iii) Germination and yield of potato.  (iv) (a) 1949—1952.  (b) No.  (c) No.  (v) (a) No.  (b) No.  (vi) Nil.  (vii) The experiment conducted by E.B.(R).

5. RESULTS:

(i) 9.40 ton/ac.

(ii) 1.1179 ton/ac.

(iii) $T$ effect is highly significant while other effect and interaction $S \times T$ are not significant.

(iv) Av. yield of potato in ton/ac.

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S.E. of any marginal mean = 0.3227 ton/ac.

S.E. of body of table = 0.4564 ton/ac.

Crop :- Potato.

Site :- Govt. Potato Res. Farm, Farrukhabad.

Object :- To study the effect of storage method on Potato yield.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 9.11.1951. (iv) (a) 8 ploughings. (b) N.A. (c) 12 rows/plot with 24 seeds/row. (d) $2' \times 9'$. (e) N.A. (v) F.Y.M. at 200 mds/ac. on 21.11.1951. (vi) Kalmi Phulwa (sprouted). (vii) Irrigated. (viii) Farthing up on 20/30. 12.51 and 18.1.1952. (ix) and (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 storage methods: $T_1=$ Cold and $T_2=$ Sand storage.

(2) 2 seed sizes: $S_1=$ Large and $S_2=$ Small.

3. DESIGN:

(i) $2 \times 2$ Fact. in R.B.D.  (ii) (a) 4. (b) $50' \times 38'$. (iii) 6. (iv) (a) and (b) $24' \times 18'$.  (v) Nil.  (vi) Yes.

4. GENERAL:

(i) Good.  (ii) Mosaic.  (iii) Germination and yield of potato.  (iv) (a) 1949—1952.  (b) No.  (c) No.  (v) (a) No.  (b) No.  (vi) Nil.  (vii) Experiment conducted by E.B.(R).

5. RESULTS:

(i) 7.13 ton/ac.

(ii) 0.4428 ton/ac.

(iii) $S$ effect and interaction $S \times T$ are highly significant. $T$ effect is not significant.
(iv) Av. yield of potato in ton/ac.

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Mean 7.50 6.77 7.13

S.E. of any marginal mean =0.1278 ton/ac.
S.E. of body of table =0.1808 ton/ac.

Crop :- Potato.
Site :- Govt. Potato Res. Farm, Farrukhabad.

Object :- To study the effect of storage method on Potato yield.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Early Jowar fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1952. (iv) (a) 4 ploughings. (b) N.A. (c) 12 rows/plot with 23 seeds/row. (d) 2'X9". (e) N.A. (v) City refuse at 20 md./ac. on 24.10.1952, A/S at 2.5 srs./plot on 16.2.1952. (vi) Phulwa (Kalmi). (vii) Irrigated. (viii) Earthing up on 16/17.12.1952. (ix) N.A. (x) 6.7.3.1953.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 2 storage methods : $T_1$=Cold and $T_2$=Sand storage.
   (2) 2 seed sizes : $S_1$=Large and $S_2$=Small.

3. DESIGN :
   (i) 2x2 Fact. in R.B.D. (ii) (a) 4. (b) 110’X16.5’. (iii) 6. (iv) (a) and (b) 24’X16.5’. (v) Nil. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Germination and yield of tubers. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E. B. (R).

5. RESULTS :
   (i) 8.30 ton/ac.
   (ii) 0.8864 ton/ac.
   (iii) Only $S$ effect is highly significant.
   (iv) Av. yield of potato in ton/ac.

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Mean 8.31 8.30 8.30

S.E. of any marginal mean =0.2559 ton/ac.
S.E. of body of table =0.3619 ton/ac.
Crop :– Potato.  
Site :– Govt. Potato Res. Farm, Farrukhabad.  
Ref :– U.P. 49(53).  
Type :– 'C'.

Object :—To study the effect of spacing and seed size on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Jowar. (c) N.A.  
   (ii) (a) Loam. (b) N.A.  
   (iii) 15, 16.11.1949.  
   (iv) (a) and (b) N.A.  
   (c) N.A.  
   (d) As per treatments.  
   (e) N.A.  
   (v) F.Y.M. at 150 md/ac. on 10 and 11.11.1949, castor cake at 18 md/ac. on 11 and 12.11.1949 and A/S at 1 md. 16 srs.  
   (vi) Phulwa (cold store).  
   (vii) Irrigated.  
   (viii) 3 weedings and 2 earthings.  
   (ix) N.A.  
   (x) 18 to 22.3.1950.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 seed sizes: S1=Large (1"—1.5") and S2=Small (1"—1.2").  
   (2) 2 distances between rows: R1=2' and R2=1.5'.  
   (3) 3 distances between plants: P1=6", P2=9" and P3=12".

3. DESIGN:
   (i) 2x2x3 Fact. in R.B.D: (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 24'X18'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Potato yield. (iv) (a) 1949 to 1952. (b) No. (c) N.A. (v) (a) Kanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by E.B. (R).

5. RESULTS:
   (i) 8.44 ton/ac.  
   (ii) 0.6189 ton/ac.  
   (iii) Only S effect is highly significant.  
   (iv) Av. yield of potato in ton/ac.

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S E. of marginal mean of S or R = 0.1264 ton/ac.  
S E. of marginal mean of P = 0.1547 ton/ac.  
S E. of body of table S×R = 0.1787 ton/ac.  
S E. of body of table S×P or R×P = 0.2188 ton/ac.

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Crop :– Potato.  
Site :– Govt. Potato Res. Farm, Farrukhabad.  
Ref :– U.P. 50(10).  
Type :– 'C'.

Object :—To find out the optimum spacing and seed size for Potato.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Jowar. (c) Nil.  
   (ii) (a) Loam. (b) N.A.  
   (iii) 28,29.10.1950.  
   (iv) (a) 4 ploughings. (b) and (c) N.A.  
   (d) As per treatments.  
   (e) N.A.  
   (v) City refuse at 48 md/ac. on 18,19.10.1950 and A/S at 1 sr/plot.  
   (vi) Phulwa (sala, cold storage).  
   (vii) Irrigated. (viii) 1 weeding and 2 earthings. (ix) N.A. (x) 7 to 10.3.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 seed sizes: S1=Large (1"—1.5") and S2=Small (1"—1.2").  
   (2) 2 distances between rows: R1=2' and R2=1.5'.  
   (3) 3 distances between plants: P1=6", P2=9" and P3=12".
3. DESIGN:
   (i) 2 x 2 x 3 Fact. in R.B.D. (ii) (a) 12. (b) 78' x 78'. (iii) 4. (iv) (a) and (b) 24' x 18'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination and yield of potato. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 11.23 ton/ac.
   (ii) 0.6485 ton/ac.
   (iii) S, R and P effects are highly significant while all interactions are not significant.
   (iv) Av. yield of potato in ton/ac.

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S.E. of marginal mean of S or R = 0.1324 ton/ac.
S.E. of marginal mean of P = 0.1621 ton/ac.
S.E. of body of table S x R = 0.1872 ton/ac.
S.E. of body of table S x P or R x P = 0.2293 ton/ac.

Crop :- Potato.
Site :- Govt. Potato Res. Farm., Farrukhabad.

Object :- To find out the optimum spacing and seed size for Potato.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 16.11.1951. (iv) (a) 4 ploughings. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) City refuse at 60 md/ac. on 14.11.1951 and A/S at 3 sr/plot. on 24 to 27.12.1951. (vi) Phulwa (sala cold storage in sprouted condition). (vii) Irrigated. (viii) 1 weeding and 1 earthing up. (ix) N.A. (x) 30,31.3.1952 and 1,2,4,1952.

2. TREATMENTS:
   All combinations of (1), (2) and (3).
   (1) 2 seed sizes : S1 = Large (1" - 1\frac{1}{8}"") and S2 = Small (1" - \frac{1}{8}"").
   (2) 2 distances between rows : R1 = 2' and R2 = 1\frac{1}{8}'.
   (3) 3 distances between plants : P1 = 6", P2 = 9" and P3 = 12".

3. DESIGN:
   (i) 2 x 2 x 3 Fact. in R.B.D. (ii) (a) 12. (b) 77' x 79.7'. (iii) 4. (iv) (a) and (b) 24' x 18'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Traces of mosaic incidence. (iii) Germination and yield of potato. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 8.15 ton/ac.
   (ii) 0.4265 ton/ac.
   (iii) S and P effects are highly significant. Interaction S x P is highly significant, interaction P x R is significant while other effects are not significant.
(iv) Av. yield of potato in ton/ac.

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<th>P₃</th>
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S.E. of marginal mean of S or R = 0.0870 ton/ac.
S.E. of marginal mean of P = 0.1066 ton/ac.
S.E. of body of table S×R = 0.1231 ton/ac.
S.E. of body of table S×P or R×P = 0.1508 ton/ac.

Crop :- Potato.

Site :- Govt. Potato Res. Farm, Farrukhabad.

Object :- To find out the optimum spacing and seed size for Potato.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Jowar for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 29, 30.10.1952. (iv) (a) 4 ploughings. (b) N.A. (c) N.A. (d) As per treatments. (e) N.A. (v) City refuse at 400 mds/ac. on 26.10.1952 and A/S at 2.5 rs/pot on 9, 10, 12 and 13.12.1952. (vi) Phulwa (cold storage). (vii) Irrigated.
(viii) 2 weedings and 1 earthing. (ix) N.A. (x) 10 and 11.3.1953.

2. TREATMENTS :
All combinations of (1), (2) and (3)
(1) 2 seed sizes : S₁=Large (1"-1½") and S₂=Small (1"-½").
(2) 2 distances between rows : R₁=2' and R₂=1½'.
(3) 3 distances between plants : P₁=6", P₂=9" and P₃=12".

3. DESIGN :
(i) 2×2×3 Fact. in R.B.D. (ii) (a) 12. (b) 78′×18′. (iii) 4. (iv) (a) and (b) 24′×18′. (v) Nil. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Nil. (iii) Germination and yield of potato. (iv) (a) 1949-1952. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B.(R).

5. RESULTS :
(i) 6.67 ton/ac.
(ii) 0.5845 ton/ac.
(iii) S and P effects are highly significant, interaction S×R is significant. Other effects are not significant.
(iv) Av. yield of potato in ton/ac.

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Crop: Potato.

Site: Govt. Potato Res. Farm, Farrukhabad.

Object: To make a comparative study of different methods and dates of sowing on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for G.M. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 8 ploughings. (b) As per treatments. (c) to (e) N.A. (v) Castor cake at 121 mds/ac. on 23.10.1949, A/S at 13 seers 15 chh./ac. on 30.11.1949. (vi) Sala (cold storage). (vii) Irrigated. (viii) 1 weeding and 2 earthings. (ix) N.A. (x) 12 and 13.3.1950.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 sowing dates: D1 = 24.10.1949, D2 = 31.10.1949 and D3 = 7.11.1949.
   (2) 2 methods of sowing: M1 = Ridges and M2 = Flat.

3. DESIGN:
   (i) 2 x 3 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 38' x 7'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Yield of potato. (iv) (a) 1949-1950. (b) No. (c) N.A. (v) (a) Kanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by E.B.(R).

5. RESULTS:
   (i) 9.76 ton/ac.
   (ii) 1.0084 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of potato in ton/ac.

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<td>9.75</td>
<td>9.76</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of D = 0.2911 ton/ac.
S.E. of marginal mean of M = 0.2377 ton/ac.
S.E. of body of table = 0.4117 ton/ac.

---

Crop: Potato.

Site: Govt. Potato Res. Farm, Farrukhabad.

Object: To make a comparative study of different methods and dates of sowing on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 3 ploughings. (b) As per treatments. (c) 10 rows/plot with 9 seeds/row. (d) 2' x 9'. (e) N.A. (v) City refuse at 250 mds/ac. and A/S at 0.75 sr./plot. (vi) Sala cold. (vii) Irrigated. (viii) 1 weeding (saranai) and 1 earthing up. (ix) N.A. (x) 15.3.1951.
2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 sowing dates: \( D_1 = 24.10.1950, D_2 = 31.10.1950 \) and \( D_3 = 07.11.1950 \).
   (2) 2 sowing methods: \( M_1 = \text{Ridge} \) and \( M_2 = \text{Flat} \).

3. DESIGN:
   (i) \( 2 \times 3 \) Fact. in R.B.D. (ii) (a) 6. (b) 20' \times 49'. (iii) 6. (iv) (a) and (b) 20' \times 7'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination and potato yield. (iv) (a) 1949 to 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B. (R).

5. RESULTS:
   (i) 11.91 ton/ac.
   (ii) 1.271 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( D_1 )</th>
<th>( D_2 )</th>
<th>( D_3 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( M_1 )</td>
<td>11.33</td>
<td>12.72</td>
<td>11.81</td>
<td>11.95</td>
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<tr>
<td>( M_2 )</td>
<td>12.05</td>
<td>11.86</td>
<td>11.72</td>
<td>11.88</td>
</tr>
<tr>
<td>Mean</td>
<td>11.69</td>
<td>12.29</td>
<td>11.76</td>
<td>11.91</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of \( M \)  = 0.300 ton/ac.
S.E. of marginal mean of \( D \)  = 0.367 ton/ac.
S.E. of body of table = 0.519 ton/ac.

Crop: Potato.
Site: Govt. Potato Res. Farm, Farrukhabad.
Object: To study the effect of sowing dates on Potato yield.

Ref: U.P. 50(8).
Type: 'C'.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Char. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings. (b) N.A. (c) N.A. (d) 2' \times 9'. (e) N.A. (v) City refuse at 480 md./ac. on 12.10.1950 and A/S at 1.5 yrs./plot on 15.16.12.1950. (vi) Char of Phulwa (Kalmi) cold storage. (vii) Irrigated. (viii) 1 weeding and 1 earthing up. (ix) N.A. (x) 7 and 8.4.1951.

2. TREATMENTS:
   8 sowing dates:
   \( D_1 = 12.10.1950, D_2 = 19.10.1950, D_3 = 26.10.1950, D_4 = 02.11.1950, D_5 = 09.11.1950, D_6 = 16.11.1950, D_7 = 23.11.1950 \) and \( D_8 = 30.11.1950 \).

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) and (b) 2' \times 12'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination and yield of potato. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B. (R).

5. RESULTS:
   (i) 14.88 ton/ac.
   (ii) 3.057 ton/ac.
   (iii) Treatment differences are highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>18.34</td>
<td>D₅</td>
<td>14.03</td>
</tr>
<tr>
<td>D₂</td>
<td>19.10</td>
<td>D₆</td>
<td>9.51</td>
</tr>
<tr>
<td>D₃</td>
<td>22.02</td>
<td>D₇</td>
<td>7.92</td>
</tr>
<tr>
<td>D₄</td>
<td>20.90</td>
<td>D₈</td>
<td>7.22</td>
</tr>
</tbody>
</table>

S.E./mean = 1.248 ton/ac.

Crop :- Potato (Rabi).
Site :- Govt. Potato Res. Farm, Farrukhabad.
Ref :- U.P. 53(14).
Type :- 'C'.

Object :- To study the effect of sowing and harvesting dates on Potato yield.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) chari for fodder. (c) Nil. (iii) (a) Loan. (b) N.A. (iii) As per treatments. (iv) (a) 5 ploughings. (b) N.A. (c) 28 seeds/row. (d) 1/2 × 9'. (e) —. (v) 100 mds/ac. as F.Y.M. on 5.10.1953. (vi) Phulwa chari in sprouted condition. (vii) Irrigated. (viii) 2 earthings and 1 hoeing and weeding. (ix) 2.79'. (x) As per treatments.

2. TREATMENTS :
Main-plot treatments :
Sub-plot treatments :

3. DESIGN :
(i) Split-plot. (ii) (a) 8 main-plots/replication and 4 sub-plots/main-plot. (b) 48' × 21'. (iii) 4. (iv) (a) and (b) 21' × 1.5'. (v) Nil. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Mosaic disease below 5% ; checked by using bigger and cut seeds. (iii) Germination and yield of potato. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Sub-plot consists of only one row 21' long. The ext. was conducted by E.B.R.

5. RESULTS :
(i) 2.71 ton/ac.
(ii) (a) 1.148 ton/ac. (b) 0.534 ton/ac.
(iii) Both D and H effects are highly significant. Interaction is not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
<th>D₅</th>
<th>D₆</th>
<th>D₇</th>
<th>D₈</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁</td>
<td>2.80</td>
<td>3.27</td>
<td>3.25</td>
<td>2.64</td>
<td>1.94</td>
<td>2.10</td>
<td>1.17</td>
<td>0.75</td>
<td>2.24</td>
</tr>
<tr>
<td>H₂</td>
<td>3.31</td>
<td>3.67</td>
<td>3.77</td>
<td>2.90</td>
<td>2.24</td>
<td>2.34</td>
<td>1.49</td>
<td>0.93</td>
<td>2.58</td>
</tr>
<tr>
<td>H₃</td>
<td>4.37</td>
<td>3.37</td>
<td>4.11</td>
<td>2.82</td>
<td>2.28</td>
<td>2.86</td>
<td>1.63</td>
<td>1.35</td>
<td>2.85</td>
</tr>
<tr>
<td>H₄</td>
<td>4.74</td>
<td>3.57</td>
<td>4.52</td>
<td>3.17</td>
<td>2.52</td>
<td>3.33</td>
<td>2.02</td>
<td>1.61</td>
<td>3.18</td>
</tr>
<tr>
<td>Mean</td>
<td>3.80</td>
<td>3.47</td>
<td>3.91</td>
<td>2.88</td>
<td>2.24</td>
<td>2.66</td>
<td>1.58</td>
<td>1.16</td>
<td>2.71</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. D marginal means = 0.403 ton/ac.
3. H means at the same level of D = 0.377 ton/ac.
4. D means at the same level of H = 0.519 ton/ac.
Crop :- Potato.  
Site :- Govt. Potato Res. Farm, Farrukhabad.  

Object :- To find out suitable spacings for Gola variety of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai for green manuring.  
(c) Nil.  
(ii) (a) Loam.  
(b) N.A.  
(iii) 11.10.1950.  
(iv) (a) Five ploughings. (b) and (c) N.A.  
(d) As per treatments.  
(e) N.A.  
(v) City refuse at 305 mds/ac.  
(vi) 10.10.1950 and A/S at 1.5 lb./plot on 21, 22 and 23.11.1950.  
(vi) Gola cold storage large (1.5—2’
diameter).  
(vii) Irrigated. 
(viii) 1 weeding and earthing up.  
(ix) N.A.  
(x) 9.1.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 row spacings : \( R_1 = 1.25', R_2 = 1.5', R_3 = 1.75' \) and \( R_4 = 2' \).
(2) 2 seed spacings : \( S_1 = 6" \) and \( S_2 = 9" \).

3. DESIGN:
(i) 2 X 4 Fact. in R.B.D.  
(ii) 8.  
(iii) 4.  
(iv) (a) and (b) 18" X 12".  
(v) Nil.  
(vi) Yes.

4. GENERAL:
(i) Good.  
(ii) Nil.  
(iii) Germination and potato yield.  
(iv) (a) to (c) No.  
(v) (a) and (b) No.  
(vi) Nil.  
(vii) Experiment conducted by E.B.R.

5. RESULTS:
(i) 9.93 ton/ac.  
(ii) 0.893 ton/ac.  
(iii) Only R and S effects are highly significant. 
(iv) Av. yield of tuber in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( R_1 )</th>
<th>( R_2 )</th>
<th>( R_3 )</th>
<th>( R_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( S_1 )</td>
<td>11.11</td>
<td>11.30</td>
<td>10.37</td>
<td>9.03</td>
<td>10.45</td>
</tr>
<tr>
<td>( S_2 )</td>
<td>9.45</td>
<td>10.56</td>
<td>8.61</td>
<td>8.98</td>
<td>9.40</td>
</tr>
<tr>
<td>Mean</td>
<td>10.28</td>
<td>10.93</td>
<td>9.49</td>
<td>9.01</td>
<td>9.93</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of \( S \) = 0.223 ton/ac.  
S.E. of marginal mean of \( R \) = 0.316 ton/ac.  
S.E. of body of table = 0.447 ton/ac.

Crop :- Potato (Rabi).  
Site :- Govt. Potato Res. Farm, Farrukhabad.  

Object :- To study the effect of sowing sprouted and unsprouted seed on Potato yield.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai (for green manuring).  
(c) Nil.  
(ii) (a) Loam. (b) N.A.  
(iii) 27.10.1952.  
(iv) (a) 5 ploughings. (b) N.A.  
(c) 207 seeds/plot.  
(d) 2" X 9".  
(e) N.A.  
(vi) Phulwa (cold stored).  
(vii) Irrigated.  
(viii) 1 weeding and earthing up.  
(ix) N.A.  
(x) 8, 9.3.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 seed sizes : \( S_1 = \) Large and \( S_2 = \) Small.  
(2) 2 conditions of seed : \( D_1 = \) sprouted and \( D_2 = \) unsprouted.

3. DESIGN:
(i) 2 X 2 Fact. in R.B.D.  
(ii) 4.  
(iii) 6.  
(iv) (a) N.A.  
(b) 18\' X 16.5\'.  
(v) N.A.  
(vi) Yes.

4. GENERAL:
(i) Good.  
(ii) Nil. (iii) Germination and potato yield.  
(iv) (a) No. (b) No.  
(c) Nil.  
(v) N.A.  
(vi) Nil.  
(vii) The experiment was conducted by E.B.R.
5. RESULTS:
(i) 8.43 ton/ac.
(ii) 0.774 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of tuber in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>Mean</th>
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<tbody>
<tr>
<td>D1</td>
<td>8.46</td>
<td>8.60</td>
<td>8.53</td>
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<tr>
<td>D2</td>
<td>8.89</td>
<td>7.77</td>
<td>8.33</td>
</tr>
<tr>
<td>Mean</td>
<td>8.68</td>
<td>8.18</td>
<td>8.43</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.223 ton/ac.
S.E. of body of table = 0.316 ton/ac.

Crop: Potato. Ref: U.P. 49(121).
Site: Govt. Botanical Gardens, Agri. College, Kanpur. Type: C.
Object: To study the productivity of seeds raised from cut and whole tubers and sprouts of Potato.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 25.12.1949. (iv) (a) ploughed twice by victory plough followed by pata. (b) N.A. (c) N.A. (d) 1.15' x 7.5'. (e) N.A. (v) 50 lb. of A/S and 20 lb. of Super on the entire field. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Seeds raised from whole tubers.
2. Seeds raised from cut tubers.
3. Seeds raised from sprouts.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) 344 sq. ft. (iii) 2. (iv) (a) N.A. (b) 115 sq. ft. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Potato yield. (iv) (a) N.A. (b) N.A. (c) N.A. (v) (a) N.A. (b) N.A. (vi) N.A. (vii) The experiment was conducted by P.A.C. Plot wise yield—N.A.

5. RESULTS:
(i) 20.94 ton/ac.
(ii) and (iii) N.A.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.43</td>
<td>N.A.</td>
</tr>
<tr>
<td>2.</td>
<td>19.89</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>22.50</td>
<td></td>
</tr>
</tbody>
</table>

Site: Govt. Botanical Gardens, Agri. College, Kanpur. Type: C.
Object: To study the effect of different sizes of seeds sown by different methods.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Potato. (c) 50 lbs of A/S and 20 lb of Super. (ii) (a) Sandy loam. (b) N.A. (iii) 18.10.1950. (iv) (a) ploughing by victory plough followed by pata. (b) As per treatments. (c) N.A. (d) 1.75' x 7.5'. (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
   Main-plot treatments:
   2 sizes of potato seeds: $S_1=$Small (1.77 cm) and $S_2=$Medium (2.5 cm).
   Sub-plot treatments:
   3 methods of planting: $M_1=$Flat, $M_2=$Furrow and $M_3=$Ridge.

3. DESIGN:
   (i) Split plot. (ii) (a) 2 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 172 sq. ft. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Potato yield. (iv) (a) N.A. (b) N.A. (c) N.A. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.A.C.

5. RESULTS:
   (i) 4.65 ton/ac.
   (ii) (a) 1.633 ton/ac.
       (b) 0.930 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$M_1$</th>
<th>$M_2$</th>
<th>$M_3$</th>
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<tr>
<td>$S_1$</td>
<td>3.60</td>
<td>4.18</td>
<td>5.10</td>
<td>4.29</td>
</tr>
<tr>
<td>$S_2$</td>
<td>5.17</td>
<td>5.78</td>
<td>5.06</td>
<td>5.00</td>
</tr>
<tr>
<td>Mean</td>
<td>4.38</td>
<td>4.48</td>
<td>5.08</td>
<td>4.65</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. S marginal means =0.770 ton/ac.
2. M marginal means =0.537 ton/ac.
3. M means at the same level of S =0.600 ton/ac.
4. S means at the same level of M =0.989 ton/ac.

Crop :-Potato.  Ref :-U.P. 50(156).
Site :-Govt. Botanical Gardens, Agri. College, Kanpur. Type :-'C'.

Object :-To study the effect of different sizes of seed sown at different depths.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Potato. (c) 50 lb of A/S and 20 lb of Super. (ii) (a) Sandy loam. (b) N.A. (iii) 15.10.1950.
   (iv) (a) Ploughed twice by victory plough followed by pata. (b) N.A. (c) N.A. (d) Spacing between rows 14" and between plants 9". Number of tubers in a row 24. (e) —(v) 50 lb of A/S and 20 lb of Super on the entire field. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   3 sizes of potato seeds : $S_1=$Small (1.77 cm); $S_2=$Medium (2.5 cm) and $S_3=$Large (3.9 cm).
   Sub-plot treatments:
   3 depths of sowing : $D_1=2''$, $D_2=2\frac{1}{2}'''$ and $D_3=3''$.

3. DESIGN:
   (i) Split plot. (ii) (a) 3 main-plots/block and 3 sub-plots/main plot. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 92.35 sq. ft. (v) 3½' border. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Potato yield. (iv) (a) N.A. (b) N.A. (c) N.A. (v) (a) N.A. (b) N.A. (vi) Nil (vii) The plot wise yield data is N.A. The experiment was conducted by P.A.C.
5. RESULTS:

(i) 7.64 ton/ac.
(ii) (a) 0.587 ton/ac.
(b) 0.603 ton/ac.

(iii) S effect and interaction S\times D are highly significant while D effect is significant.

(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D$_1$</th>
<th>D$_2$</th>
<th>D$_3$</th>
<th>Mean</th>
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<td>S$_1$</td>
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<td>6.96</td>
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<tr>
<td>S$_2$</td>
<td>7.83</td>
<td>8.23</td>
<td>8.14</td>
<td>8.07</td>
</tr>
<tr>
<td>S$_3$</td>
<td>7.34</td>
<td>8.03</td>
<td>8.26</td>
<td>7.88</td>
</tr>
<tr>
<td>Mean</td>
<td>7.31</td>
<td>7.79</td>
<td>7.81</td>
<td>7.64</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. S marginal means =0.196 ton/ac.
2. D marginal means =0.201 ton/ac.
3. D means at the same level of S =3.348 ton/ac.
4. S means at the same level of D =0.345 ton/ac.

Crop :- Potato.

Ref :- U.P. 49(118).


Type :- 'C'.

Object :- To study the effect of different sizes of Potato seeds on growth and yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cucurbity. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) Ploughed twice by victory plough followed by plow. (b) and (c) N.A. (d) 1.75' x 1.75'. (e) N.A. (v) 50 lb. of A/S and 20 lb. of Super to the entire field. (vi) to (x) N.A.

2. TREATMENTS:

3 sizes of potato seeds : S$_1$=1", S$_2$=1" and S$_3$=1½".

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) and (b) 219 sq. ft. (v) Border 3½'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Potato yield. (iv) (a) to (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment was conducted by P.A.C.

5. RESULTS:

(i) 12.15 ton/ac.
(ii) 0.8643 ton/ac.

(iii) Treatment differences are significant.

(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S$_1$</td>
<td>11.07</td>
</tr>
<tr>
<td>S$_2$</td>
<td>12.58</td>
</tr>
<tr>
<td>S$_3$</td>
<td>12.81</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.3528 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Potato (Rabi).

Ref :- U.P. 49(50).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'C'.

Object :- To study the effect of different methods and dates of sowing on Potato yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) N.A. (b) As per treatments. (c) to (e) N.A. (v) Nil. (vi) Phulwa large (cold storage). (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 12 to 13.4.1950.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 dates of sowing: $D_1 = 11.11.1949$ and $D_2 = 15.11.1949$.
(2) 2 methods of sowing: $M_1 =$ Ridge and $M_2 =$ Flat.

3. DESIGN:
(i) $2 \times 2$ Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) $28' \times 18'$. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Potato yield. (iv) (a) and (b) N.A. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil.
(vii) The experiment conducted by E.B. (R).

5. RESULTS:
(i) 7.71 ton/ac.
(ii) 0.681 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$D_1$</th>
<th>$D_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M_1$</td>
<td>8.03</td>
<td>7.71</td>
<td>7.87</td>
</tr>
<tr>
<td>$M_2$</td>
<td>7.36</td>
<td>7.73</td>
<td>7.54</td>
</tr>
<tr>
<td>Mean</td>
<td>7.70</td>
<td>7.72</td>
<td>7.71</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.197 ton/ac.
S.E. of body of table = 0.278 ton/ac.

Crop: Potato (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of different sowing methods on Potato yield.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 2.11.1950. (iv) (a) N.A. (b) As per treatments. (c) 384 seeds/plot. (d) $2' \times 9'$. (e) N.A. (v) Sanai turned in for green manuring. (vi) Kalmi sala. (vii) Irrigated. (viii) 2 earthing up. (ix) N.A. (x) 13 and 14.4.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 seed sizes: $S_1 =$ Large and $S_2 =$ Small.
(2) 2 directions of sowing: $D_1 =$ North-south and $D_2 =$ East-west.

3. DESIGN:
(i) $2 \times 2$ Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) $24' \times 18'$. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Tubers yield. (iv) (a) and (b) N.A. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil.
(vii) The exp. was conducted by E.B. (R).

5. RESULTS:
(i) 8.99 ton/ac.
(ii) 0.708 ton/ac.
(iii) Only S effect is significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M_1$</td>
<td>9.31</td>
<td>8.61</td>
<td>8.96</td>
</tr>
<tr>
<td>$M_2$</td>
<td>9.45</td>
<td>8.58</td>
<td>9.01</td>
</tr>
</tbody>
</table>

Mean $= \frac{9.38 + 8.60}{2} = 8.99$

S.E. of any marginal mean $= 0.204$ ton/ac.
S.E. of body of table $= 0.289$ ton/ac.

Crop :- Potato (Rabi).
Site :- Govt. Res. Farm, Kanpur.

Object :- To study the effect of different sowing methods on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 5.11.1950. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) 1.75" × 1.75": (e) N.A. (v) F.Y.M. at 200 mds./ac. broadcast during preparation of field. (vi) Phuliwa. (vii) Irrigated. (viii) One earthing up. (ix) N.A. (x) 28 and 29.4.1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 sizes of the seed : $S_1$ = Large and $S_2$ = Small.
   (2) 2 methods of sowing : $M_1$ = Ridge and $M_2$ = Flat.

3. DESIGN:
   (i) 2 x 2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 24.5" × 15". (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Traces of mosaic incidence. (iii) Tuber yield. (iv) (a) 1950 to 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
   (i) 6.29 ton/ac.
   (ii) 0.735 ton/ac.
   (iii) Only S effect is significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M_1$</td>
<td>7.06</td>
<td>6.37</td>
<td>6.72</td>
</tr>
<tr>
<td>$M_2$</td>
<td>5.59</td>
<td>6.13</td>
<td>5.86</td>
</tr>
</tbody>
</table>

Mean $= \frac{6.33 + 6.25}{2} = 6.29$

S.E. of any marginal mean $= 0.321$ ton/ac.
S.E. of body of table $= 0.300$ ton/ac.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 sizes of the seed: \( S_1 = \text{Large} \) and \( S_2 = \text{Small} \).
(2) 2 methods of sowing: \( M_1 = \text{Ridge} \) and \( M_2 = \text{Flat} \).

3. DESIGN:
(i) 2x2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) 1'. (b) 16'x18'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1950-1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B(R).

5. RESULTS:
(i) 5.79 ton/ac.
(ii) 0.983 ton/ac.
(iii) Only M effect is significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( M_1 )</th>
<th>( M_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( S_1 )</td>
<td>5.66</td>
<td>6.84</td>
<td>6.07</td>
</tr>
<tr>
<td>( S_2 )</td>
<td>5.12</td>
<td>5.90</td>
<td>5.51</td>
</tr>
<tr>
<td>Mean</td>
<td>5.39</td>
<td>6.19</td>
<td>5.79</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =0.246 ton/ac.
S.E. of body of table =0.348 ton/ac.

Crop: Potato (\textit{Rabi}).
Site: Govt. Res. Farm, Kanpur.
Ref: U.P. 52(24).
Type: 'C'.

Object: To study the effect of different sowing methods on yield of Potato.

1. BASAL CONDITIONS:
(i) (a) No. (b) Green manuring with \textit{Sanai}. (c) No. (d) Loam. (b) N.A. (iii) 24, 25.10.1952. (iv) (a) N.A. (b) As per treatments. (c) 240 seeds/plot. (d) 1.75'x9'. (e) N.A. (v) \textit{Sanai} was turned in and castor cake at 20 mds/ac. 3 weeks before sowing. (vi) \textit{Phalwa}. (vii) Irrigated. (viii) 3 earthings. (ix) N.A. (x) 12.3.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 sizes of the seed: \( S_1 = \text{Large} \) and \( S_2 = \text{Small} \).
(2) 2 methods of sowing: \( M_1 = \text{Ridge} \) and \( M_2 = \text{Flat} \).

3. DESIGN:
(i) 2x2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 21'x15'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Traces of mosaic incidence. (iii) Potato yield. (iv) (a) 1950—1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B(R).

5. RESULTS:
(i) 15.19 ton/ac.
(ii) 1.106 ton/ac.
(iii) Only M effect is highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$M_1$</th>
<th>$M_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>14.29</td>
<td>16.59</td>
<td>15.44</td>
</tr>
<tr>
<td>$S_2$</td>
<td>14.16</td>
<td>15.71</td>
<td>14.93</td>
</tr>
<tr>
<td>Mean</td>
<td>14.22</td>
<td>16.15</td>
<td>15.19</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.319 ton/ac.
S.E. of body of table = 0.451 ton/ac.

Crop :- Potato (Rabi).
Site :- Govt. Res. Farm, Kanpur.
Object :- To study the effect of sowing dates on yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) to (e) N.A. (v) Nil. (vi) Phulwa. (vii) Unirrigated. (viii) 2 earthings. (ix) N.A. (x) 17.4.1950.

2. TREATMENTS:

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 27' x 8'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Potato yield. (iv) (a) 1948—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 5.89 ton/ac.
   (ii) 0.763 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_1$</td>
<td>6.11</td>
</tr>
<tr>
<td>$D_2$</td>
<td>8.06</td>
</tr>
<tr>
<td>$D_3$</td>
<td>6.39</td>
</tr>
<tr>
<td>$D_4$</td>
<td>6.44</td>
</tr>
<tr>
<td>$D_5$</td>
<td>5.00</td>
</tr>
<tr>
<td>$D_6$</td>
<td>3.33</td>
</tr>
</tbody>
</table>
   | S.E./mean | =0.381 ton/ac.

Crop :- Potato (Rabi).
Site :- Govt. Res. Farm, Kanpur.
Object :- To study the effect of sowing dates on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Jowar for fodder. (c) No. (ii) (a) Loamy with kankars. (b) N.A. (iii) As per treatments. (iv) (a) to (c) N.A. (d) 1' x 1'. (e) N.A. (v) Green manure with castor cake at 12 md./ac. (vi) Phulwa (well sprouted). (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 7 to 9.4.1951.
2. **TREATMENTS** :


3. **DESIGN** :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 22.5'×4.5'. (v) N.A. (vi) No.

4. **GENERAL** :

(i) Good. (ii) Traces of mosaic incidence and white fungus growing on potato tubers were observed. (iii) Potato yield. (iv) (a) 1948-continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. **RESULTS** :

(i) 13.96 ton/ac.  
(ii) 1.529 ton/ac. 
(iii) Treatment differences are highly significant. 
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>14.22</td>
<td>D5</td>
<td>12.94</td>
</tr>
<tr>
<td>D2</td>
<td>13.73</td>
<td>D6</td>
<td>14.82</td>
</tr>
<tr>
<td>D3</td>
<td>11.95</td>
<td>D7</td>
<td>17.29</td>
</tr>
<tr>
<td>D4</td>
<td>13.14</td>
<td>D8</td>
<td>13.63</td>
</tr>
</tbody>
</table>

S.E./mean = 0.765 ton/ac.

---

**Crop**: Potato *(Rabi)*.  
**Site**: Govt. Res. Farm, Kanpur.  
**Ref**: U.P. 51(I).  
**Type**: 'C'.

Object: To study the effect of sowing dates on Potato yield.

1. **BASAL CONDITIONS**:

(i) (a) No. (b) Green manuring with *Sanai*. (c) No. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) to (c) N.A. (d) 1.5'×9'. (e) N/A. (v) *Sanai* was turned in. (vi) *Phulwa*. (vii) Irrigated. (viii) 3 earthings. (ix) N.A. (x) 16.3.1952.

2. **TREATMENTS**:


3. **DESIGN**:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 21'×6'. (v) N.A. (vi) No.

4. **GENERAL**:

(i) Very good. (ii) Mosaic incidence, very very minute. (iii) Potato yield. (iv) (a) 1948—continuing. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R). Only three lines instead of four lines were sown in the last treatment.

5. **RESULTS**:

(i) 7.47 ton/ac.  
(ii) 0.870 ton/ac. 
(iii) Treatment differences are significant. 
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>8.18</td>
</tr>
<tr>
<td>D2</td>
<td>8.65</td>
</tr>
<tr>
<td>D3</td>
<td>7.38</td>
</tr>
<tr>
<td>D4</td>
<td>7.14</td>
</tr>
<tr>
<td>D5</td>
<td>7.14</td>
</tr>
<tr>
<td>D6</td>
<td>6.35</td>
</tr>
</tbody>
</table>

S.E./mean = 0.435 ton/ac.
Crop : Potato (Rabi).
Site : Govt. Res. Farm, Kanpur.

Object: To study the effect of sowing and harvesting dates on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) As under treatments. (iv) (a) to (c) N.A. (d) 1.75' x 9'. (e) N.A. (v) N.A. (vi) Phulwa. (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) As under treatments.

2. TREATMENTS:
   Main-plot treatments:

   Sub-plot treatments:
   4 harvesting dates: H1 = 31.1.1953, H2 = 15.2.1953, H3 = 3.3.1953 and H4 = 18.3.1953.

3. DESIGN:
   (i) Split-plot. (ii) (a) 8 main-plots/block and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 21' x 1.5'. (v) N.A. (vi) No.

4. GENERAL:
   (i) Good. (ii) No. (iii) Yield of potatoes. (iv) (a) 1948-continuing. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 10.60 ton/ac.
   (ii) (a) 1.170 ton/ac.
   (b) 1.184 ton/ac.
   (iii) All the effects are highly significant.
   (iv) Av. yield of potato in t/acre.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>D6</th>
<th>D7</th>
<th>D8</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
<td>H1</td>
<td>13.88</td>
<td>9.96</td>
<td>8.71</td>
<td>7.61</td>
<td>5.87</td>
<td>6.07</td>
<td>3.47</td>
<td>2.53</td>
<td></td>
</tr>
<tr>
<td>H2</td>
<td>12.37</td>
<td>13.50</td>
<td>12.55</td>
<td>10.56</td>
<td>9.11</td>
<td>8.60</td>
<td>7.49</td>
<td>6.86</td>
<td>10.13</td>
</tr>
<tr>
<td>H3</td>
<td>12.06</td>
<td>12.47</td>
<td>11.89</td>
<td>13.34</td>
<td>11.43</td>
<td>11.02</td>
<td>10.32</td>
<td>9.73</td>
<td>11.53</td>
</tr>
<tr>
<td>Mean</td>
<td>12.88</td>
<td>12.52</td>
<td>11.65</td>
<td>11.49</td>
<td>9.91</td>
<td>9.73</td>
<td>8.45</td>
<td>8.18</td>
<td>10.60</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. D marginal means = 0.414 ton/ac.
2. H marginal means = 0.296 ton/ac.
3. H means at the same level of D = 0.837 ton/ac.
4. D means at the same level of H = 0.835 ton/ac.
2. TREATMENTS:

Main-plot treatments:

Sub-plot treatments:

3. DESIGN:

(i) Split-plot. (ii) (a) 9 main-plots/block and 4 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 15' x 11'. (v) N.A. (vi) No.

4. GENERAL:

(i) Good. (ii) Mosaic incidence below 5%. Checked by using bigger seed size and cut seed. (iii) Germination and yield of potato. (iv) (a) 1948—continuing. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:

(i) 7.00 ton/ac.
(ii) (a) 1.313 ton/ac.
(b) 1.009 ton/ac.

(iii) Both D and H effects are highly significant while interaction is significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>D6</th>
<th>D7</th>
<th>D8</th>
<th>D9</th>
<th>Mean</th>
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<td>6.76</td>
<td>6.86</td>
<td>7.78</td>
<td>7.67</td>
<td>7.54</td>
<td>6.91</td>
<td>5.33</td>
<td>5.78</td>
<td>4.35</td>
<td>6.55</td>
</tr>
<tr>
<td>H3</td>
<td>6.22</td>
<td>7.24</td>
<td>8.25</td>
<td>7.18</td>
<td>8.13</td>
<td>7.62</td>
<td>6.67</td>
<td>7.49</td>
<td>6.41</td>
<td>7.25</td>
</tr>
<tr>
<td>H4</td>
<td>6.22</td>
<td>7.24</td>
<td>8.06</td>
<td>6.16</td>
<td>7.37</td>
<td>7.87</td>
<td>6.79</td>
<td>7.37</td>
<td>5.65</td>
<td>6.97</td>
</tr>
<tr>
<td>Mean</td>
<td>6.52</td>
<td>7.23</td>
<td>7.88</td>
<td>7.31</td>
<td>7.82</td>
<td>7.50</td>
<td>6.34</td>
<td>6.83</td>
<td>5.57</td>
<td>7.00</td>
</tr>
</tbody>
</table>

S.E. of the difference of two
1. D marginal means = 0.379 ton/ac.
2. H marginal means = 0.194 ton/ac.
3. H means at the same level of D = 0.582 ton/ac.
4. D mean at the same level of H = 0.631 ton/ac.

Crop : Potato (Rabi).

Site : Govt. Res. Farm, Kanpur.

Object : To study the effect of spacing and seed size on Potato yield.

1. BASAL CONDITIONS:

(i) (a) N—. (b) Green manuring with sanai. (c) No. (ii) (a) Loam. (b) N.A. (iii) 26.10.1952. (iv) (a) and (b) N.A. (c) to (e) As per treatments. (v) Sanai was turned in. (vi) Phulwa. (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 19.3.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Seed size</th>
<th>Spacing</th>
<th>particulars</th>
<th>No. of seeds/row</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Small</td>
<td>9'</td>
<td>Single</td>
<td>27</td>
</tr>
<tr>
<td>2.</td>
<td>Small</td>
<td>9'</td>
<td>Double</td>
<td>54</td>
</tr>
<tr>
<td>3.</td>
<td>Large</td>
<td>9'</td>
<td>Single</td>
<td>27</td>
</tr>
<tr>
<td>4.</td>
<td>Medium</td>
<td>9'</td>
<td>Single</td>
<td>27</td>
</tr>
<tr>
<td>5.</td>
<td>Medium</td>
<td>9'</td>
<td>Double</td>
<td>54</td>
</tr>
<tr>
<td>6.</td>
<td>Small</td>
<td>6'</td>
<td>Single</td>
<td>40</td>
</tr>
<tr>
<td>7.</td>
<td>Small</td>
<td>6'</td>
<td>Double</td>
<td>80</td>
</tr>
<tr>
<td>8.</td>
<td>Large</td>
<td>6'</td>
<td>Single</td>
<td>40</td>
</tr>
<tr>
<td>9.</td>
<td>Medium</td>
<td>6'</td>
<td>Single</td>
<td>40</td>
</tr>
<tr>
<td>10.</td>
<td>Medium</td>
<td>6'</td>
<td>Double</td>
<td>80</td>
</tr>
<tr>
<td>11.</td>
<td>Small</td>
<td>44'</td>
<td>Single</td>
<td>54</td>
</tr>
<tr>
<td>12.</td>
<td>Medium</td>
<td>44'</td>
<td>Single</td>
<td>54</td>
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<tr>
<td>13.</td>
<td>Small</td>
<td>3'</td>
<td>Single</td>
<td>80</td>
</tr>
<tr>
<td>14.</td>
<td>Medium</td>
<td>3'</td>
<td>Single</td>
<td>80</td>
</tr>
</tbody>
</table>
3. DESIGN:
   (i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/994.97 ac. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Potato yield. (iv) (a) 1952—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
   (i) 9.01 ton/ac.
   (ii) 1.436 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8.00</td>
</tr>
<tr>
<td>2.</td>
<td>7.92</td>
</tr>
<tr>
<td>3.</td>
<td>10.36</td>
</tr>
<tr>
<td>4.</td>
<td>7.52</td>
</tr>
<tr>
<td>5.</td>
<td>9.99</td>
</tr>
<tr>
<td>6.</td>
<td>7.73</td>
</tr>
<tr>
<td>7.</td>
<td>8.50</td>
</tr>
</tbody>
</table>

   S.E./mean = 0.718 ton/ac.

Object:—To study the effect of spacing and seed size on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1953. (iv) (a) to (c) N.A. (d) Rows 21' apart. (e) As per treatments. (v) 100 mds/ac. of night soil. (vi) Phulwa. (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 5.3.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Seed size</th>
<th>Spacing</th>
<th>particulars</th>
<th>No. of seeds per row</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Small</td>
<td>9'</td>
<td>Single</td>
<td>20</td>
</tr>
<tr>
<td>2.</td>
<td>Small</td>
<td>9'</td>
<td>Double</td>
<td>40</td>
</tr>
<tr>
<td>3.</td>
<td>Large</td>
<td>9'</td>
<td>Single</td>
<td>20</td>
</tr>
<tr>
<td>4.</td>
<td>Medium</td>
<td>9'</td>
<td>Single</td>
<td>20</td>
</tr>
<tr>
<td>5.</td>
<td>Medium</td>
<td>9'</td>
<td>Double</td>
<td>40</td>
</tr>
<tr>
<td>6.</td>
<td>Small</td>
<td>6'</td>
<td>Single</td>
<td>30</td>
</tr>
<tr>
<td>7.</td>
<td>Small</td>
<td>6'</td>
<td>Double</td>
<td>60</td>
</tr>
<tr>
<td>8.</td>
<td>Large</td>
<td>6'</td>
<td>Single</td>
<td>30</td>
</tr>
<tr>
<td>9.</td>
<td>Medium</td>
<td>6'</td>
<td>Single</td>
<td>30</td>
</tr>
<tr>
<td>10.</td>
<td>Medium</td>
<td>6'</td>
<td>Double</td>
<td>60</td>
</tr>
<tr>
<td>11.</td>
<td>Small</td>
<td>4.5'</td>
<td>Single</td>
<td>40</td>
</tr>
<tr>
<td>12.</td>
<td>Medium</td>
<td>4.5'</td>
<td>Single</td>
<td>40</td>
</tr>
<tr>
<td>13.</td>
<td>Small</td>
<td>3'</td>
<td>Single</td>
<td>60</td>
</tr>
<tr>
<td>14.</td>
<td>Medium</td>
<td>3'</td>
<td>Single</td>
<td>60</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) and (b) 15'×11'. (v) N.A. (vi) No.

4. GENERAL:
   (i) Good. (ii) Below 5% incidence of mosaic. (iii) Germination and yield of potato. (iv) (a) 1952—continued. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
   (i) 10.79 ton/ac.
   (ii) 1.608 ton/ac.
   (iii) Treatment differences are highly significant.
Crop : Potato (Rabi).

Site : Govt. Res. Farm, Kanpur.

Object :—To study the effect of seed size and spacing on Potato.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sanai for G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 27.10.1948. (iv) (a) to (c) N.A. (d) As per treatments. (e) N.A. (v) Applied 9 C.L. of F.Y.M. (vi) Phulwa. (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) 2 to 5.3.1949.

2. TREATMENTS:

All the 12 combinations of (1), (2) and (3)

(1) 2 seed sizes : \( S_1 = \text{small} (4" \times 11") \) and \( S_2 = \text{large} (11" \times 2") \).

(2) 3 spacings between plants : \( P_1 = 6", P_2 = 9" \) and \( P_3 = 12" \).

(3) 2 spacing between rows : \( R_1 = 11" \) and \( R_2 = 2" \).

3. DESIGN:

(i) 3x2x2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 24'x 18'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of potato. (iv) (a) 1945—1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R). Crop failed during 1949.

5. RESULTS:

(i) 5.39 ton/ac.

(ii) 0.246 ton/ac.

(iii) S effect is highly significant, interaction S x P is significant while all other effects are not significant.

(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.60</td>
<td>8.</td>
<td>11.83</td>
</tr>
<tr>
<td>2.</td>
<td>10.50</td>
<td>9.</td>
<td>10.83</td>
</tr>
<tr>
<td>3.</td>
<td>11.22</td>
<td>10.</td>
<td>13.45</td>
</tr>
<tr>
<td>4.</td>
<td>9.74</td>
<td>11.</td>
<td>9.00</td>
</tr>
<tr>
<td>5.</td>
<td>12.83</td>
<td>12.</td>
<td>11.19</td>
</tr>
<tr>
<td>6.</td>
<td>8.60</td>
<td>13.</td>
<td>9.69</td>
</tr>
<tr>
<td>7.</td>
<td>10.86</td>
<td>14.</td>
<td>11.72</td>
</tr>
</tbody>
</table>

S.E./mean 0.804 ton/ac.
Crop : Potato (Rabi).
Site : Govt. Res. Farm, Kanpur.

Object : To study the effect of earthing up of Potato crop on yield.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 20.10.1953. (iv) (a) and (b) N.A. (c) 1.93 cwts./ac. (d) 1.75'x6'. (e) N.A. (v) Nil. (vi) Phulwa. (vii) Irrigated. (viii) As per treatments. (ix) N.A. (x) 9,10.3.1954.

2. TREATMENTS :
   1. One earthing on 29.11.1953.

3. DESIGN :
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 22.5'x23.5'. (b) 20'x21'. (v) 1.25' around. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Mosaic incidence below 5%; Checked by using bigger seed size and cut seed. (iii) Germination and yield of potato. (iv) (a) Yes. 1952-53 continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B.(R).

5. RESULTS :
   (i) 8.89 ton/ac.
   (ii) 1.570 ton/ac.
   (iii) Treatment differences are not significant.
(v) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.21</td>
<td>0.641</td>
</tr>
<tr>
<td>2.</td>
<td>9.10</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>8.37</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Potato (Rabi).
Site :- Govt. Res. Farm, Kanpur...

Object :- To study the effect of different storage methods on yield of Potato.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sandy loam. (ii) (a) N.A. (iii) 11.12.11.1949. (iv) (a) F.Y.M. at 34 mds. (v) Irrigated. (vi) 1 earthing. (vii) N.A. (viii) 26, 28, 30.3.1949.

2. TREATMENTS :
   1. Cold store.
   2. Ordinary store.
   3. Fallow.

3. DESIGN :
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 24'x20'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Potato yield. (iv) and (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS :
   (i) 4.55 ton/ac.
   (ii) 0.397 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>4.77</td>
<td>0.162</td>
</tr>
<tr>
<td>2.</td>
<td>4.53</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>4.36</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Potato (Kharif).
Site :- Potato Sub-Stn., Kausani.

Object :- To study the effect of earthing up on yield of Potato.

1. BASAL CONDITIONS :
   (i) (a) No. (b) Fallow. (c) No. (ii) (a) Hill tract-6075' ht. (b) N.A. (iii) 20.3.1953. (iv) (a) N.A. (b) Flat sown. (c) N.A. (d) 2'x9'. (e) N.A. (v) F.Y.M. on 3.3.1953 and castor cake at 20 md./ac. (vi) Garhwal. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 26.8.1953.

2. TREATMENTS :
   1. No earthing.
   2. One earthing.
   3. Two earthing.
3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) and (b) 12' x 10.5'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Germination and potato yield. (iv) (a) 1953—continued. (b) and (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 3.54 ton/ac.
(ii) 1.002 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.91</td>
</tr>
<tr>
<td>2.</td>
<td>3.70</td>
</tr>
<tr>
<td>3.</td>
<td>4.02</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.409 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Potato (Kharif).
Site :- Potato Sub-Stn., Kausani.

Ref :- U.P. 52(30).
Type :- 'C'.

Object :- To determine the optimum sowing dates of Potato.

1. BASAL CONDITIONS:
(i) (a) No. (b) Fallow. (c) No. (ii) (a) Loam mixed with gravel. (b) N.A. (iii) As per treatments. (iv) (a), (b) N.A. (c) 20 seeds/row. (d) 2' x 9'. (e) N.A. (v) F.Y.M. at 90 mds./ac. broadcast at the sowing time. (vi) Garhwal. (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) 6.9.1952.

2. TREATMENTS:
6 sowing dates: D₁ = 10.4.1952, D₂ = 17.4.1952, D₃ = 24.4.1952, D₄ = 1.5.1952, D₅ = 8.5.1952 and D₆ = 15.5.1952

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 15' x 20'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Minor [attack of disease occurred. (iii) Potato yield. (iv) (a) 1952—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B.(R).

5. RESULTS:
(i) 4.78 ton/ac.
(ii) 0.735 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>5.98</td>
</tr>
<tr>
<td>D₂</td>
<td>6.53</td>
</tr>
<tr>
<td>D₃</td>
<td>5.63</td>
</tr>
<tr>
<td>D₄</td>
<td>5.88</td>
</tr>
<tr>
<td>D₅</td>
<td>2.73</td>
</tr>
<tr>
<td>D₆</td>
<td>1.95</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.520 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Potato (Kharij).
Site :- Potato Sub-Stn., Kausani.

Object :- To determine the optimum sowing time of Potato.

1. BASAL CONDITIONS:
(i) (a) No. (b) Fallow. (c) No. (ii) (a) Loam mixed with gravel, slypo and uneven. (b) N.A. (iii) As per treatments. (iv) (a), (b) N.A. (c) 18 seeds/row. Seed used 2 mds. 24 srs. 12 chs. (d) 2'x9". (e) N.A. (v) F.Y.M. on 3.8.1953, and castor cake at 20 mds/ac. (vi) Garhwal. (vii) Unirrigated. (viii) First earthing is due when plants are 8'-10' in height. Successive earthings follow at a certain interval to save the crop from exposure to sun and for the developments of shoots. (ix) N.A. (x) 18.8.1953.

2. TREATMENTS:

3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 14'x8'. (v) N.A. (vi) Not strictly randomised due to certain practical difficulties.

4. GENERAL:
(i) Good. (ii) No. (iii) Yield and germination of potato. (iv) (a) 1952--continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
(i) 3.54 ton/ac.
(ii) 0.957 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>5.63</td>
</tr>
<tr>
<td>D2</td>
<td>3.97</td>
</tr>
<tr>
<td>D3</td>
<td>5.27</td>
</tr>
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<td>D4</td>
<td>3.37</td>
</tr>
<tr>
<td>D5</td>
<td>2.87</td>
</tr>
<tr>
<td>D6</td>
<td>1.76</td>
</tr>
<tr>
<td>D7</td>
<td>1.89</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.479 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Potato (Kharij).
Site :- Potato Sub-Stn., Kausani.

Object :- To study the effect of whole vs cut Potato on yield.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Hilly tract. (b) N.A. (iii) 29,30.4.1950. (iv) (a) and (b) N.A. (c) 13 seeds/row. (d) 2'x9'. (e) N.A. (v) N.A. (vi) Garhwal. (vii) No. (viii) 1 earthing. (ix) N.A. (x) 29, 30.9.1950.

2. TREATMENTS:
1. Whole potato sown.
2. Cut potato sown.

3. DESIGN:
(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 9. (iv) (a) N.A. (b) 12'x10'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1930 to 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Ths expt. was conducted by E.B.(R).
5. RESULTS:

(i) 1.04 ton/ac.
(ii) 0.373 ton/ac.
(iii) Treatment difference is significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.28</td>
</tr>
<tr>
<td>2.</td>
<td>0.80</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>±0.124 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Potato (Kharif).
Site: Potato Sub-Stn., Kausani.

Object: To study the effect of whole and cut potatoes on yield.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Hilly tract. (b) N.A. (iii) 14.3.1951. (iv) (a) and (b) N.A. (c) 14 seeds/row. (d) 2'x9'. (e) N.A. (f) N.A. (g) N.A. (v) N.A. (vi) Garhwal. (vii) Unirrigated. (viii) 1 earthing. (ix) N.A. (x) 4.9.1951 to 5.9.1951.

2. TREATMENTS:

1. Whole potatoes sown.
2. Cut potatoes sown.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 10'x12'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) No. (iii) Potato yield. (iv) (a) Yes 1950 to 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The exp. was conducted by E.B.(R).

5. RESULTS:

(i) 3.24 ton/ac.
(ii) 0.451 ton/ac.
(iii) Treatment difference is not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3.24</td>
</tr>
<tr>
<td>2.</td>
<td>3.24</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>±0.184 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Potato (Kharif).
Site: Potato Sub-Stn., Kausani.

Object: To compare the effect of sowing whole tubers vs cut tubers.

1. BASAL CONDITIONS:

(i) (a) No. (b) Fallow. (c) No. (ii) (a) Hilly tract (6075' high). (b) N.A. (iii) 17.4.1952. (iv) (a) to (c) N.A. (d) 2'x9'. (e) N.A. (f) N.A. (v) F.Y.M. at 90 md/ac. broadcast at the time of preparation of field. (vi) Garhwal. (vii) Unirrigated. (viii) 1 earthing. (ix) N.A. (x) 7.9.1952.

2. TREATMENTS:

1. Whole tubers sown.
2. Cut tubers sown.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 20'x15'. (v) N.A. (vi) No.
4. GENERAL:
(i) Good. (ii) Some plants were diseased. (iii) Potato yield. (iv) (a) Yes. 1950 to 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 2.21 ton/ac.
(ii) 0.616 ton/ac.
(iii) Treatment difference is not significant.
(iv) Av. yield of potato in ton/ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.38</td>
<td>0.251 ton/ac.</td>
</tr>
<tr>
<td>2.</td>
<td>2.04</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Potato (*Kharif*).
Site: Potato Sub-Stn., Kausani.
Object: To determine the efficacy of cut and whole tubers.

1. BASAL CONDITIONS:
(i) (a) No. (b) Fallow. (c) No. (ii) (a) Hill tract, 6075' ht. (b) N.A. (iii) As per treatments. (iv) (a) to (c) N.A. (d) 24'x9'. (e) N.A. (v) F.Y.M. on 3.3.1953 and cake at 20 md/ac. on 10.5.1953. (vi) Garhwal (vii) Unirrigated. (viii) 1 weeding and 1 earthing. (ix) N.A. (x) 22 and 28.8.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 dates of sowing: D1 = 17.3.1953 and D2 = 2.4.1953.
(2) 2 types of potatoes: T1 = cut potato sown and T2 = whole potato sown.

3. DESIGN:
(i) 2x2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 12'x8'. (v) Nil. (vi) No.

4. GENERAL:
(i) Good. (ii) No. (iii) Germination and yield of potato. (iv) (a) 1953—continued. (b) N.A. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 3.13 ton/ac.
(ii) 0.914 ton/ac.
(iii) Tubers (cut vs whole) are highly significant; sowing dates and interaction are not significant.
(iv) Av. yield of tuber in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2.92</td>
<td>1.81</td>
<td>2.36</td>
</tr>
<tr>
<td>T2</td>
<td>4.03</td>
<td>3.75</td>
<td>3.89</td>
</tr>
<tr>
<td>Mean</td>
<td>3.48</td>
<td>2.78</td>
<td>3.13</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.264 ton/ac.
S.E. of body of table = 0.373 ton/ac.
Crop :- Potato (Kharif).
Site :- Potato Sub-Stn., Kausani.
Ref :- U.P. 50(5).
Type :- "C".

Object :- To study the efficacy of sprouted potatoes on yield.

1. BASAL CONDITIONS :
   (i) (a) No. (b) N.A. (c) N.A. (ii) (a) Hilly tract. (b) N.A. (iii) 29.4.1950. (iv) (a), (b) N.A. (c) 20 seeds/row. (d) $2' \times 9'$. (e) N.A. (v) No. (vi) Garhwal. (vii) No. (viii) 1 earthing only. (ix) N.A. (x) 27 to 28.9.1950.

2. TREATMENTS :
   1. Sprouted seed.
   2. Unsprouted seed.

3. DESIGN :
   (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) N.A. (b) $15' \times 12'$. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1953 to 1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS :
   (i) 2.40 ton/ac.
   (ii) 0.406 ton/ac.
   (iii) Treatment difference is highly significant.
   (iv) Av. yield of tuber in ton/ac.
   Treatment | Av. yield | S.E./mean
   ----------|-----------|----------
   1.        | 2.84      | 0.166    
   2.        | 1.95      |          

Crop :- Potato (Kharif).
Site :- Potato Sub-Stn., Kausani.
Ref :- U.P. 51(5).
Type :- 'C'.

Object :- To study the efficacy of sprouted potatoes on yield.

1. BASAL CONDITIONS :
   (i) (a) No. (b) and (c) N.A. (ii) (a) Hilly tract. (b) N.A. (iii) 13.3.1951. (iv) (a), (b) N.A. (c) 14 seeds/row. (d) $2' \times 9'$. (e) N.A. (v) N.A. (vi) Garhwal. (vii) Unirrigated. (viii) Earthing only. (ix) N.A. (x) 24 to 26.8.1951.

2. TREATMENTS :
   1. Sprouted seed.
   2. Unsprouted seed.

3. DESIGN :
   (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) N.A. (b) $10' \times 12'$. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Satisfactory. (ii) No. (iii) Potato yield. (iv) (a) 1950 to 1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) The germination and growth of sprouted seeds was better than the unsprouted one. Later on, due to lack of soil nutrition the plants in both the treatments were sickly in appearance. The % of small tubers were more in each case. (vii) The experiment was conducted by E.B.(R).

5. RESULTS :
   (i) 6.67 ton/ac.
   (ii) 2.860 ton/ac.
   (iii) Treatment difference is not significant.
Object: To determine the comparative efficacy of different Potato seed material on yield.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Fallow. (c) No. (ii) (a) Hilly tract. (b) N.A. (iii) 12.4.1952. (iv) (a) to (c) N.A. (d) 2' x 9". (e) N.A. (v) F.Y.M. at 90 mds./ac. broadcast at the sowing time. (vi) Garhwal. (vii) Unirrigated. (viii) 1 weeding and earthing. (ix) N.A. (x) 28 and 29.8.1952.

2. TREATMENTS:
   1. Potato sown sprouted.
   2. Potato sown desprouted.
   3. Potato sown unsprouted.

Desprouted has been added this year only. This was done by desprouting the sprouted tubers. The sprouts were about 4" to 6" long.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 12' x 8'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) No. (iii) Potato yield. (iv) (a) 1952—continued. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
   (i) 2.01 to/ac.
   (ii) 0.477 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of potato in ton/ac.
   Treatment | Av. yield
   1. | 2.05
   2. | 2.61
   3. | 1.98
   S.E./mean = 0.195 ton/ac.
3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) and (b) 12'x9'. (v) Nil. (vi) No.

4. GENERAL:
(i) Germination was 90% or more, premature "drying up" recorded during 2nd fortnight of June, 1953.
(ii) No. (iii) Germination and potato yield. (iv) (a) 1952—continued. (b) No. (c) N.A. (v) (a) No.
(b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
(i) 2.62 ton/ac.
(ii) 0.528 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.25</td>
<td>-0.215 ton/ac.</td>
</tr>
<tr>
<td>2.</td>
<td>3.30</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>2.32</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Potato (Kharif). | Site :- Potato Sub·Stn., Kausani.
Obj ect :- To study the effect of seed size and spacing on Potato yield.

1. BASAL CONDITIONS:
(i) (a) No. and (c) N.A. (ii) (a) Hilly tract (6075' high). (b) N.A. (iii) 30.4.1950 to 1.5.1950. (iv) (a) to (c) N.A. (d) As per treatments. (e) N.A. (v) N.A. (vi) Garhwal (late). (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 3 to 13.10.1950.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) Seed size : S1=Large (1"—1½") and S2=Small (1"—½").
(2) Distance between rows : R1=1½" and R2=2".
(3) Distance between plants : P1=6", P2=9" and P3=12".

3. DESIGN:
(i) 3x2x2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 10'x6' for R1 and 10'x8' for R2.
(v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1950—1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil.
(vii) The expt. was conducted by E.B.(R).

5. RESULTS:
(i) 2.64 ton/ac.
(ii) 0.939 ton/ac.
(iii) S effect is highly significant. P effect is significant. Other effects are not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>Mean</th>
<th>R1</th>
<th>R2</th>
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<tr>
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<td>3.71</td>
<td>3.04</td>
<td>2.59</td>
<td>3.11</td>
<td>3.14</td>
<td>3.09</td>
</tr>
<tr>
<td>S2</td>
<td>2.39</td>
<td>2.39</td>
<td>1.84</td>
<td>2.17</td>
<td>2.41</td>
<td>1.93</td>
</tr>
<tr>
<td>Mean</td>
<td>3.05</td>
<td>2.66</td>
<td>2.22</td>
<td>2.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>3.30</td>
<td>2.75</td>
<td>2.28</td>
<td>2.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>2.80</td>
<td>2.58</td>
<td>2.15</td>
<td>2.51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Object:—To study the effect of seed size and spacing on Potato yield.

1. BASAL CONDITIONS:
   (i) (a) No. (b) N.A. (c) N.A. (ii) (a) Hilly tract (6075' height). (b) N.A. (iii) 15.3.1951. (iv) (a) to (c) N.A. (d) As per treatments. (e) N.A. (v) Nil. (vi) Garhwal (late). (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 30.8.1951 to 3.9.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) Seed size: $S_1$ = Large (1"—1½") and $S_2$ = Small (1"—⅜`).
   (2) Distance between rows: $R_1$ = 1½" and $R_2$ = 2".
   (3) Distance between plants: $P_1$ = 6", $P_2$ = 9" and $P_3$ = 12".

3. DESIGN:
   (i) 3 x 2 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 10' x 8' for $R_2$ and 10' x 6' for $R_1$. (v) Plots 2.5' apart and blocks 3' apart. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1950 to 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expt. was conducted by E.B.(R).

5. RESULTS:
   (i) 6.49 ton/ac.
   (ii) 1.647 ton/ac.
   (iii) Only $R$ effect is significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>$P_3$</th>
<th>Mean</th>
<th>$R_1$</th>
<th>$R_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>6.94</td>
<td>7.23</td>
<td>6.17</td>
<td>6.78</td>
<td>7.08</td>
<td>6.48</td>
</tr>
<tr>
<td>$S_2$</td>
<td>6.22</td>
<td>6.38</td>
<td>6.00</td>
<td>6.20</td>
<td>6.90</td>
<td>5.50</td>
</tr>
<tr>
<td>Mean</td>
<td>6.58</td>
<td>6.81</td>
<td>6.08</td>
<td>6.49</td>
<td>6.99</td>
<td>5.99</td>
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<tr>
<td>$R_1$</td>
<td>6.76</td>
<td>7.33</td>
<td>6.88</td>
<td>6.99</td>
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<tr>
<td>$R_2$</td>
<td>6.40</td>
<td>6.28</td>
<td>5.29</td>
<td>5.99</td>
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<table>
<thead>
<tr>
<th></th>
<th>S.E. of marginal mean of $P$</th>
<th>=0.192 ton/ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S.E. of marginal mean of $R$ or $S$</td>
<td>=0.156 ton/ac.</td>
</tr>
<tr>
<td></td>
<td>S.E. of body of table $R \times S$</td>
<td>=0.221 ton/ac.</td>
</tr>
<tr>
<td></td>
<td>S.E. of body of table $P \times R$ or $P \times S$</td>
<td>=0.271 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Potato (Kharif).
Site :- Potato Sub-Stn., Kausani.

Ref:-U.P. 52 (32).
Type :- 'C'.

Object :-To study the effect of seed size and spacing on yield.

1. BASAL CONDITIONS:
(i) (a) No. (b) N.A. (c) No. (ii) (a) Hilly tract ; 6075' high. (b) N.A. (iii) 15.4.1952. (iv) (a) and (b) N.A. (c) & (d) As per treatments. (e) N.A. (v) F.Y.M. at 90 md./ac. broadcast at the preparation of field. (vi) Garhwal. (vii) Unirrigated. (viii) 1 earthing up. (ix) N.A. (x) 3 to 5.9.1952.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) Seed size : S1=large (1'−1'') and S2=small (1'−1'').
(2) Distance between rows : R1=1' and R2=2'.
(3) Distance between plants : P1=6", P2=9" and P3=12".
12 rows/plot for R1 and 9 rows/plot for R2 spacings. No. of tubers for P1, P2 and P3 spacings are 18, 12 & 9 respectively.

3. DESIGN:
(i) 3 x 2 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 18' x 9'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Few plants were diseased. (iii) Potato yield. (iv) (a) 1950 to 1952. (b) No. (c) N.A. (v) (a) No (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
(i) 4.51 ton/ac.
(ii) 1.144 ton/ac.
(iii) S, P and R effects and interaction S x P are highly significant. Other interactions are not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>Mean</th>
<th>R1</th>
<th>R2</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>6.41</td>
<td>5.22</td>
<td>4.17</td>
<td>5.27</td>
<td>5.89</td>
</tr>
<tr>
<td>S2</td>
<td>3.76</td>
<td>3.84</td>
<td>3.65</td>
<td>3.75</td>
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<tr>
<td>Mean</td>
<td>5.08</td>
<td>4.53</td>
<td>3.91</td>
<td>4.51</td>
<td></td>
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<tr>
<td>R1</td>
<td>5.74</td>
<td>5.27</td>
<td>4.57</td>
<td>5.19</td>
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<td>R2</td>
<td>4.43</td>
<td>3.78</td>
<td>3.25</td>
<td>3.82</td>
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</table>

S.E. of marginal mean of P =0.234 ton/ac.
S.E. of marginal mean of R or S =0.191 ton/ac.
S.E. of body of table R x S =0.270 ton/ac.
S.E. of body of tables P x R or P x S =0.330 ton/ac.

---

Crop :-Potato (Kharif).
Site :-Potato Sub-Stn., Kausani.

Ref:-U.P. 52(12).
Type :-'C'.

Object :-To study the effect of seed size and spacing on Potato yield.

1. BASAL CONDITIONS:
(i) (a) No. (b) Fallow. (c) No. (ii) (a) Hill tract; 6075' high (b) N.A. (iii) 21 and 22.3.1953. (iv) (a) & (b) N.A. (c) & (d) As per treatments. (e) N.A. (v) F.Y.M. on 3.3.1953 and castor cake at 20 md./ac. (vi) Garhwal. (vii) Unirrigated. (viii) 1 weeding and 1 earthing. (ix) N.A. (x) 22 and 23.8.1953.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 seed sizes : S1=small and S2=large.
(2) 2 row spacings : R1=18" and R2=21".
(3) 2 plant spacings : P1=6" and P2=9".
14 rows/plot for R1 and 12 rows/plot for R2 spacings. No. of tubers/row for P1 and P2 spacings are 18 and 12 respectively.
3. **DESIGN**:  
(i) 2² Fact in R.B.D.  
(ii) (a) 8  
(b) N.A.  
(iii) 4.  
(iv) (a) and (b) 21’ x 9’.  
(v) Nil.  
(vi) No.

4. **GENERAL**:  
(i) Good.  
(ii) No.  
(iii) Germination and yield.  
(iv) (a) 1953—continued.  
(b) and (c) N.A.  
(v) (a) No.  
(b) N.A.  
(vi) Nil.  
(vii) The experiment was conducted by E.B. (R).

**RESULTS**:  
(i) 2.94 ton/ac.  
(ii) 0.992 ton/ac.  
(iii) None of the effects is significant.  
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>R₁</th>
<th>R₂</th>
<th>Mean</th>
<th>P₁</th>
<th>P₂</th>
<th>S.E. of any marginal mean</th>
<th>S.E. of body of table</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>2.96</td>
<td>3.52</td>
<td>3.24</td>
<td>3.39</td>
<td>3.10</td>
<td>=0.248 ton/ac.</td>
<td>=0.351 ton/ac.</td>
</tr>
<tr>
<td>S₂</td>
<td>2.62</td>
<td>2.67</td>
<td>2.64</td>
<td>2.62</td>
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<tr>
<td>Mean</td>
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<td>2.94</td>
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<td>P₂</td>
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<td></td>
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</tr>
</tbody>
</table>

Crop :-Potato.  
Site :-Crop Physiological Res. Stn., Lucknow:  
Ref:-U.P. 51(86).  
Type :-'C'.

Object :-To study the effect of cut vs whole tubers on growth and yield of Potato.

1. **BASAL CONDITIONS**:  
(i) (a) Mung + maize—wheat.  
(b) Wheat.  
(c) N.A.  
(ii) (a) Loam.  
(b) N.A.  
(iii) 11.11.1951.  
(iv) (a) 1 ploughing by victory plough, 2 by cultivator and 2 by desi plough and planking etc.  
(b) On ridges.  
(c) N.A.  
(d) 18’ x 18’.  
(e) 1.  
(v) 150 lb./ac. of N as A/₅ top dressed with first irrigation on 11.12.1951.  
(vi) Military (late).  
(vii) Irrigated.  
(viii) 4 earthings and other cultural operations.  
(ix) N.A.  
(x) 19.3.1952.

2. **TREATMENTS**  
5 types of tubers :  
T₁=whole tuber,  
T₂=tuber cut into halves,  
T₃=tuber cut into quarters,  
T₄=peri derm and  
T₅=pith.

3. **DESIGN**:  
(i) R.B.D.  
(ii) (a) 8.  
(b) N.A.  
(iii) 4.  
(iv) (a) and (b) 21’ x 9’.  
(v) Nil.  
(vi) Yes.

4. **GENERAL**:  
(i) Ordinary.  
(ii) Nil.  
(iii) Potato yield.  
(iv).(a): 1951 to 1952.  
(b) and (c) No.  
(v) (a) and (b) No.  
(vi) Nil.  
(vii) Experiment conducted by C.P.. Data for year 1952—N.A.

5. **RESULTS**:  
(i) 2.96 ton/ac.  
(ii) 0.456 ton/ac.  
(iii) Treatments are highly significantly different.
Crop :- Potato. 

Site :- Crop Physiological Res. Stn., Lucknow. 

Object :- To study the effect of cut vs whole tubers on growth and yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Moong. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 1 ploughing with cultivator and digging. (b) On ridges. (c) N.A. (d) 12'x9'. (e) N.A. (v) T.C. applied on 21.10.1953. (vi) Military (late). (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) 26.4.1954.

2. TREATMENTS:
   5 types of tubers: T1 = whole tuber, T2 = tuber cut into halves, T3 = tuber cut into quarters, T4 = periderm and T5 = pith.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 7x9'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Potato yield. (iv) (a) 1951 to 1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by C.P.

5. RESULTS:
   (i) 3.86 ton/ac.
   (ii) 0.79 ton/ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>5.18</td>
</tr>
<tr>
<td>T2</td>
<td>4.37</td>
</tr>
<tr>
<td>T3</td>
<td>2.99</td>
</tr>
<tr>
<td>T4</td>
<td>4.56</td>
</tr>
<tr>
<td>T5</td>
<td>2.22</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.40 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Potato. 

Site :- Crop Physiological Res. Stn., Lucknow. 

Object :- To study the effect of different sizes of Potato on its growth, performance and its yield.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Moong-Maize. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.11.1951. (iv) (a) One ploughing by victory plough, 2 by cultivators and 2 by desi plough and planking etc. (b) On ridges. (c) N.A. (d) 12'x1'. (e) N.A. (v) 150 lb./a. of N as A/S on 11.12.1951. (vi) Military (late). (vii) Irrigated. (viii) Earth and intercultural operation. (ix) N.A. (x) 19.3.1952.

2. TREATMENTS:
   5 sizes of seeds: S1=½", S2=1", S3=1½", S4=2" and S5=2½" diameter.
3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 4'×6'.
(v) Nil. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Potato yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Expt. conducted by C.P.

5. RESULTS:
(i) 5.01 ton/ac.
(ii) 0.854 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>3.29</td>
</tr>
<tr>
<td>S₂</td>
<td>3.80</td>
</tr>
<tr>
<td>S₃</td>
<td>5.19</td>
</tr>
<tr>
<td>S₄</td>
<td>6.99</td>
</tr>
<tr>
<td>S₅</td>
<td>5.79</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.427 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Potato (Rabi).
Site: College Farm, B.H.U., Varanasi.
Ref: U.P. 50(320).
Type: 'C'.

Object: To study the effect of desprouting seed tuber on germination, growth and yield of Potato.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sannhemp (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, College Farm, Varanasi. (iii) 23.10.1950. (iv) (a) Palewa given. Two ploughings, one tractor ploughing. Field disced, levelled and ridges laid out. (b) Planted on ridges. (c) —. (d) 18'×12'. (e) N.A. (v) Sannhemp ploughed in using the country plough for green manuring. F.Y.M. 5 C.L./ac. and A/S at 250 lb/ac. top dressed after 1½ months of planting (vi) Phulwa. (early). (vii) Irrigated. (viii) 2 weedings and 1 earthing up. (ix) N.A. (x) 7.2.1951.

2. TREATMENTS:
1. Control—where no desprouting was carried out and seed tubers were retained until planting in the sprouted state.
2. Desprouted 3 weeks before planting where all sprouts were detached using the blunt end of writing nib.
3. Desprouted 2 weeks before planting using the same method as above.
4. Desprouted one week before planting-method as above.
   In this manner 3, 2 and 1 week respectively elapsed in between desprouting and time of planting. This may be taken as period of rest for the desprouted seed.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) 45'×14'. (iii) 4. (iv) (a) 14'×12' (14'×10½' in layout). (b) 12'×7½'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Fresh weight of plants and tubers at successive interval. No. of shoots/hill etc. (iv) (a) No. (b) No. (c) —. (d) (v) (a), (b) Nil. (vi) Nil. (vii) Nil. (viii) Av. yield in ton/ac. cannot be given due to the remark "65 plant/net-plot out of which samples were taken out at regular interval for studies. On an average 50 plants were left over in each plot" written in the thesis. The experiment was conducted by B.H.U.

5. RESULTS:
Av. yield of tubers/plot in ozs. (i) 5.95 oz./plant. (ii) 0.113 oz./plant.
Av. yield of tubers/plant in ozs. (i) 297.81 oz./plot. (ii) 5.9028 oz./plot.
(iii) Treatments are not significantly different.
(iii) Treatments are not significantly different.
Crop : Potatoes (Rabi).

Site : College Farm, B.H.U., Varanasi.

Object : To study the role of deflowering in potato production.

1. BASAL CONDITIONS :

   (i) (a) N.A. (b) Sannhemp. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, College Farm, Varanasi.
   (iii) 23.10.1950.  (iv) (a) Palawa given. 2 ploughings. One tractor ploughing, field disced, levelled and ridges laid out.
   (b) Planted on ridges. (c) N.A.  (d) 18' x 12'. (e) N.A.  (v) Sannhemp ploughed in using the country plough for green manuring. 5 C.L./ac. of F.Y.M. and A/S at 250 lb./ac. was top dressed after 14 month of planting. (vi) Patna white (Phulwa) (early). (vii) Irrigated. (viii) 2 weedings and 1 earthing up. (ix) N.A. (x) 7.2.1951.

2. TREATMENTS :

   1. Deflowering of plants in the floral stage when the buds have just opened.
   2. Defruiting of plants when the berries have just formed.
   3. Control (flowers and fruits left as such to develop under natural condition).

3. DESIGN :

   (i) R.B.-D.  (ii) (a) 3. (b) 14' x 38'.  (iii) 8.  (iv) (a) 14' x 12'. (b) 12' x 9'. (v) N.A. (vi) Yes.

4. GENERAL :

   (i) N.A. (ii) N.A. (iii) Yield of tubers/plant, no. of tubers plant and mean weight/tuber.  (iv) (a) to (c) No. (v) (a) No (b) N.A. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS :

   (i) and (iv)

   Treatment | Av. weight/tuber in gm. | Av. weight of tuber/plant in gm. | Av. num. of tubers/plant
   1. 10.95 | 223.50 | 21.32
   2. 10.71 | 228.75 | 21.36
   3. 9.28 | 224.12 | 24.19
   G.M. 10.31 | 228.79 | 22.29
   S.E./plot 0.37/12 | 7.9448 | 0.9644
   S.E./mean 0.13/12 | 2.8089 | 0.3410

Significance : Highly Sig.  Not Sig.  Highly Sig.
2. TREATMENTS:
1. Planting of whole tubers (wt. 40 gms. each).
2. Planting of half sized tubers (wt. 20 gms. each).
3. Planting of quarter sized tubers (wt. 10 gms. each).

Tubers cut on the day of planting. To obtain half sized seed-pieces the tubers were cut into 2 equal halves each including a position of the apical and bearing buds. The quarter sized seed pieces were similarly cut out into 4 equal parts taking care that at least one bud was included in each position.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) 21' × 39'. (iii) 3. (iv) (a) 12' × 21' (length of ridge 12 ft.; no. of rows 14). (b) 10' × 18'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of tubers/plant and mean weight/tuber. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:
(i) 4.12 ton/ac.
(ii) 0.289 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of tuber in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.71</td>
</tr>
<tr>
<td>2</td>
<td>4.00</td>
</tr>
<tr>
<td>3</td>
<td>3.65</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.085 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Potato. Site: Govt. Potato Res. Farm, Farrukhabad. Type: 'CV'.

Object: To study the efficacy of sowing sprouted and unsprouted Potato of different varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Early maize. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 23.10.1949. (iv) (a) 5 ploughings. (b) to (e) N.A. (v) F.Y.M. at 300 mds/acre on 18.10.1949, A/S at 6 seers 4 ch/acre, on 27.11.1949 and castor cake at 10 mds/acre on 19.10.1949. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding and 3 earthings. (ix) N.A. (x) 20 and 21.2.1950

2. TREATMENTS:
All combinations of (1) and (2).

1. 2 varieties: \( V_1 = \text{phulwa (cold storage)} \) and \( V_2 = \text{sala (cold storage)} \).
2. 2 seed materials: \( M_1 = \text{sprouted} \) and \( M_2 = \text{unsprouted} \).

3. DESIGN:
(i) 2 × 2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36' × 14'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Potato yield. (iv) (a) 1949 to 1952. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Experiment conducted by E.B.(R).

5. RESULTS:
(i) 7.80 ton/ac.
(ii) 0.950 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
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<tbody>
<tr>
<td>V₁</td>
<td>7.96</td>
<td>7.07</td>
<td>7.52</td>
</tr>
<tr>
<td>V₂</td>
<td>8.71</td>
<td>7.46</td>
<td>8.08</td>
</tr>
</tbody>
</table>

Mean 8.34

S.E. of any marginal mean = 0.3357 ton/ac.
S.E. of body of table = 0.4748 ton/ac.

Crop :- Potato.
Site :- Govt. Potato Res. Farm, Farrukhabad.
Ref :- U.P. 50(13).
Type :- 'CV'.

Object :- To study the efficacy of sowing sprouted and unsprouted Potato of different varieties.

1. BASAL CONDITIONS:
(i) (a) Nil (b) Char (jowar). (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 1.11.1950. (iv) (a) 3 ploughings. (b) N.A. (c) 16 seeds/row with 14 rows/plot. (d) 2'x9". (e) N.A. (v) City refuse at 300 md./ac. on 22 and 23.10.1950 and A/S at 0.5 sr./plot on 2.1.1951. (vi) As per treatments. (vii) Irrigated. (viii) 2 earthings up. (ix) N.A. (x) 6 and 7.4.1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: V₁=kalami (cold storage) and V₂=sala (cold storage).
(2) 2 seed materials: M₁= sprouted and M₂= unsprouted.

3. DESIGN:
(i) 2x2 Fact. in R.B.D. (ii) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 28'x12". (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Traces of mosaic incidence. (iii) Germination and potato yield. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B.(R).

5. RESULTS:
(i) 9.54 ton/ac.
(ii) 0.545 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>9.64</td>
<td>9.32</td>
<td>9.48</td>
</tr>
<tr>
<td>V₂</td>
<td>9.64</td>
<td>9.55</td>
<td>9.60</td>
</tr>
</tbody>
</table>

Mean 9.64

S.E. of any marginal mean = 0.193 ton/ac.
S.E. of body of table = 0.272 ton/ac.
Crop :- Potato.
Site :- Govt. Potato Res. Farm, Farrukhabad.

Object :- To study the efficacy of sowing sprouted and unsprouted Potato of different varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Guarr. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 10 and 11.11.1951. (iv) (a) 2 ploughings by tractor and 1 by dest plough (b) N.A. (c) 24 seeds/row with 10 rows/plot. (d) 2'x9'. (e) N.A. (v) F.Y.M. at 250 md/ac. on 4.11.1951. A/S at 2 srs./plot on 3.12.1951. (vi) As per treatments. (vii) Irrigated. (viii) 2 earthing. (ix) N.A. (x) 25 and 30.2.1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties : V₁=Phulwa and V₂=P-728.
(2) 2 seed materials : M₁=sprouted and M₂=unsprouted.

3. DESIGN:
(i) 2 x 2 Fact. in R.B.D. (ii) (a) 4. (b) 78'x20'. (iii) 8. (iv) (a) and (b) 20'x18'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination and yield of potato/plot. (iv) (a) 1949 to 1952. (b) and (c) No. (v) (a) and (b)'No. (vi) Nil. (vii) The expt. conducted by E.B.(R). Modified in year 1952.

5. RESULTS:
(i) 4.92 ton/ac.
(ii) 0.632 ton/ac.
(iii) Only V effect is highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
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<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>6.40</td>
<td>6.38</td>
<td>6.39</td>
</tr>
<tr>
<td>V₂</td>
<td>3.44</td>
<td>3.47</td>
<td>3.46</td>
</tr>
<tr>
<td>Mean</td>
<td>4.92</td>
<td>4.92</td>
<td>4.92</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =0.158 ton/ac.
S.E. of body of table =0.224 ton/ac.

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Crop :- Potato (Rabi).
Site :- Govt. Potato Res. Farm, Farrukhabad.

Object :- To study the optimum sowing dates with weekly intervals for cut Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 6 ploughings. (b) N.A. (c) 12 seeds/row with 6 rows/plot. (d) 2'x9'. (e) N.A. (v) Castor cake at 50 md/ac. on 5.11.1953. A/S at 0.514 lb./plot on 14.12.1953. and on 28.12.1953 as top dressing. (vi) As per treatments. (vii) Irrigated. (viii) 2 earthings up and 1 weeding and hoeing. (ix) 2.74'. (x) 1.3.1954 for Hyb. 45 and 9.3.1954 for Phulwa.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties : V₁=Kalen phulwa (cut potato) and V₂=Hyb. 45 (cut potato).

3. DESIGN:
(i) 2 x 4 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 14'x12'. (b) [12'x9'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Mosaic incidence below 5%, checked by using larger and cut seed. (iii) Germination and potato yield. (iv) (a) 1953—continued. (b), (c) No. (v) (a), (b) No. (vi) Nil. (vii) The exp. was conducted by E.B.(R).

5. RESULTS:
(i) 5.69 ton/ac.
(ii) 0.763 ton/ac.
(iii) Only V effect is highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
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<tr>
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<td>4.07</td>
<td>4.07</td>
<td>3.33</td>
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<td>V₂</td>
<td>7.28</td>
<td>7.78</td>
<td>7.66</td>
<td>7.28</td>
<td>7.50</td>
</tr>
<tr>
<td>Mean</td>
<td>5.68</td>
<td>5.92</td>
<td>5.86</td>
<td>5.30</td>
<td>5.69</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of V = 0.220 ton/ac.
S.E. of marginal mean of D = 0.156 ton/ac.
S.E. of body of table = 0.440 ton/ac.

Crop :- Potato.
Site :- Govt. Potato Res. Farm, Farrukhabad.
Ref :- U.P. 49(48).
Type :- 'CV'.

Object :- To study the effect of seed size on yield of different varieties of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Early maize. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 2 and 3.11.1949. (iv) (a) 5 ploughings. (b) N.A. (c) 25 seeds/row with 10 rows/plot (d) 2'x9'. (e) N.A. (v) F.Y.M. at 225 md/ac on 26.10.1949, castor cake at 15 md/s.on 1.11.1949 and A/S 7 srs. 2 chhs/ac. on 12.12.1949. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding and 2 earthings. (ix) N.A. (x) 27.2.1950 (military) and 5.3.1950 (others).

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 varieties : V₁=Kalami (ordinary store), V₂=Sala (cold store), V₃=Phulwa (ordinary store) and V₄=Military (ordinary store).
(2) 2 seed size : S₁=large (1¾"—2") and S₂=small (1¾"—1½")

3. DESIGN:
(i) 2x4 Fact. in R.B.D. (ii) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20'x19'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Potato yield. (iv) (a) and (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil
(vii) Experiment conducted by E.B. (R).

5. RESULTS:
(i) 7.46 ton/ac.
(ii) 0.534 ton/ac.
(iii) V and S effects are highly significant while interaction is not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>V₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
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<td>9.82</td>
<td>8.08</td>
<td>5.05</td>
<td>7.87</td>
</tr>
<tr>
<td>S₂</td>
<td>7.95</td>
<td>8.21</td>
<td>7.87</td>
<td>4.16</td>
<td>7.05</td>
</tr>
<tr>
<td>Mean</td>
<td>8.24</td>
<td>9.02</td>
<td>7.98</td>
<td>4.61</td>
<td>7.46</td>
</tr>
</tbody>
</table>
Object: To study the effect of spacing on Potato varieties.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Maize. (c) No. (ii) (a) Loam. (b) N.A. (iii) 26.10.1950. (iv) (a) to (c) N.A. (d) As per treatments. (e) N.A. (v) No. (vi) As per treatments. (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) 2 to 6.4.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (i) 2 varieties: \( V_1 = \text{majestic and } V_2 = \text{Phulwa.} \)
   (2) 3 row spacings: \( R_1 = 18" \), \( R_2 = 21" \) and \( R_3 = 24" \).
   (3) 2 plant spacings: \( P_1 = 9" \) and \( P_2 = 12" \).

3. DESIGN:
   (i) 3 x 2 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 24' x 18'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1950 to 1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 9.00 ton/ac.
   (ii) 1.0296 ton/ac.
   (iii) \( V \) and \( P \) effects are highly significant. Other effects are not significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( R_1 )</th>
<th>( R_2 )</th>
<th>( R_3 )</th>
<th>Mean</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>7.45</td>
<td>7.23</td>
<td>6.49</td>
<td>7.06</td>
<td>7.65</td>
<td>6.47</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>11.10</td>
<td>10.79</td>
<td>10.93</td>
<td>10.94</td>
<td>11.53</td>
<td>10.35</td>
</tr>
<tr>
<td>Mean</td>
<td>9.28</td>
<td>9.01</td>
<td>8.71</td>
<td>9.00</td>
<td>9.59</td>
<td>8.41</td>
</tr>
<tr>
<td>( P_1 )</td>
<td>9.88</td>
<td>9.66</td>
<td>9.23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( P_2 )</td>
<td>8.68</td>
<td>8.36</td>
<td>8.18</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean of \( R \) = 0.2574 ton/ac.
S.E. of marginal mean of \( P \) or \( V \) = 0.2101 ton/ac.
S.E. of body of tables \( R \times P \) or \( R \times V \) = 0.3640 ton/ac.
S.E. of body of table \( P \times V \) = 0.2972 ton/ac.
Crop: Potato (Rabi).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of spacing on Potato varieties.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for green manuring. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 24, 25.10.1953. (iv) (a) to (c) N.A. (d) As per treatments. (e) N.A. (v) Sanai was turned in and Castor cake at 20 ml/ac. broadcast at the time of preparation of field. (vi) As per treatments (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 13.2.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 varieties: V₁ = up-to-date and V₂ = phulwa.
   (2) 3 row spacings: R₁ =18', R₂ =21' and R₃ =24'.
   (3) 2 plant spacings: P₁ =9' and P₂ = 12'.

3. DESIGN:
   (i) 3x2x2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 18'x12'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Potato yield. (iv) (a) 1950—1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
   (i) 10.54 ton/ac.
   (ii) 0.612 ton/ac.
   (iii) R and P effects are highly significant. Interaction R x V is significant. Other effects are not significant. (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>R₁</th>
<th>R₂</th>
<th>R₃</th>
<th>Mean</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>11.00</td>
<td>10.37</td>
<td>10.37</td>
<td>10.58</td>
<td>10.83</td>
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<td>V₂</td>
<td>11.62</td>
<td>10.28</td>
<td>9.63</td>
<td>10.51</td>
<td>10.99</td>
<td>10.03</td>
</tr>
<tr>
<td>Mean</td>
<td>11.31</td>
<td>10.32</td>
<td>10.00</td>
<td>10.54</td>
<td>10.91</td>
<td>10.18</td>
</tr>
<tr>
<td>P₁</td>
<td>11.58</td>
<td>10.83</td>
<td>10.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₂</td>
<td>11.04</td>
<td>9.82</td>
<td>9.68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean of R = 0.453 ton/ac.
S.E. of marginal mean of P or V = 0.125 ton/ac.
S.E. of body of R x P or R x V table = 0.216 ton/ac.
S.E. of body of P x V table = 0.177 ton/ac.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 varieties: \( V_1 = \text{up-to-date} \) and \( V_2 = \text{phulwa} \).
(2) 3 row spacings: \( R_1 = 18'' \), \( R_2 = 21'' \) and \( R_3 = 24'' \).
(3) 2 plant spacings: \( P_1 = 9'' \) and \( P_2 = 12'' \).

3. DESIGN:
(i) \( 3 \times 2 \times 2 \) Fact in R.B.D.  (ii) (a) 12. (b) N.A.  (iii) 4. (iv) (a) 20.5'x17.5'. (b) 18'x15'.  (v) 1.25' all round the net plot.  (vi) Yes.

4. GENERAL:
(i) Good.  (ii) Mosaic incidence below 5%, checked by using bigger seeds and cut seed. (iii) Germination and yield of potato. (iv) (a) 1950—1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(R).

5. RESULTS:
(i) 12.21 ton/ac.
(ii) 0.782 ton/ac.
(iii) \( V \times R \) effects are highly significant. Interaction \( V \times P \) is significant. Other effects are not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( R_1 )</th>
<th>( R_2 )</th>
<th>( R_3 )</th>
<th>Mean</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>14.15</td>
<td>13.35</td>
<td>13.43</td>
<td>13.64</td>
<td>13.61</td>
<td>13.68</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>11.85</td>
<td>10.28</td>
<td>10.19</td>
<td>10.77</td>
<td>11.26</td>
<td>10.28</td>
</tr>
<tr>
<td>Mean</td>
<td>13.00</td>
<td>11.82</td>
<td>11.81</td>
<td>12.21</td>
<td>12.43</td>
<td>11.98</td>
</tr>
</tbody>
</table>
| \( P_1 \) | 13.09    | 12.02    | 12.19    | \n| \( P_2 \) | 12.91    | 11.61    | 11.43    | \n
- S.E. of marginal mean of \( R \) =0.196 ton/ac.
- S.E. of marginal mean of \( P \) or \( V \) =0.160 ton/ac.
- S.E. of body of \( R \times P \) or \( R \times V \) table =0.277 ton/ac.
- S.E. of body of \( P \times V \) table =0.236 ton/ac.

Crop: - Potato. (Rabi)
Site: - Castle Grant Orchard, B.R. College, Agra.
Ref: - U.P. 50(306).
Type: - ‘CM’.

Object: -To study the effect of different seed sizes, method of sowing and manures applied on Potato yield.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Tomato and then fallow. (c) Nil. (ii) (a) Light sandy loam. (b) Refer soil analysis, Castle Grant Orchard, B.R. College, Agra. (iii) 10.10.1950. (iv) (a) 2 ploughing by soil turning plough and 3 ploughing by desl' p'ough followed by pata. (b) As per treatments. (c) 5½ md, 10 md and 21 md/ac, in \( S_1 \), \( S_2 \) and \( S_3 \) respectively. (d) 1'x9'. (e) 1. (v) Nil. (vi) Gola (early). (vii) Irrigated. (viii) Weeding and earthing. (ix) N.A. (x) 3.2.1951.

2. TREATMENTS:
Main-plot treatments:
3 seed sizes: \( S_1 = \text{big} \) (1' to 1.5'), \( S_2 = \text{medium} \) (0.5' to 1') and \( S_3 = \text{small} \) (below 0.5').
Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 methods of sowing: \( M_1 = \text{sowing on flat followed by earthing} \) and \( M_2 = \text{sowing on ridges} \).
(2) 2 forms of manure: \( P_1 = 200 \text{ lb./ac. of N as compost} \) and \( P_2 = 200 \text{ lb./ac. of N as F.Y.M.} \)
Manures applied on 1.10.1950 and mixed by spade and then ridges made.
3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) 48' x 48'. (iii) 4. (iv) (a) 15' x 12'. (b) 12' x 9'. (v) 1.5' x 1.5'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Yield of tubers and other characters. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R.C. Raw data N.A.

5. RESULTS:
(i) 2.76 tons/ac.
(ii) (a) 1.240 ton/ac. (b) 0.351 ton/ac.
(iii) S effect is significant. Interactions F x M, S x M and S x M x F are highly significant. Other effects are not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>Mean</th>
<th>F1</th>
<th>F2</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>2.91</td>
<td>3.60</td>
<td>1.70</td>
<td>2.74</td>
<td>2.38</td>
<td>3.09</td>
</tr>
<tr>
<td>M2</td>
<td>4.35</td>
<td>2.33</td>
<td>1.70</td>
<td>2.79</td>
<td>2.94</td>
<td>2.64</td>
</tr>
<tr>
<td>Mean</td>
<td>3.63</td>
<td>2.96</td>
<td>1.70</td>
<td>2.76</td>
<td>2.66</td>
<td>2.86</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. S marginal means = 0.438 ton/ac.
2. M or F marginal means = 0.101 ton/ac.
3. M means at the same level of S = 0.176 ton/ac.
4. S means at the same level of M = 0.456 ton/ac.
5. means in the body of M x F table = 0.144 ton/ac.

---

Site: Agri. College, B.H.U., Varanasi. Type: 'IM'.

Object: To study the effect of different manures along with irrigation on growth and yield of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) 1.11.1951. (iv) (a) Ploughing by soil investing plough followed by several ploughings with desi plough. In all 10 ploughings followed by pata. (b) Sown in furrows. (c) 8—10 md./ac. (d) 18' x 9'. (e) N.A. (v) Nil. (vi) Patna white (phulwa). (vii) As per treatments. (viii) Earthing done twice. The first was done one month after sowing and the second 20 days after sowing; 2 hoeings and weedings. (ix) N.A. (x) 105 days after planting.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of manuring: M1 = 100 md. of F.Y.M.+30 lb./ac. of N+15 lb./ac. of P2O5+15 lb./ac. of K2O, M2 = 200 md. of F.Y.M.+60 lb./ac. of N+30 lb./ac. of P2O5+30 lb./ac. of K2O and M3 = 400 md. of F.Y.M.+90 lb./ac. of N+60 lb./ac. of P2O5+60 lb./ac. of K2O.
(2) 3 levels of irrigations: I1 = 4 irrigations after an interval of 25 to 28 days during grand period of growth at crop, I2 = 6 irrigations after an interval of 20 days during the grand period of growth of crop and I3 = 8 irrigations after an interval of 15 days during the grand period of growth of crop.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) 100' x 78'. (iii) 4. (iv) (a) 24' x 30'. (b) 24' x 18'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Fresh and dry weight of tops, tubers, no. of tubers/hill and no. of stalks/hill. (iv) (a) and (b) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:
(i) 4.47 ton/ac.
(ii) 0.401 ton/ac.
(iii) M and I effects are highly significant while interaction is not significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1</td>
<td>2.89</td>
<td>3.14</td>
<td>3.99</td>
<td>3.34</td>
</tr>
<tr>
<td>I2</td>
<td>3.86</td>
<td>4.86</td>
<td>5.64</td>
<td>4.79</td>
</tr>
<tr>
<td>I3</td>
<td>4.35</td>
<td>5.36</td>
<td>6.09</td>
<td>5.27</td>
</tr>
<tr>
<td>Mean</td>
<td>3.70</td>
<td>4.45</td>
<td>5.24</td>
<td>4.47</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.116 ton/ac.
S.E. of body of table = 0.200 ton/ac.

Crop :- Potato (Kharif).
Site :- Potato Sub-Stn., Kausani.
Object :- To study the effect of pesticides in controlling Potato Epliachna.

Ref :- U.P. 51(258).
Type :- 'D'.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Spraying with 0.25% D.D.T. emulsion at 40 gallon/ac.
2. Spraying with 0.25% D.D.T. suspension at 40 gallon/ac.
3. Spraying with 0.15% D.D.T. emulsion at 40 gallon/ac.
4. Spraying with 0.15% D.D.T. suspension at 40 gallon/ac.
5. Dusting with 5% D.D.T. dust at 20 lb./ac.
6. Dusting with G.205P (5% D.D.T.+Pyrethrium) at 20 lb./ac.
7. Control.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 1/28 ac. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) % reduction and population of potato epliachna beetle and yield of potato. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) No. (vi) Nil. (vii) The experiment was conducted by Ento (K). As % reduction of population of control plot is negative, % analysis has not been done.

5. RESULTS:
(i) 4.03 ton/ac.
(ii) 0.229 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>4.55</td>
</tr>
<tr>
<td>2.</td>
<td>4.52</td>
</tr>
<tr>
<td>3.</td>
<td>4.43</td>
</tr>
<tr>
<td>4.</td>
<td>4.33</td>
</tr>
<tr>
<td>5.</td>
<td>3.66</td>
</tr>
<tr>
<td>6.</td>
<td>3.57</td>
</tr>
<tr>
<td>7.</td>
<td>3.12</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.115 ton/ac.</td>
</tr>
</tbody>
</table>
Crop : Potato. 
Site : Govt. Res. Farm, Kanpur. 
Object : To find out the effect of phenyl solution on growth and yield of Potato.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 7.1.1954. (iv) (a) to (c) N.A. (d) 21'x6' (e) N.A. (v) Nil. (vi) Phulwa. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 27.4.1954.

2. TREATMENTS:
   1. Control—No Phenyl.
   2. 5 minutes dip in phenyl solution, dried and left over for 24 hours and then sown as usual.

3. DESIGN:
   (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 17. (iv) (a) and (b) 15'x11'. (v) No. (vi) No.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Potato yield. (iv) (a) No. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (R).

5. RESULTS:
   (i) 5.45 ton/ac.
   (ii) 0.606 ton/ac.
   (iii) Treatment difference is not significant.
   (iv) Av yield of tuber in ton/ac.
   Treatment | Av. yield |
   1. | 5.63 |
   2. | 5.27 |
   S.E./mean = 0.147 ton/ac.

Crop : Potato (Rabi). 
Site : Govt. Res. Farm, Kanpur. 
Object : To find out the effect of fungicides on Potato.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for green manuring. (c) No. (ii) (a) Loam. (b) N.A. (iii) 1.11.1950. (iv) (a) to (c) N.A. (d) 2'x9'. (e) N.A. (v) Sanai turned in for green manuring. (vi) Kalami sala (vii) Irrigated. (viii) 2 earthings. (ix) N.A. (x) 22, 23 and 24.4.1951.

2. TREATMENTS:
   1. Bordeaux applied to soil just after sowing.
   2. Bordeaux spray on foliage.
   3. Perenox applied to soil just after sowing.
   4. Perenox spray on foliage.
   5. Yellow cuprocide applied to soil just after sowing.
   6. Yellow cuprocide spray on foliage.
   7. Perenox applied to soil and spray on foliage.
   8. Control.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) 20'x10'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Tuber yield. (iv) (a) and (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The expl. was conducted by E.B.(R).
5. RESULTS:
   (i) 12.30 ton/ac.
   (ii) 0.614 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12.50</td>
<td>5.</td>
<td>12.30</td>
</tr>
<tr>
<td>2.</td>
<td>12.25</td>
<td>6.</td>
<td>12.35</td>
</tr>
<tr>
<td>3.</td>
<td>12.60</td>
<td>7.</td>
<td>11.85</td>
</tr>
<tr>
<td>4.</td>
<td>12.10</td>
<td>8.</td>
<td>12.45</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.307 ton/ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop : Potato (Rabi).
Site : Govt. Res. Farm, Kanpur.

Ref : U.P. 48(94).
Type : 'D'.

Object : To determine the efficacy of different spraying fluids in controlling blight of Potato.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) 4.11.1948.  (iv) (a) to (c) N.A.  (d) 2'x1'.  (e) N.A.
   (v) N.A.  (vi) Majestic.  (vii) to (x) N.A.

2. TREATMENTS:
   1. Control (unsprayed),
   2. Sprayed with Bordeaux mixture 1% (5 : 5 : 50) —3 sprayings at an interval of 10 days starting from 15.12.1948.
   3. Sprayed with Perenox (3 lb. in 100 gallons of water) 3 sprayings at an interval of 10 days beginning from 15.12.1948.
   4. Sprayed with Dithane D-14 (1'/ lb. per 100 gallons of water) —3 sprayings at an interval of 10 days beginning from 5.12.1948.
   5. Sprayed with Dithane Z-78 (1'/ lb. per 100 gallons of water) —3 sprayings at an interval of 10 days starting on 6.12.1948.
   6. Yellow cuproicide spray (1'/ lb. in 100 gallons of water) —3 sprayings at an interval of 10 days starting from 15.12.1948.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 6.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 45'x14'.  (v) N.A.
   (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) % infection and potato yield.  (iv) (a) 1948 to 1950.  (b) No.  (c) N.A.
   (v) (a) No.  (b) N.A.  (vi) Nil.  (vii) The exp. was conducted by P.P.

5. RESULTS:
   % of infection
   (i) 7.19 angle/plot.
   (ii) 3.476 angle/plot.
   (iii) Treatments are highly significantly different.
   (iv) Potato yield
   (i) 1.16 ton/ac.
   (ii) 0.198 ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back %</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.35</td>
<td>4.33</td>
<td>1.</td>
<td>1.06</td>
</tr>
<tr>
<td>2.</td>
<td>2.40</td>
<td>0.68</td>
<td>2.</td>
<td>1.25</td>
</tr>
<tr>
<td>3.</td>
<td>4.49</td>
<td>1.10</td>
<td>3.</td>
<td>1.19</td>
</tr>
<tr>
<td>4.</td>
<td>11.64</td>
<td>4.53</td>
<td>4.</td>
<td>1.10</td>
</tr>
<tr>
<td>5.</td>
<td>6.94</td>
<td>1.95</td>
<td>5.</td>
<td>1.15</td>
</tr>
<tr>
<td>6.</td>
<td>6.30</td>
<td>1.69</td>
<td>6.</td>
<td>1.22</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.419 angle/plot</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Av. yield of potato in ton/ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.06</td>
</tr>
<tr>
<td>2.</td>
<td>1.25</td>
</tr>
<tr>
<td>3.</td>
<td>1.19</td>
</tr>
<tr>
<td>4.</td>
<td>1.10</td>
</tr>
<tr>
<td>5.</td>
<td>1.15</td>
</tr>
<tr>
<td>6.</td>
<td>1.22</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.081 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Potato (Rabi).
Site :- Govt. Res. Farm, Kanpur.

Object :- To study the effect of different fungicidal sprays on the yield of Potato.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 28.10.1949 (gaps filled by transplanting on 2.12.1949).
   (iv) (a) to (c) N.A. (d) 2' x 1'. (e) N.A. (v) N.A. (vi) Majestic. (vii) N.A. (viii) N.A. (ix) N.A. (x) 17.3.1950.

2. TREATMENTS :
   1. Control.
   2. Bordeaux mixture 1% (5 : 5 : 50).
   3. Perenox 0.3%.
   4. Dithane D-14 (Dithan D-14-2 quarters, Hydrated lime 1 lb. ZnSO₄ 1 lb. (36% metallic Zn equivalent) water to make 100 gallons).
   5. Dithane Z-78-H lb. in 100 gallons of water.
   6. Yellow cuprocide 1 lb. in 100 gallons of water.
   Sprays done on the plants 8' and 9' high.
   1st spraying on 21.1.1950 2nd spraying on 7, 8 and 9.2.1950. 3rd spraying on 25.2.1950.

3. DESIGN :
   (i) R.B.D. (ii) 6. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 22' x 20'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Rains continuous and heavy on 29 and 30.10.1949 Due to heavy rains the germination was very poor.
   therefore replications were reduced to 2 from 6 and gaps filled in. (ii) Symptoms of blight appeared on 19.1.1950. (iii) % infection and potato yield. (iv) (a) 1948 to 1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) Yes.

5. RESULTS :
   % of infection                  Potato yield
   (i)  18.45 angle/plot            (i)  2.49 ton/ac.
   (ii)  3.388 angle/plot.
   (iii) Treatments are not significantly different.
   (iv) Treatment Mean angle Transformed back % Treatment Av. yield
        1.  25.76  19.20  1.73
        2.  12.43  5.08  3.23
        3.  21.14  13.38  2.48
        4.  18.52 10.49  2.00
        5.  17.78  9.73  2.66
        6.  15.10  7.21  2.84
   S.E./mean = 2.396 angle/plot

---

Object :- To study the effect of different fungicidal sprays on the yield of Potato.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) 1.11.1950. (iv) (a) to (e) N.A. (v) N.A. (vi) Kalmi sata.
   (vii) to (ix) N.A. (x) N.A.
2. TREATMENTS:
1. Bordeaux Mixture 1% applied to soil immediately after sowing.
2. Bordeaux mixture 1% sprayed on the foliage.
3. Perenox 0.3% applied to soil immediately after sowing.
4. Perenox 0.3% sprayed on the foliage.
5. Yellow cuprocide 0.15% applied to soil immediately after sowing.
6. Yellow cuprocide sprayed on the foliage.
7. Perenox applied to soil immediately after sowing.
8. Control.

Quantity applied to soil at 300 gallons/ac. on 3.11.1950 and to foliage at 100 gallons/ac. on 13.12.1950. for first time at 400 gallons/ac. on 8, 9.1.1951 and 600 gallons/ac. on 9.2.1951.

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20' × 10'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Free from fungal disease but virus infection had started. (iii) Number of infected plants per plot. (iv) (a) No. (b) N.A. (c) N.A. (v) (a), (b) N.A. (vi) Nil. (vii) The exp. conducted by P.P. Number of infected plants varies from 0 to 4.

5. RESULTS:
(i) $1.2145 \sqrt{x+\frac{1}{2}}$/plot
(ii) $0.5183 \sqrt{x+\frac{1}{2}}$/plot.
(iii) Treatment differences are not significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of $\sqrt{x+\frac{1}{2}}$/plot</th>
<th>No. of infected plots/plot (Transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.0953</td>
<td>0.7000</td>
</tr>
<tr>
<td>2.</td>
<td>1.2792</td>
<td>1.1364</td>
</tr>
<tr>
<td>3.</td>
<td>1.1844</td>
<td>0.9028</td>
</tr>
<tr>
<td>4.</td>
<td>0.9659</td>
<td>0.4330</td>
</tr>
<tr>
<td>5.</td>
<td>1.1844</td>
<td>0.9028</td>
</tr>
<tr>
<td>6.</td>
<td>1.4086</td>
<td>1.4842</td>
</tr>
<tr>
<td>7.</td>
<td>1.4142</td>
<td>1.5000</td>
</tr>
<tr>
<td>8.</td>
<td>1.1844</td>
<td>0.9028</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.2592</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Potato ($R\ddot{a}bi$).

Site: Govt. Res. Farm, Kanpur.

Ref: U.P. 52(281).

Type: 'D'.

Object: To study the effect of seed size in relation to virus transmission.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 31.10.1952. (iv) (a) to (c) N.A. (v) to (ê) N.A.

2. TREATMENTS:
1. Medium size (1" to 2" approx.).
2. Small size (1" approx.).

In both the treatments 1 and 2, the potato tubers have been taken from mosaic affected plants as well as from healthy potato plants for each experiment. Hence there are two separate experiments (1) with mosaic affected potatoes and (2) with healthy potatoes.

3. DESIGN:
(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 10' × 18'. (v) Plots and blocks 4' apart. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) % of germination and no. of infected plants. (iv) (a) No. (b) N.A. (c) Nil. (v) (a), (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.P.
5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back %infection</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>61.68</td>
<td>77.22</td>
<td>1.998</td>
</tr>
<tr>
<td>2.</td>
<td>62.84</td>
<td>78.91</td>
<td></td>
</tr>
</tbody>
</table>

Crop: - Potato.
Site: - Kumaon Hills (Almora).

Object: - To study the effect of Paradichloro benzenone (P.D.B) against grubs in potato fields.

1. BASAL CONDITIONS:
   (i) to (c) N.A. (ii) to (iv) N.A. (v) to (c) N.A. (d) Rows 2' apart. (e) N.A. (vi) to (ix) N.A. (x) Middle of August 1949.

2. TREATMENTS:
   1. 3 gms. per linear yard applied in between the potato rows 2' apart.
   2. 4 gms. per linear yard applied in between the potato rows 2' apart.
   3. 5 gms. per linear yard applied in between the potato rows 2' apart.
   4. 6 gms. per linear yard applied in between the potato rows 2' apart.
   5. Control. Paradichloro benzene applied twice on 10.5.1949 and 5.7.1949 in between the potato rows.

3. DESIGN:
   (i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) 1/363 ac. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Under study. (iii) The assessment of result was made on the % of damaged tubers and also the crop yield at the time of harvest in middle of 1949. % of damaged leaves in terms of complete defoliation. (iv) (a) to (c) No. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento. (C). on cultivator's fields. Raw data N.A.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>% of damaged tubers/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.01</td>
<td>6.52 %</td>
</tr>
<tr>
<td>2.</td>
<td>0.97</td>
<td>4.07 %</td>
</tr>
<tr>
<td>3.</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>1.27</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1135</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment</th>
<th>% of damaged tubers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3.1</td>
</tr>
<tr>
<td>2.</td>
<td>3.7</td>
</tr>
<tr>
<td>3.</td>
<td>4.2</td>
</tr>
<tr>
<td>4.</td>
<td>5.5</td>
</tr>
<tr>
<td>5.</td>
<td>15.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.82</td>
</tr>
</tbody>
</table>
Crop: Potato (Rabi).  
Site: Kansani (Almora).  
Object: To test the efficacy of D.D.T. and Benzene hexachloride against *Epilachna vigrouxcti punetata* on Potato crop.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) N.A.  (iii) Manured with compost.  (iv) N.A.  (v) (a) to (c) N.A.  (d) Plants 7"-8" apart while rows 18" to 20" apart.  (e) N.A.  (vi) 1st week of February 1949.  (vii) Unirrigated.  (viii) N.A.  (ix) N.A.  (x) 1st week of July, 1949.

2. TREATMENTS:
   1. Dusting with Benzene hexachloride (gamaxene D.O. 25).
   2. Dusting with 5% D.D.T. dust at 50 lb./ac.
   3. Dusting with sodium fluosilicate and ash (1 : 8) at 50 lb./ac.
   4. Spraying with 0.25% D.D.T. spray emulsion at 200 gallons/ac.
   5. No treatment (control).

3. DESIGN:
   (i) R.B.D.  (ii) N.A.  (iii) (a) N.A.  (b) 1/100 ac.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) Nearly all the plants were infested with potato *epliachna* adults, grubs and eggs present, pupae not observed.  (iii) Population of gurbs before and after application of treatments. Yield of potato crop in seers per plot.  (iv) (a) No.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Ento. (K).

5. RESULTS:
   (i) 4.02 ton/ac.
   (ii) 0.3439 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of potato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3.09</td>
</tr>
<tr>
<td>2.</td>
<td>3.32</td>
</tr>
<tr>
<td>3.</td>
<td>3.44</td>
</tr>
<tr>
<td>4.</td>
<td>3.54</td>
</tr>
<tr>
<td>5.</td>
<td>2.70</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1720 ton/ac.</td>
</tr>
</tbody>
</table>

---

Crop: Onion.  
Site: Govt. Vegetable Res. Stn., Alambagh, Lucknow.  
Type: 'M'.

Object: To study the optimum requirement of N, P and K for Onion.

1. BASAL CONDITIONS:
   (i) (a) No.  (b) N.A.  (c) N.A.  (d) Clayey loam.  (b) N.A.  (iii) 9.11-1949/16, 19.1.1950.  (iv) (a) 4 desi plough and 7 Punjab plough.  (b) Transplanting, flat sowing.  (c) N.A.  (d) 6"x6".  (e) N.A.  (v) N.A.  (vi) Patna Red (N.A.).  (vii) Irrigated.  (viii) 2 hoeings and 1 stripping.  (ix) N.A.  (x) 2 to 5.5.1950.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of N as A/S: N₀=0, N₁=50, N₂=100 and N₃=150 lb./ac.
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 4 levels of P₂O₅ as single Super : P₀=0, P₁=16, P₂=32 and P₃=48 lb./ac.
   (2) 4 levels of K₂O as Pot. Sul. : K₀=0, K₁=24, K₂=48 and K₃=72 lb./ac.
   Manures top dressed after one month of transplanting.

3. DESIGN:
   (i) Split-plot.  (ii) (a) 4 main-plots/block and 16 sub-plots/main-plot.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 10"x6".  (v) N.A.  (vi) Yes.
4. GENERAL:

(i) Good. (ii) N.A. (iii) Mortality counts, vegetable growth based on 100 plants, bulb growth based on 100 plants, unstripped yield and stripped yield of onion. (iv) (a) 1949—1950. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:

(i) 10.58 ton/ac.
(ii) (a) 1.946 ton/ac.
(b) 1.334 ton/ac.
(iii) NPK interaction alone is highly significant.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>K_0</th>
<th>K_1</th>
<th>K_2</th>
<th>K_3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N_0</td>
<td>10.66</td>
<td>10.56</td>
<td>10.59</td>
<td>10.12</td>
<td>10.48</td>
</tr>
<tr>
<td>N_1</td>
<td>11.15</td>
<td>10.62</td>
<td>10.55</td>
<td>10.95</td>
<td>10.82</td>
</tr>
<tr>
<td>N_2</td>
<td>10.94</td>
<td>10.49</td>
<td>10.00</td>
<td>10.77</td>
<td>10.55</td>
</tr>
<tr>
<td>N_3</td>
<td>10.11</td>
<td>10.90</td>
<td>10.80</td>
<td>10.00</td>
<td>10.45</td>
</tr>
<tr>
<td>Mean</td>
<td>10.72</td>
<td>10.64</td>
<td>10.49</td>
<td>10.46</td>
<td>10.58</td>
</tr>
</tbody>
</table>

S.E. of difference of two

1. N marginal means = 0.344 ton/ac.
2. P or K marginal means = 0.236 ton/ac.
3. P or K means at the same level of N = 0.472 ton/ac.
4. N means at the same level of P or K = 0.534 ton/ac.
5. means in the body of P X K table = 0.472 ton/ac.

Crop:— Onion (Rabi).

Object:— To study the effect of sulphur fertilization on the growth, yield and chemical composition of Onion at different stages.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U. Varanasi. (iii) 1.11.1953. (iv) (a) Field was thoroughly prepared by ploughing several times. Clods were broken, roots and weeds removed and the ground levelled. (b) Transplanted. (c) —. (d) 9’ x 9’.

2. TREATMENTS:

5 levels of sulphur: S_0 = 0, S_1 = 50, S_2 = 100, S_3 = 200 and S_4 = 400 lb/ac.

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) 16’ x 73’.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Number of leaves of onion/Plant. Av. height of plant in cms. Av. maximum circumference of leaves in cms. Maximum length of root in cms. Fresh weight of onion roots, fresh weight of onion bulbs. Dry weight percentage. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) and (b) Nil. (vi) Nil.

(vii) The experiment was conducted by B.H.U.
5. RESULTS:
(i) 6.36 ton/ac.
(ii) 0.251 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>T0</td>
<td>5.71</td>
</tr>
<tr>
<td>T1</td>
<td>6.19</td>
</tr>
<tr>
<td>T2</td>
<td>6.55</td>
</tr>
<tr>
<td>T3</td>
<td>6.74</td>
</tr>
<tr>
<td>T4</td>
<td>6.56</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1024 ton/ac.</td>
</tr>
</tbody>
</table>

6. RESULTS:
(i) 1.98 ton/ac.
(ii) 0.783 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.23</td>
</tr>
<tr>
<td>2</td>
<td>1.98</td>
</tr>
<tr>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td>4</td>
<td>1.99</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.39 ton/ac.</td>
</tr>
</tbody>
</table>

Object: —To study the effect of top pruning of seedlings on Onion yield.

1. BASAL CONDITIONS:
(i) (a) No. (b) Bphali. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 4.10.1950 and 28.10.1950. (iv) (a) N.A. (b) Transplanting. (c) —. (d) N.A. (e) N.A. (v) N.A. (vi) Patna Red (medium). (vii) Irrigated. (viii) 1 weeding and 1 trampling. (ix) N.A. (x) 24.5.1951.

2. TREATMENTS:
1. Light pruning (full vegetative top).
2. Medium pruning (full vegetative top).
3. Heavy pruning (full vegetative top).
4. Control (no pruning).

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9 x 9. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Onion yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by V.R.S.

5. RESULTS:
(i) 1.98 ton/ac.
(ii) 0.783 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.23</td>
</tr>
<tr>
<td>2</td>
<td>1.98</td>
</tr>
<tr>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td>4</td>
<td>1.99</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.39 ton/ac.</td>
</tr>
</tbody>
</table>

Object: —To study the effect of inter cultures on Onion yield.

8. BASAL CONDITIONS:
(i) (a) No. (b) Bphali. (c) A/S at 40 lb./ac. of N. (ii) (a) Loam. (b) N.A. (iii) 4.10.1950/29.11.1950. (iv) (a) 3 ploughings, 1 by watts and 2 by desi plough and one cultivator. (b) Transplanting. (c) —. (d) 6' x 6'. (e) 1. (f) 40 lb./ac. of N as A/S. top dressed. (vi) Patna red (medium). (vii) Irrigated. (viii) 1 trampling on 8.5.1951. Hoeings as per treatments done after 3 days of each irrigation. (ix) N.A. (x) 24.5.1951.
TREATMENTS:
1. Shallow hoeing by khurpi.
2. Deep hoeing by spade.
3. Control—no hoeing.

DESIGN:
1. R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9' x 8'. (v) N.A. (vi) Yes.

GENERAL:
(i) N.A. (ii) No. (iii) Onion yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

RESULTS:
(i) 2.30 ton/ac.
(ii) 0.446 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.79</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>2.33</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>1.78</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Onion.

Ref: U.P. 50(108).

Object:—To study the effect of different methods of sowing on Onion yield.

BASAL CONDITIONS:
(i) (a) No. (b) Bhindi. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 4.10.1950/29.11.1950. (iv) (a) N.A. (b) As per treatments. (c) and (d) N.A. (e) 1. (v) N.A. (vi) Patna red (medium). (vii) Irrigated. (viii) 1 weeding and 1 trampling. (ix) N.A. (x) 24.5.1951.

TREATMENTS:
1. Transplanting seedling on flat beds.
2. Transplanting seedlings on ridges.

DESIGN:
(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9' x 8'. (v) N.A. (vi) Yes.

GENERAL:
(i) N.A. (ii) No. (iii) Onion yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

RESULTS:
(i) 2.34 tons/ac.
(ii) 0.455 tons/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.31</td>
</tr>
<tr>
<td>2.</td>
<td>2.38</td>
</tr>
</tbody>
</table>

S.E./mean = 0.228 ton/ac.
Crop :- Onion.  
Site :- Govt. Vegetable Res. Stn., Alambagh, Lucknow. Type :- 'C'.

Object :- To find out the proper depth to which the seed is to be transplanted.

1. BASAL CONDITIONS :
   (i) (a) No. (b) Bhindi. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 4.10.1950/28.11.1950. (iv) (a) N.A. (b) Transplanting. (c) —, (d) N.A. (e) 1. (v) N.A. (vi) Patna red (medium). (vii) Irrigated. (viii) 1 weeding and 1 trampling. (ix) N.A. (x) 24.5.1951.

2. TREATMENTS :
   1. 1.5"—transplanting the seedling as to put the bulb at 1.5" depth.
   2. 3.0"—transplanting the seedling as to put the bulb at 3.0" depth.
   3. 6.0"—transplanting the seedling as to put the bulb at 6.0" depth.
   4. Control (above the ground).

3. DESIGN :
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'x8'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) No. (iii) Onion yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS :
   (i) 2.52 ton/ac.
   (ii) 0.688 ton/ac.
   (iii) Treatments are not significantly different.
   (iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>2.46</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>3.12</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>2.02</td>
<td></td>
</tr>
<tr>
<td>=0.344 ton/ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Crop :- Onion.  
Site :- Govt. Vegetable Res. Stn., Alambagh, Lucknow. Type :- 'C'.

Object :- To study the effect of age of seedlings on Onion yield.

1. BASAL CONDITIONS :
   (i) (a) No. (b) Bhindi. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 4.10.1950/28.11.1950. (iv) (a) N.A. (b) Transplanting. (c) —, (d) N.A. (e) 1. (v) N.A. (vi) Patna red (medium). (vii) Irrigated. (viii) 1 weeding and 1 trampling. (ix) N.A. (x) 24.5.1951.

2. TREATMENTS :
   Age of seedlings at transplanting: A1=2, A2=4, A3=6 and A4=8 weeks.

3. DESIGN :
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'x8'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) No. (iii) Onion yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS :
   (i) 2.82 ton/ac.
   (ii) 0.394 ton/ac.
   (iii) Treatments are highly significantly different.
Crop :-Onion.  

Object :-To study the effect of different methods of sowing on Onion yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Bhandi. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 16.10.1950/30.11.1950. (iv) (a) 4 ploughings, 1 by water and 2 by desi plough and one by cultivator. (b) As per treatments. (c) N.A. (d) 6'x6'. (e) 1. (v) 40 lb./ac. of N as A/S top dressed. (vi) Patna red (medium). (vii) Irrigated. (viii) weedings and trampling (ix) N.A. treatment 2 on 18.4.1951 and 1 on 24.5.1951.

2. TREATMENTS:
   1. By transplanting-seedling raised by seeds sown in nursery bed.
   2. By sett sowing in nursery bed on the same day as in treatment 1.

3. DESIGN:
   (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'x8'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Poor-germination of treatment one completely failed. (ii) No. (iii) Onion yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by V.R.S.

5. RESULTS:
   (i) 3.20 ton/ac.
   (ii) 0.5192 ton/ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.86</td>
</tr>
<tr>
<td>2.</td>
<td>4.55</td>
</tr>
</tbody>
</table>

---

Crop :-Onion.  

Object :-To find out the efficient and economical methods of growing Onion.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Clayey loam. (b) N.A. (iii) 26.10.1953. (iv) (a) to (c) N.A. (d) 6'x6'. (e) N.A. (v) 40 lb./ac. of N as F.Y.M. and A/S at 25 lb./ac. of N as top dressed. (vi) Red round (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 21.5.1954.

2. TREATMENTS:
   1. Seed sown in nursery.
   2. Seed sown in the field on the same day.

3. DESIGN:
   (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.
4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Onion yield. (iv) (a) 1953 to 1954. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The exp. was conducted by V.R.S.

5. RESULTS:
   (i) 8.73 lb./plot
   (ii) 2.999 lb./plot.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of onion in lb./plot.
       Treatment          Av. yield
       1.                7.28
       2.                10.19
       S.E./mean          = 1.22 lb./plot.

Crop :- Onion.
Site :- Govt. Vegetable Res. Stn., Lucknow.
Object :- To study the effect of spacing on bulb growth and Onion.

1. BASAL CONDITIONS:
   (i) (a) No. (b) N.A. (c) N.A. (iii) (a) Loam. (b) N.A. (iii) Last week of December/24.1.1950. (iv) (a) 1 punjab ploughing and 1 by dest. (b) N.A. (c) —. (d) As per treatments. (e) 1. (v) 100 lb./ac. of N as T.C. applied on 5 and 6.1.1950. (vi) Patna Red (medium). (vii) Irrigated. (viii) 2 hoeings. (ix) 1.75'. (x) Top on 15.4.1950 and bulb on 5.5.1950.

2. TREATMENTS:
   3 spacings: S1 =4'x4', S2 =6'x6' and S3 =9'x9'.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 10'x6'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Yield of stripped and unstripped onion. (iv) (a) No. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:
   (i) 6.16 ton/ac.
   (ii) 0.73 ton/ac.
   (iii) Treatments are highly significantly different.
   (iv) Av. yield of onion in ton/ac.
       Treatment       Av. yield
       S1               8.51
       S2               5.59
       S3               4.38
       S.E./mean        = 0.37 ton/ac.

Crop :- Onion.
Site :- Govt. Vegetable Res. Stn., Lucknow.
Object :- To study the effect of different spacings on Onion yield.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Bhindi. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 4.10.1950/27.11.1950. (iv) (a) to (e) N.A. (v) N.A. (vi) Patna Red (medium). (vii) Irrigated. (viii) 1 weeding and 1 trampling on 8.5.1951. (ix) N.A. (x) 23.5.1951.

2. TREATMENTS:
   4 spacings: S1 =4'x4', S2 =6'x6', S3 =9'x9' and S4 =12'x12'.
3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'x8'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Onion yield. (iv) (a) No. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:
(i) 3.58 ton/ac.
(ii) 0.57 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>3.67</td>
</tr>
<tr>
<td>S₂</td>
<td>5.45</td>
</tr>
<tr>
<td>S₃</td>
<td>2.61</td>
</tr>
<tr>
<td>S₄</td>
<td>2.58</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.29 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Onion.
Site :-Govt. vegetable Res. Stn., Lucknow.
Ref :-U.P. 53(283).
Type :-‘C’.

Object :-To study the effect of different spacing on Onion yield.

1. BASAL CONDITIONS:

2. TREATMENTS:
3 spacings : S₁=4'x4', S₂=6'x6' and S₃=9'x9'.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'x6'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of bulbs/ac. weight of onion. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by V.R.S.

5. RESULTS:
(i) 10.90 ton/ac.
(ii) 0.8460 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>12.63</td>
</tr>
<tr>
<td>S₂</td>
<td>11.34</td>
</tr>
<tr>
<td>S₃</td>
<td>8.72</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.42 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Onion.
Site :-Govt. vegetable Res. Stn. Lucknow.
Ref :-U.P. 49(62).
Type :-‘I’.

Object :-To study the effect of irrigation at different intervals on Onion yield.

1. BASAL CONDITIONS:
(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 9.11.1949/20.1.1950. (iv) (a) 1 ploughing by Punjab and 2 by desi. (b) transplanting, flat sowing. (c) —. (d) 6'x6'. (e) —. (v) T.C. at 100 lb/ac. on 5.6.1.1950. (vi) Patna large red. (medium). (vii) Irrigated. (viii) 2 hoeings and 2 weedings. (ix) 1.75' (x) Top on 15.4.1950. and bulbs on 5.5.1950.
2. TREATMENTS:
4 intervals of irrigation: $I_0=0$, $I_1=10$, $I_2=20$ and $I_3=30$ days.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 10'×6'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Onion yield. (iv) (a) 1949 to 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by V.R.S.

5. RESULTS:
(i) 3.92 ton/ac.
(ii) 0.48 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_0$</td>
<td>2.51</td>
</tr>
<tr>
<td>$I_1$</td>
<td>5.06</td>
</tr>
<tr>
<td>$I_2$</td>
<td>4.78</td>
</tr>
<tr>
<td>$I_3$</td>
<td>3.32</td>
</tr>
</tbody>
</table>

S.E./mean = 0.24 ton/ac.

---

Crop :- Onion.

Site :- Govt. Vegetable Res. Stn., Lucknow.

Object :- To study the effect of irrigation at different intervals on Onion yield.

Ref :- U.P. 50(111).

Type :- 'I'.

1. BASAL CONDITIONS:
(i) (a) No. (b) Bhindi. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 4.10.1950/27.11.1950. (iv) (a) to (e) N.A. (v) N.A. (vi) Patna red (medium). (vii) Irrigated. (viii) 1 weeding and 1 trampling. (ix) N.A. (x) 21.5.1951.

2. TREATMENTS:
4 intervals of irrigation: $I_0=0$, $I_1=10$, $I_2=20$ and $I_3=30$ days.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'×8'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Onion yield. (iv) (a) 1949 to 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil.

(vii) Experiment conducted by V.R.S.

5. RESULTS:
(i) 3.22 ton/ac.
(ii) 0.3937 ton/ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of onion in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_0$</td>
<td>1.97</td>
</tr>
<tr>
<td>$I_1$</td>
<td>5.09</td>
</tr>
<tr>
<td>$I_2$</td>
<td>3.17</td>
</tr>
<tr>
<td>$I_3$</td>
<td>2.64</td>
</tr>
</tbody>
</table>

S.E./mean = 0.1968 ton/ac.
Crop :- Onion.  
Object :- To study the effect of different fertilizers and irrigations on growth, yield and quality of Onion.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 3.12.1949. (iv) (a) 1 ploughing with soil turning plough and the field was levelled. (b) Transplanting. (c) —. (d) 12' x 6'. (e) N.A. (v) N.A. (vi) Onion (red Patna). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
3 irrigations: \( I_1 = 8 \) irrigations after an interval of 11 days only, \( I_2 = 6 \) irrigations after an interval of 16 days only and \( I_3 = 4 \) irrigations after an interval of 21 days only.
Sub-plot treatments:
4 manures: \( M_0 = 0 \), \( M_1 = 200 \) lb./ac. of A/S, \( M_2 = 400 \) lb./ac. of Super and \( M_3 = 4900 \) lb./ac. of wood ash.

3. DESIGN:
(i) Split-plot. (iv) (a) 3 main-plots/block and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 6' x 9'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Onion yield. (iv) (a) to (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.A.C.

5. RESULTS:
(i) 153.93 lb./ac.
(ii) (a) 59.86 lb./ac.
(b) 55.23 lb./ac.
(iii) Only \( M \) effect is highly significant.
(iv) Av. yield of onion in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( I_0 )</th>
<th>( I_1 )</th>
<th>( I_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( M_0 )</td>
<td>143.18</td>
<td>128.56</td>
<td>119.49</td>
<td>130.41</td>
</tr>
<tr>
<td>( M_1 )</td>
<td>248.05</td>
<td>193.60</td>
<td>184.02</td>
<td>208.56</td>
</tr>
<tr>
<td>( M_2 )</td>
<td>152.26</td>
<td>142.17</td>
<td>122.51</td>
<td>138.98</td>
</tr>
<tr>
<td>( M_3 )</td>
<td>157.80</td>
<td>134.11</td>
<td>121.27</td>
<td>137.80</td>
</tr>
<tr>
<td>Mean</td>
<td>175.32</td>
<td>149.61</td>
<td>136.88</td>
<td>153.93</td>
</tr>
</tbody>
</table>

Mean S.E. of difference of two
1. marginal means of \( I \) = 21.15 lb./ac.
2. marginal means of \( M \) = 22.54 lb./ac.
3. \( M \) means at the same level of \( I \) = 39.05 lb./ac.
4. I means at the same level of \( M \) = 45.04 lb./ac.

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Crop :- Bhindi.  
Site :- Govt. Vegetable Res. Stn., Lucknow.  
Object :- To study different control measures against the spotted boll worm of Bhindi.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 23.8.1952. (iv) (a) 2 ploughings with soil turning plough and then pulverising the top soil by cultivator. (b) Dibbling. (c) N.A. (d) Distance between rows 3.5' and between plants 2.5'. (e) N.A. (v) 40 lb. of N through F.Y.M. (vi) Green long. (vii) Irrigated. (viii) Weeding and hoeing 3 times. (ix) N.A. (x) N.A.
2. TREATMENTS:
   1. Picking and destruction of infested shoots.
   2. Picking and destruction of infested shoots and fruits and spraying the crop with 0.25% D.D.T. emulsion.
   3. Picking and destruction of infested shoots and fruits and the crop dusted with 5% B.H.C. dust.
   4. Control.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 12’×30’. (b) 11.5’×29.5’. (v) Guard rows between plots 1’ and between blocks 4’. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Attack of spotted boll worm of bhindi, cotton jassids, and banded blister beetle and incidence of virus disease. (iii) No. of healthy and bored fruits/plot. (iv) (a) 1952—N.A. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The data has been converted into sin⁻¹√p and then analysed. Experiment conducted by V.R. (H.)

5. RESULTS:
   (i) to (iv).

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Mean angle in sin⁻¹√p</th>
<th>% of bored fruits (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>34.69</td>
<td>32.6</td>
</tr>
<tr>
<td>2.</td>
<td>30.60</td>
<td>26.2</td>
</tr>
<tr>
<td>3.</td>
<td>29.71</td>
<td>24.8</td>
</tr>
<tr>
<td>4.</td>
<td>35.80</td>
<td>34.4</td>
</tr>
<tr>
<td>G.M.</td>
<td>32.70</td>
<td>29.4</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.87</td>
<td></td>
</tr>
</tbody>
</table>

Significance Highly significant.

Crop :-Bhindi (Kharif).
Ref :-U.P. 63(31).
Site :-Govt. Vegetable Res. Stn., Lucknow.
Type :-‘D’.

Object :-To study different control measures against the spotted boll worm of Bhindi.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 25.7.1953. (iv) (a) 2 ploughings with light soil turning plough followed by pata: (b) Sowing directly in field. (c) 2 sz/ac. (d) Sowing in lines 24’×2’ (e) N.A. (v) 60 lb of N as, F.Y.M. and A/S. (vi) Medium. (vii) Irrigated. (viii) 2 hand weedings and 2 hoeings by bullocks. (ix) N.A. (x) 7.10.1953 to 14.11.1953.

2. TREATMENTS.
   1. Picking and destruction of infested shoots and fruits and spraying with 0.25% D.D.T. emulsion.
   2. Picking of infested fruits and shoots and dusting with 5 % B.H.C. dust.
   3. Control (two plots).

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) N.A. (iv) 27’×12’. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal, no lodging. (ii) Spotted boll worm as per treatment. (iii) Count of bored fruits and healthy fruits. (iv) (a) 1952—N.A. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The data has been converted into sin⁻¹√p and then analysed. The experiment was conducted by V.R.(H).

5. RESULTS:
   (i) to (iv).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Transformed back—mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.75</td>
<td>7.42</td>
</tr>
<tr>
<td>2.</td>
<td>15.34</td>
<td>8.73</td>
</tr>
<tr>
<td>3.</td>
<td>17.66</td>
<td>11.28</td>
</tr>
<tr>
<td>G.M.</td>
<td>17.66</td>
<td>9.41</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.78</td>
<td></td>
</tr>
</tbody>
</table>

Significance Highly significant.
Crop :- Bhindi. Site :- Govt. Vegetable Res. Stn., Lucknow. Object :- To study different control measures against Bhindi borer.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) Ploughing with desi plough followed by pata. (b) to (e) N.A. (v) F.Y.M. at 60 lb./ac. of N. (vi) Green long (medium). (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :
   1. Spraying bhindi plants with 0.2% D.D.T. suspension at 60 gallons/ac.
   2. Spraying bhindi plants with 0.1% D.D.T. suspension at 60 gallons/ac.
   3. Dusting bhindi plants with gammaxene Do 25 as such at 25 lb./ac.
   4. Dusting bhindi plants with hexyclane 5% at 25 lb./ac.
   5. Control.

3. DESIGN :
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 42'x 150'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) Borer attack—as per treatments. (iii) Percentage of damaged fruits. (iv) (a) 1950—N.A. (but treatments changed from year to year). (b) No. (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The data has been converted into sin^-1P and then analysed where P=percentages of attacked fruits. Transformed back mean percentages are given after applying bias correction. Experiment conducted by V.R.(K).

5. RESULTS :

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.95</td>
<td>9.91</td>
</tr>
<tr>
<td>2.</td>
<td>17.28</td>
<td>9.23</td>
</tr>
<tr>
<td>3.</td>
<td>19.22</td>
<td>11.22</td>
</tr>
<tr>
<td>4.</td>
<td>20.96</td>
<td>13.17</td>
</tr>
<tr>
<td>5.</td>
<td>34.61</td>
<td>32.62</td>
</tr>
<tr>
<td>G.M.</td>
<td>22.00</td>
<td>14.49</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>~ 0.937</td>
<td></td>
</tr>
</tbody>
</table>


1. BASAL CONDITIONS :
   (i) (a) No. (b) and (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 14.6.1949/27.7.1949. (iv) (a) N.A. (b) Transplanting. (c) on. (d) 4’x3’. (e) N.A. (v) N.A. (vi) Purple round. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2 TREATMENTS :
   1. Control.
   2. 140 lb./ac. of N as F.Y.M.
   3. 70 lb./ac. of N as F.Y.M.
   4. 35 lb./ac. of N as F.Y.M.
   5. 140 lb./ac. of N as A/S.
   6. 70 lb./ac. of N as A/S.
   7. 35 lb./ac. of N as A/S.
   8. 140 lb./ac. of P2O5 as Super.
   9. 70 lb./ac. of P2O5 as Super.
   10. 35 lb./ac. of P2O5 as Super.


3. DESIGN :
   (i) R.B.D. (ii) (a) 19. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 45’x20’. (v) N.A. (vi) Yes.
4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Brinjal yield.  (iv) (a) to (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment conducted by V.R.S.

5. RESULTS:
(i) 6.32 ton/ac.
(ii) 1.28 ton/ac.
(iii) Treatments are not significant.
(iv) Av. yield of brinjal in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6.29</td>
<td>11.</td>
<td>6.45</td>
</tr>
<tr>
<td>2.</td>
<td>6.35</td>
<td>12.</td>
<td>6.70</td>
</tr>
<tr>
<td>3.</td>
<td>6.60</td>
<td>13.</td>
<td>6.66</td>
</tr>
<tr>
<td>4.</td>
<td>6.39</td>
<td>14.</td>
<td>6.60</td>
</tr>
<tr>
<td>5.</td>
<td>6.51</td>
<td>15.</td>
<td>6.31</td>
</tr>
<tr>
<td>6.</td>
<td>6.52</td>
<td>16.</td>
<td>5.64</td>
</tr>
<tr>
<td>7.</td>
<td>6.23</td>
<td>17.</td>
<td>6.64</td>
</tr>
<tr>
<td>8.</td>
<td>5.92</td>
<td>18.</td>
<td>6.26</td>
</tr>
<tr>
<td>9.</td>
<td>6.52</td>
<td>19.</td>
<td>6.03</td>
</tr>
<tr>
<td>10.</td>
<td>5.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>= 0.64 ton/ac.</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Brinjal.
Site :- Govt. Vegetable Res. Stn., Lucknow.
Object :- To compare different control measures of Brinjal lace wing bug.
Ref :- U.P. 51(219).
Type :- 'D'.

1. BASAL CONDITIONS:
(i) (a) Nil.  (b) N.A.  (c) N.A.  (ii) (a) Clay loam.  (b) N.A.  (iii) N.A.  (iv) (a) 2-3 ploughings with soil turning plough.  (b) Transplanted.  (c) —.  (d) Distance between plants 2'.  (e) N.A.  (v) 60 lb./ac. of N as F.Y.M. 2 days before transplanting and A/S 40 lb./ac. of N after one month of transplanting.  (vi) Round black.  (vii) Irrigated.  (viii) Weeding and hoeing.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
1. Lime Sulphur wash spray (1 : 2 : 10) at 15 days interval.
2. Tobacco soap decoction (1 : 1 : 10) at 15 days interval.
3. Fish oil soap spray (1 : 50).
4. Pyrocolloid (1 : 400) at 15 days interval.
5. Control.

3. DESIGN:
(i) R.B.D.  (ii) 5.  (b) N.A.  (iii) 4.  (iv) (a) 42.5' x 25.25'.  (b) 41.5' x 24.25'.  (v) 1/4' around the net plot.  (vi) Yes.

4. GENERAL:
(i) Normal.  (ii) Attack for fruit and shoot borer and cotton jassids.  (iii) Number of insects were continued in 10% of plants.  (iv) (a) No.  (b) No.  (c) N.A.  (v) (a) and (b) No.  (vi) Transformed back mean percentage are given after applying bias correction. The data has been converted into sin^-1 y' and then analysed.  (vii) The experiment was conducted by V.R.S.

5. RESULTS:
(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentage of reduction of brinjal lace wing bug</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>59.68</td>
<td>74.26</td>
</tr>
<tr>
<td>2.</td>
<td>59.16</td>
<td>73.48</td>
</tr>
<tr>
<td>3.</td>
<td>61.30</td>
<td>75.18</td>
</tr>
<tr>
<td>4.</td>
<td>60.70</td>
<td>75.79</td>
</tr>
<tr>
<td>5.</td>
<td>6.08</td>
<td>1.61</td>
</tr>
<tr>
<td>G.M.</td>
<td>49.38</td>
<td>57.54</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>— 1.736</td>
<td>degrees</td>
</tr>
</tbody>
</table>

Treatment differences are highly significant.
Crop :- Brinjal.  
Site :- Govt. Vegetable Res. Stn., Lucknow.  
Object :- To compare different control measures against fruit and shoot borer of Brinjal.

1. BASAL CONDITIONS:
   (i) Nil. (b) N.A. (c) N.A. (ii) Clay loam. (b) N.A. (iii) 5.7.1952/8.8.1952. (iv) (a) 2-3 ploughings with soil turning plough and pulverisation of top soil by cultivator. (b), (c), (d) and (e) N.A. (v) 60 lb./ac. of N as F.Y.M. A/S top dressed at 8 lb./ac. of N. (vi) Round blue. (vii) Irrigated. (viii) Weeding and hoeing 3 times. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Spraying 0.3% D.D.T. emulsion at 40-60 gallons/acre after destruction of infested shoots.
   2. Dusting with 5% B.H.C. at 8-12 lb./acre after destruction of infested shoots.
   3. Control (two plots).

3. DESIGN:
   (i) R.B.D. (ii) 4. (b) N.A. (iii) 4. (iv) (a) 10'×25'. (b) 9.5'×24.5'. (v) All round the net plot. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Attack of brinjal fruit and shoot borer, cotton jassids and brinjal epilachna. (iii) Number of bored and healthy fruits. (iv) (a) 1952-1953. (b), (c) No. (v) (a) and (b) No. (vi) The data has been converted into \( \sin^{-1} p \) and then analysed where \( p \) = percent of bored fruits. (vii) Experiment conducted by V.R.(H).

5. RESULTS:
   (i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of ( \sin^{-1} \sqrt{p} )</th>
<th>Mean % of bored fruits transformed back</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>13.30</td>
<td>5.7</td>
</tr>
<tr>
<td>1.</td>
<td>22.58</td>
<td>15.1</td>
</tr>
<tr>
<td>3.</td>
<td>24.50</td>
<td>17.5</td>
</tr>
<tr>
<td>G.M.</td>
<td>21.22</td>
<td>13.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.53</td>
<td></td>
</tr>
</tbody>
</table>

Treatment are highly significant.
5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of Sin⁻¹√p</th>
<th>Mean % of bored fruits transformed back</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.44</td>
<td>13.38</td>
</tr>
<tr>
<td>2.</td>
<td>17.07</td>
<td>9.04</td>
</tr>
<tr>
<td>3.</td>
<td>25.84</td>
<td>19.32</td>
</tr>
<tr>
<td>G.M.</td>
<td>22.48</td>
<td>14.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.47</td>
<td></td>
</tr>
</tbody>
</table>

Treatment differences are highly significant.

Crop: Cabbage (Rabi).
Site: Castle Grant Orchard, B.R. College, Agra.
Object: To study the effect of pre-sowing low temperate treatment of seeds on the size and yield of Cabbage.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) and (b) Refer soil analysis, Castle Grant Orchard, Agra. (iii) 14.10.1949/44 days after nursing. (iv) (a) Two ploughings by soil turning plough and 4 by desi plough. Every ploughing followed by *pata*. (b) Transplanting. (c) —. (d) 2'x1½'. (e) One seedling/hole. (v) N.A. (vi) Sutton's Eclipse Drumhead (medium). (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 5 harvestings on 28.2.1949, 7, 14, 21 and 26.3.1949.

2. TREATMENTS:
   1. Control.
   2. Vernalisation — Seeds soaked in water at room temperature (26°C to 28°C) for 8 hours and changing water several times. After soaking, seeds taken out and moisture removed by blotting paper and clean dry towel. The seeds kept in wet cloth bags. These bags then wrapped in moist pieces of thick cloth and placed in the refrigerator, the temperature varying 3°C—5°C. Every third day, the seeds taken out, mixed up, placed in the bag, further moistened if necessary and replaced in refrigerator. All the precautions taken to see that seeds do not dry up and life activity remains uninterrupted. After three weeks, seeds taken out and sown in nursery. Before sowing, the seed of control treatment were soaked and brought to the same level of germination as chilled ones. Chilled seeds were kept for 12 hours after taking out of refrigerator.

3. DESIGN:
   (i) Paired-plot. (ii) 2. (b) N.A. (iii) 4. (iv) (a) and (b) 28'x22'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Weight of Cabbage heads. (iv) (a) No. (b) and (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.R.C.

5. RESULTS:
   (i) 15.01 lb./row
   (ii) 1.133 lb./row
   (iii) Treatment difference is highly significant.
   (iv) Av. yield of cabbage heads in lb./row.
   Treatment    Av. weight
   1.       16.64
   2.       13.38
   S.E./mean = 0.566 lb./row
Crop :-Cabbage (Rabi).
Site :-Castle Grant Orchard, B.R. College, Agra.

Object :-To study the effect of pre-sowing low temperate treatment of seeds on the size and yield of Cabbage.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow. (c) N.A.  
   (ii) (a) and (b) Refer soil analysis, Castle Grant orchard, Agra.  
   (iii) 14.10.1949/44 days after nursery.  
   (iv) (a) 2 ploughings by soil turning plough and 4 by desi plough. Every ploughing followed by pata. (b) Transplanting. (c) —. (d) 2'x1¿'. (e) One seedling/hole (v) N.A.  
   (vi) Pride of garden (early).  
   (vii) Irrigated. (viii) 3 hoeings. (ix) N.A.  
   (x) 5 harvests on 28.2.1949 7, 14, 21, and 26.3.1949.

2. TREATMENT :
   1. Control.  
   2. Vernalisation of seeds.

   Technique of Vernalisation :-Seeds soaked in water at room temperature (26°C to 28°C) for 8 hours and changing water several times. After soaking seeds taken out and moisture removed by blotting paper and clean dry towel. The seeds kept in wet cloth bags. These bags then wrapped in moist pieces of thick cloth and placed in the refrigerator, the temperature varying between 3°C-5°C. Every third day, the seeds taken out, mixed up, placed in the bag, further moistened if necessary and replaced in refrigerator. All the precautions taken to see that seeds do not dry up and life activity remains uninterrupted. After three weeks, seeds taken out and sown in nursery.

   Before sowing, the seeds of control treatment were soaked and brought to the same level of germination as chilled ones. Chilled seeds were kept for 12 hours after taking out of refrigerator.

3. DESIGN :
   (i) Paired-plot. (ii) (a) 2. (b) N.A.  
   (iii) 4. (iv) (a) and (b) 28'x22'. (v) Nil.  
   (vi) Yes.

4. GENERAL :
   (i) N.A.  
   (ii) N.A.  
   (iii) Weight of cabbage heads. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No.  
   (vi) Nil. (vii) The experiment was conducted by B.R.C.

5. RESULTS :  
   (i) 24.98 lb/row.  
   (ii) 1.329 lb/row.  
   (iii) Treatment difference is significant.  
   (iv) Av. yield of cabbage heads in lb./row.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.36</td>
</tr>
<tr>
<td>2.</td>
<td>23.65</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.6646 lb/row.</td>
</tr>
</tbody>
</table>

Crop :-Carrot (Rabi).
Site :-B.R. College Farm, Bichpuri, Agra.

Object :-To study the effect of different sources and levels of N on Carrot.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow. (c) Nil.  
   (ii) (a) Sandy loam. (b) Refer soil analysis, B.R. College Farm, Bichpuri, Agra.  
   (iii) 3.10.1952.  
   (iv) (a) Field prepared by discing, ploughing ; levelling by pata. (b) Broadcast. (c) —. (d) N.A.  
   (e) N.A.  
   (f) N.A.  
   (g) N.A.  
   (h) Irrigated. (viii) 2 weedings. (ix) N.A.  
   (x) 26.1.1953.

2. TREATMENTS :
   All combinations of (1) and (2)  
   (1) 2 sources of N : S₁=compost and S₂=A/S.  
   (2) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.  
   N applied before sowing.

3. DESIGN :
   (i) 2x4 Fact. in R.B.D. (ii) (a) 8. (b) N.A.  
   (iii) 4. (iv) (a) N.A.  
   (b) 18'x12'. (v) N.A.  
   (vi) Yes.
4. GENERAL:
(i) Good. (ii) N.A. (iii) Carrot yield. (iv) (a) No. (b) Nil. (c) No. (v) (a) and (b) No. (vi) Nil.
(vii) The experiment was conducted by B.R.C. No plot-wise yield data was available.

5. RESULTS:
(i) 6.14 ton/ac.
(ii) 1.429 ton/ac.
(iii) S effect is highly significant, N effect is significant. Interaction is not significant.
(iv) Av. yield of carrot in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>N&lt;sub&gt;0&lt;/sub&gt;</td>
<td>4.58</td>
</tr>
<tr>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>7.16</td>
</tr>
<tr>
<td>N&lt;sub&gt;2&lt;/sub&gt;</td>
<td>6.37</td>
</tr>
<tr>
<td>N&lt;sub&gt;3&lt;/sub&gt;</td>
<td>6.46</td>
</tr>
<tr>
<td>S&lt;sub&gt;1&lt;/sub&gt;</td>
<td>4.44</td>
</tr>
<tr>
<td>S&lt;sub&gt;2&lt;/sub&gt;</td>
<td>8.88</td>
</tr>
</tbody>
</table>

S.E. of N means = 0.505 ton/ac.
S.E. of S means = 0.412 ton/ac.

---

Crop: Cauliflower.  
Site: Govt. Vegetable Res. Stn., Lucknow.  
Type: 'M'.

Object: To study the effect of manuring on the subsequent yield of Cauliflower.

1. BASAL CONDITIONS:
   (1) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) F.Y.M. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:
   Raising of seedlings on:
   1. Manured seed bed.
   2. Unmanured seed bed.

   Dose of manure—N.A.

3. DESIGN:
   (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Due to water logging and continuous rains, transplanting was delayed by nearly 52 days. (ii) N.A.
   (iii) Diameter of each flower. (iv) (a) to (c) No. (v) (a) and (b) Nil. (vi) Only observation of diameter and number of heads were available. It is not even known whether the yield data was taken or not. (vii) Experiment conducted by V.R.S.

5. RESULTS:
   (i) 12.06 cm.
   (ii) 0.645 cm.
   (iii) N.A.
   (iv) Av. diameter of flower in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12.82</td>
</tr>
<tr>
<td>2.</td>
<td>11.31</td>
</tr>
</tbody>
</table>

   S.E./mean = 0.322 cm.
Crop: Cauliflower.  
Site: Govt. Vegetable Res. Stn., Lucknow.  
Ref.: U.P. 53(286).  
Type: 'M'.

Object: To make preliminary studies on the causes of buttoning in Cauliflower with reference to manural doses of NPK.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A.  
(ii) (a) Loam. (b) N.A.  
(iv) (a) N.A. (b) Transplanted. (c) N.A.  
(v) N.A.  
(vi) Medium Patna (late).

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 levels of N: 0, 50 and 75 lb./ac. of N.  
(2) 3 levels of P2O5: 0, 100 and 200 lb./ac. of P2O5.  
(3) 3 levels of K2O: 0, 50 and 100 lb./ac. of K2O.  
N applied as A/S, P2O5 as Super and K2O as Pot. Sulphate.

3. DESIGN:

(i) 32 confounded experiment. W and X components of NPK interaction partially confounded. (ii) 9 Plots/block; 3 Blocks/replication. (b) N.A.

4. GENERAL:

(i) N.A.  
(ii) N.A.  
(iii) Diameter of cauliflower in cm.  
(iv) (a) and (b) No. (c) N.A.  
(v) (a) and (b) No. (vi) Nil.  
(vii) Experiment conducted by V.R.S. Only observation of diameter and number of heads were available. No yield data was available.

5. RESULTS:

(i) 7.83 cms.  
(ii) 0.795 cms.  
(iii) Main effect N and X component of NPK interaction are highly significant. Interaction PK is significant. Other effects are not significant.  
(iv) Av. diameter of cauliflower in cm.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
<th>K0</th>
<th>K1</th>
<th>K2</th>
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</thead>
<tbody>
<tr>
<td>N0</td>
<td>5.24</td>
<td>5.56</td>
<td>5.08</td>
<td>5.29</td>
<td>4.99</td>
<td>5.06</td>
<td>5.82</td>
</tr>
<tr>
<td>N1</td>
<td>8.56</td>
<td>8.15</td>
<td>7.92</td>
<td>8.21</td>
<td>8.31</td>
<td>8.44</td>
<td>7.88</td>
</tr>
<tr>
<td>Mean</td>
<td>7.97</td>
<td>8.01</td>
<td>7.52</td>
<td>7.83</td>
<td>7.68</td>
<td>7.88</td>
<td>7.94</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.187 cm.  
S.E. of body of table = 0.324 cm.

---

Crop: Cauliflower.  
Site: Govt. Vegetable Res. Stn., Lucknow.  
Ref.: U.P. 53(287).  
Type: 'C'.

Object: To make preliminary studies on causes of buttoning in Cauliflower with reference to time of sowing.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A. (c) N.A.  
(ii) (a) Clayey loam. (b) N.A.  
(iii) As per treatments.  
(iv) (a) N.A. (b) Transplanted.  
(c) -.  
(d) Between plant—2'. (e) N.A. (v) F.Y.M. at 60 lb./ac. of N as B.D. top dressing by A/S at 40 lb./ac. of N. (vi) Early.  
(vii) Irrigated. (viii) N.A.  
(ix) N.A.  
(x) 10.11.1953 to 7.1.1954.
2. TREATMENTS:

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 8'×4'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Water logging. (ii) N.A. (iii) Diameter and no. of cauliflower. (iv) (a) to (e) No. (v) (a) and (b) No. (vi) The seedlings of Tr.D$_4$ and Tr.D$_5$ were destroyed after transplanting due to heavy rains and water logging. (vii) The exp. was conducted by V.R.S.

5. RESULTS:
(i) 5.593 cm.
(ii) 1.054 cm.
(iii) Treatment differences are highly significant.
(iv) Av. diameter of cauliflower in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. in cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_1$</td>
<td>10.642</td>
</tr>
<tr>
<td>$D_4$</td>
<td>9.245</td>
</tr>
<tr>
<td>$D_5$</td>
<td>3.058</td>
</tr>
<tr>
<td>$D_6$</td>
<td>5.350</td>
</tr>
<tr>
<td>$D_7$</td>
<td>2.618</td>
</tr>
<tr>
<td>$D_8$</td>
<td>2.648</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.527 cm.</td>
</tr>
</tbody>
</table>

Note:—Only observations of diameter and number of heads were available. No yield data was available at collection time. It is not even known whether the yield data was taken at all at the time when the experiment was conducted.

Crop :-Colocasia.
Site :-Govt. Vegetable Res. Stn., Lucknow.
Ref:-U.P. 52(35).
Type :-‘D’.

Object:—To find out the efficacy of fungicidal spray in controlling the late blight of Colocasia.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 10.5.1952. *(iv) (a) to (e) N.A. (v) N.A. (vi) Local variety. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 3.12.1952.

2. TREATMENTS:
1. Bordeaux mixture.
2. Perenox.
3. Cupravit.
4. Control (2 plots/replication)
Method of application is dusting and spraying.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 35'×15.5'. (b) 33.5'×14'. (v) 5' all round the plot (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Attack of light blight disease—As per treatments. (iii) No. of healthy and attacked plant after each spraying and yield. (iv) (a) 1952—1954. (b), (c) No. (v) (a), (b) No. (vi) Nil. (vii) The data has been converted into $\sin^{-1}\sqrt{p}$, where $p=\%$ of infection; and then analysed.
5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of % in. - 1 / v / plot</th>
<th>% infection transformed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.62</td>
<td>19.01</td>
</tr>
<tr>
<td>2.</td>
<td>19.18</td>
<td>11.18</td>
</tr>
<tr>
<td>3.</td>
<td>30.46</td>
<td>25.94</td>
</tr>
<tr>
<td>4.</td>
<td>30.62</td>
<td>99.28</td>
</tr>
<tr>
<td>G.M.</td>
<td>48.50</td>
<td></td>
</tr>
</tbody>
</table>

S.E./mean except control mean = 2.282
S.E. of control mean = 1.514

Treatment differences are highly significant.

---

**Crop:** Garlic

**Site:** Govt. Vegetable Res. Stn., Lucknow

**Object:** To find out the best time of application of N.

1. BASAL CONDITIONS:

(i) (a) No. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 16.10.1950. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 14.4.1951.

2. TREATMENTS:

100 lb./ac. of N as A/S applied at:

3. In five monthly intervals from the date of sowing.
4. Control (no manure).

3. DESIGN:

(i) R.B.D. (ii) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9’X8’. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) No. (iii) Garlic yield. (iv) (a) to (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:

(i) 3692 lb./ac.
(ii) 456.4 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of garlic in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3936</td>
</tr>
<tr>
<td>2.</td>
<td>3657</td>
</tr>
<tr>
<td>3.</td>
<td>3881</td>
</tr>
<tr>
<td>4.</td>
<td>3296</td>
</tr>
</tbody>
</table>

S.E./mean = 228.2 lb./ac.
2. TREATMENTS:
100 lb./ac. of N as: $S_1=A/S$, $S_2=$ Castor cake, $S_3=F.Y.M.$ and $S_4=Control$. (No manure)

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) $9' \times 8'$. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Garlic yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:
(i) 3554 lb./ac.
(ii) 245.2 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of garlic in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>3588</td>
</tr>
<tr>
<td>$S_2$</td>
<td>4028</td>
</tr>
<tr>
<td>$S_3$</td>
<td>3530</td>
</tr>
<tr>
<td>$S_4$</td>
<td>3069</td>
</tr>
</tbody>
</table>

S.E./mean = 122.6 lb./ac.

---

Crop:- Garlic.
Site:- Govt. Vegetable Res. Stn., Lucknow.

Object:- To find out the best spacing for Garlic.

Ref:- U.P. 50(100).
Type:- 'C'.

1. BASAL CONDITIONS:
(i) (a) No. (b) Bhindi. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 16.10.1950. (iv) (a) to (c) N.A. (d) As per treatments. (e) 1 seed/hole. (v) N.A. (vi) Local. (vii) Irrigated. (viii) 3 hoeings and weedings. (ix) N.A. (x) 16.4.1951.

2. TREATMENTS:
4 spacings between seeds: $S_1=4' \times 4'$, $S_2=6' \times 6'$, $S_3=9' \times 9'$ and $S_4=12' \times 12'$.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) $9' \times 8'$. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Garlic yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:
(i) 3366 lb./ac.
(ii) 900.2 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of garlic in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>4046</td>
</tr>
<tr>
<td>$S_2$</td>
<td>4557</td>
</tr>
<tr>
<td>$S_3$</td>
<td>2381</td>
</tr>
<tr>
<td>$S_4$</td>
<td>2479</td>
</tr>
</tbody>
</table>

S.E./mean = 450.1 lb./ac.
Crop :- Garlic (Rabi).
Site :- Castle Grant Orchard, B.R. College, Agra.

Object :- To study the effect of date of sowing, spacing and method of sowing on the yield of Garlic.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Castle Grant Orchard, Agra. (iii) 1, 21.10.1950 and 10.11.1950. (iv) (a) 2 soil turning, 3 ploughings by desi plough and *pata*. (b) N.A. (c) N.A. (d) Row to row—9' and in rows as per treatments. (e) N.A. (v) 200 lb./ac. of N as sieved municipal compost, mixed in soil with the help of *kudali*. (vi) Local. (vii) Irrigated. (viii) 6 hoeings, 7 weedings and earthing up. (ix) N.A. (x) 29.3.1951, 4, 9.4.1951 according to sowing dates.

2. TREATMENTS:
   Main-plot treatments:
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 spacings: S1=2", S2=4" and S3=6" between plants.
   (2) 2 methods of sowing: M1=in flat beds and M2=in ridges.

3. DESIGN:
   (i) Split-plot (ii) (a) 3 min-plot/block and 6 sub-plots/min-plot, (b) N.A. (iii) 4. (iv) (a) 10'x8', (b) 9'x7'. (v) 1' on either side. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) N.A. (iii) Germination, no. of roots, ht. of plants, no. of leaves, diameter of bulb, dry weight of leaves, dry weight of bulbs, length of stem, diameter of disc of the bulb. No. of clove circles, no. of cloves, no. of sprouted cloves, yield per plot and no. of bulbs per plot. (iv) (a) to (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R.C. Raw data N.A.

5. RESULTS:
   (i) 2878 lb./ac.
   (ii) (a) 1788 lb./ac.
   (b) 922 lb./ac.
   (iii) Only D effect is significant.
   (iv) Av. yield of garlic in lb./ac.

   Treatment    Av. yield
   D1          3693
   D2          3090
   D3          1851
   S.E./mean   = 365 lb./ac.

Crop :- Garlic.
Site :- Govt. Vegetable Res. Stn. Lucknow.

Object :- To find out the best interval of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Bhindi. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 16.10.1950. (iv) (a) to (c) N.A. (v) Nil. (vi) Local (vii) As per treatments. (viii) 3 weedings. (ix) N.A. (x) 16.4.1951.

2. TREATMENTS:
   4 intervals of irrigations: I1=10, I2=20, I3=30 days and I4=control (no irrigation).

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'x8'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Garlic yield. (iv) (a) No. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.
5. RESULTS:

(i) 2072 lb./ac.
(ii) 452.0 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of garlic in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>I₁</td>
<td>3323</td>
</tr>
<tr>
<td>I₂</td>
<td>2062</td>
</tr>
<tr>
<td>I₃</td>
<td>1892</td>
</tr>
<tr>
<td>I₄</td>
<td>1010</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>226.0 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Pumpkin
Site: Govt. Vegetable Res. Stn., Lucknow.
Object: To study the effect of different combinations of methods of sowing, spacings and dates of sowing on Pumpkin yield.

1. BASAL CONDITIONS:

2. TREATMENTS:
Main-plot treatments:
2 methods of sowing: M₁ = in pits and M₂ = in flat rows.
Sub-plot treatments:
3 dates of sowing: D₁ = 2 weeks before normal time, D₂ = 7.8.1949 (normal time) and D₃ = 2 weeks after normal time.
Sub-sub-plot treatments:
3 spacings between rows and plants: S₁ = 5' x 5', S₂ = 8' x 6' and S₃ = 10' x 8'.

3. DESIGN:
(i) Split-plot.
(ii) (a) 2 main-plots/block; 3 sub-plots/main-plot; 3 sub-sub-plots/sub-plot.
(b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 22' x 44'. (v) N.A.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Length of plants, no. of branches. No. of plants flowered and yield.
(iv) (a) No.  (b) No.  (c) No.  (d) (a) and (b) No.  (vi) Nil.  (vii) Experiment conducted by V.R.S.

5. RESULTS:

(i) 3250 lb./ac.
(ii) (a) 2384 lb./ac.
(b) 2368 lb./ac.
(c) 1521 lb./ac.
(iii) Only main effects of D and S are highly significant.
(iv) Av. yield of pumpkin in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>5089</td>
<td>6968</td>
<td>6028</td>
<td>8026</td>
<td>4657</td>
<td>5401</td>
</tr>
<tr>
<td>D₂</td>
<td>1697</td>
<td>2246</td>
<td>1972</td>
<td>2345</td>
<td>1337</td>
<td>2233</td>
</tr>
<tr>
<td>D₃</td>
<td>1300</td>
<td>2198</td>
<td>1749</td>
<td>2528</td>
<td>1402</td>
<td>1317</td>
</tr>
<tr>
<td>Mean</td>
<td>2595</td>
<td>3804</td>
<td>3250</td>
<td>4300</td>
<td>2465</td>
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<td>S₁</td>
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<tr>
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<tr>
<td>S₃</td>
<td>2459</td>
<td>3509</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Object — To find out the best time of sowing for Pumpkin.

1. BASAL CONDITIONS:

2. TREATMENTS:

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 30' x 29'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Pumpkin yield. (iv) (a) to (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:
   (i) 2672 lb./ac.
   (ii) 1766 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of pumpkin in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>D_1</td>
<td>2500</td>
</tr>
<tr>
<td>D_2</td>
<td>2941</td>
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<tr>
<td>D_3</td>
<td>1646</td>
</tr>
<tr>
<td>D_4</td>
<td>839</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=883 lb./ac</td>
</tr>
</tbody>
</table>

Object — To find out the best spacing for Pumpkin.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Brinjal. (c) F.Y.M. at 40 lb./ac. of N. (ii) (a) Loam. (b) N.A. (iii) 4.7.1950. (iv) (a) to (c) N.A. (d) As per treatments. (e) One seedling/hole. (v) Nil. (vi) Local. (vii) N.A. (viii) 4 hoeings. Gap filling on 24.7.1950. (ix) N.A. (x) 27.9.1950, 5, 12 and 29.10.1950, 6 and 11.11.1950.

2. TREATMENTS:
   4 spacings: S_1 = 3" x 3", S_2 = 5" x 5", S_3 = 7" x 7" and S_4 = 10" x 10".

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 30' x 29'. (v) N.A. (vi) Yes.
4. GENERAL:

(i) N.A. (ii) No. (iii) Pumpkin yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:

(i) 4350 lb./ac.
(ii) 1694 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of pumpkin in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>4406</td>
</tr>
<tr>
<td>S2</td>
<td>4193</td>
</tr>
<tr>
<td>S3</td>
<td>5395</td>
</tr>
<tr>
<td>S4</td>
<td>3405</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>846.8 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :-Radish.
Site :-Govt. Botanical Gardens, Kanpur.
Ref :- U.P. 51(156).
Type :-'C'.

Object :-To study the effect of different spacings and methods of sowing on the growth and yield of Radish.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) 24.10.1951. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) As per treatments. (e) N.A. (v) N.A. (vi) Control—long of Bombay. (vii) N.A. (viii) Thinning.

2. TREATMENTS:
Main-plot treatments : 2 methods of sowing : M1= Dibbling and M2= Transplanting.
Sub-plot treatments : 3 spacings : S1 =8'x8', S2 =8'x16' and S3 =8'x24'.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block ; 3sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 15'X7'.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Root and leaf yield. (iv) (a) to (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The expt. was conducted by P.A.C.

5. RESULTS:

(i) 4.37 ton/ac.
(ii) 0.119 ton/ac.
(b) 0.195 ton/ac.
(iii) Only main effect of M and S are highly significant.
(iv) Av. yield of radish in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>2.57</td>
<td>2.52</td>
<td>2.16</td>
<td>2.42</td>
</tr>
<tr>
<td>M2</td>
<td>6.48</td>
<td>6.64</td>
<td>5.88</td>
<td>6.33</td>
</tr>
<tr>
<td>Mean</td>
<td>4.52</td>
<td>4.58</td>
<td>4.02</td>
<td>4.37</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of M =0.048 ton/ac.
2. marginal means of S =0.098 ton/ac.
3. S means at a level of M =0.138 ton/ac.
4. M means at a level of S =0.123 ton/ac.
Site: College Farm, B.H.U., Varanasi.  Type: 'M'.

Object: To study the effect of organic and inorganic fertilizers on growth yield and chemical composition of Spinach.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sann hemp. (c) Nil.  (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi.
   (iii) 25.10.1953.  (iv) (a) Ploughed once with Meston plough, once with tractor—cultivator and once with desi plough, then clods were broken by discing with tractor.  (b) Broadcast.  (c) 2 sr./ac.  (d) and (e) N.A.

2. TREATMENTS:
   1. No manuring.
   2. 30 lb./ac. of N as F.Y.M.
   3. 40 lb./ac. of N as F.Y.M.
   4. 50 lb./ac. of N as F.Y.M.
   5. 30 lb./ac. of N as compost.
   6. 40 lb./ac. of N as compost.
   7. 50 lb./ac. of N as compost.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 13. (b) 28.32×171.2'. (iii) 5.  (iv) (a) N.A.  (b) 26.32×10.4'. (v) N.A.  (vi) Yes.

4. GENERAL.
   (i) N.A.  (ii) N.A.  (iii) Vegetative yield, average area of leaf, leaf number per plant, air dry weight of the material, seed yield, and N, P and K contents of leaf.  (iv) (a) 1953—1954.  (b) No.  (c) Nil.  (v) (a) and (b) No.  (vi) Nil.  (vii) The experiment was conducted by B.H.U.

5. RESULTS:
   (i) 1333 lb./ac.  (ii) 542.7 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of spinach leaves in lb./ac.
   Treatment  Av. yield  Treatment  Av. yield
   1.  507       1.  261.9
   2.  655       2.  327.4
   3.  786       3.  441.9
   4.  982       4.  556.5
   5.  687       5.  311.0
   6.  818       6.  425.6
   7.  982       7.  491.1
   8.  1571      8.  572.9
   9.  1964      9.  671.1
   10. 2226      10. 687.5
   11. 1670      11. 703.9
   12. 2095      12. 733.0
   13. 2390      13. 851.2
   S.E./mean = 40.37 lb./ac.  S.E./mean = 38.63 lb./ac.

Site: Castle Grant Orchard, B.R. College, Agra.  Type: 'M'.

Object: To study the effect of different fertilizers on Tomato crop.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Fallow.  (c) Nil.  (ii) (a) Light loam.  (b) Refer soil analysis, Castle Grant Orchard, Agra.  (iii) 20.9.1949/25.10.1949.  (iv) (a) 2 ploughings by victory plough and 11 ploughings by desi plough followed by planking.  (b) Transplanting.  (c) —.  (d) 3′×3′.  (e) 1 seedling/hole.  (v) N.A.  (vi) Suttons, Abundance.  (vii) Irrigated.  (viii) 11 hoeings and weedicings, gap filling on 6.11.1949.  (ix) N.A.  (x) 120 days to 190 days after transplanting.
2. **TREATMENTS:**

All combinations of (1), (2) and (3)

1. 3 levels of N as A/S: N_0 = 0, N_1 = 80 and N_2 = 160 lb/ac.
2. 3 levels of P_2O_5 as Super: P_0 = 0, P_1 = 240 and P_2 = 480 lb/ac.
3. 3 levels of K_2O as Pot. Sul.: K_0 = 0, K_1 = 100 and K_2 = 200 lb/ac.

Date of application: 25 and 26.11.1949. Fertilizer mixed thoroughly then distributed evenly between the rows of plants and mixed into the soil by giving a light cultivation with kudali.

3. **DESIGN:**

(i) 3^2 confounded experiment with Z component of 2nd order interaction totally confounded with blocks.

(ii) (a) 9 Plots/block; 3 blocks/replication. (b) 140'×24'.

(iii) 2

(iv) (a) 24'×15'. (b) 18'×9'. (v) 3' around the plot. (vi) Yes.

4. **GENERAL:**

(i) Damage by light frost. (ii) Out break of tomato mosaic disease. (iii) Tomato yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) No plotwise yield data were available. It may kindly be observed that the yields given in N×K are not correct as the marginal means of this table corresponding to K and N do not tally with the marginal means of N in N×P table and of K in P×K table. (vii) The experiment was conducted by B.R.C. Transplanting was done when plants were of 6" height.

5. **RESULTS:**

(i) 6.83 ton/ac.

(ii) 0.365 ton/ac.

(iii) Only P effect is highly significant.

(iv) Av. yield of tomato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P_0</th>
<th>P_1</th>
<th>P_2</th>
<th>Mean</th>
<th>K_0</th>
<th>K_1</th>
<th>K_2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N_0</td>
<td>5.74</td>
<td>6.28</td>
<td>7.83</td>
<td>6.62</td>
<td>6.37</td>
<td>6.20</td>
<td>6.98</td>
<td>6.52</td>
</tr>
<tr>
<td>N_1</td>
<td>6.10</td>
<td>6.67</td>
<td>7.95</td>
<td>6.91</td>
<td>6.37</td>
<td>7.43</td>
<td>7.23</td>
<td>7.01</td>
</tr>
<tr>
<td>N_2</td>
<td>6.28</td>
<td>6.16</td>
<td>8.43</td>
<td>6.96</td>
<td>6.95</td>
<td>6.22</td>
<td>8.59</td>
<td>7.25</td>
</tr>
<tr>
<td>Mean</td>
<td>6.04</td>
<td>6.37</td>
<td>8.07</td>
<td>6.83</td>
<td>6.56</td>
<td>6.62</td>
<td>7.60</td>
<td>6.93</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N, P or K = 0.086 lb/ac.

S.E. of body of any table = 0.149 lb/ac.

Crop: Tomato (Rabi).

Site: Castle Grant Orchard, B.R. College, Agra. Type: 'C'.

Object: To study the effect of different cultural practices on yield and growth of Tomato.

1. **BASAL CONDITIONS:**

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Alluvial and light loam in texture. (b) Refer soil analysis, Castle Grant Orchard, Agra. (iii) 27.10.1949. (iv) (a) 4 ploughings by dest plough and pata levelling. (b) Transplanting. (c) — (d) As per treatments. (e) 1 plant/hole. (v) 160 sr./plot of well sieved municipal compost mixed in soil by digging with kudali. (vi) Sutton's best. (vii) Irrigated. (viii) 2 weedings and hoeings. (ix) N.A. (x) N.A.
2. TREATMENTS:

All combinations of (1), (2) and (3)
(1) 3 prunnings: \( P_0 = \text{no pruning}, \ P_1 = \text{pinching of side branches} \) and \( P_2 = \text{pinching of the top} \).
(2) 3 spacing from plant to plant and row to row: \( D_1 = 2', \ D_2 = 3' \) and \( D_3 = 4' \).
(3) 2 stakings: \( S_1 = \text{no staking} \) and \( S_2 = \text{staking} \).

Prunning: In side prunning, all side branches removed as soon as they appear. Branches either rubbed off in bud conditions or chipped by a knife. In top prunning, terminal growing points were removed.

Staking: As soon as the plants were established the stems were tied to bamboo poles of 6 to 7 ft. height. On growth of plants these stakes were replaced by fresh ones.

3. DESIGN:

(i) \( 3 \times 3 \times 2 \) Fact. in R.B.D. (ii) (a) 18. (b) 44' \( \times 82' \). (iii) 4. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Height/plant, no. of branches/plant, no. of green leaves, no. of fruit clusters/plant, yield/plant and no. of fruit/plant. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.R.C.

5. RESULTS:

(i) 3.56 ton/ac.
(ii) 0.989 ton/ac.
(iii) D and S effects are highly significant. Interaction \( P \times S \) is significant. Others are not significant.
(iv) Av. yield of tomato in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( S_1 )</td>
<td>3.26</td>
<td>2.91</td>
<td>3.17</td>
<td>3.11</td>
</tr>
<tr>
<td>( S_2 )</td>
<td>3.63</td>
<td>4.83</td>
<td>3.56</td>
<td>4.01</td>
</tr>
<tr>
<td>Mean</td>
<td>3.45</td>
<td>3.87</td>
<td>3.37</td>
<td>3.56</td>
</tr>
</tbody>
</table>

S.E. of \( S \) marginal mean = 0.165 ton/ac.
S.E. of \( P \) marginal mean = 0.202 ton/ac.
S.E. of body of table = 0.285 ton/ac.

Crop :- Tomato.
Site :- Govt. Botanical Gardens, Kanpur.
Object :- To study the effect of spacing on growth and yield of Tomato.

Ref:- U.P. 49(123).
Type :- ‘C’.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 15.10.1949. (iv) (a) to (c); N.A. (d) As per treatments. (e) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

3 spacing in a row: \( S_1 = 18' \), \( S_2 = 30' \) and \( S_3 = 36' \); Spacing between rows is 36'.

3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 14' \( \times 28' \). (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Tomato yield. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) No. (vi) Nil. (vii) The experiment was conducted by P.A.C.
5. RESULTS:
(i) 10.40 ton/ac.
(ii) 0.736 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of tomato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S(_1)</td>
<td>11.65</td>
</tr>
<tr>
<td>S(_2)</td>
<td>9.58</td>
</tr>
<tr>
<td>S(_3)</td>
<td>9.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.425 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Tomato.  
Site :- Govt. Vegetable Res. Stn., Lucknow.  
Ref :- U.P.51(218).  
Type :- 'C'.

Object :- To study the effect of time of sowing and transplanting on Tomato.

1. BASAL CONDITIONS:
(i) (a) No.  (b) N.A.  (c) N.A.  (ii) (a) Clay loam.  (b) N.A.  (iii) As per treatments.  (iv) (a) to (e) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Dates of sowing</th>
<th>Dates of transplanting</th>
<th>Dates of sowing</th>
<th>Dates of transplanting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 3.7.1951.</td>
<td>17.8.1951.</td>
<td>5. 25.9.1951.</td>
<td>9.11.1951.</td>
</tr>
<tr>
<td>4. 4.9.1951.</td>
<td>19.10.1951.</td>
<td>8. 27.11.1951.</td>
<td>11.1.1952.</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D.  (ii) (a) 8.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 14\('\times\)9'.  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Tomato yield.  (iv) (a) 1951—1953 (not conducted in 1952)  (b) and (c) N.A.  (v) (a) and (b) No.  (vi) Nil.  (vii) The experiment was conducted by V.R.S.

5. RESULTS:
(i) 12.14 ton/ac.
(ii) 6.222 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of tomato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>27.70</td>
</tr>
<tr>
<td>2.</td>
<td>20.97</td>
</tr>
<tr>
<td>3.</td>
<td>15.87</td>
</tr>
<tr>
<td>4.</td>
<td>17.51</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=3.111 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Tomato.  
Site :- Govt. Vegetable Res. Stn., Lucknow.  
Ref :- U.P. 53(206).  
Type :- 'C'.

Object :- To study the effect of time of sowing and transplanting on Tomato.

1. BASAL CONDITIONS:
(i) (a) No.  (b) N.A.  (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) As per treatments.  (iv) (a) N.A.  (b) Sown in rows.  (c) N.A.  (d) Distance between rows 2\(', distance between plants 1\('.  (e) I.  (v) N.A.  (vi) Desi To-50 52 (medium).  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 5.5.1954 to 12.6.1954.
2. TREATMENTS:


3. DESIGN:
(i) R.B.D. (ii) (a) 8, (b) N.A. (iii) 4. (iv) (a) N.A. (b) 14' x 9'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tomato yield. (iv) (a) 1951 – 1953. (Not conducted in 1952) (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by V.R.S.

5. RESULTS:
(i) 6.95 ton/ac.
(ii) 2.850 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of tomato in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.04</td>
<td>5.</td>
<td>6.64</td>
</tr>
<tr>
<td>2.</td>
<td>8.93</td>
<td>6.</td>
<td>3.26</td>
</tr>
<tr>
<td>3.</td>
<td>6.44</td>
<td>7.</td>
<td>1.37</td>
</tr>
<tr>
<td>4.</td>
<td>7.77</td>
<td>8.</td>
<td>1.17</td>
</tr>
</tbody>
</table>

S.E./mean = 1.425 ton/ac.

Site: Govt. Vegetable Res. Stn., Lucknow. Type: 'D'.

Object: To study different control measures against fruit fly of Torai.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 14.3.1952. (iv) (a) Two ploughings with soil turning: plough and pulverisations with cultivator. (b) N.A. (c) N.A. (d) Distance between rows 3.5' and between plants 2.5'. (e) N.A. (v) 40 lb/ac. of N as F.Y.M. (vi) Smooth variety. (vii) Irrigated. (viii) Weeding and hoeing 3-4 times. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Lead arsenate and molasses bait spray in water dilution (1 : 16 : 200 by weight),
2. Sodium fluosilicate and molasses bait spray in water (1 : 16 : 200 by weight).
3. Use of vinegar bait traps, vinegar 1 part and water 3 parts by weight.
4. Control.

3. DESIGN:
(i) R.B.D. (ii) (a) 4, (b) N.A. (iii) 4. (iv) (a) 37.5' x 9'. (b) 36.5' x 8'. (v) a plot (37.5' x 9') of bhindi to act as buffer between torai plots. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Attack of Pumpkin beetle, fruit fly and banded blister beetle—As per treatments. (iii) % of fruits infested by fruit fly. (iv) (a) No. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The data has been converted into Sin⁻¹√P, where P is % of torai fruit infested by fruit fly, and then analysed. Experiment conducted by V.R.(H).

5. RESULTS:
(i) to (iv),

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of Sin⁻¹√P/plot</th>
<th>% of torai fruits infested by fruit fly (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>32.37</td>
<td>28.88</td>
</tr>
<tr>
<td>2.</td>
<td>37.86</td>
<td>37.79</td>
</tr>
<tr>
<td>3.</td>
<td>40.90</td>
<td>42.94</td>
</tr>
<tr>
<td>4.</td>
<td>36.75</td>
<td>35.94</td>
</tr>
<tr>
<td>G.M.</td>
<td>36.97</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.996</td>
<td></td>
</tr>
</tbody>
</table>

Significance Not significant.
Crop :- Turnip (Rabi).

* Site :- Institutional Research Farm, Bichupuri, Agra. Type :- 'M'.

Object :- To study the effect of different levels and forms of nitrogen on growth and yield of Turnip.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Light loam containing little organic matter. (b) Refer soil analysis, Bichupuri Farm, Agra. (iii) 2.10.1952. (iv) (a) Prepared by ploughing followed by pata. (b) Sowing on ridges (1" to 2" depth). (c) N.A. (d) 1½' × 6". (e) N.A. (v) Nil. (vi) Early snow-ball. (vii) Irrigated. (viii) Thinning, weeding and hoeing. (ix) N.A. (x) 75 days after sowing.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 sources of N : F₁ = A/S, F₂ = compost and F₃ = castor cake.
   (2) 3 levels of N : N₀ = 0, N₁ = 75 and N₂ = 150 lb./ac.
   Fine powder of fertilizer mixed thoroughly.

3. DESIGN:
   (i) 3 × 3 Factorial in R.B.D. (ii) (a) 9. (b) 75' × 48'. (iii) 4. (iv) (a) N.A. (b) 18' × 12'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) N.A. (iii) No of green leaves, fresh weight of tops, roots and whole plant. Dry wt. of roots, dry wt. of whole plant and tops. Volume of roots, yield of whole plant, yield of roots and tops/plot. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) No plot wise yield data is available. The exp. was conducted by B.R.C.

5. RESULTS:
   (i) 17182 lb./ac.
   (ii) 2265.5 lb./ac.
   (iii) Only main effects of F and N are highly significant.
   (iv) Av. yield of roots in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>7784</td>
<td>F₁</td>
<td>30472</td>
</tr>
<tr>
<td>N₁</td>
<td>19521</td>
<td>F₂</td>
<td>10305</td>
</tr>
<tr>
<td>N₂</td>
<td>24240</td>
<td>F₃</td>
<td>24906</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=654 lb./ac</td>
<td>S.E./mean</td>
<td>=801 lb./ac</td>
</tr>
</tbody>
</table>

Crop :- Turnip (Rabi).

Site :- Castle Grant Orchard, B.R. College, Agra.

Object :- To study the effect of different doses and time of application of N and method of planking on growth and yield of Turnip.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Light soil. (b) Refer soil analysis, Castle Grant Orchard, Agra. (iii) 17.9.1950. (iv) (a) One ploughing by soil turning plough followed by pata. 4 ploughings by desti plough and followed by pata. (b) As per treatments. (c) —. (d) 1-6" × 6". (e) One plant/hole. (v) Nil. (vi) Early snow-ball. (vii) Irrigated. (viii) Thinning, earthing and remodelling of ridges and light cultivation. (ix) N.A. (x) 17.12.1950.

2. TREATMENTS:
   Main-plot treatments:
   2 methods of planting: P₁ = planting in flat beds in rows and P₂ = planting in 9" high ridges.
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 2 times of application of N : T₁ = at sowing and T₂ = at the start of swelling of roots.
   (2) 5 levels of N as A/S : N₀ = 0, N₁ = 25, N₂ = 50, N₃ = 75 and N₄ = 100 lb./ac.
   N applied on 17/9/1950 and 17/10/1950.
   Method of planting: Seeds dropped by hand at a depth of 1" to 2".
   Method of application: Evenly distributed in between the rows at the 2nd time of application mixed by light cultivation by khurpi.
3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block and 10 sub-plots/main-plot. (b) 56’x57’. (iii) 3. (iv) (a)
12’x10’-6’. (b) 10’x7’-6’. (v) 1’x1-6’. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) No. of leaves, length of biggest leaf, breadth of biggest leaf, area of leaf,
diameter of roots, length of thickened portion, shape of root, volume of roots, fresh wt. of tops, fresh
weight of roots, fresh wt. of whole plant, dry wt. of tops and roots and whole plant and yield of roots.
(iv) (a) and (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The ext. was conducted by B.R.C.
No plotwise yield data was available.

5. RESULTS:
(i) 59987 lb./ac.
(ii) (a) 60691 lb./ac.
(b) 15570 lb./ac.
(iii) N effect is highly significant. Interaction T x P is significant. Others are not significant.
(iv) Av. yield of roots in lb./ac.

\[
\begin{array}{cccc|cc}
N_0 & N_2 & N_3 & N_4 & Mean & T_1 & T_2 \\
\hline
P_1 & 48070 & 65139 & 79050 & 87539 & 69950 & 72710 & 67190 \\
P_2 & 72800 & 73539 & 74077 & 75914 & 74082 & 66394 & 81770 \\
Mean & 60435 & 69339 & 76563 & 81726 & 72016 & 69552 & 74480 \\
T_1 & 57971 & 66304 & 79162 & 74771 & & & \\
T_2 & 62899 & 72374 & 73964 & 88682 & & & \\
\end{array}
\]

S.E. of difference of two
1. P marginal means = 17520 lb./ac.
2. N marginal means = 6356 lb./ac.
3. T marginal means = 4495 lb./ac.
4. N means at a level of P = 8989 lb./ac.
5. T means at a level of P = 6356 lb./ac.
6. P means at a level of N = 17613 lb./ac.
7. P means at a level of T = 18087 lb./ac.
S.E. of body of N x T table = 6356 lb./ac.
S.E. of No means at P or P = 6356 lb./ac.

Crop : Turnip (Rabi).
Site : Castle Grant Orchard, B.R. College, Agra. Type : 'CM'.

Object : To study the effect of different doses along with spacing on growth, development and yield of
Turnip.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Bhindi. (c) N.A. (ii) (a) Light Sandy loam. (b) Refer soil analysis, Castle Grant Orchard,
Agra. (iii) 27.9.1951. (iv) (a) N.A. (b) On 9’ ridges by hand at a depth of 1’ to 1’6”. (c) —. (d) As
per treatments. (e) One seedling/hole. (v) Nil. (vi) Snow ball (early). (vii) Irrigated. (viii) Thinning,
weeding, light earthing up and light cultivators. (ix) N.A. (x) 27.12.1951.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 5 levels of N as A/S: N₀ = 0, N₁ = 25, N₂ = 50, N₃ = 75 and N₄ = 100 lb/ac.
(2) 3 plant to plant spacings: S₁ = 3', S₂ = 6' and S₃ = 9'.
The fertilizer was applied at the time of sowing before making the ridges. Fertilizer mixed by rake in the soil. Row to row spacing was 14'.

3. DESIGN:
(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 3. (iv) (a) 12'×10'. (b) 10.5'×7'. (v) Plot border = 6'. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) No of leaves, length and breadth of biggest leaf, length of thickened portion of the root, fresh weight of tops, roots and whole plant; volume of roots and yield. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) No plot wise yield data are available. The experiment was conducted by B.R.C.

5. RESULTS:
(i) 13.04 ton/ac.
(ii) 8.1817 ton/ac.
(iii) Only main effects of N and S are highly significant.
(iv) Av. yield of roots in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>2.54</td>
</tr>
<tr>
<td>N₁</td>
<td>7.92</td>
</tr>
<tr>
<td>N₂</td>
<td>13.34</td>
</tr>
<tr>
<td>N₃</td>
<td>16.76</td>
</tr>
<tr>
<td>N₄</td>
<td>21.23</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.727</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.  
Site: Agri. Institute, Allahabad.  
Object: To study the effect of different forms of N on Sugarcane.

Ref: U.P. 53(387).  
Type: 'M'.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) and (b) Refer soil analysis, Allahabad. (iii) 16.2.1953. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) Irrigated. (viii) 5 hoeings, one with cultivator, 4 weedings, 2 intercultures, 2 earthings and 1 tying. (ix) N.A. (x) 6.1.1954.

2. TREATMENTS:
4 forms of Nitrogen:
1. C/N.  
2. A/S.  
3. Castor cake.  
4. Control.  
Half dose applied immediately after irrigation on 26 to 28.3.1953. Other half immediately after irrigation on 29 and 30.4.1953.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) 72'×66'. (iii) 6. (iv) (a) N.A. (b) 18'×66'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination and cane yield. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) il. (vii) Field record register was consulted. Experiment conducted by the Head of Agronomy Department, Allahabad Agricultural Institute, Allahabad. (A.A.I.)

5. RESULTS:
(i) 11.48 ton/ac.  
(ii) 1.903 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.07</td>
</tr>
<tr>
<td>2.</td>
<td>12.51</td>
</tr>
<tr>
<td>3.</td>
<td>11.33</td>
</tr>
<tr>
<td>4.</td>
<td>11.03</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>±0.777 ton/ac.</td>
</tr>
</tbody>
</table>

Crop : - Sugarcane.

Site : - Govt. Agri. Farm, Bahraich.

Object : - To study the response of cane to Super.

Ref : - U.P. 49(143).

Type : - 'M'.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Sandy loam. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 24.2.1949.
(iv) (a) to (e) N.A. (v) Castor cake at 20 lb./ac. of N. (vi) Co. 453 (medium). (vii) Irrigated. (viii) 3 hoeings.

2. TREATMENTS :
P₀ = Control (no manure).
P₁ = 60 lb./ac. of P₂O₅ broadcast before planting.
P₂ = 60 lb/ac of P₂O₅ drilled 3’x4’ deep in furrows before planting.
P₂O₅ applied as Super on 24.2.1949.

3. DESIGN :
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 81’x27’. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, no. of tillers, no. of millable canes and yield. (iv) (a) No. (b) and
(c) No. (v) (a) Zones : Pharenda, Baitalpur, Tamkohi, Ghughli, Chhitanni, Balrampur, Faizabad, Barhri
and Sardarnagar. (b) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS :
(i) 18.97 ton/ac.
(ii) 2.608 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>17.76</td>
</tr>
<tr>
<td>P₁</td>
<td>20.09</td>
</tr>
<tr>
<td>P₂</td>
<td>19.07</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>±1.065 ton/ac.</td>
</tr>
</tbody>
</table>

Crop : - Sugarcane.

Site : - Govt. Agri. Farm, Bahraich.

Object : - To study the response of cane to Super.

Ref : - U.P. 59(175).

Type : - 'M'.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Dhanicha for seed. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) N.A. (iv) (a) to (e) N.A. (v) Compost at 15 md/ac on 2.1.1950 and castor cake at 7 md/ac. on 15.5.1950.

2. TREATMENTS :
P₀ = Control (no manure).
P₁ = 150 lb./ac. of P₂O₅ broadcast before planting.
P₂ = 150 lb./ac. of P₂O₅ drilled 3’x4’ deep in furrows before planting.
P₂O₅ applied as Super on 12.3.1950.
3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 87' x 18'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, no. of tillers, no. of millable canes and yield. (iv) (a) 1950 and 1951. (b) and (c) No. (v) (a) Zones: Faizabad, Balrampur, Ghughli, Sardarnagar, Lakshmiyaganj, Tamkohi, Gauribazar, Nawabganj and Anandnagar. (b) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS:
(i) 28.83 ton/ac.
(ii) 3.10 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

\[
\begin{array}{c|c}
\text{Treatment} & \text{Av. yield} \\
\hline
P_0 & 27.10 \\
P_1 & 30.28 \\
P_2 & 29.10 \\
\text{S.E./mean} & 1.266 \text{ton/ac.} \\
\end{array}
\]

---

Crop : Sugarcane.  
Ref : U.P. 51(171)/50(175).  
Type : 'M'.

Site : Govt. Agri. Farm, Bahraich.

Object : To study the effect of Super on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Pea. (c) No. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 17.3.1951. (iv) (a) 4 ploughings with meston—5 cultivator and 4 ploughings. (b) flat sowing in lines. (c) 1566 buds/plot. (d) 3' between rows. (e) —. (v) Compost at 50 mds/ac. on 20.2.1951. Top dressing of G.N.C. at 7 mds 10 seers/ac. and A/S at 1 md. 9 seers/ac. (25 lb./ac. of N) on 17.3.1951. (vi) Co—453 (mid-late). (vii) Irrigated. (viii) 2 hoeings by kassi and 3 hoeings by cultivator. (ix) 40'. (x) 3.3.1952.

2. TREATMENTS:
\[P_0=\text{Control (no manure).} \]
\[P_1=150 \text{ lb./ac. of } P_2O_5 \text{ broadcast at planting.} \]
\[P_2=150 \text{ lb./ac. of } P_2O_5 \text{ drilled 3' deep at planting.} \]
\[P_2O_5 \text{ applied as Super on 17.3.1951.} \]

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 87' x 18'. (b) 87' x 18'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, no. of tillers, no. of millable cane and yield: (iv) (a) 1950—1951. (b) No. (c) No. (v) (a) Zones : Captanganj, Faizabad, Nawabganj, Bahrampur, Ghughli, Tamkohi, Sardarnagar, Anandnagar, Gauribazar (and Bahraich. (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:
(i) 22.87 ton/ac.
(ii) 2.825 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

\[
\begin{array}{c|c}
\text{Treatment} & \text{Av. yield} \\
\hline
P_0 & 22.57 \\
P_1 & 23.61 \\
P_2 & 22.44 \\
\text{S.E./mean} & 1.153 \text{ton/ac.} \\
\end{array}
\]
Crop : Sugarcane.  
Site : Govt. Agri. Farm, Bahraich.  
Object :-To study the response of Sugarcane to Super in combination with green manure.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Wheat and then G.M. or fallow as per treatments. (c) N.A.  
   (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 30, 31.1.1953. (iv) (a) 4 ploughings with desi plough levelling with the help of karaha and 2 harrowings. (b) flat sowing in lines. (c) 22178 buds/plot. (d) 3' between rows. (e) —. (v) Compost at 25 lb./ac. of N on 17 and 18.12.1952. Manuring of A/S at 60 lb./ac. of N on 4, 5.4.1953 where no green manuring was done. Top dressing with mixture (Source—N.A.) at 35 lb./ac. of N on 15.7.1953. (vi) Co-453 (medium). (vii) Irrigated. (viii) 2 hoeings and 1 earthing. (ix) N.A. (x) February 1954 (Date—N.A.).

2. TREATMENTS:
   1. Fallow—Sugarcane (no manure).
   2. Fallow—Sugarcane manured with 150 lb./ac. of P2O5 applied 3" deep at planting.
   3. Sanai as G.M.—Sugarcane.
   4. Sanai as G.M.—Sugarcane. Sanai manured with 150 lb./ac. of P2O5 at sowing.
   5. Sanai as G.M.—Sugarcane. Plot manured with 150 lb./ac. of P2O5 at the time of turning in Sanai. Sanai at 60 lb./ac. of N, turned in on 28.8.1952. Method of application of P2O5 as Super N.A.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 66' x 33'. (b) 66' x 33'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, no. of tillers, no. of millable canes and yield. (iv) (a) No. (b) No. (c) No. (v) (a) Zones : Captatinganj, Faizabad (3 trials), Gorakhpur (2 trails). (b) N.A. (vi) Nil. (vii) Experiment was conducted by D.S.R.(G).

5. RESULTS:
   (i) 28.71 ton/ac.
   (ii) 4.555 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of cane in ton/ac.
   Treatment   | Av. yield
   ----------- | -------
   1.         | 28.29
   2.         | 26.88
   3.         | 28.86
   4.         | 29.63
   5.         | 29.89
   S.E./mean  | 2.278 ton/ac.

Crop : Sugarcane.  
Site : Govt. Agri. Farm, Bahraich.  
Object :-To study the comparative efficacy of different green manures on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) G.M. as per treatments. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 15 and 16.2.1949. (iv) (a) to (e) N.A. (v) Castor cake at 45 lb./ac. of N. (vi) Co.453 (mid-late). (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) Feb. and March 1950.

2. TREATMENTS:
   8 kinds of G.M. sown before Sugarcane.
   1. Urd seed (control).  
   2. Sanai.  
   3. Metha.  
   4. Pea.  
   5. Guar.  
   6. Dhaincha.  
   7. Charti-Matri.  
   8. Fallow.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 87' x 21'. (v) N.A. (vi) Yes.
4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Sugarcane yield.  (iv) (a) to (c) No.  (v) (a) Zone : Balrampur, Baitalpur, Sardarnagar and Anandnagar.  (b) N.A.  (vi) Nil.  (vii) Experiment was conducted by D.S.R. (G).

5. RESULTS:
   (i) 24.68 ton/ac.  
   (ii) 2.384 ton/ac.  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>24.43</td>
<td>5.</td>
<td>24.08</td>
</tr>
<tr>
<td>2.</td>
<td>24.89</td>
<td>6.</td>
<td>24.00</td>
</tr>
<tr>
<td>3.</td>
<td>27.67</td>
<td>7.</td>
<td>23.53</td>
</tr>
<tr>
<td>4.</td>
<td>25.62</td>
<td>8.</td>
<td>23.19</td>
</tr>
</tbody>
</table>

S.E./mean = 1.192 ton/ac.

Crop: - Sugarcane.  
Site: - Govt. Agri. Farm, Faizabad,  
Ref: - U.P. 49(44).  
Type: - 'M'.

Object: - To study the response of Sugarcane to super.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Sanai for G.M.  (c) No.  (ii) (a) Loam.  (b) N.A.  (iii) 24.2.1949.  (iv) (a) to (e) N.A.  (v) Nil.  (vi) Cos-109 (medium).  (vii) Irrigated.  (viii) 2 hoeings.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   P₀ = Control (no manure).
   P₁ = 60 lb./ac. of P₂O₅ broadcast before planting.
   P₂ = 60 lb./ac. of P₂O₅ drilled 3" = 4" deep in furrows before planting.
   P₂O₅ applied as Super.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 3.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 600 x 30'.  (v) N.A.  (vi) Yes,

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Germination, no. of tillers, no. of millable sugarcane and yield.  (iv) (a) to (c) No.  (v) (a) Zones: Phasonda, Baitalpur, Tamkoshi, Ghughli, Chhitanni, Balrampur, Bahraich, Bahni and Sardarnagar.  (b) N.A.  (vi) Nil.  (vii) Experiment was conducted by D.S.R. (G).

5. RESULTS:
   (i) 15.03 ton/ac.  
   (ii) 1.30 ton/ac.  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of sugarcane in ton/ac.

   Treatment  Av. yield
   P₀       14.43
   P₁       15.20
   P₂       15.45

S.E./mean = 0.331 ton/ac.

Crop: - Sugarcane.  
Site: - Govt. Agri. Farm, Faizabad.  
Ref: - U.P. 50(176).  
Type: - 'M'.

Object: - To study the response of Sugarcane to super.

1. BASAL CONDITIONS:
2. TREATMENTS:

- \( P_0 = \text{Control (no manure)} \)
- \( P_1 = 150 \text{ lb./ac. of } P_{2O_5} \text{ broadcast before planting} \)
- \( P_2 = 150 \text{ lb./ac. of } P_{2O_5} \text{ drilled 3'--4' deep in furrows before planting}. \)
- \( P_{2O_5} \text{ applied as Super} \)

3. DESIGN:

- (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 54'x24'. (v) N.A. (vi) Yes.

4. GENERAL:

- (i) N.A. (ii) N.A. (iii) Germination, no. of millable cane and cane yield. (iv) (a) 1950 and 1951. (b) and (c) N.A. (v) (a) Bahraich, Balrampur, Ghugli, Sardarnagar, Lakshmiganj, Tamkohi, Gauribazar, Nawabganj and Anandnagar. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS:

- (i) 13.18 ton/ac.
- (ii) 1.513 ton/ac.
- (iii) Treatment differences are not significant.
- (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_0 )</td>
<td>12.93</td>
</tr>
<tr>
<td>( P_1 )</td>
<td>13.54</td>
</tr>
<tr>
<td>( P_2 )</td>
<td>13.06</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.618 ton/ac.</td>
</tr>
</tbody>
</table>

---

Crop : Sugarcane.  
Site : Govt. Agri. Farm, Faizabad.  
Ref : U.P. 51(172)/50(176).  
Type : 'M'.

Object : To study the response of cane to Super.

1. BASAL CONDITIONS:

- (i) (a) Nil. (b) Sanai for G.M. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 29.1.1951. (iv) (a) Ploughing by M.C. cultivator on 3.1.1951, 27.1.1951, harrowing by Shahjahanpur kanta 31.12.1950, finger harrow on 2.1.1951, and ploughing by pragha plough on 25.12.1950. (b) N.A. (c) 1728 buds/plot. (d) 3' distance with in lines by winged deshi plough. (e) --. (v) Sanai at 50 lb./ac of N, A/S at 48 lb./ac of N on 27.1.1951. A/S at 12 lb./ac of N as top dressing. (vi) Co 453 (mid-late). (vii) Irrigated. (viii) Hoeing by kasti on 27.2.1951, by cultivator on 22.3.1951, 8.4.1951 and 14.5.1951. Earthing up by spade on 20.8.1951. (ix) N.A. (x) 1,2,3.1952.

2. TREATMENTS:

- \( P_0 = \text{Control (no manure)} \)
- \( P_1 = 150 \text{ lb./ac of } P_{2O_5} \text{ broadcast before planting} \)
- \( P_2 = 150 \text{ lb./ac of } P_{2O_5} \text{ applied in furrows before planting} \)
- \( P_{2O_5} \text{ applied as Super} \)

3. DESIGN:

- (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 54'x27'. (b) 58'x21'. (v) 3' ring round net plot. (vi) Yes.

4. GENERAL:

- (i) N.A. (ii) N.A. (iii) Germination, no. of tillers, no. of millable cane and yield of cane at harvest including canes harvested for juice analysis. (iv) (a) 1950-1951. (b) and (c) No. (v) Zone : Captalinganj, Faizabad, Nawabganj, Balrampur, Ghugli, Tamkohi, Sardarnagar, Anandnagar, Gauribazar and Balrampur. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS:

- (i) 19.18 ton/ac.
- (ii) 3.041 ton/ac.
- (iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>19.51</td>
</tr>
<tr>
<td>P₁</td>
<td>19.07</td>
</tr>
<tr>
<td>P₂</td>
<td>18.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.241 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Govt. Agri. Farm, Faizabad.

Object :- To study the response of Sugarcane to \( \text{P}_2\text{O}_5 \) in combination with G.M. applied at different times.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) G.M. or fallow as per treatments. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 12.2.1953. (iv) (a) 2 ploughings by *proja* plough and 6 ploughings by *desi* plough on 2.2.1953, 6.2.1953 (twice) 9.2.1953 (four times). Harrowing by Shahjahanpur *kanta* on 2.2.1953, 7.2.1953. (b) Flat planting. (c) 1728 buds/plot. (d) 3' distance in lines; furrows opened by *desi* plough. (e) —. (v) A/S at 55 lb./ac. of N on 12.2.1953. Top dressing A/S at 35 lb./ac. of N on 5.8.1953. (vi) CO. 416 (medium). (vii) Irrigated. (viii) 6 hoeings by *kudali* and once earthing up by spade. (ix) N.A. (x) 13, 14 and 25.2.1954.

2. TREATMENTS:
   1. Fallow followed by sugarcane.
   2. Fallow—Super at 150 lb./ac. of \( \text{P}_2\text{O}_5 \) applied 3' deep at planting of sugarcane.
   3. *Sanai* green manuring followed by sugarcane.
   4. *Sanai* green manuring+Super at 150 lb./ac. of \( \text{P}_2\text{O}_5 \) applied at the time of sowing *sanai* followed by sugarcane.
   5. *Sanai* green manuring+Super at 150 lb./ac. of \( \text{P}_2\text{O}_5 \) applied at the time of turning of *sanai* followed by cane.

   Method of application of \( \text{P}_2\text{O}_5 \) N.A.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 64'×27'. (b) 58'×21'. (v) 3' all round net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, no. of tillers, no. of millable cane and yield. (iv) (a) 1953—1955 (Expt. not conducted in 1954—1955). (b), (c) No. (v) (a) Zone: Faizabad Padranna, Gorakhpur and Baharaich. (b) N.A. (vi) Nil. (vii) Experiment was conducted by D.S.R.(G).

5. RESULTS:
   (i) 11.90 ton/ac.
   (ii) 1.145 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.97</td>
</tr>
<tr>
<td>2.</td>
<td>10.55</td>
</tr>
<tr>
<td>3.</td>
<td>11.22</td>
</tr>
<tr>
<td>4.</td>
<td>13.76</td>
</tr>
<tr>
<td>5.</td>
<td>14.02</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.573 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Object :- To study the effect of application of \( \text{P}_2\text{O}_5 \) and CaO to Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) G.M.—wheat. (b) *Dhaincha* (for seed). (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 18, 19.2.1950. (iv) (a) 7 preparatory ploughings with watts and *desi* ploughs. (b) Sown in trenches. (c) to (e).N.A. (v) 100 lb./ac. of N as F.Y.M. and 20 lb./ac. as A/S top dressing before sowing. (vi) CO.S. 109. (vii) Irrigated. (viii) Earthing from 2 to 5.8.1950 and 7 hoeings. (ix) 44.96°. (x) 12.2.1951.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of P$_2$O$_5$ as Super: P$_0$=0, P$_1$=100 and P$_2$=200 lb./ac.
(2) 2 levels of CaO as lime: L$_0$=0 and L$_1$=2 ton/ac.

3. DESIGN:
(i) 2 x 3 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 56’ x 21’. (b) 50’ x 15’. (v) 3’ around. (vi) Yes.

4. GENERAL:
(i) Normal and no lodging. (ii) Borer attacked the crop and were killed. (iii) Germination, no. of tillers, no. of millable canes and yield. (iv) (a) 1950—1952. (b), (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G).

5. RESULTS:
(i) 25.44 ton/ac.
(ii) 5.932 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>L$_0$</th>
<th>L$_1$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P$_0$</td>
<td>24.59</td>
<td>26.40</td>
<td>25.50</td>
</tr>
<tr>
<td>P$_1$</td>
<td>25.31</td>
<td>24.05</td>
<td>24.68</td>
</tr>
<tr>
<td>P$_2$</td>
<td>25.10</td>
<td>27.20</td>
<td>26.15</td>
</tr>
</tbody>
</table>

S.E. of P marginal means = 2.097 ton/ac.
S.E. of L marginal means = 1.712 ton/ac.
S.E. of body of table = 2.966 ton/ac.

Crop:—Sugarcane.
Site:—Sugarcane Res. Sub-Stn., Kunraghat.
Ref:—U.P. 51(19).
Type:—‘M’.

Object:—To study the effect of application of P$_2$O$_5$ and CaO on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) G.M.—Whstl. (b) Sansi (G.M.) at 40 lb./ac. of N. (c) G.M. (ii) (a) Sandy loam.
(b) N.A. (iii) 31.1.1951. (iv) (a) 5 preparatory ploughings and harrowing with desi and watts ploughs.
Making trenches and dismantling them. (b) Sown in trenches. (c) 60—3 budded setts/row. (d) and
(e) N.A. (v) Neem cake applied in furrows at planting at 30 lb. /ac. of N. Neem cake and A/S applied
at tilling at 25 lb./ac. of N each. Single Super (18% P$_2$O$_5$) and lime applied in furrows at planting
as per treatments. (vi) CO.S. 109. (vii) Irrigated. (viii) 2 earthings and 9 hoeings. (ix) 27.19’. (x)

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of P$_2$O$_5$ as Super: P$_0$=0, P$_1$=100 and P$_2$=200 lb./ac.
(2) 2 levels of CaO as lime: C$_0$=0 and C$_1$=2 ton/ac.

3. DESIGN:
(i) 2 x 3 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 56’ x 21’. (b) 50’ x 15’. (v) 3’ around. (vi) Yes.

4. GENERAL:
(i) Normal. No lodging. (ii) Attack of borers. (iii) Germination, no. of tillers, no. of millable
sugarcanes and sugarcane yield. (iv) (a) 1950—1952. (b) (c) No. (v) (a) and (b) No. (vi) Nil.
(vii) Experiment was conducted by D.S.R.(G).
5. RESULTS:
(i) 18.64 ton/ac.
(ii) 2.219 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$L_0$</th>
<th>$L_1$</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
<td>$P_0$</td>
<td>17.07</td>
<td>20.06</td>
<td>18.57</td>
</tr>
<tr>
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<td>17.66</td>
<td>20.67</td>
<td>19.17</td>
</tr>
<tr>
<td>$P_2$</td>
<td>18.58</td>
<td>17.78</td>
<td>18.18</td>
</tr>
</tbody>
</table>

Mean differences:
- S.E. of $P$ marginal means = 0.820 ton/ac.
- S.E. of $L$ marginal means = 0.670 ton/ac.
- S.E. of any mean of body of table = 1.160 ton/ac.

Ref: U.P. 52(56).
Type: "M".

Crop: Sugarcane.
Site: Sugarcane Res. Sub-Stn., Kunraghat.

Object: To study the response of Sugarcane to Super in presence and absence of Gypsum.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat. (b) Sanai for G.M. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 10.2.1952. (iv) (a) 5 ploughings with victory and desi ploughs and 2 harrowings with cultivator. (b) Sown in trenches. (c) 60—3 budded setts/row. (d) and (e) N.A. (v) A/S as top-dressing at 70 lb./ac. of N (4 mds. 15 seers). (vi) CO.S. 511. (vii) Irrigated. (viii) 2 earthings and 4 hoeings. (ix) 34.40'. (x) 7.2.1953 to 2.3.1953.

2. TREATMENTS:
'All combinations of (1) and (2) 
(1) 3 levels of $P_2O_5$ as Super: $P_0=0$, $P_1=100$ and $P_2=200$ lb./ac.
(2) 2 levels of Gypsum: $G_0=0$ and $G_1=14$ ton/ac.

3. DESIGN:
(i) 2×3 fact. in R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) 56'×24'. (b) 50'×18'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Normal. No lodging. (ii) Attack of borer. (iii) Germination, no. of tillers, no. of millable sugarcane and yield. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(G).

5. RESULTS:
(i) 26.62 ton/ac.
(ii) 5.013 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$G_0$</th>
<th>$G_1$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_0$</td>
<td>27.35</td>
<td>24.32</td>
<td>25.84</td>
</tr>
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<td>$P_1$</td>
<td>29.07</td>
<td>26.59</td>
<td>27.78</td>
</tr>
<tr>
<td>$P_2$</td>
<td>24.86</td>
<td>27.60</td>
<td>26.23</td>
</tr>
</tbody>
</table>

Mean differences:
- S.E. of $P$ marginal means = 1.773 ton/ac.
- S.E. of $G$ marginal means = 1.447 ton/ac.
- S.E. of body of table = 2.507 ton/ac.
Crop :- Sugarcane.  
Ref :- U.P. S1(22).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.  
Type :-'M'.

Object :- To compare the effect of application of A/S and C/N on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Barley and Gram. (b) Chari for grain. (c) G.M. (ii) (a) Sandy loam. (b) N.A.  
   (iii) 3.3.1951. (iv) (a) 4 preparatory ploughings with desi and victory ploughs. (b) Sown in trenches.
   (c) 45-3 budded setts/row (d) and (e) N.A. (v) Nil. (vi) CO.453 (late). (vii) Irrigated. (viii) 7
   hoeings, 1 after each irrigation and 2 earthings. (ix) 27.15°. (x) 22.12.1951 to 2.2.1952.

2. TREATMENTS:
   All combinations of (1) and (2) + a control (no manure)
   (1) 2 sources of N : S₁=A/S and S₂=C/N.
   (2) 3 levels of N : N₁=50, N₂=100 and N₃=150 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 41'x30'. (b) 35'x24'. (v) 3' around. (vi) Yes.

4. GENERAL:
   (i) Normal. No lodging. (ii) No. (iii) Germination, no. of tillers, no. of millable canes and sugarcane
   yield. (iv) (a) 1951 to 1953. (b) and (c) N(s. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was
   conducted by D.S.R. (G).

5. RESULTS:
   (i) 12.90 ton/ac.
   (ii) 3.628 ton/ac.
   (iii) Only control vs others is significant.
   (iv) Av. yield of sugarcane in ton/ac.

   Control=8.960 ton/ac.

   \[
   \begin{array}{ccc}
   & S₁ & S₂ \\
   N₁ & 12.34 & 13.55 \\
   N₂ & 14.54 & 13.64 \\
   N₃ & 14.15 & 13.09 \\
   \hline
   \text{Mean} & 13.68 & 13.43 \\
   \end{array}
   \]

   S.E. of S marginal means = 1.047 ton/ac.
   S.E. of N marginal means = 1.283 ton/ac.
   S.E. of body of table = 1.814 ton/ac.
   S.E. of control vs any mean in body of table = 2.566 ton/ac.


3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 40'x30'. (b) 34'x24'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Normal. No lodging. (ii) Attack of borer. (iii) Germination. No. of tillers. No. of millable sugar-
cane and yield. (iv) (a) 1951 to 1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment
was conducted by D.S.R. (G).

5. RESULTS:
(i) 17.19 ton/ac.
(ii) 2.488 ton/ac.
(iii) Only control vs others is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

Control=11.74 ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>S_1</th>
<th>S_2</th>
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</tr>
</thead>
<tbody>
<tr>
<td>N_1</td>
<td>17.20</td>
<td>18.06</td>
<td>17.63</td>
</tr>
<tr>
<td>N_2</td>
<td>19.71</td>
<td>15.85</td>
<td>17.78</td>
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<tr>
<td>N_3</td>
<td>19.86</td>
<td>17.94</td>
<td>18.90</td>
</tr>
<tr>
<td>Mean</td>
<td>18.92</td>
<td>17.28</td>
<td>18.10</td>
</tr>
</tbody>
</table>

S.E. of S marginal means =0.718 ton/ac.
S.E. of N marginal means =0.880 ton/ac.
S.E. of body of table =1.244 ton/ac.
S.E. of control vs any mean in body of table =1.760 ton/ac.

Crop :-Sugarcane. Ref :-U.P. 53(171) , 52(68) , 51(22)
Site :-Sugarcane Res. Sub-Stat., Kunraghat. Type :-'M'.
Object :-To compare the effect of application of A/S and C/N on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Fallow-Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.2.1953. (iv) (a)
8 ploughings with victory and desi ploughs. (b) Sown in trenches. (c) 45 three budded sets/row. (d) and
(e) N.A. (v) Nil. (vi) CO.453 (date). (vii) Irrigated. (viii) 2 earthing on 25.7.1953 and 29.7.1953. (ix)

2. TREATMENTS:
All combinations of (1) and (2)+ a control (no manure)
(1) 2 sources of N : S_1=A/S and S_2=C/N.
(2) 3 levels of N : N_1=50, N_2=100, N_3=150 lb/ac.
Date of manuring 30.4.1953.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 40'x30'. (b) 34'x24'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Normal and no lodging. (ii) Attack of borer. (iii) Germination. No. of tillers. No. of millable cane and
yield. (iv) 1951—1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment
was conducted by D.S.R. (G).

5. RESULTS:
(i) 21.93 ton/ac.
(ii) 2.363 ton/ac.
(iii) S and N effects are highly significant. Interaction S \times N is not significant. Effect of control vs others
is highly significant.
Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Object :- To study the effect of different trace elements on Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) G.M.—Wheat—Dhaincha for seed—Sugarcane. (b) Dhaincha for seed. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 18.2.1948. (iv) (a) 7 preparatory ploughings with desi and watts ploughs. (b) Sown flat. (c) 40-3 budded setts/row. (d) and (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 7 hoeing and 1 earthing up. (ix) 48.99'. (x) 12, 13.3.1949.

2. TREATMENTS :
   1. Control.
   2. CuSO₄ at 1.4 lb./ac.
   3. MgSO₄ at 28 lb/ac.+CuSO₄ at 1.4 lb/ac.
   4. FeSO₄ at 28 lb/ac.+CuSO₄ at 1.4 lb/ac.
   Treatments given on 7.3.1948 as top dressing.

3. DESIGN :
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 40'×21'. (b) 34'×15'. (v) 3' alround. (vi) Yes.

4. GENERAL :
   (i) Normal. No lodging. (ii) No. (iii) Germination, no. of tillers, no. of millable canes and cane yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS :
   (i) 25.19 ton/ac.
   (ii) 1.717 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of cane in ton/ac.
   Treatment          Av. yield
   1.                 26.85
   2.                 25.36
   3.                 24.02
   4.                 24.55
   S.E./mean         =0.859 ton/ac.
Crop: Sugarcane. 
Site: Sugarcane Res. Sub-Stn., Kunraghat. 

Object: To study the effect of different G.M. crops manured and unmanured on the succeeding Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Wheat—G.M. (Kharif and Rabi)—Sugarcane. (b) Wheat—Sanai. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 17.2.1948. (iv) (a) 10 preparatory ploughings with desi and watts plough. (b) Sown flat. (c) 60-3 budded setts/row. (d) and (e) N.A. (v) G.M. with Sanai on 23 and 25.9.1948, 13.10.1948. (vi) CO.S. 109. (vii) Irrigated. (viii) 6 hoeings and 2 earthings. (ix) 48.9°. (x) 16.2.1949 to 2.3.1949.

2. TREATMENTS:
   1. Sanai (G.M.).
   2. Sanai+Berseem.
   3. Sanai+A/S at 50 lb./ac. of N.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 60’ X 24’. (b) 54’ X 18’. (v) 3’ around. (vi) Yes.

4. GENERAL:
   (i) Normal. No lodging. (ii) No. (iii) Germination, no. of tillers, no. of millable canes and sugarcane yield. (iv) (a) 1948—1949. (b), (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Expt. was conducted by D.S.R.(G).

5. RESULTS:
   (i) 25.03 ton/ac.
   (ii) 3.818 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.03</td>
</tr>
<tr>
<td>2.</td>
<td>23.73</td>
</tr>
<tr>
<td>3.</td>
<td>25.32</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.909 ton/ac.</td>
</tr>
</tbody>
</table>

---

Crop: Sugarcane. 
Site: Sugarcane Res. Sub-Stn., Kunraghat. 

Object: To study the effect of different G.M. crops manured and unmanured on the succeeding Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Wheat—G.M. (Kharif and Rabi)—Sugarcane. (b) Wheat—Sanai. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 23.2.1949. (iv) (a) 6 preparatory ploughings. (b) Sown flat. (c) 60-3 budded setts/row. (d) and (e) N.A. (v) G.M. with sanai sown on 7.7.1948 and buried on 23.8.1948. (vi) CO.S. 109. (vii) Irrigated. (viii) 9 hoeings and 1 earthing on 11 to 13.7.1949. (ix) 52.86°. (x) 9 to 11.3.1950.

2. TREATMENTS:
   1. Control—Sanai Green manured.
   2. Sanai+A/S at 50 lb./ac. of N.
   3. Sanai+Berseem (Green manured).


3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 60’ X 24’. (b) 54’ X 18’. (v) 3’ around. (vi) Yes.

4. GENERAL:
   (i) Normal, no lodging. (ii) No. (iii) Germination, tillers, millable canes and sugarcane yield. (iv) (a) 1948—1949. (b), (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Expt. conducted by D.S.R.(G).
5. RESULTS:
(i) 26.55 ton/ac.
(ii) 5.182 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.40</td>
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<tr>
<td>2.</td>
<td>27.92</td>
</tr>
<tr>
<td>3.</td>
<td>26.33</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.591 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Kunraghat.
Ref :- U.P. 48(2).
Type :- ‘M’.

Object :- To study the effect of application of N as A/S and A/N at different levels on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat—Dhaincha for seed—Sugarcane. (b) Dhaincha for seed. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 6 and 7.2.1948. (iv) (a) 8 preparatory ploughings with desti and watts ploughs. (b) Sown flat. (c) 85—3 budded sets/row. (d) and (e) N.A. (v) Nil. (vi) CO.S. 109. (vii) Irrigated. (viii) Earthing from 17.7.1948 to 21.8.1948 and hoeings—9. (ix) 48.99'. (x) 9.2.1949 to 1.3.1949.

2. TREATMENTS:
All combinations of (1) and (2)+3 selective treatments
(1) 2 sources of N : S₁=A/S and S₂=A/N.
(2) 3 levels of N : N₁=50, N₂=100 and N₃=150 lb./ac.
3 selective treatments—
T₁=control (no manure).
T₂=urine earth at 150 lb./ac. of N.
T₃=press mud cake at 150 lb./ac. of N.

3. DESIGN:
(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 85°x21°. (b) 79°x15°. (v) 3’ border left around the gross plot. (vi) Yes.

4. GENERAL:
(i) Normal. No lodging. (ii) No. (iii) Germination, tiller, millable sugarcane and yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(G).

5. RESULTS:
(i) 21.48 ton/ac.
(ii) 3.067 ton/ac.
(iii) Selective treatments differ significantly. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>Mean</th>
</tr>
</thead>
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<tr>
<td>S₁</td>
<td>22.12</td>
<td>21.86</td>
<td>19.65</td>
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<tr>
<td>S₂</td>
<td>20.84</td>
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<td>23.91</td>
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<tr>
<td>Mean</td>
<td>21.48</td>
<td>21.27</td>
<td>21.78</td>
</tr>
</tbody>
</table>

S.E. of S marginal means = 0.885 ton/ac.
S.E. of N marginal means = 1.084 ton/ac.
S.E. of body of table = 1.533 ton/ac.
S.E. of selective treatments = 1.533 ton/ac.
Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Kunraghat.
Ref :- U.P. 53(172).
Type :- 'M'.

Object :- To study the effect of G.M. with time of application of P fertilizers.

1. BASAL CONDITIONS :
   (i) (a) G.M.—Sugarcane. (b) Wheat.—G.M. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) Sugarcane 21 and 22.2.1953 and date of sowing of green manures 23.6.1952. (iv) (a) 10 ploughings with desi and victory plough. (b) N.A. (c) 85–3 budded setts/row were planted. (d) and (e) N.A. (v) Super at 150 lb. P₂O₅ and 120 lb./ac. of N as 60 lb. of N from G.M. and 60 lb. of N from A/S on 8.5.1953. (vi) CO.S. 443. (vii) Irrigated. (viii) Earthing on 12, 13, 16 and 22.8.1953. (ix) 48.64°E. (x) Sugarcane 11.2.1954 to 24.3.1954.

2. TREATMENTS :
   Main-plot treatments :
   3 kinds of G.M. and fallows : G₁=Sana, G₂=Dhaincha, G₃=Cowpea and G₄=Fallow.
   Sub-plot treatments :
   3 times of application of P₂O₅+a control : P₀=no manure (control), P₁=150 lb./ac. of P₂O₅ applied at sowing G.M., P₂=150 lb./ac. of P₂O₅ applied at turning in of G.M. and P₃=150 lb./ac. of P₂O₅ applied at planting sugarcane.

3. DESIGN :
   (i) Split-plot. (ii) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) '84' x '18'. (b) 18' x 12'. (b) 3' border around the gross plot was excluded. (vi) Yes.

4. GENERAL :
   (i) Normal and no lodging. (ii) Attack of borer. (iii) Germination; tillers, millable canes and yield. (iv) (a) 1953–1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(G).

5. RESULTS :
   (i) 28.71 ton/ac.
   (ii) (a) 4.345 ton/ac.
   (b) 1.690 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>Mean</th>
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<tbody>
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<td>28.22</td>
<td>28.61</td>
<td>26.56</td>
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<td>G₂</td>
<td>31.74</td>
<td>29.08</td>
<td>30.09</td>
<td>30.25</td>
<td>30.29</td>
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<tr>
<td>G₃</td>
<td>29.01</td>
<td>29.26</td>
<td>27.61</td>
<td>28.65</td>
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<td>28.82</td>
<td>25.26</td>
<td>30.53</td>
<td>27.62</td>
<td>28.06</td>
</tr>
<tr>
<td>Mean</td>
<td>29.40</td>
<td>27.96</td>
<td>29.21</td>
<td>28.27</td>
<td>28.71</td>
</tr>
</tbody>
</table>

   S.E. of difference of two
   1. main-plot treatment marginal means =1.810 ton/ac.
   2. sub-plot treatment marginal means =0.690 ton/ac.
   3. sub-plot treatment means at the same level of main-plot treatment =1.380 ton/ac.
   4. main-plot treatment means at the same level of sub-plot treatment =2.169 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.
Ref :- U.P. 48(8).
Type :- 'M'.

Object :- To study the effect of placement of super on Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) Fallow—Sugarcane. (b) Cotton (against fallow). (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 5.3.1948. (iv) (a) 14 preparatory ploughings. (b) Sown flat. (c) 3 buds/ft. of a row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.451 (mid season). (vii) Irrigated. (viii) 2 hoeings. (ix) 31.95°E. (x) N.A.
2. TREATMENTS:
   1. Control.
   2. 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Super broadcast.
   3. 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Super in trenches.
   4. 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Super dibbling 4' deep.
   5. 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Super dibbling 7' deep.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 53.2'×30'. (b) 47.2'×24'. (v) 1 row on either side and 3, at each end. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination count of tiller and millable cane and sugarcane yield. (iv) (a) 1949 to 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. RESULTS:
   (i) 32.39 ton/ac.
   (ii) 1.820 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>33.20</td>
</tr>
<tr>
<td>2.</td>
<td>33.43</td>
</tr>
<tr>
<td>3.</td>
<td>29.46</td>
</tr>
<tr>
<td>4.</td>
<td>33.85</td>
</tr>
<tr>
<td>5.</td>
<td>31.94</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.910 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane. Ref: U.P. 49(10)/48(8).
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar. Type: ‘M’.

Object: To study the effect of placement of super on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Fallow Sugarcane. (b) \textit{G}uar for grain—Fallow. (c) G.N.C. at 100 lb./ac. of N and A/S at 20 lb./ac. of N. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 7.3.1949. (iv) (a) 8 preparatory ploughings. (b) Sown flat. (c) 3 buds per foot of a row. (d) Rows 3’ apart. (e) —. (v) Nil. (vi) CO.421 (mid-season). (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) 22.50’. (x) 28.12.1949 to 21.1.1950.

2. TREATMENTS:
   1. Control.
   2. 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Super broadcast.
   3. 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Super in trenches.
   4. 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Super dibbling 4' deep.
   5. 100 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Super dibbling 7' deep.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 53.2'×30'. (b) 47.2'×24'. (v) 1 row on either side and 3', at each end. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, count of tillers, millable cane and sugarcane yield. (iv) (a) 1948 to 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. RESULTS:
   (i) 29.51 ton/ac.
   (ii) 2.780 ton/ac.
   (iii) Treatment differences are highly significant.
Crop :- Sugarcane.
Ref :- U.P. 50(33)/49(10)/48(8).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar. Type :- 'M'.

Object :- To study the effect of placement of super on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Fallow - Sugarcane. (b) Guar - Fallow. (c) G.N.C. at 100 lb/ac. of N. and A/S at 20 lb/ac. of N. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 21.2 1950. (iv) (a) 8 preparatory ploughings. (b) Sown flat. (c) N.A. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.421 (mid-season). (vii) Irrigated. (viii) 12 hoeings and earthing up in August. (ix) 38.60". (x) 29.11.1950 to 17.1.1951.

2. TREATMENTS:
   1. Control.
   2. 100 lb/ac. P<sub>2</sub>O<sub>5</sub> as Super applied by broadcast.
   3. 100 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super applied in trenches.
   4. 100 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super applied by dibbling 4" deep.
   5. 100 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super applied by dibbling 7" deep.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 53.2' x 30'. (b) 47.2' x 24'. (v) One row on each side and 3' at each end. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, tiller, millable cane countings and yield. (iv) (a) 1948-1950. (b), (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(M).

5. RESULTS:
   (i) 28.06 ton/ac.
   (ii) 3.233 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>31.88</td>
</tr>
<tr>
<td>2.</td>
<td>33.79</td>
</tr>
<tr>
<td>3.</td>
<td>18.23</td>
</tr>
<tr>
<td>4.</td>
<td>32.13</td>
</tr>
<tr>
<td>5.</td>
<td>31.52</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 1.390 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane (Ratoon).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar. Type :- 'M'.

Object :- To find out the optimum dose of manure for first year Ratoon.

1. BASAL CONDITIONS:
   (i) (a) G.M.-Wheat - Sanai or Moong - Sugarcane - Ratoon. (b) Sugarcane (plant cane). (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) Ratoon. (iv) (a) One preparatory ploughing (b) Sown flat. (c) 3 buds in 1 ft. of a row. (d) Rows 3' apart. (e) -. (v) Nil. (vi) CO.421 (mid-season). (vii) Irrigated. (viii) Earthing up in August. (ix) 31.95". (x) 23.12.1948 to 25.12.1948.
2. TREATMENTS:
8 doses of N as A/S+G.N.C. in 1 : 1 ratio: \(N_0=0, N_1=80, N_2=100, N_3=120, N_4=140, N_5=160, N_6=180\) and \(N_7=200\) lb./ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 75'×21'. (b) 69'×15'. (v) One row on either side and 3' at each end. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tiller, millable cane counting and yield. (iv) (a) 1948—1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (M).

5. RESULTS:
(i) 23.01 ton/ac.
(ii) 2.20 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
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<tr>
<td>(N_0)</td>
<td>13.68</td>
<td>(N_4)</td>
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<tr>
<td>(N_1)</td>
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<td>(N_5)</td>
<td>24.21</td>
</tr>
<tr>
<td>(N_2)</td>
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<td>(N_6)</td>
<td>25.33</td>
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<tr>
<td>(N_3)</td>
<td>25.37</td>
<td>(N_7)</td>
<td>24.88</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.100</td>
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</table>

Crop :- Sugarcane (Ratoon).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.
Type :- 'M'.

Object :-To find out the optimum dose of manure for first year Ratoon.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat—Sanai or Maong—Sugarcane—Ratoon. (b) Sugarcane (plant cane). (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) Ratoon. (iv) (a) One preparatory ploughing. (b) Sown flat. (c) 3 buds/foot of a row. (d) Rows 3' apart. (e) -. (v) Nil. (vi) CO.421 (mid-season). (vii) Irrigated. (viii) 2 hoeings, earthing up in July. (ix) 20.73'. (x) 12.12.1949 to 20.12.1949.

2. TREATMENTS:
8 doses of N as A/S+G.N.C. in 1 : 1 ratio: \(N_0=0, N_1=80, N_2=100, N_3=120, N_4=140, N_5=160, N_6=180\) and \(N_7=200\) lb./ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 75'×21'. (b) 69'×15'. (v) One row on either side and 3' at each end; a distance of 4' and 3' between blocks alternately. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tiller, millable cane counting and yield. (iv) (a) 1948—1950. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. RESULTS:
(i) 21.53 ton/ac.
(ii) 2.040 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<tr>
<td>(N_0)</td>
<td>14.97</td>
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<td>24.46</td>
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<td>(N_2)</td>
<td>19.27</td>
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<td>23.61</td>
</tr>
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<td>(N_3)</td>
<td>21.55</td>
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</tr>
<tr>
<td>S.E./mean</td>
<td>=1.020</td>
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</table>
Crop: Sugarcane (Ratoon).  
Ref: U.P. 50(30)/49(6)/48(5).  
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.  
Type: 'M'.

Object: To find out the optimum dose of manure for first year Ratoon.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Wheat-Sanai or Moong-Sugarcane—Ratoon.  
       (b) Plant cane (Sugarcane). (c) Nil.  
       (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar.  
       (iii) Ratoon. (iv) (a) One preparatory ploughing.  
       (b) Sown flat. (c) N.A. (d) Rows 3' apart. (e) —.  
       (v) Nil. (vi) CO.421 (mid-season). (vii) Irrigated.  
       (viii) 4 hoeings and earthing up in July. (ix) 34.70'. (x) N.A.

2. TREATMENTS:
   8 doses of N as A/S+G.N.C. in 1 : 1 ratio:  
   $N_0 = 0$, $N_1 = 80$, $N_2 = 100$, $N_3 = 120$, $N_4 = 140$, $N_5 = 160$,  
   $N_6 = 180$ and $N_7 = 200$ lb./ac.

3. DESIGN:
   (i) R.H.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 75' x 21'. (b) 69' x 15'.  
   (v) For row on either side and 3' at each end. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, tiller, millable cane counting and yield.  
   (iv) (a) 1948—1950. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. RESULTS:
   (i) 22.95 ton/ac.  
   (ii) 2.109 ton/ac.  
   (iii) Treatment differences are highly significant.  
   (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
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<td>$N_2$</td>
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<td>$N_6$</td>
<td>25.36</td>
</tr>
<tr>
<td>$N_3$</td>
<td>22.80</td>
<td>S.E./mean</td>
<td>1.054 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane (Ratoon).  
Ref: U.P. 48(6).  
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.  
Type: 'M'.

Object: To find out the optimum time of application of A/S over a basal dressing of F.Y.M.

1. BASAL CONDITIONS:
   (i) (a) Fallow—Sugarcane. (b) Sanai (against fallow). (c) No.  
       (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar.  
       (iii) 23.2.1948. (iv) (a) 12 preparatory ploughings. (b) Sown flat. (c) 3 buds/ft. of a row  
       (d) Rows 3' apart. (e) —.  
       (v) As per treatments. (vi) CO. 421 (mid-season). (vii) Irrigated. (viii) 2 hoeings and earthing also. (ix) 31.95'. (x) 7.1.1949.

2. TREATMENTS:
   5 application of N at 60 lb./ac.
   1. 5 doses of 12 lb./ac. of N each at planting and 4, 8, 12 and 16 weeks after planting.  
   2. 3 doses of 20 lb./ac. of N each at planting and 8 and 16 weeks after planting.  
   3. 2 doses of 30 lb./ac. of N each at planting and at tillering.  
   4. 60 lb./ac. of N at planting.  
   5. 60 lb./ac. of N at tillering.  
   N is applied as A/S. A basal dose of 40 lb./ac. of N as F.Y.M. is applied.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 42' x 33'. (b) 36' x 27'. (v) A row on each side and 3' at each end. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Germination, tiller, and millable sugarcane counting and yield.  
   (iv) (a) 1946—1948. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).
RESULTS:
(i) 30.57 ton/ac.
(ii) 1.580 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28.88</td>
</tr>
<tr>
<td>2.</td>
<td>29.84</td>
</tr>
<tr>
<td>3.</td>
<td>31.60</td>
</tr>
<tr>
<td>4.</td>
<td>32.09</td>
</tr>
<tr>
<td>5.</td>
<td>30.46</td>
</tr>
<tr>
<td>Mean</td>
<td>30.96</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.790 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :: Sugarcane.
Site :: Sugarcane Res. Sub-Stn., Muzaffarnagar.

Object :: To assess the comparative efficacy of A/S and A/N at different levels of N.

1. BASAL CONDITIONS:
   (i) (a) Fallow—Sugarcane. (b) Cotton (against fallow). (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 6.3.1948. (iv) (a) 15 preparatory ploughings. (b) Sown flat. (c) 3 buds/ft. of a row. (d) Rows 3' apart. (e). (v) Nil. (vi) CO.S. 245 (mid-season). (vii) Irrigated. (viii) 6 hoeings and earthing up in August. (ix) 34.5°. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)+a control (no manure)
   (1) 2 source of N : S1 = A/S and S2 = A/N.
   (2) 3 levels of N : N1 = 50, N2 = 100 and N3 = 150 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) (a) 66.5' x 24'. (b) 60.5' x 18'. (v) One row on each side and 3' at each end. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, tiller and millable sugarcane counting and yield. (iv) (a) 1946—1948. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M) 1

5. RESULTS:
   (i) 29.50 ton/ac.
   (ii) 3.372 ton/ac.
   (iii) Only Control vs treated effect is highly significant. Other effects and interactions are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>30.96</td>
<td>29.10</td>
<td>32.24</td>
<td>30.77</td>
</tr>
</tbody>
</table>

S.E. of S marginal mean = 0.871 ton/ac.
S.E. of N marginal mean = 1.066 ton/ac.
S.E. of body of table = 1.508 ton/ac.
Crop :- Sugarcane.  
Ref :- U.P. 48(7).  
Site :- Sugarcane Res. Sub-Statn., Muzaffarnagar.  
Type :- 'M'.

Object :- To study the effect of manures on the yield of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Sugarcane—G.M.—Wheat—Guar.  (b) Guar.  (c) No.  (ii) (a) Light loam.  (b) Refer soil analysis, Muzaffarnagar.  (iii) 28, 29.2.1948.  (iv) (a) 19 preparatory ploughings.  (b) Sown flat.  (c) 3 buds/ft. of a row.  (d) Rows 3' apart.  (e) Nil.  (vi) CO. 453.  (vii) Irrigated.  (viii) 6 hoeings and 1 earthing.  

(i) 14.1.1949 to 13.3.1949.

2. TREATMENTS:
1. Control.
2. A/S at 60 lb./ac. of N.
3. A/S at 120 lb./ac. of N.
4. A/N at 60 lb./ac. of N.
5. A/N at 120 lb./ac. of N.
6. Urine earth at 60 lb./ac. of N.
7. Urine earth at 120 lb./ac. of N.
8. Press mud at 60 lb./ac. of N.
9. Press mud at 120 lb./ac. of N.
10. Castor cake at 120 lb./ac. of N.
11. Mpl. manure at 120 lb./ac. of N.
12. Compost at 120 lb./ac. of N.
13. Mpl. compost at 120 lb./ac. of N.
14. FYM at 120 lb./ac. of N.

3. DESIGN:
(i) R.B.D.  
(ii) (a) 14.  
(b) N.A.  
(iii) 4.  
(iv) (a) 59'—9' x 24';  
(b) 53'—9' x 18''.  
(v) One row on each side and 3' at each end.  
(vi) Yes.

4. GENERAL:
(i) Good.  
(ii) Nil.  
(iii) Germination, tiller, millable cane counting and yield.  
(iv) (a) 1944—1948.  
(b) and (c): No.  
(v) (a) and (b): No.  
(vi) Nil.  
(vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:
(i) 32.49 ton/ac.
(ii) 2.32 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28.45</td>
</tr>
<tr>
<td>2.</td>
<td>32.03</td>
</tr>
<tr>
<td>3.</td>
<td>36.42</td>
</tr>
<tr>
<td>4.</td>
<td>34.05</td>
</tr>
<tr>
<td>5.</td>
<td>33.20</td>
</tr>
<tr>
<td>6.</td>
<td>33.10</td>
</tr>
<tr>
<td>7.</td>
<td>32.26</td>
</tr>
<tr>
<td>8.</td>
<td>33.94</td>
</tr>
<tr>
<td>9.</td>
<td>36.64</td>
</tr>
<tr>
<td>10.</td>
<td>35.55</td>
</tr>
<tr>
<td>11.</td>
<td>28.92</td>
</tr>
<tr>
<td>12.</td>
<td>31.75</td>
</tr>
<tr>
<td>13.</td>
<td>30.64</td>
</tr>
<tr>
<td>14.</td>
<td>29.96</td>
</tr>
</tbody>
</table>

S.E./mean = 1.16 ton/ac.

Crop :- Sugarcane.  
Ref :- U.P. 48(10).  
Site :- Sugarcane Res. Sub-Statn., Muzaffarnagar.  
Type :- 'M'.

Object :- To study the effect of the use of catalytic agents in conjunction with manures on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Fallow—Sugarcane.  (b) Cotton (against fallow).  (c) Nil.  
(ii) (a) Light loam.  (b) Refer soil analysis, Muzaffarnagar.  
(iii) 8.3.1948.  
(iv) (a) 12 preparatory ploughings.  (b) Sown flat.  
(c) 3 buds/ft. of a row.  
(d) Rows 3' apart.  
(e) Nil.  
(vi) CO. 421 (mid-season).  
(vii) Irrigated.  
(viii) 6 hoeings.  
(ix) 32.22° to 41.4.1949.

2. TREATMENTS:
1. Control.
2. Castor cake at planting.
7. FYM by 15th January.
8. FYM by 15th February.
9. FYM + FeSO4.
10. FYM + FeSO4 + CuSO4.
11. FYM + MnSO4.
12. FYM + MnSO4 + CuSO4.

Castor cake and FYM applied at 120 lb./ac. of N, FeSO4 and MnSO4 at 28 lb./ac. and CuSO4 at 1.4 lb./ac. FeSO4, MnSO4 and CuSO4 are used as activizers.
3. DESIGN:
   (i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 58'×21'. (b) 52'×15'. (v) One row on either side and 3' border at each end of the plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Germination, tiller, millable cane countings and yield. (iv) (a) 1949-1950 (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R(M).

5. RESULTS:
   (i) 23.43 ton./ac.
   (ii) 2.122 ton./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.33</td>
<td>7.</td>
<td>19.11</td>
</tr>
<tr>
<td>2.</td>
<td>28.25</td>
<td>8.</td>
<td>19.65</td>
</tr>
<tr>
<td>3.</td>
<td>26.92</td>
<td>9.</td>
<td>21.79</td>
</tr>
<tr>
<td>4.</td>
<td>27.04</td>
<td>10.</td>
<td>21.28</td>
</tr>
<tr>
<td>5.</td>
<td>28.55</td>
<td>11.</td>
<td>23.68</td>
</tr>
<tr>
<td>6.</td>
<td>27.22</td>
<td>12.</td>
<td>21.36</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td></td>
<td>1.06 ton./ac.</td>
</tr>
</tbody>
</table>

Crop:- Sugarcane.  
Ref:- U.P. 49(9)/48(10).
Site:- Sugarcane Res. Sub-Stn., Muzaffarnagar. Type:- 'M'.

Object:- To find out the effect of the use of catalytic agents in conjunction with manures on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Fallow—Sugarcane. (b) Sanai against Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 2.3.1949. (iv) (a) 10 preparatory ploughings. (b) Sown flat. (c) 3 buds/ft. of a row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) CO.421 (mid-season). (vii) Irrigated. (viii) 7 hoeings and earthing up in August. (ix) 21.91'. (x) 1 to 16.1.1950.

2. TREATMENTS:
   1. Control.  
   2. Castor cake at planting.  
   3. Castor cake + FeSO₄.  
   4. Castor cake + FeSO₄ + CuSO₄.  
   5. Castor cake + MnSO₄.  
   6. Castor cake + MnSO₄ + CuSO₄.

Castor cake and F.Y.M. applied at 120 lb./ac. of N, FeSO₄ and MnSO₄ at 28 lb./ac. and CuSO₄ at 1.4 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 58'×21'. (b) 52'×15'. (v) 1 row on either side and 3' at each end. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) No. (iii) Germination, tiller, millable cane countings and sugarcane yield. (iv) (a) 1948 to 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. RESULTS:
   (i) 23.51 ton/ac.
   (ii) 2.191 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.34</td>
<td>7.</td>
<td>21.52</td>
</tr>
<tr>
<td>2.</td>
<td>27.90</td>
<td>8.</td>
<td>19.90</td>
</tr>
<tr>
<td>3.</td>
<td>29.19</td>
<td>9.</td>
<td>20.90</td>
</tr>
<tr>
<td>4.</td>
<td>27.17</td>
<td>10.</td>
<td>19.81</td>
</tr>
<tr>
<td>5.</td>
<td>30.30</td>
<td>11.</td>
<td>19.74</td>
</tr>
<tr>
<td>6.</td>
<td>29.45</td>
<td>12.</td>
<td>18.93</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td></td>
<td>1.096 ton/ac.</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.  
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.  
Object: To find out the cumulative effect of continuous application of A/S and other bulky manures.

1. BASAL CONDITIONS:
   (i) (a) Fallow—Sugarcane. (b) Guar against Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 14.3.1949. (iv) 6 ploughings. (b) Planted flat. (c) 80 md. seed sugarcane at 4200 bud/ac. (d) Rows 3' apart. (e) —. (f) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 3 hoeings and earthing up in August. (ix) 23.09. (x) 12.1.1954 to 26.2.1950.

2. TREATMENTS:
   5. Castor cake + MnSO₄. 11. F.Y.M. + MnSO₄.  
   Castor cake at F.Y.M. applied at 120 lb./ac. of N, FeSO₄ and MnSO₄ at 28 lb./ac. and CuSO₄ at 1.4 lb./ac. FeSO₄, MnSO₄ and CuSO₄ are used as aschirizers.

3. DESIGN:
   (i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 58' x 21' (b) 52' x 15'. (v) 1 row on each side and 3' at each end. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, tiller, millable cane countings and sugarcane yield. (iv) (a) 1948 to 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. RESULTS:
   (i) 19.03 ton/ac.  
   (ii) 1.990 ton/ac.  
   (iii) Treatments differ highly significantly.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>25.80</td>
<td>8.</td>
<td>14.74</td>
</tr>
<tr>
<td>3.</td>
<td>25.14</td>
<td>9.</td>
<td>14.79</td>
</tr>
<tr>
<td>4.</td>
<td>25.06</td>
<td>10.</td>
<td>15.60</td>
</tr>
<tr>
<td>5.</td>
<td>24.17</td>
<td>11.</td>
<td>15.85</td>
</tr>
<tr>
<td>6.</td>
<td>24.50</td>
<td>12.</td>
<td>15.63</td>
</tr>
</tbody>
</table>

S.E./mean = 0.995 ton/ac.

Crop: Sugarcane.  
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.  
Object: To find out the cumulative effect of continuous application of A/S and other bulky manures.

1. BASAL CONDITIONS:
   (i) (a) Fallow—Sugarcane. (b) Guar against Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 14.3.1949. (iv) 6 ploughings. (b) Planted flat. (c) 80 md. seed sugarcane at 4200 bud/ac. (d) Rows 3' apart. (e) —. (f) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 3 hoeings and earthing up in August. (ix) 23.09. (x) 12.1.1954 to 26.2.1950.

2. TREATMENTS:
   Dose of N is 120 lb./ac. Application of combined fertilizers is on equal Nitrogen basis.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 83' x 21'. (b) 75' x 15'. (v) One row on either side and 4' on each end. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tiller and millable sugarcane counting and yield. (iv) (a) (1949 - contd. (b) Yes. (c) N.A. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by D.S.R.(M).

5. RESULTS:
(i) 24.26 ton/ac.
(ii) 2.52 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₀</td>
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<td>28.50</td>
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<tr>
<td>S₆</td>
<td>23.70</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.26 ton/ac.</td>
</tr>
</tbody>
</table>


Object : To find out the cumulative effect of continuous application of A/S and other bulky manures.

1. BASAL CONDITIONS:
(i) (a) Fallow—Sugarcane. (b) Cotton against fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 27.2.1950. (iv) (a) 8 preparatory ploughings. (b) Planted flat. (c) 80 md. seed sugarcane at 4200 bud/ac. (d) Rows 3' apart. (e) —. (v) Nil. (vi) CO.453 (late). (vii) Irrigated. (viii) 8 hoeings and earthing up in August. (ix) 39.93'. (x) 39.93'. (x) 3 to 16.3.1951.

2. TREATMENTS:

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 83' x 21'. (b) 75' x 15'. (v) One row on each side and 4' on each end. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tiller, millable cane counting and sugarcane yield. (iv) (a) 1949 - contd. (b) Yes. (c) N.A. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by D.S.R.(M).

5. RESULTS:
(i) 21.94 ton/ac.
(ii) 1.686 ton/ac.
(iii) Treatments are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₀</td>
<td>11.85</td>
</tr>
<tr>
<td>S₁</td>
<td>14.29</td>
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<tr>
<td>S₂</td>
<td>27.27</td>
</tr>
<tr>
<td>S₃</td>
<td>27.04</td>
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<tr>
<td>S₄</td>
<td>21.51</td>
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<tr>
<td>S₅</td>
<td>27.94</td>
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<tr>
<td>S₆</td>
<td>23.70</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.843 ton/ac.</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.  
Object: To find out the cumulative effect of continuous application of A/S and other bulky manures.

1. BASAL CONDITIONS:
   (i) (a) Fallow—Sugarcane. (b) Moong (for this season). (c) Nil.  
   (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar.  
   (iii) 24.2.1951. (iv) (a) 12 preparatory ploughings. (b) Planted flat.  
   (c) 80 md. seed cane at 4200 bud/ac. (d) Rows 3' apart. (e) —. (v) Nil.  
   (vi) CO. 453 (late). (vii) Irrigated. (viii) 5 hoeings and earthing up in July. (ix) 23.36°. (x) 11.1.1952 to 7.3.1952.

2. TREATMENTS:
   Dose of N is 120 lb/ac. Application of combined fertilizers is on equal Nitrogen basis.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 83' × 2'. (b) 75' × 15'. (v) One row on each side and 4' on each end, 5' distance between blocks. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, tillers, millable cane counting and yield. (iv) (a) 1949—contd. (b) Yes. (c) N.A. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M).

5. RESULTS:
   (i) 25.93 ton/ac.  
   (ii) 2.072 ton/ac.  
   (iii) Treatment differences are highly significant.  
   (iv) Av. yield of sugarcane in ton/ac.  
   Treatment | Av. yield |
   ---------- |---------- |
   S0        | 20.68     |
   S1        | 25.54     |
   S2        | 22.89     |
   S3        | 29.76     |
   S4        | 28.79     |
   S5        | 26.53     |
   S6        | 27.33     |
   S.E./mean | 1.013     |
5. RESULTS:

(i) 25.12 ton/ac.
(ii) 1.935 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₀</td>
<td>22.05</td>
</tr>
<tr>
<td>S₁</td>
<td>23.85</td>
</tr>
<tr>
<td>S₂</td>
<td>25.50</td>
</tr>
<tr>
<td>S₃</td>
<td>25.83</td>
</tr>
<tr>
<td>S₄</td>
<td>25.88</td>
</tr>
<tr>
<td>S₅</td>
<td>25.45</td>
</tr>
<tr>
<td>S₆</td>
<td>27.31</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.967 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane  
Ref :- U.P. 53(180)/52(64)/51(28)/50(34)/49(12).  
Site :- Sugarcane Res. Sub-Stn, Muzaffarnagar.  
Type :- 'M'.

Object :- To find out the cumulative effect of continuous application of A/S and other bulky manures.

1. BASAL CONDITIONS:
   (i) (a) Fallow-Sugarcane.  (b) Fallow.  (c) Nil.  (ii) (a) Light loam.  (b) Refer soil analysis, Muzaffarnagar.  
   (iii) 13.3.1953.  (iv) (a) 7 preparatory ploughings.  (b) Planted flat.  (c) 80 maunds seed cane at 4200 bud/ac.  
   (d) Rows 3' apart.  (e) —.  (v) Nil.  (vi) CO. 453 (late).  (vii) Irrigated.  (viii) 6 hoeings and earthing up in July.  
   (ix) 35.71".  (x) 1.12.1953 to 21.3.1954.

2. TREATMENTS:


   Dose of N is 120 lb./ac. Application of combined fertilizers on equal Nitrogen basis.

   F.Y.M. was applied before planting. G.N.C. and A/S were applied after irrigation.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7.  (b) N.A.  (iii) 4.  (iv) (a) 83' x 21'.  (b) 75' x 15'.  (v) One row on each side and 4' on each end.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) Nil.  (iii) Germination, tiller, millable sugarcane and yield.  (iv) (a) 1949—contd.  (b) ...  
   (c) N.A.  (v) (a) and (b) Nil.  (vi) Nil.  (vii) Experiment conducted by D.S.R.(M).

5. RESULTS:

(i) 26.81 ton/ac.
(ii) 2.179 ton/ac.

(iii) Treatments are significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₀</td>
<td>23.16</td>
</tr>
<tr>
<td>S₁</td>
<td>26.67</td>
</tr>
<tr>
<td>S₂</td>
<td>27.27</td>
</tr>
<tr>
<td>S₃</td>
<td>28.18</td>
</tr>
<tr>
<td>S₄</td>
<td>27.93</td>
</tr>
<tr>
<td>S₅</td>
<td>26.40</td>
</tr>
<tr>
<td>S₆</td>
<td>28.03</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.098 ton/ac.</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.  
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.  
Object: To assess the comparative efficacy of A/S and C/N at different levels on Sugarcane.

1. BASAL CONDITIONS:
   (i) G.M.-Wheat-Cotton-Sugarcane.  
   (b) Cotton.  
   (c) Nil.  
   (ii) (a) Light loam.  
   (b) Refer soil analysis, Muzaffarnagar.  
   (iii) 10.3.1951.  
   (iv) (a) 24 preparatory ploughings.  
   (f) Planted flat.  
   (c) 70 ind. seed cane, 4200 bud/ac.  
   (d) Rows 2’ apart.  
   (e) —.  
   (v) Nil.  
   (vi) CO.S. 245 (mid-season variety).  
   (vii) Irrigated.  
   (viii) 8 hoeings and earthing up in August.  
   (ix) 23.60’.  
   (x) 6.1.1952 to 8.3.1952.

2. TREATMENTS:
   All combinations of (1) and (2)+a control (no manure)
   (1) 2 sources of N: S1=A/S and S2=C/N.
   (2) 3 levels of N: N1=50, N2=100 and N3=150 lb./ac.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 7.  
   (b) N.A.  
   (iii) 5.  
   (iv) (a) 66’×24’.  
   (b) 60’×18’.  
   (v) One row on either side and 3’ on each end.  
   (vi) Yes.

4. GENERAL:
   (i) Good.  
   (ii) Nil.  
   (iii) Germination, tiller, millable sugarcane counting and yield.  
   (iv) (a) No.  
   (b) No.  
   (c) No.  
   (v) (a) and (b) Nil.  
   (vi) Nil.  
   (vii) Experiment conducted by D.S.R.(M).

5. RESULTS:
   (i) 22.83 ton/ac.  
   (ii) 2.167 ton/ac.  
   (iii) Effect of N and control vs treated are both highly significant. Others are not significant.
   (iv) Ay. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Control</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>22.13</td>
<td>23.51</td>
<td>26.05</td>
<td>23.90</td>
</tr>
<tr>
<td>S2</td>
<td>22.20</td>
<td>25.09</td>
<td>24.82</td>
<td>24.04</td>
</tr>
<tr>
<td>Mean</td>
<td>22.16</td>
<td>24.30</td>
<td>25.44</td>
<td>23.97</td>
</tr>
</tbody>
</table>

S.E. of S marginal mean =0.559 ton/ac.  
S.E. of N marginal mean =0.685 ton/ac.  
S.E. of body of table =0.969 ton/ac.
3. **DESIGN:**

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 56'×30'. (b) 50'×24'. (v) One row on either side and 3' at each end. (vi) Yes.

4. **GENERAL:**

(i) Good. (ii) Nil. (iii) Germination, tiller, millable sugarcane counting and yield. (iv) (a) 1952—1953. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. **RESULTS:**

(i) 23.21 ton/ac.
(ii) 1.606 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

Control= 20.93 ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>23.38</td>
<td>23.73</td>
<td>24.55</td>
<td>23.89</td>
</tr>
<tr>
<td>S2</td>
<td>22.06</td>
<td>23.56</td>
<td>24.29</td>
<td>23.30</td>
</tr>
<tr>
<td>S3</td>
<td>23.10</td>
<td>23.67</td>
<td>22.80</td>
<td>23.19</td>
</tr>
</tbody>
</table>

Mean 22.85 23.63 23.88 23.46

S.E. of any marginal mean =0.355 ton/ac.
S.E. of body of table =0.927 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.
Ref :- U.P. 53(178)/52(65).
Type :- ‘M’.

Object :- To assess the comparative efficacy of A/S, C/N and A/S/N at different levels on Sugarcane.

1. **BASAL CONDITIONS:**

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 16.2.1953. (iv) (a) 10 preparatory ploughings. (b) Planted flat. (c) 70 md. seed sugarcane, 4200 bud/ac. (d) Rows 3’ apart. (e)—. (v) Nil. (vi) CO. S. 245 (mid season). (vii) Irrigated. (viii) 8 hoeings and earthing up in July. (ix) 35.71*. (x) 27.11.1953 to 29.3.1954.

2. **TREATMENTS:**

All combinations of (1) and (2)+a control (no manure)
(1) 3 sources of N: S1=A/S, S2=C/N and S3=A/S/N.
(2) 3 levels of N: N1=50, N2=100 and N3=150 lb/ac.

Fertilizers applied after 2nd irrigation i.e. in middle of May.

3 **DESIGN:**

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 56'×30'. (b) 50'×24'. (v) One row on either side and 3' border on each end of plot. (vi) Yes.

4. **GENERAL:**

(i) Good. (ii) Nil. (iii) Germination, tiller, millable sugarcane and yield. (iv) (a) 1952—1953. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. **RESULTS:**

(i) 25.86 ton/ac.
(ii) 2.215 ton/ac.
(iii) Effect of control as treated and N is highly significant. Others are not significant.
(iv) Av. yield of sugarcane in lb./ac.

Control = 16.93 ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$N_3$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>25.94</td>
<td>26.31</td>
<td>30.56</td>
<td>27.60</td>
</tr>
<tr>
<td>$S_2$</td>
<td>25.83</td>
<td>27.71</td>
<td>27.64</td>
<td>27.06</td>
</tr>
<tr>
<td>$S_3$</td>
<td>22.70</td>
<td>27.45</td>
<td>27.52</td>
<td>25.89</td>
</tr>
<tr>
<td>Mean</td>
<td>24.82</td>
<td>27.16</td>
<td>28.57</td>
<td>26.85</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.738 ton/ac.

S.E. of body of table = 1.279 ton/ac.

---

Crop: Sugarcane.

Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.

Ref: U.P. 53(291).

Object: To study the effect of application of G.N.C. with and without a catalyst on Sugarcane.

1. BASAL CONDITIONS:
   (b) Cotton.
   (c) No.
   (ii) (a) Light loam.
   (b) Refer soil analysis, Muzaffarnagar.
   (iii) 12.3.1953.
   (iv) (a) to (e) N.A.
   (v) N.A.
   (vi) C.O.453 (late).
   (vii) N.A.
   (viii) N.A.
   (ix) N.A.

2. TREATMENTS:
   1. G.N.C. at 120 lb/ac. of N.
   2. G.N.C. at 120 lb/ac. of N + 1 lb catalytic mixture applied on 14.5.1953.

3. DESIGN:
   (i) R.B.D.
   (ii) 2.
   (b) N.A.
   (iii) 3.
   (iv) (a) 40' x 27'.
   (b) 34' x 21'.
   (v) N.A.
   (vi) Yes.

4. GENERAL:
   (i) N.A.
   (ii) N.A.
   (iii) Sugarcane yield.
   (iv) (a) to (c) N.A.
   (v) (a) and (b) N.A.
   (vi) Nil
   (vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:
   (i) 23.68 ton/ac.
   (ii) 0.220 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.00</td>
</tr>
<tr>
<td>2.</td>
<td>22.37</td>
</tr>
</tbody>
</table>

S.E./mean = 0.127 ton/ac.

---

Crop: Sugarcane.

Site: Regional Res. Sub-Stn., Nawabganj.

Ref: U.P. 48(147).

Object: To find the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A.
   (b) Sanai as G.M.
   (c) No.
   (ii) (a) Clay loam.
   (b) N.A.
   (iii) 15.3.1949.
   (iv) 9 desi ploughings and pata.
   (v) Ploughing by spring harrow once and level harrow once.
   (vi) Turning in of sanai by P.P.
   (vii) Flat planting.
   (c) 2088 bud/plot.
   (d) 3' between rows.
   (e) —.
   (v) Sanai turned in compost 164 md. on 15.2.1948.
   (vi) G.N.C. 6 md. 5 seers on 28.2.1949.
   (vii) IRRigated.
   (viii) Hoeing by cultivator followed by hand kassi.
   (ix) 50'.
   (x) 18.2.1950.
2. TREATMENTS:

\( P_1 = \text{No } P_2 O_5 \),
\( P_2 = 60 \text{ lb./ac. of } P_2 O_5 \) as broadcast at planting time.
\( P_3 = 60 \text{ lb./ac. of } P_2 O_5 \) in furrows 3\( ' \)– 4\( ' \) deep at planting time.
\( P_4 \) applied as Super.

3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) and (b) 87\( ' \)×24\( ' \). (v) Nil. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:

(i) 16.42 ton/ac.
(ii) 1.00 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_1</td>
<td>16.66</td>
</tr>
<tr>
<td>P_2</td>
<td>17.03</td>
</tr>
<tr>
<td>P_3</td>
<td>15.57</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.408 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Regional Res. Stn., Nawabganj.
Ref :- U.P. 53(238).
Type :- 'M'.
Object :- To study the response of Sugarcane to Super in combination with G.M.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Dhaincha as G.M. (c) No. (ii) (a) Clay loam. [(b) N.A. (iii) 6.3.1953. (iv) (a) Ploughing by gurja mession and deshi plough 5 times. (b) Flat sowing. (c) 2160 bud/plot. (d) 3' between rows. (e) —. (v) Compost at 300 md./ac. (vi) CO. 421. (vii) Irrigated. (viii) 3 hoeings with kassi and 2 with cultivator and earthing once. (ix) 44.09°. (x) 7 to 14.1.1954.

2. TREATMENTS:

1. Dhaincha green manure (control).
2. Super at 60 lb./ac. of \( P_2 O_5 \) broadcast at the time of sowing Dhaincha.
3. Super at 60 lb./ac. of \( P_2 O_5 \) applied at the time of ploughing in of Dhaincha.

Application of Super in treatment 2 on 5.7.1953 and in treatment 3 on 13 and 14.9.1953.

3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 88'×24'. (b) 82'×18'. (v) 3' all round the net plot. (vi) Yes.

4. GENERAL:

(i) The crop remained in water during August. Damaged by rats in December and January 1954. (ii) N.A. (iii) Germination counts, tillers, millable cane and sugarcane yield. (iv) (a) 1953—N.A. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:

(i) 11.99 ton/ac.
(ii) 1.40 ton/ac.
(iii) The treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.81</td>
</tr>
<tr>
<td>2.</td>
<td>12.19</td>
</tr>
<tr>
<td>3.</td>
<td>11.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.57 ton/ac.</td>
</tr>
</tbody>
</table>
Crop : Sugarcane.
Site : Sugarcane Res. Sub-Stn., Neoli.

Object : To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Sanai as G.M. (c) No. (ii) (a) Light sandy loam (khaddar soil having alkaline patches). (b) Refer soil analysis, Neoli. (iii) 29.2.1952 to 1.3.1952. (iv) (a) Turning in of sanai with Neoli ploughing, 2 harrowings by tractor, 1 Neoli ploughing, followed by planking. (v) No. other information is available. Again 3 harrowings by tractor followed by planking twice. (b) N.A. (c) 1065 buds/plot. (d) and (e) N.A. (v) G.M. by sanai, A/S+G.N.C. at 12 srs./plot on 17.7.1952. Manuring with press mud and mahuwa cake on 6 to 10.12.1951 and spreading of press mud and mahuwa cake on 11 to 15.12.1951. (vi) Co 245 (medium). (vii) Irrigated. (viii) Breaking of crusts after rains with harrow, 2 hoeings with khurpi and 2 with cultivator. Hoeing with spade after manuring. (ix) N.A. (x) 15 to 18.2.1953.

2. TREATMENTS:
   \( P_0 = \text{control (no P}_2O_5) \)
   \( P_1 = P_2O_5 \text{ at 60 lb/acre as broadcast on the field before planting} \)
   \( P_2 = P_2O_5 \text{ at 120 lb/acre as broadcast on the field before planting} \)
   \( P_3 = P_2O_5 \text{ at 120 lb/acre as broadcast on the field before planting} \)

3. DESIGN:
   (i) R.B.D. (ii) 5. (b) N.A. (iii) 4. (iv) (a) 69' x 21'. (b) 63' x 15'. (v) Border between plots 1'. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination count tillers, millable cane count and sugarcane yield. (iv) (a) 1952-1955. (b) and (c) No. (v) N.A. and (b) No. (v) N.A. (vi) Experiment was conducted by D.S.R.(S). The expl. was not conducted in 1953 for want of super.

5. RESULTS:
   (i) 17.01 ton/acre.
   (ii) 2.436 ton/acre.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/acre.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_0 )</td>
<td>16.69</td>
</tr>
<tr>
<td>( P_1 )</td>
<td>15.02</td>
</tr>
<tr>
<td>( P_2 )</td>
<td>15.59</td>
</tr>
<tr>
<td>( P_3 )</td>
<td>17.35</td>
</tr>
<tr>
<td>( P_4 )</td>
<td>20.40</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.218 ton/acre</td>
</tr>
</tbody>
</table>

Crop : Sugarcane.
Site : Sugarcane Res. Sub-Stn., Neoli.

Object : To study the effect of green manuring Sugarcane with different Rabi crops.

1. BASAL CONDITIONS:
   (a) No. (b) and (c) As per treatments. (ii) (a) Light sandy loam. (Khaddar soil having alkaline patches).
   (i) (b) Refer soil analysis, Neoli. (iii) 12.3.1953. (iv) (a) 2 ploughings and planting with Neoli plough and 2 ploughings by tractor plough and planking. (b) N.A. (c) 54 3-budded sets/row. (d) 3' between rows. (e) - (v) N.A. (vi) CO 245 (medium). (vii) Irrigated. (viii) 2 hoeings by cultivator and 2 by spade.
   (ix) N.A. (x) 28 to 29.12.1953.
2. TREATMENTS:
1. Metha roots (crop for fodder).
2. Metha green manured.
3. Metha green manured + P2O5 at 100 lb/ac.
4. Senji roots (crop used for fodder) broadcast at the time of sowing.
5. Senji green manured.
6. Senji green manured + P2O5 at 100 lb/ac. broadcast at the time of sowing.
8. Berseem roots (3 cuttings for fodder) + P2O5 at 100 lb/ac. applied at sowing time.
11. Pea green manured + 100 lb/ac. of P106 applied at sowing time.
12. Control (no crop).


3. DESIGN:
(i) R.B.D. (ii) (a) 12. lb} N.A. (iii) 6. (iv) (a) 52' x 24'. (b) 46' x 18'. (v) Border between plots 14'. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Slight attack of white fly. (iii) Germination count, tiller count, millable cane and sugarcane yield. (iv) (a) 1953—1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R(S).

5. RESULTS:
(i) 16.55 ton/ac.
(ii) 5.751 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.52</td>
<td>7.</td>
<td>19.57</td>
</tr>
<tr>
<td>2.</td>
<td>13.54</td>
<td>8.</td>
<td>13.09</td>
</tr>
<tr>
<td>3.</td>
<td>16.14</td>
<td>9.</td>
<td>15.10</td>
</tr>
<tr>
<td>4.</td>
<td>21.02</td>
<td>10.</td>
<td>16.20</td>
</tr>
<tr>
<td>5.</td>
<td>14.84</td>
<td>11.</td>
<td>17.92</td>
</tr>
<tr>
<td>6.</td>
<td>17.90</td>
<td>12.</td>
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Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Neoli (Etah).

Object :- To study the effect of green manuring of cane with different kharif crops.

1. BASAL CONDITIONS:
(i) (a) No. (b) Plant cane of CO. 453 and after that as per treatments. (c) As per treatments. (ii) (a) Light sandy loam (khaddar soil having alkaline patches). (b) Refer soil analysis, Neoli. (iii) 15.2.1953. (iv) (a) 6 ploughings by tractor and planking. (b) N.A. (c) 623-budded setts/row. (d) 3' between rows. (e) — (v) Nil. (vi) CO. 245 (medium). (vii) Irrigated. (viii) 2 hoeings by cultivator and planking and 1 hoeing by spade. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Sanai green manured.
2. Sanai green manured + P2O5 at 50 lb/ac. broadcast at sowing time.
4. Guarr green manured + P2O5 at 50 lb/ac. broadcast at sowing time.
5. Lobia green manured.
6. Lobia green manured + P2O5 at 50 lb/ac. broadcast at sowing time.
7. Dhanicha green manured.
8. Dhanicha green manured + P2O5 at 50 lb/ac. applied at sowing time.
9. Fallow (control).

P2O5 applied as Super at the time of sowing of green manures. Turning in of Sanai on 3.9.1952.
3. **DESIGN:**
   (i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 6 (But only 5 replications considered for analysis). (iv) (a) 60'×24'. (b) 54'×18'. (v) Border between plots 1½'. (vi) Yes.

4. **GENERAL:**
   (i) Satisfactory, one replication has been rejected from analysis due to poor yield. (ii) Slight damage due to borers in whole of the experiment (observed on 15.6.1953) shoots damaged by top borer and top rot in 24.8.1953 mostly in replication No. 6. (iii) Germination, tiller count, millable canes and yield of sugarcane. (iv) (a) 1953—1955. (b) and (c) No. (v) (a) and (b) No. Nil. (vii) The experiment was conducted by D.S.R.(S).

5. **RESULTS:**
   (i) 23.21 ton/ac.
   (ii) 2.80 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
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<tr>
<th>Treatment</th>
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<tbody>
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**Crop:** Sugarcane.
**Site:** Sugarcane Res. Stn., Shahjahanpur.
**Ref:** U.P. 48(77).
**Type:** 'M'.

Object :- To study the response of Sugarcane to the application of N, P and K.

4. **BASAL CONDITIONS:**
   (i) (a) Sugarcane-Wheat-Fallow. (b) Fallow. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 26, 28.1.1948. (iv) (a) 6 ploughings with soil turning plough, 7 ploughings with dest plough and 15 plankings. (b) N. (c) 531-budded setts/line. (d) N.A. (e) N.A. (f) Nil. (vi) CO-421 (medium). (vii) Irrigated. (viii) 2 hoeings by spring tooth harrow and planking after hoeing. 5 hoeings by cultivator and planking after hoeing. One hoeing by kasti: (ix) 40.81' (from March '48 to March '49). (x) 31.12.1948 to 1.6.1949.

2. **TREATMENTS:**
   **Main-plot treatments:**
   3 levels of N : N0=0, N1=100 and N2=200 lb./ac. of N.
   **Sub-plot treatments:**
   All combinations of (1) and (2)
   (1) 3 levels of P2O5: P0=0, P1=75 and P2=150 lb./ac.
   (2) 3 levels of K2O : K0=0; K1=75 and K2=150 lb./ac.
   N applied as A/S, P2O5 as Super and K2O as Pot. Sulphate.

3. **DESIGN:**
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 53½'×31½'. (b) 47½'×24½'. (v) One row left on either side and 3' at either end. (vi) Yes.

4. **GENERAL:**
   (i) Fair. (ii) Slight attack of leaf yellowing disease in October. (iii) Sugarcane yield. (iv) (a) 1933-contd. (b) Yes—in alternate years. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. **RESULTS:**
   (i) 16.52 ton/ac.
   (ii) (a) 3.721 ton/ac.
   (b) 1.726 ton/ac.
   (iii) Only N effect is highly significant.
(iv) Av. yield of cane in ton/ac.

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<th></th>
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<th>$K_1$</th>
<th>$K_2$</th>
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S.E. of difference of two
1. marginal means of $N$ = 0.877 ton/ac.
2. marginal means of $P$ or $K$ = 1.049 ton/ac.
3. $P$ or $K$ means at the same level of $N$ = 0.705 ton/ac.
4. $N$ means at the same level of $P$ or $K$ = 1.049 ton/ac.
5. means of the body of $P \times K$ table = 0.705 ton/ac.

**Crop:** Sugarcane.  
**Site:** Sugarcane Res. Stn., Shahjahanpur.  
**Ref:** U.P. 49(163)/48(77).  
**Type:** ‘M’.

Object:—To study the response of Sugarcane to the application of $N$, $P$ and $K$.

1. **BASEAL CONDITIONS:**
   (i) (a) Cane-Wheat-Fallow. (b) Fallow. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 30.1.1949 to 1.2.1949. (iv) (a) 3 ploughings by victory plough and 7 ploughings by desi plough. Akola hoe used once. Harrowing twice and para. (b) N.A. (c) 533-budded setts/row. (d) N.A. (e) N.A. (f) Nil. (vi) CO-421 (medium). (vii) Irrigated. (viii) 2 hoeings with kasi, 4 hoeings with cultivator and 3 harrowings. (ix) 59.7 (from February 1959 to January 1950). (x) 28, 31.12.1949, 1, 6.1.1950.

2. **TREATMENTS:**
   Main-plot treatments:
   3 levels of $N$: $N_0=0, N_1=100$ and $N_2=200$ lb./ac.
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 levels of $P_2O_5$: $P_0=0, P_1=75$ and $P_2=150$ lb./ac.
   (2) 3 levels of $K_2O$: $K_0=0, K_1=75$ and $K_2=150$ lb./ac.
   N applied as A/S, $P_2O_5$ as Super and $K_2O$ as Pot. Sulphate.

3. **DESIGN:**
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $31^{1/4} \times 31^{1/4}$. (b) $47^{1/4} \times 24^{1/4}$. (v) One row left on either side and 3' at each end of the plot. (vi) Yes.

4. **GENERAL:**
   (i) Good. Plots with $N_1$ and $N_2$—lodged. (ii) Attack of borers on the crop in June 1949 leaf yellowing disease observed. (iii) Germination, tillers, millable cane and yield. (iv) (a) 1935—Still continued. (b) Yes—in alternate years. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(5).

5. **RESULTS:**
   (i) 13.74 ton/ac.
   (ii) (a) 4.165 ton/ac.
   (b) 2.611 ton/ac.
   (iii) Only $N$ effect is highly significant.
(iv) Av. yield of cane in ton/ha.

<table>
<thead>
<tr>
<th></th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
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</table>

S.E. of difference of two
1. marginal means of N
2. marginal means of P or K
3. P or K means at the same level of N
4. N means at the same level of P or K
5. means of the body of P × K table


Object: To study the response of Sugarcane to the application of N, P and K.

1. BASAL CONDITIONS:
(a) Cane—Wheat—Fallow. (b) Fallow. (c) No. (i) Loam. (ii) Refer soil analysis, Shahjahapur. (iii) 18 and 20.2.1950. (iv) 3 ploughings by victory plough, 5 ploughings by desi plough and 4 plankings. (v) 63, 3-3-budded setts/line. (vi) N.A. (vii) No. (viii) CO 421 (medium). (ix) Irrigated. (x) 38.33. (xi) 38.33. (xii) 1 hoeing with kasti and 5 hoeings with cultivator and 1 harrowing and 2 earthings. (xiii) 29.12.1950 to 2.1.1951.

2. TREATMENTS:
Main-plot treatments:
3 levels of N: N₀ =0, N₁ =100 and N₂ =200 lb./ac.
Sub-plot treatments:
All combinations of (1) and (2).
(i) 3 levels of P₀₂ : P₀ =0, P₁ =75 and P₂ =150 lb./ac.
(ii) 3 levels of K₀₂ : K₀ =0, K₁ =75 and K₂ =150 lb./ac.
N applied as A/S, P₂₀ as Super and K₂₀ as Pot. Sulphate.

3. DESIGN:
(i) Split-plot. (ii) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 53 3×3 1/2. (v) 47 3×24 1/2. (vi) Either side and 3' at either end of the gross plot. (vii) Yes.

4. GENERAL:
(i) Good. (ii) Some of the shoots were affected by stem borer in June 1950. Attack of top borer and slight effect of yellowing disease. (iii) Germination count, tillers, millable canes and yield of cane.
(iv) 1935 continuing. (v) N.A. (vi) Yes. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:
(i) 15.17 ton/ac.
(ii) 7.050 ton/ac.
(iii) 1.975 ton/ac.
(iv) N effect is highly significant. P and K effects are significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<th></th>
<th>$K_0$</th>
<th>$K_1$</th>
<th>$K_2$</th>
<th>Mean</th>
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S.E. of difference of two
1. marginal means of $N$ =1.662 ton/ac.
2. marginal means of $P$ or $K$ =0.465 ton/ac.
3. $P$ or $K$ means at the same level of $N$ =0.806 ton/ac.
4. $N$ means at the same level of $P$ or $K$ =1.787 ton/ac.
5. Means of the body of $P$ x $K$ table =0.81 ton/ac.

Crop : Sugarcane.
Ref : U.P. 51(187)/50(196)/49(163)/48(77).
Site : Sugarcane Res. Stn. Shahjahanpur.
Type := 'M'.

Object : To study the response of Sugarcane to the application of $N$, $P$ and $K$.

1. BASAL CONDITIONS :
   (i) (a) Cane—Wheat—Fallow—Cane. (from 1935 to 1951) Cane—G.M. of Sanai—Cane (from 1952 and onwards). (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12 to 14.2.1951, (iv) (a) Ploughings 3 with victory plough, 7 with desi plough, 1 with cultivator, 1 with level harrow and 4 ploughings. (b) N.A. (c) 53 3-budded setts/line. (d) N.A. (e) -- (v) Nil. (vi) CO 421 (medium). (vii) Irrigated. (viii) 1 hoeing with kassi, 3 hoeing with cultivator and 1 with spring harrow. (ix) 30.50' (x) 4 to 6.1.1952. and 1, 2.2.1952.

2. TREATMENTS :
   Main-plot treatments :
   3 levels of $N$ : $N_0=0$, $N_1=100$ and $N_2=200$ lb/ac.
   Sub-plot treatments :
   All combinations of (1) and (2)
   (1) 3 levels of $P_2O_5 : P_0=0$, $P_1=75$ and $P_2=150$ lb/ac.
   (2) 3 levels of $K_2O : K_0=0$, $K_1=75$ and $K_2=150$ lb/ac.
   $N$ applied as A/S, $P_2O_5$ as Super and $K_2O$ as Pot. Sulphate.

3. DESIGN :
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iv) (a) 53' x 31'
   (b) 47' x 24'. (v) 51' on either side and 3' at either end of the gross plot. (vi) Yes.

4. GENERAL :
   (i) Poor. (ii) N.A. (iii) Germination, tillers, millable cane and yield of sugarcane. (iv) (a) 1935—continuing.
   (b) Yes—in alternate years. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS :
   (i) 8.77 ton/ac.
   (ii) (a) 4.479 ton/ac.
   (b) 1.811 ton/ac.
   (iii) Only $N$ effect is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
<th>P₀</th>
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S.E. of difference of two
1. marginal means of N  = 1.056 ton/ac.
2. marginal means of P or K  = 0.427 ton/ac.
3. P or K means at the same level of N  = 0.739 ton/ac.
4. N means at the same level of P or K  = 1.216 ton/ac.
5. means of the body of P×K table  = 0.74 ton/ac.

Crop: Sugarcane.  
Ref.: U.P. 52/238)/51(187)/50(196)/49(163)/48(77).

Site: Sugarcane Res. Stn., Shahjahanpur.  
Type: M.

Object: To study the response of Sugarcane to the application of N, P and K.

1. BASAL CONDITIONS:
(i) (a) Sugarcane—Fallow—Sugarcane (from 1935 to 1951) and Sugarcane—Sanai—Sugarcane (from 1952 and onwards). (b) Sanai. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 23 to 26.2.1952. (iv) (a) 3 ploughings by victory plough, 4 by desi plough and 2 by cultivator. (b) N.A. (c) 53 3-budded setts/plot. (d) N.A. (e) —. (v) Sanai turned in on 13' and 14.9.1951. (vi) CO. 453 (late). (vii) Irrigated. (viii) 4 hoeings, 1 hoeing by cultivator, earthing and picking of grass twice. (ix) 34.16'. (x) 3 to 7.1.1953.

2. TREATMENTS:
Main-plot treatments:
3 levels of N: N₀ = 0, N₁ = 100 and N₂ = 200 lb./ac. of N.
Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of P₀P₁P₂: P₀ = 0, P₁ = 75 and P₂ = 150 lb./ac.
(2) 3 levels of K₀K₁K₂: K₀ = 0, K₁ = 75 and K₂ = 150 lb./ac.
N applied as A/S, P₀P₁ as Super and K₀K₁ as Pot. Sulphate.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replcation and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 531'×314'. (b) 471'×244'. (v) 3' left on both sides and 3' at either ends was excluded as border out of the gross plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Germination, tillers, millable sugarcane and yield. (iv) (a) 1935—continuing. (b) Yes—in alternate years. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (S).

5. RESULTS:
(i) 21.83 ton/ac.
(ii) (a) 5.457 ton/ac.
(b) 3.287 ton/ac.
(iii) Only N effect is highly significant.
Crop: - Sugarcane. Ref: - U.P. 53(263)'52'233)/51(187)/50(196)/49(163)/48(77).
Site: - Sugarcane Res. Stn., Shahjahanpur. Type: - 'M'.

Object: - To study the response of Sugarcane to the application of N, P and K.

1. BASAL CONDITIONS:
   (i) (a) Sugarcane-Fallow-Sugarcane (from 1935 to 1951) and Sugarcane-Sanai-Sugarcane (since 1952-1953). (b) Sanai for G.M. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 30.11.1952 to 2.2.1953. (iv) (a) 1 ploughing by victory plough, 1 by tractor, 7 desi ploughings, 2 harrowings and 7 plankings. (b) Flat planting. (c) 33 3-budded setts/line. (d) Rows 3' apart. (e) - . (v) Sanai (turned in on 28.8.1952.) (vi) Co. 453 (late). (vii) Irrigated. (viii) Hoeings after each irrigation in addition to one bund hoeing, earthing and picking of grass. (ix) 44.19" (x) 4.1.1954.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of N: N0=0, N1=100 and N2=200 lb/ac.
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 levels of P2O5: P0=0, P1=75 and P2=150 lb/ac.
   (2) 3 levels of K2O: K0=0, K1=75 and K2=150 lb/ac.
   N applied as A/S, P2O5 as Super and K2O as Pot. Sulphate.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 31'x31'. (b) 47'x24'. (v) 3' on either side and 3' at either end. (vi) Yes.

4. GENERAL:
   (i) Normal. No lodging. (ii) No major incidence of pests and diseases. (iii) Germination, tillers, milthble sugarcane and yield of sugarcane at harvest. (iv) (a) 1935-continuing. (b) Yes—in alternate years. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (S).

5. RESULTS:
   (i) 22.78 ton/ac.
   (ii) (a) 7.659 ton/ac.
   (b) 2.485 ton/ac.
   (iii) Only N effect is highly significant.
Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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</thead>
<tbody>
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<td>15.99</td>
<td>15.99</td>
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<td>15.61</td>
<td>16.10</td>
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<tr>
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<td>26.10</td>
<td>25.69</td>
<td>26.21</td>
<td>26.00</td>
<td>25.58</td>
<td>27.25</td>
<td>25.18</td>
</tr>
<tr>
<td>N₂</td>
<td>26.49</td>
<td>25.43</td>
<td>27.22</td>
<td>26.38</td>
<td>25.63</td>
<td>26.08</td>
<td>27.43</td>
</tr>
<tr>
<td>Mean</td>
<td>22.82</td>
<td>22.37</td>
<td>23.14</td>
<td>22.78</td>
<td>22.45</td>
<td>22.98</td>
<td>22.90</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of N = 1.805 ton/ac.
2. marginal means of P or K = 0.586 ton/ac.
3. P or K means at the same level of N = 1.014 ton/ac.
4. N means at the same level of P or K = 1.986 ton/ac.
5. means of body of P x K table = 1.01 ton/ac.

Crp :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.

Object :- To study the effect of alternate use of G.M. crops on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 5 and 6.3.1948. (iv) (a) Ploughings by cultivators, 1 ploughing by victory plough, 7 ploughings by desi plough and 7 plankings. (b) N.A. (c) 67 3-budded setts/row. (d) and (e) N.A. (v) Top dressing of the castor cake at 40 lb./ac. of N on 5 and 6.3.1948. (vi) CO.453 (late). (vii) Irrigated. (viii) Planting after planting, hoeing by spraying tooth harrow, planking after hoeing on 17.7.1948, hoeing by kassi on 5.1.1948 and earthing on 10.11.1948. (ix) 40.24'. (x) 22, 26, 28.2.1949 and 5, 23, 24, 29.3.1949.

2. TREATMENTS:
1. Sanai crop taken for fibre (fallow in Rabi).
2. Sanai green manure (fallow in Rabi).
3. Lobia crop taken for fodder (fallow in Rabi).
4. Lobia green manure (fallow in Rabi).
5. Guar crop taken for fodder (fallow in Rabi).
7. Pea crop taken for fodder (maize for fodder in Kharif).
8. Pea green manure (maize for fodder in Kharif).
11. Control (fallow in Kharif and Rabi).
12. Control (maize for fodder in Kharif and fallow in Rabi).

3. DESIGN:
   (i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 67' x 24'. (b) 61' x 18'. (v) 3' all round. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) N.A. (iii) Sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil; (vii) Experiment conducted by D.S.R. (S).
5. RESULTS:

(i) 25.20 ton/ac.
(ii) 2.682 ton/ac.
(iii) Treatment differences are highly significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.88</td>
<td>7.</td>
<td>24.92</td>
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<tr>
<td>2.</td>
<td>27.87</td>
<td>8.</td>
<td>24.42</td>
</tr>
<tr>
<td>3.</td>
<td>25.25</td>
<td>9.</td>
<td>27.60</td>
</tr>
<tr>
<td>4.</td>
<td>29.77</td>
<td>10.</td>
<td>15.34</td>
</tr>
<tr>
<td>5.</td>
<td>23.82</td>
<td>11.</td>
<td>24.70</td>
</tr>
<tr>
<td>6.</td>
<td>27.79</td>
<td>12.</td>
<td>25.07</td>
</tr>
</tbody>
</table>

S.E./mean = 1.341 ton/ac.

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Crop: - Sugarcane.
Site: - Sugarcane Res. Stn., Shahjahanpur.
Object: - To study the effect of alternative use of green manure crops.

1. BASAL CONDITIONS:

   (i) (a) Nil. (b) As per treatments. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur.
   (iii) 27.3.1949. (iv) (a) 3 ploughings by victory plough, 1 desi ploughing, 1 with cultivator, picking of roots, para and roller. (b) N.A. (c) 67 3-budded Sets/row. (d) and (e) N.A. (v) Manuring by castor cake on 25 to 27.3.1949. (vi) CO.453 (late). (vii) Irrigated. (viii) 4 Hoeings with cultivator, harrowing and earthing. (ix) 50.28'. (x) 31.12.1949, 7 to 10, 12.2.1950 and 21, 24.4.1950.

2. TREATMENTS:

1. Sanai tops and roots (crop harvested for fibre).
2. Sanai green manure.
3. Metha green manure.
5. Lobia roots (crop harvested for fodder).
7. Guar roots (crop harvested for fodder).
8. Guar green manure.
11. Senji roots only (crop harvested for fodder).
12. Senji green manure.
13. Control after maize (maize taken for fodder).
14. Control (no crop taken).

3. DESIGN:

   (i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 61' x 24'. (b) 61' x 18'. (v) 3' around. (vi) Yes.

4. GENERAL:

   (i) Growth good. Some plots of replication IV were damaged due to lodging. (ii) Slight attack of leaf yellow disease in July. (iii) Germination count, millable canes and sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (S).

5. RESULTS:

(i) 21.83 ton/ac.
(ii) 1.274 ton/ac.
(iii) Treatment differences are highly significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.89</td>
<td>8.</td>
<td>20.86</td>
</tr>
<tr>
<td>2.</td>
<td>22.96</td>
<td>9.</td>
<td>21.07</td>
</tr>
<tr>
<td>3.</td>
<td>22.72</td>
<td>10.</td>
<td>23.93</td>
</tr>
<tr>
<td>4.</td>
<td>22.02</td>
<td>11.</td>
<td>20.76</td>
</tr>
<tr>
<td>5.</td>
<td>21.00</td>
<td>12.</td>
<td>21.86</td>
</tr>
<tr>
<td>6.</td>
<td>22.47</td>
<td>13.</td>
<td>20.98</td>
</tr>
<tr>
<td>7.</td>
<td>20.79</td>
<td>14.</td>
<td>20.29</td>
</tr>
</tbody>
</table>

S.E./mean = 0.637 ton/ac.
Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.

Object :- To study the effect of alternative use of green manure crops.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) As per treatments. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur.
   (iii) 15 and 16.3.1950. (iv) (a) Ploughing with victory plough, 2 desi ploughs, 2 plankings 1 spring tooth harrow. (b) to (e) N.A. (v) Nil. (vi) CO-453 (late). (vii) Irrigated. (viii) 4 hoeings with cultivator, 1 with spring tooth harrow, binding and earthing. (ix) 39.87'. (x) 9.2.1951 to 13.3.1951.

2. TREATMENTS:
   1. Metha roots (crop harvested for fodder).
   2. Metha green manure.
   3. Metha green manure + 100 lb/ac. of P2O5 at sowing.
   4. Senji roots (crop harvested for fodder).
   5. Senji green manure.
   7. Lobia green manure.
   8. Lobia green manure + 100 lb/ac. of P2O5 at sowing.
   10. Berseem roots (3 cuttings of crop for fodder) + 100 lb/ac. of P2O5 at sowing.
   11. Pea roots (crop harvested for fodder).
   12. Pea green manure.
   13. Pea green manure + 100 lb/ac. of P2O5 at sowing.

3. DESIGN:
   (i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 67' x 24'. (b) 61' x 18'. (v) 3' around. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Attack of white ant in one plot. (iii) Sugarcane yield. (iv) (a) to (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(S).

5. RESULTS:
   (i) 19.57. ton/ac.
   (ii) 3.120 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>8.</td>
<td>20.75</td>
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<td>19.27</td>
<td>9.</td>
<td>18.29</td>
</tr>
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<td>3.</td>
<td>22.40</td>
<td>10.</td>
<td>23.60</td>
</tr>
<tr>
<td>4.</td>
<td>16.89</td>
<td>11.</td>
<td>16.40</td>
</tr>
<tr>
<td>5.</td>
<td>22.36</td>
<td>12.</td>
<td>23.57</td>
</tr>
<tr>
<td>6.</td>
<td>15.27</td>
<td>13.</td>
<td>25.52</td>
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<tr>
<td>7.</td>
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<tr>
<td>S.E./mean</td>
<td>1.56</td>
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<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.

Object :- To study the effect of alternative use of green manure crops.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) As per treatments. (c) No. (ii) (g) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12 and 13.3.1951. (iv) (a) 1 ploughing with victory plough, 1 by desi plough and 2 plankings. (b) N.A. (c) 67-3-budded setts/row. (d) N.A. (e) - (v) Nil. (vi) CO-453 (late). (vii) Irrigated. (viii) 2 hoeings with cultivator and 2 harrowings. (ix) 29.00'. (x) 26, 27.12.1951 and 8.1.1952.
2. TREATMENTS:

3. *Metha* green manure + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> at sowing.
5. *Senji* green manure.
6. *Senji* green manure + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> at sowing.
7. *Berseem* roots (3 cuttings of crop taken for fodder).
8. *Berseem* roots (3 cuttings of crop taken for fodder) + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> at sowing.
11. *Pea* green manure + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> at sowing.
12. Control (no crop).

Date of turning in green manuring 6 to 8.2.1951 and 25.1.1951. Date of harvesting green manures between 24.1.1951 to 8.2.1951 and P<sub>2</sub>O<sub>5</sub> as super as on 10 to 11.3.1951.

3. DESIGN:

(i) R.B.D. (ii) (a) N.A. (iii) 4. (iv) (a) 67' x 24'. (b) 61' x 18'. (v) 3' around. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Germination count, tillers, millable canes and sugarcane yield. (iv) (a) 1951—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(S).

5. RESULTS:

(i) 17.64 ton/ac.
(ii) 2.516 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>15.56</td>
<td>7</td>
<td>16.60</td>
</tr>
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<td>17.00</td>
<td>8</td>
<td>20.51</td>
</tr>
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<td>18.24</td>
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<td>19.09</td>
<td>12</td>
<td>17.29</td>
</tr>
</tbody>
</table>

S.E./mean = 1.258 ton/ac.

Object:—To study the effect of alternative use of green manure crops.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) As per treatments. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 30, 31.3.1952 and 1.4.1952. (iv) (a) 2 ploughings with victory plough, 2 ploughings with desi plough and planking. (b) to (e) N.A. (v) Nil. (vi) CO-453 (late). (vii) Irrigated. (viii) Hoeing with *kass* on 12 to 15.4.1952 and earthing on 5 to 7.9.1952. (ix) 33.30'. (x) 28.1.1953 to February 1953.

2. TREATMENTS:

3. *Metha* green manure + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> at sowing.
5. *Senji* green manure.
6. *Senji* green manure + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> at sowing.
7. *Berseem* roots (3 cuttings of crop for fodder).
8. *Berseem* roots (3 cuttings of crop for fodder) + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> at sowing.

Ref:—U.P. 52(180).
Type:—‘M’.
11. Pea green manure + 100 lb/ac. of P<sub>2</sub>O<sub>5</sub> at sowing.
12. Control (no crop).
Sowing of green manure on 19 to 21.10.1951 and 30.10.51 Turning in of G.M. on 8 to 14.2.1952.

3. DESIGN:
(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 70'x 21'. (b) 64'x 15'. (v) 3' around plot. (vi) Yes.

4. GENERAL:
(i) Fair. (ii) Nil. (iii) No. of tillers, millable canes and sugarcane yield. (iv) (a) 1951—1952. (b) No.
(c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(S).

5. RESULTS:
(i) 21.22 ton/ac.
(ii) 2.376 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>19.58</td>
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<tr>
<td>2.</td>
<td>23.64</td>
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<td>3.</td>
<td>23.72</td>
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<tr>
<td>4.</td>
<td>18.61</td>
</tr>
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<td>5.</td>
<td>22.79</td>
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<tr>
<td>6.</td>
<td>23.90</td>
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<tr>
<td>S E./mean</td>
<td>1.188</td>
</tr>
</tbody>
</table>

Crop: — Sugarcane.
Site: — Sugarcane Res. Stn., Shahjahanpur.

Ref: - U.P. 48(54).
Type: —'M'.

Object: — To study the effect and availability of different organic and inorganic manures under fallow and cropped conditions.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Guar. (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 8.3.1948.
(iv) (a) 12 ploughings. (b) N.A. (c) 65 3—budded setts/line. (d) Rows 3' apart. (e) —. (v) Manuring of guar on 9.7.1947. (vi) CO-453 (late). (vii) Irrigated. (viii) 5 hoeings and earthing. (ix) 40.22'. (x) 14 2.1949 to 19.2.1949.

2. TREATMENTS:
1. A/S at 120 lb/ac of N on 2.3.1948.
2. Castor cake at 120 lb/ac. of N applied on 16.2.1948.
3. G.N.C. at 120 lb/ac. of N applied on 16.2.1948.
4. M.C. at 120 lb/ac. of N applied on 14.2.1948.
5. F.Y.M. at 120 lb/ac. of N applied on 16.2.1948.
6. Urine earth at 120 lb/ac. of N applied on 16, 18.2.1948.
7. Press mud at 120 lb/ac. of N applied on 14.2.1948.
8. Control.

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 65'x21'. (b) 59'x15'. (v) Plot border 3'. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Sugarcane yield. (iv) (a) 1945—1948. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil.
(vii) Experiment was conducted by D.S.R.(S).

5. RESULTS:
(i) 27.15 ton/ac.
(ii) 1.507 ton/ac.
(iii) Treatment differences are highly significant.
Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
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<td>28.79</td>
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<td>27.89</td>
<td>7.</td>
<td>28.93</td>
</tr>
<tr>
<td>4.</td>
<td>27.53</td>
<td>8.</td>
<td>20.79</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td></td>
<td>0.750 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.

Site: Sugarcane Res. Stn., Shahjahanpur.

Object: To study the utilization of different organic and inorganic manures under cropped and fallow conditions.

1. **BASAL CONDITIONS**:
   (i) (a) Sugarcane—Fallow—Wheat—Sanai. (b) Sanai. (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 9 and 10.3.1949. (iv) (a) and (b) N.A. (c) 65, three budded setts/line. (d) Rows 3’ apart. (e) —. (v) Sanai. (vi) CO. 453 (late). (vii) Irrigated. (viii) 1 hoeing with kassi, 4 hoeings with cultivator and earthing. (ix) 49.79”. (x) 6 and 7.1.1950.

2. **TREATMENTS**:
   1. A/S (20.05% N) at 120 lb./ac. of N applied on 8.3.1949.
   2. Castor cake at 120 lb./ac. of N (4.49% N) applied on 8, 9.3.1949.
   3. Q.N.C. at 100 lb./ac. of N (2.86% N) applied on 9.3.1949.
   4. Mahwa (Basia Latifolia) cake applied on 8 and 9.3.1949.
   5. Press mud at 120 lb./ac. of N (1.28% N) applied cn 8 and 9.4.1949.
   6. T.C. at 120 lb./ac. of N (0.27% N) applied on 9 and 10.3.1949.
   7. P.V.M. at 120 lb./ac. of N (0.513% N) applied on 9.3.1949.
   8. Urine (cattle) earth at 120 lb./ac. of N (0.254% N) applied on 9.3.1949.
   9. Control.

3. **DESIGN**:
   (i) R.B.D. (ii) 9. (b) N.A. (iii) 4. (iv) (a) 70.5’x18’, (b) 64.5’x12’. (v) 3’ around. (vi) Yes.

4. **GENERAL**:
   (i) N.A. (ii) No. (iii) Yield data and sample of soil from cropped and uncropped fields. (iv) (a) to (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R(S).

5. **RESULTS**:
   (i) 17.43 ton/ac.
   (ii) 2.574 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.51</td>
</tr>
<tr>
<td>2.</td>
<td>17.97</td>
</tr>
<tr>
<td>3.</td>
<td>25.09</td>
</tr>
<tr>
<td>4.</td>
<td>17.99</td>
</tr>
<tr>
<td>5.</td>
<td>16.22</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.287 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.

Site: Sugarcane Res. Stn., Shahjahanpur.

Object: To study the utilization of Night soil in Sugarcane cultivation.

1. **BASAL CONDITIONS**:
   (i) (a) N.A. (b) Moong. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12 and 13.4.1949. (iv) (a) 2 ploughings by victory plough, 3 by desl plough, 1 by harrow and 3 by rollerings. (b) N.A. (c) 56 three budded setts/line. (d) N.A. (e) —. (v) Nil. (vi) CO. 186. (vii) Irrigated. (viii) 1 hoeing with kassi, 4 hoeings with cultivator and harrowing. (ix) 50.02”. (x) 18.2.1950.
2. TREATMENTS:
1. T.C. broadcasted at 200 lb./ac. of N.
2. Night soil with Trash in trenches in inter-space at 200 lb./ac. of N.
3. Trash in trenches in inter-space.
4. Trenches only in inter-space.
5. Control (no manure).
6. A/S at 200 lb./ac. of N.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 8' x 21'. (b) 7' x 15'. (v) Left 3' along all sides. (vi) Yes.

4. GENERAL:
(i) Lodged due to heavy rain. (ii) Nil. (iii) Germination, millable cane and sugarcane yield. (iv) (a) No, (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(S).

5. RESULTS:
(i) 11.65 ton/ac.
(ii) 1.936 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12.82</td>
</tr>
<tr>
<td>2.</td>
<td>12.17</td>
</tr>
<tr>
<td>3.</td>
<td>12.48</td>
</tr>
<tr>
<td>4.</td>
<td>10.21</td>
</tr>
<tr>
<td>5.</td>
<td>10.13</td>
</tr>
<tr>
<td>6.</td>
<td>12.10</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.968</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane Res Stn., Shahjahanpur.
Object : To investigate the effect of A/S, A/N, C/N and Mineral Super on the growth, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Non legumenous G.M.—Sugarcane—Wheat. (b) Oats. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 22, 23 ± 3. (iv) (a) and (b) N.A. (c) 3 buds/ft. of the length of row. (d) Rows 3' apart. (e) —. (v) G.M. by oats. (vi) CO 421 (medium). (vii) Irrigated. (viii) N.A. (ix) 38.08°. (x) 2.1.1951.

2. TREATMENTS:
All combinations of (1), (2) and (3):
(1) 3 sources of N : S1=A/S, S2=Sodium Nitrate and S3=A/N.
(2) 3 levels of N : N0=0, N1=100 and N2=200 lb./ac. of N.
(3) 3 levels of P2O5 as Super : P10=0, P1=75 and P2=150 lb./ac. of P2O5. Super applied at the time of green manuring of oats.

3. DESIGN:
(i) 3³ Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 55' x 15'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1950—1957. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S).

5. RESULTS:
(i) 19.37 ton/ac.
(ii) 2.566 ton/ac.
(iii) Main effect of N and dummy treatments vs others are highly significant. Interaction F x N is significant. Other effects and interactions are not significant.
Av. yield of sugarcane in ton/ac.

Dummy treatment of N x S combinations:

<table>
<thead>
<tr>
<th></th>
<th>N1</th>
<th>N2</th>
<th>Mean</th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>22.10</td>
<td>26.76</td>
<td>24.43</td>
<td>22.82</td>
<td>25.78</td>
<td>24.69</td>
</tr>
<tr>
<td>S2</td>
<td>22.14</td>
<td>22.71</td>
<td>22.42</td>
<td>20.52</td>
<td>23.54</td>
<td>23.20</td>
</tr>
<tr>
<td>S3</td>
<td>22.22</td>
<td>23.35</td>
<td>22.78</td>
<td>24.56</td>
<td>22.50</td>
<td>21.29</td>
</tr>
<tr>
<td>Mean</td>
<td>22.15</td>
<td>24.27</td>
<td>23.21</td>
<td>22.63</td>
<td>23.94</td>
<td>23.06</td>
</tr>
</tbody>
</table>

1. S.E. of S or P marginal means = 0.605 ton/ac.
2. S.E. of N marginal means = 0.494 ton/ac.
3. S.E. of body of S x N or P x N table = 0.856 ton/ac.
4. S.E. of body of P x S table = 1.046 ton/ac.

Crop: Sugarcane.

Object: To investigate the effect of A/S, A/N and C/N and mineral Super on the growth, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Oats. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 7.3.1951. (iv) (a) Ploughings. on 5-3-1951. (b) N.A. (c) 55 three budded setts/row. (d) N.A. (e) —. (v) G.M. with oats on 10.2.1951. (vi) CO 421 (medium). (vii) Irrigated. (viii) Hoeings with akola and desi plough on 22.3.1951 and 4, 5.4.1951. Hoeing on 13.4.1951, 5, 6, 7.5.1951 and 27.5.1951. (ix) 29.69. (x) 22.12.1951.

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 sources of N: S1 = A/S, S2 = C/N and S3 = A/N.
(2) 3 levels of N: N0 = 0, N1 = 100 and N2 = 200 lb./ac. of N.
(3) 3 levels of P2O5 as Super : P0 = 0, P1 = 75 and P2 = 150 lb./ac. of P2O5.
Super application in the field on 9.2.1951 at the time of turning in of oats. Manuring on 22.5.1951, (top dressed). Application of C/N on 25.7.1951 as top dressing.

3. DESIGN:

(i) 3² Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 55' x 15'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1950 to 1952. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:

(i) 13.56 ton/ac.
(ii) 4.259 ton/ac.
(iii) Dummy treatments vs others are highly significant. Other effects and interactions are not significant.
Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁</td>
<td>13.80</td>
<td>15.03</td>
<td>15.59</td>
</tr>
<tr>
<td>N₂</td>
<td>18.44</td>
<td>15.55</td>
<td>17.21</td>
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<tr>
<td>P₀</td>
<td>16.34</td>
<td>12.90</td>
<td>20.09</td>
</tr>
<tr>
<td>P₁</td>
<td>15.35</td>
<td>16.15</td>
<td>13.66</td>
</tr>
<tr>
<td>P₂</td>
<td>16.48</td>
<td>16.89</td>
<td>15.45</td>
</tr>
</tbody>
</table>

1. S.E. of marginal means of S or P = 1.003 ton/ac.
2. S.E. of marginal means of N = 0.809 ton/ac.
3. S.E. of body of S×N or P×N table = 1.421 ton/ac.
4. S.E. of body of P×S table = 1.739 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Res. Stn., Shahjahanpur.
Ref: U.P. 52(240).
Type: ‘M’.

Object: To investigate the effect of A/S, C/N and A/N and mineral Super on the growth, yield and juice quality of Sugarcane.

4. BASAL CONDITIONS:
   (i) (a) N.A. (b) Oats (ploughed in). (c) Loam. (d) Refer soil analysis, Shahjahanpur. (e) 18.3.1952. (iv) (a) Application of N on 11.2.1952. (b) G.M. with oats on 11.1.1952. (v) CO.421 (medium). (vi) Irrigated. (vii) Hoeing with cultivator, hoeing and weeding. (ix) 32.6°F.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 sources of N: N₁=A/S, N₂=C/N and N₃=A/N.
   (2) 3 levels of N: N₀=0, N₁=100 and N₂=200 lb./ac. of N.
   (3) 3 levels of P₂O₅ as Super: P₀=0, P₁=75 and P₂=150 lb./ac. of P₂O₅.
   Application of Super on 11.2.1952 at the time of green manuring with oats. Manuring of N doses on 28.5.1952 (method N.A.).

3. DESIGN:
   (i) 3³ Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 54’x15’. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N/A. (iii) Tiller, millable cane and sugarcane yield. (iv) (a) 1950 to 1952. (b) No. (v) (a) and (b) No. (vi) Missing values estimated for treatments S₁N₀P₀, S₂N₁P₁ and S₃N₂P₂ in replication I, S₁N₁P₀, S₂N₂P₀ in replication II and S₁N₀P₀ in replication I. These plots were severely damaged by rats. (vii) Experiment conducted by D.S.R. (S).
5. RESULTS:

(i) 16.00 ton/ac.
(ii) 2.03 ton/ac.
(iii) Effect of P is significant. Effect of N is highly significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Dummy treatments of NS combinations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ( \text{N}_6 \text{P}_0 ) = 14.86 ton/ac.</td>
</tr>
<tr>
<td>2. ( \text{N}_6 \text{P}_1 ) = 11.59 ton/ac.</td>
</tr>
<tr>
<td>3. ( \text{N}_6 \text{P}_2 ) = 14.76 ton/ac.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;4&lt;/sub&gt;</th>
<th>Mean</th>
<th>P&lt;sub&gt;0&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>P&lt;sub&gt;2&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&lt;sub&gt;1&lt;/sub&gt;</td>
<td>18.10</td>
<td>17.54</td>
<td>17.82</td>
<td>18.15</td>
<td>17.22</td>
</tr>
<tr>
<td>S&lt;sub&gt;2&lt;/sub&gt;</td>
<td>15.90</td>
<td>14.95</td>
<td>15.42</td>
<td>15.01</td>
<td>14.03</td>
</tr>
<tr>
<td>S&lt;sub&gt;3&lt;/sub&gt;</td>
<td>17.45</td>
<td>18.88</td>
<td>18.16</td>
<td>18.20</td>
<td>17.58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean</th>
<th>17.15</th>
<th>17.12</th>
<th>17.13</th>
<th>17.12</th>
<th>16.28</th>
<th>18.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>P&lt;sub&gt;0&lt;/sub&gt;</td>
<td>16.74</td>
<td>17.50</td>
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</tr>
<tr>
<td>P&lt;sub&gt;1&lt;/sub&gt;</td>
<td>16.94</td>
<td>15.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P&lt;sub&gt;2&lt;/sub&gt;</td>
<td>17.77</td>
<td>18.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. S.E. of \( \text{N}_1 \) marginal mean = 0.59 ton/ac.
2. S.E. of \( \text{N}_4 \) marginal mean = 0.60 ton/ac.
3. S.E. of \( \text{P}_0 \) marginal mean = 0.76 ton/ac.
4. S.E. of \( \text{P}_1 \) marginal mean = 0.74 ton/ac.
5. S.E. of \( \text{P}_2 \) marginal mean = 0.72 ton/ac.
6. S.E. of \( \text{S}_1 \) marginal mean = 0.76 ton/ac.
7. S.E. of \( \text{S}_2 \) marginal mean = 0.74 ton/ac.
8. S.E. of \( \text{S}_3 \) marginal mean = 0.72 ton/ac.

Crop: - Sugarcane.
Site: - Sugarcane Res. Stn., Shahjahanpur.
Ref: - U.P. 52(193).
Type: - "M".

Object: - To study the effect of adding a mixture of Ferrous Sulphate and lime to Castor cake, G.N.C. Mohwa cake and F.Y.M and then applying to Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Loam.  (b) Refer soil analysis, Shahjahanpur. (iii) 22.3.1952. (iv) (a) to (e) N.A.  (v) Nil.  (vi) CO.453 (late). (vii) Irrigated. (viii) 6 hoeings and earthing. (ix) 32.63.  (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2) + 2 selective treatments.
   (1) 4 sources of N: \( \text{S}_1 \) = Castor cake at 100 lb./ac. of N, \( \text{S}_2 \) = G.N.C. at 100 lb./ac. of N, \( \text{S}_3 \) = Mohwa cake at 100 lb./ac. of N and \( \text{S}_4 \) = F.Y.M. at 100 lb./ac. of N.
   (2) 2 levels of chemical mixture: \( \text{C}_0 \) = control (no chemical) and \( \text{C}_1 \) = FeSO<sub>4</sub> at 26.6 lb./ac. + lime at 13.3 lb./ac.

Selective treatments:
\( \text{T}_1 \) = control (no manure) and \( \text{T}_2 \) = A/S at 100 lb./ac. of N.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 10.  (b) N.A.  (iii) 3. (iv) (a) N.A.  (b) 37°×24°. (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Tiller, millable cane and sugarcane yield. (iv) (a) 1952 to 1954.  (b) and (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment conducted by D.S.R. (S).
5. RESULTS:

(i) 33.50 ton/ac.
(ii) 2.591 ton/ac.
(iii) Effect of S is highly significant, effect of selective treatments is significant. Others are not significant.

Selective treatments:

<table>
<thead>
<tr>
<th></th>
<th>S_1</th>
<th>S_2</th>
<th>S_3</th>
<th>S_4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>C_0</td>
<td>33.96</td>
<td>35.36</td>
<td>29.77</td>
<td>30.60</td>
<td>32.42</td>
</tr>
<tr>
<td>C_1</td>
<td>34.13</td>
<td>34.09</td>
<td>33.93</td>
<td>34.72</td>
<td>34.22</td>
</tr>
<tr>
<td>Mean</td>
<td>34.04</td>
<td>34.72</td>
<td>31.85</td>
<td>32.66</td>
<td>33.22</td>
</tr>
</tbody>
</table>

1. S.E. of marginal means of S = 0.952 ton/ac.
2. S.E. of marginal means of C = 0.673 ton/ac.
3. S.E. of body of table = 1.343 ton/ac.
4. S.E. of selective treatments = 1.343 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Res. Stn., Shahjahanpur.

Object: To study the effect of adding a mixture of Ferrous Sulphate and lime to Castor cake, G.N.C., Mohwa cake and F.Y.M. and then applying to Sugarcane.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.  
(ii) Loam.  
Refer soil analysis, Shahjahanpur.  
(iii) 7.3.1953.  
(iv) (a) to (e) N.A.  
(v) Nil.  
(vi) CO. 453 (late).  
(vii) Irrigated.  
(viii) 5 hoeings with kastri.  
(ix) 43.43.  
(x) 18.1.1954.

2. TREATMENTS:

All combinations of (1) and (2) + 2 selective treatments

(1) 4 sources of N: S_1 = Castor cake at 100 lb/ac. of N, S_2 = G.N.C. at 100 lb/ac. of N, S_3 = Mohwa cake at 110 lb/ac. of N and S_4 = F.Y.M. at 100 lb/ac. of N.

(2) 2 levels of chemical mixture: C_0 = No chemical and C_1 = FeSO_4 at 26.6 lb/ac. + lime at 13.3 lb/ac.

Selective treatments:

T_1 = control (no manure) and T_2 = A/S at 100 lb/ac. of N.

3. DESIGN:

(i) R.B.D.  
(ii) (a) 10.  
(b) N.A.  
(iii) 3.  
(iv) (a) N.A.  
(b) 40°x27'.  
(v) N.A.  
(vi) Yes.

4. GENERAL:

(i) Rats were active during the growth seasons and they were responsible for high mortality of tillers. Rats were responsible for erratic sugarcane yield figures.  
(ii) N.A.  
(iii) Tillers, mullable sugarcane and yield.  
(iv) (a) 1952 to 1955.  
(b) and (c) No. (v) (a) and (b) No. (vi) Nil.  
(vii) Experiment conducted by D.S.R. (S).

5. RESULTS:

(i) 33.50 ton/ac.
(ii) 2.591 ton/ac.
(iii) Effect of S is highly significant, effect of selective treatments is significant. Others are not significant.
Av. yield of sugarcane in ton/ac.

Selective treatments:

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>37.39</td>
<td>36.17</td>
<td>32.31</td>
<td>30.88</td>
<td>34.19</td>
</tr>
<tr>
<td>T2</td>
<td>35.31</td>
<td>35.68</td>
<td>31.13</td>
<td>29.89</td>
<td>33.00</td>
</tr>
</tbody>
</table>

Mean 36.35 35.93 31.72 30.38 33.60

S.E. of marginal mean of S = 1.058 ton/ac.
S.E. of marginal mean of C = 0.748 ton/ac.
S.E. of body of table = 1.499 ton/ac.
S.E. of selective treatments = 1.499 ton/ac.

Crop: Sugarcane,
Site: Sugarcane Res. Stn., Shahjahanpur.
Type: 'M'.

Object: To study the catalysing effect of potassium permanganate, ferrous sulphate and lime upon castor cake in improving growth and sugar content of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Berseem. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 20.3.1949.
(iv) (a) and (b) N.A. (c) 40, three budded setts/row. (d) N.A. (e) N.A. (v) Castor cake at 100 lb./ac. of N. (vi) CO. 421 (medium). (vii) N.A. (viii) N.A. (ix) 48.54'. (x) N.A.

2. TREATMENTS:
1. Control (no manure).
2. KMnO₄ at 28 lb./ac.
3. FeSO₄ at 26.6 lb./ac.
4. Lime at 13.3 lb./ac.
5. (3)+(4).
6. (2)+(3).
7. (2)+(3)+(4).

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40'×21'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1949 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
(i) 21.46 ton/ac.
(ii) 3.93 ton/ac.
(iii) The treatments do not differ significantly.
(iv) Av. yield of sugarcane in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.61</td>
</tr>
<tr>
<td>2.</td>
<td>19.30</td>
</tr>
<tr>
<td>3.</td>
<td>21.80</td>
</tr>
<tr>
<td>4.</td>
<td>20.89</td>
</tr>
<tr>
<td>5.</td>
<td>22.95</td>
</tr>
<tr>
<td>6.</td>
<td>23.13</td>
</tr>
<tr>
<td>7.</td>
<td>22.55</td>
</tr>
</tbody>
</table>

S.E./mean = 2.26 ton/ac.
Object:—To study the catalysing effect of potassium permanganate, ferrous sulphate and lime upon castor cake in improving growth and sugar content of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 30.4.1950. (iv) (a) and (b) N.A. (c) 40—3 budded sets/row. (d) N.A. (e) —. (v) Castor cake at 100 lb./ac. of N. (vi) CO-421 (medium). (vii) Irrigated. (viii) N.A. (ix) 35.89°. (x) 5.1.1951.

2. TREATMENTS:

1. Control (no manure).
2. KMnO₄ at 28 lb./ac.
3. FeSO₄ at 26.6 lb./ac.
4. Lime at 13.3 lb./ac.
5. (3)+(4).
6. (2)+(3).
7. (2)+(3)+(4).

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40' x 21'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1949—1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:

(i) 10.87 ton/ac.
(ii) 2.035 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12.90</td>
</tr>
<tr>
<td>2.</td>
<td>11.79</td>
</tr>
<tr>
<td>3.</td>
<td>10.92</td>
</tr>
<tr>
<td>4.</td>
<td>9.87</td>
</tr>
<tr>
<td>5.</td>
<td>7.98</td>
</tr>
<tr>
<td>6.</td>
<td>10.14</td>
</tr>
<tr>
<td>7.</td>
<td>12.52</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.17 ton/ac.</td>
</tr>
</tbody>
</table>

Object:—To study the effect of manuring Sugarcane with Castor cake to which a catalyst has been added.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 21.2.1951. (iv) (a) Ploughing on 27.1.1951. (b) to (g) N.A. (v) Manuring on 25.1.1951. (vi) CO-453 (late). (vii) Irrigated. (viii) 3 hoeings and earthing. (ix) 31.66°. (x) 20.3.1952.

2. TREATMENTS:

1. Control (no manure).
2. Castor cake.
3. Castor cake+KMnO₄ at 28 lb./ac.
4. Castor cake+FeSO₄ at 26.6 lb./ac.
5. Castor cake+lime at 13.3 lb./ac.
6. Castor cake+FeSO₄ and lime at 13.3 lb./ac.
7. Castor cake+FeSO₄ and KMnO₄ at 13.3 lb./ac.
8. Castor cake+FeSO₄, KMnO₄ and lime at 13.3 lb./ac.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40' x 15'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Millable cane, tillers and sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
(i) 22.82 ton/ac.
(ii) 2.85 ton/ac.
(iii) The treatments differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.82</td>
<td>5.</td>
<td>26.77</td>
</tr>
<tr>
<td>2.</td>
<td>25.54</td>
<td>6.</td>
<td>22.08</td>
</tr>
<tr>
<td>3.</td>
<td>23.58</td>
<td>7.</td>
<td>22.57</td>
</tr>
<tr>
<td>4.</td>
<td>20.58</td>
<td>8.</td>
<td>23.62</td>
</tr>
</tbody>
</table>

S.E./mean = 1.64 ton/ac.

Site : Sugarcane Res. Stn., Shahjahanpur. Type : 'M'.

Object : To study the effect of methods of application of different N manures on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Sugarcane—Fallow—Wheat—Sanai. (b) Sanai. (c) No. (ii) (a) Sandy loam. (b) Refer soil analysis, Shahjahanpur. (iii) 9, 10 and 11.3.1953. (iv) (a) and (b) N.A. (c) 80 three budded setts/line. (d) N.A. (e)—. (v) Green manuring with Sanai at 60 lb/ac. of N. (vi) CO 453 (late). (vii) N.A. (viii) N.A. (ix) 45.79°. (x) 15.1.1954 (Rep. II) to 9—13.3.1954 (Rep I, III and IV).

2. TREATMENTS:
All combinations of (1) and (2) and one control (no manure)

(1) 3 sources of 60 lb/ac. of N : S1=A/S, S2=G.N.C. and S3=A/S+G.N.C. in 1 : 1 ratio.
(2) 4 methods of application of N : M1=By broadcast before planting, M2=As surface band in May, M3=As pellets in May and M4=As pellets at planting.

Method of preparation of pellets: For pellets of A/S. The calculated quantity of A/S required for the size of the test was dissolved in as little water as possible, and the soil was thoroughly mixed with representative soil sample and kneaded thoroughly. For the mixture, pellets of one inch diameter were made and applied to the plots in rows along with the setts at planting time, and near the root of cane in May. For pellets of Groundnut cake: The required quantity of the cake was finally powdered and thoroughly mixed with the representative sample of the soil of the field and then mixture was kneaded with water and pellets of one inch diameter were prepared and applied to the field as in the case of A/S pellets.

3. DESIGN:
(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 80'x15'. (b) 74'x9'. (v) Barha=3', Mend=2'. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, juice quality and sugarcane yield. (iv) (a) 1953—1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S).

5. RESULTS:
(i) 31.42 ton/ac.
(ii) 2.225 ton/ac.
(iii) Control vs treated effects alone is highly significant.
Crop: Sugarcane.

Site: Sugarcane Res. Stn., Shahjahanpur.

Object: To assess the relative efficiency of A/S and A/N, C/N and F.Y.M. with regard to the yield and juice quality of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 5.3.1949. (iv) (a) and (b) N.A. (c) 45 three budded setts/plot. (d) N.A. (e) —. (v) Nil. (vi) CO 421 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control (no manure).
   2. A/S at 100 lb./ac. of N.
   3. A/N at 100 lb./ac. of N.
   4. F.Y.M. at 100 lb./ac. of N.
   5. C/N at 100 lb./ac. of N.

   (As C/N was not available, the treatment was not applied and so treatment 5 is also control).

3. DESIGN:
   (i) R.B.D. (ii) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 43°×15'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S).

5. RESULTS:
   (i) 16.90 ton/ac.
   (ii) 2.185 ton/ac.
   (iii) Treatment differences are significant. Treatment vs control effect is not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+5</td>
<td>17.94</td>
</tr>
<tr>
<td>2</td>
<td>17.14</td>
</tr>
<tr>
<td>3</td>
<td>14.83</td>
</tr>
<tr>
<td>4</td>
<td>16.90</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.092 ton/ac. (for 2, 3 and 4)</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.772 ton/ac. (for 1 and 5)</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Ref :- U.P. 48(48).

Site :- Sugarcane Res. Stn., Shahjahanpur.  
Type :-'M'.

Object :- To study the catalysing effect of manganese, Sulphate, Ferrous Sulphate singly and in combination with Copper sulphate upon Castor cake in relation to growth and sugar quality of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Maize for fodder. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 5.2.1948. (iv) (a) and (b) N.A. (c) 51, three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) CO-421 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control (unmanured).
   2. Castor cake alone at 60 lb./ac. of N.
   3. Castor cake at 60 lb./ac. of N+FeSO₄ at 28 lb./ac.
   4. Castor cake+FeSO₄ at 28 lb./ac.+CuSO₄ at 1.4 lb./ac.
   5. Castor cake+MnSO₄ at 28 lb./ac.
   6. Castor cake+MnSO₄ at 28 lb./ac.+CuSO₄ at 1.4 lb./ac.

Treatments were top dressed at sowing time.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40' x 27'. (v) Yes, but details are not available. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillering, millable sugarcane and yield. (iv) (a) 1947—1948. (b) No. (c) No. (d) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
   (i) 25.60 ton/ac.
   (ii) 3.576 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.60</td>
</tr>
<tr>
<td>2.</td>
<td>24.78</td>
</tr>
<tr>
<td>3.</td>
<td>25.41</td>
</tr>
<tr>
<td>4.</td>
<td>24.18</td>
</tr>
<tr>
<td>5.</td>
<td>28.19</td>
</tr>
<tr>
<td>6.</td>
<td>24.41</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.065</td>
</tr>
</tbody>
</table>

---

Crop :- Sugarcane.  
Ref :- U.P. 49(113).

Site :- Sugarcane Res. Stn., Shahjahanpur.  
Type :-'M'.

Object :- To study the effect of application of Super on the juice quality and yield of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Berseem-Sanai as G.M. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4.3.1949. (iv) (a) and (b) N.A. (c) 45 three budded setts/row. (d) N.A. (e) N.A. (v) Sanai as G.M. at 50 lb./ac. of N, Top dressing of A/S at 100 lb./ac. of N. (vi) CO-421 (medium). (vii) Irrigated. (viii) N.A. (ix) 48.59". (x) N.A.

2. TREATMENTS:
   M₀=Control—No Super.
   M₁=P₂O₅ placed one foot deep.
   M₂=P₂O₅ placed four inches deep with setts.
   M₃=P₂O₅ placed dibbling 7" deep.
   Super at 75 lb./ac. of P₂O₅.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 18' x 44'. (v) N.A. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tillers, millable sugarcane and yield. (iv) (a) No. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
(i) 21.05 ton/ac.
(ii) 1.86 to/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0</td>
<td>21.60</td>
</tr>
<tr>
<td>M1</td>
<td>20.12</td>
</tr>
<tr>
<td>M2</td>
<td>19.56</td>
</tr>
<tr>
<td>M3</td>
<td>22.93</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.93 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Ref :- U.P. 48(51).
Site :- Sugarcane Res. Stn., Shahjahanpur.
Type :- 'M'.

Object :- To study the effect of applying Potash on the yield of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 21.3.1948.
(iv) (a) 5 ploughings and 4 pata. (b) N.A. (c) 45, three budded sets/row. (d) N.A. (e)—. (v) Top dressing of A/S at 200 lb./ac. of N on 12.4.1948. (vi) CO. 421 (medium). (vii) Irrigated. (viii) 3 hoeings, weeding and earthing. (ix) N.A: (x) 25.1.1949.

2. TREATMENTS:
1. No potash.
2. 75 lb./ac. of potash in July.
3. 75 lb./ac. of potash in May.
4. 75 lb./ac. of potash in September.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 3'5" x 24'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tillers, millable sugarcane and yield. (iv) (a) to (e) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
(i) 24.81 ton/ac.
(ii) 1.503 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.86</td>
</tr>
<tr>
<td>2.</td>
<td>25.66</td>
</tr>
<tr>
<td>3.</td>
<td>25.89</td>
</tr>
<tr>
<td>4.</td>
<td>21.84</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.868 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Ref :- U.P. 53(219).
Site :- Sugarcane Res. Stn., Shahjahanpur.
Type :- 'M'.

Object :- To study the effect of applying nitrogen fertilizers partly to soil and partly as a spray on the leaves as weak solution on the growth, juice quality and yield of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 29.1.1953.
(iv) (a) to (e) N.A. (v) Sanai at 40 lb./ac. of N. (vi) CO. 453; (late). (vii) Irrigated. (viii) 2 hoeings with cultivator, 2 hoeings with kassi, 1 hoeing and earthing. (ix) 43.13'. (x) 23.12.1953.
2. TREATMENTS:
1. No additional N (water spray).
2. No additional N (A/S spray).
3. 50 lb./ac. of N at sowing time + 10 lb./ac. of N as top dressing at tillering time (with water spray).
4. 50 lb./ac. of N at sowing time + 8 lb./ac. of N at tillering time + 2 lb./ac. of N as spray.
5. 100 lb./ac. of N at sowing time + 10 lb./ac. of N as top dressing at tillering (water spray).
6. 100 lb./ac. of N at sowing time + 8 lb./ac. of N at tillering time + 2 lb./ac. of N as spray.
The sprayings were repeated till 2 lb./ac. of N as A/S had been applied. Sprayings done on leaves with a spreader. 0.2% soil of A/S (on salt basis) was sprayed in each spray.
A/S applied on 7.4.53 and 8.6.53 while sprayed on 11.5.53, 11.6.53, 21.7.53 and 19.8.53.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40' x 27'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tillers, millable sugarcane and yield. (iv) (a) 1953—1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (S).

5. RESULTS:
(i) 30.07 ton/ac.
(ii) 1.903 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28.06</td>
</tr>
<tr>
<td>2.</td>
<td>27.94</td>
</tr>
<tr>
<td>3.</td>
<td>31.54</td>
</tr>
<tr>
<td>4.</td>
<td>29.32</td>
</tr>
<tr>
<td>5.</td>
<td>32.05</td>
</tr>
<tr>
<td>6.</td>
<td>31.49</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.099 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :— Sugarcane.
Site :— Sugarcane Res. Stn., Shahjahanpur.
Object :— To study the effect of applying phosphate fertilizer partly to the soil and partly as spray over the leaves, on the growth, juice quality and yield of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 29.1.1953.
(iv) (a) to (c) N.A. (v) Sanai at 60 lb./ac. of N and top dressing by A/S at 60 lb./ac. of N on 7.4.1953.

2. TREATMENTS:
1. No additional P<sub>2</sub>O<sub>5</sub> (water spray).
2. No additional P<sub>2</sub>O<sub>5</sub> (KH<sub>2</sub>PO<sub>4</sub> spray).
3. 75 lb./ac. of P<sub>2</sub>O<sub>5</sub> at tillering time + water spray.
4. 75 lb./ac. of P<sub>2</sub>O<sub>5</sub> at tillering time + 2 lb./ac. of P<sub>2</sub>O<sub>5</sub> as spray.
5. 150 lb./ac. of P<sub>2</sub>O<sub>5</sub> at tillering time + water spray.
6. 148 lb./ac. of P<sub>2</sub>O<sub>5</sub> at tillering time + 2 lb./ac. of P<sub>2</sub>O<sub>5</sub> as spray.

Spraying on 19.5.1953, 13.6.1953, 22.7.1953 and 25.8.1953. Solution of Potassium dihydrophosphate was applied on leaves till a total of 2 lb./ac. of P<sub>2</sub>O<sub>5</sub> had been applied 0.20% sol. of KH<sub>2</sub>PO<sub>4</sub> (on salt basis) was applied in each spraying, water used per spray = 15 litres. Super applied on 9.5.1953.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40' x 27'. (v) N. . (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tillers, millable canes and sugarcane yield. (i) (a) 1953 to 1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).
5. RESULTS:

(i) 29.84 ton/ac.
(ii) 1.781 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28.42</td>
</tr>
<tr>
<td>2.</td>
<td>28.63</td>
</tr>
<tr>
<td>3.</td>
<td>29.62</td>
</tr>
<tr>
<td>4.</td>
<td>30.59</td>
</tr>
<tr>
<td>5.</td>
<td>31.49</td>
</tr>
<tr>
<td>6.</td>
<td>30.29</td>
</tr>
</tbody>
</table>

S.E./mean except treatment No. 2 = 1.028 ton/ac.
S.E. of difference of the treatment No. (2) with any other treatment mean = 1.660 ton/ac.

Note: Yield of treatment No. (2) in replication I was missing and has been estimated for analysis and summary of result.

Crop : Sugarcane.
Site : Sugarcane Res. Stn., Shahjahanpur.
Object : To study the best time and method of application of A/S to Sugarcane for better yield and quality.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 22.3.1948.
(iv) (a) and (b) N.A. (c) 40, 3 budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) CO.527 (early).

2. TREATMENTS:

1. No nitrogen (control).
2. 100 lb./ac. of N as A/S at sowing time.
3. 100 lb./ac. of N as A/S at tillering time.
4. 50 lb./ac. of N as A/S at the sowing time + 50 lb./ac. of N as A/S at tillering time.
5. 50 lb./ac. of N as A/S at sowing + 50 lb./ac. of N as A/S in July.
6. 50 lb./ac. of N as A/S at tillering time + 50 lb./ac. of N as A/S in July.

A/S top dressed on 12.4.1948, 18.5.1948 and 13.7.1948.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 15' x 37.5'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1946 to 1948.
(b) and (c) N.S. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:

(i) 27.81 ton/ac.
(ii) 2.502 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>24.94</td>
</tr>
<tr>
<td>2.</td>
<td>27.76</td>
</tr>
<tr>
<td>3.</td>
<td>27.79</td>
</tr>
<tr>
<td>4.</td>
<td>30.69</td>
</tr>
<tr>
<td>5.</td>
<td>27.91</td>
</tr>
<tr>
<td>6.</td>
<td>27.74</td>
</tr>
</tbody>
</table>

S.E./mean = 1.445 ton/ac.
Crop: Sugarcane.  
Site: Sugarcane Res. Stn. Shahjahanpur.  
Object: To study the effect of incorporation of cane trash directly into the soil.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) 24.1.1948.  
   (iv) (a) 5 ploughings by soil turning plough, 8 desi ploughs and 7 plankings.  (b) N.A.  (c) 90 3-budded setts/row.  
   (d) N.A.  (e) Nil.  (vi) C0 453 (late).  (vii) Irrigated.  (viii) Plankings on 25.1.1948, hoeing with kassi on 29, 30.4.1948, 18, 19, 31.5.1948 to 1.6.1948, hoeing with kassi again on 4 to 5.6.1948, 26.6.1948, and earthing on 27.8.1948.  

2. TREATMENTS:
   1. Control (unmanured).
   2. Cane trash at 75 md/ac. ploughed in directly into the soil with 20 md. of cowdung+80 md. of sulphitation press mud and 1 md./ac. of A/S.
   3. Same as in treatment 2 but without cane trash.
   4. Compost made out of 75 md. cane trash.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 4.  (b) N.A.  (iii) 4.  (iv) (a) 89' x 21'.  (b) 83' x 15'.  (v) 3' on all sides of the gross plot.  
   (vi) Yes.

4. GENERAL:
   (i) Fair.  (ii, (Attack of top borer in May, increasing in June and ending by July.  Attack of yellowing disease in August only.  (iii) Germination counting, tillers, millable cane and sugarcane yield.  (iv) (a) to (c) No.  (v) (a) and (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.(S).

5. RESULTS:
   (i) 23.83 ton/ac.  (ii) 1.60 ton/ac.  (iii) Treatments are highly significant.  (iv) Av. yield of sugarcane in ton/ac.  
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.26</td>
<td>0.530 ton/ac</td>
</tr>
<tr>
<td>2.</td>
<td>25.39</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>22.94</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>25.74</td>
<td></td>
</tr>
</tbody>
</table>

---

Crop: Sugarcane.  
Site: Sugarcane Res. Stn. Shahjahanpur.  
Object: To study the effect of incorporation of cane trash directly into the soil.

1. BASAL CONDITIONS:
   (i) (a) Cane—Wheat.  (b) Wheat during 1947-48.  (c) N.A.  (ii) (a) Loam.  (b) Refer soil analysis, Shah- 
   jahanpur.  (iii) 6, 7.3.1949.  (iv) (a) Ploughings by victory plough on 27, 28.11.1948., 23.1.1949., 1, 23.1949,  
   by desi plough on 5.3.1949, harrow on 13.7.1948., pata on 29.11.1948., 25.1.1949., 3, 4.1.1949., 5.3.1949. and  
   8.3.1949.  (b) N.A.  (c) 71, 3-budded setts/row.  (d) N.A.  (e) Nil.  (vi) Co 453 (late).  (vii) Irrigated.  
2. TREATMENTS:
1. Control (no manure).
2. Trash at 150 md/ac. + cow dung at 20 md/ac. + press mud at 8 md/ac. + A/S at 1 md/ac.
3. Press mud at 8 md/ac. + cow dung at 20 md/ac. + A/S at 1 md/ac.
4. Compost made out of 150 md/ac. of trash.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 71.5' x 24'. (b) 65.5' x 18'. (v) 3' alround. (vi) Yes.

4. GENERAL:
(i) Fair, having thin canes, stunted growth. (ii) Nil. (iii) Tillers per plot, millable canes and sugarcane yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:
(i) 16.52 ton/ac.
(ii) 1.081 ton/ac.
(iii) Treatment effects are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.67</td>
</tr>
<tr>
<td>2.</td>
<td>17.43</td>
</tr>
<tr>
<td>3.</td>
<td>18.44</td>
</tr>
<tr>
<td>4.</td>
<td>16.55</td>
</tr>
<tr>
<td>S.E /mean</td>
<td>0.54 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Site :- Sugarcane Res. Stn., Shahjahanpur.  
Ref :- U.P. 50(98).  
Type :- 'M'.

Object :- To study the effect of incorporation of cane trash directly into the soil.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Berseem. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 10.2.1950. (iv) (a) 4 ploughings by victory plough, 5 by deshi plough and 4 rato. (b) N.A. (c) 50,3 budded setts/row. (d) N.A. (e) ---. (v) Nil. (vi) Co-453 (late). (vii) Irrigated. (viii) Hoeing with kastl on 24.3.1950, 18.5.1950 (on 3 plots) 31.5.1950, 1.6.1950 and hoeing with cultivator en 22.4.1950. (ix) 36.37'. (x) 25.12.1950.

2. TREATMENTS:
1. 75 md/ac. of trash incorporated into soil distinctly.
2. 75 md/ac. of trash+1 md/ac. of A/S.
3. 75 md/ac. of trash+1 md/ac. of A/S+100 lb/ac. of P₂O₅+100 lb/ac. of MgSO₄.
4. Compost made out of 75 md/ac. of trash.
Fertilizers were dropped on 16 and 17.7.1950. Compost applied on 14.1.1950 and P₂O₅ applied as Super-phosphate.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 48' x 21'. (b) 42' x 15'. (v) 3' alround. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination count, tillers, millable canes and sugarcane yield/plot. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
(i) 22.40 ton/ac.
(ii) 3.314 ton/ac.
(iii) Treatment differences are not significant.
Crop: Sugarcane.  
Site: Sugarcane Res. Stn., Shahjahanpur.  
Ref: U.P. 51(128).  
Type: 'M'.

Object: To study the effect of incorporation of cane trash directly into soil.

1. **BASAL CONDITIONS:**
   (i) (a) N.A. (b) Gram (1949-1950). (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11.2.1951. (iv) (a) 3 ploughings by victory plough, 2 by desi plough and 3 plankings. (b) N.A.  (c) 70,3 budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) CO-453 (late). (vii) Irrigated. (viii) 3 hoeings with cultivator, 1 with kassi and 2 earthings. (ix) 29.30°. (x) 15.12.1951.

2. **TREATMENTS:**
   1. 75 md/ac. of trash incorporated into soil distinctly.
   2. 75 md/ac. of trash + 1 md/ac. of A/S.
   3. 75 md/ac. of trash + 1 md/ac. of Phosphate + 10 lb/ac. of Magnesium sulphate.
   4. Compost made out of 75 md/ac. of trash.
   5. Control (no trash).  

Manuring on 15.7 1950 of inorganic manures. Addition of inorganic manure for the 2nd time on 16.7.1950, there was heavy down pour and all the manure was washed away. Spreading of trash compost on 9.1.1951.

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 18'X68'. (b) 12'X62'. (v) 3' around. (vi) Yes.

4. **GENERAL:**
   (i) Good. (ii) Nil. (iii) Germination, tillers, millable canes and sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(S).

5. **RESULTS:**
   (i) 15.07 ton/ac.
   (ii) 1.675 ton/ac.
   (iii) Treatment effects are highly significant.

(iv) Av. yie’d of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14.69</td>
</tr>
<tr>
<td>2.</td>
<td>16.84</td>
</tr>
<tr>
<td>3.</td>
<td>18.00</td>
</tr>
<tr>
<td>4.</td>
<td>12.72</td>
</tr>
<tr>
<td>5.</td>
<td>11.12</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.847 ton/ac.</td>
</tr>
</tbody>
</table>

---

Crop: Sugarcane.  
Site: Sugarcane Res. Stn., Shahjahanpur.  
Ref: U.P. 50(157).  
Type: ‘M’.

Object: To study the response of sugarcane to phosphatic manures with and without F.Y.M. applied at two depths.

1. **BASAL CONDITIONS:**
   (i) (a) Sugarcane—Fallow—Wheat—Sanai. (b) Sanai. (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11 and 13.3.1953. (iv) (a) an f (b) N.A. (c) 40, 3 budded setts/line. (d) N.A. (e) —. (v) Nil. (vi) CO-453 (late). (vii) Irrigated. (viii) 4 to 5 hoeings with kassi, 2 with cultivator and 1 earthing up. (ix) 38.72°. (x) 23, 24 and 16.2.1951 and 1.3.1951.
2. TREATMENTS:

All combinations of (1) and (2)+a selective treatment

(1) 2 levels of F.Y.M. : F₀=0, F₁=60 lb./ac. of N.

(2) P₂O₅ as Super or Bonemeal : P₀=0, P₁=Super at 150 lb./ac. of P₂O₅ applied at 3' depth, P₂=Super at 150 lb./ac. of P₂O₅ applied at 6' depth. P₃=Bonemeal at 150 lb./ac. of P₂O₅ applied at 3' depth and P₄=Bonemeal at 150 lb./ac. of P₂O₅ applied at 6' depth.

Selective treatment T=Super at 150 lb./ac. of P₂O₅+A/S equivalent to N content of Bonemeal applied at 3' depth.

- Manures applied in furrows at the time of planting (3' by country plough and 6' by victory plough).

3. DESIGN:

(i) R.B.D. (ii) (a) N.A. (iii) 4. (iv) (a) 36'×28'. (b) 30'×32'. (v) Main Basha : 3', Bahra : 2', Border : 2'. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) No. (iii) Germination %, tillers, yield data and juice analysis. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment conducted by D.S.R.(S).

5. RESULTS:

(i) 23.72 ton/ac.

(ii) 4.053 ton/ac.

(iii) None of the effects and interaction is significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>P₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.01</td>
<td>19.88</td>
<td>23.91</td>
<td>22.30</td>
<td>23.35</td>
<td>22.49</td>
</tr>
<tr>
<td>24.85</td>
<td>25.10</td>
<td>24.44</td>
<td>24.02</td>
<td>23.70</td>
<td>24.42</td>
</tr>
<tr>
<td>Mean</td>
<td>23.93</td>
<td>22.49</td>
<td>24.18</td>
<td>23.16</td>
<td>23.52</td>
</tr>
</tbody>
</table>

S.E. of F marginal means = 0.906 ton/ac.
S.E. of P marginal means = 1.433 ton/ac.
S.E. of body of table = 2.026 ton/ac.

Crop :- Sugarcane.

Site :-Sugarcane Res. Stn, Shahjahanpur.

Object :-To study the response of Sugarcane to phosphatic manures with and without F.Y.M. applied at two depths.

1. BASAL CONDITIONS:

(i) (a) Sugarcane—Fallow—Wheat—Sanai. (b) Sanai. (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24 and 25.2.1951. (iv) (a) and (b) N.A. (c) 39, 3 budded setts/line. (d) and (e) N.A. (v) Basal dressing and green manuring has been done in the field and as per treatments. (vi) CO. 453 (late). (vii) Irrigated. (viii) N.A. (ix) 31.66" (x) Rep. II and IV on 20 to 27.2.1952 and Rep. I and III on 25 to 27.2.1952.

2. TREATMENTS:

All combinations of (1) and (2)+2 selective treatments

(1) 2 levels of F.Y.M. : F₀=0, F₁=60 lb./ac. of N.

(2) P₂O₅ as Super or Bonemeal : P₀=0, P₁=Super at 150 lb./ac. of P₂O₅ applied at 3' depth, P₂=Super at 150 lb./ac. of P₂O₅ applied at 6' depth, P₃=Bonemeal at 150 lb./ac. of P₂O₅ applied at 3' depth and P₄=Bonemeal at 150 lb./ac. of P₂O₅ applied at 6' depth.

Selective treatments are : T₁=Super at 150 lb./ac. of P₂O₅+A/S equivalent to N content of Bonemeal at 3' depth and T₂=Super at 150 lb./ac. of P₂O₅ equivalent to N content of Bonemeal at 6' depth.

Manures applied at the time of planting at the bottom of furrows (3' by country plough and 6' by victory plough.)
5. DESIGN:
(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 3' x 27' (b) 33' x 21' (v) Border=2'. (vi) Yes.

4. GENERAL:
(i) The weather conditions being generally unfavourable throughout the season Plants in the experimental plots did not make satisfactory growth. (ii) No. (iii) Juice analysis, germination %, no. of tillers and cane yield. (iv) (a) 1950 - 1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S).

5. RESULTS:
(i) 14.61 ton/ac.
(ii) 2.024 ton/ac.
(iii) Selective vs others component of treatments is highly significant. Main effects of P and F and their interaction are not significant.
(iv) Av. yield of sugarcane in ton/ac.

\[
\begin{array}{cccccc}
 & P_0 & P_1 & P_2 & P_3 & P_4 & \text{Mean} \\
\text{Mean} & 14.16 & 12.50 & 13.39 & 14.66 & 15.18 & 14.08 \\
\end{array}
\]

S.E. of F marginal mean = 0.453 ton/ac.
S.E. of P marginal means = 0.716 ton/ac.
S.E. of body of table = 1.012 ton/ac.

Site: Sugarcane Res. Stn., Shahjahanpur. Type: 'M'.

Object: To study the response of Sugarcane to Phosphate manures with and without F.Y.M. applied at two depths.

1. BASAL CONDITIONS:
(i) (a) Sugarcane-Pillow-Wheat-\textit{Sonoil}. (b) \textit{Sonoil}. (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Shahjhanpur. (iii) 27, 29.3.1952. (iv) (a) and (b) N.A. (c) 48, 3 budded sets/line. (d) N.A. (e) N.A. (v) Green manuring by \textit{Sonoil}. (vi) CO-453 (late). (vii) Irrigated. (viii) N.A. (ix) 33.30" (from March 52 to January 53). (x) 8.1.1953.

2. TREATMENTS:
All combinations of (1) and (2)+2 selective treatments.
(1) 2 levels of F.Y.M.: F_0 = 0 and F_1 = 60 lb./ac. of N.
(2) P_4O_5 as Super or Bonemeal: P_0 = 0, P_1 = Super at 150 lb./ac. of P_4O_5 applied at 3" depth, P_2 = Super at 150 lb./ac. of P_4O_5 applied at 6" depth, P_3 = Bonemeal at 150 lb./ac. of P_4O_5 applied at 3" depth and P_4 = Bonemeal at 150 lb./ac. of P_4O_5 applied at 6" depth.

The selective treatments are: T_1 = Super at 150 lb./ac. of P_4O_5+1/S equivalent to N content of Bonemeal at 3" depth, and T_2 = Super at 150 lb./ac. of P_4O_5 equivalent to N content of Bonemeal at 6" depth.

Manures applied at the time of planting at the bottom of furrows (3" by country plough and 6" by delta plough).

3. DESIGN:
(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4 (replication I and II rejected due to poor germination). (iv) (a) 48' x 24'. (b) 42' x 18'. (v) Main irrigation channel=3', Border=2' and 3' on all the sides of the gross plot left as non experimental area. (vi) Yes.
4. GENERAL:
(i) Germination poor and not uniform. The germination in replication I and II was very poor and hence the yields of these two replications have not been taken into consideration. (ii) Damage by termites to the setts. (iii) Sugarcane yield. (iv) 1950–1952. (b) No. (c) No. (v) (a) and (b) No. (vi) The experimental plot was situated in the sandy area and great damage was done to the setts by termites and rats. Even the germination in the Replication III and IV, which have been taken into consideration, was not uniform and consequently the data are not strictly comparable. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
(i) 15.90 ton/ac.
(ii) 2.695 ton/ac.
(iii) Main effect of F is highly significant, main effect of P and interaction of F x P are not significant. Selective treatments and selective vs. others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>P_0</th>
<th>P_1</th>
<th>P_2</th>
<th>P_3</th>
<th>P_4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>F_0</td>
<td>11.60</td>
<td>14.03</td>
<td>10.69</td>
<td>8.68</td>
<td>17.36</td>
</tr>
<tr>
<td>F_1</td>
<td>13.70</td>
<td>22.51</td>
<td>20.52</td>
<td>19.15</td>
<td>17.62</td>
</tr>
</tbody>
</table>
Mean | 12.65 | 18.27 | 15.60 | 13.92 | 17.49 | 15.59 |

S.E. of P marginal mean = 0.852 ton/ac.
S.E. of P marginal mean = 1.347 ton/ac.
S.E. of body of table = 1.505 ton/ac.

Crop: Sugarcane.
Zone: Bārni (Basti).

Object: To study the effect of application of different levels of N and P_2O_5 to Sugarcane.

1. BASAL CONDITIONS:
(i) (a) and (c) N.A. (ii) Clayey soil. (iii) N.A. (iv) C0-453 (improved). (v) (a) N.A. (b) N.A. (c) N.A.

2. TREATMENTS:
All combination of (1) and (2)
(1) 3 levels of N as A/S: N_0 = 0, N_1 = 60 lb./ac., N_2 = 120 lb./ac.
(2) 3 levels of P_2O_5 as Super: P_0 = 0, P_1 = 40 lb./ac., P_2 = 80 lb./ac.
Manures applied on 6 to 8.2.1948.

3. DESIGN:
(i) to (ii) 3×3 Fact. in R.B.D. with 7 replications (one replication rejected as yield in some plots was too low in comparison with others). (iii) (a) N.A. (b) 1/40 of an acre. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) 1948–1949. (b) N.A. (c) N.A. (v) N.A. (vi) The plot with treatment N_0 P_2 was treated missing. (vii) The experiment was conducted by D.S.R. (S). Experiment on cultivators' field.

5. RESULTS:
(i) 16.49 ton/ac.
(ii) 4.668 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of Sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>15.28</td>
<td>13.54</td>
<td>18.38</td>
<td>15.73</td>
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<tr>
<td>N₁</td>
<td>16.63</td>
<td>13.47</td>
<td>17.59</td>
<td>15.73</td>
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<td>N₂</td>
<td>17.43</td>
<td>20.63</td>
<td>15.95</td>
<td>18.00</td>
</tr>
<tr>
<td>Mean</td>
<td>16.45</td>
<td>15.88</td>
<td>17.14</td>
<td>16.49</td>
</tr>
</tbody>
</table>

S.E. of marginal mean (N₀ or N₁) = 1.100 ton/ac.
S.E. of marginal mean (N₂) = 1.148 ton/ac.
S.E. of marginal mean (P₀ or P₁) = 1.100 ton/ac.
S.E. of marginal mean (P₂) = 1.148 ton/ac.
S.E. of any mean (except N₀ P₂) in the body of table = 1.906 ton/ac.
S.E. of treatment mean (N₀ P₂) = 2.109 ton/ac.

Crop :- Sugarcane.
Zone :- Barhni (Basti).

Object :- To study the effect of application of different levels of N and P₂O₅ to Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (iv) Clayey soil.  (iii) F.Y.M., according to local practice.  (iv) CO 453 (improved).  (v) (a) to (c) N.A.  (d) 7 trenches at 3' apart.  (e) N.A.  (vi) 13, 14.2.1948.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 14, 16.1.1949.

2. TREATMENTS:
   All combinations of (1) and (2).
   (1) 3 levels of N as A/S: N₀ = 0, N₁ = 60 lb/ac. and N₂ = 120 lb/ac.
   (2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 40 lb/ac. and P₂ = 80 lb/ac.
   Manures applied in two doses—one at the time of planting and the other at the time of earthing.

3. DESIGN:
   (i) and (ii) 3 x 3 Fact. in R.B.D. (6 replications).  (iii) (a) N.A.  (b) 51' x 21'.  (iv) N.A.

4. GENERAL:
   (vii) The experiment was conducted by D.S.R.(S) on cultivators' field.

5. RESULTS:
   (i) 28.78 ton/ac.
   (ii) 6.689 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>25.56</td>
<td>28.90</td>
<td>25.30</td>
<td>26.59</td>
</tr>
<tr>
<td>N₁</td>
<td>28.50</td>
<td>28.22</td>
<td>30.69</td>
<td>29.14</td>
</tr>
<tr>
<td>N₂</td>
<td>30.81</td>
<td>29.46</td>
<td>31.55</td>
<td>30.61</td>
</tr>
<tr>
<td>Mean</td>
<td>28.29</td>
<td>28.86</td>
<td>29.18</td>
<td>28.78</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.577 ton/ac.
S.E. of any mean in the body of table = 2.731 ton/ac.
Object:—To study the effect of application of different levels of N and P₂O₅ to Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) Type D—Surface soil is fairly rich in coarse sand fraction and is at times extremely coarse.  (iii) F.Y.M. according to local practice.  (iv) CO. 453 (improved)  (v) (a) to (c) N.A.  (d) 8 rows 3' apart. No other information is available.  (e) N.A.  (vi) 23, 24 and 25.3.1948.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2).
   (1) 3 levels of A/S: N₀=0, N₁=60 lb./ac. and N₂=120 lb./ac.
   (2) 3 levels of P₂O₅ as Super : P₀=0, P₁=40 lb./ac. and P₂=80 lb./ac.

3. DESIGN:
   (i) and (ii) 3 x 3 Fact. in R.B.D. (4 replications)  (iii) (a) N.A.  (b) 60' x 24'.  (iv) N.A.

4. RESULTS:
   (i) 33.67 ton/ac.
   (ii) 2.568 ton/ac.

   Main effects of N and P and their interactions are all highly significant.

   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>26.91</td>
<td>31.02</td>
<td>35.14</td>
<td>31.02</td>
</tr>
<tr>
<td>N₁</td>
<td>32.95</td>
<td>32.14</td>
<td>33.50</td>
<td>32.86</td>
</tr>
<tr>
<td>N₂</td>
<td>31.57</td>
<td>36.21</td>
<td>43.65</td>
<td>37.14</td>
</tr>
<tr>
<td>Mean</td>
<td>30.48</td>
<td>33.12</td>
<td>37.43</td>
<td>33.67</td>
</tr>
</tbody>
</table>

S.E. of any marginal means = 0.767 ton/ac.
S.E. of any mean in the body of table = 1.284 ton/ac.
Crop :- Sugarcane.  
Zone : Barhni (Basti).  

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS : 
(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Domat. (iii) As per treatments. (iv) (a) CO.453 mid-late (Improved). (iv) (a) 2 hoeings after planting. (b) to (e) N.A. (vi) 4.3.1949. (vii) N.A. (viii) N.A. (ix)20°. (x) 20.1.1950.

2. TREATMENTS: 
P₀= Control.  
\[ N₁ = 60 \text{ lb./ac. of } P₂O₅ \text{ broadcast before planting.} \]  
\[ N₂ = 60 \text{ lb./ac. of } P₂O₅ \text{ drilled } 3'' - 4'' \text{ deep in furrows before planting.} \]

3. DESIGN: 
(i) and (ii) R.B.D. with 6 replications (iii) (a) N.A. (b) 50'x30'. (iv) N.A.

4. GENERAL : 
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' field.

5. RESULTS: 
(i) 31.74 ton/ac.  
(ii) 5.200 ton/ac.  
(iii) Treatment differences are not significant.  
(iv) Av. yield of sugarcane in ton/ac. 

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>29.89</td>
</tr>
<tr>
<td>P₁</td>
<td>31.43</td>
</tr>
<tr>
<td>P₂</td>
<td>33.89</td>
</tr>
</tbody>
</table>

S.E./mean = 2.123 ton/ac.
Object — To find the response of Sugarcane to Super.

1. BASAL CONDITIONS:

2. TREATMENTS:
   P₀ = No Super.
   P₁ = 40 lb./ac. of P₂O₅ broadcast at planting time.
   P₂ = 80 lb./ac. of P₂O₅ broadcast at planting time.

3. DESIGN:
   (i) and (ii) R.B.D. (iii) (a) 64'×27'. (b) 64'×27'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N/A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
   (i) 14.28 ton/ac.
   (ii) 3.16 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
      Treatment | Av. yield | S.E./mean
      P₀        | 14.47     | 1.29 ton/ac.
      P₁        | 15.03     |
      P₂        | 13.33     |

Object — To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) *Sanai* as G.M. (c) Nil. (ii) Loam. (iii) 1 md. of A/N on 4.3.1949. (iv) CO. 421 medium (improved). (v) (a) I ploughing by *victory* plough, 2 by *dess* plough, 3 by *dess* harrow and hoeing by spade. (b) Flat planting. (c) 1752 buds/plot. (d) 3' distance in lines. (e) -. (vi) 6.3.1949. (vii) 2 irrigations by tubewell on 5.5.1949 and 6.6.1949. (viii) N.A. (ix) N.A. (x) 28 to 30.1.1950.

2. TREATMENTS:
   P₀ = No P₂O₅.
   P₁ = 60 lb./ac. of P₂O₅ broadcast at planting time.
   P₂ = 60 lb./ac. of P₂O₅ applied in furrows 3'—4' deep at planting time.

3. DESIGN:
   (i) and (ii) 6 replications in R.B.D. (iii) (a) 73'×24'. (b) 67'×18'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) 1949—1950. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivator's field.

5. RESULTS:
   (i) 19.45 ton/ac.
   (ii) 2.776 ton/ac.
   (iii) Treatment differences are not significant.
Object:—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) G.M. sanai. (c) Nil. (ii) Loam. (iii) Top dressing A/S 1 md. on 23.7.1950. (iv) Co-421. (v) (a) 4 hoeings with cultivator, §1 ploughing with meston plough, 1 with desl plough and 1 with tractor. (b) Flat planting. (c) 1728 buds/plot. (d) 3' distance in line. (e) —. (vi) 1.3.1950. (vii) 2 irrigations by tube well on 7.2.1950, 10.4.1950 and 6.5.1950. (viii) N.A. (ix) N.A. (x) 1 and 2.3.1951.

2. TREATMENTS:
   P₀=control (no manure).
   P₁=60 lb./ac. of P₂O₅ broadcast before planting.
   P₂=60 lb./ac. of P₂O₅ drilled with 3"—4" deep in furrows before planting.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) 64'×27'. (b) 58'×21'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) 1949—1950. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R.(S). on cultivators' field.

5. RESULTS:
   (i) 17.90 ton/ac.
   (ii) 2.69 ton/ac.
   (iii) The treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

   Treatment | Av. yield
   0 | 15.82
   1 | 18.67
   2 | 19.21
   S.E./mean | =1.09 ton/ac.

Object:—To study the comparative utility of different green manures for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Different G.M. crops. (c) No. (ii) Loam. (iii) Nil. (iv) CO-421. (v) (a) Desl plough, 3 hoeings with the kasi, 2 with cultivator on 17.4.1950, 13.5.1950, earthing up by spade, ploughing by meston plough once and with desl plough on 3, 4, 5, and 6.2.1950. (vi) 7.2.1950. (vii) Irrigated. (viii) and (ix) N.A. (x) 5 and 6.2.1950.
2. **TREATMENTS**:  
The following green manures were applied as treatments.  
1. Sanai.  
2. Guar.  
3. Lobia.  
4. Dhaircha.  
5. Guar for fodder.  
6. Urd seed.  
7. Fallow (control).

3. **DESIGN**:  
(i) and (ii) R.B.D. with 4 replications. (iii) (a) $83' \times 27'$. (b) $75' \times 21'$. (iv) N.A.

4. **GENERAL**:  
(i) and (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators' field.

5. **RESULTS**:  
(i) 14.04 ton/ac.  
(ii) 2.34 ton/ac.  
(iii) The treatments do not differ significantly.  
(iv) Av. yield of sugarcane in ton/ac.  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.43</td>
</tr>
<tr>
<td>2.</td>
<td>15.24</td>
</tr>
<tr>
<td>3.</td>
<td>13.21</td>
</tr>
<tr>
<td>4.</td>
<td>13.68</td>
</tr>
<tr>
<td>5.</td>
<td>13.78</td>
</tr>
<tr>
<td>6.</td>
<td>11.46</td>
</tr>
<tr>
<td>7.</td>
<td>13.46</td>
</tr>
</tbody>
</table>

S.E./mean = 1.17 ton/ac.

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**Crop:** Sugarcane.  
**Zone:** Seohara (Bijnor).  
**Object:** To study the comparative utility of different green manures for Sugarcane.

1. **BASAL CONDITIONS**:  
(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.421 medium (improved). (v) (a) to (e) N.A. (vi) NA. (vii) N.A. (viii) N.A. (ix) N.A. (x) 25.2.1949 to 8.3.1949.

2. **TREATMENTS**:  
1. Control.  
2. Sanai.  
3. Lobia (for fodder).  
4. Lobia (for G.M.).  
5. Guar.  
6. Pea (for fodder).  
7. Pea (for G.M.).

3. **DESIGN**:  
(i) and (ii) R.B.D. with 4 replications (iii) (a) N.A. (b) $46' \times 24'$. (iv) N.A.

4. **GENERAL**:  
(i) and (ii) N.A. (iii) % germination and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators' field.

5. **RESULTS**:  
(i) 20.28 ton/ac.  
(ii) 2.107 ton/ac.  
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.76</td>
</tr>
<tr>
<td>2.</td>
<td>22.85</td>
</tr>
<tr>
<td>3.</td>
<td>18.21</td>
</tr>
<tr>
<td>4.</td>
<td>21.16</td>
</tr>
<tr>
<td>5.</td>
<td>23.32</td>
</tr>
<tr>
<td>6.</td>
<td>19.70</td>
</tr>
<tr>
<td>7.</td>
<td>19.99</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.053 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Zone :- Seohara (Bijnor).  
Object :- To study the response of Sugarcane to super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) and (c) N.A.  
   (ii) Loam.  
   (iii) As per treatments.  
   (iv) CO.421—medium (improved).
   (v) (a) to (e) N.A.  
   (vi) N.A.  
   (vii) N.A.  
   (viii) N.A.  
   (ix) N.A.  
   (x) 18.2.1249 to 21.2.1949.

2. TREATMENTS:
   \( P_0 = 0 \) lb./ac. of \( P_2O_5 \).
   \( P_1 = 40 \) lb./ac. of \( P_2O_5 \) in furrows 3'-4' deep.
   \( P_2 = 80 \) lb./ac. of \( P_2O_5 \) in furrows 3'-4' deep' 

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications 
   (iii) (a) N.A. (b) 67' x 18'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination and sugarcane yield.  
   (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil.  
   (vii) The experiment was conducted by D.S.R. (S) on cultivators' field.

5. RESULTS:
   (i) 21.07 ton/ac.
   (ii) 1.788 ton/ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>19.12</td>
</tr>
<tr>
<td>1</td>
<td>21.51</td>
</tr>
<tr>
<td>2</td>
<td>22.58</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.730 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Zone :- Doiwala (Dehradun).  
Object : To study the response of Sugarcane to super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Paddy.  
   (c) N.A.  
   (ii) Loam.  
   (iii) Compost on 15.2.1951.  
   (iv) CO.356 (improved).  
   (v) (a) Ploughings 14 times from Oct. 1950 to March 1951, 2 ploughings by desi plough and 7 hoeings by kassl 
   2 earthings.  
   (b) Planting in furrows by flat system of planting.  
   (c) 48 3-budded setts/row; 296 buds/plot.  
   (d) Rows 3' apart.  
   (e) N.A.  
   (vi) Planting 14.3.1951.  
   (vii) Irrigated.  
   (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)+a control (no manure)
   (1) 2 levels of \( P_2O_5 \) : \( P_1 = 60 \) and \( P_2 = 120 \) lb./ac.  
   (2) 2 methods of application : \( M_1 = \) Broadcast and \( M_2 = \) applied 3'-4' deep in furrows.
   \( P_2O_5 \) applied as Super.
3. DESIGN:
(i) (ii) R.B.D. with 4 replications (iii) (a) 48' x 27'. (b) 42' x 21'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) Stripping on 8.9.1951 to remove Pyrilla. (iii) Germination counts, tillers counting, millable sugarcane and yield. (iv) (a) 1951-1952. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivators' field.

5. RESULTS:
(i) 76.42 ton/ac.
(ii) 13.281 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Crop: Sugarcane.</th>
<th>Zone: Doiwala (Dehradun).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object: To study the response of Sugarcane to Super.</td>
<td></td>
</tr>
</tbody>
</table>

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Loam. (iii) Compost 200 mda. on 24.3.1952. (iv) N.A. (v) (a) Ploughings 12 and 3 hoeings by kassi; earring by spade and weeding. (b) Flat system. (c) 62, 3-budded setts/row. (d) Rows 3' apart. (e) - (vi) 5.4.1952. (vii) Irrigated (river water). (viii) N.A. (ix) N.A. (x) 22.2.1953.

2. TREATMENTS:
All combinations of (1) and (2)+a control (no manure)
(1) 2 levels of P2O5: P1 = 60 and P2 = 120 lb./ac.
(2) 2 methods of application: M1 = Broadcast and M2 = applied 3"-4" deep in furrows.
P2O5 applied as Super.

3. DESIGN:
(i) (ii) R.B.D. with 4 replications. (iii) (a) 60' x 24'. (b) 54' x 18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable canes and yield of sugarcane. (iv) (a) 1951-1952. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivators' field.

5. RESULTS:
(i) 15.02 ton/ac.
(ii) 2.199 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Control</th>
<th>=12.45 ton/ac.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
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<th>P2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>16.36</td>
<td>13.99</td>
<td>15.17</td>
</tr>
<tr>
<td>D2</td>
<td>15.23</td>
<td>17.08</td>
<td>16.16</td>
</tr>
<tr>
<td>Mean</td>
<td>15.80</td>
<td>15.53</td>
<td>15.67</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.775 ton/ac.
S.E. of body of table = 1.097 ton/ac.
Crop : Sugarcane.  
Zone : Tamkohi (Deoria).

Object : To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Barley and Sanai. (c) N.A. (ii) Light loam. (iii) Sanai, top dressing by A/S at 50 lb./ac. of N on 4, 13.5.1948. (iv) CO. 453—(mid-late) improved. (v) (a) Ploughing in of sanai on 20.9.1947 by victory plough, victory plough on 27.11.1947, 21.12.1947, tractor ploughing on 8.1.1948, tractor harrowing on 17.1.1948, tractor disc harrow on 27.1.1948 and 4 hoeings by cultivator on 5.4.1948 and by kudali on 25.4.1948, cultivator on 12.5.1948 and 5.6.1948. (b) Flat planting. (c) 2400 buds/plot. (d) Rows 3’ apart. (e) N.A. (vi) 5.2.1948. (vii) Nil. (viii) N.A. (ix) N.A. (x) 9.4.1949.

2. TREATMENTS:
   1. No Super (control).
   2. 40 lb./ac. of P2O5 as Super in furrows 3’ to 4” deep.
   3. 80 lb./ac. of P2O5 as Super in furrows 3’ to 4” deep.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) 73’x30’. (b) 67’x24’. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable sugarcane and yield. (iv) (a) No. (b) and (c) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator’s field.

5. RESULTS:
   (i) 30.51 ton/ac.
   (ii) 1.20 ton/ac.
   (iii) Treatments differ highly significantly. 
   (iv) Av. yield of sugarcane in ton/ac. 

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>28.44</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>31.80</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>31.30</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.48 ton/ac.</td>
<td></td>
</tr>
</tbody>
</table>

Crop : Sugarcane.  
Zone : Tamkohi (Deoria).

Object : To study the effect of different green manures on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Barley. (c) N.A. (ii) Light loam. (iii) Nil. (iv) CO. 513 (early) improved. (v) (a) 4 hoeings by cultivator on 3.4.1948, by kudali on 25.4.1948 and again cultivator on 15.5.1948 and 5.6.1948. 2 ploughings with victory plough. One tractor plough and one tractor harrowing (b) Flat planting. (c) 2400 buds/plot. (d) Rows 3’ apart. (e) N.A. (vi) 7.2.1948. (vii) Nil. (viii) N.A. (ix) N.A. (x) 11.4.1949.

2. TREATMENTS:
   1. Fallow.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 73’x30’. (b) 67’x24’. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable sugarcane and yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator’s field.
5. RESULTS:
   (i) 11.81 ton/ac.
   (ii) 3.90 ton/ac.
   (iii) Treatments do not differ significantly.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment | Av. yield
   1. | 10.67
   2. | 13.74
   3. | 13.96
   4. | 12.03
   5. | 11.26
   6. | 11.47
   7. | 9.52
   S.E./mean = 1.95 ton/ac.

Crop: - Sugarcane.
Zone: - Baitalpur (Deoria).
Object: - To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Bajra (fodder) (c) N.A. (ii) N.A. (iii) 100 lb./ac. of N and P₂O₅ as per treatments. (iv) CO. 109 - (Medium, improved) (v) (a) 5 hoeings after planting. (b) to (e) N.A. (vi) 1.3.1949. (vii) 3 irrigations. (viii) N.A. (ix) N.A. (x) 30 and 31.1.1950.

2. TREATMENTS:
   1. Control.
   2. 60 lb./ac. of P₂O₅ as Super broadcast before planting.
   3. 60 lb./ac. of P₂O₅ as Super drilled 3\" - 4\" deep in furrows before planting.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 58\' × 24\'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) N.A. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' field.

5. RESULTS:
   (i) 15.61 ton/ac.
   (ii) 2.850 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment | Av. yield
   1. | 16.17
   2. | 14.56
   3. | 16.11
   S.E./mean = 1.425 ton/ac.

Crop: - Sugarcane.
Zone: - Tamkohi (Deoria).
Object: - To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai as G.M. (c) N.A. (ii) Light loam. (iii) 150 lb./ac. of N+P₂O₅ : as per treatments. (iv) CO. 453 (mid-late) improved. (v) (a) 4 hoeings after planting. (b) to (e) N.A. (vi) 26.2.1949. (vii) N.A. (viii) N.A. (ix) N.A. (x) 11 and 12.3.1950.
2. TREATMENTS:
1. Control.
2. 60 lb./ac. of P₂O₅ as Super broadcast before planting.
3. 60 lb./ac. of P₂O₅ as Super drilled 3′—4′ deep in furrows before planting.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications  (iii) (a) N.A.  (b) 67′x18′.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination, tillers, miltable cans and sugarcane yield.  (iv) (a) No. (b) and (c) N.A.  (v) N.A.  (vi) Nil. (vii) The exp. was conducted by D.S.R.(G). on cultivators’ field.

5. RESULTS:
(i) 10.48 ton/ac.  
(ii) 1 297 ton/ac.  
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.83</td>
</tr>
<tr>
<td>2.</td>
<td>11.48</td>
</tr>
<tr>
<td>3.</td>
<td>10.14</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.530</td>
</tr>
</tbody>
</table>

Crop :-Sugarcane.  
Zone :-Chhitanni (Deoria).  
Ref :-U.P. 49(142).  
Type :-‘M’.  
Object :-To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Nil.  (c) Nil.  (ii) N.A.  (iii) As per treatments.  (iv) C3-453 (mid-late) (improved), (v) (a) 2 hoeings after planting.  (b) to (e) N.A.  (vi) 3.3.1949. (vii) N.A.  (viii) N.A.  (ix) and (xi) N.A.  (x) 9.3.1900.

2. TREATMENTS:
1. Control.
2. 60 lb./ac. of P₂O₅ as Super broadcast before planting.
3. 60 lb./ac. of P₂O₅ as Super drilled 3′—4′ deep in furrows before planting.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications  (iii) (a) N.A.  (b) 49′x21′.  (iv) N.A.

4. GENERAL:
(i) and (ii) N.A.  (iii) Germination, tillers, miltable cans and sugarcane yield.  (iv) (a) No. (b) and (c) N.A.  (v) N.A.  (vi) Nil. (vii) The exp. was conducted by D.S.R.(G) on cultivators’ field.

5. RESULTS:
(i) 28.25 ton/ac.  
(ii) 4.367 ton/ac.  
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.69</td>
</tr>
<tr>
<td>2.</td>
<td>27.78</td>
</tr>
<tr>
<td>3.</td>
<td>29.18</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.164</td>
</tr>
</tbody>
</table>

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Crop :-Sugarcane.  
Zone :-Chhitanni (Deoria).  
Ref :-U.P. 49(142).  
Type :-‘M’.
Crop :- Sugarcane. 
Zone :- Captaininganj (Deoria). 

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai (sown on 27.7.1950). (c) Nil (ii) Bhat soils. (iii) Sanai x 20 seers of A/S on 7.2.1951. (iv) CO-453 (mid-late). Improved. (v) (a) 6 ploughings by desi plough and 2 ploughings by victory plough; 6 hoeings by kassi. (b) Flat planting followed by earthing. (c) 15:12 buds/plot. (d) N.A. (e) —. (vi) 7.2.1951. (vii) Irrigated. (viii) and (ix) N.A. (x) 4.3.1952.

2. TREATMENTS:
1. No manure.
2. Super at 150 lb./ac. of P₂O₅ broadcast in the field before sowing.
3. Super at 150 lb./ac. of P₂O₅ applied in the trenches at the time of planting.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 63'×24'. (b) 57'×18'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germinations, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R.(G) on cultivators' field.

5. RESULTS:
(i) 16.41 ton/ac.
(ii) 1.772 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14.96</td>
</tr>
<tr>
<td>2.</td>
<td>16.42</td>
</tr>
<tr>
<td>3.</td>
<td>17.85</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.886 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane. 
Zone :- Gauribazar (Deoria). 

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M. (c) Nil. (ii) Clay soil. (iii) Sanai. (iv) CO 513 (early) Improved. (v) (a) 5 hoeings. (b) to (e) N.A. (vi) 5.2.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 25.2.1951.

2. TREATMENTS:
1. Control (no manure).
2. Super at 150 lb./ac. of P₂O₅ applied broadcast before planting.
3. Super at 150 lb./ac. of P₂O₅ drilled 3"—4" deep in furrows before planting.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications (iii) (a) N.A. (b) 74'×15'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and yield. (iv) (a) 1950 to 1951. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The 'exp.' was conducted by D.S.R.(G) on cultivators' field.

5. RESULTS:
(i) 17.86 ton/ac.
(ii) 1.934 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.15</td>
<td>0.789</td>
</tr>
<tr>
<td>2.</td>
<td>18.85</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>21.59</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Gauribagar (Deoria).
Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Control.
   2. Super at 150 lb./ac. of P₂O₅ broadcast in the field before planting.
   3. Super at 150 lb./ac. of P₂O₅ applied at 3°—4° deep in furrows at the time of planting.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'x21'. (b) 74'x15'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and yield. (iv) (a) 1950-1951. (b) N.A.. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivators' field.

5. RESULTS:
   (i) 42.14 ton/ac.
   (ii) 1.771 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>45.91</td>
<td>0.886</td>
</tr>
<tr>
<td>2.</td>
<td>42.59</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>37.93</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Tamkohi (Deoria).
Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai as G.M. (c) Nil. (ii) Bhat soils. (iii) Sanai ; A/S at 40 lb./ac. of N. (iv) CO-513 (early) (improved). (v) (a) to (e) N.A. (vi) 24, 25.1.1950. (vii) N.A. (viii) N.A. (ix) N.A. (x) 15.1.1951.

2. TREATMENTS:
   1. Control (no manure).
   2. Super at 150 lb./ac. of P₂O₅ applied broadcast before planting.
   3. Super at 150 lb./ac. of P₂O₅ drilled 3°—4° deep in furrows before planting.
3. DESIGN:
(i), (ii) R.B.D. with 6 replications (iii) (a) N.A. (b) 67'×18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950—1951. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivators' field.

5. RESULTS:
(i) 19.66 ton/ac.
(ii) 3.351 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.75</td>
</tr>
<tr>
<td>2.</td>
<td>20.00</td>
</tr>
<tr>
<td>3.</td>
<td>20.23</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.368</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane, Ref :- U.P. 51(178)/50(170).
Zone :- 'Tamkohi (Deoria), Type :- 'M'.

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai sown on 23.7.1951. (c) Nil. (ii) Bhat soils. (iii) F.Y.M. at 400 md./ac. on 25.6.1951 Gammaxene at 25 lb./ac. on 15.1.1951 ; Top dressing of A/S at 20 seers in the field on 25.6.1951. (iv) CO-513 (early) (improved). (v) (a) 3 ploughings and levelling by tractor 2 ploughings by bullocks harrowing and sub soilng by tractor 4 hoeings by kassi and earthing up by spade. (b) Flat sowing and earthing after wards. (c) 1752 buds/plot. (d) N.A. (e) —. (vi) 10.2.1951. (vii) N.A. (viii) N.A. (ix) N.A. (x) 10.3.1952.

2. TREATMENTS:
1. No manure (control).
2. Super at 150 lb./ac. of P₂O₅ broadcast in field before planting.
3. Super at 150 lb./ac. of P₂O₅ applied at 3½ depth before planting.
Super applied on 15.1.1951.

3. DESIGN:
(i), (ii) R.B.D. with 6 replications. (iii) (a) 73'×24'. (b) 66'×18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable sugarcane and yield. (iv) (a) 1950—1951. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivators' field.

5. RESULTS:
(i) 19.56 ton/ac.
(ii) 1.321 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.54</td>
</tr>
<tr>
<td>2.</td>
<td>19.93</td>
</tr>
<tr>
<td>3.</td>
<td>20.20</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>—0.539</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane, Ref :- U.P. 51(178)/50(170).
Zone :- 'Tamkohi (Deoria), Type :- 'M'.

Object :- To study the response of Sugarcane to Super.
Crop: Sugarcane.
Zone: Lakshmiganj (Deoria).

Object:—To study the response of Sugarcane to super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Bajra. (c) N.A. (ii) Loam. (iii) F.Y.M. at 60 lb./ac. of N as basal manuring and A/S at 40 lb./ac. of N as top dressing on 13.6.1950. (iv) CO.513 (early) (improved). (v) (a) 2 hoeings. (b) to (e) N.A. (vi) 24.1.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 9.2.1951.

2. TREATMENTS:
   1. Control (no manure).
   2. Super at 150 lb./ac. of P₂O₅ applied broadcast before planting.
   3. Super at 150 lb./ac. of P₂O₅ drilled 3’—4’ deep in furrows before planting.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications (iii) (a) N.A. (b) 58’×21’. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator’s field.

5. RESULTS:
   (i) 18.84 ton/ac.
   (ii) 3.461 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment       Av. yield
   1.                 19.07
   2.                 18.32
   3.                 19.34
   S.E./mean = 1.731 ton/ac.

Crop: Sugarcane.
Zone: Baitalpur (Deoria).

Object:—To study the comparative effect of different green manures.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) N.A. (iii) As per treatments. (iv) CO.795 (early) improved. (v) (a) 5 hoeings. (b) to (e) N.A. (vi) 20.2.1949. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 25 and 23.1.1950.

2. TREATMENTS:
   1. Sanai
   2. Guar.
   3. Dhalincha.
   4. Pea.
   5. Mota.
   7. Fallow.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications (iii) (a) N.A. (b) 85’×18’. (iv) N.A.
4. GENERAL:
(i) and (ii) N.A. (iii) Germination, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
(i) 13.41 ton/ac.
(ii) 1.847 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.03</td>
</tr>
<tr>
<td>2.</td>
<td>14.09</td>
</tr>
<tr>
<td>3.</td>
<td>13.56</td>
</tr>
<tr>
<td>4.</td>
<td>12.52</td>
</tr>
<tr>
<td>5.</td>
<td>13.79</td>
</tr>
<tr>
<td>6.</td>
<td>12.90</td>
</tr>
<tr>
<td>7.</td>
<td>14.01</td>
</tr>
<tr>
<td>S.E./mean = 0.924 ton/ac.</td>
<td></td>
</tr>
</tbody>
</table>

Zone :- Captaininganj (Deoria). Type :- 'M'.

Object :- To study the response of Super with green manure and different times of application.

1. BASAL CONDITIONS:
(i) (a) to (c) As per treatments. (ii) Bangar (iii) A/S at 2 md./ac. on 21.4.1953. and Press mud at 100 md./ac. on 8.1.1953. (iv) CO. 356 — (mid-late), (improved). (v) (a) 5 hoeings. (b) to (e) N.A. (vi) 29.1.1953. (vii) Irrigated. (viii) N.A. (ix) 37°. (x) 26.12.1953.

2. TREATMENTS:
1. Fallow — Sugarcane.
2. Fallow + 150 lb./ac. of P₂O₅ applied at planting of Sugarcane.
3. Sanai or Dhaninja — Sugarcane.
4. Sanai or Dhanicha + 150 lb./ac. of P₂O₅ at sowing of G.M. — Sugarcane.
5. Sanai or Dhanicha + 150 lb./ac. of P₂O₅ at turning in of G.M. — Sugarcane.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 46' x 18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable sugarcane and yield. (iv) (a) 1933-1955. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
(i) 6.31 ton/ac.
(ii) 1.657 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6.26</td>
</tr>
<tr>
<td>2.</td>
<td>6.56</td>
</tr>
<tr>
<td>3.</td>
<td>6.03</td>
</tr>
<tr>
<td>4.</td>
<td>5.23</td>
</tr>
<tr>
<td>5.</td>
<td>7.48</td>
</tr>
<tr>
<td>S.E./mean = 0.829 ton/ac.</td>
<td></td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Zone :- Gorakhpur (Deoria).  
Object :-To study the response of Super with green manure and different times of application.

1. BASAL CONDITIONS:
   (i) (a) N.A.  
   (b) Urd, as per treatments.  
   (c) As per treatments.  
   (ii) Sandy loam.  
   (iii) As per treatments.  
   (iv) CO. 443—(mid-late), improved.  
   (v) (a) Ploughings by tractor plough on 8.10.1952, harrowing by tractor on 9.10.1952, 7.12.1952 and 3 hoeings by hand kutili.  
   (b) Trench planted.  
   (c) 6720 buds/plot.  
   (d) N.A.  
   (e)—.  
   (vi) 30.1.1953.  
   (vii) Irrigated.  
   (viii) N.A.  
   (ix) 41.77°.  
   (x) 3.2.1954.

2. TREATMENTS:
   1. Fallow—Sugarcane.
   2. Fallow+150 lb./ac. of P₂O₅ as Super 3" deep at planting of Sugarcane.
   3. Sanai as G.M.—Sugarcane.
   4. *Sanai* G.M.+150 lb./ac. of P₂O₅ as Super at sowing of *Sanai*—Sugarcane.
   5. *Sanai* G.M.+150 lb./ac. of P₂O₅ as Super at turning of *Sanai*—Sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  
   (iii) (a) 80'x21'.  
   (b) 74'x15'  
   (iv) N.A.

4. GENERAL:
   (i) N.A.  
   (ii) N.A.  
   (iii) Germination, tillers, millable sugarcane and yield.  
   (iv) (a) 1953—1955.  
   (b) and (c) N.A.  
   (v) N.A.  
   (vi) Nil.  
   (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
   (i) 26.80 ton/ac.
   (ii) 1.601 ton/ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.22</td>
</tr>
<tr>
<td>2.</td>
<td>27.59</td>
</tr>
<tr>
<td>3.</td>
<td>24.94</td>
</tr>
<tr>
<td>4.</td>
<td>27.57</td>
</tr>
<tr>
<td>5.</td>
<td>28.69</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.80 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Sugarcane.  
Zone :-Faizabad (Faizabad).  
Object :-To study the response of Sugarcane to Super in combination with green manures and different times of application.

1. BASAL CONDITIONS:
   (i) (a) N.A.  
   (b) and (c) As per treatments.  
   (ii) Loam with saline patches.  
   (iii) A/S at 30 lb./ac. of N on 6.3.1953.  
   Top dressing of A/S at 40 lb./ac. of N on 18.7.1950.  
   (iv) COS-364 (improved-unreleased).  
   (v) (a) 1 ploughings by victory plough, 2 by *deuli* plough, 4 hoeings by *kasti* and earthing up by spade.  
   (b) Flat planting.  
   (c) 1890 buds/plot.  
   (d) 3° distance in lines, furrows open by ridger.  
   (e)—.  
   (vi) 17.3.1953.  
   (vii) Irrigated.  
   (viii) and (ix) N.A.  
   (x) 3 to 4.2.1954.

2. TREATMENTS:
   1. Fallow—Sugarcane.
   2. Fallow—150 lb./ac. of P₂O₅ at 3" depth at planting of Sugarcane.
   4. *Dhaincha* (G.M.)+Super at 150 lb./ac. of P₂O₅ at the time of G.M. sowing—Sugarcane.
   5. *Dhaincha* (G.M.)+Super at 150 lb./ac. of P₂O₅ at the time of turning under G.M.—Sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  
   (iii) (a) 63'x30'.  
   (b) 57'x24'.  
   (iv) N.A.
4. GENERAL:
   (i) and (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield at harvest (excluding the yield of cane harvested for juice analysis).  (iv) (a) 1953—1955.  (b) and (c) N.A.  (v) Nil.  (vi) Nil (vii) The expt. was conducted by D.S.R.(G) on cultivators' field.

5. RESULTS:
   (i) 13.68 ton/ac.
   (ii) 3.43 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.68</td>
</tr>
<tr>
<td>2</td>
<td>14.16</td>
</tr>
<tr>
<td>3</td>
<td>12.13</td>
</tr>
<tr>
<td>4</td>
<td>15.44</td>
</tr>
<tr>
<td>5</td>
<td>15.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.717 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Site: Faizabad (Faizabad).
Ref.: U.P. 53(245).
Type: 'M'.

Object: To study the response of Sugar cane to Super in combination with green manures and different times of application.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) and (c) As per treatments.  (ii) Loam.  (iii) A/S at 20 lb./ac. of N and G.N.C. at 10 lb./ac. of N on 30.1.1953.  Top dressing of A/S at 50 lb./ac. of N on 29.6.1953.  (iv) CO-416 (improved).
   (v) (a) 1 ploughing by victory plough, 4 ploughings by desi plough, 4 hoeings by kasti and earthing by ridger.  (b) Flat planting.  (c) 1584 buds/plot.  (d) 3' distances in furrows opened by ridger.  (e) —
   (vi) 30.1.1953.  (vii) Irrigated.  (viii) and (ix) N.A.  (x) 19, 20 and 27.2.1954.

2. TREATMENTS:
   1. Fallow—Sugarcane.
   2. Fallow+super at 150 lb./ac. of P₂O₅ at 3' depth at planting of Sugarcane.
   3. Sanai (G.M.)—Sugarcane.
   4. Sanai (G.M.)+super at 150 lb./ac. of P₂O₅ at sanai sowing—Sugarcane.
   5. Sanai (G.M.)+super at 150 lb./ac. of P₂O₅ at the time of turning in sanai—Sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 60' x 24'.  (b) 60' x 18'.  (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield at harvest (i.e. excluding canes harvested for juice analysis).  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The expt. was conducted by D.S.R(G) on cultivators' field.

5. RESULTS:
   (i) 12.33 ton/ac.
   (ii) 1.824 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11.11</td>
</tr>
<tr>
<td>2</td>
<td>11.87</td>
</tr>
<tr>
<td>3</td>
<td>12.32</td>
</tr>
<tr>
<td>4</td>
<td>12.68</td>
</tr>
<tr>
<td>5</td>
<td>13.67</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.912 ton/ac.</td>
</tr>
</tbody>
</table>
Crop : Sugarcane.  
Zone : Faizabad (Faizabad).

Object : To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Fallow. (c) Nil.  (ii) Heavy loam with Alkaline patches.  (iii) Sanai at 40 lb./ac. of N.  (iv) CO 313 (early improved).  (v) As per treatments.  (vi) Ploughing by mould board plough (tractor) on 15.10.1950, by disc harrow (by tractor) on 7.11.1950, 17.12.1950, 10.1.1951 and 29.1.1951.  (vii) M.C. cultivator (by tractor) on 8.12.1950.  (viii) By deshi on 30.1.1951.  (ix) 3 hoeings by kudali and earthing by spade.  (b) Flat planting in lines.  (c) 1728 buds/plot.  (d) 3' distance in lines.  (e) N.A.  (vi) Irrigated.  (vii) The experiment was conducted by D.S.R. (G) on cultivators' field.

2. TREATMENTS:
   1. Control.
   2. Super at 150 lb./ac. of P₂O₅ broadcasted before planting.
   3. Super at 150 lb./ac. of P₂O₅ in furrows 3"-4" deep at planting time.

3. DESIGN:
   (i) and (ii) R.B.D. with six replications.  (iii) (a) 64'×27'.  (b) 58'×21'.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Germination, millable canes, tillers and yield.  (iv) (a) No.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (G) on cultivators' field.

5. RESULTS:
   (i) 9.88 ton/ac.
   (ii) 1.430 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment     Av. yield
   1.           9.74
   2.           9.76
   3.          10.14
   S.E./mean  = 0.584 ton/ac.

Crop : Sugarcane.  
Zone : Faizabad (Faizabad).

Object : To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Fallow. (c) Nil.  (ii) Loam.  (iii) As per treatments.  (iv) CO 493 (improved).  (v) (a) Ploughing by mould board plough (tractor) on 26.10.1951.  (b) Disc harrow (tractor) on 14.12.1951, 3.1.1952 and 28.1.1952.  (b) Flat planting.  (c) N.A.  (d) At 3' distance in lines.  (e) Furrows opened by bullock ridger.  9 hoeings by kudali.  Earthing by spade.  (e) —.  (vi) 11.2.1952.  (vii) Irrigated.  (viii) N.A.  (ix) 32.73'.  (x) 10, 12.1.1953.

2. TREATMENTS:
   1. A/S at 120 lb./ac. of N.
   2. A/S at 60 lb./ac. of N+G.N.C. at 60 lb./ac. of N.
   3. S. brand fertilizer at 120 lb./ac. of N.
   4. S. brand fertilizer at 60 lb./ac. of N+G.N.C. at 60 lb./ac. of N, half at planting and half at tillering.

3. DESIGN:
   (i) and (iii) R.B.D. with 4 replications.  (iii) (a) 70'×30'.  (b) 64'×24'.  (iv) N.A.
4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, millable canes, tillers and sugarcane yield at harvest excluding cane harvested for juice analysis (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) The crop of the plot in which treatment I was applied in replication I, was badly damaged by rats. (vii) The experiment was conducted by D.S.R. (G) on cultivators' field.

5. RESULTS:

(i) 16.30 ton/ac.
(ii) 1.584 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.61</td>
</tr>
<tr>
<td>2.</td>
<td>17.71</td>
</tr>
<tr>
<td>3.</td>
<td>15.25</td>
</tr>
<tr>
<td>4.</td>
<td>18.64</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.792 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Zone: Nawabganj (Gonda).

Object: To study the effect of Super on Sugarcane.

2. BASAL CONDITIONS:

(i) (a) N.A. (b) Sanai. (c) Nil. (ii) loam. (iii) Sanai as G.M. Press mud at 100 md/ac. on 24.1.1950. Top dressing by manure on 21.6.1950. (iv) CO 453 (mid-late) improved. (v) (a) 6 hoeings. (b) to (e) N.A. (vi) 9.2.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 11 and 12.3.1951.

2. TREATMENTS:

1. Control (no manure).
2. Super at 150 lb./ac. of P₂O₅ broadcast before planting.
3. Super at 150 lb./ac. of P₂O₅ drilled 3"-4" deep in furrows before planting.

3. DESIGN:

(i), (ii) R.B.D. with 5 replications. (iii) (a) and (b) 75' x 24'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, tillers, millable canes and sugarcane yield. (iv) (a) 1950-1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R. (G). on cultivators' field.

5. RESULTS:

(i) 32.47 ton/ac.
(ii) 7.395 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28.18</td>
</tr>
<tr>
<td>2.</td>
<td>38.74</td>
</tr>
<tr>
<td>3.</td>
<td>30.51</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>3.307 ton/ac.</td>
</tr>
</tbody>
</table>
Crop : Sugarcane.  
Zone :- Nawabgunj (Gonda).  

Object : To study the effect of Super on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Wheat. (c) N.A. (ii) Loam. (iii) Press mud compost at 100 md./ac. mixture 1 md. 10 srs.
       at 55 lb./ac. of N on 15.10.1950. Top dressing of manure 5 md. on 30.5.1951. (iv) COK. 26 (improved
       but unreleased). (v) (a) Tractor ploughings 2+tractor harrow 2. Desti ploughing on 15.9.1950, 10,
       30.10.1950, 4, 21, 25 and 30.1.1951. (b) Sown in flat system. (c) 1230 buds/plot. (d) In lines 3' apart.
       (e) Plantings 4 along with the last 4 ploughings and 3 hoeings. (vi) Planting 31.1.1951. (vii) Irrigated.

2. TREATMENTS:
   1. No Super.
   2. Super broadcast at 150 lb./ac. of P2O5 before planting.
   3. Super at 150 lb./ac. of P2O5 applied 3' deep before planting.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications. (iii) (a) and (b) 55'x24'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1950—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The
       exp. was conducted by D.S.R.(G). on cultivator's field.

5. RESULTS:
   (i) 16.83 ton/ac.  
   (ii) 4.751 ton/ac.  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.52</td>
</tr>
<tr>
<td>2.</td>
<td>17.67</td>
</tr>
<tr>
<td>3.</td>
<td>16.30</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.375 ton/ac.</td>
</tr>
</tbody>
</table>

Crop : Sugarcane.  
Zone :- Balrampur (Gonda).  

Object : To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) Nil. (ii) Loam. (iii) Sanai. Top dressing—castor cake at 6 mds. and A/S at 2
       mds. on 18.3.1950. (iv) CO.453 (mid-late) (Improved). (v) (a) 3 hoeings. (b) to (e) N.A. (vi) 7.2.1950

2. TREATMENTS:
   1. Control (no manure).  
   2. 150 lb./ac. of P2O5 broadcast before planting.  
   3. 150 lb./ac. of P2O5 drilled 3'4" deep in furrows before planting.

3. DESIGN:
   (i), (ii) R.B.D. with 5 replications. (iii) (a) N.A. (b) 140'x15'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable canes and sugarcane yield. (iv) (a) 1950—1951. (b)
       N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G). Experiment on
       cultivator's field.
5. RESULTS:
(i) 35.30 ton/ac.
(ii) 2.983 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>31.90</td>
</tr>
<tr>
<td>2.</td>
<td>35.72</td>
</tr>
<tr>
<td>3.</td>
<td>38.28</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>±1.334 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Balrampur (Gonda).

Ref :-U.P. 51(175).
Type :-‘M’.

Object :-To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai (G.M.). (c) Nil. (ii) Loam. (iii) Sanai (G.M.) on 26.8.1950 at 60 lb./ac. of N
Top dressing of castor cake 2 mds. 20 seers at 40 lb./ac. of N. AmSO₄—1 md. 20 seers at 40 lb./ac. of N.
(iv) CO.453 (mid-late) (improved). (v) (a) 3 ploughings by tractor, 5 by desl plough and 3 planking along
with ploughings and 3 hoeing by kassi. (b) Planting in lines. (c) 2540 buds/plot. (d) N.A. (e) —. (vi)

2. TREATMENTS:
1. Control (no Super).
2. Super at 150 lb./ac. of P₂O₅ broadcasted.
3. Super at 150 lb./ac. of P₂O₅ drilled 3'-4' deep in furrows before planting.

3. DESIGN:
(i), (ii) R.B.D. with 4 replications. (iii) (a) and (b) 88' x 30'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable sugarcane and yield. (iv) (a) 1950—1951. (b) N.A.
(c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R (G). on cultivator’s field.

5. RESULTS:
(i) 22.53 ton/ac.
(ii) 0.648 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.52</td>
</tr>
<tr>
<td>2.</td>
<td>23.74</td>
</tr>
<tr>
<td>3.</td>
<td>22.33</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>±0.324 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Balrampur (Gonda).

Ref :-U.P. 49(160).
Type :-‘M’.

Object :-To study the comparative effect of different green manures.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) As per treatments. (ii) Loam. (iii) As per treatments. (iv) CO.453 (mid-late) (improved). (v) (a) 2 hoeings. (b) to (e) N.A. (vi) 19.3.1949. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 5.2.1950.
2. TREATMENTS:
1. Sanai (G.M.).
2. Guar.
3. Lobia.
4. Pea.
5. Dhaincha.
7. Usual crop used.
8. Fallow.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 91'×24'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
(i) 20.38 ton/ac.
(ii) 2.55 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.02</td>
<td>5.</td>
<td>19.26</td>
</tr>
<tr>
<td>2.</td>
<td>22.58</td>
<td>6.</td>
<td>19.49</td>
</tr>
<tr>
<td>3.</td>
<td>19.40</td>
<td>7.</td>
<td>19.91</td>
</tr>
<tr>
<td>4.</td>
<td>20.28</td>
<td>8.</td>
<td>19.14</td>
</tr>
</tbody>
</table>

S.E./mean = 1.275 ton/ac.

Crop :- Sugarcane.
Zone :- Balrampur (Gonda).
Object :- To study the response of cane to Super.
Type :- 'M'.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai. (c) Nil. (ii) Loam. (iii) Castor cake at 20 lb./ac. of N and A/S at 16 lb./ac. of N+P2O5 as per treatments. (iv) CO.453 (mid-late) (improved). (v) (a) 3 hoeings after planting. (b) to (e) N.A. (vi) 17.2.1949. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14.2.1950.

2. TREATMENTS:
1. Control (no manure).
2. 60 lb./ac. of P2O5 applied broadcast before planting.
3. 60 lb./ac. of P2O5 drilled 3'–4' deep in furrows before planting.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 72'×24'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
(i) 22.71 ton/ac.
(ii) 0.821 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.56</td>
</tr>
<tr>
<td>2.</td>
<td>23.19</td>
</tr>
<tr>
<td>3.</td>
<td>24.39</td>
</tr>
</tbody>
</table>

S.E./mean = 0.335 ton/ac.
Crop :- Sugarcane.  
Zone :- Balrampur (Gonda). 

Object :—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Sugarcane as G.M. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO. 453 (mid-late) improved. (v) (a) Punjab plough for turning in of Sugarcane on 25.7.1947, meston plough on 5.8.1947 and 15.8.1947, tractor on 7.11.1947 and 4 desi ploughings from 10.11.1947 to 10.1.1948. (b) Flat planted by spade. (c) 1752 buds/plot. (d) 3' apart. (e) —. (vi) 23.2.1948. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

TREATMENTS :
1. No Super.
2. 40 lb./ac. of P₂O₅ in furrows 3" to 4" deep.
3. 80 lb./ac. of P₂O₅ in furrows 3" to 4" deep.
Super applied on 30.5.1948.

DESIGN :
(i) and (ii) R.B.D. with 6 replications. (iii) (a) 7'3' x24'. (b) 1/25 ac. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) No. (b) to (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G). on cultivator's field.

5. RESULTS:
(i) 25.04 ton/ac.
(ii) 2.21 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.
   Treatment | Av. yield
   1.        | 22.80
   2.        | 25.71
   3.        | 26.63
   S.E./mean | 0.90 ton/ac.

Crop :- Sugarcane.  
Zone :- Ghugli (Gorakhpur). 

Object :—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Sugarcane—Ratoon. (c) N.A. (i) Heavy loam. (ii) F.Y.M. at 16 lb./ac. of N at preparation of field, A/S at 18 lb./ac. of N—at planting time (and Castor cake at 16 lb./ac. of N—top dressing on 30.5.1948. (iv) CO. 453 (mid-late) (improved). (v) (a) 8 ploughings by desi plough, 3 hoeings by kudali and earthing. (b) Trench planting by kudali. (c) 1680 buds/plot. (d) N.A. (e) —, (vi) 6, 7.2.1948. (vii) Irrigated. (viii) N.A. (ix) 45.47'. (x) 20, 22.1.1949.

2. TREATMENTS :
1. No Super.
2. 40 lb./ac. of P₂O₅ in furrows 3" to 4" deep.
3. 80 lb./ac. of P₂O₅ in furrows 3" to 4" deep.

3. DESIGN :
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80' x21'. (b) 74' x15'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable sugarcane and yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
(i) 14.56 ton/ac.
(ii) 0.467 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.94</td>
</tr>
<tr>
<td>2.</td>
<td>15.59</td>
</tr>
<tr>
<td>3.</td>
<td>14.17</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.234</td>
</tr>
</tbody>
</table>

Crop : Sugarcane.
Zone : Sardarnagar (Gorakhpur).

Object : To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Sanai as G.M.  (c) Nil.  (ii) Sandy loam.  (iii) A/S at 40 lb./ac. of N. (iv) CO. 356 (mid. late improved.) (v) (a) 2 ploughing: by motor tractor. Trenches made by furrow. 4 hoeing by kudali.  (b) Planted in trenches. (c) 1440 buds/plot. (d) N.A.  (e) —.  (vi) 15.2.1948. (vii) Irrigated.
   (viii) N.A.  (ix) 60'.  (x) 16.2.1949.

2. TREATMENTS:
   1. No Super (control).
   2. 40 lb./ac. of P2O5 in furrows 3'-4' deep.
   3. 80 lb./ac. of P2O5 in furrows 3'-4' deep.

3. DESIGN:
   (i) and (ii) R.B.D.with 6 replications.  (iii) (a) 80' x 21'. (b) 74' x 14'. (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) N.A.  (c) N.A.  (v) N.A.  (vii) Nil.  (viii) The experiment was conducted by D.S.R. (G). on cultivators' field.

5. RESULTS:
   (i) 23.39 ton/ac.
   (ii) 2.21 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.51</td>
</tr>
<tr>
<td>2.</td>
<td>23.52</td>
</tr>
<tr>
<td>3.</td>
<td>25.15</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Crop : Sugarcane.
Zone : Pharenda (Gorakhpur).

Object : To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Fallow.  (c) N.A.  (ii) Sandy loam.  (iii) F.Y.M. on 17.2.1948. (iv) CO. 453 (mid-late improved). (v) (a) Ploughing by tractor. 3 hoeing by spade and earthing up. (b) Planted in trenches with spade. (c) 1752 buds/plot. (d) N.A.  (e) —.  (vi) 18.2.1948. (vii) Irrigated. (viii) N.A.  (ix) 45'.  (x) 17.3.1949.

2. TREATMENTS:
   1. No Super (control).
   2. 40 lb./ac. of P2O5 in furrows 3'-4' deep.
   3. 80 lb./ac. of P2O5 in furrows 3'-4' deep.
   Super applied on 4.6.1948.
3. DESIGN:
(i) and (ii) R.B.D. with 6 replications. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) Dead hearts of top borer and stem borer removed by sickle on 20 to 27.5.1948. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1948-1949. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vi) The experiment was conducted by D.S.R. (G) on cultivators' field.

5. RESULTS:
(i) 21.83 ton/ac.
(ii) 4.12 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>22.09</td>
</tr>
<tr>
<td>2.</td>
<td>20.65</td>
</tr>
<tr>
<td>3.</td>
<td>22.75</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.68 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.

Zone: Sardarnagar (Gorakhpur).

Object: To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Wheat. (c) N.A. (ii) Sandy loam. (iii) 100 lb./ac. of N; P₂O₅ as per treatments. (iv) CO. 356 (mid-late); improved. (v) (a) 4 hoeings done after planting. (b) to (e) N.A. (vi) Planted 17.2.1949. (vii) Irrigated. (viii) N.A. (ix) 60'. (x) 15.2.1950.

2. TREATMENTS:
1. Control (No manure).
2. 60 lb./ac. of P₂O₅ broadcast before planting.
3. 60 lb./ac. of P₂O₅ drilled 3'—4' deep in furrows before planting.

3. DESIGN:
(i), (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 74' × 14'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R. (G) on cultivators' field.

5. RESULTS:
(i) 13.46 ton/ac.
(ii) 2.608 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14.60</td>
</tr>
<tr>
<td>2.</td>
<td>11.92</td>
</tr>
<tr>
<td>3.</td>
<td>13.86</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.065 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.

Site: Pharenda (Gorakhpur).

Object: To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) Nil. (d) Sandy loam. (iii) A/S at 100 lb./ac. of N on 29.4.1949. P₂O₅ as per treatments. (iv) CO. 453 (mid-late); improved. (v) (a) 6 hoeings given after planting. (b) to (e) N.A. (vi) Planted 15.2.1949. (vii) Irrigated. (viii) N.A. (ix) 45'. (x) 27.2.1950.
2. TREATMENTS:
1. Control (no manure).
2. 60 lb./a.: of \(P_2O_5\) broadcast before planting.
3. 60 lb./ac. of \(P_2O_5\) drilled 3"-4" deep in furrows before planting.
Date of application 15.2.1919.

3. DESIGN:
(i), (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 67'×18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R. (G) on cultivator’s field.

5. RESULTS:
(i) 39.16 ton/ac.
(ii) 1.823 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>39.40</td>
</tr>
<tr>
<td>2.</td>
<td>37.57</td>
</tr>
<tr>
<td>3.</td>
<td>36.87</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>~0.911 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Zone: Ghugli (Gorakhpur).
Object: To study the response of Sugarcane to Super.

Ref: U.P. 49(141).
Type: ‘M’.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sona as G.M. (c) Nil. (ii) Heavy loam. (iii) A/S at 67 lb./ac. of N+P\(_2\)O\(_5\) as per treatments.
(iv) CO. 453 (mid-mate); improved. (v) (a) 7 harvests after planting. (b) to (e) N.A. (vi) 25.1.1949. (vii) Irrigated. (viii) N.A. (ix) 4.477'. (x) 28 to 31.1.1950.

2. TREATMENTS:
1. Control.
2. 60 lb./ac. of \(P_2O_5\) broadcast before planting.
3. 60 lb./ac. of \(P_2O_5\) drilled 3"-4" deep in furrows before planting.

3. DESIGN:
(i), (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 1/52.2 ac. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivator’s field.

5. RESULTS:
(i) 39.16 ton/ac.
(ii) 1.823 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>41.05</td>
</tr>
<tr>
<td>2.</td>
<td>37.57</td>
</tr>
<tr>
<td>3.</td>
<td>38.87</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>~0.911 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.
Zone :- Sardarnagar (Gorakhpur).
Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS :
(i) (a) N.A.  (b) Sanai as G.M.  (c) Nil.  (ii) Loam.  (iii) Sanai as per treatments; top dressing of A/S on 4.3.1950 and 21.5.1950.  (iv) CO 256 (mid-late) (improved).  (v) (a) Hoeings.  (b) to (e) N.A.  (vi) 2.2.1950.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 21.2.1951.

2. TREATMENTS :
1. Control (no manure).
2. 150 lb./ac. of P 2 O 5 broadcast before planting.
3. 150 lb./ac. of P 2 O 5 drilled 3"-4" deep in furrows before planting.

3. DESIGN :
(i), (ii) R.B.D. with 6 replications.  (iii) (a) N.A.  (b) 7'4"×15'.  (iv) N.A.

4. GENERAL :
(i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) 1950—1951.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.(G) on cultivator's field.

5. RESULTS :
(i) 16.00 ton/ac.
(ii) 3.005 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>15.90</td>
</tr>
<tr>
<td>2.</td>
<td>16.57</td>
</tr>
<tr>
<td>3.</td>
<td>15.52</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>± 1.227</td>
</tr>
</tbody>
</table>

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Crop :- Sugarcane.
Zone :- Sardarnagar (Gorakhpur).
Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS :
(i) (a) N.A.  (b) Sanai as G.M.  (c) Nil.  (ii) Loam.  (iii) A/S on 19.4.1951 as top dressing.  (iv) P.O.J. 2878 (mid-late)—improved but unreleased.  (v) (a) Hoeings by kuvali on 21.2.1951 and earthing up on 22.8.1951.  (b) Trenching by spades.  (c) 1680 buds/plot.  (d) N.A.  (e) —.  (vi) 15.2.1951.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 25, 26.2.1952.

2. TREATMENTS :
1. No manure.
2. Super at 150 lb./ac. of P 2 O 5 broadcast before planting.
3. Super at 150 lb./ac. of P 2 O 5广播 in furrows at the time of planting.

3. DESIGN :
(i), (ii) R.B.D. with 6 replications.  (iii) (a) 80'×21'.  (b) 7'4"×15'.  (iv) N.A.

4. GENERAL :
(i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable sugarcane and yield.  (iv) (a) 1950—1951.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.(G) on cultivator's field.
5. RESULTS:

(i) 18.39 ton/ac.
(ii) 2.431 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.47</td>
</tr>
<tr>
<td>2.</td>
<td>17.75</td>
</tr>
<tr>
<td>3.</td>
<td>18.95</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.992 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Sugarcane.
Zone :- Ghugli (Gorakhpur).
Object :-To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Bhat soils. (iii) As per treatments+60 lb./ac. of N as mohwa cake and 40 lb./ac. of N as A/S on 4.1.1950. (iv) C3-356 (mid-late) improved. (v) (a) 8 hoeings. (b) to (e) N.A. (vi) 6.2.1950. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.2.1951.

2. TREATMENTS:

1. Control (no manure).
2. 150 lb./ac. of P₂O₅ broadcast before planting.
3. 150 lb./ac. of P₂O₅ drilled 3"-4" deep in furrows before planting.

3. DESIGN:

(i) and (ii) R.B.D.with 4 replications. (iii) (a) N.A. (b) 79'x12'. (iv) N.A.

4. GENERAL:

(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950-1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' field.

5. RESULTS:

(i) 13.57 ton/ac.
(ii) 0.832 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.50</td>
</tr>
<tr>
<td>2.</td>
<td>12.80</td>
</tr>
<tr>
<td>3.</td>
<td>14.40</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.416 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Sugarcane.
Zone :- Ghugli (Gorakhpur).
Object :-To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Sanai (G.M.) sown on 22.6.1950. (c) Nil. (ii) Bhat soil. (iii) Sanai as G.M. Applied mohwa cake mixture at 60 lb./ac. of N on 12 to 13.8.1951. (iv) CO—356 (min-late) improved. (v) (a) Ploughing in of sanai by vi-tory plough on 12.8.1950. Ploughing by tractor 18.1.1951 and 1.2.1951, 3 hoeings by korsi. (b) Flat planting followed by earthing. (c) 2160 buds/plot. (d) N.A. (e) —. (vi) 3.2.1951. (vii) Irrigated. (viii) and (ix) N.A. (x) 16 and 17.2.1952.
2. TREATMENTS:
   1. No manure.
   2. 150 lb./ac. of P₂O₅ broadcasted in field one day before planting.
   3. 150 lb./ac. of P₂O₅ applied on the setts at the time of sowing.

3. DESIGN:
   (i) and (ii) R.B.D., 4 replications. (iii) (a) 90'×24'. (b) 84'×24'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) Yes, 1950—1951. (b) and (c) N.A. (v) N.A. (vi) Nil.
   (vii) The experiment was conducted by D.S.R.(G) on cultivators' field.

5. RESULTS:
   (i) 10.47 ton/ac.
   (ii) 1.418 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.08</td>
</tr>
<tr>
<td>2.</td>
<td>10.27</td>
</tr>
<tr>
<td>3.</td>
<td>10.06</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.709</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Anandnagar (Gorakhpur).

Ref :- U.P. 50(177).
Type :- 'M'.
Crop :- Sugarcane.  
Zone :- Anandnagar (Gorakhpur).

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:


2. TREATMENTS:

1. No manure (control).
2. Super at 150 lb./ac. of P<sub>2</sub>O<sub>5</sub> applied 3'—4' deep in furrows at the time of planting.
3. Super at 150 lb./ac. of P<sub>2</sub>O<sub>5</sub> applied 3'—4' deep in furrows at the time of planting.

3. DESIGN:

(i) and (ii) R.B.O. with 4 replications. (iii) 'a) 73' x 24'. (b) 67' x 18'. (iv) N.A.

4. GENERAL:

(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:

(i) 33.23 ton/ac.
(ii) 5.946 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>33.46</td>
</tr>
<tr>
<td>2.</td>
<td>33.50</td>
</tr>
<tr>
<td>3.</td>
<td>32.73</td>
</tr>
</tbody>
</table>

S.E./mean = 2.973 ton/ac.

---

Crop :- Sugarcane.  
Zone :- Gorakhpur (Gorakhpur).

Object :- To study the response of Sugarcane with G.M. at different times of applications.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) As per treatments. (c) As per treatments. (ii) Sandy loam. (iii) As per treatments. (iv) CO.453 (mid-late) improved. (v) (a) Ploughings by desi plough on 16.9.1952, 5.10.1952 and 7.1.1-53. Hoeing on 31.10.1952. 2 hoeings by hand kudali and 2 weedings. (b) Trench planted. (c) 6720 buds/plot. (d) N.A. (e) —. (vi) 8.2.1953. (vii) Irrigated. (viii) Nil. (ix) 28.17'. (x) 24.2.1954.

2. TREATMENTS:

1. Fallow—Sugarcane.
2. Fallow+150 lb./ac. of P<sub>2</sub>O<sub>5</sub>, 3' deep at planting of Sugarcane.
3. Sanai as G.M.—Sugarcane.
4. Sanai as G.M. +150 lb./ac. of P<sub>2</sub>O<sub>5</sub> at sowing of sanai—Sugarcane.
5. Sanai as G.M.+150 lb./ac. of P<sub>2</sub>O<sub>5</sub> at turning in of sanai—Sugarcane.

3. DESIGN:

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80' x 21'. (b) 74' x 15'. (iv) N.A.

4. GENERAL:

(ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1953-1955. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.
5. RESULTS:

(i) 17.56 ton/ac.
(ii) 3.513 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.23</td>
</tr>
<tr>
<td>2.</td>
<td>15.00</td>
</tr>
<tr>
<td>3.</td>
<td>16.38</td>
</tr>
<tr>
<td>4.</td>
<td>17.48</td>
</tr>
<tr>
<td>5.</td>
<td>20.73</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.757 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Site: Gorakhpur (Gorakhpur).

Type: 'M'.

Object: To study the response of Super with G.M. at different times of application.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) As per treatments. (c) As per treatments. (ii) Sandy loam. (iii) As per treatments. (iv) CO 453 (mid-late) improved. (v) (a) 5 ploughings by tractor and 5 hoeings by hand kudali. (b) Trench planting. (c) 7008 buds/plot. (d) N.A. (e) —. (vi) 13.3.1953. (vii) Irrigated. (viii) N.A. (ix) 40.06°. (x) 27.2.1954.

2. TREATMENTS:

1. Fallow—Sugarcane.
2. Fallow + 150 lb/ac. of P₂O₅, 5' deep at planting of Sugarcane.
3. Sanai as G.M.—Sugarcane.
4. Sanai as G.M.+ 150 lb/ac. of P₂O₅ at sowing of sanai—Sugarcane.
5. Sanai as G.M.+ 150 lb/ac. of P₂O₅ at turning in of sanai—Sugarcane.

3. DESIGN:

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'x24'. (b) 67'x18'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1953—1955. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:

(i) 12.50 ton/ac.
(ii) 1.659 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12.60</td>
</tr>
<tr>
<td>2.</td>
<td>13.24</td>
</tr>
<tr>
<td>3.</td>
<td>11.68</td>
</tr>
<tr>
<td>4.</td>
<td>12.20</td>
</tr>
<tr>
<td>5.</td>
<td>12.79</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.830 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Zone :- Sardarnagar (Gorakhpur).  
Object :-To study the comparative effects of different green manures on Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A.  (b) Wheat.  (c) Sandy loam.  (iii) N.A.  (iv) CO. 356 (medium-late), improved.  
   (v) (a) 2 ploughings by motor tractor and 5 hoeings by kudali.  (b) Planted in trenches.  
   (c) 1440 buds/plot.  
   (d) N.A.  (e)--.  
   (vi) 16.2.1948.  (vii) Irrigated.  

2. TREATMENTS :
   1.  Berseem.  
   2.  Sanai.  
   3.  Pea.  
   4.  Lobia.  
   5.  Fallow.  
   7.  A.rhar.  

3. DESIGN :
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 80'×21'.  (b) 74'×14'.  (iv) N.A.  

4. GENERAL :
   (i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable sugarcane and yield.  
   (iv) (a) No.  (b) and (c) N.A.  
   (v) N.A.  (vi) Nil.  
   (vii) The experiment was conducted by D.S.R. (G)on cultivator's field.  

5. RESULTS :
   (i) 21.35 ton/ac.  
   (ii) 3.27 ton/ac.  
   (iii) Treatments differ significantly.  
   (iv) Av. yield of sugarcane in ton/ac.  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.22</td>
</tr>
<tr>
<td>2.</td>
<td>25.22</td>
</tr>
<tr>
<td>3.</td>
<td>22.38</td>
</tr>
<tr>
<td>4.</td>
<td>20.22</td>
</tr>
<tr>
<td>5.</td>
<td>21.44</td>
</tr>
<tr>
<td>6.</td>
<td>22.68</td>
</tr>
<tr>
<td>7.</td>
<td>16.27</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.64 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Zone :- Pharenda (Gorakhpur).  
Object :-To study the comparative effects of green manures on Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A.  (b) Fallow.  (c) Nil.  
   (i) (ii) Sandy loam.  (iii) Nil.  
   (iv) CO. 453 (medium-late), improved.  
   (v) (a) 3 ploughings by country plough, twice levelled by henga, 3 hoeings by spade and earthing up.  
   (b) to (e) N.A.  
   (vi) 27.2.1948.  
   (vii) Irrigated.  

2. TREATMENTS :

3. DESIGN :
   (i) and (ii) R.B.D. with 6 replications.  (iii) (a) 73'×30'.  (b) 67'×24'.  (iv) N.A.
4. GENERAL:
(i) N.A. (ii) Dead hearts of top borer and stem borer removed by sickles from 20 to 25.7.1948. (iii) Germination, tillers, millable sugarcane and yield. (iv) (a) to (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
(i) 22.32 ton/ac.
(ii) 5.76 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.88</td>
</tr>
<tr>
<td>2.</td>
<td>19.73</td>
</tr>
<tr>
<td>3.</td>
<td>26.24</td>
</tr>
<tr>
<td>4.</td>
<td>20.69</td>
</tr>
<tr>
<td>5.</td>
<td>23.72</td>
</tr>
<tr>
<td>6.</td>
<td>26.30</td>
</tr>
<tr>
<td>7.</td>
<td>15.69</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.88</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Pharenda (Gorakhpur).
Object :- To study the comparative effects of different green manures on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) As per treatments. Also A/S + Castor cake at 60 lb./ac. of N. (iv) CO-453 (mid-late) improved. (v) (a) 6 hoeings. (b) to (c) N.A. (v) 10.2.1949. (vii) Irrigated. (viii) and (ix) N.A. (x) 1.3.1950.

2. TREATMENTS:
1. Sanai (G.M.)
2. Guar
3. Pea
4. Lobia
5. Dhaincha
6. Matri
7. Toria (early mustard)
8. Fallow

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 6' x 24'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator's field.

5. RESULTS:
(i) 33.52 ton/ac.
(ii) 4.495 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>33.06</td>
<td>5.</td>
<td>31.07</td>
</tr>
<tr>
<td>2.</td>
<td>33.46</td>
<td>6.</td>
<td>32.52</td>
</tr>
<tr>
<td>3.</td>
<td>34.89</td>
<td>7.</td>
<td>34.44</td>
</tr>
<tr>
<td>4.</td>
<td>37.26</td>
<td>8.</td>
<td>31.48</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.248</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Crop :- Sugarcane. Ref :- U.P. 49(157).
Zone :- Sardarnagar (Gorakhpur). Type :- 'M'.

Object :- To study the comparative effects of different green manures on Sugarcane.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) As per treatments. (iv) CO-356 (mid-late) improved. (v) (a) 1 hoeing. (b) to (e) N.A. (vi) 3.2.1949. (vii) Irrigated. (viii) and (ix) N.A. (x) 5 and 6.2.1950.

2. TREATMENTS :
1. Sanai.
2. Arhar.
3. Lobia.
5. Dhaincha.
6. Pea.
7. Guar.
8. Fallow.

3. DESIGN :
(i) and (ii) R.B.D., 4 replications. (iii) (a) N.A. (b) 74'x14'. (iv) N.A.

4. GENERAL :
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' field.

5. RESULTS :
(i) 19.33 ton/ac.
(ii) 5.102 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.32</td>
<td>5.</td>
<td>22.62</td>
</tr>
<tr>
<td>2.</td>
<td>12.71</td>
<td>6.</td>
<td>23.87</td>
</tr>
<tr>
<td>3.</td>
<td>25.35</td>
<td>7.</td>
<td>17.81</td>
</tr>
<tr>
<td>4.</td>
<td>19.93</td>
<td>8.</td>
<td>14.02</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.551</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane. Ref :- U.P. 48(69).
Zone :- Hardoi (Hardoi). Type :- 'M'.

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Guar. (c) N.A. (ii) Loam. (iii) As per treatments. (iv) CO.453 (late) improved. (v) (a) Plongings by desti plough on 13 and 15.1.1948 ploughings with gujar plough after palewa on 29.2.1948. Ploughings with desti plough on 2.3 and 4.3.1948. (b) Flat planting. (c) 2160 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 5.3.1948. (vii) Irrigated. (viii) N.A. (ix) 60*. (x) 15.3.1949.

2. TREATMENTS :
P2O5 applied as top dressing on 17.6.1948.
1. No P2O5.
2. 40 lb./ac. of P2O5 in furrows 3'-4' deep.
3. 80 lb./ac. of P2O5 in furrows 3'-4' deep.

3. DESIGN :
(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'x36'. (b) 67'x30'. (iv) N.A.

4. GENERAL :
(i) and (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' field.
5. RESULTS:

(i) 33.57 ton/ac.
(ii) 1.227 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield (ton/ac)</th>
<th>S.E./mean (ton/ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>32.73</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>33.63</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>34.36</td>
<td></td>
</tr>
</tbody>
</table>

Object:—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Sugarcane (ratoon). (c) N.A. (ii) Light loam. (iii) Top-dressing by Castor cake at 75 lb./ac. of N, A/S at 25 lb./ac. of N. (iv) CO.527 (early) improved. (v) (a) Harrow plough twice. Mouldboard on 15.10.1947, disc on 29.10.1947, 16 and 17.10.1947. Hoeings by kudli on 12.3.1948, 3, 4 and 11.4.1948. Earthing up on 7.5.1948 and 5.6.1948. Hoeings by cultivator on 7.5.1948 and 5.6.1948. (b) Flat sowing. (c) 1752 buds/plot. (d) Rows 3' apart. (e) —. (vi) 6 and 7.2.1948. (vii) Irrigated. (viii) N.A. (ix) 45.91*. (x) 25.2.1949 to 7.3.1949.

5. RESULTS:

(i) 19.49 ton/ac.
(ii) 2.402 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield (ton/ac)</th>
<th>S.E./mean (ton/ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.27</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>19.50</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>19.71</td>
<td></td>
</tr>
</tbody>
</table>

Object:—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Clay loam. (iii) As per treatments. (iv) CO.421 (medium) improved. (v) (a) Ploughings by mould board in June 1948, ploughings by Athens plough in June 1948; Oct. 1948; by desl plough in Dec. 1948; By Athen’s plough on 22.2.1949; Ransom harrowing twice on 25.2.1949; planking on 27.2.1949. (b) Flat planting (c) 1458 buds/plot. (d) N.A. (e) —. (vi) 16.3.1949. (vii) N.A. (viii) N.A. (ix) 60°. (x) 14.3.1950.
2. TREATMENTS:
1. No P₂O₅.
2. 60 lb./ac. of P₂O₅ broadcast at planting time.
3. 60 lb./ac. of P₂O₅ in furrows 3'-4' deep at planting time.

3. DESIGN:
(i), (ii) R.B.D. with 6 replications. (iii) (a) and (b) 81' × 21'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) 1949—1951. (b) N.A. (c) N.A. (v) N.A. (vi) There was no experiment during 1950—1951. (vii) The experiment was conducted by D.S.R. (S) on cultivators' field.

5. RESULTS:
(i) 31.90 ton/ac.
(ii) 1.531 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>31.65</td>
</tr>
<tr>
<td>2.</td>
<td>33.90</td>
</tr>
<tr>
<td>3.</td>
<td>30.15</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.625 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Kichha (Kheri).
Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M. (c) Loam. (iii) Sanai; Top dressing of mohwa cake at 10 md./ac. on 25.6.1951. (iv) CO-527 (early) improved. (v) (a) Ploughings by tractor on 21, 24.1.1951 hoeing by cultivator and kudali on 14.2.1951; 30.3.1951 and 27.4.1951 and earthing up by tractor on 15.6.1951. (b) Flat sowing. (c) 1752 buds/plot. (d) Rows 3' apart. (e) —. (vi) 7.2.1951. (vii) Irrigated.
(viii) N.A. (ix) 47'. (x) 1.1.1952.

2. TREATMENTS:
1. No P₂O₅.
2. 60 lb./ac. of P₂O₅ applied broadcast before planting.
3. 60 lb./ac. of P₂O₅ applied 3'-4' deep in furrows before planting.

P₂O₅ as Super.

3. DESIGN:
(i), (ii) R.B.D. with 6 replications. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination and yield. (iv) (a) 1949—1951. (b) N.A. (c) N.A. (v) N.A. (vi) No experiment during 1950-1951. (vii) The experiment was conducted by D.S.R. (S) on cultivators' field.

5. RESULTS:
(i) 19.58 ton/ac.
(ii) 5.090 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in tcn/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.24</td>
</tr>
<tr>
<td>2.</td>
<td>18.97</td>
</tr>
<tr>
<td>3.</td>
<td>20.54</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.545 ton/ac.</td>
</tr>
</tbody>
</table>

Note :- 2 replications have been rejected due to poor yield and yields missing. Hence only 4 replications have been included in the analysis.
Crop :- Sugarcane. Ref :- U.P. 50(163).
Zone :- Golagokarnath (Kheri). Type :- 'M'.

Object :- To find out the comparative effect of different green manures.

1. **BASAL CONDITIONS**
   (i) (a) N.A. (b) Green manure crops. (c) Nil. (ii) Loam. (iii) Nil. (iv) CO. 527. (v) (a) Ploughing by spade on 6 and 12.3.1950; 3 hoeings by *kudali* and cultivator on 7.4.1950 and 15 and 30.5.1950. (b) Flat sowing behind the ridge. (c) 2167 buds/plot. (d) Ridges 3' apart. (e) —. (vi) 13 and 14.3.1950. (vii) Irrigated. (viii) N.A. (ix) 47° x 25 and 30.12.1950

2. **TREATMENTS**
   1. Pea at 30 seers/ac.
   2. Sanai at 40 seers/ac.
   3. Dhaincha at 20 seers/ac.
   4. Fallow (control).
   5. Lobia at 25 srs./ac.
   6. Urd at 20 srs./ac.
   7. Pea root for fodder at 30 srs./ac.

3. **DESIGN**
   (i), (ii) R.B.D. with 4 replications. (iii) (a) 81' x 27'. (b) 75' x 21'. (iv) N.A.

4. **GENERAL**
   (i) N.A. (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S) on cultivators' field.

5. **RESULTS**
   (i) 5.32 ton/ac.
   (ii) 2.31 ton/ac.
   (iii) Treatment do not differ significantly.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6.22</td>
</tr>
<tr>
<td>2.</td>
<td>6.35</td>
</tr>
<tr>
<td>3.</td>
<td>5.21</td>
</tr>
<tr>
<td>4.</td>
<td>4.83</td>
</tr>
<tr>
<td>5.</td>
<td>5.72</td>
</tr>
<tr>
<td>6.</td>
<td>4.45</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.16 ton/ac.</td>
</tr>
</tbody>
</table>

Zone :- Golagokarnath (Kheri). Type :- 'M'.

Object :- To study the response of Super in combination with green manure on Sugarcane.

1. **BASAL CONDITIONS**
   (i) (a) N.A. (b) *Sanai* 1st G.M. (c) N.A. (ii) Loam. (iii) 5 md. of neem cake at planting in furrows on 18.3.1953. 1/4 md. of A/S on 12. 6. 1953 as top dressing. (iv) CO. 527. (v) (a) 5 ploughings by mesten plough. 2 hoeings by *kudali* and 4 cultivators on 16.5. 1853, 4.6.1953 (b) Flat planting. (c) 1125 buds/plot. (d) Ridges 3' apart. (e) —. (vii) 18.3.1953 (vii) Irrigated. (viii) N.A. (ix) 45° x 22 and 23.1.1954.

2. **TREATMENTS**
   1. No Super—*Sanai* green manuring.
   2. 60 lb./ac. of *P₃O₅* at *Sanai* sowing (broadcast).
   3. 60 lb./ac. of *P₃O₅* at *Sanai* turning in time.

3. **DESIGN**
   (i) (ii) R.B.D. with 4 replications. (iii) (a) 71' x 115'. (b) 81' x 95'. (iv) N.A.
4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination %, tillers and sugarcane yield.  (iv) (a) 1950-1955.  (b) and (c) N.A.  (vi) Nil.  (vii) The expt. was conducted by D.S.R.  (S) on cultivators' field.

5. RESULTS:
(i) 19.03 ton/ac.
(ii) 4.65 ton/ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.13</td>
</tr>
<tr>
<td>2.</td>
<td>18.51</td>
</tr>
<tr>
<td>3.</td>
<td>20.44</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.89</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Lakhimpur (Kheri).
Object :- To study the effect of placement of Super on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Sanai as G.M.  (c) N.A.  (ii) Light loam.  (iii) Top dressing of compost 100 md. on 22.6.1953.  (iv) CO-527.  (v) (a) 7 hoeings by cultivator (bullock and tractors) on 13.3.1953 and 4.4.1953.  by kudal(i) on 13.3.1953.  28.3.1953.  31.3.1953.  4.3.1953 and 15.5.1953.  (b) Flat planting.  (c) 1440 buds/plot.

2. TREATMENTS:
1. No manure.
2. 60 lb./ac.  P₂O₅ as Super.
3. 120 lb./ac.  P₂O₅ as Super.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications.  (iii) (a) 60′ X 24′.  (b) 54′ X 18′.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) No.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.  (S) on cultivator's field.

5. RESULTS:
(i) 32.02 ton/ac.
(ii) 7.02 ton/ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>32.72</td>
</tr>
<tr>
<td>2.</td>
<td>34.06</td>
</tr>
<tr>
<td>3.</td>
<td>29.29</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.86</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Gola (Kheri).
Object :- To study the response of Sugarcane to Super.

BASAL CONDITIONS:
(i) (a) N.A.  (b) Sanai as G.M.  (c) No.  (ii) Sandy loam.  (iii) Sanai, G.N. C. , at 10 md/ac on 25.3.1952.  top dressing at 1.5 md/ac on 21.6.1952.  (iv) CO 527 (early) improved.  (v) (a) Ploughings by disc plough on 5.2.1952 and 2.2.1952, earthing up by tractor on 30.6.1952, hoeing by kudali on 25.2.1952 and by cultivator on 18.3.1952, 25.4.1952 and 26.5.1952.  (b) Flat planting.  (c) 1752 buds/plot.  (d) N.A.  (e) -.  (vi) 10.2.1952.  (vii) Irrigated.  (viii) N.A.  (ix) 40°.  (x) 10, 11.2.1953.
2. TREATMENTS:
1. Control (no manure).
2. 120 lb./ac. of P₂O₅ broadcast before planting.
3. 120 lb./ac. of P₂O₅ applied 3"–4" deep.
P₂O₅ as Super before planting.
3. DESIGN:
(i) and (ii) R.B.D with 6 replications. (iii) (a) 73’×28’. (b) 66’×21’. (iv) N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators’ field.
5. RESULTS:
(i) 25.84 ton/ac.
(ii) 4.813 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.91</td>
</tr>
<tr>
<td>2.</td>
<td>26.46</td>
</tr>
<tr>
<td>3.</td>
<td>24.16</td>
</tr>
<tr>
<td>S E./mean</td>
<td>1.148</td>
</tr>
</tbody>
</table>

Object: To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M. (c) No. (ii) Light loam. (iii) A/S at 2 md. 5 seers on 24.4.1949. (iv) CO. 453 (early) [improved. (v) (a) Ploughings by harrow plough on 17.2.1949. By disc harrow on 18 and 25.2.1949. Hoeings by kudali on 7,8,19 and 24.4.1949, 12.14 and 23.5.1949 and 16 to 19.6.1949. Earthing up on 2 and 3.7.1949. (b) Flat sowing. (c) 1752 buds/plot. (d) Rows 3" apart. (e) —. (vi) 1 and 2.3.1949. (vii) Irrigated. (viii) N.A. (ix) 45.91". (x) 1 to 8.3.1950.

2. TREATMENTS:
1. No P₂O₅.
2. 60 lb./ac. of P₂O₅ as broadcast at planting time.
3. 60 lb./ac. of P₂O₅, 3"–4" deep in furrows at the time of planting.

3. DESIGN:
(i) and (ii) R.B.D. 6 replications. (iii) (a) 73’×24’. (b) 67’×18’. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators’ field.

5. RESULTS:
(i) 12.02 ton/ac.
(ii) 4.022 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.53</td>
</tr>
<tr>
<td>2.</td>
<td>12.99</td>
</tr>
<tr>
<td>3.</td>
<td>11.53</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.642</td>
</tr>
</tbody>
</table>
Zone: -Gola (Kheri). Type: -‘M’.

Object: - To study the response of Sugarcane to Super in combination with green manures.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai as G.M. (c) As per treatments. (ii) Loam. (iii) Super as per treatments and mohwa cake at 10 md./ac. on 3.5.1951. (iv) CO.527 (early) improved. (v) (a) 4 hoeings by kudali on 10.11.1950. 8.12.1950, 15.7 1951 and 2.4.1951. Earthing up on 20.6.1951 by spade. (b) Flat sowing. (c) 1215 buds/plot. (d) Rows 3’ apart. (e) -. (vi) 10.11.1949. (vii) Irrigated. (viii) N.A. (ix) 47’. (x) 31.12.1951.

2. TREATMENTS:
   1. Sanai green manure (control).
   2. Super at 60 lb./ac. of P₂O₅ broadcast at the time of sowing sanai.
   3. Super at 60 lb./ac. of P₂O₅ applied at the the time of ploughing in of sanai.
   Application of P₂O₅ in (2) on 25.6.1950 and in (3) on 10.11.1950.

3. DESIGN:
   (i) and (ii) R.B.D. 6 replications. (iii) (a) 81’X15’. (b) 75’X9’. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) One replication has been rejected due to poor yield and missing value. Hence only 5 replications have been taken for analysis. (vii) The experiment was conducted by D.S.R. (S) on cultivators’ field.

5. RESULTS:
   (i) 30.48 ton/ac.
   (ii) 4.218 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>31.41</td>
</tr>
<tr>
<td>2.</td>
<td>30.28</td>
</tr>
<tr>
<td>3.</td>
<td>29.75</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.886 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: - Sugarcane. Ref: - U.P. 49(147).
Zone: -Gola (Kheri). Type: -‘M’.

Object: - To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Fallow. (c) Nil. (ii) Clay loam. (iii) No. (iv) (a) CO. 421. (v) (a) Ploughings by mould board in June 1948, ploughings by Athens in October, 1948 by disc plough in December, 1948, ransum harrowing on 23.2.1949, Iplanking on 27.2.1949, 5 hoeings by bullock cultivator on 17.4.1949 followed by hand karsi on 7, and 28.5.1949 and 5.7.1949. (b) Flat planting by bamboo ridger with T.D. 18 tractor. (c) 1458 buds/plot. (d) N.A. (e) -. (vi) 6.3.1949.

2. TREATMENTS:
   1. No manure (control).
   2. 60 lb./ac. of P₂O₅ as Super broadcast.
   3. 60 lb./ac. of P₂O₅ as Super applied in furrows.

3. DESIGN:
   (i) and (ii) R.B.D., 6 replications. (iii) (a) and (b) 81’X21’. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination counts and yield of sugarcane. (iv) (a) No. (b) to (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. on cultivator’s field.
5. RESULTS:

(i) 16.42 ton/ac.
(ii) 1.00 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.03</td>
</tr>
<tr>
<td>2.</td>
<td>16.66</td>
</tr>
<tr>
<td>3.</td>
<td>15.57</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.408</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Modinagar (Meerut).

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (c) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Control.
2. Super at 40 lb./ac. of P\textsubscript{2}O\textsubscript{5} in furrows 3"-4" deep.
3. Super at 80 lb./ac. of P\textsubscript{2}O\textsubscript{5} in furrows 3"-4" deep.

P\textsubscript{2}O\textsubscript{5} in the form of Super applied at tillering time, as Super could not be made available at planting time.

3. DESIGN:

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 73'x24'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivator's field.

5. RESULTS:

(i) 25.62 ton/ac.
(ii) 1.235 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>22.54</td>
</tr>
<tr>
<td>2.</td>
<td>25.76</td>
</tr>
<tr>
<td>3.</td>
<td>28.57</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.618</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Simbhaoli (Meerut).

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) to (iv) N.A. (v) (a) to (e) N.A. (vi) to (x) N.A.

2. TREATMENTS:

1. No Super.
2. 40 lb./ac. of P\textsubscript{2}O\textsubscript{5} in furrows 3"-4" deep.
3. 80 lb./ac. of P\textsubscript{2}O\textsubscript{5} in furrows 3"-4" deep.
P\textsubscript{2}O\textsubscript{5} applied as Super.
3. DESIGN:
(i) and (ii) R.B.D. with 6 replications. (iii) (a) 64' x 27'. (b) 58' x 21'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivators' field.

5. RESULTS:
(i) 30.61 ton/ac.
(ii) 1.883 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>30.18</td>
</tr>
<tr>
<td>2.</td>
<td>29.78</td>
</tr>
<tr>
<td>3.</td>
<td>30.76</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.769 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: - Sugarcane.
Zone: - Simbhaoli (Meerut).

Object: - To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. Control.
2. 60 lb./ac. of P₂O₅ by broadcast.
3. 60 lb./ac. of P₂O₅ applied in furrows 4" deep.
Manuring by double Super on 18.5.1949.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications. (iii) (a) 64' x 27'. (b) 58' x 21'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivators' field.

5. RESULTS:
(i) 30.24 ton/ac.
(ii) 2.630 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>30.18</td>
</tr>
<tr>
<td>2.</td>
<td>29.78</td>
</tr>
<tr>
<td>3.</td>
<td>30.76</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.074 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Zone :- Daurala (Meerut).  
Ref :-U.P. 49(173).  
Type :- 'M'.

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Maize. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO-453 (improved). (v) (a) and (b) N.A.  
(c) 67 setts/row. (d) N.A. (e) —. (vi) 12.3.1950. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
(i) (a) N.A. (b) Maize. (c) N.A. (d) N.A. (ii) 2 levels of Super : S1=60 and S2=120 lb./ac. of P2O5.

3. DESIGN:
(i), (ii) R.B.D. with 4 replications. (iii) (a) 65'X30'. (b) 59'X24'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A.  
(v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R (M) on cultivator's field.

5. RESULTS:
(i) 29.68 ton/ac.  
(ii) 2.115 ton/ac.  
(iii) Only main effect of S is significant. All other effects are not significant.
(iv) Av. yield of sugarcane in ton/ac.

Control = 27.72 ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$M_1$</th>
<th>$M_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>30.36</td>
<td>26.94</td>
<td>28.65</td>
</tr>
<tr>
<td>$S_2$</td>
<td>31.60</td>
<td>31.99</td>
<td>31.70</td>
</tr>
<tr>
<td>Mean</td>
<td>30.88</td>
<td>30.46</td>
<td>30.17</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.748 ton/ac.
S.E. of body of table = 1.058 ton/ac.

Crop: Sugarcane.
Zone: Daurala (Meerut).

Object: To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Metha. (c) N.A. (d) Loan. (iii) N.A. (iv) CO-453 (improved). (v) (a) N.A. (b) Flat system of planting. (c) 61, three budded sets/row; 1512 buds/plot. (d) N.A. (e) —. (vi) 21.2.1951. (vii) N.A. (viii) N.A. (ix) N.A.

2. TREATMENTS:
   All combinations of (1) and (2) + a control (no manure).
   (1) 2 methods of application of P$_2$O$_5$: $M_1$ = Broadcast and $M_2$ = applied in furrows 3'-4' deep.
   (2) 2 levels of Super: $S_1$ = 60 and $S_2$ = 120 lb./ac. of P$_2$O$_5$.

3. DESIGN:
   (i), (ii) R.B.D. with 5 replications. (iii) (a) 61'X24'. (b) 55'X18'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) 1950—1952. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivator's field.

5. RESULTS:
   (i) 35.04 ton/ac.
   (ii) 0.996 ton/ac.
   (iii) Only main effect of M is significant.
   (iv) Av. yield of sugarcane in ton/ac.

Control = 35.28 ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$M_1$</th>
<th>$M_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>34.34</td>
<td>35.27</td>
<td>34.80</td>
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<td>$S_2$</td>
<td>34.67</td>
<td>35.64</td>
<td>35.16</td>
</tr>
<tr>
<td>Mean</td>
<td>34.50</td>
<td>35.46</td>
<td>34.98</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.315 ton/ac.
S.E. of body of table = 0.446 ton/ac.
Crop :-Sugarcane.  
Zone :- Daurala (Meerut).

Object :-To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam.  (iii) Manuring with Chhla Sedge 52-75 md. on 19.2.1952.
   Manuring of A/S at 1 md. 5 chh on 7.6.1952. (iv) Improved.  (v) (a) Ploughing by desi plough on
   11.4.1952 and hoeing by spade on 26.5.1952. (b) Flat planting. (c) N.A. (d) Raws 3' apart.

2. TREATMENTS:
   All combinations of (1) and (2)+a control (no manure).
   (1) 2 methods of application of P₂O₅: M₁=broadcast and M₂=applied in furrows 3"-4" deep.
   (2) 2 levels of Super : S₁=60 and S₂=120 lb./ac. of P₂O₅.

3. DESIGN:
   (i), (ii) R.B.D. with 5 replications (iii) (a) and (b) 66' x 15'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and yield of sugarcane.  (iv) (a) 1950-1952. (b) N.A. (c) N.A. (d) Nil. (e) N.A. (f) N.A. (g) N.A. (h) The experiment was conducted by D.S.R.(M) on cultivator's field.

5. RESULTS:
   (i) 10.02 ton/ac.
   (ii) 0.748 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>9.89</td>
<td>9.32</td>
<td>9.60</td>
</tr>
<tr>
<td>S₂</td>
<td>9.32</td>
<td>11.15</td>
<td>10.24</td>
</tr>
<tr>
<td>Mean</td>
<td>9.60</td>
<td>10.24</td>
<td>9.92</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean  = 0.529 ton/ac.
S.E. of body of table  = 0.748 ton/ac.

Crop :-Sugarcane.  
Zone :-Simbhaoli (Meerut).

Object :-To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Clay loam. (iii) N.A. (iv) CO-421 (Improved). (v) (a) and
   (b) N.A. (c) 66, three budded/setts row. (d) N.A. (e) —. (vi) 7.3.1950. (vii) N.A. (viii) N.A. (ix) N.A.
   (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)+a control (no manure).
   (1) 2 methods of application of P₂O₅: M₁=broadcast and M₂=applied in furrows 3'-4' deep.
   (2) 2 levels of Super : S₁=60 and S₂=120 lb./ac. of P₂O₅.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications (iii) (a) 64' x 27'. (b) 58' x 21'. (iv) N.A.
4. GENERAL:
(i) N.A.  (ii) N.A. (iii) Germination, tillers and yield of sugarcane.  (iv) (a) 1950—1951. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivators' field.

5. RESULTS:
(i) 31.77 ton/ac.
(ii) 2.00 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.  

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>32.02</td>
<td>30.95</td>
<td>31.48</td>
</tr>
<tr>
<td>S₂</td>
<td>33.09</td>
<td>32.02</td>
<td>32.56</td>
</tr>
<tr>
<td>Mean</td>
<td>32.56</td>
<td>31.48</td>
<td>32.02</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.707 ton/ac.
S.E. of body of table = 1.000 ton/ac.

Crop :-Sugarcane.
Zone :-Simbhaoli (Meerut).
Object :-To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Fallow.  (c) No.  (ii) Loam.  (iii) N.A.  (iv) CO-421 (improved).  (v) (a) Ploughing by Punjab plough on 3.8.1950., by Praza plough on 16.9.1950., 9 by desi plough and 1 pata. 3 hoeings by cultivator.  (b) Planting behind the plough by flat system of planting.  (c) 49 setts/row or 1323 buds/plot.  
(d) N.A.  (e) —.  (vi) 25.2.1951. (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 21 to 25.2.1952.

2. TREATMENTS:
All combinations of (1) and (2) + a control (no manure).
(1) 2 methods of application of P₂O₅ : M₁ = broadcast and M₂ = applied in furrows 3"—4" deep.
(2) 2 levels of Super : S₁ =60 and S₂ =120 lb./ac. of P₂O₅.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications.  (iii) (a) 47'X27'.  (b) 41'X21'.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A. (iii) Germination, tillers and sugarcane yield.  (iv) (a) 1950—1951. (b) N.A. (c) N.A. (v) N.A.  (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivators' field.

5. RESULTS:
(i) 29.90 ton/ac.
(ii) 1.176 ton/ac.
(iii) Main effect of M and 'control vs treated' are significant while interaction M X S is highly significant.
(iv) Av. yield of sugarcane in ton/ac.  

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>28.22</td>
<td>31.94</td>
<td>30.08</td>
</tr>
<tr>
<td>S₂</td>
<td>30.78</td>
<td>30.08</td>
<td>30.43</td>
</tr>
<tr>
<td>Mean</td>
<td>29.50</td>
<td>31.01</td>
<td>30.26</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.831 ton/ac.
S.E. of body of table = 1.176 ton/ac.
Crop: Sugarcane.  
Zone: Hastinapur (Meerut).  
Object: To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Paddy.  (c) N.A.  (ii) Loam.  (iii) N.A.  (iv) CO. 421.  (v) (a) Preparation of layout on  
   3, 4.3.1951.  (b) Flat system of planting.  (c) 1728 buds/plot.  (d) Rows 3' apart,.  (e) -.  (vi) 5, 6.3.1951.  (vii)  
   N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)+a control (no manure)  
   (1) 2 methods of application of P₂O₅: M₁=broadcast and M₂=applied in furrows 3"—4" deep.  
   (2) 2 levels of Super: S₁=60 and S₂=120 Ib./ac. of P₂O₅.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications.  (iii) (a) 64'×27'.  (b) 58'×21'.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Germination, tillers, and sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  
   (vi) Nil.  (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
   (i) 23.91 ton/ac.  
   (ii) 2.889 ton/ac.  
   (iii) None of the effects is significant.  
   (iv) Av. yield of sugarcane in ton/ac.

   Control = 24.14 ton/ac.

   \[
   \begin{array}{ccc}
   & M_1 & M_2 & \text{Mean} \\
   S_1 & 23.87 & 25.15 & 24.51 \\
   S_2 & 23.70 & 22.69 & 23.19 \\
   \text{Mean} & 23.78 & 23.92 & 23.85 \\
   \end{array}
   \]

   S.E. of any marginal mean =2.043 ton/ac.
   S.E. of body of table =2.889 ton/ac.
4. GENERAL:
(i) N.A. (ii) Striping from 9 to 10.8.1952 to remove pyrilla affected leaves. (iii) Germination, tillers, millable cane and yield of sugarcane. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 26.99 ton/ac.
(ii) 2.961 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Control</th>
<th>M1</th>
<th>M2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25.51</td>
<td>23.20</td>
<td>28.65</td>
<td>25.92</td>
</tr>
<tr>
<td>S1</td>
<td></td>
<td>29.52</td>
<td>23.56</td>
<td>26.54</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>26.36</td>
<td>26.10</td>
<td>26.23</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 2.094 ton/ac.
S.E. of body of table = 2.961 ton/ac.

Crop :- Sugarcane.
Zone :- Simbhaoli (Meerut).
Object :- To study the response of Super in combination with green manures.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M.. (c) As per treatments. (ii) Loam. (iii) As per treatments. (iv) CO. 421 (improved). (v) (a) 11 ploughings by desi plough. 3 hoeings by cultivator and 1 hoeing by spade. (b) Flat system of planting. (c) 60, three budded setts/row or 1800 buds/plot. (d) N.A. (e) —. (vi) 25.2.1951. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1 to 8.4.1952.

2. TREATMENTS:
1. Sanai G.M. (control).
2. Super at 60 lb./ac. of P2O5 broadcast at the time of sowing of sanai.
3. Super at 60 lb./ac. of P2O5 applied at the time of ploughing in of sanai.
Sanai sown at 1 md./ac. on 6.7.1950 by desi plough. Application of P2O5 and ploughing in of sanai on 30.8.1950 by Punjab plough.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) 58' x 30'. (b) 52' x 24'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 31.52 ton/ac.
(ii) 1.109 ton/ac.
(iii) Treatment effects are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30.69</td>
</tr>
<tr>
<td>2</td>
<td>32.29</td>
</tr>
<tr>
<td>3</td>
<td>31.57</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.554 ton/ac.</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.  
Zone: Daurala (Meerut).  
Object: To study the response of Super with green manures.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Control (sanai).
   2. 60 lb./ac. of P₂O₅ broadcast at sowing time of sanai.
   3. 60 lb./ac. of P₂O₅ spread at the time of turning of sanai.

Sowing of sanai on 5.7.1952 and turning of sanai on 6.9.1952.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications.  (iii) (a) 60' x 22'.  (b) 54' x 16'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A.  (iii) Tillers, millable cane and sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
   (i) 20.90 ton/ac.
   (ii) 3.739 ton/ac.
   (iii) Treatment effects are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.02</td>
<td>1.526 ton/ac.</td>
</tr>
<tr>
<td>2.</td>
<td>21.58</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>20.09</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Sugarcane  
Zone: Modinagar (Meerut).  
Object: To study the comparative effects of different G.M. with different leguminous crops on Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) As per treatments.  (c) No.  (ii) N.A.  (iii) N.A.  (iv) N.A.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. Fallow (control).
   2. Guar as G.M.
   3. Lobia.
   4. Pea.
   5. Metha.
   8. Guar for fodder.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications.  (iii) (a) and (b) 7' x 30'. (iv) N.A.
4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The expt. was conducted by D.S.R(M) on cultivators' field.

5. RESULTS:
(i) 32.25 ton/ac.
(ii) 1.277 ton/ac.
(iii) Treatment effects are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>36.01</td>
</tr>
<tr>
<td>2.</td>
<td>34.49</td>
</tr>
<tr>
<td>3.</td>
<td>28.65</td>
</tr>
<tr>
<td>4.</td>
<td>28.25</td>
</tr>
<tr>
<td>5.</td>
<td>29.52</td>
</tr>
<tr>
<td>6.</td>
<td>37.59</td>
</tr>
<tr>
<td>7.</td>
<td>31.26</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.639 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Simbhaoli (Meerut.)
Object :- To study the comparative utility of G. M. to Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) As per treatments. (c) No.  (ii) Clay loam.  (iii) Nil.  (iv) CO. 421. improved. (v) (a) and (b) N.A.  (c) 83, three budded setts/rows. (d) N.A.  (e) 14.2.1950.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
1. Control (Fallow).
2. Guar as fodder.
3. Lokia.
4. Guar as G.M.
5. Dhaincha.

3. DESIGN:
(i) (ii) R.B.D. with 4 replications.  (iii) (a) 81’x27’. (b) 75’x21’.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950—1952.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The expt. was conducted by D.S.R(M) on cultivator's field.

5. RESULTS:
(i) 27.33 ton/ac.
(ii) 2.686 ton/ac.
(iii) Treatment effects are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>24.80</td>
</tr>
<tr>
<td>2.</td>
<td>28.18</td>
</tr>
<tr>
<td>3.</td>
<td>26.03</td>
</tr>
<tr>
<td>4.</td>
<td>31.54</td>
</tr>
<tr>
<td>5.</td>
<td>26.03</td>
</tr>
<tr>
<td>6.</td>
<td>27.37</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.343 ton/ac.</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.
Zone: Simbhaoli (Meerut).

Ref: U.P. 51(199)/50(215).
Type: 'M'.

Object: To study the comparative utility of different G.M. to Sugarcane.

1. BASAL CONDITIONS:


2. TREATMENTS:

1. Control (fallow).
2. Dhaincha.
3. Sanai.
4. Guar as G.M.
5. Lobia.
6. Guar as green fodder.

Sowing of G.M. on 7.7.1950 by desi plough and ploughing in of G.M. on 29.8.1950 by desi plough.

3. DESIGN:

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 64' × 27'. (b) 58' × 21'. (iv) N.A.

4. GENERAL:

(i) and (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) 1950—1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivators' field.

5. RESULTS:

(i) 29.20 ton/ac.
(ii) 2.601 ton/ac.
(iii) Treatment effects are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.29</td>
</tr>
<tr>
<td>2.</td>
<td>30.54</td>
</tr>
<tr>
<td>3.</td>
<td>33.25</td>
</tr>
<tr>
<td>4.</td>
<td>32.27</td>
</tr>
<tr>
<td>5.</td>
<td>27.26</td>
</tr>
<tr>
<td>6.</td>
<td>26.60</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.301 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Zone: Simbhaoli (Meerut).

Ref: U.P. 52(281)/51(199)/50(215).
Type: 'M'.

Object: To study the comparative utility of G.M.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) G.N.C. at 45 lb./ac. of N on 9.6.1952 and A/S at 15 lb./ac. of N on 28.6.1952. (iv) Improved. (v) (a) Ploughing by praja plough on 13.9.1951. Ploughing by desi plough on 20, 28.9.1952, 6, 15, 26.10.1950 and 12.11.1952. Ploughing, planking and hoeing by spade on 6.5.1952, 3 times by desi plough and pata on 13 to 15.2.1952. Hoeing by kassi on 20.3.1952. Hoeing by M.C. cultivator on 17.4.1952. (b) Flat system of planting in furrows. (c) 73 three budded setts/row; 584 setts three budded/plot. (d) 3' apart. (e) —. (vi) 16.2.1952. (vii) Irrigated. (viii) and (ix) N.A. (x) 9 to 11.3.1953.
2. TREATMENTS:
1. Control
2. Dhaincha
3. Sanai
4. Guar as G.M.
5. Lobia
6. Guar as fodder.
Sown on 4.7.1952 by broadcasting. Date of turning is not available.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'×24'. (b) 67'×18'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950-1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 31.65 ton/ac.
(ii) 1.05 ton/ac.
(iii) Treatment effects are highly significant.
(iv) Av. yield of sugarcane in ton/ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28.78</td>
</tr>
<tr>
<td>2.</td>
<td>30.10</td>
</tr>
<tr>
<td>3.</td>
<td>34.50</td>
</tr>
<tr>
<td>4.</td>
<td>33.09</td>
</tr>
<tr>
<td>5.</td>
<td>31.84</td>
</tr>
<tr>
<td>6.</td>
<td>31.60</td>
</tr>
</tbody>
</table>
S.E./mean = 0.525 ton/ac.

Crop :-Sugarcane.
Zone :-Daurala (Meerut).
Object :-To study the comparative utility of G.M.
Ref :-U.P. 50(216).
Type :-'M'.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) As per treatments. (c) No. (ii) Loam. (iii) Nil. (iv) CO. S. 245 improved. (v) (a) and (b) N.A. (c) 77, three budded setts/row. (d) N.A. (e) --. (vi) 8.3.1950. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (fallow).
2. Dhaincha as G.M.
3. Guar for G.M.
5. Sanai as G.M.
6. Lobia as G.M.

3. DESIGN:
(i) and (ii) F.B.D. with 4 replications (iii) (a) 81'×27'. (b) 75'×21'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) 1950-1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 14.42 ton/ac.
(ii) 1.47 ton/ac.
(iii) Treatment effects are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10.95</td>
</tr>
<tr>
<td>2.</td>
<td>15.47</td>
</tr>
<tr>
<td>3.</td>
<td>17.11</td>
</tr>
<tr>
<td>4.</td>
<td>13.92</td>
</tr>
<tr>
<td>5.</td>
<td>16.75</td>
</tr>
<tr>
<td>6.</td>
<td>12.33</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.735 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.  
Zone: Daurala (Meerut).

Object: To study the comparative utility of G.M.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) Nil. (ii) Sandy Loam. (iii) Manuring of 100 md. Okhla sluge on 30.3.1953. and manuring 24 md. G.N. on 3.5.1953. (iv) CO-S. 321 Improved. (v) (a) Turning in of G.M. on 17.8.1952 by tractor. Ploughing by tractor on 5.12.1952; ploughing by desi plough on 8 and 24.12.1952. Making of trenches on 14 to 18.1.1952 by tractor. Spade hoeing of trenches on 29, 30.1.1953. (b) Trench planted. (c) 77 two budded setts/row or 616 two budded setts/plot. (d) Row 3\frac{1}{2} apart. (e) —. (vi) 4.2.1952. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Fallow.  
   2. Guar as G.M.  
   3. Guar for seed.  
   4. Sanai.  
   5. Dhaincha.  

3. DESIGN:
   (i), (ii) L. Sq. with 6 replications. (iii) (a) 55'x26.4'. (b) 49'x20.4'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1950—1953. (b) and (c) N.A. (v) N.A. (vi) Experiment in 1951 vitiated and in 1952 it was not conducted. (vii) The ext. was conducted by D.S.R.(M) on cultivator's field.

5. RESULTS:
   (i) 25.85 ton/ac.  
   (ii) 2.728 ton/ac.  
   (iii) 'Treatment effects are highly significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>29.46</td>
</tr>
<tr>
<td>2.</td>
<td>23.29</td>
</tr>
<tr>
<td>3.</td>
<td>24.61</td>
</tr>
<tr>
<td>4.</td>
<td>27.90</td>
</tr>
<tr>
<td>5.</td>
<td>24.56</td>
</tr>
<tr>
<td>6.</td>
<td>25.27</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.114 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Zone :-Bilari (Moradabad).  
Object :-To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M. (c) No. (ii) Loam. (b) Sanai as G.M. top dressing of A/S 2 md. on 14.7.1949. (iv) CO-527 (early) (improved). (v) (a) Ploughings by victory plough on 17.8.1949 ; four ploughings by Athens harrow (tractor) and one by M.C. cultivator on 4.3.1949. (b) Flat planting. (c) 1752 buds/plot. (d) 3' distance in lines. (e) —. (vi) 3.3.1949. (vii) Irrigated. (viii) Hoeings by Cawnpore cultivator and kassi. (ix) 39.8°. (x) 9 to 11.1.1950.

2. TREATMENTS:
1. No P₂O₅.
2. 60 lb./ac. of P₂O₅ broadcast at planting time.
3. 60 lb./ac. of P₂O₅ in furrows 3'-4' deep at planting time. P₂O₅ as Super.

3. DESIGN:
(i), (ii) R.B.D. with 6 replications. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination and yield of sugarcane. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. Yield of treatment 2 missing in replication 5 and was estimated. (vii) The experiment was conducted by D.S.R. (S) on cultivator's field.

5. RESULTS:
(i) 18.63 ton/ac.
(ii) 1.143 ton/ac.
(iii) Treatment effects are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
<th>S.E. of the difference between the mean of (2) and (1) or (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.87</td>
<td>=0.467 ton/ac.</td>
<td>=0.62 ton/ac.</td>
</tr>
<tr>
<td>2.</td>
<td>20.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>18.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Crop :- Sugarcane.  
Zone :- Bilari (Moradabad).  
Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow after Sanai G.M. (c) No. (ii) Loam. (iii) Sanai (G.M.) ; as per treatments. (iv) CO-527 (early) (improved). (v) (a) Victory plough twice from July to last week of February 1948 ; ploughings by Gurbur plough and desi plough (twice) after rains on 12 and 13.2.1948. (b) Flat planted by desi plough. (c) 1755 buds/plot. (d) Rows 3' apart(e) —. (vi) 15.3.1948. (vii) Irrigated. (viii) Hoeings by M.C. cultivator on 12.4.1948 ; 15.5.1948 ; Hoeing by kassi on 30.6.1948. (ix) 39.8°. (x) N.A.

2. TREATMENTS:
1. No P₂O₅.
2. 40 lb./ac. of P₂O₅ in furrows 3'-4' deep.
3. 80 lb./ac. of P₂O₅ in furrows 3'-4' deep.

Treatment applied on 13.8.1948.

3. DESIGN:
(i), (ii) R.B.D. with 6 replications. (iii) (a) 64' × 27'. (b) N.A. (iv) N.A.
4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination and yield of sugarcane. (iv) (v) No. (b) N.A. (c) N.A. (v) N.A. (vi) N.A. (vii) Plot wise data was not available. (viii) The experiment was conducted by D.S.R.(S)on cultivator’s field.

5. RESULTS:
   (i) 21.68 ton/ac.
   (ii) N.A.
   (iii) Treatment effects are significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.73</td>
</tr>
<tr>
<td>2.</td>
<td>22.02</td>
</tr>
<tr>
<td>3.</td>
<td>23.28</td>
</tr>
</tbody>
</table>

S.E./mean = N.A.

Crop: Sugarcane.
Zone: Shamli (Muzaffarnagar).

Object: To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) No. (ii) Loam. (iii) Sanai. (iv) COS-245 (improved). (v) (a) and (b) N.A. (c) 66, three budded setts/plot. (d) and (e) N.A. (vi) 12.3.1950. (vii) to (ix) N.A. (x) 1 to 6.2.1951.

2. TREATMENTS:
   All combinations of (1) and (2) + a control (no manure).
   (1) 2 methods of application: M1 = broadcast and M2 = applied 3”-4” deep in furrows.
   (2) 2 levels of P2O5 as Super: P1=60 and P2=120 lb./ac. of P2O5.

3. DESIGN:
   (i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) 64’×27’ (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950—1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator’s field.

5. RESULTS:
   (i) 20.33 ton/ac.
   (ii) 0.663 ton/ac.
   (iii) Main effect of P, interaction M×P, control vs. treated effects are highly significant. Main effect of M is not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>17.80</td>
<td>20.70</td>
<td>19.25</td>
</tr>
<tr>
<td>P2</td>
<td>24.82</td>
<td>21.58</td>
<td>23.20</td>
</tr>
</tbody>
</table>

Mean = 21.22

S.E. of any marginal mean = 0.210 ton/ac.
S.E. of body of table = 0.297 ton/ac.
Crop :- Sugarcane.  
Zone :- Shamli (Muzaffarnagar).  

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

2. TREATMENTS:
All combinations of (1) and (2) + a control (no manure)
(1) 2 methods of application : $M_1 =$broadcast and $M_2 =$applied 3"—4" deep in furrows.
(2) 2 levels of $P_6O_5$ as Super : $P_1 =$60 and $P_2 =$120 lb./ac. of $P_6O_5$.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications.  (iii) (a) 73' x 21'.  (b) 67' x 15'.  (iv) N.A.

4. GENERAL:
(i) and (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) 1950—1952.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 24.21 ton/ac.  
(ii) 1.123 ton/ac.
(iii) Main effects of $P$, $M$ and control vs. treated are highly significant, The interaction $M \times P$ is not significant.
(iv) Av. yield of sugarcane in ton/ac.

\[
\begin{array}{ccc}
\text{Control} = 21.07 \text{ ton/ac.} \\
\text{M}_1 & \text{M}_2 & \text{Mean} \\
P_1 & 25.22 & 22.82 & 24.02 \\
P_2 & 26.39 & 25.57 & 25.98 \\
\text{Mean} & 25.80 & 24.20 & 25.00 \\
\end{array}
\]

S.E. of any marginal mean = 0.324 ton/ac.
S.E. of body of table = 0.459 ton/ac.

Crop :- Sugarcane  
Zone :- Shamli (Muzaffarnagar).  

Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
2. **TREATMENTS:**
   All combinations of (1) and (2)+ a control (no manure).
   (1) 2 methods of application: 
   \( M_1 = \text{manure broadcast} \)
   \( M_2 = \text{manure applied 3'-4' deep in furrows} \)
   (2) 2 levels of \( P_2O_5 \) as Super: 
   \( P_1 = 60 \) and \( P_2 = 120 \) lb./ac. of \( P_2O_5 \).

3. **DESIGN:**
   (i) and (ii) R.B.D. with 6 replications.  (iii) (a) 66' \times 24'.  (b) 60' \times 18'.  (iv) N.A.

4. **GENERAL:**
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) 1950–1952.  (b) N.A. (c) N.A.  (x) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. **RESULTS:**
   (i) 25.05 ton/ac.
   (ii) 0.671 ton/ac.
   (iii) The interaction \( M \times P \) and control vs. treated are significant.  Others are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   
   \[
   \begin{array}{c|cc|c}
   & M_1 & M_2 & \text{Mean} \\
   \hline
   P_1 & 24.67 & 25.56 & 25.12 \\
   P_2 & 25.51 & 24.98 & 25.24 \\
   \text{Mean} & 25.09 & 25.27 & 25.18 \\
   \end{array}
   \]
   S.E. of any marginal mean = 0.194 ton/ac.
   S.E. of body of table = 0.274 ton/ac.

---

Crop : Sugarcane.
Zone : Shamli (Muzaffarnagar).
Object : To study the response of Super in combination with green manure (*Sanai*).

Ref : U.P. 52(265).
Type : 'M'.

1. **BASAL CONDITIONS** :

2. **TREATMENTS**:
   1. *Sanai* (control).
   2. 60 lb./ac. of \( P_2O_5 \) broadcast at sowing time of *sanai*.
   3. 60 lb./ac. of \( P_2O_5 \) spread over the crop of *sanai* at the time of ploughing of *sanai*.

3. **DESIGN**:
   (i) R.B.D. with 4 replications.  (ii) N.A.  (iii) (a) 58' \times 21'.  (b) 52' \times 15'.  (iv) N.A.

4. **GENERAL**:
   (i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) No. (b) N.A. (c) N.A.  (x) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. **RESULTS**:
   (i) 25.54 ton/ac.
   (ii) 1.064 ton/ac.
   (iii) Treatment differences are significant.
Crop :- Sugarcane.  
Zone :- Khatauli (Muzaffarnagar).  
Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control.
2. Super at 40 lb./ac. of P₂O₅ in furrows 3”-4” deep.
3. Super at 80 lb./ac. of P₂O₅ in furrows 3”-4” deep. P₂O₅ applied at tillering time.

3. DESIGN:
(i) and (ii) R.B.D., with 6 replications. (iii) (a) N.A. (b) 64’x27’. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator’s field.

5. RESULTS:
(i) 29.53 ton/ac.
(ii) 0.809 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>27.86</td>
</tr>
<tr>
<td>2.</td>
<td>29.63</td>
</tr>
<tr>
<td>3.</td>
<td>31.10</td>
</tr>
</tbody>
</table>

S.E./mean =0.330 ton/ac.

---

Crop :- Sugarcane.  
Zone :- Shamli (Muzaffarnagar).  
Object :- To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. No Super (control).
2. 40 lb./ac. of P₂O₅ as Super in furrows 3”-4” deep.
3. 80 lb./ac. of P₂O₅ as Super in furrows 3”-4” deep. Super applied at tillering time.

3. DESIGN:
(i) and (ii) R.B.D., with 6 replications. (iii) (a) N.A. (b) 60’x24’. (iv) N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 35.57 ton/ac.
(ii) 1.277 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>27.55</td>
</tr>
<tr>
<td>2.</td>
<td>37.59</td>
</tr>
<tr>
<td>3.</td>
<td>41.58</td>
</tr>
</tbody>
</table>

S.E./mean = 0.521 ton/ac.

Crop: Sugarcane.  
Zone: Mansurpur (Muzaffarnagar).  
Type: 'M'.

Object: To study the comparative effect of different G.M. on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 245 (improved). (v) (a) N.A. (b) Flat stem. (c) 32, three budded setts/row or 768, three budded setts/plot. (d) Rows 3' apart. (e) 8.3.1953. (vii) N.A. (viii) N.A. (ix) N.A. (x) 25.2.1954 to 28.2.1954.

2. TREATMENTS:
1. Fallow.
2. *Lobia* green manure.
5. *Sanai*.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications. (iii) (a) 73'x30'. (b) 67'x24'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 31.70 ton/ac.
(ii) 4.732 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.49</td>
</tr>
<tr>
<td>2.</td>
<td>30.88</td>
</tr>
<tr>
<td>3.</td>
<td>33.24</td>
</tr>
<tr>
<td>4.</td>
<td>34.28</td>
</tr>
<tr>
<td>5.</td>
<td>35.32</td>
</tr>
<tr>
<td>6.</td>
<td>29.97</td>
</tr>
</tbody>
</table>

S.E./mean = 1.932 ton/ac.
Crop : Sugarcane.  
Zone :- Rohana Kalan (Muzaffarnagar).  
Object :- To find out the effect of N and P₂O₅ alone and in combination on the yield of Sugarcane.

1. **BASAL CONDITIONS** :
   (i) (a) to (c) N.A.  
   (ii) *Dakar*—heavy clay loam, (type IV) pH for the zone 5.95.  
   (iii) Nil.  
   (iv) Improved.  
   (v) (a) to (c) N.A.  
   (vi) 22.3.1949.  
   (vii) Irrigated.  
   (viii) N.A.  
   (ix) N.A.  
   (x) 16 to 18.2.1950.

2. **TREATMENTS** :
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N₀=0, N₁=60 and N₂=120 lb./ac. of N.
   (2) 3 levels of P₂O₅ as Super: P₀=0, P₁=40 and P₂=80 lb./ac.

3. **DESIGN** :
   (i) and (ii) 3x3 Fact. in R.B.D. with 4 replications.  
   (iii) (a) and (b) 50'x18'.  
   (iv) N.A.

4. **GENERAL** :
   (i) and (ii) N.A.  
   (iii) Tillers and sugarcane yield.  
   (iv) (a) No.  
   (b) and (c) N.A.  
   (v) N.A.  
   (vi) Nil.  
   (vii) The experiment was conducted by D.S.R.(M) on cultivator's field.

5. **RESULTS** :
   (i) 17.84 ton/ac.  
   (ii) 2.08 ton/ac.  
   (iii) Only main effect of N is highly significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>15.56</td>
<td>14.28</td>
<td>15.82</td>
<td>15.22</td>
</tr>
<tr>
<td>N₁</td>
<td>18.78</td>
<td>18.43</td>
<td>18.53</td>
<td>18.58</td>
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<tr>
<td>N₂</td>
<td>20.06</td>
<td>20.33</td>
<td>18.74</td>
<td>19.71</td>
</tr>
<tr>
<td>Mean</td>
<td>18.13</td>
<td>17.68</td>
<td>17.70</td>
<td>17.84</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =0.491 ton/ac.  
S.E. of body of table =0.850 ton/ac.

---

Crop : Sugarcane.  
Zone :- Mansurpur (Muzaffarnagar).  
Object :- To study the comparative effect of green manures on Sugarcane.

1. **BASAL CONDITIONS** :
   (i) (a) N.A.  
   (b) As per treatments.  
   (c) Loam.  
   (ii) Nil.  
   (iv) CO-421 (improved).  
   (v) (a) 92 three budded setts/rcw.  
   (b) and (c) N.A.  
   (vi) 8.3.1950.  
   (vii) to (ix) N.A.  
   (x) N.A.

2. **TREATMENTS** :
   1. Fallow (control).
   2. *Sanai* as G.M.
   3. *Guar* as G.M.
   4. *Dhaincha* as G.M.
   5. *Lobia* as G.M.
   6. *Guar* removed for fodder with roots left and supplemented by F.Y.M. at 50 md./ac.

3. **DESIGN** :
   (i) and (ii) R.B.D. with 4 replications.  
   (iii) (a) 90'x31½'.  
   (b) 84'x25½'.  
   (iv) N.A.
4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivator’s field.

5. RESULTS:
(i) 15.86 ton/ac.
(ii) 0.127 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13.94</td>
</tr>
<tr>
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<td>16.97</td>
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<td>5</td>
<td>16.90</td>
</tr>
<tr>
<td>6</td>
<td>15.15</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.064 ton/ac.</td>
</tr>
</tbody>
</table>

Crop := Sugarcane.
Zone := Mansurpur (Muzaffarnagar).
Ref := U.P. 51(200)50/(217).
Type := ‘M’.

Object := To study the comparative effect of different green manures on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) As per treatments. (c) N.A. (iv) CO-421 (improved).
(ii) Sandy loam. (iii) N.A. (v) N.A. (vi) Flat system of planting. (c) 55 three budded setts/row or 1155 buds/plot. (d) N.A.
(e) Nil. (vii) to (x) N.A.

2. TREATMENTS:
1. Fallow.
2. Dhaincha.
3. Sanai.
5. Guar for G.M.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) 53’ X 24½’. (b) 47’ X 18½’. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) 1950–1953. (but experiment not conducted in 1952). (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator’s field.

5. RESULTS:
(i) 12.61 ton/ac.
(ii) 3.615 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.66</td>
</tr>
<tr>
<td>2</td>
<td>10.90</td>
</tr>
<tr>
<td>3</td>
<td>13.86</td>
</tr>
<tr>
<td>4</td>
<td>13.12</td>
</tr>
<tr>
<td>5</td>
<td>13.17</td>
</tr>
<tr>
<td>6</td>
<td>14.95</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 1.808 ton/ac.</td>
</tr>
</tbody>
</table>
Object :- To find out the effect of N and P\textsubscript{2}O\textsubscript{5} alone and in combinations on the yield of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Domat—Loamy soil (type IV) medium in texture, light grey to yellowish grey in colour. Average pH=6.61. (iii) Nil. (iv) Improved. (v) (a) to (e) N.A. (vi) 20.3.1949. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 26.2.1950 to 8.3.1950.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S: N\textsubscript{0}=0, N\textsubscript{1}=60 and N\textsubscript{2}=120 lb./ac. of N.
   (2) 3 levels of P\textsubscript{2}O\textsubscript{5} as Super : P\textsubscript{0}=0, P\textsubscript{1}=40 and P\textsubscript{2}=80 lb./ac. of P\textsubscript{2}O\textsubscript{5}.

3. DESIGN:
   (i), (ii) 3x3 Fact. in R.B.D. with 6 replications. (iii) (a) and (b) 51’ x21’. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Tillers and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R. (M) on cultivator’s field.

5. RESULTS:
   (i) 31.07 ton/ac.
   (ii) 5.476 ton/ac.
   (iii) Only main effect N is highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P\textsubscript{0}</th>
<th>P\textsubscript{1}</th>
<th>P\textsubscript{2}</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N\textsubscript{0}</td>
<td>24.40</td>
<td>24.23</td>
<td>24.97</td>
<td>24.53</td>
</tr>
<tr>
<td>N\textsubscript{1}</td>
<td>29.05</td>
<td>30.43</td>
<td>31.84</td>
<td>30.44</td>
</tr>
<tr>
<td>N\textsubscript{2}</td>
<td>35.21</td>
<td>35.28</td>
<td>44.27</td>
<td>38.25</td>
</tr>
<tr>
<td>Mean</td>
<td>29.55</td>
<td>29.98</td>
<td>33.69</td>
<td>31.07</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.291 ton/ac.
S.E. of body of table = 2.236 ton/ac.

Crop :- Sugarcane.  Ref :- U.P. 49(176).
Zone :- Shamly (Muzaffarnagar)  Type :- ’M’.

Object :- To find out the effect of N and P\textsubscript{2}O\textsubscript{5} alone and in combinations on the yield of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Rasili—Sandy loam (type IV) pH=7.4, moisture=0.85%, coarse sand=0.87%, fine sand=54.41 %, silt=27.08% and clay=14.21%. (iii) Nil. (iv) Improved. (v) (a) to (e) N.A. (vi) 23.3.1949. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of N as A/S : N\textsubscript{0}=0, N\textsubscript{1}=60 and N\textsubscript{2}=120 lb./ac. of N,
   (2) 3 levels of P\textsubscript{2}O\textsubscript{5} as Super : P\textsubscript{0}=0, P\textsubscript{1}=40 and P\textsubscript{2}=80 lb./ac. of P\textsubscript{2}O\textsubscript{5}.

3. DESIGN:
   (i), (ii) 3x3 Fact. in R.B.D. 3 replications. (iii) (a) and (b) 50’x18’. (iv) N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tillers and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 32.40 ton/ac.
(ii) 5.406 ton/ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>28.44</td>
<td>24.29</td>
<td>30.56</td>
<td>27.76</td>
</tr>
<tr>
<td>N₁</td>
<td>30.29</td>
<td>32.79</td>
<td>31.97</td>
<td>31.68</td>
</tr>
<tr>
<td>N₂</td>
<td>33.78</td>
<td>38.18</td>
<td>41.33</td>
<td>37.76</td>
</tr>
</tbody>
</table>

Mean 30.84 31.75 34.62 32.40
S.E. of any marginal mean =1.274 ton/ac.
S.E. of body of table =2.207 ton/ac.

Crop :- Sugarcane.
Zone :- Khatuali (Muzaffarnagar).
Object :- To find out the effect of N and P₂O₅ alone and in combination on the yield of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Rausri clay loam, (type IV). (iii) Nil. (iv) Improved. (v) (a) to (e) N.A. (vi) 19.3.1949. (vii) to (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 levels of N as A/S: N₀=0, N₁=60 and N₂=120 lb./ac. of N.
(2) 3 levels of P₂O₅ as Super: P₀=0, P₁=40 and P₂=80 lb./ac. of P₂O₅.

3. DESIGN:
(i) and (ii) 3x3 Fact. in R.B.D. with 6 replications. (iii) (a) and (b) 51' x 21'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Tillers and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator's field.

5. RESULTS:
(i) 36.60 ton/ac.
(ii) 4.517 ton/ac.
(iii) Only N effect is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>30.55</td>
<td>32.80</td>
<td>32.37</td>
<td>31.91</td>
</tr>
<tr>
<td>N₁</td>
<td>36.87</td>
<td>36.81</td>
<td>37.03</td>
<td>36.90</td>
</tr>
<tr>
<td>N₂</td>
<td>41.79</td>
<td>39.67</td>
<td>41.54</td>
<td>41.00</td>
</tr>
</tbody>
</table>

Mean 36.40 36.43 36.98 36.60
S.E. of any marginal mean =1.065 ton/ac.
S.E. of body of table =1.844 ton/ac.
Crop:- Sugarcane. 
Zone:- Kichha (Nainital).

Object—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. Control (no manure).
2. 60 lb./ac. of P F broadcast before planting.
3. 60 lb./ac. of P F applied 3'-4' deep in furrows before planting.
Manuring on 25.3.1950.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60' x 24'. (b) 54' x 18'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) 1950—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S). on cultivators' field.

5. RESULTS:
(i) 29.26 ton/ac.
(ii) 2.28 ton/ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.34</td>
</tr>
<tr>
<td>2.</td>
<td>31.04</td>
</tr>
<tr>
<td>3.</td>
<td>30.39</td>
</tr>
</tbody>
</table>

S.E./mean = 0.93 ton/ac.

---

Crop:- Sugarcane. 
Zone:- Kichha (Nainital).

Object—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M. (c) N.A. (ii) Clay loam. (iii) F.Y.M. at 50 lb./ac. of N on 11.1.1951. (iv) CO. 453. (v) (a) Ploughing by desti plough on 26, 27.12.1950. Ploughing by harrow on 25.2.1951, and 26.2.1951. (twice). Ploughing on 1.3.1951 and one by pata on 28.3.1951. 4 hoeing by kasti on 10.4.1951, 30.4.1951, and 1.5.1951 and 25.5.1951. by cultivator on 17.5.1951. (b) 1 lat planting. (c) 1752 buds/plot. (d) N.A. (e) —. (vi) 13.3.1951. (vii) Irrigated. (viii) N.A. (ix) 50'. (x) 6.7.1952.

2. TREATMENTS:
1. Control (no manure).
2. 60 lb./ac. of P F broadcast before planting.
3. 60 lb./ac. P F applied 3'-4' deep in furrows before planting.
Manure applied on 13.3.1951.

3. DESIGN:
(i) and (ii) R.B.D., with 6 replications (iii) (a) 73' x 24'. (b) 67' x 18'. (iv) N.A.
4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination % and sugarcane yield.  (iv) (a) 1950—1951.  (b) N.A.  (c) N.A.
(v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (S) on cultivator's field.

5. RESULTS:
(i) 35.75 ton/ac.
(ii) 8.62 ton/ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>34.40</td>
<td>3.51 ton/ac.</td>
</tr>
<tr>
<td>2.</td>
<td>36.65</td>
<td>3.51 ton/ac.</td>
</tr>
<tr>
<td>3.</td>
<td>36.19</td>
<td>3.51 ton/ac.</td>
</tr>
</tbody>
</table>

Crop : Sugarcane.
Zone : (Nainital).
Object : To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Dhaincha as G.M.  (c) No.  (ii) Clay loam.  (iii) G.N.C. at 40 lb./ac. of N on 9.2.1952.  A/S top dressing at 45 lb./ac. of N Dhaincha turned in on 14.6.1952 and G.N.C. at 40 lb./ac. on 21.5.1952.

2. TREATMENTS:
1. Control (no manure).
2. 120 lb./ac. of P₂O₅ broadcast before planting.
3. 120 lb./ac. of P₂O₅ applied at 3”—4” deep before planting.
Manure applied on 21.5.1952.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications.  (iii) (a) 90°×18'.  (b) 84'×12'.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination % and sugarcane yield.  (iv) (a) No.  (b) N.A.  (c) N.A.  (v) N.A.
(vi) Nil.  (vii) The experiment was conducted by D.S.R. (S) on cultivator's field.

5. RESULTS:
(i) 27.65 ton/ac.
(ii) 3.412 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28.66</td>
<td>1.393 ton/ac.</td>
</tr>
<tr>
<td>2.</td>
<td>27.60</td>
<td>1.393 ton/ac.</td>
</tr>
<tr>
<td>3.</td>
<td>26.70</td>
<td>1.393 ton/ac.</td>
</tr>
</tbody>
</table>

Ref :- U.P. 52(204).
Type :- 'M'.
Crop: - Sugarcane.
Zone: - Kichha (Nainital).

Object: - To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Sanai green manure (control).
   2. Super at 60 lb./ac. of P<sub>2</sub>O<sub>5</sub> broadcast at the time of sowing Sanai.
   3. Super at 60 lb./ac. of P<sub>2</sub>O<sub>5</sub> applied at the time of ploughing in of Sanai.

3. DESIGN:
   (i), (ii) R.B.D. with 6 replications. (iii) (a) and (b) 90'×18'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination %, tillers count and yield of sugarcane. (iv) (a) 1953—1954. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S) on cultivator's field.
5. RESULTS:
(i) 37.82 ton/ac.
(ii) 2.04 ton/ac.
(iii) The treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>36.05</td>
</tr>
<tr>
<td>2.</td>
<td>38.42</td>
</tr>
<tr>
<td>3.</td>
<td>39.00</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.83 ton/ac</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Zone: Kichha (Nainital).

Ref: U.P. 50(162).
Type: ‘M’.

Object: To study the comparative effect of different green manures on Sugarcane.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. Sanai.
2. Dhaincha.
3. Pea.
4. Pea root+100 lb./ac. of P₂O₅.
5. Pea+100 lb./ac. of P₂O₅.
7. Fallow.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 64’x26’. (b) 60’x26’. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivator’s field.

5. RESULTS:
(i) 21.90 ton/ac.
(ii) 2.31 ton/ac.
(iii) The treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.43</td>
</tr>
<tr>
<td>2.</td>
<td>23.82</td>
</tr>
<tr>
<td>3.</td>
<td>21.38</td>
</tr>
<tr>
<td>4.</td>
<td>21.61</td>
</tr>
<tr>
<td>5.</td>
<td>22.86</td>
</tr>
<tr>
<td>6.</td>
<td>19.36</td>
</tr>
<tr>
<td>7.</td>
<td>20.84</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.16 ton/ac</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Zone :- Hargaon (Sitapur).

Object :—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Jowar for fodder. (c) N.A. (ii) Loam. (iii) 250 mds./ac. press mud. applied from 6 to 10.2.1949. (iv) CO. 186 (medium) (improved). (v) (a) Ploughings by plough and Meston on 10, 16, 17.3.1949, 16 and 19.4.1949, 4 hoeings by kudali and cultivator after planting. (b) Flat planted with ridge making plough. (c) 1752 buds/plot. (d) N.A. (e)—. (vi) 26.4.1949. (vii) Irrigated. (viii) N.A. (ix) 40°. (x) 12 and 15.12.1949.

2. TREATMENTS :
   1. 0 lb./ac. of $P_2O_5$
   2. 60 lb./ac. of $P_2O_5$ as broadcast at the time of planting.
   3. 60 lb./ac. of $P_2O_5$ in furrows 3’—4’ deep at the time of planting.

3. DESIGN :
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) 73’×24’. (b) 67’×18’. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivator’s field.

5. RESULTS:
   (i) 10.54 ton/ac.
   (ii) 2.511 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment | Av. yield
   1. | 10.64
   2. | 10.84
   3. | 10.14
   S.E./mean = 1.025 ton/ac.

Crop :- Sugarcane.  
Zone :- Hargaon (Sitapur).

Object :—To study the response of Sugarcane to Super.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Sugarcane. (c) Nil. (ii) Loam. (iii) Top dressing mixture of Mahua cake and A/S at 10 mds. per acre on 29.5.1950. (iv) CO. 453. (v) (a) Ploughings by Meston plough on 28.1.1950, by Zamindar plough on 1, 2 and 23.2.1950. Pata by bullock on 4 and 13.3.1950. 6 hoeings by kudali cultivator on 4, 12 and 31.3.1950, 18.4.1950, 5.5.1950 and 5 to 8.6.1950 (b) N.A. (c) 1728 buds/plot. (d) N.A. (e)—. (vi) 24.2.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 21.1.1951.

2. TREATMENTS :
   1. Control (no manure).
   2. 60 lb./ac. of $P_2O_5$ applied broadcast before planting.
   3. 60 lb./ac. of $P_2O_5$ drilled 3’—4’ deep in furrows before planting.

3. DESIGN :
   (i),(ii) R.B.D. with 4. replications. (iii) (a) 64’×37’. (b) 58’×21’. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exppt. was conductrd by D.S.R(S) on cultivator’s field.

5. RESULTS:
   (i) 40.04 ton/ac.
   (ii) 4.40 ton/ac.
   (iii) The treatments do not differ significantly.
Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>38.80</td>
</tr>
<tr>
<td>2.</td>
<td>41.30</td>
</tr>
<tr>
<td>3.</td>
<td>40.03</td>
</tr>
</tbody>
</table>

S.E./mean = 2.20 ton/ac.

Crop: Sugarcane.

Zone: Maholi (Sitapur).

Object: To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Urd. (c) N.A. (ii) Loam. (iii) Groundnut at 9 mds. 15 srs. on 18.3.1948. Top dressing of A/S at 2 mds. 22 srs. on 17.5.1948. (iv) CO. 453 (late). (v) (a) Gurjar plough, twice on 1.2.1948, desi plough twice on 5.3.1948. twice on 27.3.1948, once on 31.3.1948 and once on 1.4.1948. 6 hoeings on 11 and 23.4.1948, 17 and 20.5.1948, 24.6.1948 and 3.7.1948. Earthing up on 5.7.1948. (b) Flat sowing behind the desi plough. (c) 1680 buds/plot. (d) Rows 3' apart. (e). (vi) 1.4.1948. (vii) Irrigated. (viii) N.A. (ix) 30°. (x) 20.3.1949 to 15.4.1949.

2. TREATMENTS:
   1. No manure.
   2. 40 lb./ac. of P₂O₅ in furrows 3"—4" deep.
   3. 80 lb./ac. of P₂O₅ in furrows 3"—4" deep.

Super applied on 1.4.1948.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 73'x24'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination and sugarcane yield. (iv) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R(S) on cultivator's field.

5. RESULTS:
   (i) 45.86 ton/ac.
   (ii) 2.586 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>41.09</td>
</tr>
<tr>
<td>2.</td>
<td>45.66</td>
</tr>
<tr>
<td>3.</td>
<td>50.84</td>
</tr>
</tbody>
</table>

S.E./mean = 1.056 ton/ac.

Crop: Sugarcane.

Zone: Hargaon (Sitapur).

Object: To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
2. TREATMENTS:
1. 0 lb/ac. of P₂O₅.
2. 40 lb/ac. of P₂O₅ in furrows 3″—4″ deep.
3. 80 lb/ac. of P₂O₅ in furrows 3″—4″ deep.

₂P₀₅ as Ammo. Phos. applied on 11.7.1948 by top dressing.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'×24'. (b) 67'×18'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S) on cultivator's field.

5. RESULTS:
(i) 24.63 ton/ac.
(ii) 1.777 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>27.74</td>
</tr>
<tr>
<td>2.</td>
<td>23.68</td>
</tr>
<tr>
<td>3.</td>
<td>22.47</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.889 ton/ac.</td>
</tr>
</tbody>
</table>

Crop := Sugarcane.
Zone := Hargaon (Sitapur).
Object := To study the response of Sugarcane to Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO-527. (v) (a) 5 hoeings by cultivator and kuddi on 21.10.1950, 20, 26.11.1950, 27.2.1951 and 29.4.1951. (b) Sown flat behind the ridge maker. (c) 1752 buds/plot. (d) Rows 3' apart. (e) —. (vi) 15.10.1950. (vii) Irrigated. (viii) and (ix) N.A. (x) 20.1.1952.

2. TREATMENTS:
1. Control (no manure).
2. 60 lb/ac. of P₂O₅ broadcast before planting.
3. 60 b./ac. of P₂O₅ in furrows 3″—4″ deep before planting.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications, (iii) (a) 73'×24'. (b) 67'×18'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination percentage and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S) on cultivator's field.

5. RESULTS:
(i) 13.18 ton/ac.
(ii) 2.30 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12.83</td>
</tr>
<tr>
<td>2.</td>
<td>13.60</td>
</tr>
<tr>
<td>3.</td>
<td>13.11</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.93 ton/ac.</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.  
Zone: Hargaon (Sitapur).  
Object: To find out the effect of different doses of N on Sugarcane.  

1. BASAL CONDITIONS:  
   (i) (a) N.A.  (b) Fallow.  (c) N.A.  (ii) Domat (type IV loam).  (iii) N.A.  (iv) CO-527 (improved).  
   (v) (a) to (e) N.A.  (vi) 30.3.1952.  (vii) Irrigated.  (viii) to (x) N.A.  

2. TREATMENTS:  
   1. 0 lb./ac. of N.  
   2. 40 lb./ac. of N.  
   3. 80 lb./ac. of N.  
   4. 120 lb./ac. of N.  
   5. 160 lb./ac. of N.  
   6. 200 lb./ac. of N.  
   N as A/S, 1st dose applied on 30.3.1950.  

3. DESIGN:  
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 18' x 18'.  (b) 75' x 12'.  (iv) N.A.  

4. GENERAL:  
   (i) and (ii) N.A.  (iii) Sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Yield of two plots containing treatments 40 lb./ac. of N and 160 lb./ac. of N were missing and therefore analysis was done by applying missing plot technique.  (vii) The experiment conducted by D.S.R. (S) on cultivator's field.  

5. RESULTS:  
   (i) 7.92 ton/ac.  
   (ii) 2.602 ton/ac.  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of sugarcane in ton/ac.  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8.50</td>
</tr>
<tr>
<td>2.</td>
<td>9.03</td>
</tr>
<tr>
<td>3.</td>
<td>7.91</td>
</tr>
<tr>
<td>4.</td>
<td>6.47</td>
</tr>
<tr>
<td>5.</td>
<td>6.94</td>
</tr>
<tr>
<td>6.</td>
<td>8.66</td>
</tr>
</tbody>
</table>

S.E./mean not containing missing treatment = 1.301 ton/ac.  
S.E./mean containing missing treatment = 1.539 ton/ac.  

---

Crop: Sugarcane.  
Zone: Hargaon (Sitapur).  
Object: To find out the effect of different doses of N on Sugarcane.  

1. BASAL CONDITIONS:  
   (i), (e) N.A.  (b) Fallow.  (c) No.  (ii) Domat (type II loam).  (iii) 9 C.L. of compost.  (iv) CO-527 (improved).  (v) (a) to (e) N.A.  (vi) 21.3.1952.  (vii) Irrigated.  (viii) and (ix) N.A.  (x) 7.2.1953.  

2. TREATMENTS:  
   1. 0 lb./ac. of N.  
   2. 40 lb./ac. of N.  
   3. 80 lb./ac. of N.  
   4. 120 lb./ac. of N.  
   5. 160 lb./ac. of N.  
   6. 200 lb./ac. of N.  
   N as A/S, 1st of N applied on 21.3.1952.  

3. DESIGN:  
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 18' x 18'.  (b) 75' x 12'.  (iv) N.A.
4. **GENERAL:**
   (i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivator's field.

5. **RESULTS:**
   (i) 34.50 ton/ac.
   (ii) 8.547 ton/ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of sugarcane in ton/ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.74</td>
</tr>
<tr>
<td>2.</td>
<td>32.98</td>
</tr>
<tr>
<td>3.</td>
<td>36.39</td>
</tr>
<tr>
<td>4.</td>
<td>37.27</td>
</tr>
<tr>
<td>5.</td>
<td>41.15</td>
</tr>
<tr>
<td>6.</td>
<td>39.50</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 4.274 ton/ac.</td>
</tr>
</tbody>
</table>

---

**Crop:** Sugarcane.

**Zone:** Hargaon (Sitapur).

Object:—To find out the effect of different doses of N on Sugarcane.

1. **BASAL CONDITIONS:**
   (i) (a) N.A. (b) Fallow. (c) Nil. (ii) *Matya* type IV loam. (iii) Nil. (iv) CO. 527. (v) (a) to (e) N.A. (vi) 28.3.1952. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. **TREATMENTS:**
   1. 0 lb./ac. of N.
   2. 40 lb./ac. of N.
   3. 80 lb./ac. of N.
   4. 120 lb./ac. of N.
   5. 160 lb./ac. of N.
   6. 200 lb./ac. of N.
   
   1 of the total N applied on 28.3.1952.

3. **DESIGN:**
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) 70' x 18' (b) 64' x 12'. (iv) N.A.

4. **GENERAL:**
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivator's field.

5. **RESULTS:**
   (i) 11.00 ton/ac.
   (ii) 2.69 ton/ac.
   (iii) Treatments differ highly significantly.
   (iv) Av. yield of sugarcane in ton/ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5.46</td>
</tr>
<tr>
<td>2.</td>
<td>9.40</td>
</tr>
<tr>
<td>3.</td>
<td>12.90</td>
</tr>
<tr>
<td>4.</td>
<td>12.82</td>
</tr>
<tr>
<td>5.</td>
<td>14.04</td>
</tr>
<tr>
<td>6.</td>
<td>11.38</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 1.35 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Zone :- Hargaon (Sitapur).

Object : To find out the effect of different doses of N on Sugarcane.

1. BASAL CONDITIONS :

2. TREATMENTS :
   1. 0 lb./ac. of N2.
   2. 40 lb./ac. of N2.
   3. 80 lb./ac. of N2.
   4. 120 lb./ac. of N2.
   5. 160 lb./ac. of N2.
   6. 200 lb./ac. of N2.
   Manuring on 26.3.1952.

3. DESIGN :
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 70'x21'. (b) 64'x15'. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivator's field.

5. RESULTS :
   (i) 34.72 ton/ac.
   (ii) 5.01 ton/ac.
   (iii) Treatments differ highly significantly.
   (iv) Av. yield of sugarcane in ton/ac.

   Treatment       Av. yield.
   1.              27.13
   2.              28.09
   3.              33.03
   4.              40.53
   5.              35.68
   6.              43.89
   S.E./mean = 2.50 ton/ac.

Crop :- Sugarcane.  
Zone :- Hargaon (Sitapur).

Object : To find out the effect of different doses of N on Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Paddy. (c) Nil. (ii) Domat II (type loam). (iii) Nil. (iv) CO. 527. (v) (a) to (e) N.A. (vi) 25.3.1952. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 16, 17 and 18.2.1953.

2. TREATMENTS :
   1. No manure.
   2. 40 lb./ac. of N.
   3. 80 lb./ac. of N.
   4. 120 lb./ac. of N.
   5. 160 lb./ac. of N.
   6. 200 lb./ac. of N.
   ½ of the total N applied on 25.3.1952.

3. DESIGN :
   (i) R.B.D. (ii) 4 replications laid out but some plots harvested by the cultivator, so 2 replications are taken for analysis. (iii) (a) 70'x21'. (b) 64'x15'. (iv) N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R(S) on cultivator's field.

5. RESULTS:
(i) 56.59 ton/ac.
(ii) 20.95 ton/ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.48</td>
</tr>
<tr>
<td>2.</td>
<td>35.48</td>
</tr>
<tr>
<td>3.</td>
<td>49.04</td>
</tr>
<tr>
<td>4.</td>
<td>60.53</td>
</tr>
<tr>
<td>5.</td>
<td>70.03</td>
</tr>
<tr>
<td>6.</td>
<td>97.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 14.82 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Zone: Hargaon (Sitapur).

Ref: U.P. 52(207).
Type: 'M'.

Object: To find out the effect of different doses of N on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Dumat (type II loam). (iii) Nil. (iv) CO. 527. (v) (a) to (e) N.A. (vi) 24.3.1952. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 12, 13 and 14.2.1953.

2. TREATMENTS:
1. No manure.
2. 40 lb./ac. of N.
3. 80 lb./ac. of N.
4. 120 lb./ac. of N.
5. 160 lb./ac. of N.
6. 200 lb./ac. of N.
Date of manuring 21.3.1952.

3. DESIGN:
(i) (ii) R.B.D. with 4 replications. (iii) (a) 81' x 18'. (b) 75' x 12'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R. (S) on cultivator's field.

5. RESULTS:
(i) 49.08 ton/ac.
(ii) 4.29 ton/ac.
(iii) The treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>44.17</td>
</tr>
<tr>
<td>2.</td>
<td>49.51</td>
</tr>
<tr>
<td>3.</td>
<td>45.28</td>
</tr>
<tr>
<td>4.</td>
<td>51.66</td>
</tr>
<tr>
<td>5.</td>
<td>51.69</td>
</tr>
<tr>
<td>6.</td>
<td>52.14</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 2.14 ton/ac.</td>
</tr>
</tbody>
</table>

Zone: Hargaon (Sitapur).

Type: 'M'.

Object: To study the response of Sugarcane to Super in combination with manures.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai as G.M. (c) As per treatments. (iii) As per treatments. (iv) CO. 453 (late), improved. (v) (a) Ploughings by meston plough (four times) on 29.9.1950, and 8.10.1950, hoeings by kudali and cultivator on 15.10.1950, 7.11.1950, 26.11.1950, 12.2.1951, 14.5.1951 and 26.1.1951. (b) Flat sowing behind ridge. (c) 1215 buds/plot. (d) N.A. (e)—. (vi) 9.10.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 27.11.1951.

2. TREATMENTS:
   1. Sanai green manure (control).
   2. Super at 60 lb./ac. of P₂O₅ broadcast at the time of sowing of Sanai.
   3. Super at 60 lb./ac. of P₂O₅ applied at the time of ploughing in of Sanai.


3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) 67'x15'. (b) 75'x9'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) N.A. (vii) The experiment was conducted by D.S.R. (S) on cultivators' fields.

5. RESULTS:
   (i) 22.96 ton/ac.
   (ii) 5.051 ton/ac.
   (iii) Treatment differences are not significant.

   Treatment Av. yield
   1. 23.36
   2. 24.94
   3. 20.59
   S.E./mean = 2.062 ton/ac.
Crop: Sugarcane.  Ref.: U.P. 51(283).

Site: Allahabad Agricultural Institute, Allahabad.  Type: 'MV'.

Object: To test three types of manures on two varieties of Sugarcane.

1. **BASAL CONDITIONS:**
   - (i) (a) N.A. (b) Juar. (c) N.A.  (ii) (a) Deep loam soils. (b) Refer soil analysis, Allahabad.  (iii) 12 to 14.2.1951.  (iv) (a) N.A. (b) N.A. (c) N.A.  (d) Rows 3' apart. (e) N.A. (v) N.A.  (vi) As per treatments.  (vii) N.A.  (viii) N.A.  (ix) 36.78°.  (x) N.A.

2. **TREATMENTS:**
   - **Main-plot treatments:** 2 varieties: \( V_1 = 0.331 \), \( V_2 = 0.453 \).
   - **Sub-plot treatments:**
     - 4 manures: \( M_0 = \text{No manure (control)} \), \( M_1 = 100 \text{ lb./ac. of N as A/S} \), \( M_2 = 100 \text{ lb./ac. of N as castor cake} \), \( M_3 = 100 \text{ lb./ac. of N as farm compost} \).
     - Farm compost applied on 31.1.1951, castor cake on 2.2.1951 and A/S on 3.2.1951.

3. **DESIGN:**
   - (i) Split-plot.  (ii) (a) 2 main-plots/replication and 4 sub-plots/main-plot. (b) 100' X 144'.  (iii) 3.  (iv) (a) 100' X 18'. (b) 100' X 12'.  (v) One row on either side of the net plot left as non-experimental area.  (vi) Yes.

4. **GENERAL:**
   - (i) N.A.  (ii) N.A.  (iii) Sugarcane yield.  (iv) (a) No. (b) No.  (c) Nil. (v) (a) and (b) Nil. (vi) Nil.
   - (vii) Field record register and the "Allahabad Farmer" were consulted. Experiment conducted by the Head, Agronomy Department, Allahabad Agricultural Institute, Allahabad.

5. **RESULTS:**
   - (i) 25.64 ton/ac.
   - (ii) (a) 5.387 ton/ac.  (b) 2.653 ton/ac.
   - (iii) Control vs. manures differs significantly. Interaction between varieties and control vs. manures is highly significant. Main effects of varieties and source of N are not significant.
   - (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( M_0 )</th>
<th>( M_1 )</th>
<th>( M_2 )</th>
<th>( M_3 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>25.39</td>
<td>26.68</td>
<td>24.01</td>
<td>24.09</td>
<td>25.04</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>20.44</td>
<td>28.84</td>
<td>29.76</td>
<td>29.90</td>
<td>26.24</td>
</tr>
<tr>
<td>Mean</td>
<td>22.92</td>
<td>27.76</td>
<td>26.88</td>
<td>25.00</td>
<td>25.64</td>
</tr>
</tbody>
</table>

S.E. of difference of two
- 1. marginal means of \( V \) = 2.199 ton/ac.
- 2. marginal means of \( M \) = 1.532 ton/ac.
- 3. \( M \) means at a level of \( V \) = 2.166 ton/ac.
- 4. \( V \) means at a level of \( M \) = 2.891 ton/ac.
Crop :- Sugarcane (Ratoon).

Site :- Allahabad Agricultural Institute, Allahabad. Type :-‘MV’.

Object :-To test three types of manures on two varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sugarcane (plant cane). (c) 100 lb./ac. of N as A/S, Castorcake and F.Y.M. there being also one control plot in each main-plot. (ii) (a) Deep loam soils. (b) Refer soil analysis, Allahabad. (iii) N.A. (iv) (a) N.A. (b) N.A. (c) N.A. (d) Rows 3’ apart. (e) N.A. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) 30.08°. (x) 12.10.1952.

2. TREATMENTS:
Main-plot treatments:
2 varieties: V1=CO.331 and V2=CO.453.
Sub-plot treatments:
4 manures: M0=No manure (control), M1=100 lb./ac. of N as A/S, M2=100 lb./ac. of N as G.N.C. and M3=100 lb./ac. of N as F.Y.M. Manures applied as top dressing from 6 to 8.8.1952.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and -4 sub-plots/main-plot. (b) 144’×100’. (iii) 3. (iv) (a) 100’×18’. (b) 94’×12’. (v) One row on either side and 3’ at each end. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) Field Record Register and the "Allahabad Farm" were consulted. Experiment conducted by the Head, Agronomy Department, Allahabad Agricultural Institute, Allahabad.

5. RESULTS:
(i) 13.58 ton/ac.
(ii) (a) 5.753 ton/ac.
(b) 3.193 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M0</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V2</td>
<td>9.87</td>
<td>16.25</td>
<td>13.25</td>
<td>11.73</td>
<td>12.78</td>
</tr>
<tr>
<td>Mean</td>
<td>12.71</td>
<td>14.80</td>
<td>13.83</td>
<td>12.98</td>
<td>13.58</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of V =2.349 ton/ac.
2. marginal means of M =1.844 ton/ac.
3. M means at a level of V =2.607 ton/ac.
4. V means at a level of M =3.258 ton/ac.

Crop :- Sugarcane.

Zone :- Begumabad (Meerut).

Ref :- U.P. 52(326).

Type :-‘MV’.

Object :-To find the optimum manurial combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Methi. (c) N.A. (ii) N.A. (iii) F.Y.M. at 150 mds./ac. applied on 2.2.1953. (iv) Dakar - heavy loam type IV/I. (v) (a) and (b) N.A. (c) 72, 3 budded setts/line. (d) and (e) N.A. (vi) 9.3.1953. (vii) to (ix) N.A. (x) 21 and 22.2.1954.
TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: \(V_1=CO.421\), \(V_2=CO.245\) and \(V_3=CO.321\).
(2) 3 levels of \(N\): \(N_0=0\), \(N_1=60\) and \(N_2=120\) lb./ac. of \(N\).
(3) 3 levels of \(P_2O_5\): \(P_0=0\), \(P_1=40\) and \(P_2=80\) lb./ac. of \(P_2O_5\).
\(N\) as A/S, \(\dagger\) dose on 9.3.1953 and \(\ddagger\) dose on 17.6.1953. \(P_2O_5\) as Super (full dose) on 9.3.1953.

DESIGN:
(i) and (ii) 3\(^2\) confounded experiment in single replication in which \(X\) component of VNP interaction is confounded. (iii) (a) 72' \(\times\) 21'. (b) 66' \(\times\) 15'. (iv) N.A.

GENERAL:
(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:
\[
\begin{array}{cccc}
\text{Depth} & \text{0'--8'} & \text{8'--23'} & \text{23'--43'} & \text{43'--73'} \\
\text{C/N} & 11.7 & 5.5 & 6.7 & 7.8 \\
\text{pH} & 7.8 & 7.6 & 7.3 & 7.8 \\
\end{array}
\]
(vii) The experiment was conducted by D.S.R.(M) on cultivator's field.

RESULTS:
(i) 42.14 ton/ac.
(ii) 3.422 ton/ac.
(iii) Main effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>(N_0)</th>
<th>(N_1)</th>
<th>(N_2)</th>
<th>Mean</th>
<th>(P_0)</th>
<th>(P_1)</th>
<th>(P_2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V_1)</td>
<td>36.18</td>
<td>40.25</td>
<td>41.39</td>
<td>39.27</td>
<td>39.61</td>
<td>39.49</td>
<td>38.72</td>
</tr>
<tr>
<td>(V_2)</td>
<td>41.19</td>
<td>41.45</td>
<td>47.01</td>
<td>43.22</td>
<td>41.17</td>
<td>45.37</td>
<td>43.10</td>
</tr>
<tr>
<td>(V_3)</td>
<td>41.26</td>
<td>45.54</td>
<td>45.03</td>
<td>43.94</td>
<td>43.59</td>
<td>44.08</td>
<td>44.16</td>
</tr>
<tr>
<td>Mean</td>
<td>39.54</td>
<td>42.41</td>
<td>44.48</td>
<td>42.14</td>
<td>41.46</td>
<td>42.98</td>
<td>41.99</td>
</tr>
<tr>
<td>(P_0)</td>
<td>36.28</td>
<td>41.93</td>
<td>46.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(P_1)</td>
<td>41.97</td>
<td>42.93</td>
<td>44.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(P_2)</td>
<td>40.37</td>
<td>42.39</td>
<td>43.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.141 ton/ac.
S.E. of body of any table = 1.976 ton/ac.

Crop :- Sugarcane.
Zone :- Begumabad (Meerut).
Object :- To find the optimum manurial combination of \(N\) and \(P\) for different varieties of Sugarcane.

BASAL CONDITIONS:
(i) (a) N.A. (b) Pea. (c) N.A. (ii) Sewta loam type IV. (iii) N.A. (iv) Improved. (v) (a) and (b) N.A. (c) 60 3-budded setts/line. (d) and (e) N.A. (vi) 5.5.1953. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: \(V_1=CO.421\), \(V_2=CO.245\) and \(V_3=CO.321\).
(2) 3 levels of \(N\): \(N_0=0\), \(N_1=60\) and \(N_2=120\) lb./ac. of \(N\).
(3) 3 levels of \(P_2O_5\): \(P_0=0\), \(P_1=40\) and \(P_2=80\) lb./ac. of \(P_2O_5\).
\(N\) as A/S, \(\dagger\) dose on 5.3.1953 and \(\ddagger\) dose on 16.6.1953. \(P_2O_5\) as Super (full dose) on 5.3.1953.

DESIGN:
(i) and (ii) 3\(^2\) confounded experiment in single replication in which \(Y\) component of VNP interaction is confounded. (iii) (a) 60' \(\times\) 30'. (b) 54' \(\times\) 24'. (i) N.A.

Ref :- U.P. 53(270).
Type :- 'MV'.

Object :- To find the optimum manurial combination of \(N\) and \(P\) for different varieties of Sugarcane.
4. GENERAL:
(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>0&quot;—8&quot;</th>
<th>8&quot;—20&quot;</th>
<th>20&quot;—32&quot;</th>
<th>32&quot;—42&quot;</th>
<th>42&quot;—56&quot;</th>
<th>56&quot;—72&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/N</td>
<td>5.6</td>
<td>6.42</td>
<td>6.50</td>
<td>5.50</td>
<td>5.55</td>
<td>5.0</td>
</tr>
<tr>
<td>pH</td>
<td>6.8</td>
<td>6.5</td>
<td>6.5</td>
<td>6.5</td>
<td>6.6</td>
<td>6.7</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R.(M) on cultivator's field. The cultivators have been reported to have been secretly applying heavy doses of A/S to experimental plots for getting bumper yield.

5. RESULTS:
(i) 37.34 ton/ac.
(ii) 4.652 ton/ac.
(iii) Main effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>35.67</td>
<td>35.91</td>
<td>37.55</td>
<td>36.38</td>
<td>37.91</td>
<td>35.09</td>
<td>36.14</td>
</tr>
<tr>
<td>V₂</td>
<td>34.79</td>
<td>38.06</td>
<td>37.34</td>
<td>36.73</td>
<td>36.16</td>
<td>36.30</td>
<td>37.73</td>
</tr>
<tr>
<td>V₃</td>
<td>36.87</td>
<td>40.62</td>
<td>39.23</td>
<td>38.91</td>
<td>38.76</td>
<td>40.01</td>
<td>37.94</td>
</tr>
<tr>
<td>Mean</td>
<td>35.78</td>
<td>38.20</td>
<td>38.04</td>
<td>37.34</td>
<td>37.61</td>
<td>37.13</td>
<td>37.27</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean       =1.551 ton/ac.
S.E. of body of any table       =2.686 ton/ac.

Crop :- Sugarcane.  
Zone :- Begumabad (Meerut).  
Ref :- U.P. 53(271).  
Type :- 'MV'.

Object :- To find the optimum manurial combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Sandy loam (type IV). (iii) N.A. (iv) Improved. (v) (a) to (e) N.A. (vi) to (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
1. 3 varieties: V₁=CO.421, V₂=CO.245 and V₃=CO.321.
2. 3 levels of N: N₀=0, N₁=60 and N₂=120 lb./ac.
3. 3 levels of P₂O₅: P₀=0, P₁=40 and P₂=80 lb./ac.
N as A/S ½ dose just at planting and ½ dose in June and full dose of P₂O₅ as Super in March. No details regarding actual date of application is available.

3. DESIGN:
(i) and (ii) 3³ confounded experiment in single replication. Z component of VNP interaction is totally confounded. (iii) (a) N.A. (b) 1/45.38 ac. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>0&quot;—7&quot;</th>
<th>7&quot;—16&quot;</th>
<th>16&quot;—30&quot;</th>
<th>30&quot;—43&quot;</th>
<th>43&quot;—58&quot;</th>
<th>52&quot;—72&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/N</td>
<td>8.2</td>
<td>3.4</td>
<td>5.6</td>
<td>4.4</td>
<td>5.7</td>
<td>5.0</td>
</tr>
<tr>
<td>pH</td>
<td>7.0</td>
<td>7.8</td>
<td>6.6</td>
<td>6.7</td>
<td>7.5</td>
<td>6.9</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R. (M) on cultivator's fields.
5. RESULTS:

(i) 37.69 ton/ac.
(ii) 3.012 ton/ac.
(iii) Main effects of V and N are significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>35.50</td>
<td>37.84</td>
<td>38.75</td>
<td>37.36</td>
<td>36.70</td>
<td>37.63</td>
<td>37.77</td>
</tr>
<tr>
<td>V₂</td>
<td>37.01</td>
<td>42.85</td>
<td>43.50</td>
<td>41.12</td>
<td>42.66</td>
<td>38.86</td>
<td>41.84</td>
</tr>
<tr>
<td>V₃</td>
<td>32.45</td>
<td>34.89</td>
<td>36.41</td>
<td>34.58</td>
<td>34.47</td>
<td>33.83</td>
<td>35.45</td>
</tr>
<tr>
<td>Mean</td>
<td>34.99</td>
<td>38.53</td>
<td>39.55</td>
<td>37.69</td>
<td>37.94</td>
<td>36.77</td>
<td>38.35</td>
</tr>
<tr>
<td>P₀</td>
<td>34.19</td>
<td>38.91</td>
<td>40.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₁</td>
<td>34.25</td>
<td>37.43</td>
<td>38.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₂</td>
<td>36.52</td>
<td>39.25</td>
<td>39.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.004 ton/ac.
S.E. of body of any table = 1.739 ton/ac.

Crop :- Sugarcane.
Zone :-Beguambad (Meerut).
Ref:- U.P. 53(272).
Type :- 'MV'.
Object :-To find the optimum manural combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Urid. (c) N.A. (ii) Domat (sandy loam to loam soil). (iii) 225 mds./ac. of F.Y.M. on 8.2.1953. (iv) Improved varieties. (v) (a) Hoeing by kassi-1 and hoeings by spade-4. No actual date available. (b) N.A. (c) 60 3-budded setts/line. (d) and (e) N.A. (vi) 8.3.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 18 and 25.2.1954.

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 3 varieties: V₁ = CO.421, V₂ = CO.245 and V₃ = CO.321.
(2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
(3) 3 levels of P₂O₅ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.

N as A/S dose on 8.3.1953 and ½ dose on 17.6.1953 and full dose of P₂O₅ as Super on 8.5.1953.

3. DESIGN:

(i) and (ii) 3³ confounded experiment in one replication. Z component of VNP interaction is confounded.
(iii) (a) 60'x27'. (b) 54'x21'. (c) N.A. (d) and (c) N.A. (e) N.A. (f) Analytical results of the soil are :

<table>
<thead>
<tr>
<th>Depth</th>
<th>Depth</th>
<th>Depth</th>
<th>Depth</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-18'</td>
<td>18'-19'</td>
<td>19'-25'</td>
<td>25'-35'</td>
<td>35'-49'</td>
</tr>
<tr>
<td>C/N</td>
<td>11.4</td>
<td>5.3</td>
<td>5.3</td>
<td>9.1</td>
</tr>
<tr>
<td>pH</td>
<td>6.9</td>
<td>6.9</td>
<td>6.9</td>
<td>6.8</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R. (M) on cultivator's fields.

4. GENERAL:

(i) Very good. (ii) Nil. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are :

<table>
<thead>
<tr>
<th>Depth</th>
<th>Depth</th>
<th>Depth</th>
<th>Depth</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-18'</td>
<td>18'-19'</td>
<td>19'-25'</td>
<td>25'-35'</td>
<td>35'-49'</td>
</tr>
<tr>
<td>C/N</td>
<td>11.4</td>
<td>5.3</td>
<td>5.3</td>
<td>9.1</td>
</tr>
<tr>
<td>pH</td>
<td>6.9</td>
<td>6.9</td>
<td>6.9</td>
<td>6.8</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R. (M) on cultivator's fields.

5. RESULTS:

(i) 34.79 ton/ac.
(ii) 1.795 ton/ac.
(iii) Main effect of N and interaction V x N are highly significant. Interaction N x P is significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Varieties</th>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>Mean</th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>32.40</td>
<td>31.43</td>
<td>36.63</td>
<td>33.49</td>
<td>30.86</td>
<td>35.06</td>
<td>34.54</td>
</tr>
<tr>
<td>V2</td>
<td>28.51</td>
<td>39.35</td>
<td>35.76</td>
<td>34.54</td>
<td>34.85</td>
<td>34.10</td>
<td>34.68</td>
</tr>
<tr>
<td>V3</td>
<td>31.49</td>
<td>38.11</td>
<td>39.42</td>
<td>36.34</td>
<td>35.20</td>
<td>37.81</td>
<td>36.00</td>
</tr>
<tr>
<td>Mean</td>
<td>30.80</td>
<td>36.30</td>
<td>37.27</td>
<td>34.79</td>
<td>33.64</td>
<td>35.66</td>
<td>35.07</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.598 ton/ac.
S.E. of body of any table = 1.036 ton/ac.

Crop :- Sugarcane.
Zone :- Begumabad (Meerut).

Object :- To find the optimum manurial combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS:

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties : V1=CO. 421, V2=CO. 245 and V3=CO. 321.
   (2) 3 levels of N : N0=0, N1=60 and N2=120 lb./ac.
   (3) 3 levels of P2O5 : P0=0, P1=40 and P2=80 lb./ac.
   N as A/S, ½ dose on 29.3.1953 and ½ dose on 18.6.1953. Full dose of P2O5 as Super on 23.4.1953.

3. DESIGN:
   (i), (ii) 3\(^2\) confounded experiment in single replication. Z component of VNP interaction is confounded.
   (iii) (a) N.A. (b) 1/44 ac. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) 4 plots were seriously damaged by white ants. (iii) Sugarcane yield. (iv) (a) N.A. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:
   Depth        0"-8"  8"-22"  22"-59"  59"-72"
C/N          9.20   8.71    6.28   5.62
pH            7.1    6.9     6.8    6.7
   (vii) The expt. was conducted by D.S.R(M) on cultivator’s fields.

5. RESULTS:
   (i) 16.81 ton/ac.
   (ii) 4.759 ton/ac.
   (iii) None of the effects and interactions are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>14.81</td>
<td>16.13</td>
<td>15.62</td>
<td>15.52</td>
<td>16.74</td>
<td>14.70</td>
<td>15.11</td>
</tr>
<tr>
<td>Mean</td>
<td>14.29</td>
<td>16.76</td>
<td>19.38</td>
<td>16.81</td>
<td>18.46</td>
<td>12.98</td>
<td>19.00</td>
</tr>
<tr>
<td>P₀</td>
<td>15.52</td>
<td>16.98</td>
<td>22.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₁</td>
<td>10.63</td>
<td>13.06</td>
<td>15.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₂</td>
<td>16.72</td>
<td>20.25</td>
<td>22.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.586 ton/ac.
S.E. of body of any table = 2.748 ton/ac.

Crop :- Sugarcane.
Zone :- Begumabad (Meerut).

Object :- To find the optimum manurial combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Pea. (c) N.A. (ii) Sewta—Loam Type IV. (iii) Nil. (iv) Improved variety. (v) (a) Preparation of ments and barhas on 24.4.1953, ploughing by cultivator on 29.4.1953 and 16.5.1953 by desi plough on 5.6.1953. (b) N.A. (c) 52 3-budded setts/line. (d) N.A. (e) —. (vi) 31.3.1953. (vii) Palewa on 18.3.1953. Irrigated. (viii) N.A. (ix) N.A. (x) 30 and 31.1.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (2) 3 varieties: V₁ = CO. 421, V₂ = CO 245. and V₃ = CO. 321.
   (2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
   (3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
   N as A/S, ½ dose on 31.3.1953 and 2/3 dose on 17.3.1953. Full dose of P₂O₅ as Super on 31.3.1953.

3. DESIGN:
   (i), (ii) 3² confounded experiment in single replication. W component of VNP interaction is confounded
   (iii) (a) 52' × 27'. (b) 46' × 21'. (iv) N.A.

4. GENERAL:
   (i) Condition slightly below average. Crops in plots with V₂N₀P₀, V₂N₁P₁, V₂N₂P₂ treatments damaged.
   (ii) There was a heavy general attack of stem borer. Control measures taken—N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (vi) Analytical results of the soil are:
      Depth 0'—7' 7'—21' 21'—38' 38'—46' 46'—72'
      C/N 10.8 7.5 6.9 7.9 9.3
      pH 6.9 6.5 6.7 6.7 6.7
   (vii) The exp. was conducted by D.S.R(M). on cultivator's fields.

5. RESULTS:
   (i) 17.29 ton/ac.
   (ii) 2.190 ton/ac.
   (iii) Main effect of N is highly significant. Main effect of V is significant. Other effects and interactions are not significant.
Crop :-Sugarcane.
Zone :-Begumabad (Meerut).

Object :-To find the optimum manurial combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Pea fodder. (c) No. (ii) Domat—Sandy loam Type IV. (iii) F.Y.M. at 400 md/ac. in Feb. 1953. (iv) As per treatments. (v) (a) 3 hoeings by spades. Preparation of "mimis" and "Barlas" on 20.4.1953. Hoeing by desir plough on 24.6.1953. (b) N.A. (c) 70 3-budded setts/line. (d) and (e) N.A. (vi) 20.3.1953. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 11.2.1954.

2. TREATMENTS :
   All combinations of (1), (2) and (3):
   (1) 3 varieties : V1 = CO. 421, V2 = CO. 245 and V3 = CO. 321.
   (2) 3 levels of N : N0 =0, N1 =60 and N2 =120 lb./ac.
   (3) 3 levels of P2O5 : P0 =0, P1 =40 and P2 =80 lb./ac.
   N as A/S dose on 20.5.1953 and 1 dose on 18.5.1953. Full dose of P2O5 as Super on 20.3.1953.

3. DESIGN :
   (i) and (ii) 3º confounded in one replication. (iii) (a) 70' ×21'. (b) 64'×15'. (iv) N.A.

4. GENERAL :
   (i) Condition moderate, germination gappy in plots with treatments V1N0P1, V2N0P2, V3N0P3 and V0N0P1 and V0N0P2. (ii) Slight attack of stem borer. (iii) Sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A.
   (v) N.A. (vi) Analytical results of the soil are :
   Depth 0”—7” 7”—11” 11”—29” 29”—48” 48”—72”
   C/N 12.6 9.7 7.0 6.5 4.4
   pH 7.2 7.0 7.2 7.1 7.7
   (vii) The experiment was conducted by D.S.R. (M) on cultivator’s fields.

5. RESULTS :
   (i) 17.73 ton/ac.
   (ii) 1.972 ton/ac.
   (iii) Main effects of V and N are highly significant. Others are not significant.
Object:—To find the optimum manural combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Pea for fodder. (c) No. (ii) Dakar loam to heavy loam. (iii) F.Y.M. at 300 md/ac. applied on 25.5.1953. (iv) As per treatments. (v) (a) Hoeing by spade (blind) on 25.4.1953, hoeing by cultivator on 23.6.1953. Preparation of mendhs and barhas on 7.3.1953 and repair of mendhs and barhas on 29.3.1953. (b) N.A. (c) 56 3-budded setts/line. (d) and (e) N.A. (vi) 6.3.1953. (vii) Palewa on 22.2.1953. irrigated by canal. (viii) N.A. (ix) N.A. (x) 24, 25.1.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: \( V_1 = CO\ 421, V_2 = CO\ 285 \) and \( V_3 = CO\ 321 \).
   (2) 3 levels of N: \( N_0 = 0, N_1 = 60 \text{ lb./ac.} \) and \( N_2 = 120 \text{ lb./ac.} \).
   (3) 3 levels of \( P_2O_5 : P_0 = 0, P_1 = 40 \text{ lb./ac.} \) and \( P_2 = 80 \text{ lb./ac.} \).
   N as A/S, \( \frac{1}{2} \text{ dose on 6.3.1953. and } \frac{1}{2} \text{ dose on 16.6.1953. Full dose of } P_2O_5 \text{ as Super on 6.3.1953.}

3. DESIGN:
   (i) and (ii) 3\(^2\) confounded in one replication. (iii) (a) 56'\( \times \)27'. (b) 50'\( \times \)21'. (iv) N.A.

4. GENERAL:
   (i) CO. 421 did not germinate uniformly and was poor; the seed was reported to have been dried two days prior to sowing. General condition was fair in June 1953, moderate at the time of harvesting. (ii) Stem borer attack in CO. 321. (iii) Sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivator’s fields.

5. RESULTS:
   (i) 29.80 ton/ac.
   (ii) 2.326 ton/ac.
   (iii) Main effects of V and N are highly significant. Other effects and interactions are not significant.
Av yield of sugarcane in ton/ac.

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S.E. of any marginal mean = 0.775 ton/ac.
S.E. of body of any table = 1.343 ton/ac.

Crop: Sugarcane.
Zone: Begumabad (Meerut).

Object: To find the optimum manurial combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) N.A.
   (b) Guatr.
   (c) N.o.
   (ii) Dakar heavy loam.
   (iii) F.Y.M. at 200 mds./ac.
   (iv) As per treatments.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: \(V_1=CO.421\), \(V_2=CO.245\) and \(V_3=CO.321\).
   (2) 3 levels of N: \(N_0=0\), \(N_1=60\) and \(N_2=120\) lb./ac.
   (3) 3 levels of \(P_2O_5\): \(P_0=0\), \(P_1=40\) and \(P_2=80\) lb./ac.
   N as A/S, \(\frac{1}{2}\) dose on 25.2.1953 and \(\frac{1}{2}\) dose on 14.6.1953. Full dose of \(P_2O_5\) as Super on 15.4.1953.

3. DESIGN:
   (i) and (ii) 3\(^3\) confounded in one replication.
   (iii) N.A.
   (iv) N.A.

4. GENERAL:
   (i) N.A.
   (ii) N.A.
   (iii) Sugarcane yield.
   (iv) N.A.
   (v) N.A.
   (vi) Analytical results of the soil are:
   - Depth: 0"-6" 6"-24" 24"-41" 41"-58" 58"-72"
   - C/N: 12.9 6.2 5.1 4.7
   - pH: 7.1 6.7 7.0 6.9
   (vii) The experiment was conducted by D.S.R. (M) on cultivator's fields.

5. RESULTS:
   (i) 29.25 ton/ac.
   (ii) 3.615 ton/ac.
   (iii) Main effect of V alone is significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of any marginal mean = 1.205 ton/ac.
S.E. of body of any table = 2.087 ton/ac.

Crop :- Sugarcane.
Zone :- Begumabad (Meerut).

Object :- To find the optimum manurial combination of N and P for different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Chari and guar. (c) No. (ii) Sewto—sandy loam. (iii) F.Y.M. at 350 m.d./ac. applied in April 1953. (iv) As per treatments. (v) (a) Hoeing by cultivator on 12.4.1953, 30.4.1953, 23.5.1953 and 15.6.1953 and hoeing by spade on 15.4.1953. (b) N.A. (c) 60 three-budded setts/line. (d) and (e) N.A. (vi) 25.2.1953. (vii) Irrigated by canal. (viii) N.A. (ix) N.A. (x) 17th and 18.1.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁=CO.421, V₂=CO.245 and V₃=CO.321.
   (2) 3 levels of N: N₀=0, N₁=60 and N₂=120 lb./ac.
   (3) 3 levels of P₂O₅: P₀=0, P₁=40 and P₂=80 lb./ac.

3. DESIGN:
   (i) and (ii) 3³ confounded in one replication. (iii) (a) 60'×27'. (b) 54'×21'. (iv) N.A.

4. GENERAL:
   (i) Good. (i) No. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:
   Depth 0' 10' 20' 30' 40' 60' 80' 100'
   C/N 9.5 3.6 3.3 3.3 3.3 3.3 3.3 3.3
   pH 7.8 6.7 6.6 6.6 6.6 6.6 6.6 6.6
   (ii) The experiment was conducted by D.S.R. (M) on cultivator’s fields. The cultivator secretly applied heavy doses of A/S to experimental plots for getting bumper yield.

5. RESULTS:
   (i) 29.15 ton/ac.
   (ii) 3.618 ton/ac.
   (iii) None of the effects and interactions is significant.

Ref:- U.P. 53(295),
Type :- ‘MV’.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of any marginal mean = 1.206 ton/ac.
S.E. of body of any table = 2.089 ton/ac.

Object: --To find the optimum manural combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Pea. (c) N.A. (ii) Local name karnal type IV. (iii) F.Y.M. at 250 mds/ac. on 4.2.1953. (iv) As per treatments. (v) (a) Preparation of Mereeds and Earlas on 3, 4.4.1953. Hoeing by cultivator. Hoeing by spade on 25.5.1953. (b) N.A. (c) 54 by drilled sets/line. (d) N.A. (e) N.A. (vi) 4.3.1953. (vii) Irrigated by canal. (viii) N.A. (ix) N.A. (x) 70.1.1954 and 21.1.1954.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: \(V_1=CO. 421, V_2=CO. 245\) and \(V_3=CO. 321\).
(2) 3 levels of N: \(N_0=0, N_1=60\) and \(N_2=120\) lb/ac.
(3) 3 levels of \(P_2\): \(P_0=0, P_1=40\) and \(P_2=80\) lb/ac.
N as A/S applied \(\frac{1}{2}\) dose on 4.3.1953 and \(\frac{1}{2}\) dose on 17.6.1253. Full dose of Super on 15.4.1953.

3. DESIGN:
(i) and (ii) \(3^3\) confounded in one replication. (iii) (a) \(54' \times 27'\). (b) \(48' \times 21'\). (iv) N.A.

4. GENERAL:
(i) Very good. (ii) There was slight attack of smut in CO. 245 plots (as observed on 30.9.1953). (iii) Sugarcane yield. (iv) (a) No. (b) and (c) No. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R: (M) on cultivators' fields.

5. RESULTS:
(i) 32.75 ton/ac.
(ii) 2.722 ton/ac.
(iii) Main effect of N is highly significant. Other effects and interactions are not significant.
Object:—To find the optimum manurai combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Domat. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) 12.4.1953. (vii) Irrigated by canal. (viii) N.A. (ix) N.A. (x) 24, 25.2.1954

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: \( V_1 = CO. 393, V_2 = CO. 397 \) and \( V_3 = CO. 617 \).
   (2) 3 levels of N: \( N_0 = 0 \), \( N_1 = 60 \) and \( N_2 = 120 \) lb./ac. of N.
   (3) 3 levels of \( P_2O_5 \): \( P_0 = 0 \), \( P_1 = 40 \) and \( P_2 = 80 \) lb./ac. of \( P_2O_5 \).
   N as A/S and \( P_2O_5 \) as Super.

3. DESIGN:
   (i) and (ii) 3\( ^2 \) confounded with one replication in which Y component of VNP, interaction is confounded. (iii) (a) 63'x18'. (b) 55'x12'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) N.A. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:
   Soil Analysis:
   Depth 0"—10" 10"—28" 28"—54" 54"—66"
   pH 7.9 7.9 7 7.7
   C/N 6.25 8.18 14.28 19.00
   C/P 3.22 3.91 3.57 3.65
   (vii) The experiment was conducted by D.S.R. (S) on cultivators' fields.

5. RESULTS:
   (i) 12.18 ton/ac.
   (ii) 4.025 ton/ac.
   (iii) Main effects and their interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>N₂</th>
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S.E. of any marginal mean = 1.342 ton/ac.
S.E. of body of table = 2.324 ton/ac.

Crop: Sugarcane  
Zone: Faizabad (Faizabad).

Ref: 53(264).  
Type: "MV".

Object:—To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.
   (ii) Type IV.
   (iii) N.A.
   (iv) As per treatments.
   (v) (a) to (e) N.A.
   (vi) 27, 28.3.1953.
   (vii) Irrigated.
   (viii) N.A.
   (ix) N.A.
   (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁ = CO. 393, V₂ = CO. 397 and V₃ = CO. 617.
   (2) 3 levels of N: N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac. of N.
   (3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac. of P₂O₅.
   N as A/S and P₂O₅ as Super.

3. DESIGN:
   (i) and (ii) 3³ confounded in one replication, with Wc component of VNP interaction, is confounded.
   (iii) (a) 60.5' x 24'. (b) 52.5' x 18'. (iv) N.A.

4. GENERAL:
   (i) N.A.
   (ii) N.A.
   (iii) Sugarcane yield.
   (iv) (a) No. (b) and (g) N.A.
   (v) N.A.
   (vi) Analytical results of the soil are:
   Depth: 0" - 10" 10" - 32" 32" - 52" 52" - 72"
   pH: 7.2 7.0 7.0 7.2
   C/N: 12.40 8.51 9.20 10.00
   C/P: 5.51 3.88 3.38 3.20
   (vii) The experiment was conducted by D.S.R. (S) canvas cultivators' fields.

5. RESULTS:
   (i) 24.99 ton/ac.
   (ii) 0.601 ton/ac.
   (iii) Main effects of N, P and V and interaction V X N are highly significant. Interaction N X P is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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<td>27.97</td>
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</tr>
<tr>
<td>V₂</td>
<td>21.24</td>
<td>22.13</td>
<td>23.33</td>
<td>22.23</td>
<td>19.35</td>
<td>23.44</td>
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<tr>
<td>V₃</td>
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<td>25.10</td>
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</table>

S.E. of any marginal mean = 0.200 ton/ac.
S.E. of body of table = 0.347 ton/ac.

Crop: Sugarcane.
Zone: Faizabad (Faizabad).
Ref: U.P. 53(265). Type: 'MV'.

Object: To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) As per treatments. (v) (a) to (e) N.A. (vi) 28.3.1953. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: V₁ = CO. 393, V₂ = CO. 397 and V₃ = CO. 617.
(2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
(3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.

3. DESIGN:
(i) and (ii) 3ª confounded; X component of VNP confounded. (iii) (a) 60°×24'. (b) 52°×18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:

<table>
<thead>
<tr>
<th>Depth</th>
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<td>C/N</td>
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<tr>
<td>C/P</td>
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<td>3.54</td>
<td>3.47</td>
<td>4.75</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R. (S) on cultivator's fields.

5. RESULTS:
(i) 23.19 ton/ac.
(ii) 9.139 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N_0</th>
<th>N_1</th>
<th>N_2</th>
<th>Mean</th>
<th>P_0</th>
<th>P_1</th>
<th>P_2</th>
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<tr>
<td>V_1</td>
<td>19.72</td>
<td>21.79</td>
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<td>23.21</td>
<td>21.06</td>
<td>24.17</td>
<td>24.38</td>
</tr>
<tr>
<td>V_2</td>
<td>22.62</td>
<td>21.43</td>
<td>24.45</td>
<td>22.83</td>
<td>20.64</td>
<td>23.25</td>
<td>23.91</td>
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<tr>
<td>V_3</td>
<td>22.74</td>
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<td>26.61</td>
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S.E. of any marginal mean = 3.046 ton/ac.
S.E. of body of table = 5.276 ton/ac.

Crop : Sugarcane.
Zone : Rohana Kalan (Muzaffarnagar).
Ref : U.P. 50(222).
Type : 'MV'.

Object : To find the optimum combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Chari and Jowar. (c) N.A. (ii) Reoti, Sandy Iqam (Black soil). (iii) Nil. (iv) As per treatments. (v) (a) N.A. (b) N.A. (c) 64, 3-budded sets/row. (d) and (e) N.A. (vi) 13.3.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 2 and 3.2.1951.

2. TREATMENTS :
   (1) 3 varieties : V_1 = CO. 421, V_2 = CO. 453 and V_3 = CO. 245.
   (2) 3 levels of N : N_0 = 0, N_1 = 60 and N_2 = 120 lb./ac.
   (3) 3 levels of P_2O_5 : P_0 = 0, P_1 = 40 and P_2 = 80 lb./ac.

   Manuring on 13.3.1950 in furrows. N applied as A/S and P_2O_5 as Super.

3. DESIGN :
   (i), (ii) 3^3 confounded experiment in single replication with VN^P interaction is confounded. (iii) (a) 64' x 21'. (b) 58' x 15'. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results on the soil are :

   Depth : 0"—7" 7"—25" 25"—38" 38"—52" 52"—68"
   pH : 7.0 6.5 6.0 6.5 6.0

   (vii) The exp. was conducted by D.S.R(M) on cultivators' fields.

5. RESULTS :
   (i) 30.17 ton/ac.
   (ii) 4.282 ton/ac.
   (iii) Main effect of N is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N_0</th>
<th>N_1</th>
<th>N_2</th>
<th>Mean</th>
<th>P_0</th>
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</table>

S.E. of any marginal mean = 1.427 ton/ac.
S.E. of body of table = 2.472 ton/ac.

Crop: Sugarcane.
Zone: Rohana Kalan (Muzaffarnagar.)
Object: To find the optimum manuriial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Wheat. (c) N.A. (ii) Damri Sandy loam (type IV). well determined; (iii) Nil. (iv) As per treatments. (v) (a), (b) N.A. (c) 64 three budded setts/row. (d) and (e) N.A. (vi) 24.2.1950. (vii) Irrigated (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V_1=CO. 421, V_2=CO. 453 and V_3=CO. 245.
   (2) 3 levels of N : N_0=0, N_1=60 and N_2=120 lb./ac.
   (3) 3 levels of P_2O_5 : P_0=0, P_1=40 and P_2=80 lb./ac.

   Manuring on 24.2.1950 in furrows. N applied as A/S and P_2O_5 as Super.

3. DESIGN:
   (i), (ii) 3 x 3 x 3 confined experiment in single replication with VNP interaction is confounded. (iii) (a) 64' x 27'. (b) 58' x 21'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1950—1951. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:

   Depth 0'-7' 7'-23' 23'-36' 36'-49' 49'-62' 62'-72'
   pH 7.0 6.5 6.0 6.0 6.0 5.5

   (vii) The expt. was conducted by D.S.R(M). on cultivator’s field.

5. RESULTS:
   (i) 31.86 ton/ac.
   (ii) 3.276 ton/ac.
   (iii) Main effect of N is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N0</th>
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<th>N2</th>
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<tr>
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<td>33.27</td>
<td>32.69</td>
<td>31.07</td>
<td>36.06</td>
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<tr>
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<td>30.90</td>
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S.E. of any marginal mean = 1.092 ton/ac.
S.E. of body of table = 1.891 ton/ac.

Crop : - Sugarcane.
Zone : - Rohana Kalan (Muzaffarnagar).

Object : - To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS :

   (i) (a) N.A. (b) Pea. (c) N.A.
   (ii) Dašar, clay loam (type VI) well drained. (iii) F.Y.M. 180 mds. (iv) As per treatments (all improved varieties). (v) (a) 5 ploughings, 4 Hoeings on 24.4.1950, 30.5.1950, 17.6.1950, and 26.6.1950. Binding of sugarcane on 7.9.1950. (b) N.A. (c) 76 three budded setts/row. (d) and (e) N.A. (vi) 29.3.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 29 and 30.1.1951.

2. TREATMENTS :

   All combinations of (1), (2) and (3).
   (1) 3 varieties : V1 = CO. 421, V2 = CO. 453 and V3 = CO. 245.
   (2) 3 levels of N : N0 = 0, N1 = 60 and N2 = 120 lb./ac.
   (3) 3 levels of P2O5 : P0 = 0, P1 = 40 and P2 = 80 lb./ac.

   N as A/S and P2O5 as Super applied on 29, 39.1.1951. in furrows,

3. DESIGN :

   (i) and (ii) 3² confounded experiment in single replication with VN²P interaction is confounded. (iii) (a) 76' x 21'. (b) 70' x 15'. (iv) N.A.

4. GENERAL :

   (i) N.A. (b) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Analytical results of the soil are.
   
   Depth 0"—11" 11"—28" 28"—43" 43"—60" 60"—75"
   pH 5.5 6.5 6.5 6.0 6.0

   (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS :

   (i) 23.83 ton/ac.
   (ii) 3.001 ton/ac.
   (iii) N.A.

   Main effects and their interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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</table>

Crop :- Sugarcane.  
Zone :- Muzaffarnagar (Muzaffarnagar).  
Ref :- U.P. 50(225).  
Type :- 'MV'.

Object :- To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) Rosli sandy loam, water logged.  (iii) N.A.  (iv) As per treatments.  
   (v) (a) and (b) N.A.  (c) 64 three budded settles/line.  (d) and (e) N.A.  (vi) 13, 14.4.1950.  (vii) N.A.  
   (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3).  
   (1) 3 varieties: V₁ = CO.421, V₂ = CO.453 and V₃ = CO.S.245.  
   (2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.  
   (3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.  

3. DESIGN:
   (i) and (ii) 3³ confounded experiment in single replication in which VN²P¹ interaction is confounded.  
   (iii) (a) 64' × 27'.  (b) 58' × 21'.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) Some of the plots have been greatly affected by white ants.  (iii) Sugarcane yield.  
   (iv) (a) 1950–1951.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) Analytical results of soil are:
   Depth 0"-6" 7"-29" 29"-41" 41"-60" 60"-72"
   pH 6.5 6.5 6.5 6.5 6.0
   (vii) The experiment was conducted by D.S.R. (M) on cultivators’ fields.

5. RESULTS:
   (i) 19.99 ton/ac.
   (ii) 5.769 ton/ac.
   (iii) Main effects and their interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
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<td>19.27</td>
<td>22.63</td>
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</table>

S.E. of any marginal mean = 1.923 ton/ac.
S.E. of body of table = 3.331 ton/ac.

Crop :- Sugarcane.
Zone :- Mansurpur (Muzaffarnagar).

Object :- To find the optimum manurai combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Dakar Clay loam (type IV) Low land partially water logged. (iii) Nil. (iv) As per treatments. (v) (a), (b) N.A. (c) 64 three budded sets/row. (d) and (e) N.A. (vi) 4.4.1950. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁ = CO. 421. V₂ = CO. 453 and V₃ = CO. S. 245.
   (2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
   (3) 3 levels of P₀₃₀₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.

3. DESIGN:
   (i), (ii) 3³ confounded experiment in single replication in which VNP³ interaction is confounded. (iii) (a) 6' x 24'. (b) 58' x 18'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1950—1951. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:
   Depth 0°—9° 9°—20° 20°—48° 48°—63° 63°—72°
   pH 6.7 6.5 6.6 6.8 6.6
   (vii) The expt. was conducted by D.S.R (M) on cultivators' fields.

5. RESULTS:
   (i) 19.19 ton/ac.
   (ii) 6.798 ton/ac.
   (iii) Main effects and their interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<th></th>
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<th>N₁</th>
<th>N₂</th>
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<td>18.69</td>
<td>19.34</td>
<td>19.53</td>
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S.E. of any marginal mean = 2.266 ton/ac.
S.E. of body of table = 3.925 ton/ac.

Crop :- Sugarcane.
Zone :- Mansurpur (Muzaffarnagar).
Ref :- U.P. 50(227).
Type :- 'MV'.

Object :- To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Chari. (c) No. (ii) Rosli Sandy loam (type IV) water logged. The field was selected next to the canal bank and was submerged for 2½ months due to a breach in the bank. (iii) Nil. (iv) As per treatments. (v) (a), (b) N.A. (c) 64. three budded setts/row. (d) and (e) N.A. (vi) 21.2.1950. (vii) irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: V₁ = CO. 421, V₂ = CO. 453 and V₃ = CO. S. 245.
(2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
(3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.

3. DESIGN:
(i), (ii) 3² confounded experiment in single replication in which VNP³ interaction is confounded. (iii) 64' x 27'. (b) 58' x 21'. (iv) N.A.

4. GENERAL
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) 1950—1951. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are :-

<table>
<thead>
<tr>
<th>Depth</th>
<th>0°—7°</th>
<th>7°—29°</th>
<th>29°—41°</th>
<th>41°—60°</th>
<th>60°—72°</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.5</td>
<td>6.5</td>
<td>6.5</td>
<td>6.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

(vii) The exp't was conducted by D.S.R(M). on cultivators' fields.

5. RESULTS:
(i) 17.02 ton/ac.
(ii) 1.372 ton/ac.
(iii) Main effect of N is highly significant. Other effects and interactions are not significant.
Object:—To find the optimum manural combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Cotton. (c) N.A. (ii) Sandy loam (type IV). (iii) F.Y.M. at 300 mds./ac. (iv) As per treatments. (v) (a) Hocing on 19.3.1951, 21.4.1951, 21.5.1951. and 20.6.1951, (b) N.A. (c) 72 three budded setts/row. (d) and (e) N.A. (vi) 26.2.1951. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 14 and 15.2.1952.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V1=CO. 421. V2=CO.S. 245 and V3=CO.S. 321.
   (2) 3 levels of N: N0=0, N1=60 and N2=120 lb./ac.
   (3) 3 levels of P2O5: P0=0, P1=40 and P2=80 lb./ac.
   N as A/S and P2O5 as Super. Manuring on 26.2.1951. in furrows.

3. DESIGN:
   (i) and (ii) 3^ confounded experiment in single replication with VNPN^ interaction is confounded. (iii) (a) 72'x24'. (b) 66'x18'. (iv) N.A.

4. GENERAL:
   (i) Good; gaps in plots with treatments V2N3P0 and V2N3P2. (ii) Slight attack of Pyrilla in general throughout the whole experiment. (iii) Sugarcane yield (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Analytical results of soil are:

<table>
<thead>
<tr>
<th>Depth (in)</th>
<th>0*—7*</th>
<th>7*—16*</th>
<th>16*—25*</th>
<th>25*—46*</th>
<th>46*—64*</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.3</td>
<td>6.7</td>
<td>7.2</td>
<td>7.1</td>
<td>7.0</td>
</tr>
</tbody>
</table>

   The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
   (i) 23.49 ton/ac.
   (ii) 2.238 ton/ac.
   (iii) Main effects of N and V are highly significant. Main effect of P is not significant. Interaction N×V is significant. Other interactions are not significant.

<table>
<thead>
<tr>
<th>Crop :-Sugarcane.</th>
<th>Ref :-U.P. 51(209).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone :-Muzaffarnagar.</td>
<td>Type :-'MV'.</td>
</tr>
</tbody>
</table>
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( N_0 )</th>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>Mean</th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>19.32</td>
<td>24.18</td>
<td>27.42</td>
<td>23.64</td>
<td>22.89</td>
<td>23.58</td>
<td>24.46</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>15.03</td>
<td>24.50</td>
<td>18.78</td>
<td>19.44</td>
<td>19.96</td>
<td>19.34</td>
<td>19.01</td>
</tr>
<tr>
<td>( V_3 )</td>
<td>19.25</td>
<td>27.91</td>
<td>35.00</td>
<td>27.39</td>
<td>27.84</td>
<td>28.12</td>
<td>26.02</td>
</tr>
<tr>
<td>Mean</td>
<td>17.87</td>
<td>25.53</td>
<td>27.07</td>
<td>23.49</td>
<td>23.56</td>
<td>23.68</td>
<td>23.22</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.746 ton/ac.
S.E. of body of table = 1.292 ton/ac.

Crop : Sugarcane.
Zone : Khatauli (Muzaffarnagar).

Ref : U.P. 51(208).
Type : 'MV'.

Object : To find the optimum manurial combination of \( N \) and \( P \) for three different varieties of Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Sanai. (c) No. (ii) Sandy loam (type IV). (iii) Sanai green manuring. (iv) As per treatments. (v) (a) Hoeing by spade on 8.4.1951, 28 to 30.4.1951, 9.5.1951, 27 to 29.5.1951 and 1.6.1951. Preparation of mordhas and barhis on 17 and 18.3.1951. (b) N.A. (c) 71 three budded setts/row. (d) (e) N.A. (vi) 17 and 18.3.1951. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 8, 9.2.1952.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (1) 3 varieties: \( V_1 = \text{CO.421}, V_2 = \text{CO.245} \) and \( V_3 = \text{CO.S.321} \).
   (2) 3 levels of \( N \) : \( N_0 = 0, N_1 = 60 \) and \( N_2 = 120 \) lb./ac.
   (3) 3 levels of \( P_2 \) : \( P_0 = 0, P_1 = 40 \) and \( P_2 = 80 \) lb./ac.
   N as A/S and P\( _2 \) as Super. Manuring on 17, 18.3.1951 in furrows.

3. DESIGN :
   (i) and (ii) 3\(^3\) confounded experiment in single replication with \( VN^2P \) interaction is confounded. (iii) (a) 71' \( \times \) 24'. (b) 65' \( \times \) 18'. (iv) N.A.

4. GENERAL :
   (i) The condition of the crop was slightly below normal because of only two pre-monsoon irrigations. In treatments \( V_2N_1P_2 \) and \( V_2N_2P_0 \)-poor germination. Slight attack of pyrilla in general. (iii) Sugarcane yield.
   (iv) (a) N.A. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:
   - Depth 0'–7' 7'–11' 11'–22' 22'–40' 40'–56' 56'–64' 64'–72'
   - pH 7.3 7.0 7.3 7.4 7.3 7.4 7.1
   (vii) The experiment was conducted by D.S.R. (M) in cultivators' fields.

5. RESULTS :
   (i) 15.27 ton/ac.
   (ii) 2.077 ton/ac.
   (iii) Main effect of N is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$N_0$</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>Mean</th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_1$</td>
<td>10.96</td>
<td>16.57</td>
<td>18.13</td>
<td>15.22</td>
<td>16.49</td>
<td>14.33</td>
<td>14.84</td>
</tr>
<tr>
<td>$V_2$</td>
<td>14.32</td>
<td>15.57</td>
<td>16.65</td>
<td>15.51</td>
<td>17.15</td>
<td>13.64</td>
<td>15.75</td>
</tr>
<tr>
<td>$V_3$</td>
<td>11.95</td>
<td>15.63</td>
<td>17.67</td>
<td>15.08</td>
<td>16.18</td>
<td>14.31</td>
<td>14.76</td>
</tr>
<tr>
<td>Mean</td>
<td>12.41</td>
<td>15.92</td>
<td>17.48</td>
<td>15.27</td>
<td>16.61</td>
<td>14.09</td>
<td>15.11</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.692 ton/ac.
S.E. of body of table = 1.199 ton/ac.

Crop :- Sugarcane.
Zone :- Khatauli (Muzaffarnagar).
Type :- 'MV'.

Object :- To find the optimum manorial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai + Guar for seed. (c) N.A. (ii) Sandy loam to loam (type IV). (iii) 300 mds./ac. of F.Y.M. (iv) As per treatments. (v) (a) Hoeing by kassai on 21.3.1951. by cultivator on 26.4.1951, 4.6.1951 and 1.7.1951 and by spade on 30.4.1951, 17.6.1951 and 3.7.1951. (b) N.A. (c) 61 three budded setts/row, (d) and (e) N.A. (vi) 15.3.1951. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 18 to 21.2.1952.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: $V_1$ = CO. 421, $V_2$ = CO. 245 and $V_3$ = CO.S. 321.
(2) 3 levels of N: $N_0$ = 0, $N_1$ = 60 and $N_2$ = 120 lb./ac.
(3) 3 levels of $P_2O_5$: $P_0$ = 0, $P_1$ = 40 and $P_2$ = 80 lb./ac.
N as A/S and $P_2O_5$ as Super. Manuring on 15.3.1951 in furrows.

3. DESIGN:
(i), (ii) $3^3$ confounded experiment in single replication with VNP interaction is confounded. (iii) (a) 61' x 27'. (b) 55' x 21'. (iv) N.A.

4. GENERAL:
(i) Very good at harvesting time. (ii) Slight attack of Pyrilla. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>0&quot;--6&quot;</th>
<th>6&quot;--12&quot;</th>
<th>12&quot;--24&quot;</th>
<th>24&quot;--39&quot;</th>
<th>39&quot;--50&quot;</th>
<th>50&quot;--72&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.2</td>
<td>7.2</td>
<td>7.2</td>
<td>7.0</td>
<td>7.2</td>
<td>7.3</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R(M) on cultivators' fields.

5. RESULTS:
(i) 31.80 ton/ac.
(ii) 4.195 ton/ac.
(iii) Main effect of N is significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>28.49</td>
<td>32.88</td>
<td>37.91</td>
<td>33.09</td>
<td>34.40</td>
<td>32.56</td>
<td>32.31</td>
</tr>
<tr>
<td>V₂</td>
<td>23.99</td>
<td>31.99</td>
<td>35.01</td>
<td>30.33</td>
<td>29.19</td>
<td>33.41</td>
<td>28.38</td>
</tr>
<tr>
<td>V₃</td>
<td>30.82</td>
<td>30.56</td>
<td>34.55</td>
<td>31.98</td>
<td>30.82</td>
<td>30.85</td>
<td>34.26</td>
</tr>
<tr>
<td>Mean</td>
<td>27.77</td>
<td>31.81</td>
<td>35.82</td>
<td>31.80</td>
<td>31.47</td>
<td>32.27</td>
<td>31.65</td>
</tr>
</tbody>
</table>

| P₀  | 27.92 | 32.13 | 34.37 |
| P₁  | 29.12 | 31.84 | 35.86 |
| P₂  | 26.27 | 31.45 | 37.23 |

S.E. of any marginal mean = 1.398 ton/ac.
S.E. of body of table = 2.422 ton/ac.

Crop :-Sugarcane. 
Zone :-Khatauli (Muzaffarnagar).
Object :-To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Sugarcane Ratoon. (c) N.A. (ii) Sandy loam (type IV). (iii) 300 mds./ac. of F.Y.M. applied. (iv) As per treatments. (v) (a) Hoeing on 10 and 21.3.1951, 1 and 15.4.1951, 8.6.1951 and 10.7.1951 (b) N.A. (c) 72 three budded setts/row. (d) and (e) N.A. (vi) 2.3.1951. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 11 and 12.2.1952.

2. TREATMENTS :
All combinations of (1), (2) and (3)
(1) 3 varieties; V₁ = CO. 421, V₂ = CO. 245 and V₃ = CO. 321.
(2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
(3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
N as A/S and P₂O₅ as Super and date of manuring 2.3.1951 in furrows.

3. DESIGN :
(i) (ii) 3ⅹ confounded experiment in single replication with VNP interaction is confounded. (iii) (a) 72'ⅹ21'. (b) 66'ⅹ15'. (iv) N.A.

4. GENERAL :
(i) Satisfactory. (ii) Slight attack of Pyrilla. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:
<table>
<thead>
<tr>
<th>Depth</th>
<th>0'—7'</th>
<th>7'—27'</th>
<th>27'—40'</th>
<th>40'—54'</th>
<th>54'—72'</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.8</td>
<td>7.0</td>
<td>6.8</td>
<td>6.9</td>
<td>7.1</td>
</tr>
</tbody>
</table>

(vii) Experiment was conducted by D.S.R(M) on cultivators' fields.

5. RESULTS :
(i) 20.60 ton/ac.
(ii) 2.082 ton/ac.
(iii) Main effect of N is highly significant. main effect of V is significant. Main effect of P and other interactions are not significant.

Ref:-U.P. 51(206).
Type :-'MV'.
Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$N_0$</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>Mean</th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_1$</td>
<td>13.23</td>
<td>22.05</td>
<td>26.47</td>
<td>20.58</td>
<td>20.38</td>
<td>20.16</td>
<td>21.21</td>
</tr>
<tr>
<td>$V_2$</td>
<td>13.66</td>
<td>19.62</td>
<td>22.60</td>
<td>18.63</td>
<td>17.67</td>
<td>18.80</td>
<td>19.43</td>
</tr>
<tr>
<td>$V_3$</td>
<td>16.50</td>
<td>24.12</td>
<td>27.12</td>
<td>22.58</td>
<td>23.50</td>
<td>22.62</td>
<td>21.62</td>
</tr>
<tr>
<td>Mean</td>
<td>14.46</td>
<td>21.93</td>
<td>25.40</td>
<td>20.60</td>
<td>20.51</td>
<td>20.53</td>
<td>20.75</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.694 ton/ac.
S.E. of body of table = 1.202 ton/ac.

Crop := Sugarcane
Zone := Khatauli (Muzaffarnagar).
Object := To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (1) (a) N.A. (b) Urd and guar. (c) N.A. (ii) Sandy loam to loam (type IV). (iii) 300 mds./ac. of F.Y.M.
   (iv) As per treatments. (v) (a) 2 hoeings by spade and 6 hoeings by cultivator. (b) N.A. (c) 64 three
   budded setts/row. (d) and (e) N.A. (vi) 15.2.1951. (vii) Irrigated (viii) N.A. (ix) N.A. (x) 22 to
   24.2.1952.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: $V_1$ = CO. 421, $V_2$ = CO.S. 245 and $V_3$ = CO.S. 321.
   (2) 3 levels of N: $N_0$ = 0, $N_1$ = 60 and $N_2$ = 120 lb./ac.
   (3) 3 levels of $P_2O_5$: $P_0$ = 0, $P_1$ = 40 and $P_2$ = 80 lb./ac.

3. DESIGN:
   (i) and (ii) 3³ confounded experiment single replication with VN²P interaction is confounded. (iii) (a)
   64 × 27'. (b) 58 × 21'. (iv) N.A.

4. GENERAL:
   (i) Good. (ii) Slight attack of pyrilla in general. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A.
   (v) N.A. (vi) The analytical results of soil are:
   Depth 0'-7' 7'-18' 18'-34' 34'-60' 60'-72'
   pH  7.1 7.3 6.9 6.7 7.2
   (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
   (i) 22.68 ton/ac.
   (ii) 1.694 ton/ac.
   (iii) Main effect of N is highly significant. Interaction N×P is significant. Other effects and interactions
   are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>16.31</td>
<td>24.62</td>
<td>28.73</td>
<td>23.22</td>
<td>21.53</td>
<td>22.20</td>
<td>25.93</td>
</tr>
<tr>
<td>V₃</td>
<td>18.24</td>
<td>22.54</td>
<td>29.10</td>
<td>23.29</td>
<td>22.51</td>
<td>22.08</td>
<td>25.29</td>
</tr>
<tr>
<td>Mean</td>
<td>16.74</td>
<td>23.36</td>
<td>27.93</td>
<td>22.68</td>
<td>21.92</td>
<td>21.98</td>
<td>24.14</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.565 ton/ac.
S.E. of body of table = 0.978 ton/ac.

Crop :- Sugarcane.
Zone :- Khatauli (Muzaffarnagar).

Object :- To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Cotton. (c) N.A. (ii) Loam (without kankar), (type IV). (iii) Cake+F.Y.M. applied (dose—N.A. (iv) As per treatments. (v) (a) Hoeings by kasti—twice. by spade—twice and by cultivator—six times. (b) N.A. (c) 57 three budded setts/line. (d) and (e) N.A. (vi) 17.2.1951. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 26 and 27.2.1952.

2. TREATMENTS :
All combinations of (1), (2) and (3)
(1) 3 varieties : V₁ = CO. 421, V₂ = CO.S. 245 and V₃ = CO.S. 321.
(2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
(3) 3 levels of P₂O₅ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
N as A/S and P₂O₅ as Super. Manuring on 17.2.1951 in furrows.

3. DESIGN :
(i) and (ii) 3² confounded experiment in single replication with VN²P² interaction is confounded. (iii) (a) 57 × 27'. (b) 51' × 21'. (iv) N.A.

4. GENERAL :
(i) Good. (ii) Slight attack of pyrilla in general. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are :
Depth 0"—6" 6"—12" 12"—28" 28"—36" 36"—53" 53"—74"
PH 6.4 7.4 7.3 6.7 7.3 7.5
(vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS :
(i) 29.45 ton/ac.
(ii) 1.329 ton/ac.
(iii) Main effects of N is highly significant. Interaction N×P is significant Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>23.74</td>
<td>29.71</td>
<td>34.34</td>
<td>29.26</td>
<td>29.11</td>
<td>29.93</td>
<td>28.74</td>
</tr>
<tr>
<td>V₂</td>
<td>24.81</td>
<td>29.55</td>
<td>35.04</td>
<td>29.80</td>
<td>30.04</td>
<td>28.31</td>
<td>31.05</td>
</tr>
<tr>
<td>V₃</td>
<td>23.93</td>
<td>30.80</td>
<td>33.17</td>
<td>29.30</td>
<td>29.60</td>
<td>28.59</td>
<td>29.71</td>
</tr>
<tr>
<td>Mean</td>
<td>24.16</td>
<td>30.02</td>
<td>34.18</td>
<td>29.45</td>
<td>29.58</td>
<td>28.94</td>
<td>29.83</td>
</tr>
<tr>
<td>P₀</td>
<td>23.97</td>
<td>31.31</td>
<td>33.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₁</td>
<td>25.05</td>
<td>27.28</td>
<td>24.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₂</td>
<td>23.45</td>
<td>31.47</td>
<td>34.58</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.443 ton/ac.
S.E. of body of table = 0.768 ton/ac.

Crop: Sugarcane.
Zone: Shamli (Muzaffarnagar).

Object: To find the optimum manurial combination of N and P for three different varieties of Sugarcane

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Clay loam (type IV) Medium land, water logged increases with depth showing impedance of drainage. (iii) Nil. (iv) As per treatments. (v) (a) N.A. (b) N.A. (c) 64 three budded setts/line. (d) and (e) N.A. (vi) 4.4.1950. (vii) N.A. (viii) N.A. (ix) N.A. (x) 9.10.2.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁ = CO. 421, V₂ = CO. 453 and V₃ = CO. 245.
   (2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
   (3) 3 levels of P₂0₅ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
   N applied as A/S, P₂O₅ as Super manuring in furrows.

3. DESIGN:
   (i), (ii) 3² confounded unreplicated experiment with VN²P component of the interaction is confounded.
   (iii) (a) 64' x 27'. (b) 58' x 21'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1950—1951. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:
   Depth: 0"—8"  8"—20"  20"—34"  34"—52"  52"—73"
   pH: 6.5  7.0  7.0  7.5  7.5
   (vii) The experiment was conducted by D.S.R(M) on cultivators' fields.

5. RESULTS:
   (i) 26.17 ton/ac.
   (ii) 4.587 ton/ac.
   (iii) Main effect of V is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁</td>
<td>30.16</td>
<td>33.53</td>
<td>32.23</td>
<td>31.97</td>
<td>31.17</td>
<td>32.81</td>
<td>41.94</td>
</tr>
<tr>
<td>Mean</td>
<td>27.28</td>
<td>2.33</td>
<td>28.99</td>
<td>28.53</td>
<td>27.10</td>
<td>30.40</td>
<td>28.10</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.529 ton/ac.
S.E. of body of table = 2.648 ton/ac.

Crop :- Sugarcane.
Zone :- Shamli (Muzaffarnagar).
Ref :- U.P. 50(233).
Type :- 'MV'.

Object :- To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Domat Clay loam; Low lying, water logged, pH increases with depth showing impedence of drainage. (iii) Nil. (iv) As per treatments. (v) (a) to (e) N.A. (vi) 16.3.1950. (vii) N.A. (viii) N.A. (ix) N.A. (x) 18.1.1951 and 8.2.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁ = CO 421, V₂ = CO 453 and V₃ = CO-S. 245.
   (2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
   (3) 3 levels of P₂O₅ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.


3. DESIGN:
   (i), (ii) 3^º confounded unreplicated experiment in which VN²P component of the interaction is confounded. (iii) (a) 56' x 24'. (b) 50' x 18'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>0&quot;-9&quot;</th>
<th>9&quot;-25&quot;</th>
<th>25&quot;-41&quot;</th>
<th>41&quot;-50</th>
<th>50&quot;-61&quot;</th>
<th>61&quot;-78&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.0</td>
<td>6.9</td>
<td>6.8</td>
<td>6.8</td>
<td>6.7</td>
<td>7.6</td>
</tr>
</tbody>
</table>

(vii) Experiment was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS:
   (i) 29.47 ton/ac.
   (ii) 2.004 ton/ac.
   (iii) Main effect of N is highly significant. Other effects and interactions are not significant.
Crop: Sugarcane.
Zone: Khatauli (Muzaffarnagar).
Ref: U.P. 50(234).
Type: "MV".

Object: To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Domat (type IV) loam, medium land, partially water logged. (iii) N.A. (iv) As per treatments. (v) (a), (b) N.A. (c) 64 three budded sets/line. (d) and (e) N.A. (vi) 15.2.1950. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: V₁=CO 421, V₂=CO 453 and V₃=COS 245.
(2) 3 levels of N: N₀=0, N₁=60 and N₂=120 lb./ac.
(3) 3 levels of P₂O₅: P₀=0, P₁=40 and P₂=80 lb./ac.
N applied as A/S and P₂O₅ as Super. Manuring on 15.2.1950 in furrows.

3. DESIGN:
(i, ii) 3³ confounded unreplicated experiment with VNP component of the interaction is confounded. (iii) (a) 64'×27'. (b) 58'×21'. (iv) N.A.

4. GENERAL:
(i) N.A. (b) N.A. (iii) Sugarcane yield. (iv) (a) No. (b), (c) N.A. (v) N.A. (vi) Analytical results of soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'—7'</td>
<td>7.0</td>
</tr>
<tr>
<td>7'—18'</td>
<td>6.5</td>
</tr>
<tr>
<td>18'—33'</td>
<td>6.5</td>
</tr>
<tr>
<td>33'—44'</td>
<td>6.5</td>
</tr>
<tr>
<td>44'—54'</td>
<td>7.0</td>
</tr>
</tbody>
</table>

(vii) The expt. was conducted by D.S.R(M) on cultivators' fields.

5. RESULTS:
(i) 20.51 ton/ac.
(ii) 3.883 ton/ac.
(iii) None of the effects and interaction is significant.
Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Variety</th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>16.91</td>
<td>19.63</td>
<td>25.78</td>
<td>20.77</td>
<td>22.81</td>
<td>19.91</td>
<td>19.60</td>
</tr>
<tr>
<td>V₂</td>
<td>18.82</td>
<td>21.35</td>
<td>21.79</td>
<td>20.65</td>
<td>20.31</td>
<td>22.91</td>
<td>18.74</td>
</tr>
<tr>
<td>V₃</td>
<td>19.94</td>
<td>19.77</td>
<td>20.59</td>
<td>20.10</td>
<td>18.95</td>
<td>19.88</td>
<td>21.48</td>
</tr>
<tr>
<td>Mean</td>
<td>18.56</td>
<td>20.25</td>
<td>22.72</td>
<td>20.51</td>
<td>20.69</td>
<td>20.90</td>
<td>19.94</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.294 ton/ac.
S.E. of body of table = 2.242 ton/ac.

Crop: Sugarcane.
Zone: Khatauli (Muzaffarnagar).
Object: To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. Basal Conditions:
   (i) (a) N.A. (b) Urd and then fallow. (c) No. (ii) Loam (with kankar) (type II). (iii) 370 md./ac. of F.Y.M. (iv) As per treatments. (v) (a) Hoeings on 17.3.1951, 25.4.1951, 25.5.1951 and 25.6.1951. (b) N.A. (c) 62 three budded setts/row. (d) and (e) N.A. (vi) 8.3.1951. (vii) Canal irrigation. (viii) N.A. (ix) N.A. (x) 6, 8 and 9.3.1952.

2. Treatments:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁ = CO. 421, V₂ = COS. 245 and V₃ = COS. 321.
   (2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
   (2) 3 levels of P₀₂₃ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
   N applied as A/S and P₀₂₃ as Super. Manuring in furrows on 8.3.1951.

3. Design:
   (i), (ii) 3² confounded experiment in single replication with VNP interaction is confounded. (iii) (a) 62’×27’. (b) 56’×21’. (iv) N.A.

4. General:
   (i) Satisfactory. (ii) Attack of Pyrilla. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A.
   (vi) Analytical results of soil are:
   
<table>
<thead>
<tr>
<th>Depth</th>
<th>pH 0° – 5°</th>
<th>5° – 14°</th>
<th>14° – 27°</th>
<th>27° – 43°</th>
<th>43° – 53°</th>
<th>53° – 66°</th>
</tr>
</thead>
<tbody>
<tr>
<td>0° – 5°</td>
<td>6.7</td>
<td>7.0</td>
<td>7.1</td>
<td>6.6</td>
<td>6.7</td>
<td>6.7</td>
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<td>5° – 14°</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14° – 27°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27° – 43°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43° – 53°</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>53° – 66°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   (vii) The experiment was conducted by D.S. R. (M) on cultivators’ fields.

5. Results:
   (i) 23.65 ton/ac.
   (ii) 1.731 ton/ac.
   (iii) Main effect of N is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>18.71</td>
<td>24.16</td>
<td>26.41</td>
<td>23.09</td>
<td>22.91</td>
<td>22.79</td>
<td>23.57</td>
</tr>
<tr>
<td>V₂</td>
<td>19.13</td>
<td>24.12</td>
<td>29.17</td>
<td>24.14</td>
<td>21.53</td>
<td>27.01</td>
<td>23.87</td>
</tr>
<tr>
<td>V₃</td>
<td>19.78</td>
<td>23.71</td>
<td>27.65</td>
<td>23.71</td>
<td>24.56</td>
<td>23.01</td>
<td>23.56</td>
</tr>
<tr>
<td>Mean</td>
<td>19.21</td>
<td>24.00</td>
<td>27.74</td>
<td>23.65</td>
<td>23.00</td>
<td>24.27</td>
<td>23.67</td>
</tr>
<tr>
<td>P₀</td>
<td>20.67</td>
<td>22.91</td>
<td>25.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₁</td>
<td>18.13</td>
<td>25.11</td>
<td>29.58</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₂</td>
<td>18.82</td>
<td>23.97</td>
<td>28.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.577 ton/ac.
S.E. of body of table = 1.000 ton/ac.

Crop : Sugarcane.

Zone : Mansurpur (Muzaffarnagar).

Object : To find the optimum manurai combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Pea for fodder. (c) No. (ii) Loam (type IV). (iii) 220 md./ac. of compost. (iv) As per treatments. (v) (a) Hoeing by cultivator on 30.4.1952, 22.5.1952, 15.6.1952, 14.7.1952, 15 and 16.8.1952. Dressing of *meruks* and *berkes* on 24.4.1952 and 8.6.1952. (b) N.A. (c) 64 three budded setts/ac. (d) and (e) N.A. (vi) 23.3.1952. (vii) Irrigated. (viii) and (ix) N.A. (x) 25 and 26.1.1953.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁ = CO. 421, V₂ = CO. 245 and V₃ = CO. 321.
   (2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
   (3) 3 levels of P₂O₅ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.


3. DESIGN:
   (i) and (ii) 3⁰ confounded experiment in single replication in which *x* component of VNP interaction is confounded with blocks. (iii) (a) 64'×27'. (b) 58'×21'. (iv) N.A.

4. GENERAL:
   (i) Good. (ii) Slight attack of top borer and pyrilla—very mild and controlled. (iii) Sugarcane yield.
   (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>0°—5°</th>
<th>5°—25°</th>
<th>25°—43°</th>
<th>43°—62°</th>
<th>62°—72°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse sand %</td>
<td>5.89</td>
<td>4.87</td>
<td>1.67</td>
<td>5.55</td>
<td>2.84</td>
</tr>
<tr>
<td>Final sand %</td>
<td>60.70</td>
<td>52.74</td>
<td>44.16</td>
<td>46.59</td>
<td>65.12</td>
</tr>
<tr>
<td>Silt %</td>
<td>17.89</td>
<td>17.36</td>
<td>19.71</td>
<td>17.40</td>
<td>12.93</td>
</tr>
<tr>
<td>Clay %</td>
<td>11.39</td>
<td>20.59</td>
<td>28.28</td>
<td>26.26</td>
<td>12.90</td>
</tr>
<tr>
<td>pH</td>
<td>7.4</td>
<td>7.2</td>
<td>7.1</td>
<td>6.9</td>
<td>7.0</td>
</tr>
<tr>
<td>C/N</td>
<td>13.14</td>
<td>7.00</td>
<td>6.75</td>
<td>8.5</td>
<td>9.00</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
   (i) 22.75 ton/ac.
   (ii) 1.141 ton/ac.
   (iii) Main effect of V and interaction V×P and N×P are significant. Main effect of N is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Variety</th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>16.62</td>
<td>23.63</td>
<td>24.73</td>
<td>21.66</td>
<td>19.64</td>
<td>23.48</td>
<td>21.86</td>
</tr>
<tr>
<td>V₂</td>
<td>17.90</td>
<td>25.30</td>
<td>26.53</td>
<td>23.24</td>
<td>22.80</td>
<td>23.37</td>
<td>23.57</td>
</tr>
<tr>
<td>V₃</td>
<td>18.65</td>
<td>24.84</td>
<td>26.55</td>
<td>23.35</td>
<td>24.77</td>
<td>21.48</td>
<td>23.79</td>
</tr>
<tr>
<td>Mean</td>
<td>17.72</td>
<td>24.59</td>
<td>25.94</td>
<td>22.75</td>
<td>22.40</td>
<td>22.78</td>
<td>23.07</td>
</tr>
</tbody>
</table>

S.E. of any marginal means = 0.380 ton/ac.
S.E. of body of table = 0.659 ton/ac.

---

Crop :- Sugarcane.
Zone :- Mansurpur (Muzaffarnagar).
Ref :- U.P. 52(256).
Type :- ‘MV’.

Object :- To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Sugarcane (ratoon). (c) No. (ii) Heavy loam (type IV) highly oxidised. (iii, Nil. (iv) Improved variety. (v) (a) Hoeing by kassi on 15.4.1952. Hoeing by cultivator and spade on 8.5.1952 and 2.6.1952. Hoeing by cultivator on 23.6.1952. Preparation and dressing of mendhs and barhas on 3.5.1952. (b) N.A. (c) 44 3-budded setts/line. (d) N.A. (vi) (a) Hoeing by cultivator on 3.5.1952. (b) Irrigated (vii) and (ix) N.A. (x) 17 to 19.1.1953.

2. TREATMENTS :
All combinations of (1), (2) and (3)
(1) 3 varieties: V₁=CO-421, V₂=CO-245 and V₃=CO-321.
(2) 3 levels of N: N₀=0, N₁=60 and N₂=120 lb./ac.
(3) 3 levels of P₂0₅: P₀=0, P₁=40 and P₂=80 lb./ac.

3. DESIGN:
(i) and (ii) 3² confounded experiment in single replication in which W component of VNP interaction is confounded with blocks. (iii) (a) 36’ x 44’. (b) 30’ x 38’. (iv) N.A.

4. GENERAL:
(i) Condition in general is good. Slight cattle damage in plots with treatments V₁N₁P₀ and V₂N₁P₂ (ii) A very mild attack of Pyrilla. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are:
<table>
<thead>
<tr>
<th>Depth</th>
<th>0’-6’</th>
<th>6’-14’</th>
<th>14’-34’</th>
<th>34’-52’</th>
<th>52’+ below</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5’</td>
<td>2.15</td>
<td>1.66</td>
<td>1.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.75’</td>
<td>3.59</td>
<td>3.97</td>
<td>3.32</td>
<td>1.30</td>
<td>1.70</td>
</tr>
<tr>
<td>Coarse sand</td>
<td>3.77</td>
<td>2.15</td>
<td>1.66</td>
<td>1.60</td>
<td></td>
</tr>
<tr>
<td>Fine sand</td>
<td>56.50</td>
<td>39.75</td>
<td>34.16</td>
<td>34.25</td>
<td>34.50</td>
</tr>
<tr>
<td>Silt %</td>
<td>25.95</td>
<td>24.90</td>
<td>20.10</td>
<td>20.40</td>
<td>20.70</td>
</tr>
<tr>
<td>Clay %</td>
<td>12.30</td>
<td>16.73</td>
<td>26.18</td>
<td>29.18</td>
<td>27.94</td>
</tr>
<tr>
<td>pH</td>
<td>7.3</td>
<td>7.3</td>
<td>7.3</td>
<td>7.3</td>
<td>7.2</td>
</tr>
<tr>
<td>C/N</td>
<td>9.29</td>
<td>7.20</td>
<td>5.83</td>
<td>5.40</td>
<td>6.25</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS:
(i) 25.30 ton/ac.
(ii) 3.216 ton/ac.
(iii) Main effects and their interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>20.53</td>
<td>22.55</td>
<td>26.05</td>
<td>33.04</td>
<td>21.33</td>
<td>25.07</td>
<td>22.73</td>
</tr>
<tr>
<td>V₃</td>
<td>23.20</td>
<td>27.08</td>
<td>27.83</td>
<td>26.04</td>
<td>26.43</td>
<td>25.31</td>
<td>26.38</td>
</tr>
<tr>
<td>Mean</td>
<td>22.79</td>
<td>25.60</td>
<td>27.52</td>
<td>25.30</td>
<td>24.67</td>
<td>26.41</td>
<td>24.84</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.072 ton/ac.
S.E. of body of table = 1.857 ton/ac.

Crop :- Sugarcane.
Zone :- Khatauli (Muzaffarnagar).

Object :- To find the optimum manural combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Loam (with kankar), (type II). (iii) N.A. (iv) As per treatments. (v) (a) and (b) N.A. (c) 54 three budded setts/row. (d) and (e) N.A. (vi) 25.2.1951. (vii) N.A. (viii) N.A. (ix) N.A. (x) 18.2.1952.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties : V₁=CO. 421, V₂=CO.245 and V₃=CO.321.
   (2) 3 levels of N : N₀=0, N₁=60 and N₂=120 lb./ac.
   (3) 3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb./ac.

3. DESIGN:
   (i) and (ii) 3³ confounded experiment in single replication with VNP² interaction is confounded. (iii) (a) 54'×27'. (b) 48'×21'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:
   Depth       0'—6'  6'—14'  14'—28'  28'—40'  40'—58'  58'—below
   pH          7.0    7.9    6.9    6.9    7.4    6.8
   (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
   (i) 26.10 ton/ac.
   (ii) 2.349 ton/ac.
   (iii) Main effect of N is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>17.94</td>
<td>29.58</td>
<td>32.52</td>
<td>26.68</td>
<td>26.68</td>
<td>27.31</td>
</tr>
<tr>
<td>V₂</td>
<td>19.19</td>
<td>25.71</td>
<td>29.02</td>
<td>24.64</td>
<td>25.12</td>
<td>24.50</td>
</tr>
<tr>
<td>Mean</td>
<td>18.95</td>
<td>28.22</td>
<td>31.12</td>
<td>26.10</td>
<td>26.36</td>
<td>26.93</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.783 ton/ac.

S.E. of body of table = 1.356 ton/ac.

Crop : Sugarcane.
Zone : Khatauli (Muzaffarnagar).
Ref : U.P. 51(222).
Type : 'MV'.

Object : To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Pea. (c) No. (ii) Heavy loam (type II). (iii) 260 mds. of F.Y.M.+G.M. (pea). (iv) As per treatments. (v) (a) Hoeings on 15.3.1951, 10.4.1951, 26.4.1951, 9.5.1951, 22.5.1951 and 21.6.1951. (b) N.A. (c) 41 three budded setts/line. (d) and (e) N.A. (vi) 7.3.1951. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 29.2.1952.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties : V₁ = CO. 421, V₂ = CO. 245 and V₃ = CO. 321.
   (2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
   (3) 3 levels of P₂O₅ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
   N applied as A/S and P₂O₅ as Super. Manuring in furrows on 7.3.1951.

3. DESIGN:
   (i) and (ii) 3² confounded unreplicated experiment with VNP² component of interaction confounded. (iii) (a) 41'x39'. (b)35'x33'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:
   Depth 0°—8° 8°—13° 13°—19° 19°—29° 29°—47° 47°—58° 58°—71° 71°—below
   pH   7.5 7.3 7.3 7.2 7.2 7.2 7.4 7.6
   (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
   (i) 25.65 ton/ac.
   (ii) 0.730 ton/ac.
   (iii) Main effects of N and V are highly significant, interaction N×V is significant. Others are not significant.
(iv) Avg. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>23.82</td>
<td>22.93</td>
<td>25.87</td>
<td>24.21</td>
<td>25.80</td>
<td>23.67</td>
<td>23.15</td>
</tr>
<tr>
<td>V₂</td>
<td>26.93</td>
<td>25.48</td>
<td>27.44</td>
<td>26.62</td>
<td>26.73</td>
<td>26.52</td>
<td>26.60</td>
</tr>
<tr>
<td>V₃</td>
<td>24.32</td>
<td>26.57</td>
<td>27.50</td>
<td>26.13</td>
<td>25.82</td>
<td>26.29</td>
<td>26.28</td>
</tr>
<tr>
<td>Mean</td>
<td>25.02</td>
<td>24.99</td>
<td>26.94</td>
<td>25.65</td>
<td>26.12</td>
<td>25.49</td>
<td>25.34</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.243 ton/ac.
S.E. of body of any table = 0.422 ton/ac.

Crop : Sugarcane.
Zone : Mansurpur (Muzaffarnagar).

Object : To find the optimum manural combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Loam sand. (type III). (iii) N.A. (iv) Improved. (v) (a) N.A. (b) N.A. (c) 51 three budded setts/line. (d) and (e) N.A. (vi) 15.3.1953. (vii) N.A. (viii) N.A. (ix) N.A. (x) 3 and 7.3.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₁=CO. 421, V₂=CO. 245 and V₃=CO. 321.
   (2) 3 levels of N : N₀=0, N₁=60 and N₂=120 lb/ac.
   (3) 3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb/ac.

3. DESIGN:
   (i), (ii) § confounded experiment in single replication. Z component of VNP interaction is confounded.
   (iii) (a) 51'×33' . (b) 45'×27'. (iv) N.A.

4. GENERAL:
   (i) Slightly gappy germination in plots with treatments V₀N₀P₀, V₁N₀P₀, and V₁N₁P₀ did not germinate at all. (ii) Nil. (iii) Sugarcane yield. (iv)
   (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are :

<table>
<thead>
<tr>
<th>Depth</th>
<th>C/N</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-5'</td>
<td>10.7</td>
<td>6.9</td>
</tr>
<tr>
<td>5'--28'</td>
<td></td>
<td>6.7</td>
</tr>
<tr>
<td>28'--50'</td>
<td>9.3</td>
<td>6.6</td>
</tr>
<tr>
<td>50'--72'</td>
<td>9.0</td>
<td>6.6</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R.(M), on cultivators' fields.

5. RESULTS:
   (i) 21.80 ton/ac.
   (ii) 7.081 ton/ac.
   (iii) Main effects and their interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>16.82</td>
<td>16.69</td>
<td>25.75</td>
<td>19.75</td>
<td>22.85</td>
<td>21.75</td>
<td>14.67</td>
</tr>
<tr>
<td>V₃</td>
<td>15.96</td>
<td>24.51</td>
<td>28.70</td>
<td>23.06</td>
<td>29.36</td>
<td>23.09</td>
<td>16.72</td>
</tr>
<tr>
<td>Mean</td>
<td>17.36</td>
<td>22.35</td>
<td>25.69</td>
<td>21.80</td>
<td>24.71</td>
<td>23.84</td>
<td>16.86</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 2.360 ton/ac.
S.E. of body of any table = 4.088 ton/ac.

Crop :- Sugarcane.
Zone :- Mansurpur (Muzaffarnagar).
Ref :- U.P., 53(273).
Type :- 'MV'.

Object :- To find the optimum manural combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Pea for fodder. (c) No. (ii) Domat—Loam type IV. (iii) Compost at 200 md/ac. applied on 10.1.1953. (iv) Improved variety. (v) (a) Hoeing by spade on 8.4.1953 to 10.4.1953; 25.6.1953. Hoeing by cultivator on 23.4.1953, 15.5.1953 and 5.6.1953. Palewa on 2.3.1953. (b) N.A. (c) 51 three budded setts/line. (d) and (e) N.A. (vi) 11.3.1953. (vii) Irrigated (viii) N.A. (ix) N.A. (x) 5, 8 and 9.3.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties : V₁=CO. 421, V₂=CO. 245 and V₃=CO. 321.
   (2) 3 levels of N : N₀=0, N₁=60 and N₂=120 lb/ac.
   (3) 3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb/ac.
   N applied as A/S, 1/4 dose on 11.3.1953 and 1/4 dose on 10.6.1953 and full dose of Super on 11.3.1953.

3. DESIGN:
   (i) 3³ confounded experiment in single replications. Y component of VNP interaction is confounded.
   (ii) N.A. (iii) (a) 51'x33'. (b) 45'x27'. (iv) N.A.

4. GENERAL:
   (i) General condition good. The germination was uniform throughout except in treatment V₃N₀P₁ where and slight gappiness in one of the lines was observed. (ii) Slight attack of stem borer. (iii) Sugarcane yield.
   (iv) (a) 1953–1954. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are —
   Depth 0'—6' 6'—20' 20'—37' 37'—54' 54'—72'
   C/N 15.5 8.0 9.5 7.6 7.2
   pH 7.2 6.6 6.5 6.6 6.7
   (vii) The experiment was conducted by D.S.R(M). on cultivators' fields.

5. RESULTS:
   (i) 21.64 ton/ac.
   (ii) 1.455 ton/ac.
   (iii) Main effect of N is highly significant. Main effect of V and interactions N×P and P×V significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>Mean</th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V2</td>
<td>19.76</td>
<td>23.78</td>
<td>25.61</td>
<td>23.05</td>
<td>20.66</td>
<td>23.92</td>
<td>24.57</td>
</tr>
<tr>
<td>V3</td>
<td>16.90</td>
<td>22.23</td>
<td>23.58</td>
<td>20.90</td>
<td>20.64</td>
<td>18.15</td>
<td>23.91</td>
</tr>
<tr>
<td>Mean</td>
<td>17.63</td>
<td>22.84</td>
<td>24.45</td>
<td>21.64</td>
<td>20.89</td>
<td>21.16</td>
<td>22.87</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.485 ton/ac.
S.E. of body of any table = 0.840 ton/ac.

Crop :- Sugarcane.
Zone :- Mansurpur (Muzaffarnagar).
Ref :- U.P. 52(254).
Type :- 'MV'.

Object :- To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) No.  (c) Nil.  (ii) Heavy loam (type IV).  (iii) Nil.  (iv) As per treatments.  (v) (a) Hoeing by kassi on 8.4.1952 and hoeing by cultivator on 8.4.1952.  (b) N.A.  (c) 61 three budded setts/line.  
   (d) and (e) NA.  (vi) 5, 6.3.1953.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 1, 2.2.1953.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: V1=CO. 421, V2=CO. 245 and V3=CO. 321
(2) 3 levels of N: N0=0, N1=60 and N2=120 lb/ac.
(3) 3 levels of P2O5: P0=0, P1=40 and P2=80 lb/ac.
N applied as A/S and P2O5 as Super. Manuring on 5, 6.3.1952 in furrows.

3. DESIGN:
   (i) and (ii) 3² confounded experiment in single replication in which W component of VNP interaction is confounded.  (iii) (a) 61'x27'.  (b) 55'x21'.  (iv) N.A.

4. GENERAL:
   (i) Good.  (ii) There was some attack of borer and pyrilla, but the damage was very mild and uniform.
   (iii) Sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Analytical results of soil are:
   Depth  0'--6'  6'--16'  16'--32'  32'--50'  50'--72'
Coarse sand %  2.16  0.98  2.68  2.88  2.10
Fine sand %  38.79  47.41  41.63  39.46  43.50
Silt %  33.97  27.26  23.93  20.36  1.96
Clay %  18.08  20.05  27.00  31.24  30.30
pH  7.3  7.2  6.8  6.8  6.8
C/N  10.98  7.00  7.50  5.75  5.50
   (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
   (i) 22.01 ton/ac.
   (ii) 1.331 ton/ac.
   (iii) Main effect of N and interactions N×P and P×V are significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>18.77</td>
<td>22.58</td>
<td>22.86</td>
<td>21.40</td>
<td>21.90</td>
<td>22.36</td>
<td>19.95</td>
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<td>V₂</td>
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<td>21.41</td>
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<td>V₃</td>
<td>19.64</td>
<td>21.63</td>
<td>23.52</td>
<td>21.60</td>
<td>19.20</td>
<td>21.27</td>
<td>24.32</td>
</tr>
<tr>
<td>Mean</td>
<td>20.58</td>
<td>21.87</td>
<td>23.59</td>
<td>22.01</td>
<td>21.07</td>
<td>22.36</td>
<td>22.61</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.444 ton/ac.
S.E. of body of any table = 0.768 ton/ac.

Crop : Sugarcane.
Zone : Mansurpur (Muzaffarnagar).
Type : MV.

Object : To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Gram. (c) Nil. (ii) Sandy loam. (iii) Nil. (iv) As per treatments. (v) (a) Hoeing by cultivator on 21.4.1952, 22.5.1952 and hoeing by spade on 22.4.1952 and 24.5.1952. (b) N.A. (c) 58 three budded setts/line. (d) and (e) N.A. (vi) 15.3.1952. (vii) Irrigated (viii) N.A. (ix) N.A. (x) 21, 22 and 23.1.1953.

2. TREATMENTS :
All combinations of (1), (2) and (3)
(1) 3 varieties : V₁ = CO. 421, V₂ = CO.S 245 and V₃ = CO.S. 321
(2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
(3) 3 levels of P₂O₅ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
N applied as A/S and P₂O₅ as Super. Manuring in furrows on 15.3.1962.

3. DESIGN :
(i) and (ii) 3² confounded experiment in single replication in which Y component of VNP interaction is confounded with blocks. (iii) (a) 58' x 24'. (b) 52' x 18'. (iv) N.A.

4. GENERAL :
(i) The germination was slightly less than the average crop nearly and the condition of the crop was poor. Attack of white ants. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are :

<table>
<thead>
<tr>
<th>Depth</th>
<th>C/N</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'–6'</td>
<td>10.50</td>
<td>6.9</td>
</tr>
<tr>
<td>6'–16'</td>
<td>5.0</td>
<td>6.9</td>
</tr>
<tr>
<td>16'–33'</td>
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<td>6.8</td>
</tr>
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<td>33'–54'</td>
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<td>6.9</td>
</tr>
<tr>
<td>54'–70'</td>
<td>6.50</td>
<td>7.0</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R. (M) on cultivators' fields

5. RESULTS :
(i) 15.50 ton/ac.
(ii) 1.995 ton/ac.
(iii) Main effect of N is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>9.33</td>
<td>14.14</td>
<td>23.05</td>
<td>15.51</td>
<td>15.61</td>
<td>15.86</td>
<td>15.04</td>
</tr>
<tr>
<td>V₂</td>
<td>10.60</td>
<td>19.42</td>
<td>20.85</td>
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<td>17.85</td>
</tr>
<tr>
<td>V₃</td>
<td>9.46</td>
<td>14.75</td>
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<td>14.02</td>
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<td>12.97</td>
<td>14.89</td>
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<tr>
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<td>15.50</td>
<td>15.01</td>
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<td>15.93</td>
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</tbody>
</table>

S.E. of marginal mean = 0.662 ton/ac.
S.E. of body of any table = 1.152 ton/ac.

Crop:--Sugarcane.
Zone:--Mansurpur (Muzaffarnagar).

Object:--To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Loam (type IV). (iii) N.A. (iv) As per treatments. (v) (a) Hoeing by kassi (blind) on 20.3.1952. Hoeings were done after every irrigation at an interval of 5 to 6 days but no dates were recorded. (b) N.A. (c) 46 three budded sets/line. (d) and (e) N.A. (vi) 7.3.1952. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 28 to 30.1.1953.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: V₁ = CO. 421, V₂ = CO.S. 245 and V₃ = CO.S. 321.
(2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
(3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
N applied as A/S and P₂O₅ as Super. Manuring in furrows on 7.3.1952.

3. DESIGN:
(i), (ii) 3³ confounded experiment in single replication in which X component of VNP interaction is confounded with blocks. (iii) (a) 46°×36°. (b) 40°×30°. (iv) N.A.

4. GENERAL:
(i) Crop quite satisfactory. (ii) The top borer and pyrilla attack on CO. 421 and CO.S. 321, while variety CO.S. 245 was resistant to a good extent. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A.
(vi) Analytical results of soil are:
Depth
0"—7" 7"—20" 20"—33" 33"—49" 49"—70"
C/N 12.25 9.33 8.33 6.67 6.50
pH 7.1 7.0 6.9 7.0 7.0
(vii) The expt. was conducted by D.S.R(M). on cultivators' fields.

5. RESULTS:
(i) 18.64 ton/ac.
(ii) 2.172 ton/ac.
(iii) Main effect of N is highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>13.7</td>
<td>19.93</td>
<td>20.44</td>
<td>17.89</td>
<td>17.21</td>
<td>17.51</td>
<td>18.94</td>
</tr>
<tr>
<td>V₂</td>
<td>14.31</td>
<td>20.24</td>
<td>20.86</td>
<td>18.47</td>
<td>16.22</td>
<td>20.35</td>
<td>18.84</td>
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<tr>
<td>V₃</td>
<td>15.68</td>
<td>19.54</td>
<td>23.47</td>
<td>19.56</td>
<td>18.52</td>
<td>19.17</td>
<td>20.99</td>
</tr>
<tr>
<td>Mean</td>
<td>14.43</td>
<td>19.90</td>
<td>21.59</td>
<td>18.64</td>
<td>17.32</td>
<td>19.01</td>
<td>19.59</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.724 ton/ac.
S.E. of body of table = 1.254 ton/ac.

Crop : Sugarcane.
Zone : Mansurpur (Muzaffarnagar).
Ref : U.P. 52(251).
Type : 'MV'.

Object : To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V₀ = CO. 421, V₁ = CO.S. 245 and V₂ = CO.S. 321.
   (2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
   (3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
   Manuring in furrows on 29.2.1952 and 1.3.1952.

3. DESIGN:
   (i), (ii) 3² confounded experiment in single replication. W component of VNP interaction is confounded. N.A. (iii) (a) 40' x 36'. (b) 34' x 30'. (iv) N.A.

4. GENERAL:
   (i) Good. (ii) Slight attack of top borer and pyrilla in general throughout the experiment. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:
   Depth 0" - 5" 5" - 15" 15" - 32" 32" - 46" 46" - 66"
   C/N 6.67 7.33 7.67 7.33 9.50
   pH 6.8 7.1 7.1 7.2 7.1
   (vii) The exp. was conducted by D.S.R(M) on cultivators' fields.

5. RESULTS:
   (i) 20.27 ton/ac.
   (ii) 2.912 ton/ac.
   (iii) Main effects of N and V are highly significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>14.03</td>
<td>19.69</td>
<td>25.46</td>
<td>19.73</td>
<td>18.94</td>
<td>19.19</td>
<td>21.05</td>
</tr>
<tr>
<td>V₃</td>
<td>13.43</td>
<td>16.99</td>
<td>22.62</td>
<td>17.68</td>
<td>19.20</td>
<td>17.10</td>
<td>16.74</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
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<td>15.69</td>
<td>19.12</td>
<td>28.33</td>
<td></td>
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<tr>
<td>N₂</td>
<td>15.87</td>
<td>19.05</td>
<td>21.65</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.971 ton/ac.
S.E. of body of any table = 1.681 ton/ac.

Crop : Sugarcane.
Zone : Khatauli (Muzaffarnagar).
Ref : U.P. 51(215).
Type : 'MV'.

Object : To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Peas. (c) N.A. (ii) Heavy loam (type IV). (iii) Green manuring by peas. (iv) As per treatments. (v) (a) Hoeings on 30.3.1951, 20.4.1951, 8, 28.5.1951 and 19.6.1951. Earthing on 10.7.1951. (b) N.A. (c) 60 three budded setts/row. (d) and (e) N.A. (vi) 26.2.1951. (vii) Irrigated and (viii) N.A. (x) 1 and 2.3.1952.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: V₁=CO. 421, V₂=CO.S. 245 and V₃=CO.S. 321.
(2) 3 levels of N : N₀=0, N₁=60 and N₂=120 lb./ac.
(3) 3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb./ac.

3. DESIGN:
(i) and (ii) 3¹ confounded experiment in single replication with VN²P₃ interaction confounded. (iii) (a) 60'x27'. (b) 54'x21'. (iv) N.A.

4. GENERAL:
(i) Satisfactory. (ii) A slight attack of root borer and top borer in the early stages was reported by the grower. A slight attack of pyrilla was observed at harvesting. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>pH</th>
<th>0°—7°</th>
<th>7°—18°</th>
<th>18°—36°</th>
<th>36°—51°</th>
<th>51°—63°</th>
<th>63°—below</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>7.1</td>
<td>7.0</td>
<td>6.9</td>
<td>6.8</td>
<td>6.9</td>
<td>7.2</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS:
(i) 27.78 ton/ac.
(ii) 1.431 ton/ac.
(iii) Main effect of N is highly significant. Main effect of V is significant. Others are not significant.
Crop : Sugarcane.  
Zone : Khatauli (Muzaffarnagar).  
Ref : U.P. 51(214).  
Type :‘MV’.  

Object: To find the optimum manural combination of N and P for three different varieties of Sugarcane.

1. **BASAL CONDITIONS:**
   (i) (a) N.A. (b) Chari. (c) No. (ii) Heavy loam (type IV). (iii) 300 mt./ac. of F.Y.M. (iv) As per treatments. (v) (a) 2 hoeings. (b) N.A. (c) 52 three budded setts/ac. (d) and (e) N.A. (vi) 7.3.1951. (vii) Irrigated. (viii) and (ix) N.A. (x) 13 and 16.2.1952.

2. **TREATMENTS:**
   All combinations of (1), (2) and (3)
   (1) 3 varieties : V₁=CO. 421, V₂=CO.S. 245 and V₃=CO.S. 321.
   (2) 3 levels of N : N₀=0, N₁=60 and N₂=120 lb./ac.
   (3) 3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb./ac.
   N applied as A/S and P₂O₅ as Super. Manuring on 6 and 7.3.1951 in furrows.

3. **DESIGN:**
   (i) and (ii) 3² confounded experiment in single replication with VN²P interaction is confounded. (iii) (a) 52' x 33'. (b) 46' x 27'. (iv) N.A.

4. **GENERAL:**
   (i) Condition was fair at harvesting. (ii) There was slight attack of pyrilla. The cultivator reported that there was also a slight attack of root borer in the beginning of the experiment. (iii) Sugarcane yield.
   (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are : Depth 0°—5° 5°—18° 18°—30° 30°—41° 41°—56° pH 6.9 6.5 6.8 7.0 6.8
   (vii) The experiment was conducted by D.S.R.(M) on cultivators' field.

5. **RESULTS**
   (i) 17.21 ton/ac.
   (ii) 1.869 ton/ac.
   (iii) Main effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N_0</th>
<th>N_1</th>
<th>N_2</th>
<th>Mean</th>
<th>P_0</th>
<th>P_1</th>
<th>P_2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_1</td>
<td>15.81</td>
<td>18.84</td>
<td>18.08</td>
<td>17.58</td>
<td>17.57</td>
<td>17.61</td>
<td>17.56</td>
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<tr>
<td>V_2</td>
<td>14.48</td>
<td>17.08</td>
<td>17.81</td>
<td>16.46</td>
<td>16.98</td>
<td>16.38</td>
<td>17.01</td>
</tr>
<tr>
<td>V_3</td>
<td>17.95</td>
<td>16.39</td>
<td>18.40</td>
<td>17.58</td>
<td>17.39</td>
<td>17.57</td>
<td>17.78</td>
</tr>
<tr>
<td>Mean</td>
<td>16.08</td>
<td>17.44</td>
<td>18.40</td>
<td>17.21</td>
<td>16.98</td>
<td>17.19</td>
<td>17.45</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.623 ton/ac.
S.E. of body of any table = 1.079 ton/ac.

Crop : Sugarcane.
Zone : Hargaon (Sitapur).

Object : To find the optimum manural combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Domar. (iii) Nil. (iv) As per treatments. (v) (a) 3 Hoeings. (b) to (e) N.A. (vi) 20.3.1950. (vii) Hrigaied. (viii) N.A. (iv) N.A. (x) 11.2.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V_1=CO. 421, V_2=CO. 453 and V_3=CO. 527.
   (2) 3 levels of N: N_0=0, N_1=60 and N_2=120 lb./ac.
   (3) 3 levels of P_2O_5: P_0=0, P_1=40 and P_2=80 lb./ac.
   N applied as A/S and P_2O_5 as Super. Manuring on 21.3.1950.

3. DESIGN:
   (i), (ii) 3^2 confounded design in which Z component of VNP interaction is confounded. (iii) (a) 50'X21'. (b) 44'X15'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (e) N.A. (vi) N.A. (v) Analytical results of soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>pH</th>
<th>C/N</th>
<th>C/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>0&quot;—11&quot;</td>
<td>7.2</td>
<td>0.88</td>
<td>5.21</td>
</tr>
<tr>
<td>11&quot;—28&quot;</td>
<td>7.0</td>
<td>6.25</td>
<td>3.12</td>
</tr>
<tr>
<td>28&quot;—47&quot;</td>
<td>7.0</td>
<td>5.40</td>
<td>2.85</td>
</tr>
<tr>
<td>47&quot;—72&quot;</td>
<td>7.0</td>
<td>8.18</td>
<td>2.90</td>
</tr>
</tbody>
</table>

   (vii) The exp. was conducted by D.S.R(M)'on cultivators' fields.

5. RESULTS:
   (i) 10.15 ton/ac.
   (ii) 3.367 ton/ac.
   (iii) Main effects of N and V are significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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<tr>
<td>V₁</td>
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<td>13.53</td>
<td>12.41</td>
<td>11.65</td>
<td>7.05</td>
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<td>V₂</td>
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<td>11.54</td>
<td>18.79</td>
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<td>V₃</td>
<td>5.28</td>
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<td>8.81</td>
<td>6.13</td>
<td>5.75</td>
<td>5.80</td>
<td>6.85</td>
</tr>
</tbody>
</table>

Mean: 7.31 9.79 13.34

10.15

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
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<td>6.46</td>
<td>8.87</td>
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<td>F₁</td>
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<td>14.54</td>
</tr>
<tr>
<td>F₂</td>
<td>6.69</td>
<td>11.38</td>
<td>16.61</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.122 ton/ac.
S.E. of body of any table = 1.944 ton/ac.

Crop: Sugarcane.
Zone: Hargaon (Sitapur).

Object: To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Domat. (iii) N.A. (iv) As per treatments. (v) (a) 10 hoeings; no ridges. (b) to (c) N.A. (vi) 18.3.1950. (vii) Canal irrigation. (viii) N.A. (ix) N.A. (x) 12 to 20.2.1951.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: V₁ = CO. 421, V₂ = CO. 453 and V₃ = CO. 527.
(2) 3 levels of N: N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.
(3) 3 levels of P₂O₅: P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.
N applied as A/S and P₂O₅ as Super.

3. DESIGN:
(i), (ii) 3² confounded design in which W component of VNP interaction is confounded. (iii) (a) 57' x 27'. (b) 51' x 21'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) No disease. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytica results of soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>0'—12'</th>
<th>12'—35'</th>
<th>35'—58'</th>
<th>58'—72'</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.5</td>
<td>7.5</td>
<td>7.0</td>
<td>7.5</td>
</tr>
<tr>
<td>C/N</td>
<td>11.1</td>
<td>7.81</td>
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<td>6.5</td>
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<tr>
<td>C/P</td>
<td>6.45</td>
<td>2.84</td>
<td>1.96</td>
<td>3.51</td>
</tr>
</tbody>
</table>

(vi) The experiment was conducted by D.S.R(M) on cultivators' fields.

5. RESULTS:
(i) 30.11 ton/ac.
(ii) 5.221 ton/ac.
(iii) None of the main effects or their interactions is significant.
Object: —To find the optimum manural combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (e) N.A. (ii) Domat. (iii) Nil. (iv) As per treatments. (v) (a) to (e) N.A. (vi) 30.3.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1, 2, 3.3.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: V_1 = CO. 421, V_2 = CO. 453 and V_3 = CO. 527
   (2) 3 levels of N : N_0 = 0, N_1 = 60 and N_2 = 120 lb./ac.
   (3) 3 levels of P_2 = 0, P_1 = 40 and P_2 = 80 lb./ac.
   N applied as A/S, P_2O_5 as Super. Manuring on 30.3.1950.

3. DESIGN:
   (i) and (ii) 3³ confounded design in which X component of VNP interaction is totally confounded. (iii) (a) 48°×21°. (b) 42°×15°. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:
   - Depth
   - pH
   - C/N
   - C/P

   (vii) The experiment was conducted by D.S.R. (S) on cultivator's fields.

5. RESULTS:
   (i) 13.42 ton/ac.
   (ii) 1.686 ton/ac.
   (iii) All main effects are highly significant. Interactions N×P and V×N are significant. Interaction V×P is not significant.
Crop :- Sugarcane.

Zone :- Hargaoon (Sitapur).

Object :- To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Kantili soil. (iii) N.A. (iv) As per treatments. (v) (a) 9 hoeings only. (b) to (e) N.A. (vi) 1.4.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 13, 14, 15.2.1951.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 varieties: V₁ = CO. 421, V₂ = CO. 453 and V₃ = CO. 527.

(2) 3 levels of N : N₀ = 0, N₁ = 60 and N₂ = 120 lb./ac.

(3) 3 levels of P₂O₅ : P₀ = 0, P₁ = 40 and P₂ = 80 lb./ac.

N applied as A/S, P₂O₅ as Super. Manure applied on 1.4.1950.

3. DESIGN :

(i) and (ii) 3³ confounded design in which Z component of VNP interaction is totally confounded. (iii) (a) 51'x21'. (b) 45'x15'. (iv) N.A.

4. GENERAL :

(i) N.A. (ii) Pyrilla nymphs seen here and there. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are :

<table>
<thead>
<tr>
<th>Depth</th>
<th>0&quot;–10&quot;</th>
<th>10&quot;–21&quot;</th>
<th>21&quot;–39&quot;</th>
<th>39&quot;–50&quot;</th>
<th>50&quot;–59&quot;</th>
<th>59&quot;–72&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.4</td>
<td>7.7</td>
<td>7.4</td>
<td>7.6</td>
<td>7.8</td>
<td>7.9</td>
</tr>
<tr>
<td>C/N</td>
<td>6.44</td>
<td>7.14</td>
<td>6.88</td>
<td>5.71</td>
<td>6.15</td>
<td>5.48</td>
</tr>
<tr>
<td>C/P</td>
<td>6.78</td>
<td>8.82</td>
<td>11.07</td>
<td>5.58</td>
<td>3.24</td>
<td>2.04</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R. (S) on cultivator's fields.

5. RESULTS:

(i) 25.05 ton/ac.

(ii) 2.627 ton/ac.

(iii) Main effects of N and V are highly significant, interaction N×P is significant. Other effects are not significant.
Object:—To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Kankrili soil. (iii) N.A. (iv) As per treatments. (v) (a) 6 hoeings. No-earthing. (vi) 11.3.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 18 to 20.2.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties: \( V_1 = C0-421, V_2 = C0-453 \) and \( V_3 = C0-527 \).
   (2) 3 levels of N: \( N_0 = 0, N_1 = 60 \) and \( N_2 = 120 \) lb./ac.
   (3) 3 levels of \( P_2 O_5 \): \( P_0 = 0, P_1 = 40 \) and \( P_2 = 80 \) lb./ac.
   N applied as A/S and \( P_2 O_5 \) as Super. Manuring on 11.3.1950.

3. DESIGN:
   (i) and (ii) 3\(^3\) confounded design in which X component of VNP interaction is totally confounded. (iii) (a) \(-60\times21\)". (b) \(54\times15\)". (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Pyrilla attack noticed. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A.
   (vi) Analytical results of soil are:
   - Depth: \(0^\circ-8^\circ\) \(8^\circ-17^\circ\) \(17^\circ-29^\circ\) \(29^\circ-49^\circ\) \(49^\circ-61^\circ\) \(61^\circ-72^\circ\)
   - \(pH\): 5.5 5.5 6.5 7.0 7.5 7.5
   - C/N: 12.5 7.00 11.88 7.25 9.41 8.05
   - C/P: 15.49 5.60 3.96 1.36 0.90 0.70
   (vii) The experiment was conducted by D.S.R.(S) on cultivator's fields.

5. RESULTS:
   (i) 25.54 ton/ac.
   (ii) 2.976 ton/ac.
   (iii) Main effects of N is highly significant. Main effect of V is significant. Other effect and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N_0</th>
<th>N_1</th>
<th>N_2</th>
<th>Mean</th>
<th>P_0</th>
<th>P_1</th>
<th>P_2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_1</td>
<td>24.55</td>
<td>28.93</td>
<td>28.82</td>
<td>27.43</td>
<td>30.69</td>
<td>25.27</td>
<td>26.34</td>
</tr>
<tr>
<td>V_2</td>
<td>21.74</td>
<td>29.60</td>
<td>28.09</td>
<td>26.48</td>
<td>26.35</td>
<td>24.27</td>
<td>28.81</td>
</tr>
<tr>
<td>V_3</td>
<td>18.74</td>
<td>24.31</td>
<td>25.05</td>
<td>22.70</td>
<td>25.03</td>
<td>21.87</td>
<td>21.20</td>
</tr>
<tr>
<td>Mean</td>
<td>21.68</td>
<td>27.61</td>
<td>27.32</td>
<td>25.54</td>
<td>27.36</td>
<td>23.81</td>
<td>25.45</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.992 ton/ac.
S.E. of body of any table = 1.718 ton/ac.

Crop: -Sugarcane.
Zone: -Hargaon (Sitapur).
Ref: - U.P. 53(205).
Type: -‘MV’.

Object: - To find the optimal manural combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Bhur. (iii) N.A. (iv) As per treatments. (v) (a) Hoeings and one earthing.
(b) to (e) N.A. (vi) 15.3.1950. (vii) Irrigated. (viii) and (ix) N.A. (x) 23.2.1951.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 varieties: V_1 = CO-421, V_2 = CO-453 and V_3 = CO-527.
(2) 3 levels of N: N_0 = 0, N_1 = 60 and N_2 = 120 lb./ac.
(3) 3 levels of P: P_0 = 0, P_1 = 40 and P_2 = 80 lb./ac.
N applied as A/S and P_2 as Super. Manuring on 15.3.1950.

3. DESIGN:
(i) and (ii) 3^p confounded design in which Y component of VNP interaction is confounded. (iii) (a) 60'×21'. (b) 54'×15'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (5) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:

<table>
<thead>
<tr>
<th>Depth</th>
<th>pH</th>
<th>C/N</th>
<th>C/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>0&quot;–9&quot;</td>
<td>6.1</td>
<td>6.25</td>
<td>5.00</td>
</tr>
<tr>
<td>9&quot;–20&quot;</td>
<td>6.0</td>
<td>5.37</td>
<td>2.01</td>
</tr>
<tr>
<td>20&quot;–43&quot;:</td>
<td>5.6</td>
<td>2.15</td>
<td>1.26</td>
</tr>
<tr>
<td>43&quot;–54&quot;:</td>
<td>6.1</td>
<td>2.00</td>
<td>0.42</td>
</tr>
</tbody>
</table>

(vii) The experiment was conducted by D.S.R. (S) on cultivator’s fields.

5. RESULTS:
(i) 15.29 ton/ac.
(ii) 4.846 ton/ac.
(iii) Main effects and their interactions are not significant.
Object:—To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Matyar. (iii) N.A. (iv) As per treatments. (v) (a) Hoeings by kudali and 3 cultivator plough. No earthing. (b) to (e) N.A. (vi) 1.4.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 26, 27 and 28.2.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varietes: \( V_1 = C0. 421, V_2 = CO. 453 \) and \( V_3 = CO. 527 \).
   (2) 3 levels of \( N \): \( N_0 = 0, N_1 = 60 \) and \( N_2 = 120 \) lb./ac.
   (3) 3 levels of \( P_2 O_5 \): \( P_0 = 0, P_1 = 40 \) and \( P_2 = 80 \) lb./ac.

   N applied as A/S and \( P_2 O_5 \) as Super. Manuring on 1.4.1950.

3. DESIGN:
   (i), (ii) 3\(^2\) confounded design in which \( W \) component of VNP interaction is confounded. (iii) (a) 47'×24'. (b) 41'×16'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of soil are:
   
<table>
<thead>
<tr>
<th>Depth</th>
<th>0'-9'</th>
<th>9'-19'</th>
<th>19'-49'</th>
<th>48'-72'</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.4</td>
<td>7.4</td>
<td>7.3</td>
<td>7.4</td>
</tr>
<tr>
<td>C/N</td>
<td>11.38</td>
<td>4.54</td>
<td>2.91</td>
<td>3.33</td>
</tr>
<tr>
<td>C/P</td>
<td>5.32</td>
<td>2.67</td>
<td>2.24</td>
<td>0.98</td>
</tr>
</tbody>
</table>

   (vii) The experiment was conducted by D.S.R(S) on cultivator's fields.

5. RESULTS:
   (i) 25.80 ton/ac.
   (ii) 9.417 ton/ac.
   (iii) None of the main effects and their interactions is significant.
Crop :- Sugarcane.
Zone :- Hargaon (Sitapur).

Object :- To find the optimum manurial combination of N and P for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Kankrili soil. (iii) N.A. (iv) As per treatments. (v) (a) 4 hoeings. (b) to (e) N.A. (vi) 16.3.1950. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 18, 19 and 20.2.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 varieties : V1=CO. 421, V2=CO. 453 and V3=CO. 527.
   (2) 3 levels of N : N0=0, N1=60 and N2=120 lb./ac.
   (3) 3 levels of P2O5 : P0=0, P1=40 and P2=80 lb./ac.
   N applied as A/S and P2O5 as Super. Manuring on 16.3.1950.

3. DESIGN:
   (i), (ii) 3^2 confounded design in which Y component of VNP interaction is totally confounded. (iii) (a) 45°x21'. (b) 39°x15'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Pyrilla nymphs present. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Analytical results of the soil are :-
   
<table>
<thead>
<tr>
<th>Depth</th>
<th>0°-8°</th>
<th>8°-20°</th>
<th>20°-35°</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.2</td>
<td>7.1</td>
<td>3.5</td>
</tr>
<tr>
<td>C/N</td>
<td>12.38</td>
<td>8.18</td>
<td>8.12</td>
</tr>
<tr>
<td>C/P</td>
<td>18.57</td>
<td>6.75</td>
<td>3.51</td>
</tr>
</tbody>
</table>
   (vii) The exp. was conducted by D.S.R(S) on cultivator's fields.

5. RESULTS:
   (i) 18.36 ton/ac.
   (ii) 2.311 ton/ac.
   (i) Main effect of V is highly significant. Main effect of N is significant. Other effect and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>(N_0)</th>
<th>(N_1)</th>
<th>(N_2)</th>
<th>Mean</th>
<th>(P_0)</th>
<th>(P_1)</th>
<th>(P_2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V_1)</td>
<td>10.08</td>
<td>15.97</td>
<td>15.97</td>
<td>14.01</td>
<td>12.99</td>
<td>12.31</td>
<td>16.72</td>
</tr>
<tr>
<td>(V_2)</td>
<td>22.54</td>
<td>24.88</td>
<td>24.88</td>
<td>24.10</td>
<td>24.02</td>
<td>23.69</td>
<td>24.58</td>
</tr>
<tr>
<td>(V_3)</td>
<td>16.31</td>
<td>16.18</td>
<td>18.46</td>
<td>16.98</td>
<td>15.80</td>
<td>17.44</td>
<td>17.71</td>
</tr>
<tr>
<td>Mean</td>
<td>16.31</td>
<td>19.01</td>
<td>19.77</td>
<td>18.36</td>
<td>17.61</td>
<td>17.81</td>
<td>19.67</td>
</tr>
<tr>
<td>(P_0)</td>
<td>18.80</td>
<td>17.24</td>
<td>16.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(P_1)</td>
<td>12.98</td>
<td>19.70</td>
<td>20.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(P_2)</td>
<td>17.16</td>
<td>20.09</td>
<td>21.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.770 ton/ac.
S.E. of body of any table = 1.335 ton/ac.

Crop :- Sugarcane.
Zone :- Hargaon (Sitapur).

Object :- To find the optimum manurial combinations of \(N\) and \(P\) for three different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) Bhur.  (iii) N.A.  (iv) As per treatments.  (v) (a) to (e) N.A.  (vi) 15.3.1950.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 23.2.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3).
   (1) 3 varieties: \(V_1 = CO. \ 421\), \(V_2 = CO. \ 453\) and \(V_3 = CO. \ 527\).
   (2) 3 levels of \(N\): \(N_0 = 0\), \(N_1 = 60\) and \(N_2 = 120\) lb./ac.
   (3) 3 levels of \(P_2\): \(P_0 = 0\), \(P_1 = 40\) and \(P_2 = 80\) lb./ac.

N applied as A/S and \(P_2\) as Super. Manuring on 15.3.1950.

3. DESIGN:
   (i) and (ii) 3\(^3\) confounded design in which X component of VNP interaction is confounded. (iii) (a) \(6\times 21\).  (b) \(54\times 15\).  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Sugarcane yield. (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Analytical results of soil are:

   Depth 0" - 14" 14" - 46" 46" - 60" 60" - 58" 58" - 72"
   pH 7.0 6.8 6.9 6.9
   C/N 14.58 14.58 15.4 15.11
   C/P 12.44 5.83 2.3 3.54

   (vii) The experiment was conducted by D.S.R. (S) on cultivator's fields.

5. RESULTS:
   (i) 22.48 ton/ac.
   (ii) 5333 ton/ac.
   (iii) None of the effects and their interactions is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>25.45</td>
<td>21.35</td>
<td>23.82</td>
<td>23.54</td>
<td>21.49</td>
<td>25.34</td>
<td>23.79</td>
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<tr>
<td>V₂</td>
<td>25.14</td>
<td>24.05</td>
<td>28.27</td>
<td>25.82</td>
<td>23.38</td>
<td>23.22</td>
<td>30.88</td>
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<tr>
<td>V₃</td>
<td>15.58</td>
<td>19.56</td>
<td>19.10</td>
<td>18.08</td>
<td>19.26</td>
<td>23.30</td>
<td>11.68</td>
</tr>
<tr>
<td>Mean</td>
<td>22.06</td>
<td>21.65</td>
<td>23.73</td>
<td>22.48</td>
<td>21.38</td>
<td>23.95</td>
<td>22.12</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.778 ton/ac.
S.E. of body of any table = 3.079 ton/ac.

**Crop:** Sugarcane.

**Site:** Govt. Agri. Farm, Baharaich.

**Object:** To find out suitable time of planting Sugarcane.

1. **BASAL CONDITIONS:**
   (i) (a) Nil. (b) Sanai as G.M. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) As per treatments. (iv) (a) Ploughings by Meston 7 times, by cultivator 3 times, planking 5 times along the later ploughings. (b) Sown flat. (c) N.A. (d) 5 rows/plot, rows 3' apart. (e) N.A. (v) Sanai at 60 lb./ac. of N on 22.8.1950, top dressing 3 md. 20 seers of G.N.C. at 34 lb./ac. of N and A/S at 1 md. 1 seer at 25 lb./ac. of N on 12.6.1951. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 5 hoeings by kassi and 3 by cultivator. (ix) N.A. (x) 10.3.1952.

2. **TREATMENTS:**
   1. October planting (23.10.1950).
   2. November planting (27.11.1950).
   5. March planting (15.3.1951).

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 86'X15'. (v) Nil. (vi) Yes.

4. **GENERAL:**
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) No. (v) (a) Zones : Nawabgunj, Sardarnagar, Pharenda, Gauribazar, Captaiinganj and Ghugli. (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. **RESULTS:**
   (i) 19.45 ton/ac.
   (ii) 2.887 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>22.14</td>
</tr>
<tr>
<td>2.</td>
<td>19.27</td>
</tr>
<tr>
<td>3.</td>
<td>18.99</td>
</tr>
<tr>
<td>4.</td>
<td>18.38</td>
</tr>
<tr>
<td>5.</td>
<td>18.49</td>
</tr>
</tbody>
</table>

S.E./mean = 1.443 ton/ac.
Crop : Sugarcane.

Site :- Govt. Agri. Farm, Baharaich.

Ref :- U.P. 52 (226).

Type :- ‘C’.

Object :- To find out methods of improving Sugarcane yield under late planting.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sanai. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 16.2.52 and 20.21.3.1952. (iv) (a) Ploughings by desi plough. Harrowing also done along with ploughings. (b) Planted in furrows made by desi plough. (c) 1275, 1530, 2550 and 3060 buds/plot according to treatments. (d) 5 rows/plot. (e) N.A. (v) Compost 150 md. on 1 and 2.1.1952 and Castor cake 9 md. on 24.1.1952. (vi) N.A. (vii) Irrigated. (viii) 5 hoeings by cultivator. (ix) N.A. (x) 1,3,2.1953.

2. TREATMENTS :

1. February planting—3’ distance—setts overlapping.
3. March planting—3’ distance—double setting.
5. March planting—2½’ distance—double setting.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 85’×15’. (v) Nil. (vi) Yes.

4. GENERAL :

(iv) Crop condition satisfactory. February, planted sugarcane was better than others in growth. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) to (c) No. (v) (a) Zones: Gorakhpur, Tanikali, Faizabad and Ghugli. (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS :

(i) 22.86 ton/ac.
(ii) 3.927 ton/ac.

(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>26.04</td>
</tr>
<tr>
<td>2.</td>
<td>20.67</td>
</tr>
<tr>
<td>3.</td>
<td>21.92</td>
</tr>
<tr>
<td>4.</td>
<td>21.82</td>
</tr>
<tr>
<td>5.</td>
<td>23.87</td>
</tr>
</tbody>
</table>

S.E./mean = 1.964 ton/ac.

Crop :- Sugarcane.

Site :- Govt. Agri. Farm, Baharaich.

Ref :- U.P. 51(177).

Type :- ‘C’.

Object :- To find out suitable rotation with the Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 11.2.1951. (iv) (a) 6 ploughings by Meston and 2 by cultivator plough and 5 plankings along with ploughings. (b) Flat sowing system. (c) 1806 buds/plot. (d) 3’ apart. (e) N.A. (v) Top dressing of cake at 6 md. and A/S at 2 md. 20 srs. on 11.6.1951 (vi) CO.453 (mid-late). (vii) Irrigated. (viii) 7 hoeings by kassi and cultivator. (ix) N.A. (x) 5 to 20.3.1952.

2. TREATMENTS :

1. Fallow—sugarcane.
2. Sanai—sugarcane.
4. Sanai—mustard—sugarcane.
5. Jowar+Arhar—sugarcane.

3. DESIGN :

(i) R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 86’×21’. (v) Block 4’ apart. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) Zones: Captaianganj, Sardarnagar and Anandnagar. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:
(i) 28.18 ton/ac.
(ii) 3.18 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>30.97</td>
</tr>
<tr>
<td>2.</td>
<td>32.59</td>
</tr>
<tr>
<td>3.</td>
<td>26.91</td>
</tr>
<tr>
<td>4.</td>
<td>27.12</td>
</tr>
<tr>
<td>5.</td>
<td>26.50</td>
</tr>
<tr>
<td>6.</td>
<td>24.59</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 1.59 ton/ac.</td>
</tr>
</tbody>
</table>


Object: To find out some suitable crop rotation for the Sugarcane.

1. BASAL CONDITIONS:
(i) (a) (b). As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 15.2.1952. (iv) (a) Harrowing along with hoeing. (b) N.A. (c) 1530 buds/plot. (d) 6 rows/plot. (e) N.A. (v) 220 md. i.e. 90 lb./ac. of N form 9 to 15.1.1952. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 4 hoeings with cultivator. (ix) N.A. (x) 15, 16.3.1950.

2. TREATMENTS:
1. Fallow - fallow - sugarcane.
2. Sanai - fallow - sugarcane.
5. Jowar + arhar - fallow - sugarcane.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 85'×18'. (v) Plots 4' apart. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1951 to 1952. (b) and (c) No. (v) (a) Zones: Ghugli, Captaianganj, Gorakhpur, Faizabad, Anandnagar and Gauribazar. (vi) Nil. (vii) Experiment was conducted by D.S.R(G).

5. RESULTS:
(i) 25.47 ton/ac.
(ii) 2.53 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>30.22</td>
</tr>
<tr>
<td>2.</td>
<td>32.96</td>
</tr>
<tr>
<td>3.</td>
<td>26.44</td>
</tr>
<tr>
<td>4.</td>
<td>29.30</td>
</tr>
<tr>
<td>5.</td>
<td>16.28</td>
</tr>
<tr>
<td>6.</td>
<td>17.62</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 1.27 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.
Site :- Govt. Agri. Farm, Baharaich.

Object :- To find out some suitable crop rotation for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a), (b) As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) As per treatments. (iv) (a) 1 ploughing with Meston, 3 ploughings with desi plough and 1 planking. (b) Sown in lines. (c) 1 440 buds/plot. (d) 3' apart. (e) N.A. (v) Castor cake at 40 lb./ac. of N on 6.10.1952, 31.1.1953, and 2.4.1953. Top dressing by mixture on 15.7.1953. (vi) CO, 453 (medium-late). (vii) Irrigated. (viii) 2 hoeings and 1 earthing. (ix) N.A. (x) Jan, 1954.

2. TREATMENTS:

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 48'x29'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1954. (b) and (c) No. (v) (a) Captainganj, Gorakhpur. (b) N.A. (vi) Nil. (vii) Experiment was conducted by D.S.R(G).

5. RESULTS:
   (i) 18.76 ton/ac.
   (ii) 4.62 ton/ac.
   (iii) Treatments are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.73</td>
</tr>
<tr>
<td>2.</td>
<td>20.80</td>
</tr>
<tr>
<td>3.</td>
<td>23.99</td>
</tr>
<tr>
<td>4.</td>
<td>24.43</td>
</tr>
<tr>
<td>5.</td>
<td>11.60</td>
</tr>
<tr>
<td>6.</td>
<td>11.03</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=2.31 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Govt. Agri. Farm, Baharaich.

Object :- To find out the proper rotation with the Sugarcane crop on the basis of intensive cultivation in paddy grown areas.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) As per treatments. (iv) (a) 2 ploughings for October planting and 3 ploughings for January and March planting and 1 harrowing. (b) Flat planting in line. (c) 1440 buds/plot. (d) 18 rows/plot at 3' apart. (e) N.A. (v) 72 lb/ac of N as Castor cake applied in total along with the plantings on different dates and top dressing 16 lb/ac of N as A/S on 15.5.1954. (vi) CO, 453 (late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) February 1955.

2. TREATMENTS:
   1. Paddy - fallow-sugarcane on 3.2.1954.
   4. Paddy+dhaincha-gram-sugarcane on 2.10.1953.
3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 48' x 30'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1954.
   (b) and (c) No. (v) (a) Lakshmiganj, Captaingunj, Gorakhpur and Faizabad zones. (b) N.A. (vi) Nil.
   (viii) Experiment was conducted by D.S.R. (G).

5. RESULTS:
   (i) 26.81 ton/ac.
   (ii) 5.51 ton/ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25.61</td>
</tr>
<tr>
<td>2</td>
<td>23.13</td>
</tr>
<tr>
<td>3</td>
<td>33.44</td>
</tr>
<tr>
<td>4</td>
<td>31.95</td>
</tr>
<tr>
<td>5</td>
<td>27.99</td>
</tr>
<tr>
<td>6</td>
<td>18.75</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.75 ton/ac</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Site :- Govt. Agri. Farm, Baharaich.  
Ref :- U.P. 50(184).  
Type :- 'C'.

Object :- To find out the proper rotation with the Sugarcane crop on the basis of intensive cultivation in paddy grown areas.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) N.A. (iv) (a) to (c) N.A. (d) 7 rows/plot. (e) N.A. (v) Compost 3 C.L. on 6.2.1950 and Castor cake at 79 lb./ac. on 12 and 15.5.1950 (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 5 hoeings. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Fallow-fallow-sugarcane.
   2. Sanai G.M. -fallow sugarcane.
   5. Paddy-fallow-sugarcane.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) and (b) 87' x 21'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) No. (v) (a) Deoria, Sadarnagar, Anandnagar, Captainganj, Ghugli and Balrampur zones. (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:
   (i) 34.56 ton/ac.
   (ii) 2.79 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34.51</td>
</tr>
<tr>
<td>2</td>
<td>36.43</td>
</tr>
<tr>
<td>3</td>
<td>33.80</td>
</tr>
<tr>
<td>4</td>
<td>35.08</td>
</tr>
<tr>
<td>5</td>
<td>30.73</td>
</tr>
<tr>
<td>6</td>
<td>36.81</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.13 ton/ac</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.

Object :- To find out proper rotation with the Sugarcane crop on the basis of intensive cultivation in paddy grown areas.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) Ploughings twice by praja plough and thrice by desi plough. (b) Flat planting. (c) 1890 buds/plot. (d) Rows 3' apart. (e) —. (v) Compost at 40 lb./ac. of N on 27.1.1954 ; G.N.C. and A/S at 40 lb./ac. of N at planting. Top dressing of A/S at 20 lb./ac. of N on 16.7.1954. (vi) CO. 393 (early) (vii) Irrigated. (viii) 1 hoeing by kudali and 1 by cultivator. 1 earthing by ridger. (ix) N.A. (x) 28, 29.1.1955 and 1.2.1955.

2. TREATMENTS:
   3. Paddy+dhaincha—peas—sugarcane on 20.10.1953

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 70' X 27'. (b) 64' X 21'. (v) 3' alround. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Sugarcane yield at harvest excluding cane harvested for sampling of juice. (iv) (a) 1953–1955. (b) and (c) No. (v) (a) Lakshmiganj, Captainganj, Gorakhpur and Faizabad zones. (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R.(G).

5. RESULTS:
   (i) 17.90 ton/ac.
   (ii) 2.01 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.86</td>
</tr>
<tr>
<td>2.</td>
<td>21.85</td>
</tr>
<tr>
<td>3.</td>
<td>19.90</td>
</tr>
<tr>
<td>4.</td>
<td>15.69</td>
</tr>
<tr>
<td>5.</td>
<td>16.36</td>
</tr>
<tr>
<td>6.</td>
<td>11.73</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>~1.00 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane

Object :- To see the effects of different Kharif crops on Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 23 and 24.2.1949. (iv) (a) 4 preparatory ploughings with desi and Watt’s plough. (b) Sown flat. (c) 69 three budded setts/row. (d) and (e) N.A. (v) N.A. (vi) CO-453 (late). (vii) Irrigated. (viii) 1 earthing and 1 hoeing. (ix) 52.86'. (x) 21.2.1950 to 3.3.1950.

2. TREATMENTS:
   1. Wheat—fallow—sugarcane.
   2. Wheat—chari—sugarcane.
3. DESIGN:
   (i) R.B.D.  (ii) (a) 6.  (b) N.A. (iii) 4. (iv) (a) 56'×27'.  (b) 50'×21'.  (v) 3' around.  (vi) Yes.

4. GENERAL:
   (i) Normal. No lodging. (ii) No. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949 to 1951' (b) No. (c) N.A.  (v) (a) No. (b) N.A.  (vi) Nil.  (vii) Experiment conducted by D.S.R.(G).

5. RESULTS:
   (i) 17.42 ton/ac.
   (ii) 2.633 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment  
   1. 15.24
   2. 18.88
   3. 15.73
   4. 19.27
   5. 16.90
   6. 18.49
   S.E./mean = 1.317 ton./ac.

---

Crop :-Sugarcane.  
Site :-Sugarcane Res. Sub-Stn., Kunrghat.  
Object :-To see the effects of different Kharif crops on Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments.  (c) G.M.  (ii) (a) Sandy loam. (b) N.A. (iii) 22, 23.2.1550.  (iv) (a) 6 preparatory ploughings with desi and Watt's ploughs. (b) Sown flat. (c) 60 three budded setts/row. (d) and (e) N.A.  (v) Nil.  (vi) CO.453 (late).  (vii) Irrigated. (viii) T earthing and 8 hoeings. (ix) 44.96'. (x) 4.1.1951 to 14.2.1951.

2. TREATMENTS:
   1. Wheat—fallow—sugarcane.
   2. Wheat—chari—sugarcane.
   5. Wheat—sanai—sugarcane.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 6.  (b) N.A. (iii) 4. (iv) (a) 56'×27'.  (b) 50'×21'.  (v) 3' around.  (vi) Yes.

4. GENERAL:
   (i) Normal. No lodging. (ii) No. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949 to 1951. (b) and (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment was conducted by D.S.R(G).

5. RESULTS:
   (i) 20.03 ton/ac.
   (ii) 2.119 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment  
   1. 20.59
   2. 21.30
   3. 20.34
   4. 18.66
   5. 19.83
   6. 19.47
   S.E./mean = 1.059 ton/ac.
Crop :- Sugarcane.
Site : Sugarcane Res. Sub-Stn., Kunraghat.
Object :- To see the effects of different kharif crops on Sugarcane crop.

1. BASAL CONDITIONS :
   (i) (a) and (b) As per treatments. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 22.2.1951. (iv) (a) 6 preparatory ploughings with desi and victory plough. (b) Sown flat. (c) 60, 3-budded setts/row. (d) and (e) N.A. (v) 60 lb./ac. of N as Neem cake and A/S (50 : 50) applied at tillering. (vi) CO. 453. (vii) Irrigated. (viii) 1 earthing and 5 hoeing. (ix) 27.19”. (x) 8.1.1952 to 1.2.1952.

2. TREATMENTS :
   1. Fallow—sugarcane.
   2. Chari—sugarcane.
   4. Sanai—sugarcane.
   5. Paddy—sugarcane.

3. DESIGN :
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 56’x27’. (b) 50’x21’. (v) 3’ around. (vi) Yes.

4. GENERAL :
   (i) Normal, No lodging. (ii) No. (iii) Germination, tiller, millable cane and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R(G).

5. RESULTS :
   (i) 20.24 ton/ac. 
   (ii) 2.256 ton/ac. 
   (iii) Treatment differences are highly significant. 
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.91</td>
</tr>
<tr>
<td>2.</td>
<td>18.27</td>
</tr>
<tr>
<td>3.</td>
<td>18.65</td>
</tr>
<tr>
<td>4.</td>
<td>25.80</td>
</tr>
<tr>
<td>5.</td>
<td>19.71</td>
</tr>
<tr>
<td>6.</td>
<td>18.08</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.128 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site - Sugarcane Res. Sub-Stn., Kunraghat.
Object :- To see the effects of different kharif crops on Sugarcane crop.

1. BASAL CONDITIONS :
   (i) (a) and (b) As per treatments. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) 5 ploughings with cultivator and desi plough. (b) N.A. (c) 60, three budded setts/row (d) and (e) N.A. (v) Castor cake at 60 lb./ac. of N and A/S at 60 lb./ac of N top dressed. (vi) CO. 453 (late) (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (ix) :2.35” (x) 31.1.1953 to 2 2.1953.

2. TREATMENTS :

3. DESIGN :
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 27’x39’. (b) 21’x33’. (v) 3’ around. (vi) Yes.
4. GENERAL:
   (i) Normal. No lodging. (ii) Attack of borers; borers were killed on 21.5.1952. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:
   (i) 19.43 ton/ac.
   (ii) 3.520 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.56</td>
</tr>
<tr>
<td>2.</td>
<td>21.41</td>
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<tr>
<td>3.</td>
<td>19.62</td>
</tr>
<tr>
<td>4.</td>
<td>18.09</td>
</tr>
<tr>
<td>5.</td>
<td>20.45</td>
</tr>
<tr>
<td>6.</td>
<td>16.43</td>
</tr>
</tbody>
</table>
   
   S.E./mean = 1.760 ton/ac.

**Crop:** Sugarcane.  
**Site:** Sugarcane Res. Sub-Stn., Kunraghat.  
**Ref.:** U.P. 53(170).  
**Type:** ‘C’.

Object: To see the effects of different **kharif/crops** on sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) 10 preparatory ploughings with desi and victory plough. (b) N.A. (c) 60 three budded setts/row. (d) and (e) N.A. (v) G.N.C. at 60 lb./ac. of N and 60 lb./ac. of N as A/S. (vi) CO. 453 (late). (vii) Irrigated. (viii) 1 earthing and hoeing. (ix) 50.57°. (x) 1.2.1954 to 8.3.1954.

2. TREATMENTS:
   5. Paddy—pea—sugarcane planted on 3, 4.4.1953.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 27’×59’. (b) 21’×53’. (v) 3’ around. (vi) Yes.

4. GENERAL:
   (i) Normal. No lodging. (ii) Attack of borers. (iii) Germination, tillers, millable cane, sugarcane yield. (iv) (a) 1952 to 1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:
   (i) 20.75 ton/ac.
   (ii) 3.105 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.62</td>
</tr>
<tr>
<td>2.</td>
<td>20.61</td>
</tr>
<tr>
<td>3.</td>
<td>20.62</td>
</tr>
<tr>
<td>4.</td>
<td>21.79</td>
</tr>
<tr>
<td>5.</td>
<td>20.19</td>
</tr>
<tr>
<td>6.</td>
<td>19.69</td>
</tr>
</tbody>
</table>
   
   S.E./mean = 1.552 ton/ac.
Crop :- Sugarcane.
Ref :- U.P. 52(61).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.
Type :- C'.

Object :- To find out the possibilities of taking gram as a catch crop in Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) G.M.—Wheat—Fodder—Sugarcane. (b) Moong. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) Autumn 8.10.1951 and spring 17 and 18.3.1952. Gram was also sown on this date. (iv) (a) 6 preparatory ploughings for autumn sugarcane and gram. 9 preparatory ploughings for spring sugarcane. (b) Planted flat. (c) 70 md. of seed cane and 4200 buds/ac. (d) In rows 3' apart and two rows of gram between rows of sugarcane. (e) N.A. (v) Compost broadcast at 80 lb./ac. of N before planting. (vi) CO-453 (late) (vii) Irrigated. (viii) 7 hoeings in autumn sugarcane and 6 hoeings in spring sugarcane. Earthing up in July. (ix) 26.62'. (x) 22 to 27.12.1952.

2. TREATMENTS :
   Main-plot treatments :
   2 times of sowing : S₁ = autumn sowing and S₂ = spring sowing.
   Sub-plot treatments :
   2 levels of catch crop : G₀ = no gram and G₁ = gram.
   A/S at 60 lb./ac. of N and Castor cake at 20 lb./ac. of N over the basal dressing of compost was applied in the last fortnight of May.

3. DESIGN :
   (i) Split-plot. (ii) (a) 2 main-plots/replication and 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) Main-plot size gross = 1/13.35 ac. Sub : 75'x21'. (b) 69'x15'. (v) One row on either side and 3' border on each end of plot. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Too much borer in general, most of the millable sugarcane remained stunted. Autumn planted was much affected by pyrilla damage. (iii) Germination, tiller, millable cane counting and sugarcane yield. (iv) (a) 1952-1953 and 1954-1955. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by D.S.R.(M).

5. RESULTS :
   (i) 15.81 ton/ac.
   (ii) (a) 1.77 ton/ac. (b) 1.47 ton/ac.
   (iii) Main effects of S and G and S x G interaction are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

\[
\begin{array}{ccc}
 & G₀ & G₁ & \text{Mean} \\
S₁ & 20.77 & 15.49 & 18.13 \\
S₂ & 13.56 & 13.41 & 13.49 \\
\text{Mean} & 17.17 & 14.45 & 15.81 \\
\end{array}
\]

S.E. of difference of two
1. S marginal means = 0.72 ton/ac.
2. G marginal means = 0.60 ton/ac.
3. G means at a level of S = 0.85 ton/ac.
4. S means at a level of G = 0.94 ton/ac.
Crop :- Sugarcane.  
Site :- Sugarcane Res. Sub-Stn. Muzaffarnagar. 
Ref :- U.P. 53(177).  
Type :- 'C'.

Object :- To find out the possibilities of taking gram as a catch crop in Sugarcane.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat—Fodder—Sugarcane. (b) Guar for fodder. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) Autumn on 12.10.1953 and spring on 20.3.1953. Gram was also sown on these dates. (iv) (a) 4 preparatory ploughings for autumn sugarcane and gram. 12 preparatory ploughings for spring sugarcane. (d) Planted flat. (c) 80 md. of sugarcane seed; 4200 buds/ac. (d) In rows 3' apart and two rows of gram between 2 rows of Sugarcane. (e) N.A. (v) Compost broadcast at 80 lb/ac. of N before planting. (vi) COS-453 (late). (vii) Irrigated. (viii) 9 hoeings in autumn sugarcane and 8 hoeings in spring sugarcane. Earthing up in July. (ix) 31.20'.

2. TREATMENTS:
Main-plot treatments :
2 times of sowing: \( S_1 \) = autumn sowing and \( S_2 \) = spring sowing.

Sub-plot treatments :
2. Levels of catch crop : \( G_0 \) = no gram and \( G_1 \) = gram.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) Main-plot size gross = 1/13.35. Sub : 75 \( \times \) 21'. (b) 62' \( \times \) 15'. (v) One row on each side and 3' border on each end of plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tiller, millable sugarcane. (iv) (a) 1952-1953 and 1954-1955. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment conducted by D.S.R.(M).

5. RESULTS:
(i) 22.63 ton/ac.  
(ii) (a) 4.159 ton/ac.  
(b) 1.956 ton/ac.  
(iii) Main effects of G and interaction S \( \times \) G are highly significant. Main effect of S is not significant.  
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( G_0 )</th>
<th>( G_1 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( S_1 )</td>
<td>26.48</td>
<td>19.46</td>
<td>22.97</td>
</tr>
<tr>
<td>( S_2 )</td>
<td>21.71</td>
<td>22.86</td>
<td>22.29</td>
</tr>
<tr>
<td>Mean</td>
<td>24.10</td>
<td>21.16</td>
<td>22.63</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. S marginal means = 1.70 ton/ac.  
2. G marginal means = 0.80 ton/ac.  
3. G means at a level of S = 1.13 ton/ac.  
4. S means at a level of G = 1.88 ton/ac.

Crop :- Sugarcane.  
Site :- Sugarcane Res. Sub-Stn., Neoli. 
Ref :- U.P. 52(199).  
Type :- 'C'.

Object :- To find out the possibility of inter cropping gram with Autumn Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sana (c) No. (ii) (a) Light sandy loam (khaddar soil having alkaline patches). (b) Refer soil analysis, Neoli. (iii) 17.10.1952 (October planting and gram) and 18.2.1953 (February planting). (iv) (a) Harrowing by tractor on 17.9.1952, ploughing by Neoli plough on 19, 23 and 29.9.1952 and 9.10.1952. Harrowing by tractor on 27.9.1952 and 15.10.1952. (b) Ploughing by tractor 13.10.1952. (v) N.A. (c) Seed rate of gram = 30 s.r./ac. sugarcane 52 three budded plants/row. (d) Sown behind the plough, (e) ---. (f) Sanai green manured (turning in on 16.8.15). Application of A/S and mohwa cake at 8$/plot. (vi) C - cm—local variety. Sugarcane CO-3. (vii) Irrigated. (viii) Hoeing with cultivator on 4, 19 and 27.4., 53. Hoeing by spade on 4.6.1953 and 7.7.1953.

Crop :- Sugarcane.  
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.  
Ref :- U.P. 53(197).  
Type :- 'C'.

Object :- To find out the possibilities of taking gram as a catch crop in Sugarcane.
2. TREATMENTS:
1. October planting + gram inter sown.
2. October planting.
3. February planting.

3. DESIGN:
(i) R.B.D. (ii) A. (b) N.A. (iii) S. (iv) A 50'x24'. (b) 45'x18' (v) Plot to plot distance=3'.
(vi) Yes.

4. GENERAL:
(i) Gram—failed due to disease and the soil is not suitable for gram cultivation. Sugarcane satisfactory.
(ii) Gram suffered very badly by wilting at the ripening stage March 1953. No disease in sugarcane.
(iii) Germination, tiller, counting, millable cane and sugarcane yield. (iv) (a) to (c) No. (v) (a) and
(b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S)

5. RESULTS:
(i) 19.47 ton/ac.
(ii) 1.41 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac-

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.37</td>
</tr>
<tr>
<td>2.</td>
<td>18.02</td>
</tr>
<tr>
<td>3.</td>
<td>20.03</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.63 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Site :- Sugarcane Res. Stn., Shahjahanpur.

Ref :- U.P. 4 (49).
Type :- ‘C’.

Object :-To study the antibiotic effect of Sorghum and Maize plants on the growth of subsequent crop of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) No. (b) As per treatments. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur.

2. TREATMENTS:
1. Control.
2. Sugarcane after sorghum crop i.e. roots left in the soil.
3. Sorghum (Jowar) roots added superficially (16 srs./plot).
4. Sugarcane after maize crop (roots of maize left in soil).
5. Maize roots (20 srs./plot)—added superficially.

3. DESIGN:
(i) R.B.D. (ii) A. (b) N.A. (iii) S. (iv) A. (b) 33'x40'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1947—1949. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
(i) 24.75 ton/ac.
(ii) 4.37 ton/ac.
(iii) Treatment differences are not significant.
Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>24.72</td>
</tr>
<tr>
<td>2.</td>
<td>21.48</td>
</tr>
<tr>
<td>3.</td>
<td>24.83</td>
</tr>
<tr>
<td>4.</td>
<td>24.76</td>
</tr>
<tr>
<td>5.</td>
<td>25.47</td>
</tr>
</tbody>
</table>

S.E./mean = 2.52 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Res. Stn., Shahjahanpur.

Ref :- U.P. 49(112).

Type :- 'C'.

Object :- To study the antibiotic effect of Sorghum and Maize crop and mixture on Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Sorghum, Maize or Fallow as per treatments. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3.3.1949. (iv) (a), (b) N.A. (c) 40 three budded sets/row and 11 rows/plot. (d) and (e) N.A. (v) Top dressing of A/S at 150 lb./ac. of N. (vi) CO. 453 and CO. 557. (vii) Irrigated. (viii) N.A. (ix) 48.59'' (from March 1949 to Dec. 1949). (x) N.A.

2. TREATMENTS :
   1. Control.
   2. After sorghum crop.
   3. After maize crop.
   5. Sorghum mixed with sugarcane (CO.557).

3. DESIGN :
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40'x33'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1949—1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R(S).

5. RESULTS :
   (i) 13.28 ton/ac.
   (ii) 2.976 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14.47</td>
</tr>
<tr>
<td>2.</td>
<td>11.14</td>
</tr>
<tr>
<td>3.</td>
<td>15.17</td>
</tr>
<tr>
<td>4.</td>
<td>13.02</td>
</tr>
<tr>
<td>5.</td>
<td>12.60</td>
</tr>
</tbody>
</table>

S.E./mean = 1.683 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Res. Stn. Shahjahanpur.

Ref. :- U.P. 53(203).

Type :- 'C'.

Object :- To study the different times of planting Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 4 ploughings with victory plough, 5 desi ploughings: plankings. (b) to (e) N.A. (v) 50 lb./ac. of G.N.C. + 10 lb./ac. of N as A/S on 10.10.1952 in July and Ozt. plots; on 6.2. in Feb. plots on 23.4 G.N.C.+A/S 30 lb./ac. of N+30 lb./ac. of N to whole expt. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeing with karsli and cultivator exrthing on 16.7.1953. (ix) 61 57'' (From August 1952 to Jan. 1954). (x) 19.1.1954.
2. TREATMENTS:
   1. *Adzali* (July) planting on 29.7.1952.
   2. Autumn (October) planting on 11.10.1952.
   3. Spring (Feb.) planting on 6.2.1953.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 65'×18'. (b) 59'×12'. (v) 3' on all sides of the plot. (vi) Yes

4. GENERAL:
   (i) Good. (ii) Nil. (iii) No. of tillers, millable cane and sugarcane yield. (iv) (a) 1953—55. (b) and (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R(S).

5. RESULTS:
   (i) 30.68 ton/ac.
   (ii) 3,573 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) AV. yield of sugarcane in ton/ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>AV. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>36.04</td>
</tr>
<tr>
<td>2.</td>
<td>23.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.716</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.  
Site: Sugarcane Res. Stn., Shahjahanpur.  
Object: To compare the effect of planting Sugarcane in October and in the month of March on the growth, yield and juice quality of Sugarcane (preliminary experiment).

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) to (c) N.A. (v) Top dressing at 100 lb./ac. of N on 4.6.1952. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeing on 27.11.1951, 19.3.1952, 11.4.1952, 30.4.1952, 13.5.1952, weeding and hoeing on 7.1.1952. Hoeing and light earthing on 1.3.1952 and earthing on 1.8.1952. (ix) 35.27. (x) 14.1.1953.

2. TREATMENTS:
   1. October planting on 4.10.1951.

3. DESIGN:
   (i) R.B. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 25'×15'. (v) Yes, but details are not available. (vi) Yes

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) No. (V) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R (S).

5. RESULTS:
   (i) 30.00 ton/ac.
   (ii) 2,973 ton/ac.
   (iii) Treatment difference is significant.
   (iv) AV. yield of sugarcane in ton/ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>AV. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>36.04</td>
</tr>
<tr>
<td>2.</td>
<td>23.97</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.716</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.

Ref :- U.P. 53(221).
Type :- ‘C’.

Object :- To study the effect of sowing Sugarcane setts taken from the top and lower portion of cane.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 30.1.1953. (iv) (a) and (b) N.A. (c) 36,720 buds/ac. (34 setts/row). (d) and (e) N.A. (v) Basal dressing of 
Sanai; top dressing of A/S at 60 lb./ac. of N on 7.4.1953. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeing with cultivator on 25.2.1953, hoeing with 

2. TREATMENTS :
   1. Sugarcane setts taken from top portions of cane.
   2. Sugarcane setts taken from lower portion of cane.

3. DESIGN :
   (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40'x27'. (v) Yes, but no details are available. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) No. (vi) Nil. (vii) Experiment conducted by D S.R. (S).

5. RESULTS:
   (i) 28.02 ton/ac.
   (ii) 2.353 ton/ac.
   (iii) Treatment difference is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>27.53</td>
</tr>
<tr>
<td>2.</td>
<td>28.52</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.359 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.

Ref :- U.P. 53 (222).
Type :- ‘C’.

Object :- To study the effect of planting cane at different seed rates on the germination, growth, juice quality and yield of Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Sanai. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) N.A. (iv) (a) and (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Sanai as green manure and A/S at 60 lb./ac. of N. (vi) CO. 453 (late). (vii) and (viii) N.A. (ix) 43.13'. (x) N.A.

2. TREATMENTS :
   3 seed rates :
   1. Low (25,000 buds/ac.).
   2. Medium (54,000 buds/ac.).
   3. High (65,000 buds/ac.).

3. DESIGN :
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 40'x27'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
   (i) 28.48 ton/ac.
   (ii) 1.827 ton/ac.
   (iii) Treatment differences are not significant.
Crop :- Sugarcane. Ref :- U.P. 53(204).
Site :- Sugarcane Res. Stn., Shahjahapanpur. Type :- 'C'.

Object :- To study the effect of intercropping Gram with Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) Rayon. (b) Refer soil analysis, Shahjahapanpur. (iii) As per treatments. (iv) (a) and (b) N.A. (c) 40 three budded setts/row. (d) and (e) N.A. (v) Basal dressing of Samal (50 lb./ac. of N). Top dressing of A/S 40 lb./ac. of N. (vi) N.A. (vii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   2. Sugarcane planted on 24.10.1952 intercropped with gram.
   3. Gram in October, 1952 followed by sugarcane planted on 2.4.1953 after harvest of gram.
   4. Sugarcane planted on 7.3.1953.
   Sowing of gram 24.10.1952 and harvesting on 24.3.1953.

3. DESIGN :
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 2. (iv) (a) 36' x 21'. (b) 30' x 15'. (v) Left, 3' on all sides of the plot. (vi) Yes.

4. GENERAL :
   (i) Satisfactory. (ii) Nil. (iii) Sugarcane yield. (iv) (a) 1953 - 1954. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS :
   (i) 21.59 ton/ac.
   (ii) 7.968 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.42</td>
</tr>
<tr>
<td>2.</td>
<td>18.49</td>
</tr>
<tr>
<td>3.</td>
<td>27.51</td>
</tr>
<tr>
<td>4.</td>
<td>16.94</td>
</tr>
</tbody>
</table>

S.E./mean = 5.635 ton/ac.

Crop :- Sugarcane. Ref :- U.P. 48(53).
Site :- Sugarcane Res. Stn., Shahjahapanur. Type :- 'C'.

Object :- To study the effect of keeping setts under cowdung and topping before sowing on the germination and yield of Sugarcane (winter germination experiment).

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Samal G.M. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahapanur. (iii) As per treatments. (iv) (a), (b) N.A. (c) 50 three budded setts/row, 7 rows/plot. (d) and (e) N.A. (v) Basal dressing of Samal (50 lb./ac. of N). Top dressing of A/S 40 lb./ac. of N. (vi) CO. 421 (medium). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:
Main-plot treatments:
4 dates of planting: \( D_1 = 23.11.1948, D_2 = 23.12.1948, D_3 = 22.1.1949 \) and \( D_4 = 23.2.1949 \).
Sub-plot treatments:
4 treatments given to setts: \( T_1 \) = Control, \( T_2 \) = Setts kept for one day under cowdung, \( T_3 \) = Setts kept for two days under cowdung and \( T_4 \) = Topping one week before sowing.

3. DESIGN:
(i) Split-plot. (ii) 4 main plots/replication; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 48'x21'. (v) Yes, but no details are available. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) 1948-1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
(i) 19.59 ton/ac.
(ii) (a) 3.673 ton/ac. (b) 2.799 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
<th>( T_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( D_1 )</td>
<td>16.37</td>
<td>18.30</td>
<td>15.86</td>
<td>18.69</td>
<td>17.30</td>
</tr>
<tr>
<td>( D_2 )</td>
<td>20.77</td>
<td>21.04</td>
<td>19.78</td>
<td>19.12</td>
<td>20.18</td>
</tr>
<tr>
<td>( D_3 )</td>
<td>19.83</td>
<td>19.68</td>
<td>21.98</td>
<td>18.84</td>
<td>20.08</td>
</tr>
<tr>
<td>( D_4 )</td>
<td>20.10</td>
<td>18.33</td>
<td>20.61</td>
<td>24.16</td>
<td>20.80</td>
</tr>
<tr>
<td>Mean</td>
<td>19.27</td>
<td>19.34</td>
<td>19.56</td>
<td>20.20</td>
<td>19.59</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. D marginal means = 1.500 ton/ac.
2. T marginal means = 1.142 ton/ac.
3. T means at a level of D = 2.285 ton/ac.
4. D means at a level of T = 2.483 ton/ac.

Site: Sugarcane Res. Stn., Shahjahanpur. Type: 'C'.

Object: To study the effect of keeping setts under cowdung and topping before sowing on the germination and yield of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai G.M. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) and (b) N.A. (c) 35 three budded setts/row (d) and (e) N.A. (v) Basal dressing of Sanai Top dressing 100 lb./ac. of N. (vi) CO. 421 (medium). (vii) Irrigated. (viii) N.A. (ix) 40.17'. (x) 12 to 18.2.1951.

2. TREATMENTS:
Main-plot treatments:
4 dates of planting: \( D_1 = 23.11.1949, D_2 = 23.12.1949, D_3 = 29.1.1950 \) and \( D_4 = 23.2.1950 \).
Sub-plot treatments:
4 treatments given to setts: \( T_1 \) = Control (fresh setts). \( T_1 \) = Setts kept under cowdung for 24 hours, \( T_3 \) = Setts kept under cowdung for 48 hours and \( T_4 \) = Setts from cane topped 3 weeks before sowing.

3. DESIGN:
(i) Split-plot. (ii) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 33'x21'. (v) Yes—but details are not available. (vi) Yes.
4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1948–1950.  (b) and (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
(i) 23.34 ton/ac.
(ii) (a) 3.745 ton/ac.
   (b) 3.089 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>21.88</td>
<td>23.38</td>
<td>24.36</td>
<td>21.99</td>
<td>22.90</td>
</tr>
<tr>
<td>D2</td>
<td>23.84</td>
<td>23.15</td>
<td>26.96</td>
<td>23.73</td>
<td>24.42</td>
</tr>
<tr>
<td>D3</td>
<td>21.76</td>
<td>22.80</td>
<td>21.42</td>
<td>24.02</td>
<td>22.50</td>
</tr>
<tr>
<td>D4</td>
<td>22.23</td>
<td>23.03</td>
<td>24.53</td>
<td>23.56</td>
<td>23.54</td>
</tr>
<tr>
<td>Mean</td>
<td>22.43</td>
<td>23.09</td>
<td>24.32</td>
<td>23.52</td>
<td>23.34</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. D marginal means
2. T marginal means
3. T means at a level of D
4. D means at a level of T

Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.
Ref :- U.P. 50(154).
Type :- 'C'.

Object :- To study the effect of keeping setts under stored cow-dung and topping before planting on th germination and yield of Sugarcane (winter germination experiment).

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Sanai.  (c) No.  (ii) (a) Loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) As per treatments.  (iv) (a) and (b) N.A.  (c) 50 three budded setts/row.  (d) and (e) N.A.  (v) Basal dressing of Sanai. A/S at 100 lb/ac. of N top dressed on 7.5.1951.  (vi) CO. 421 (medium).  (vii) Irrigated.  (viii) Hoeings on 27.1.1951, 31.3.1951, 3.5.1951 and 6.6.1951. Earthing on 22.8.1951.  (ix) 31.98' (x) N.A.

2. TREATMENTS:
Main-plot treatments:
Sub-plot treatments:
4 treatments given to setts: T1=Control (fresh setts), T2=Setts kept under stored cowdung for 24 hours, T3=Setts kept under stored cowdung for 48 hours and T4=Setts from cane topped 10 days before planting.

3. DESIGN:
(i) Split-plot.  (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot.  (b) N.A.  (iii) 3.  (iv) (a) N.A.  (b) 52'x21',  (v) N.A.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Tillers, millable cane and sugarcane yield.  (iv) (a) 1948–1950.  (b) and (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
(i) 21.23 ton/ac.
(ii) (a) 2.935 ton/ac.
   (b) 2.106 ton/ac.
(iii) None of the effects is significant.
Crop: Sugarcane.
Site: Sugarcane Res. Stn., Shahjahanpur.
Object: To study the effect of planting setts split longitudinally on germination and yield of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 9.4.1952. (iv) (a) to(c) N.A. (c) 20 three budded setts/row. (d) 6 rows/plot 1' apart. (v) Manuring with 120 lb./ac. of N in the form of G.N.C. and A/S (1:1). (vi) C0.K. 30 (medium-late). (vii) N.A. (viii) N.A. (ix) 31.47° (x) 11.12.1952

2. TREATMENTS:
   1. Three budded setts split into two halves and planted after dusting cut sides with gammaxene.
   2. Three budded setts split into two halves and planted without dusting gammaxene at cut sides.
   3. Three budded setts planted with gammaxene applied in furrows at 40 lb./ac.
   4. Three budded setts planted without gammaxene application.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 20'X9'. (v) No. (vi) Yes.

4. GENERAL:
   (i) Poor. (ii) No. (iii) Germination count, tillering, millable cane and sugarcane yield. (iv) (a) 1952-1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
   (i) 4.14 ton/ac.
   (ii) 0.57 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>4.13</td>
</tr>
<tr>
<td>2.</td>
<td>2.88</td>
</tr>
<tr>
<td>3.</td>
<td>4.53</td>
</tr>
<tr>
<td>4.</td>
<td>5.03</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.29 ton/ac,</td>
</tr>
</tbody>
</table>

S.E. of difference of two:
1. D marginal means = 1.198 ton/ac.
2. T marginal means = 0.860 ton/ac.
3. T means at a level of D = 1.720 ton/ac.
4. D means at a level of T = 1.911 ton/ac.
Crop :- Sugarcane.  Ref :- U.P. 53(205).
Site :- Sugarcane Res. Stn., Shahjahanpur. Type :- 'C'.

Object :- To study the effect of planting setts split longitudinally on germination and yield of Sugarcane.

1. BASAL CONDITIONS :
(i) (a) to (c) N.A.  (ii) (a) Loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) 23.2.1953.  (iv) (a) Ploughings with desi plough on 6, 7, 8, 20, and 21.2.1953.  (b) N.A.  (c) 25, three budded setts/row.  (d) 6 rows in gross plots at 1' distance.  (e) N.A.  (f) G.N.C+A/S at 80 lb./ac. of N+40 lb./ac. of N (mixing manure).  (vi) CO.K. 30.  (vii) Irrigated.  (viii) Hoeing with kassi on 27.3.1953, 24 and 30.4.1953.  (ix) 40.55”.  (x) N.A.

2. TREATMENTS :
1. Three budded setts splitted into two halves and planted after dusting cut sides with gammaxene.
2. Three budded setts splitted into two halves and planted without dusting gammaxene.
3. Three budded setts planted with gammaxene applied in furrows at 40 lb./ac.
4. Three budded setts planted without gammaxene application.

3. DESIGN :
(i) R.B.D.  (ii) (a) 4.  (b) N.A.  (iii) 4.  (iv) (a) and (b) 23’x9’.  (v) No.  (vi) Yes.

4. GENERAL :
(i) Satisfactory.  (ii) Nil.  (iii) Germination count, tillering, millable cane and sugarcane yield.  (iv) (a) 1952 - 1953.  (b) and (c) N.A.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment conducted by D.S.R.(S).

5. RESULTS :
(i) 15.84 ton/ac.
(ii) 2.50 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16.23</td>
<td>1.251 ton/ac.</td>
</tr>
<tr>
<td>2</td>
<td>11.42</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>20.12</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>15.58</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  Ref :- U.P. 51(129).
Site :- Sugarcane Res. Stn., Shahjahanpur. Type :- 'C'.

Object :- To study the relative effect of earthing and binding up on Sugarcane.

1. BASAL CONDITIONS :
(i) (a) to (c) N.A.  (ii) (a) Loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) 28.2.1951.  (iv) (a) Ploughings by victory plough and tractor planking on 7 and 8.1.1951.  (b) N.A.  (c) No. of setts in treatments 1 and 2—N.A.  34 setts in treatment 3 and 4 (3 budded).  (d) and (e) N.A.  (v) Basal dressing castor cake at 100 lb./ac. of N on 28.2.1951 and top dressing of A/S at 20 lb./ac. of N on 8.5.1951.  (vi) CO.6222 (medium).  (vii) Irrigated.  (viii) Binding on 29 and 30.8.1951. Earthing on 28.8.1951. Hoeing with cultivator on 6, 7.4.1951 and 9.5.1951. Hoeing with kassi on 29.3.1951, 27.5.1951 and 18.6.1951.  (ix) 29.86”.  (x) 16 and 17.2.1952.

2. TREATMENTS :
1. Rows 3’ apart, 1 sett per 3 sq. feet with earthing up.
2. Rows 3’ apart, 1 sett per 3 sq. feet with binding up sugarcane.
3. Rows 2’ apart, 1 sett per 3 sq. feet with binding up sugarcane.
4. Rows 2’ apart, 1 sett per 3 sq. feet without earthing up sugarcane and without binding sugarcane.

3. DESIGN :
(i) R.B.D.  (ii) (a) 4.  (b) N.A.  (iii) 4.  (Replication 4 was rejected because 2 plots were badly spoiled).  (iv) (a) and (b) 51’x12’.  (v) No.  (vi) Yes.
4. GENERAL:
(i) Good. (ii) Nil. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1951—1952. (b) and (c) No.
(v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
(i) 24.82 ton/ac.
(ii) 2.123 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.99</td>
</tr>
<tr>
<td>2.</td>
<td>25.73</td>
</tr>
<tr>
<td>3.</td>
<td>26.08</td>
</tr>
<tr>
<td>4.</td>
<td>23.49</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.226</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Site :- Sugarcane Res. Stn., Shahjahanpur.  
Ref :- U.P. 52(179).  
Type :- 'C'.

Object :- To study the relative effect of earthing and binding up of Sugarcane.

1. BASAL CONDITIONS:
(i) N.A. (b) Sanai. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24.3.1952. (iv) (a) 3 ploughings by victory plough, 7 ploughings by desi plough, 1 ploughing by liver harrow and planking.
(b) N.A. (c) 24 setts/line in two feet apart row and 42 setts/line in three feet apart rows. (d) and (e) N.A. (v) G.N.C. and A/S on 14.5.1952 and F.Y.M. on 30.1.1952. Sanai turning on 11.9.1951. (vi) CO. 622 (medium). (vii) Irrigated. (viii) Hoeing with kussi and cultivator earthing [and binding. (ix) 33.30° (x) 1 and 10.2.1953.

2. TREATMENTS:
1. Rows 3' apart with earthing up—one three budded sett per feet of a row.
2. Rows 3' apart with binding—one three budded sett per feet of a row.
3. Rows 2' apart with binding—one three budded sett per 1' of a row.
4. Rows 2' apart without binding—one, three budded sett per 1' of a row.
5. Rows 3' apart without earthing or binding—one three budded sett per feet of a row.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) (i) 42'×16' (in rows 2' apart) and 42'×18' (in rows 3' apart). (b) 36'×12'. (v) 3' and 2' on either side for plots having rows 2' apart and 3' and 3' on either side for plots having rows 3' apart. (vi) Yes.

4. GENERAL:
(i) Fair but sugarcane lodged in replication one. (ii) Nil. (iii) No. of tillers, millable cane and sugarcane yield. (iv) (a) 1952—1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
(i) 25.73 ton/ac.
(ii) 1.70 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>23.64</td>
</tr>
<tr>
<td>2.</td>
<td>22.35</td>
</tr>
<tr>
<td>3.</td>
<td>28.00</td>
</tr>
<tr>
<td>4.</td>
<td>28.71</td>
</tr>
<tr>
<td>5.</td>
<td>25.96</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.98</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Zone :- Captainganj (Deoria).  
Object :- To find the suitable time of planting Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Early paddy. (c) N.A. (ii) Bhat soil. (iii) 60 lb./ac. of N as F.Y.M., 25 lb./ac. of N as Neem cake and 25 lb./ac. of N as A/S. (iv) CO. 513—(early) (improved). (v) (a) 3 hoeings. (b) to (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 20.2.1951.

2. TREATMENTS:
   1. November planting on 25.11.1949.  
   3. February planting on 25.2.1950.  
   4. March planting.  
   5. April planting.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 67'x18'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable and sugarcane yield. (iv) (a) Yes, 1949—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
   (i) 12.10 ton/ac.  
   (ii) 2.007 ton/ac.  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10.92</td>
</tr>
<tr>
<td>2.</td>
<td>12.52</td>
</tr>
<tr>
<td>3.</td>
<td>13.74</td>
</tr>
<tr>
<td>4.</td>
<td>11.20</td>
</tr>
<tr>
<td>5.</td>
<td>12.11</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.003 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Zone :- Captainganj (Deoria).  
Object :- To find out a suitable time of planting Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) 120 md. of factory manure at sowing time on 29.10.1950 (ii) Bhat soils. (iii) Top dressing A/S at 20 srs. on 7.7.1951. (iv) CO. 573 (improved). (v) (a) Ploughing by victory plough on 2.7.1950 and 15.10.1950, ploughing by desi plough on 8 and 27.10.1950 and 7 hoeings by kassi. (b) Flat sowing. (c) and (d) 1680 buds/plot and 8 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) N.A. (x) 26.3.1952.

2. TREATMENTS:
   1. October planting on 29.10.1950.  
   2. November planting on 29.11.1950.  
   4. February planting on 27.2.1951.  
   5. March planting on 24.3.1951.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 70'x24'. (b) 64'x18'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination, millable cane and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.
5. RESULTS:
(i) 17.73 ton/ac.
(ii) 1.729 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.36</td>
</tr>
<tr>
<td>2.</td>
<td>18.13</td>
</tr>
<tr>
<td>3.</td>
<td>16.88</td>
</tr>
<tr>
<td>4.</td>
<td>19.26</td>
</tr>
<tr>
<td>5.</td>
<td>18.00</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.864 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  Ref :- U.P. 51(165).
Zone :- Captainganj (Deoria).

Object :- To study different times of planting Sugarcane in different treatments.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Early paddy.  (c) N.A.  (ii) Bhat soil.  (iii) 6 C.L.ac. of press mud manure on 6.11.1951
(iv) CO.356 (mid-late) (improved).  (v) (a) Ploughing by desi plough.  Hoeing by kassi.  Earthing up on 1.8.1952.  (b) Flat planting.  (c) 1440 buds/plot.  (d) and (e) N.A.  (vi) As per treatments.  (vii) Irrigated.
(viii) and (ix) N.A.  (x) 24.1.1953.

2. TREATMENTS:
1. November planting on 16.11.1951.
3. February planting on 2.2.1952.
4. March planting on 2.3.1952.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications.  (iii) (a) 24' X 60'.  (b) 54' x 18'.  (iv) N.A.

4. GENERAL:
(i) and (ii) N.A.  (iii) Germination, millable cane, tillers and sugarcane yield.  (iv) (a) 1949-1951.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 21.46 ton/ac.
(ii) 1.783 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.23</td>
</tr>
<tr>
<td>2.</td>
<td>21.13</td>
</tr>
<tr>
<td>3.</td>
<td>22.50</td>
</tr>
<tr>
<td>4.</td>
<td>21.98</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.891 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Gauribazar (Deoria).  Ref :- U.P. 51(182).
Zone :- Gauribazar (Deoria).  Type :- 'C'.

Object :- To improve the Sugarcane yield under late planting conditions.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Sanai (G.M.)  (c) No.  (ii) Clay loam.  (iii) 80 lb./ac. of N + 150 lb./ac. of P2O5 were used at planting on 7.2.1951 and 29.3.1951.  (iv) CO.513 (early) improved.  (v) (a) Ploughings by tractor on 13.10.1951, harrowing by tractor on 25.10.1950, 1.11.1950 and 16.12.1950, 7 hoeings and one earthing on 2.7.1951.  (b) N.A.  (c) and (d) 10 rows/plot in treatments 1, 2 and 3.  and 12 rows/plot in treatments 4 and 5.  No. of buds/plot treatment wise (1) 2160, (2) 2160, (3) 4320, (4) 7592 and (5) 5184.  (e) N.A.  (vi) As per treatments.  (vii) Irrigated.  (viii) and (ix) N.A.  (x) 23.3.1952.
2. TREATMENTS:
1. Normal planting (first week of February) (control).
2. Late planting at the end of March in rows at 3' distance with normal setting.
3. Late planting at the end of March in rows at 3' distance with double setting.
4. Late planting at the end of March in rows at 2½' distance with normal setting.
5. Late planting at the end of March in rows at 2½' distance with double setting. 
   Planting of treatment 1 on 7.2.1951 and others on 29.3.1951.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications (iii) (a) 72' x 30'. (b) 66' x 24' for treatments 1, 2 and 3 and 67' x 25' for treatments 4 and 5. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) Yes, 1951—1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivators' field.

5. RESULTS:
   (i) 31.59 ton/ac.
   (ii) 3.466 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment   Av. yield
   1.         30.92
   2.         31.77
   3.         32.66
   4.         28.91
   5.         33.69
   S.E./mean = 1.733 ton/ac.

---

Crop :- Sugarcane.
Zone :- Gorakhpur (Deoria).
Object :- To improve sugarcane yield under late planted conditions.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) Nil. (ii) Sandy loam + clay loam. (iii) Mixture of Castor cake and A/S at 100 lb./ac. of N and Super at 100 lb./ac. of P₂O₅. (iv) CO-513 (early) improved. (v) (a) Ploughings by tractor on 1.10.1951; harrowing by tractor on 5.10.1951, 5 and 14.1.1952; trenching by tractor on 25.1.1952; hoeing by kudali and earthing up by phowara. (b) Trench planting. (c) and (d) 10 rows and 12 rows. per plot according to treatments. No. of buds planted/plot : (1) 2160, (2) 2160, (3) 4220, (4) 2592 and (5) 5184. (e) N.A. (vi) As per treatments. (vii) Irrigation by tube-well. (viii) and (ix) N.A. (x) 11.3.1953.

2. TREATMENTS:
   1. Normal planting in February—rows at 3' apart with single setts (control).
   2. Late planting in March at 3' apart—normal setting.
   3. Late planting in March at 3' apart—double setting.
   4. Late Planting in March at 2½' apart—normal setting.
   5. Late planting in March at 2½' apart—double setting.
   Dates of planting : treatment 1 on 7.2.1952 and other treatments on 23.3.1952.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. As the yield for 2 replications is not given, analysis has been based on 2 replications only. (iii) (a) and (b) 72' x 30'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.
5. RESULTS:
   (i) 40.47 ton/ac.
   (ii) 5.400 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>45.96</td>
</tr>
<tr>
<td>2.</td>
<td>36.60</td>
</tr>
<tr>
<td>3.</td>
<td>40.56</td>
</tr>
<tr>
<td>4.</td>
<td>39.08</td>
</tr>
<tr>
<td>5.</td>
<td>40.16</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>3.818 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Gauribazar (Deoria).
Object :- To find the suitable time of planting Sugarcane.

Ref :- U.P. 49(154).
Type :- 'C'.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) Nil. (ii) Clay loam. (iii) N.A. (iv) CO.433 (mid-late) improved. (v) (a) 7 hoeings. (b) to (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 26.2.1951.

2. TREATMENTS:
   1. October planting on 20.10.1949.
   2. November planting on 15.11.1949.
   4. February planting on 15.2.1950.
   5. March planting on 15.3.1950.
   6. April planting 15.4.1950.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 67'x18'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
   (i) 9.21 ton/ac.
   (ii) 0.452 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.88</td>
</tr>
<tr>
<td>2.</td>
<td>8.80</td>
</tr>
<tr>
<td>3.</td>
<td>9.37</td>
</tr>
<tr>
<td>4.</td>
<td>9.52</td>
</tr>
<tr>
<td>5.</td>
<td>10.01</td>
</tr>
<tr>
<td>6.</td>
<td>7.70</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.231 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Gauribazar (Deoria).
Object :- To find out suitable time of planting Sugarcane.

Ref :- U.P. 50(189).
Type :- 'C'.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Samai G.M. (c) Nil. (ii) Clay loam. (iii) 80 lb./ac. of N and 150 lb./ac. of P₂O₅ at planting. (iv) BO.24 (improved). (v) (a) Ploughing by tractor on 13.10.1950. Harrowing by tractor on 25.10.1950 (thrice). Hoeings from 24.11.1950 to 26.6.1951. Earthing on 6.7.1951. (b) N.A. (c) and (d) 1386 buds/plot and 7 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) N.A. (x) 13.2.1952.
2. TREATMENTS:
2. November planting on 15.11.1950.
4. February planting on 15.2.1951.
5. March planting on 15.3.1951.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 10′ × 21′. (b) 74′ × 15′. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949–1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators’ fields.

5. RESULTS:
(i) 37.57 ton/ac.
(ii) 2.329 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>44.49</td>
</tr>
<tr>
<td>2.</td>
<td>41.53</td>
</tr>
<tr>
<td>3.</td>
<td>34.32</td>
</tr>
<tr>
<td>4.</td>
<td>32.82</td>
</tr>
<tr>
<td>5.</td>
<td>34.70</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.164 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Zone: Lakshmiganj (Deoria).
Object: To improve cane yield under late planting conditions.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Bhat soil. (iii) Press mud at 100 mds./ac. on 21.1.1953. Top dressing by castor cake at 8 mds./ac. on 22.2.1953, A/S at 2 mds./ac. on 25.2.1953. (iv) CO. 617 (medium)—improved. (v) (a) Ploughing by tractor hoeing by cultivator and kudall. (b) Flat planting with spade. (c) and (d) 7 rows in treatments 1, 2 and 3 and 8 in treatments 4 and 5. No. of buds planted per plot: 1680 in treatment 1 and 2, 3360 in treatments 3, 1920 in treatment 4 and 3849 in treatments 5. (e) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 2.2.1954.

2. TREATMENTS:
1. Normal planting at the end of February 1953 in rows 3′ apart with single setts.
2. Late planting at the end of the March and in rows 3′ apart with normal setting, setts overlapping one another.
3. Late planting at the end of March in rows 3′ apart with double setting.
4. Late planting in rows 2′3′ apart and with setts overlapping one another.
5. Late planting in rows 2′3′ apart and with double setting.
Dates of planting: treatment 1 on 22.2.1953 and treatments 2, 3, 4 and 5 on 25.3.1953.

3. DESIGN:
(i), (ii) R.B.D. with 4 replications of which 2 replications were damaged. (iii) (a) 80′ × 21′. (b) 74′ × 15′. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, millable cane, tillers and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators’ fields.

5. RESULTS:
(i) 9.18 ton/ac.
(ii) 1.887 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.80</td>
</tr>
<tr>
<td>2.</td>
<td>6.88</td>
</tr>
<tr>
<td>3.</td>
<td>9.39</td>
</tr>
<tr>
<td>4.</td>
<td>7.05</td>
</tr>
<tr>
<td>5.</td>
<td>12.78</td>
</tr>
</tbody>
</table>

S.E./mean = 1.334 ton/ac.

Crop: Sugarcane.  
Zone: Captaianganj (Deoria).  
Object: To improve cane yield under late planted conditions.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Paddy. (c) N.A.  
(ii) *Bangar*. (iii) Compost at 200 md./ac. on 15.11.1952. Top dressing of Compost at 11 md./ac. on 2.5.1953.  
(iv) CO 617 (medium) improved.  
(v) (a) Ploughing by *desi* plough hoeing by *kudali*. (b) Flat plantmg with spade. (d) 7 and 8 rows/plot. Buds planted/plot in treatments 1 and 2 =1155; treatment-3=2310; treatment-4=1320 and treatment-5=2640. (e) N.A.  
(vi) As per treatments. (vii) Irrigated.  
(viii) N.A.  
(ix) N.A.  
(x) 25.2.1954.

2. TREATMENTS:
1. Normal planting at the end of Jan. 1963 in rows 3' apart with single setts.
2. Late planting at the end of March and in rows 3' apart with normal setting (single setts).
3. Late planting at the end of March in rows 3' apart with double setting.
4. Late planting in rows 2½' apart with setts overlapping one another.
5. Late planting in rows 2½' apart with double setting.  
Dates of planting: treatment 1 on 2.2.1953 and others on 17.3.1953.

3. DESIGN:
(i) (ii) R.B.D. with 3 replications.  
(iii) (a) 55'×21'. (b) 49'×15'. (iv) N.A.

4. GENERAL:
(i) N.A. (b) N.A.  
(iii) Germination, millable cane, tillers and sugarcane yield.  
(iv) (a) No. (b) and (c) N.A.  
(v) N.A.  
(vi) Nil.  
(vii) The exp. was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 15.37 ton/ac.  
(ii) 2.558 ton/ac.  
(iii) Treatment differences are not significant.  
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12.14</td>
</tr>
<tr>
<td>2.</td>
<td>15.69</td>
</tr>
<tr>
<td>3.</td>
<td>13.03</td>
</tr>
<tr>
<td>4.</td>
<td>17.45</td>
</tr>
<tr>
<td>5.</td>
<td>18.54</td>
</tr>
</tbody>
</table>

S.E./mean = 1.477 ton/ac.

---

Crop: Sugarcane.  
Zone: Tamkohi (Deoria).  
Object: To improve Sugarcane yield under late planted conditions.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) *Sanai* for G.M. (sown on 3.7.1951).  
(ii) *Bhat* soil. (iii) Castor cake at 3 md., A/S at 2 md.  
(iv) CO 513. (v) (a) Ploughings by tractor and levelling on 20.7.1951, 11.10.1951, ploughing by bullocks and levelling on 22.12.1951, cultivator on 19.1.1952 disc harrowing by tractor and levelling on 19.2.1951. (b) Flat planting. (c) and (d) 10 rows/plot for treatments 1, 2 and 3, 12 rows for treatments 4 and 5. manuring and hoeing on 24.6.1952 and hoeing by bullocks. (e) N.A.  
(vi) As per treatments. (vii) N.A. (viii) N.A. (ix) 15.2.1953.
2. TREATMENTS:
1. Normal planting during February at 3′ distance—single setting.
2. Late planting at 3′ distance—single setting.
3. Late planting at 3′ distance—double setting.
4. Late planting at 2′ distance—single setting.
5. Late planting at 2′ distance—double setting.

Dates of planting: treatment 1 in February, 1952 and others on 20.3.1952.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications
(iii) (a) and (b) 60′ x 30′.
(iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination, millable canes, tillers and sugarcane yield.
(iv) (a) to (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (G) on cultivators fields.

5. RESULTS:
(i) 21.37 ton/ac.
(ii) 1.458 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.07</td>
</tr>
<tr>
<td>2.</td>
<td>20.05</td>
</tr>
<tr>
<td>3.</td>
<td>22.08</td>
</tr>
<tr>
<td>4.</td>
<td>21.21</td>
</tr>
<tr>
<td>5.</td>
<td>22.45</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.729</td>
</tr>
</tbody>
</table>

Crop:--Sugarcane.  
Zone:--Deoria (Deoria).
Object:--To find out suitable rotation with the Sugarcane crop.

Ref:--U.P. 50(178).  
Type:--‘C’.

BASAL CONDITIONS:
(i) (a) and (b) As per treatments.
(iv) CO.S 109 (medium).
(v) (a) to (e) N.A.
(vi) 7 to 8.2.1950.  (vii) Irrigated.  (viii) 5 hoeings.
(ix) N.A.  (x) 25.3.1951.

2. TREATMENTS:
1. Fallow—fallow—sugarcane.
2. Sanai (G.M.)—fallow—sugarcane.
5. Paddy—peas—sugarcane.
6. 'Arhar+kodon—sugarcane.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications.
(iii) (a) N.A.  (b) 49′×24′.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Sugarcane yield.
(iv) (a) N.A.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.
(vii) The experiment was conducted by D.S.R. (G). on cultivators fields.

5. RESULTS:
(i) 16.67 ton/ac.
(ii) 0.941 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.35</td>
</tr>
<tr>
<td>2.</td>
<td>17.86</td>
</tr>
<tr>
<td>3.</td>
<td>16.92</td>
</tr>
<tr>
<td>4.</td>
<td>16.16</td>
</tr>
<tr>
<td>5.</td>
<td>16.07</td>
</tr>
<tr>
<td>6.</td>
<td>15.65</td>
</tr>
</tbody>
</table>

S.E./mean = 0.471 ton/ac.
Crop :- Sugarcane.  
Zone :- Captaininganj (Deoria).

Object :- To find out suitable rotation with the Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) and (b) As per treatments. (c) N.A. (ii) Bhat soils. (iii) 25 lb./ac. of N as Castor cake and 35 lb./ac. of N as neem cake+A/S. (iv) POI 2878 (mid-late). (v) (a) to (e) N.A. (vi) 22-1-1950. (vii) N.A. (viii) N.A. (ix) 19-2-1951.

2. TREATMENTS:
   1. Paddy - fallow - sugarcane.
   2. Fallow - fallow - sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 67'x24'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers and sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS:
   (i) 5.43 ton/ac.
   (ii) 0.441 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

   Treatment | Av. yield | S.E./mean
   1.         | 5.22      | 0.221 ton/ac.
   2.         | 5.69      |
   3.         | 5.37      |

---

Crop :- Sugarcane.  
Zone :- Lakshmiganj (Deoria).

Object :- To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) and b) N.A. (c) As per treatments. (ii) Bhat soil. (iii) Top dressing at 1 md. 25 seer/ac. as A/S on 2.7.1954. (iv) 22-10 1953, 30.1.1954 and 24.3.1954. (v) (a) 7 ploughings. (b) Flat planting with spade. (c) 2160 buds/plot. (d) 9 rows/plot. (e) N.A. (vi) CO 356 (medium-late) improved. (vii) N.A. (viii) 6 hoeings and 1 earthing up by spade. (ix) N.A. (x) 28.3.1955.

2. TREATMENTS:
   2. Early Paddy+dhaincha-fallow-sugarcane planted in Jan. 1954

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) 80'x27'. (b) 74'x21'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. iv) (a) 1953 to 1955 (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).
5. RESULTS:

(i) 13.84 ton/ac.
(ii) 2.291 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.25</td>
</tr>
<tr>
<td>2.</td>
<td>16.45</td>
</tr>
<tr>
<td>3.</td>
<td>17.80</td>
</tr>
<tr>
<td>4.</td>
<td>14.72</td>
</tr>
<tr>
<td>5.</td>
<td>9.38</td>
</tr>
<tr>
<td>6.</td>
<td>7.47</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.145 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Zone :- Captaininganj (Deoria).

Object :- To find out suitable rotation for Sugarcane crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Bangar. (iii) Press mud at 100 md./ac. on 8.1.1953. Top manuring of A/S on 2 md./ac. on 24.4.1953. (iv) CO. 356 (medium-late) [improved]. (v) (a) Ploughing by desi plough. (b) Flat sowing by spade. (c) 1320 buds/plot. (d) 8 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 4 hoeings by kudali. (ix) N.A. (x) 25.2.1954.

2. TREATMENTS:

5. Paddy alone—peas—sugarcane on 18.3.1953.

3. DESIGN:

(i), (ii) R.B.D. with 3 replications. (iii) (a) 55' x 24'. (b) 49' x 18'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, millable cane, tillers and sugarcane yield. (iv) (a) 1952 to 1955. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS:

(i) 15.12 ton/ac.
(ii) 1.989 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.78</td>
</tr>
<tr>
<td>2.</td>
<td>15.35</td>
</tr>
<tr>
<td>3.</td>
<td>12.85</td>
</tr>
<tr>
<td>4.</td>
<td>16.03</td>
</tr>
<tr>
<td>5.</td>
<td>15.80</td>
</tr>
<tr>
<td>6.</td>
<td>13.91</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.148 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.
Zone :- Gorakhpur (Deoria).

Object :- To find out the best rotation for Sugarcane crop.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Gram and then as per treatments. (c) N.A. (ii) Bangar. (iii) Press mud at 100 md./ac. on 20.4.1954. A/S at 1 md./ac. on 25.5.1954 and 1 md./ac. on 5.7.1954. (iv) CO. 617 (medium) (improved). (v) (a) 2 ploughings by desi plough. (b) Flat planting by spade. (c) 2160 buds/plot. (d) 9 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing by kudali, 1 earthing up by spade. (ix) N.A. (x) 13.1.1955.

2. TREATMENTS :
   5. Early paddy alone—peas—sugarcane planted on 27.3.1954.

3. DESIGN :
   (i), (ii) R.B.D. with 4 replications. (iii) (a) 80' X 27'. (b) 74' X 21'. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952—1954. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS :
   (i) 16.34 ton/ac.
   (ii) 2.717 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>15.81</td>
</tr>
<tr>
<td>2.</td>
<td>17.59</td>
</tr>
<tr>
<td>3.</td>
<td>15.28</td>
</tr>
<tr>
<td>4.</td>
<td>13.33</td>
</tr>
<tr>
<td>5.</td>
<td>17.92</td>
</tr>
<tr>
<td>6.</td>
<td>18.10</td>
</tr>
</tbody>
</table>
   
   S.E./mean = 1.758 ton/ac.

Crop :- Sugarcane.
Zone :- Gorakhpur (Deoria).

Object :- To find out the best rotation for Sugarcane crop.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) Mixture of castor cake and A/S at 100 lb./ac. of N on 9.8.1952, 15.1.1953 and 29.3.1953. (iv) CO.511 (improved). (v) (a) 1 tractor plough, 2 harrowings by tractor. (b) Trench planted. (c) 6372 buds/plot. (d) 9 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeings by hand kudali. (ix) N.A. (x) 23.1.1954.

2. TREATMENTS :
   5. Paddy—peas—sugarcane planting on 29.3.1953.

3. DESIGN :
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 59' X 27'. (b) 53' X 21'. (iv) N.A.
4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1954.
(b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 18.22 ton/ac.
(ii) 1.029 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.66</td>
</tr>
<tr>
<td>2.</td>
<td>19.46</td>
</tr>
<tr>
<td>3.</td>
<td>20.40</td>
</tr>
<tr>
<td>4.</td>
<td>16.48</td>
</tr>
<tr>
<td>5.</td>
<td>14.74</td>
</tr>
<tr>
<td>6.</td>
<td>19.58</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.515 ton/ac.</td>
</tr>
</tbody>
</table>

Crop : Sugarcane.
Zone : Gorakhpur (Deoria).
Object : To find out the best rotation for Sugarcane crop.

Ref : U.P. 53(253).
Type : 'C'.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S.453 (medium-late) improved. (v) (a) 3 ploughings by tractor. (b) Flat planting. (c) 1620 buds/plot. (d) 9 rows/plot.
(e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 9 ploughings by hand hoe. (ix) N.A. (x) 5.4.1955.

2. TREATMENTS:
5. Paddy+peas—sugarcane planting on 3.3.1954.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 59'×27'. (b)×21'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1954. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R (G) on cultivators' fields.

5. RESULTS:
(i) 21.89 ton/ac.
(ii) 0.891 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.04</td>
</tr>
<tr>
<td>2.</td>
<td>26.86</td>
</tr>
<tr>
<td>3.</td>
<td>19.99</td>
</tr>
<tr>
<td>4.</td>
<td>18.24</td>
</tr>
<tr>
<td>5.</td>
<td>19.83</td>
</tr>
<tr>
<td>6.</td>
<td>21.38</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.446 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :– Sugarcane.  
Zone :– Gauribazar (Deoria).  
Object :– To find out the suitable rotation for Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) As per treatments.  (c) N.A.  (ii) Clay loam and sandy loam.  (iii) N.A.  (iv) CO. 397 (early) (improved).  (v) (a) 1 ploughings by tractor, 1 harrowing by tractor.  (b) Trench planting.  (c) 1752 buds/plot.  (d) 8 rows/plot.  (e) N.A.  (vi) 22.2.1952.  (vii) Irrigated.  (viii) 4 hoeings by kudal and 1 earthing up by phawara and kudal.  (ix) N.A.  (x) 30.3.1953.

2. TREATMENTS:
   1. Fallow—fallow—sugarcane.
   2. Sanai - fallow—sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 73'X24'.  (b) 67'X18'.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
   (i) 29.65 ton/acre.
   (ii) 3.358 ton/acre.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/acre.
   Treatment          Av. yield
   1.            29.68
   2.            32.96
   3.            27.75
   4.            28.20
   S.E./mean    1.679 ton/ac.

Crop :– Sugarcane.  
Zone :– Captainganj (Deoria).  
Object :– To find out the suitable rotation for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) As per treatments.  (c) N.A.  (ii) Bhat soil.  (iii) Top dressing of A/S at 20 seers on 1.7.1951.  (iv) CO. 356 (mid-late).  (v) (a) 4 ploughings by desi plough and 1 ploughing by victory plough.  (b) Flat planting.  (c) 1752 buds/plot.  (d) 9 rows/plot.  (e) N.A.  (vi) 8.2.1951.  (vii) Irrigated.  (viii) 5 hoeings by kassi.  (ix) N.A.  (x) 28 and 29.2.1952.

2. TREATMENTS:
   1. Fallow—fallow—sugarcane.
   2. Paddy—peas—sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 64'X27'.  (b) 58'X21'.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Germination, millable cane, tillers and sugarcane yield.  (iv) (a) 1951 to 1953.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
   (i) 13.16 ton/acre.
   (ii) 2.502 ton/acre.
   (iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.11</td>
</tr>
<tr>
<td>2.</td>
<td>13.65</td>
</tr>
<tr>
<td>3.</td>
<td>12.73</td>
</tr>
</tbody>
</table>

S.E./mean = 1.7511 ton/ac.

Crop :- Sugarcane.  
Zone :- Captainganj (Deoria).

Object :- To find out suitable rotation for Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Bhat soil. (iii) 6 C.L. of press mud cake. (iv) CO. 364 (improved). (v) (a) 1 Ploughing by meston plough and 2 desi ploughings. (b) Flat planting. (c) 1728 buds/plot. (d) 9 rows/plot. (e) N.A. (vi) 9.2.1952. (vii) Irrigated. (viii) 10 hoeings by kudali and 1 earthing up. (ix) N.A. (x) 2.3.1953.

2. TREATMENTS:
   1. Fallow-fallow-sugarcane.
   2. Paddy Peas-sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 64' × 27'. (b) 58' × 21'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1951 to 1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS:
   (i) 23.14 ton/ac.
   (ii) 4.025 ton/ac.
   (iii) Treatment differences are significant
   (iv) Av. yld of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>22.79</td>
</tr>
<tr>
<td>2.</td>
<td>22.68</td>
</tr>
<tr>
<td>3.</td>
<td>23.96</td>
</tr>
</tbody>
</table>

S.E./mean = 2.012 ton/ac.

---

Crop :- Sugarcane.  
Zone :- Faizabad (Faizabad).

Object :- To find out suitable rotation for Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) G.N.C. at 40 lb./ac. of N on 13.2.1952. A/S at 15 lb./ac. of N on 29.2.1952. Top dressing A/S at 30 lb./ac. of N and G.N.C. at 15 lb./ac. of N on 1.7.1952. (iv) CO. 313. (early) (improved). (v) (a) Ploughings by desi plough. (b) Flat planting. (c) N.A. (d) 3' distance in lines. Furrows opened by spade. (e) N.A. (vi) As per treatments. (vii) Irrigated (viii) 6 hoeings by kudali and 1 earthing up. (ix) N.A. (x) 10, 13 and 20.3.1953.

2. TREATMENTS:
   1. Fallow-fallow-sugarcane on 13.2.1952.
   5. Paddy—peas—sugarcane on 29.2.1952.
3. DESIGN:
(i) and (ii) R.B.D. with 4 replications.  (iii) (a) 73' x 24'.  (b) 67' x 18'.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination, millable cane and sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS:
(i) 11.19 ton/ac.
(ii) 1.090 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.88</td>
</tr>
<tr>
<td>2.</td>
<td>12.72</td>
</tr>
<tr>
<td>3.</td>
<td>10.43</td>
</tr>
<tr>
<td>4.</td>
<td>11.00</td>
</tr>
<tr>
<td>5.</td>
<td>10.63</td>
</tr>
<tr>
<td>6.</td>
<td>10.96</td>
</tr>
</tbody>
</table>

S.E./mean = 0.525 ton/ac.

Zone: Balrampur (Gonda).  Type: 'C'.

Object: To find the suitable time of planting Sugarcane.

1. BASAL CONDITIONS:
(a) N.A.  (b) Sanai.  (c) Nil.  (d) Loam.  (e) Sanai at 60 lb./ac. of N.  A/S at 33 lb./ac. of N on 12.7.1950.  Castor cake at 7 mds.  (iv) CO.453 (mid-late) improved.  (v) (a) 6 hoeings.  (b) N.A.  (c) 5 rows/plot.  (d) and (e) N.A.  (vi) As per treatments.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 11.1.1951.

2. TREATMENTS:
1. October planting on 19.10.1949.
2. November planting on 15.11.1949.
3. December planting — N.A.
5. February planting on 16.2.1950.
7. April planting — N.A.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications.  (iii) (a) and (b) 73' x 15'.  (iv) N.A.

4. GENERAL:
(i) Growth good.  (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.(G) on cultivators' fields.  Gaps were filled in the case of October, November and December plantings.

5. RESULTS:
(i) 30.30 ton/ac.
(ii) 3.561 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>40.60</td>
</tr>
<tr>
<td>2.</td>
<td>33.34</td>
</tr>
<tr>
<td>3.</td>
<td>29.35</td>
</tr>
<tr>
<td>4.</td>
<td>31.75</td>
</tr>
<tr>
<td>5.</td>
<td>29.74</td>
</tr>
<tr>
<td>6.</td>
<td>29.84</td>
</tr>
<tr>
<td>7.</td>
<td>17.51</td>
</tr>
</tbody>
</table>

S.E./mean = 1.454 ton/ac.
Crop :- Sugarcane.
Zone :- Nawabganj (Gonda).

Object :- To suggest ways to improve Sugarcane yield in the late planting conditions.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Maize. (c) N.A. (ii) Loam. (iii) Manuring with press mud compost at 375 mds/ac. on 30.10.1952 to 2.11.1952 (100 lb. of N is available). (iv) CO,453 (medium late) improved. (v) (a) 4 tractor ploughings. Hoeing by cultivator and kasti. (b) Flat planting. (c) No. of buds planted per plot: 1050, 1260, 2520 and 2100 according to treatments. (d) Rows 3' apart. (e) N.A. (vi) 28.2.1953. (vii) Irrigated. (viii) and (ix) N.A. (x) 13 to 15.2.1954.

2. TREATMENTS:
   1. Normal planting in the month of February in rows 3' apart with single setts.
   2. Late planting at the end of March in rows 3' apart with single setts.
   3. Planting in rows 2' apart in single setts at the end of March.
   4. Planting in rows 2' apart in double setts at the end of March.
   5. Planting in rows 3' apart in double setts at the end of March (normal planting).

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 50' x 15'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination, tillers, millable canes and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The Experiment was conducted by D.S.R.(G) on cultivators’ fields.

5. RESULTS:
   (i) 19.63 ton/ac.
   (ii) 2.733 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

   Treatment | Av. yield
   1. | 22.43
   2. | 15.08
   3. | 17.48
   4. | 21.18
   5. | 21.99
   S.E./mean = 1.367 ton/ac.

Crop :- Sugarcane.
Zone :- Nawabganj (Gonda).

Object :- To find out suitable time of planting Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Wheat. (c) N.A. (ii) Loam. (iii) Press mud compost 100 mds at 30 lb./ac. of N on 18.10.1950. Top dressing of mixture at 7 mds 20 seers (49 lb./ac. of N) on 30.5.1951. (iv) CO. 453 (mid late) improved. (v) (a) 1 ploughing by spade and 5 desi plough. (b) Sown flat in lines 3' apart. (c) 1800 buds/plot. (d) 8 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 by cultivator and 2 by kasti. 2 hoeing by desi plough. (ix) N.A. (x) 18.2.1951.

2. TREATMENTS:
   1. October planting (27.10.1950).
   4. February planting (18.2.1951).
   5. March planting (27.3.1951).

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 75'x24'. (iv) N.A.
4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) N.A. 
   (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
   (i) 15.03 ton/ac.
   (ii) 3.979 ton/ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.47</td>
</tr>
<tr>
<td>2.</td>
<td>13.79</td>
</tr>
<tr>
<td>3.</td>
<td>19.91</td>
</tr>
<tr>
<td>4.</td>
<td>17.91</td>
</tr>
<tr>
<td>5.</td>
<td>14.09</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.990 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Zone :- Balrampur (Gonda).
Object :- To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) Castor cake at 40 lb./ac. of N on 9.4.1950.
   (iv) CO. 453 (mid-late) (improved). (v) (a) to (e) N.A. (vi) 9.4.1950. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 25.2.1951.

2. TREATMENTS:
   1. Sanai G.M.—fallow—sugarcane.
   5. Fallow—fallow—sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 74' X 30'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable canes and sugarcane yield. (iv) (a) No. (b) N.A.
   (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields

5. RESULTS:
   (i) 7.97 ton/ac.
   (ii) 1.705 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9.38</td>
</tr>
<tr>
<td>2.</td>
<td>8.02</td>
</tr>
<tr>
<td>3.</td>
<td>8.22</td>
</tr>
<tr>
<td>4.</td>
<td>8.03</td>
</tr>
<tr>
<td>5.</td>
<td>7.58</td>
</tr>
<tr>
<td>6.</td>
<td>6.57</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=0.696 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.          Ref :- U.P. 50(182).
Zone :- Nawabganj (Gonda).    Type :- 'C'.

Object :- To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) As per treatments.  (c) N.A.  (ii) Loam.  (iii) Press mud at 100 lb./ac. of N on 22.2.1950,
   G.N.C. at 2 mds./ac. on 22.6.1950 and A/S at 1 md. 27 seers.  (iv) CO. 453 (mid-late), (improved).  (v)
   (a) to (c) N.A.  (d) 8 rows/plot.  (e) N.A.  (vi) 18.2.1950.  (vii) Irrigated.  (viii) 5 hoeings.  (ix)
   N.A.  (x) 12.3.1951.

2. TREATMENTS:
   1. Sanai G.M.—fallow—sugarcane.
   2. Fallow—fallow—sugarcane.
   3. Arhar+pad—fallow—sugarcane.
   5. Maize—fallow—sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) and (b) 78' x 24'.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Sugarcane yield.  (iv) (a) and (b) and (c) No.  (v) N.A.  (vi) Nil.  (vii) The
   experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
   (i) 27.01 ton/ac.
   (ii) 3.574 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>34.70</td>
</tr>
<tr>
<td>2.</td>
<td>24.53</td>
</tr>
<tr>
<td>3.</td>
<td>34.81</td>
</tr>
<tr>
<td>4.</td>
<td>18.78</td>
</tr>
<tr>
<td>5.</td>
<td>24.16</td>
</tr>
<tr>
<td>6.</td>
<td>25.10</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 1.787 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.          Ref :- U.P. 52(220).
Zone :- Gorakhpur (Gorakhpur).    Type :- 'C'.

Object :- To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) As per treatments.  (c) N.A.  (ii) Sandy loam.  (iii) A/S at 4 mds./ac. on 22.3.1953 and
   5.6.1953.  (iv) CO. 453 (mid-late), (improved).  (v) (a) 2 ploughings by ordinary plough.  (b) Trench
   planted.  (c) 6480 buds/plot.  (d) 9 rows/plot.  (e) N.A.  (vi) As per treatments.  (vii) Irrigated.  (viii)
   2 hoeings by hand kudali.  (ix) N.A.  (x) 23.2.1954.

2. TREATMENTS:
   5. Paddy—pea—sugarcane planting on 30.3.1953.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 60' x 27'.  (b) 54' x 21'.  (iv) N.A.
4. GENERAL

(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1955, (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:

(i) 16.00 ton/ac.
(ii) 3.607 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.49</td>
</tr>
<tr>
<td>2.</td>
<td>15.42</td>
</tr>
<tr>
<td>3.</td>
<td>15.57</td>
</tr>
<tr>
<td>4.</td>
<td>17.06</td>
</tr>
<tr>
<td>5.</td>
<td>14.97</td>
</tr>
<tr>
<td>6.</td>
<td>16.46</td>
</tr>
</tbody>
</table>

S.E./mean = 1.803 ton/ac.

---

Crop: Sugarcane.  
Zone: Gorakhpur (Ghorakhpur).

Object: To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 453 (medium late) (improved). (v) 2 ploughings by tractor. (b) Flat planting. (c) 1674 buds/plot. (d) 9 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings by hand hoe and 1 earthing by spade. (ix) N.A. (x) 30.4 1955.

2. TREATMENTS:

1. Paddy—fallow—sugarcane planted on 21.1.1954,

3. DESIGN:

(i), (ii) R B.D. with 4 replications. (iii) (a) 60'x27'. (b) 54'x21'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1955. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS:

(i) 21.73 ton/ac.
(ii) 3.963 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.02</td>
</tr>
<tr>
<td>2.</td>
<td>22.80</td>
</tr>
<tr>
<td>3.</td>
<td>24.38</td>
</tr>
<tr>
<td>4.</td>
<td>20.86</td>
</tr>
<tr>
<td>5.</td>
<td>20.37</td>
</tr>
<tr>
<td>6.</td>
<td>21.96</td>
</tr>
</tbody>
</table>

S.E./mean = 1.981 ton/ac.
Crop: Sugarcane.
Zone: Gorakhpur (Gorakhpur).

Object: To find out suitable rotation with sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) 75 lb./ac. of N through mixture of A/S and G.N.C. on 17.10.1952, 25.1.1952, 2.4.1953, at the time of planting sugarcane. (iv) CO. 453 (mid-late) improved. (v) 7 desi ploughings and 1 by tractor. (b) Trench planting. (c) 6480 buds/plot. (d) and (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 10 hoeings by kudali. (ix) N.A. (x) 14.3.1954.

2. TREATMENTS:
   5. Paddy—pea—sugarcane planted on 2.4.1953.
   6. Paddy—gram—sugarcane planted on 2.4.1953.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications. (iii) (a) 60'x27'. (b) 54'x21'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952—55. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS:
   (i) 11.12 ton/ac.
   (ii) 0.507 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14.08</td>
</tr>
<tr>
<td>2.</td>
<td>13.67</td>
</tr>
<tr>
<td>3.</td>
<td>9.20</td>
</tr>
<tr>
<td>4.</td>
<td>3.18</td>
</tr>
<tr>
<td>5.</td>
<td>12.12</td>
</tr>
<tr>
<td>6.</td>
<td>14.45</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.25 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Zone: Gorakhpur (Gorakhpur).

Object: To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 453 (medium-late) improved. (v) 2 tractor ploughings and 2 ploughings by desi plough, 1 harrowing by tractor, (b) Flat planting. (c) 1674 buds/plot, (d) 9 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing by hand spade and earthing by spade on 22.6.1954. (ix) N.A. (x) 13.3.1955.

2. TREATMENTS:
   5. Paddy+dhaincha—pea—sugarcane planting in March 1954.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 60'x27'. (b) 54'x21'. (iv) N.A.
4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1954. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS:
(i) 25.10 ton/ac.
(ii) 4.293 ton/ac.
(iii) Treatment differences are not significant.
(iv) Average yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25.33</td>
</tr>
<tr>
<td>2</td>
<td>26.08</td>
</tr>
<tr>
<td>3</td>
<td>21.99</td>
</tr>
<tr>
<td>4</td>
<td>21.31</td>
</tr>
<tr>
<td>5</td>
<td>28.84</td>
</tr>
<tr>
<td>6</td>
<td>27.08</td>
</tr>
</tbody>
</table>

S.E./mean = 2.147 ton/ac.

Crop: - Sugarcane. 
Zone: - Sardarnagar (Gorakhpur).
Object: - To find out suitable rotation with Sugarcane crop.

Ref: - U.P. 50(179).
Type: - 'C'.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) A/S on 5.4.1950 and 20.5.1950 as top dressing. (iv) CO.453 (mid-late) improved. (v) (a) to (e) N.A. (vi) 30 and 31.1.1950. (vii) Irrigated. (viii) Hoeings. (ix) N.A. (x) 15 and 16.2.1951.

2. TREATMENTS:
5. Arhar—kodon-fallow-sugarcane.
6. Fallow—fallow—sugarcane.

3. DESIGN:
(i) and (iii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 74'×15'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950 to 1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 16.62 ton/ac.
(ii) 3.513 ton/ac.
(iii) Treatment differences are not significant.
(iv) Average yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17.75</td>
</tr>
<tr>
<td>2</td>
<td>15.54</td>
</tr>
<tr>
<td>3</td>
<td>16.96</td>
</tr>
<tr>
<td>4</td>
<td>15.79</td>
</tr>
<tr>
<td>5</td>
<td>17.17</td>
</tr>
<tr>
<td>6</td>
<td>16.49</td>
</tr>
</tbody>
</table>

S.E./mean = 1.434 ton/ac.
Crop :- Sugarcane.  
Zone :- Gorakhpur (Gorakhpur).

Object :- To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) As per treatments.  (c) N.A.  (ii) Loam.  (iii) N.A.  (iv) CO-453 (mid-late) improved,
   (v) (a) Ploughing on 12.8.1951. Trenching by spade on 24.1.1951.  (b) N.A.  (c) 1680 buds/plot,
   (d) and (e) N.A.  (vi) 7.2.1951.  (vii) Irrigated.  (viii) 4 hoeings by spades and kudali and 1 earthing up

2. TREATMENTS:
   1. Fallow-fallow-sugarcane.
   2. Sanai (G.M.) - fallow-sugarcane.
   5. Paddy-pea-sugarcane.
   6. Arhar-kodon-fallow-sugarcane.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 80' x 20'.  (b) 74' x 15'.  (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A.  (iii) Germination, tillers, milleabe cane and sugarcane yield.  (iv) (a) 1950-1953.
   (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (G). on cultivators' fields.

5. RESULTS:
   (i) 15.61 ton/ac.
   (ii) 5.753 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment  | Av. yield
   1.          | 18.56
   2.          | 14.23
   3.          | 13.15
   4.          | 12.70
   5.          | 15.54
   6.          | 19.50
   S.E./mean  | = 2.877 ton/ac.

Crop :- Sugarcane.  
Zone :- Gorakhpur (Gorakhpur).

Object :- To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) As per treatments.  (c) N.A.  (ii) Loam.  (iii) Top dressing of A/S at 4 md./ac. on
   16.3.1952 and 6.6.1952.  (iv) CO-454 (mid-late) improved.  (v) (a) Ploughings and trenching by bullocks
   and manual labour 3 times.  (b) Trench planting.  (c) 1752 buds/plot.  (d) 8 rows/plot.  (e) N.A.
   (vi) 7.2.1952.  (vii) Irrigated.  (viii) 5 hoeings by kudali and 1 earthing up by spade.  (ix) N.A.  (x)
   1.3.1953.

2. TREATMENTS:
   1. Fallow-fallow-sugarcane.
   2. Sanai-fallow-sugarcane.
   5. Paddy-pea-sugarcane.

DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  (iii) 73' x 24'.  (b) 67' x 18'.  (iv) N.A.
4. GENERAL:

(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950 to 1952.
(b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:

(i) 21.68 ton/ac.
(ii) 3.687 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>21.64</td>
</tr>
<tr>
<td>2.</td>
<td>21.64</td>
</tr>
<tr>
<td>3.</td>
<td>19.49</td>
</tr>
<tr>
<td>4.</td>
<td>22.62</td>
</tr>
<tr>
<td>5.</td>
<td>21.59</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.844 ton/ac</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Zone :- Anandnagar (Gorakhpur).

Object :- To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 453 (mid late) (improved). (v) (a) to (e) N.A. (vi) 10.2.1950. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 21 and 22.2.1951.

2. TREATMENTS:

1. Fallow—fallow—sugarcane.
2. Sanai (G.M.)—fallow—sugarcane.
5. Paddy—peas—sugarcane.

3. DESIGN:

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 54' x 18'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950 to 1952.
(b) N.A. (c) N.A. (v) N.A. (vi) N.A. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:

(i) 32.33 ton/ac.
(ii) 4.789 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>32.43</td>
</tr>
<tr>
<td>2.</td>
<td>33.94</td>
</tr>
<tr>
<td>3.</td>
<td>35.07</td>
</tr>
<tr>
<td>4.</td>
<td>30.24</td>
</tr>
<tr>
<td>5.</td>
<td>32.43</td>
</tr>
<tr>
<td>6.</td>
<td>29.86</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.955 ton/ac</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Zone :- Pharenda (Gorakhpur).

Object :-To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  
   (ii) As per treatments.  
   (c) No.  
   (ii) Sandy loam.  
   (iii) N.A.  
   (iv) CO. 453 (mid-late) (improved).  
   (v) 3 ploughings by desi plough.  
   (b) N.A.  
   (c) 1752 buds/plot.  
   (d) 8 rows/plot.  
   (e) N.A.  
   (vi) 4.3.1951.  
   (vii) Irrigated.  
   (viii) 1 hoeing, 4 hoeings by spade and 1 earthing up by spade.  

2. TREATMENTS:
   1. Fallow—fallow—sugarcane.  
   2. Sanai—fallow—sugarcane.  
   5. Sawan—fallow—sugarcane.  

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications.  
   (iii) (a) 73' x 24'.  
   (b) 67' x 18'.  
   (iv) N.A.

4. GENERAL:
   (i) N.A.  
   (ii) N.A.  
   (iii) Germination, tillers, millable canes and sugarcane yield.  
   (iv) (a) 1950 to 1952.  
   (v) 1952.  
   (vi) Nil.  
   (vii) The experiment was conducted by D.S.R. (G) cn cultivators' fields.

5. RESULTS:
   (i) 30.43 ton/ac.  
   (ii) 4.537 ton/ac.  
   (iii) Treatments are significantly different.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>29.44</td>
</tr>
<tr>
<td>2.</td>
<td>34.50</td>
</tr>
<tr>
<td>3.</td>
<td>26.43</td>
</tr>
<tr>
<td>4.</td>
<td>33.20</td>
</tr>
<tr>
<td>5.</td>
<td>27.95</td>
</tr>
<tr>
<td>6.</td>
<td>31.04</td>
</tr>
</tbody>
</table>

S.E./mean = 1.8522 ton/ac.

---

Crop :- Sugarcane.  
Zone :- Anandnagar (Gorakhpur).

Object :-To find out the suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  
   (b) As per treatments.  
   (c) N.A.  
   (ii) Sandy loam.  
   (iii) A/S at 3 mds.  
   (iv) 12 chks. and G.N.C. at 3 mds.  
   (iv) 20 seers, total 75 lb/ac. of N.  
   (iv) CO. 453 (mid-late), (improved).  
   (v) 1 ploughing by tractor, 1 ploughing by bullocks and harrowing by bullocks on 3.7.1951.  
   (b) Trench planting.  
   (c) 1752 buds/plot.  
   (d) 8 rows/plot.  
   (e) N.A.  
   (vi) 5.3.1952.  
   (vii) Irrigated.  
   (viii) 6 hoeings by kudol and 1 earthing up by spade.  

2. TREATMENTS:
   1. Fallow—fallow—sugarcane.  
   2. Sanai—fallow—sugarcane.  
   5. Paddy—peas—sugarcane.  

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  
   (iii) (a) 73' x 24'.  
   (b) 67' x 18'.  
   (iv) N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950—1952. (b) and (c) N.A. (v) N.A. (vi) N.A. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 35.16 ton/ac. (ii) 4.205 ton/ac. (iii) Treatments are not significantly different. (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>37.11</td>
</tr>
<tr>
<td>2.</td>
<td>36.82</td>
</tr>
<tr>
<td>3.</td>
<td>32.01</td>
</tr>
<tr>
<td>4.</td>
<td>36.12</td>
</tr>
<tr>
<td>5.</td>
<td>24.58</td>
</tr>
<tr>
<td>6.</td>
<td>34.33</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.103 ton/ac.</td>
</tr>
</tbody>
</table>


Object: To find out the best rotation with Sugarcane crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Bhat soil. (iii) 60 lb/ac. of N as mahua mixture, 25 lb/ac. of N as mixture and 35 lb/ac. of N as A/S. (iv) CO. 356 (mid-late) (improved). (v) (a) to (e) N.A. (vi) 26.1.1950. (vii) Irrigated. (viii) 8 hoeings. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Fallow—fallow—sugarcane.
2. Late paddy—fallow—sugarcane.
3. Late paddy—lathri—sugarcane.
4. Sanai—fallow—sugarcane.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 1/46 ac. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 13.04 ton/ac. (ii) 0.895 ton/ac. (iii) Treatments are significantly different. (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14.15</td>
</tr>
<tr>
<td>2.</td>
<td>11.53</td>
</tr>
<tr>
<td>3.</td>
<td>12.25</td>
</tr>
<tr>
<td>4.</td>
<td>13.94</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.447 ton/ac.</td>
</tr>
</tbody>
</table>
Crop : Sugarcane.
Zone : Ghugli (Gorakhpur).

Object : To find out suitable rotation with Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Bhail soil. (iii) N.A. (iv) CO. 513 (early) (improved).
   (v) (a) 1 ploughing by tractor, 5 ploughings by desti plough. (b) Flat planting. (c) 1752 buds/plot. (d) 8 rows/plot.

2. TREATMENTS:
   1. Fallow — Sugarcane.
   2. Sanai — fallow — Sugarcane.
   3. Maize (charf) — fallow — Sugarcane.
   4. Paddy — fallow — Sugarcane.
   5. Paddy — peas — Sugarcane.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications. (iii) (a) and (b) 73'x24'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R(G.). on cultivators' fields.

5. RESULTS:
   (i) 18.65 ton/ac.
   (ii) 1.959 ton/ac.
   (iii) Treatments are not significantly different.
   (iv) Av. yield of sugarcane in ton/ac.

   Treatment          Av. yield
   1.                19.66
   2.                20.58
   3.                19.21
   4.                19.03
   5.                17.38
   6.                16.06

   S.E./mean = 0.979 ton/ac.

Crop: Sugarcane.
Zone: Anandnagar (Gorakhpur).

Object: To find out the suitable time of planting Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai (G.M.). (c) Nil. (ii) Sandy loam. (iii) Manure on 21.10.1949 (Name of manure and dose—N.A.). (iv) CO. 453 (mid-late) (improved). (v) (a) 10 hoeings. (b) to (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 23.2.1951.

2. TREATMENTS:
   1. October planting.
   2. November planting.
   4. February planting.
   5. March planting.
   6. April planting.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 67'x18'. (iv) N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949 to 1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 25.07 ton/ac. 
(ii) 4.349 ton/ac. 
(iii) Treatment differences are highly significant. 
(iv) Av. yield of sugarcane in ton/ac. 

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>29.81</td>
</tr>
<tr>
<td>2.</td>
<td>28.34</td>
</tr>
<tr>
<td>3.</td>
<td>27.54</td>
</tr>
<tr>
<td>4.</td>
<td>27.24</td>
</tr>
<tr>
<td>5.</td>
<td>21.35</td>
</tr>
<tr>
<td>6.</td>
<td>16.15</td>
</tr>
</tbody>
</table>

S.E./mean = 2.175 ton/ac.

Crop : Sugarcane. 
Zone : Pharenda (Gorakhpur). 
Object : To find out the suitable time of planting Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai. (c) Nil. (ii) Sandy loam. (iii) N.A. (iv) CO-453 (mid-late) improved. (v) (a) Harrowing and hoeing. Ridging, hoeing and earthing by spade. (b) N.A. (c) 1752 buds/plot. (d) 8 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 28.2.1952.

2. TREATMENTS:
1. October planting on 18.10.1950.
4. February planting on 19.2.1951.
5. March planting on 19.3.1951.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'x24'. (b) 67'x18' (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 29.29 ton/ac. 
(ii) 6.460 ton/ac. 
(iii) Treatment differences are not significant. 
(iv) Av. yield of sugarcane in ton/ac. 

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>31.39</td>
</tr>
<tr>
<td>2.</td>
<td>31.35</td>
</tr>
<tr>
<td>3.</td>
<td>34.79</td>
</tr>
<tr>
<td>4.</td>
<td>27.16</td>
</tr>
<tr>
<td>5.</td>
<td>21.77</td>
</tr>
</tbody>
</table>

S.E./mean = 3.230 ton/ac.
Crop :- Sugarcane.  
Site :- Gorakhpur (Gorakhpur).  
Ref :- U.P. 51 (166).  
Type :- 'C'.

Object :- To find out suitable time of planting Sugarcane in different tracts.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Sanai (c) Nil.  (ii) Sandy loam.  (iii) Sanai buried on 26.8.1950 (50 lb./ac. of N).  
A/S at 4 mds. 5 seers/ac. (70 lb./ac. of N).  G.N.C. at 6 mds./ac.  (iv) CO.453 (mid-late) improved.  
(v) (a) Ploughing by tractor, harrowing by tractor, hoeing by kudali and earthing up by spade.  (b) Trench planting.  
(c) 1752 buds/plot (d) 8 rows/plot.  (e) N.A.  (vi) 25th of each month (as per treatments).  
(vii) Irrigated.  

2. TREATMENTS:
1. October planting.  
2. November planting.  
4. February planting.  
5. March planting.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications.  

4. GENERAL:
(i) and (ii) N.A.  

5. RESULTS:
(i) 37.15 ton/ac.  
(ii) 4.997 ton/ac.  

Crop :- Sugarcane.  
Zone :- Sardarnagar (Gorakhpur).  
Ref :- U.P. 49 (153).  
Type :- 'C'.

Object :- To find out the suitable time of planting Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) Sanai (G.M.).  (c) Nil.  (ii) Loam.  (iii) Sanai buried on 3.4.1950 and 19.5.1950.  
(iv) CO.453 (mid-late) improved.  
(v) (a) 9 hoeings.  (b) to (e) N.A.  (vi) As per treatments.  
(vii) Irrigated.  

2. TREATMENTS:
1. October planting.  
2. November planting.  
4. February planting.  
5. March planting.  
6. April planting.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications.  

(iii) (a) N.A.  (b) 74 x14'.  

(s)
4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949—1950. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators’ fields.

5. RESULTS:
(i) 17.20 ton/ac.
(ii) 3.900 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>22.85</td>
</tr>
<tr>
<td>2.</td>
<td>22.34</td>
</tr>
<tr>
<td>3.</td>
<td>18.69</td>
</tr>
<tr>
<td>4.</td>
<td>13.55</td>
</tr>
<tr>
<td>5.</td>
<td>18.94</td>
</tr>
<tr>
<td>6.</td>
<td>6.80</td>
</tr>
</tbody>
</table>

S.E./mean = 1.950 ton/ac.

Crop :- Sugarcane.
Zone :- Sardarnagar (Gorakhpur).
Object :- To find out suitable time of planting Sugarcane.

Ref :- U.P. 50(187).
Type :- ‘C’.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai. (c) Nil. (ii) Loam. (iii) N.A. (iv) CO.453 (mid-late) improved. (v) (a) Hoeings by spade and kudal. Earthing by spade. (b) N.A. (c) 1680 buds/plot. (d) and (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) N.A. (x) 26 and 27.2.1952.

2. TREATMENTS:

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80’x21’. (b) 74’x15’. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949—1950. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators’ fields.

5. RESULTS:
(i) 13.55 ton/ac.
(ii) 4.960 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>15.24</td>
</tr>
<tr>
<td>2.</td>
<td>13.98</td>
</tr>
<tr>
<td>3.</td>
<td>13.23</td>
</tr>
<tr>
<td>4.</td>
<td>10.77</td>
</tr>
<tr>
<td>5.</td>
<td>14.53</td>
</tr>
</tbody>
</table>

S.E./mean = 2.480 ton/ac.
Crop: Sugarcane. Ref.: U.P. 50(190).
Zone: Ghugli (Gorakhpur).
Type: ‘C’.

Object: To find out suitable time of planting Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Santul G.M. sown on 22.6.1950. (c) Nil. (ii) Bhat soil (iii) Top dressing 24 md. 26 seers of mohwa cake mixture. (containing A/S and cake at 60 lb./ac. of N on 4 8.1951. (iv) CO. 356 (mid-late) improved. (v) (a) Ploughing by victory plough on 12.5.1950, ploughing and planting by desi plough on 20.9.1950 and 14.10.1950, digging by spades and kasai on 12, 13.10.1950, earthing by kasai on 4 to 7.8.1951 and hoeing by kasai 7 times. (b) Sown by flat system of planting followed by earthing. (c) and (d) 536 buds in 8 rows/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 10.3.1952.

2. TREATMENTS:
1. October planting (20.10.1950).
5. March planting (12.3.1951).

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 67'x24'. (b) 61'x28'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, millabe cane, tillers and sugarcane yield. (iv) (a) 1950-1951. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators’ fields.

5. RESULTS:
(i) 20.21 ton/ac.
(ii) 2.568 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.77</td>
</tr>
<tr>
<td>2.</td>
<td>20.82</td>
</tr>
<tr>
<td>3.</td>
<td>21.18</td>
</tr>
<tr>
<td>4.</td>
<td>20.30</td>
</tr>
<tr>
<td>5.</td>
<td>19.98</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.184 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane. Ref.: U.P. 51(167).
Zone: Ghugli (Gorakhpur).
Type: ‘C’.

Object: To study the time of planting Sugarcane in different tracts.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Bajra and sugarcane (for green fodder). (c) Nil. (ii) Bhat soil. (iii) Application of compost 180 md. on 24 to 26.11.1951. (iv) CO. 419 (late) improved. (v) (a) Ploughing by tractor and desi plough. Furrow making. Harrowing and earthing up. (b) Trench planting. (c) and (d) 960 buds in 8 rows/plot. (e) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) N.A. (x) 12 to 18.1.1953.

2. TREATMENTS:
1. November planting (28.11.1951).

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 46’x28’. (iv) N.A.
4. **GENERAL:**

(i) N.A.  
(ii) N.A.  
(iii) Germination, tillers, millable cane and sugarcane yield.  
(iv) (a) 1950-1951.  
(b) N.A.  
(c) N.A.  
(v) N.A.  
(vi) Nil.  
(vii) The experiment was conducted by D.S.R. (G). on cultivators’ fields.

5. **RESULTS:**

(i) 40.58 ton/ac.  
(ii) 2.827 ton/ac.  
(iii) Treatment differences are not significant.  
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>39.64</td>
<td>1.414 ton/ac.</td>
</tr>
<tr>
<td>2.</td>
<td>41.26</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>40.92</td>
<td>1.414 ton/ac.</td>
</tr>
<tr>
<td>4.</td>
<td>40.49</td>
<td></td>
</tr>
</tbody>
</table>

---

**Crop:** Sugarcane.  
**Zone:** Sardarnagar (Gorakhpur).  
**Ref.:** U.P. 51(183).  
**Type:** 'C'.  

Object: To improve the Sugarcane yield under late planted conditions.

1. **BASAL CONDITIONS:**

(i) (a) N.A.  
(b) Sanai (G.M.)  
(c) Loam.  
(ii) Sanai.  
(iii) CO.453 (Late) (improved)  
(iv) Trenching by spade, hoeing by kudali and earthing by spade.  
(b) N.A.  
(c) 10 and 12 rows/plot; No. of buds/plot (treatment-wise). (1) 2400, (2) 2400, (3) 4800 (4) 2880 and (5) 5760.  
(d) and (e) N.A.  
(v) As under treatments.  
(vi) Irrigated.  
(vii) N.A.  
(ix) N.A.  
(x) 27.2.1952.

2. **TREATMENTS:**

1. Control—normal planting (January).  
2. Late planting at the end of March in rows 3’ apart with single setting.  
3. Late planting at the end of March in rows 3’ apart with double setting.  
4. Late planting at the end of March in rows 2½’ apart with single setting.  
5. Late planting at the end of March in rows 2½’ apart with double setting.  
Dates of planting treatment 1 on 31.1.1951 and others on 23 and 27.3.1951.

3. **DESIGN:**

(i), (ii) R.B.D. with 4 replications.  
(iii) (a) 80’×30’.  
(b) 74’×24’ for treatments 1, 2 and 3 and 73’×25’ for treatments 4 and 5.  
(iv) N.A.

4. **GENERAL:**

(i) N.A.  
(ii) N.A.  
(iii) Sugarcane yield.  
(iv) (a) 1951 to 1953.  
(b) and (c) N.A.  
(v) N.A.  
(vi) Nil.  
(vii) The experiment was conducted by D.S.R. (G) on cultivators’ fields.

5. **RESULTS:**

(i) 9.98 ton/ac.  
(ii) 1.989 ton/ac.  
(iii) Treatment differences are not significant.  
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10.64</td>
<td>0.995 ton/ac.</td>
</tr>
<tr>
<td>2.</td>
<td>9.04</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>9.65</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>10.95</td>
<td>0.995 ton/ac.</td>
</tr>
<tr>
<td>5.</td>
<td>9.63</td>
<td></td>
</tr>
</tbody>
</table>

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Crop: Sugarcane. Zone: Gorakhpur (Gorakhpur).

Object: To improve Sugarcane yield under late planted conditions.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Paddy. (c) N.A. (ii) Loam. (iii) A/S at 4 md./ac. Neem cake at 12 md./ac. (iv) CO. 453 (late) (improved). (v) (a) Ploughing and trenching by spade and harrowing. (b) N.A. (c) and (d) 10 and 12 rows/plot according to treatments buds/plot treatment-wise (1) 2400, (2) 2400, (3) 2880, (4) 5760 and (5) N.A. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing by kidali and earthing up by spade. (ix) N.A. (x) 15 to 23.3.1953.

2. TREATMENTS:
   1. Normal planting—February (control).
   2. Late planting at the end of March in rows 3' apart with normal setting.
   3. Late planting at the end of March in rows 3' apart with double setting.
   4. Late planting at the end of March in rows 2½' apart with normal setting.
   5. Late planting at the end of March in rows 2½' apart with double setting.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications. (iii) (a) 80'x30'. (b) 74'x24' for treatments 1, 2 and 3 and 75'x25' for treatments 4 and 5. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, millable cane, tillers and sugarcane yield. (iv) (a) 1951—1953. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS:
   (i) 16.82 ton/ac.
   (ii) 1.775 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16.39</td>
</tr>
<tr>
<td>2</td>
<td>14.98</td>
</tr>
<tr>
<td>3</td>
<td>17.86</td>
</tr>
<tr>
<td>4</td>
<td>16.68</td>
</tr>
<tr>
<td>5</td>
<td>18.21</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.887 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane. Zone: Gorakhpur (Gorakhpur).

Object: To improve Sugarcane yield under late planted conditions.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Urd. (c) N.A. (ii) Sandy loam. (iii) Neem cake at 8 md./ac. and A/S at 4 md./ac. (iv) CO. 453 (improved). (v) (a) By ordinary plough on 16.9.1952, hoeing in whole field on 31.10.1952, hoeing by kidali and weeding. (b) Trench planted. (c) and (d) 10 and 12 rows/plot; no. of buds/plot normal setting 5600, double setting 19200. (e) N.A. (vi) Treatment 1 on 26.1.1953 and others on 21.3.1953. (vii) Irrigated. (viii) and (ix) N.A. (x) 28.2.1954.

2. TREATMENTS:
   1. Normal planting in the beginning of February (control).
   2. Late planting at the end of March in rows 3' apart, with normal setting.
   3. Late planting at the end of March in rows 3' apart with double setting.
   4. Late planting at the end of March in rows 2½' apart with normal setting.
   5. Late planting at the end of March in rows 2½' apart with double setting.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'x30'. (b) 74'x24' for treatment 1, 2 and 3 and 75'x25' for treatment 4 and 5. (iv) N.A.
4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) 1951 to 1953.
(b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 19.62 ton/ac.
(ii) 3.065 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.34</td>
</tr>
<tr>
<td>2.</td>
<td>20.02</td>
</tr>
<tr>
<td>3.</td>
<td>20.47</td>
</tr>
<tr>
<td>4.</td>
<td>20.35</td>
</tr>
<tr>
<td>5.</td>
<td>17.92</td>
</tr>
</tbody>
</table>

S.E./mean = 1.533 ton/ac.

---

Crop: - Sugarcane.  
Zone: - Pharenda (Gorakhpur).  
Ref: - U.P. 51(184).  
Type: - 'C'.

Object: - To improve the Sugarcane yield under late planting conditions.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Fallow. (c) No. (ii) Sandy loam. (iii) N.A. (iv) CO.453 (late) improved. (v) (a) Ploughing by tractor on 12.1.1951, harrowing by tractor on 13.1.1951, hoeing by kudali and earthing by spade. (b) N.A. (c) and (d) 10 rows/plot in treatments 1, 2 and 3 and 12 rows/plot in treatment 4 and 5. No. of buds/plot in treatment 1—8760, in treatment 2—8760, in treatment 3—17520, in treatment 4—10512 and in treatment 5—21024. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) N.A. (x) 27.3.1952.

2. TREATMENTS:
1. Normal planting—control (planting in 1st week of February).
2. Late planting at the end of March and in rows 3' distance with normal setting.
3. Late planting at the end of March and in rows 3' distance with double setting.
4. Late planting at the end of March and in rows 2½' distance with normal setting.
5. Late planting at the end of March and in rows 2½' distance with double setting.

3. DESIGN:
(i) and (ii) R.B.D. in 4 replications. (iii) (a) 73'x30'. (b) 67'x24' for treatment 1, 2 and 3 and 68'x25' for treatment 4 and 5. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1951 to 1953. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 25.37 ton/ac.
(ii) 4.806 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>30.85</td>
</tr>
<tr>
<td>2.</td>
<td>25.65</td>
</tr>
<tr>
<td>3.</td>
<td>22.98</td>
</tr>
<tr>
<td>4.</td>
<td>25.15</td>
</tr>
<tr>
<td>5.</td>
<td>22.24</td>
</tr>
</tbody>
</table>

S.E./mean = 2.403 ton/ac.
Crop :- Sugarcane.
Zone :- Gorakhpur (Gorakhpur).
Object :- To improve Sugarcane yields under late planted condition.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai. (c) No. (ii) Sandy loam. (iii) Sanai G.M. at 50 lb./ac. of N; A/S at 3 mds.
   3 seers 12 chh./plot and neem cake at 5 mds. 25 seers/ac. i.e. at 70 lb./ac. of N. (iv) CO.453 (late variety)
   improved. (v) (a) Hoeing by kassi (kudal). Earthing up by spade. (b) Trench planting. (c) and (d)
   10 and 12 rows/plot. No. of buds planted per plot treatment (1) 2190, (2) 2190, (3) 4380, (4) 2628
   and (5) 5256. (e) N.A. (vi) 14.2.1952 for treatment 1 and 28.3.1952 for other treatments. (vii) Irrigated.
   (viii) and (ix) N.A. (x) 30.4.1953.

2. TREATMENTS:
   1. Normal planting (February) — control.
   2. Late planting at the end of March and in rows 3' apart with normal setting.
   3. Late planting at the end of March and in rows 3' apart with double setting.
   4. Late planting at the end of March and in rows 2½' apart with normal setting.
   5. Late planting at the end of March and in rows 2½' apart with double setting.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'×30'. (b) 67'×24' for treatments 1, 2 and 3 and 68'×25'.
   for treatment 4 and 5. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield at harvest (i.e. excluding
   cane harvested for juice analysis). (iv) (a) 1951—1953. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The
   experiment conducted by D.S.R.(G) on cultivators' fields.

5. RESULTS:
   (i) 24.79 ton/ac.
   (ii) 0.856 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment       Av. yield
   1.             25.29
   2.             22.80
   3.             30.20
   4.             22.30
   5.             23.36
   S.E./mean      = 0.428 ton/ac.

---

Crop :- Sugarcane.
Zone :- Gorakhpur (Gorakhpur).
Object :- To improve Sugarcane yields under late planted condition.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Sanai. (iii) Nil. (iv) CO.453 (late variety) improved. (v) (a) Ploughings
   by tractor on 2 and 3.6.1952, 7 ploughings by desi plough, 4 ploughings by tractor and 7 hoeings by
   kudali. (b) Trench planting. (c) 8760 buds/plot in treatment 1 and 17520 buds/plot. (d) N.A. (e)
   Double setting. (vi) 23.2.1953 for treatment 1 and 1.4.1953 for other treatments. (vii) Irrigated. (viii)
   and (ix) N.A. (x) 13.3.1954.

2. TREATMENTS:
   1. Normal planting (February) — control.
   2. Late planting at the end of March and in row 3' apart with normal setting.
   3. Late planting at the end of March and in row 3' apart with double setting.
   Late planting at the end of March and in rows 2½' apart with normal setting.
   Late planting at the end of March and in rows 2½' apart with double setting.
3. **DESIGN:**
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'x30'. (b) 67'x24' for treatments 1, 2 and 3 and 68'x25' for treatments 4 and 5. (iv) N.A.

4. **GENERAL:**
   (i) and (ii) N.A. (iii) Germinations, tillers, millable cane and sugarcane yield. (iv) (a) 1951—1953. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. **RESULTS:**
   (i) 14.61 ton/ac.
   (ii) 1.455 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) **Av. yield of sugarcane in ton/ac.**
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>15.57</td>
</tr>
<tr>
<td>2.</td>
<td>14.98</td>
</tr>
<tr>
<td>3.</td>
<td>14.77</td>
</tr>
<tr>
<td>4.</td>
<td>11.67</td>
</tr>
<tr>
<td>5.</td>
<td>16.07</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.728 ton/ac</td>
</tr>
</tbody>
</table>

---

**Crop:** Sugarcane.  
**Site:** Mehammadi (Kheri).  
**Ref:** U.P. 50(159).  
**Type:** ‘C’.

Object: — To find the optimum time of planting Sugarcane in different tracts for obtaining high yields.

1. **BASAL CONDITIONS:**
   (i) (a) N.A.  (b) Sanai (G.M.)  (c) Nil.  (ii) Loam.  (iii) Castor cake 8 mds+A/S at 2 mda/ac.  (iv) CO-527.  
   (v) (a) Tractor ploughings. 5 hoeings. Earthing up by tractor. (b) Flat sowing behind ridges. (c) 1911 buds/plot  
   (d) 7 rows/plot. (e) N.A.  (vi) As per treatments. (vii) Irrigated. (viii) N.A.  (ix) N.A.  
   (x) 4 10.1951.

2. **TREATMENTS:**
   2. Middle of November 1949 (20.11.1949).
   5. Middle of February 1950 (9.2.1950).
   6. Middle of March 1950 (30.3.1950).

3. **DESIGN:**
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) 91'x21'. (b) 85'x15'. (iv) N.A.

4. **GENERAL:**
   (i) N.A.  (ii) N.A.  (iii) Germination % and sugarcane yield. (iv) (a) No.  (b) No.  (c) N.A.  (v) N.A.  
   (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators' fields.

5. **RESULTS:**
   (i) 8.20 ton/ac.
   (ii) 2.20 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) **Av. yield of sugarcane in ton/ac.**
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.51</td>
</tr>
<tr>
<td>2.</td>
<td>9.00</td>
</tr>
<tr>
<td>3.</td>
<td>8.47</td>
</tr>
<tr>
<td>4.</td>
<td>7.32</td>
</tr>
<tr>
<td>5.</td>
<td>8.79</td>
</tr>
<tr>
<td>6.</td>
<td>4.08</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.89 ton/ac</td>
</tr>
</tbody>
</table>
Object: To find the optimum time of planting Sugarcane in two different tracts for obtaining the high yields.

### 1. BASAL CONDITIONS:

- **(b)** Flat sowing.  
- **(c)** 1440 budds/plot  
- **(d)** 8 rows/plot.  
- **(e)** N.A.  
- **(vi)** As per treatments.  
- **(vii)** Irrigated.  
- **(viii)** N.A.  
- **(ix)** 60".  
- **(x)** 18.3.1951.

### 2. TREATMENTS:

2. Middle of November 1949 (31.11.1949).  
5. Middle of February 1950 (14.2.1950).

### 3. DESIGN:

- **(i)** and (ii) R.B.D. with 4 replications.  
- **(iii)** (a) 60'x26'.  
- **(b)** 54'x 20'.  
- **(iv)** N.A.

### 4. GENERAL:

- **(i)** N.A.  
- **(ii)** N.A.  
- **(iii)** Germination % and sugarcane yield.  
- **(iv)** (a) No.  
- **(b)** N.A.  
- **(c)** N.A.  
- **(v)** N.A.  
- **(vi)** Nil.  
- **(vii)** The experiment was conducted by D.S.R. (S). on cultivators' fields.

### 5. RESULTS:

- **(i)** 35.88 ton/ac.  
- **(ii)** 3.99 ton/ac.  
- **(iii)** Treatment differences are highly significant.  
- **(iv)** Av. yield of sugarcane in ton/ac.  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>45.47</td>
</tr>
<tr>
<td>2.</td>
<td>36.17</td>
</tr>
<tr>
<td>3.</td>
<td>30.10</td>
</tr>
<tr>
<td>4.</td>
<td>35.47</td>
</tr>
<tr>
<td>5.</td>
<td>32.18</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.00</td>
</tr>
</tbody>
</table>

### Crop: Sugarcane

Object: To study the effect of harvesting Sugarcane on different dates.

### 1. BASAL CONDITIONS:

- **(i)** (a) G.M. Wheat—G.M. Sanai—Sugarcane.  
- **(b)** Sanai.  
- **(c)** Green manure.  
- **(ii)** (a) Sandy loam.  
- **(b)** N.A.  
- **(iii)** 16 to 18.1.1948.  
- **(iv)** (a) 9 preparatory ploughings with desi and watts plough and 5 harrowings.  
- **(b)** Sown flat.  
- **(c)** 55 three budded setts/row.  
- **(d)** and (e) N.A.  
- **(v)** G.M. with sanai.  
- **(vi)** Top dressing Castor cake at 25 lb/ac.  
- **(vii)** N.A.  
- **(viii)** N.A.  
- **(ix)** 60".  
- **(x)** 49.20".

### 2. TREATMENTS:

**Main-plot treatments:**

- 4 dates of harvesting: \( D_1 = 1.1.1949, D_2 = 1.2.1949, D_3 = 1.3.1949 \) and \( D_4 = 1.4.1949 \)

**Sub-plot treatments:**

- 3 varieties: \( V_1 = \text{CO.109}, V_2 = \text{CO.313}, V_3 = \text{CO.356} \).
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 55'×27'. (b) 49'x27'. (v) 3' border left around the net plot. (vi) Yes.

4. GENERAL:
(i) Normal, no lodging. (ii) No. (iii) Tiller, germination, millable cane and sugarcane yield. (iv) 1946-1949. (b) and (c) No. (v) Yes and (b) No. (vi) The experiment was conducted by D.S.R.(G).

5. RESULTS:
(i) 18.31 ton/ac.
(ii) (a) 4.128 ton/ac. (b) 5.299 ton/ac.
(iii) Main effect of V is highly significant. Main effect of D and interaction D×V are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>22.25</td>
<td>23.57</td>
<td>14.56</td>
<td>20.13</td>
</tr>
<tr>
<td>D₂</td>
<td>21.24</td>
<td>24.79</td>
<td>15.72</td>
<td>20.58</td>
</tr>
<tr>
<td>D₃</td>
<td>19.63</td>
<td>22.84</td>
<td>11.50</td>
<td>17.99</td>
</tr>
<tr>
<td>D₄</td>
<td>19.66</td>
<td>12.50</td>
<td>11.48</td>
<td>14.55</td>
</tr>
<tr>
<td>Mean</td>
<td>20.70</td>
<td>20.97</td>
<td>13.32</td>
<td>18.31</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 1.685 ton/ac.
2. marginal means of V = 1.166 ton/ac.
3. V means at a level of D = 2.333 ton/ac.
4. D means at a level of V = 2.543 ton/ac.

Crop : Sugarcane.  
Site : Sugarcane Res. S.1b-Stn, Kunraghat.  
Ref : U.P. 49(2).  
Type : 'CV'.

Object : To study the effect of harvesting Sugarcane on different dates.

1. BASAL CONDITIONS:
(i) (a) G.M. Wheat—fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Sandy leam. (b) N.A. (iii) 17 and 18.2.1949. (iv) (a) 8 preparatory ploughings and 3 harrowings with desi and watts plough. (b) Sown in trenches. (c) 60 three budded setts/row. (d) and (e) N.A. (v) Village compost at 60 lb./ac. of N+castor cake at 60 lb./ac. of N+P/S at 30 lb./ac. of N applied in trenches in Dec. 1948 and Jan, 1949 respectively. (vi) As per treatments. (vii) Irrigated. (viii) 3 earthings and 8 hoeings. (ix) 53.11°. (x) As per treatments.

2. TREATMENTS:
Main-plot treatments:
Sub-plot treatments:
3 varieties: V₁ = CO.313, V₂ = CO.453 and V₃ = CO.109. D₆ plots were harvested on 16.3.1950 instead of 31.3.1950.

3. DESIGN:
(i) Split-plot. (ii) (a) 6 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 56'x24' (main-plot size net 56'x72'). (b) 50'x18'. (v) 3' bunds around the net plot was excluded. (vi) Yes.

4. GENERAL:
(i) Normal. No lodging. (ii) No. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1946-1949. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G).
5. RESULTS.

(i) 18.40 ton/ac.
(ii) (a) 4.649 ton/ac.
(b) 3.094 ton/ac.

(iii) Main effect of \( V \) is significant. Main effect of \( D \) and interaction \( D \times V \) are not significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>( V_1 )</th>
<th>( D_1 )</th>
<th>( D_2 )</th>
<th>( D_3 )</th>
<th>( D_4 )</th>
<th>( D_5 )</th>
<th>( D_6 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.06</td>
<td>18.32</td>
<td>19.61</td>
<td>17.56</td>
<td>13.88</td>
<td>13.93</td>
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<td>20.14</td>
<td>21.82</td>
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<td>19.74</td>
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<td>18.08</td>
<td>21.05</td>
<td>19.10</td>
<td>19.71</td>
<td>15.65</td>
<td>15.81</td>
<td></td>
<td>18.23</td>
</tr>
<tr>
<td>Mean</td>
<td>19.43</td>
<td>20.40</td>
<td>19.70</td>
<td>19.08</td>
<td>15.85</td>
<td>15.95</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of difference of two

1. marginal means of \( H \) = 1.898 ton/ac.
2. marginal means of \( V \) = 0.8930 ton/ac.
3. \( V \) means at a level of \( H \) = 2.187 ton/ac.
4. \( H \) means at a level of \( V \) = 2.606 ton/ac.

Crop: Sugarcane.

Ref: U.P. 52(55).

Site: Sugarcane Res. Sub-Stn., Kunraghat.

Type: 'CV'.

Object: To study the effect of autumn vs spring planting on the yield of late varieties of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) G.M. (b) Sanai for G.M. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) As per treatments. (iv) (a) 3 preparatory ploughings with victory and 2 harrowings with the cultivator. (b) Sown in trenches. (c) 85 three budded setts/row. (d) and (e) N.A. (v) Castor cake at 30 lb./ac. of N, A/S at 40 lb./ac. of N. Sanai and G.M. at 50 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) Earthing on 14.8.1952 and 9 hoeings. (ix) 2.35”. (x) 26.1.1953 to 4.3.1953.

2. TREATMENTS:

Main-plot treatments:

2 dates of planting: \( D_1 \) = Autumn (12.11.1951) and \( D_2 \) = Spring (7.2.1952)

Sub-plot treatments:

10 varieties: \( V_1 \) = S. 60, \( V_2 \) = CO. 370, \( V_3 \) = CO. 410, \( V_4 \) = CO. 453, \( V_5 \) = COS. 475, \( V_6 \) = S. 89, \( V_7 \) = COS. 429, \( V_8 \) = CO. 419, \( V_9 \) = COS. 364 and \( V_{10} \) = S. 46.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication and 10 sub-plots/main-plot. (iii) 2. (iv) (a) N.A. (b) 8' x 60' (v) 3’ along length. (vi) Yes

4. GENERAL:

(i) Normal. No lodging. (ii) Bokers attacked and were killed on 12.4.1952 (iii) Germination, tillers millable cane and sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:

(i) 18.17 ton/ac.
(ii) (a) 1.596 ton/ac.
(b) 3.059 ton/ac.

(iii) Main effect of \( V \) is highly significant. Effect of \( D \) and interaction \( D \times V \) are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>V6</th>
<th>V7</th>
<th>V8</th>
<th>V9</th>
<th>V10</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2</td>
<td>25.43</td>
<td>15.19</td>
<td>17.81</td>
<td>15.75</td>
<td>16.89</td>
<td>23.37</td>
<td>21.73</td>
<td>14.95</td>
<td>21.70</td>
<td>14.59</td>
<td>18.74</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 0.505 ton/ac.
2. marginal means of V = 2.163 ton/ac.
4. D means at a level of V = 2.966 ton/ac.

Crop :- Sugarcane.
Ref :- U.P. 48(11):
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.
Type :- "CV".

Object :- To find the optimum time of harvesting different varieties of Sugarcane.

1. BASAL CONDITIONS :
(i) G.M.—wheat—Cotton—Sugarcane. (b) G.M. as sanai (30 lb./ac. of N). (c) Nil. (ii) (a) Light loam.
(b) Refer soil analysis, Muzaffarnagar. (iii) 17.3.1948. (iv) (a) 8 preparatory ploughings. (b) Planted flat.
(c) 4200 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Compost at 45.5 lb./ac. of N+top dressing.
A/S at 40 lb./ac. of N+A/N at 40 lb./ac. (vi) As per treatments. (vii) Irrigated. (viii) 5 hoeings and earthing up in September. (ix) 34.20°. (x) As per treatments.

2. TREATMENTS :
Main-plot treatments :
6 dates of harvesting: D1 = 15.11.1948, D2 = 15.12.1948: D3 = 15.1.1949, D4 = 15.2.1949, D5 = 15.3.1949
and D6 = 15.4.1949.

Sub-plot treatments :
3 varieties: V1 = CO. 312, V2 = CO. 421 and V3 = CO. 453.

3. DESIGN :
(i) Split-plot. (ii) (a) 6 main-plots/replication and 2 sub-plots/main-plot. (iii) 3. (iv) (a) and (b) 58'x18'. (v) One row on either side. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Nil. (iii) Germination, tiller, millable cane countings and sugarcane yield. (iv) (a) 1848—1950. (b) and (c) No. (v) (a) and (b) No. (i) Nil. (vii) Experiment was conducted by D.S.R. (M).

5. RESULTS :
(i) 33.60 ton/ac.
(ii) (a) 1.97 ton/ac.
(b) 1.58 ton/ac.

(iii) Main effect of D and V are significant. Interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>V6</th>
<th>V7</th>
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<td>32.36</td>
<td>31.17</td>
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<td>27.13</td>
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<tr>
<td>D2</td>
<td>34.42</td>
<td>31.23</td>
<td>32.47</td>
<td>34.26</td>
<td>31.95</td>
<td>33.65</td>
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<tr>
<td>D3</td>
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<td>36.56</td>
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<td>37.14</td>
<td>38.31</td>
<td>37.08</td>
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<tr>
<td>Mean</td>
<td>36.10</td>
<td>32.40</td>
<td>33.32</td>
<td>34.19</td>
<td>32.97</td>
<td>32.62</td>
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<td>33.60</td>
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</table>

S.E. of difference of two
1. marginal means of D = 0.93 ton/ac.
2. marginal means of V = 0.63 ton/ac.
3. V means at a level of D = 1.54 ton/ac.
4. D means at a level of V = 1.56 ac.
Crop :- Sugarcane (Ratoon).  
Site :- Sugarcane Res. Sub Stn., Muzaffarnagar.  

Object :- To study the effect of time of harvest of Sugarcane plant crop on the ratooning capacity of some important varieties.

1. BASAL CONDITIONS:
   (i) (a) G.M.- Wheat—Sanai or Moong—Sugarcane—Ratoon. (b) Sugarcane (plant cane). (c) A/S at 60 lb./ac. of N and Ammo. Phos. at 60 lb./ac. of N.  
   (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar.  
   (iii) As per treatments. (iv) (a) 1 ploughing. (b) Sown flat. (c) 3 buds/ft. of a row. (d) 3 rows 3' apart. (e) Nil. (f) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings and earthing up in July.  
   (ix) 20.73". (x) 8.11.1949 to 10.12.1949.

2. TREATMENTS:
   Main-plot treatments :  
   6 dates of harvest of plant crops:  
   \[ D_1 = 15.11.1948, \quad D_2 = 15.12.1948, \quad D_3 = 15.1.1949, \quad D_4 = 15.2.1949 \] and \[ D_5 = 15.3.1949 \] and \[ D_6 = 15.4.1949. \]

Sub-plot treatments :
   3 varieties: \[ V_1 = CO.313, \quad V_2 = CO.421 \] and \[ V_3 = CO.453. \]

3. DESIGN:
   (i) Split-plot. (ii) (a) 6 main-plots/replcation and 3 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 58' X 18'. (v) No. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, tiller, millable cane countings and sugarcane yield. (iv) (a) 1949 to 1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:
   (i) 26.27 ton/ac.  
   (ii) (a) 3.51 ton/ac.  
   (b) 3.28 ton/ac.  
   (iii) Main effect of \( V \) is highly significant, effect of \( D \) is significant and interaction \( D \times V \) is not significant.  
   (iv) Av. yield of sugarcane in ton/ac.

\[
\begin{array}{cccccc}
\text{V}_1 & D_1 & D_2 & D_3 & D_4 & D_5 \\
25.06 & 23.02 & 24.96 & 24.83 & 25.35 & 26.48 \\
24.63 & 24.90 & 26.54 & 30.94 & 25.01 & 30.27 \\
25.08 & 24.92 & 27.62 & 31.88 & 29.75 & 36.03 \\
\hline
\text{Mean} & 24.92 & 24.28 & 26.37 & 29.22 & 26.70 & 30.33 \\
\end{array}
\]

S.E. of difference of two  
1. marginal means of \( D \) \[ = 1.65 \text{ ton/ac.} \]  
2. marginal means of \( V \) \[ = 1.09 \text{ ton/ac.} \]  
3. \( V \) means at a level of \( D \) \[ = 2.68 \text{ ton/ac.} \]  
4. \( D \) means at a level of \( V \) \[ = 2.71 \text{ ton/ac.} \]

Crop :- Sugarcane.  
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.  

Object :- To find the optimum time of harvesting different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Wheat—Cotton—Sugarcane or Urid. (b) Urid. (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar.  
   (iii) 25.2.1949. (iv) (a) 9 preparatory ploughings. (b) Sown flat. (c) 3 buds/ft. of a row. (d) Rows 3' apart. (e) N.A. (f) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 5 hoeings and earthing up in August.  
   (ix) 26.03". (x) As per treatments.
2. TREATMENTS:

Main-plot treatments:

Sub-plot treatments:
3 varieties: V₁ = CO.313, V₂ = CO.421 and V₃ = CO.453.

3. DESIGN:
(i) Split-plot. (ii) (a) 6 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 50' x 18'. (v) No. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Germination, tiller, millable cane and sugarcane yield. (iv) (a) 1948 to 1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (M).

5. RESULTS:
(i) 30.31 ton/ac.
(ii) (a) 1.91 ton/ac.
(b) 2.57 ton/ac.
(iii) Main effect of V is highly significant, effect of D is significant. Interaction D x V is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
<th>D₅</th>
<th>D₆</th>
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<td>34.19</td>
<td>32.69</td>
<td>34.43</td>
<td>33.60</td>
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</table>

Mean 28.54 30.94 31.15 31.94 30.13 29.38 30.31

S.E. of difference of two
1. marginal means of D = 0.90 ton/ac.
2. marginal means of V = 0.86 ton/ac.
3. V means at a level of D = 2.10 ton/ac.
4. D means at a level of V = 1.94 ton/ac.

Crop: Sugarcane (Ratoon).
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.
Ref: U.P. 50(31).
Type: ‘CV’.

Object: To study the effect of time of harvesting plant Sugarcane on the ratooning capacity of some important varieties.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat — Sanai—Sugarcane (plant) — Ratoon. (b) Sugarcane (plant). (c) A/S at 60 lb./ac. of N. Amm. Phos. at 60 lb./ac. of N. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) As per treatments. (iv) (a) One preparatory ploughing. (b) Sown flat. (c) 3 buds/ft. of a row. (d) Rows 5' apart. (e) N.A. (v) G.N.C. at 60 md/ac. of N. A/S at 60 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings. Earthing up in July. (ix) 61.46". (x) 22.11.1950 to 20.12.1950.

2. TREATMENTS:
Main-plot treatments:

Sub-plot treatments:
3 varieties: V₁ = CO.314 (early), V₂ = CO.421 (mid-season) and V₃ = CO.453 (late).

3. DESIGN:
(i) Split-plot. (ii) (a) 6 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) Sub-plot = 38' x 11'. (v) No. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tillers, millable cane counting and sugarcane yield. (iv) (a) 1950—1951. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:
(i) 21.98 ton/acre.
(ii) (a) 4.18 ton/acre.
(b) 1.96 ton/acre.
(iii) Main effect of V and interaction D×V are highly significant. Main effect of D is not significant.
(iv) Av. yield of sugarcane in ton/acre.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>D6</th>
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<td>V1</td>
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<td>19.18</td>
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<td>19.28</td>
<td>18.68</td>
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<tr>
<td>V2</td>
<td>21.54</td>
<td>20.72</td>
<td>20.85</td>
<td>25.66</td>
<td>22.25</td>
<td>24.82</td>
<td>22.64</td>
</tr>
<tr>
<td>V3</td>
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<td>19.97</td>
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<td>27.16</td>
<td>28.01</td>
<td>28.57</td>
<td>24.62</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 1.90 ton/acre.
2. marginal means of V = 0.65 ton/acre.
5. V means at a level of D = 1.60 ton/acre.
4. D means at a level of V = 2.30 ton/acre.


Object: To find the optimum time of harvesting different varieties of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton—Fallow. (c) No. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 19.2.1950. (iv) (a) 3 preparatory ploughings. (b) Sown flat. (c) N.A. (d) Rows 3' apart. (e) N.A. (v) Basal manuring of compost at 45.5 lb./ac. of N. Top dressing A/S at 40 lb./ac. of N and A/N at 40 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 10 hoeings. Earthing up in August. (ix) 41.14°. (x) As per treatments.

2. TREATMENTS:
Main-plot treatments:
6 dates of harvesting: D1 = 15.11.1950, D2 = 15.12.1550, D3 = 15.1.1951, D4 = 15.2.1951, D5 = 15.3.1951, and D6 = 15.4.1951.
Sub-plot treatments:
3 varieties: V1 = CO.313 (early), V2 = CO.21 (mid-season) and V3 = CO.453 (late).

3. DESIGN:
(i) Split-plo t. (ii) (a) 6 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) (a) and (b) Main plot: 58'x54', sub plot: 58'x18'. (v) No. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tillers, millable cane counting and sugarcane yield. (iv) (a) 1948-1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:
(i) 23.42 ton/acre.
(ii) (a) 1.84 ton/acre.
(b) 2.23 ton/acre.
(iii) Main effects of D and V are highly significant and interaction D×V is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
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<td>23.95</td>
<td>23.31</td>
<td>23.74</td>
<td>24.54</td>
<td>24.64</td>
<td>23.31</td>
<td>23.43</td>
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</table>

S E. of difference of two
1. marginal means of D = 0.87 ton/ac.
2. marginal means of V = 0.74 ton/ac.
3. V means at the level of D = 1.82 ton/ac.
4. D means at the level of V = 1.72 ton/ac.

Crop :- Sugarcane. (Ratoon)
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.
Ref :- U.P. 51(30).
Type :- 'CV'.

Object :— To study the effect of time of harvesting of plant cane on the ratooning capacity of important varieties.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Wheat—Sanai or Moong—Sugarcane—Raton. (b) Plant sugarcane. (c) Amm. Phos. at 60 lb./ac. of N. A/S at 60 lb./ac. of N. (ii) (a) Ligt loam. (b) Refer soil analysis, Muzaffarnagar. (iii) As per treatments. (iv) (a) 2 preparatory ploughings. (b) Sown flat. (c) 3 buds/ft. of a row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 4 hoeings, earthing also. (ix) 26.57'.
   (x) 19 • 0 22.11.1951.

2. TREATMENTS:
   Main-plot treatments:
   Sub-plot treatments:
   3 varieties: V₁ =CO.313, V₂ =CO.421 and V₃ =CO.453.

3. DESIGN:
   (i) Split-plot. (ii) (a) 6 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 58' x 18'. (v) No. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M).

5. RESULTS:
   (i) 15.16 ton/ac.
   (ii) (a) 3.458 ton/ac.
   (b) 2.916 ton/ac.
   (iii) Main effects of D and V are highly significant. Interaction D x V is not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
<th>D₅</th>
<th>D₆</th>
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<td>15.63</td>
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<td>13.98</td>
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<td>Mean</td>
<td>12.46</td>
<td>12.57</td>
<td>14.68</td>
<td>14.19</td>
<td>19.53</td>
<td>17.55</td>
<td>15.16</td>
</tr>
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</table>
S.E. of difference of two

1. marginal means of $D$ = 1.630 ton/ac.
2. marginal means of $V$ = 0.972 ton/ac.
3. $V$ means at a level of $D$ = 2.381 ton/ac.
4. $D$ means at a level of $V$ = 2.537 ton/ac.

Crop: "Sugarcane.
Site: Sugarcane Res. Sub-Stn., Neoli.

Object: To study the different harvesting dates of plant crop for taking ratoon crop.

1. BASAL CONDITIONS:


2. TREATMENTS:

Main-plot treatments:
3 harvesting dates: $D_1$ = 15.1.1953, $D_2$ = 15.2.1953 and $D_3$ = 15.3.1953.

Sub-plot treatments:
2 varieties: $V_1$ = CO.S. 245 and $V_2$ = CO.453.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication and 2 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 69' x 21'. (b) 63' x 15'. (v) 3' all round the net plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, tiller counting, millable cane and yield. (iv) (a) 1952-1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S).

5. RESULTS:

(i) 9.80 ton/ac.
(ii) (a) 2.53 ton/ac.
(b) 1.63 ton/ac.

(iii) Main effects of $D$ and $V$ are not significant. Interaction $D \times V$ is significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
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<th>$D_2$</th>
<th>$D_3$</th>
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<td>9.63</td>
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<td>9.65</td>
<td>11.96</td>
<td>8.27</td>
<td>9.96</td>
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<tr>
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<td>9.37</td>
<td>10.74</td>
<td>9.28</td>
<td>9.80</td>
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</table>

S.E. of difference of two

1. marginal means of $D$ = 1.13 ton/ac.
2. marginal means of $V$ = 0.59 ton/ac.
3. $V$ means at a level of $D$ = 1.03 ton/ac.
4. $D$ means at a level of $V$ = 1.31 ton/ac.
Crop :-Sugarcane. Ref :-U.P. 53(229).
Site :-Sugarcane Res. Sub-Stn., Neoli. Type :-‘CV’.

Object :-To study the effect of harvesting dates of plant Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS :

2. TREATMENTS :
Main-plot treatments :
3 dates of harvest: D<sub>1</sub>=15.1.1953, D<sub>2</sub>=15.2.1953 and D<sub>3</sub>=15.3.1953.
Sub-plot treatments :
2 varieties: V<sub>1</sub>=CO. 245 and V<sub>2</sub>=CO. 453.

3. DESIGN :
(i) Split-plot. (ii) (a) 3 main-plots/replication and 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 54'×24'. (b) 48'×18'. (v) Plot to plot distance 3'. (vi) Yes.

4. GENERAL :
(i) and (ii) N.A. (iii) Germination, tillers, millatle cane and sugarcane yield. (iv) (a) 1952—1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (S).

5. RESULTS :
(i) 13.82 ton/ac.
(ii) (a) 8.91 ton/ac. (b) 4.66 ton/ac.
(iii) Main effect of V is highly significant. Effect of D and interaction D×V are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<th>D&lt;sub&gt;1&lt;/sub&gt;</th>
<th>D&lt;sub&gt;2&lt;/sub&gt;</th>
<th>D&lt;sub&gt;3&lt;/sub&gt;</th>
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<td>16.35</td>
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<tr>
<td>Mean</td>
<td>13.67</td>
<td>16.08</td>
<td>11.70</td>
</tr>
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</table>

S.E. of difference of two
1. marginal means of D =3.64 ton/ac.
2. marginal means of V =1.55 ton/ac.
3. V means at a level of D =2.69 ton/ac.
4. D means at a level of V =4.10 ton/ac.


Object :-To study the optimum time of harvesting different varieties of Sugarcane.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Green manuring of sanai. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24 to 26.2.1948. (iv) (a) 3 ploughings by soil turning plough, 4 ploughings by desi plough, plankings—7 times, harrowing and picking of roots twice. (b) N.A. (c) 55 three budded setts/line (d) N.A. (e) —. (v) Green manuring of sanai (40 lb./ac.) Castor cake at 43 lb./ac. of N during 17 to 19.2.1948. Top dressing of A/S at 37 lb./ac. of N on 14 and 15.5.1948. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing with spring tooth harrow on 14.3.1948, planking on 15 and 16.3.1948, hoeings by cultivator from 24.3.1948 to 11.6.1948 and earthing from 11 to 18.8.1948. (ix) 40.93. (x) As per treatments.
2. TREATMENTS:

Main-plot treatments:

Sugarcane in treatment D5 actually harvested at the end of March, due to the closure of the factory.

Sub-plot treatments:
3 varieties: V1 = CO. 453 (late), V2 = CO. 421 (medium) and V3 = CO. 313 (early).

3. DESIGN:
(i) Split-plot. (ii) (a) 5 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 55' x 33'. (b) 49' x 27'. (v) -at each side of the gross plot left as non experimental area. (vi) Yes.

4. GENERAL:
(i) Good, but due to the lodging of plots of CO. 313, it has been damaged to a great extent. (ii) Nil. (iii) Germination counting, tillers, millable cane and sugarcane yield. (iv) (a) 1948-1950. (b) and (c) No. (v) (a) and (b) No. (vi) The yield of variety CO. 453 in the main-plot treatment of April harvesting was missing and has been estimated for analysis and summary of result. (vii) Experiment was conducted by D.S.R.(S).

5. RESULTS:
(i) 27.35 ton/ac.
(ii) (a) 3.194 ton/ac. (b) 2.417 ton/ac.

(iii) Main effects of D and V are highly significant. Interaction D x V is not significant.

(iv) Av. yield of sugarcane in ton/ac.

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<th>V3</th>
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</table>

S.E. of difference of two
1. marginal means of D (none of the treatment means contains missing value) = 1.065 ton/ac.
2. marginal means of V (none of the treatment means contains missing value) = 0.624 ton/ac.
3. V means at a level of D (none of the means contains missing value) = 1.396 ton/ac.
4. D means at a level of V (none of the means contains missing value) = 1.559 ton/ac.
5. marginal means of D (one of the means contains missing value) = 1.080 ton/ac.
6. marginal means of V (one of the means contains missing value) = 0.634 ton/ac.
7. V means at a level of D (one of the means contains missing value) = 1.141 ton/ac.
8. D means at a level of V (one of the means contains missing value) = 1.650 ton/ac.

Crop: Sugarcane.

Site: Sugarcane Res. Stn., Shahjahanpur.

Ref: U.P. 49(58).

Type: 'CV'.

Object: To study the optimum time of harvesting different varieties of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) Sugarcane—wheat—fallow (or sanai). (b) Green manuring (sanai). (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 16 to 19.2.1949. (iv) (a) 2 ploughings by victory plough, 8 by desi plough, 2 harrows and pata. (b) N.A. (c) 55 three budded sets/line. (d) and (e) N.A. (v) G.M. at 60 lb./ac. of N on 13.2.1949, G.N.C. at 45 lb./ac. of N on 4.6.1949 and A/S at 45 lb./ac. of N on 26 and 27.5 1949 and 4.6.1949. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing with cultivator or mixing manure, 4 weedings, picking of roots, earthing and bunding. (ix) 51.22°. (x) As per treatments.
2. TREATMENTS:
Main-plot treatments:
5 dates of harvesting: \( D_1 = 15 \) to 17.12.1949, \( D_2 = 16 \) to 18.1.1950, \( D_3 = 15 \), 16, 20 and 26.2.1950. 
\( D_4 = 2, 3, 13, 16, 17, 22 \) and 23.3.1950 and \( D_5 = 11 \) and 15.4.1950.
Sub-plot treatments:
3 varieties: \( V_1 = \text{CO.453 (late)} \), \( V_2 = \text{CO.313 (early)} \) and \( V_3 = \text{CO.S186 (medium)} \).

3. DESIGN:
(i) Split-plot. (ii) (a) 5 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 55' \times 27'. (b) 49' \times 21'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Good, lodged due to heavy rains in September. (ii) Nil. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1948-1950. (b) and (c) No. (v) (a) and (b) No. (vi) There has been some damage to the crop by jackals and human beings especially in varieties CO.313 and CO.S186 (some plots only). (vii) Experiment was conducted by D.S.R. (S).

5. RESULTS:
(i) 23.30 ton/ac.
(ii) (a) 2.531 ton/ac.
   (b) 2.037 ton/ac.
(iii) Only V effect is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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Mean: 19.33

S.E. of difference of two
1. Marginal means = 0.843 ton/ac.
2. Marginal means = 0.526 ton/ac.
3. Means at the same level of \( D \) = 1.176 ton/ac.
4. Means at the same level of \( V \) = 1.278 ton/ac.

Crop: Sugarcane.
Ref: U.P. 50(198).
Type: 'CV'.

Site: Sugarcane Res. Stn., Shahjahanpur.
Object: To find the optimum time of harvesting of different Sugarcane varieties (plant cane).

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Guar. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 17 and 18.3.1949. (iv) (a) Ploughing by victory plough, tractor, desi plough and patia. (b) N.A. (c) 55 three budded setts/line. (d) N.A. (e) —. (v) Town compost at 30 lb./ac. of N and A/S & Castor cake at 60 lb./ac. of N as top dressing. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing with cultivator earthing, hoeing with harrow and binding. (ix) 39.94'. (x) As per treatments.

2. TREATMENTS:
Main-plot treatments:
5 dates of harvesting: \( D_1 = 15.12.1949 \), \( D_2 = 15.1.1950 \), \( D_3 = 15.3.1950 \) and \( D_4 = 15.4.1950 \).
Sub-plot treatments:
3 varieties: \( V_1 = \text{CO.453 (late)} \), \( V_2 = \text{CO.313 (early)} \) and \( V_3 = \text{CO.S186 (medium)} \).
3. DESIGN:
(i) Split-plot.  (ii) (a) 5 main-plots/replication and 3 sub-plots/main-plot.  (b) N.A.  (iii) 5.  (iv) (a) 55'x27'.  (b) 49'x21'.  (v) 3' around.  (vi) Yes.

4. GENERAL:
(i) Satisfactory.  (ii) CO.313 in slightly affected by mosaic disease in July.  (iii) Sugarcane yield.  (iv) (a) 1949—1950.  (b) and (c) N.A.  (v) (a) and (b) No.  (vi) The 3 lines of April harvesting have been damaged by jackals.  Plots of CO.313 are subjected to heavy damage followed by COS.186.  Due to the great damage in April harvesting, April harvesting has been excluded from analysis and summary of result.  (vii) Experiment was conducted by D.S.R.  (S).

5. RESULTS:
(i) 18.80 ton/ac.
(ii) (a) 1.794 ton/ac.
(b) 1.813 ton/ac.
(iii) Only V effect is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. marginal means of D = 0.655 ton/ac.
2. marginal means of V = 0.573 ton/ac.
3. V means at the same level of D = 1.147 ton/ac.
4. D means at the same level of V = 1.143 ton/ac.

Crop: Sugarcane (Ratoon).
Site: Sugarcane Res. Stn., Shahjahanpur.
Object: To study the effect of different times of harvesting plant Sugarcane on its ratoon.

Ref: U.P. 49(57).
Type: ‘CV’.

1. BASAL CONDITIONS:
(i) (a) Nil.  (b) Sugarcane.  (c) N.A.  (ii) (a) Loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) As per treatments.  (iv) (a) to (e) N.A.  (v) Top dressing of G.N.C. at 75 lb./ac. of N on 10 to 13.6.1949 and A/S at 75 lb./ac. of N on 10th to 13.6.1949.  (vi) As per treatments.  (vii) Irrigated.  (viii) Hoeing with kassi and with cultivator, earthing and bunding.  (ix) 49.53'.  (x) 16 to 26 12.1949.

2. TREATMENTS:
Main-plot treatments:

Sub-plot treatments:
3 varieties: V₁=CO. 313 (early), V₂=CO. 421 (late) and V₃=CO. 453 (late).

3. DESIGN:
(i) Split-plot.  (ii) (a) 5 main-plots/replication and 3 sub-plots/main-plot.  (b) N.A.  (iii) 6.  (iv) (a) 55'x33'.  (b) 49'x21'.  (v) 3' around.  (vi) Yes.
4. GENERAL:
(i) Badly lodged in September by rains followed by stormy wind and hence damaged. (ii) CO. 421 variety has been badly effected by yellow-leaf disease, digging of smut affected shoots on 11.5.49 (iii) Tillers and sugarcane yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (S).

5. RESULTS:
(i) 29.32 ton/ac.
(ii) (a) 3.741 ton/ac.
(b) 3.1571 ton/ac.
(iii) D effect is significant, V effect is highly significant, while interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

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<td>36.95</td>
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</table>

Mean 26.17 24.58 37.22 29.32

S.E. of difference of two
1. D marginal means =1.247 ton/ac.
2. V marginal means =0.815 ton/ac.
3. V means at the same level of D =1.822 ton/ac.
4. D means at the same level of V =1.941 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Str., Shahjahanpur.
Object :- To study the effect of different times of harvesting plant Sugarcane on its ratoon.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Plant sugarcane. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur.
(iii) Plant sugarcane planted on 16, 19.2.1949. (iv) (a) and (b) N.A. (c) 55, three budded setts/line for plant sugarcane. (d) N.A. (e). (v) Top dressing of Castor cake at 75 lb./ac. of N on 5 and 6.6.1950 and A/S at 75 lb./ac. of N on 6 and 7.7.1950. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing with kassi, cultivator and earthing. (ix) 37.57. (x) 19 to 23.12.1950.

2. TREATMENTS:
Main-plot treatments:
5 dates of harvesting plant sugarcane: D₁=15 to 17.12.1949, D₂=15 to 18.1.1950, D₃=15 to 20.2.1950, D₄=16 to 22.3.1950 and D₅=16 to 22.4.1950.

Sub-plot treatments:
3 varieties: V₁=CO. 313, V₂=CO. 186 (medium) and V₃=CO. 453 (late).

3. DESIGN:
(i) Split-plot. (ii) (a) 5 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 55'x27'. (b) 49'x21'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Attack of slight yellow leaf disease in some plots of CO. 313. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (S). April harvesting date (D₅) has been deleted as the plant sugarcane crop was heavily damaged, So D₅ does not occur in this also (Refer 50(198)).
5. RESULTS:

(i) 15.01 ton/ac.
(ii) (a) 2.960 ton/ac.
(b) 2.038 ton/ac.
(iii) Effect of D is significant and effect of V is highly significant while interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

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Mean 11.82 15.68 17.53 15.01

S.E. of difference of two
1. D marginal means = 0.987 ton/ac.
2. V marginal means = 0.588 ton/ac.
3. V means at the same level of D = 1.176 ton/ac.
4. D means at the same level of V = 1.377 ton/ac.

Crop : Sugarcane.
Site : Sugarcane Res. Stn., Shahjahanpur.
Object : To study the effect of different times of harvesting plant Sugarcane of different Sugarcane varieties on its ratoon.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sugarcane. (c) T.C. at 30 lb./ac. of N, castor cake at 60 lb./ac. of N and A/S at 60 lb./ac. of N.
(ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) to (c) N.A.
(v) Castorcake at 75 lb./ac. of N and A/S at 75 lb./ac. on 25.5.1951. (vi) As per treatments. (vii) Irrigated.
(viii) Hoeing with kasi and cultivator, earthing. (ix) 31.98" (x) 11 to 29.12.1951.

2. TREATMENTS:
Main-plot treatments:
Sub-plot treatments:

3. DESIGN:
(i) Split-plot. (ii) (a) 5 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 55"×27". (b) 49"×21". (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Tiller count, millable cane and sugarcane yield. (iv) (a) 1950-1951. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:
(i) 16.86 ton/ac.
(ii) (a) 3.208 ton/ac.
(b) 2.984 ton/ac.
(iii) Only V effect is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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Mean 14.02 21.00 15.55 16.86

S.E. of difference of two
1. marginal means of D = 1.171 ton/ac.
2. marginal means of V = 0.844 ton/ac.
3. V means at the level of D = 1.887 ton/ac.
4. D means at the level of V = 1.935 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Res. Stn., Shahjahanpur.

Object: To study the methods of improving germination of sugarcane with special reference to planting during cold weather.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments (iv) (a) and (b) N.A. (c) 24 three budded setts/row. (d) N.A. (e) N.A. (v) Sanai as B.D. (date of application N.A.) and A/S at 50 lb./ac. of N as top dressing. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   All combinations of (1) and (2)
   (2) 2 varieties: V1=CO.313 (early) and V2=CO.421 (medium).
   Sub-plot treatments:
   5 seed treatments: seed kept under cowdung for T1=1 day, T2=2 days, T3=3 days, T4=4 days and T5=control (no treatment).

3. DESIGN:
   (i) Split-plot. (ii) (a) 12 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 28'×9'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:
   (i) 19.32 ton/ac.
   (ii) (a) 5.834 ton/ac.
   (b) 4.736 ton/ac.
   (iii) Effect of S and interaction V×S are highly significant. All others are not significant.

Ref: U.P. 48(72).
Type: 'CV'.
(iv) Av. yield of sugarcane in ton/ac.

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<td>19.79</td>
<td>19.13</td>
<td>22.20</td>
<td>1.506</td>
<td>1.230</td>
<td>2.130</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. S marginal means = 1.506 ton/ac.
3. means of the body of S x V table = 2.130 ton/ac.
5. T means at the same level of S = 2.735 ton/ac.
6. T means at the same level of V = 1.579 ton/ac.
7. V means at the same level of T = 1.658 ton/ac.
8. S means at the same body of T = 2.872 ton/ac.

Crop: Sugarcane.
Zone: Doiwala (Dehradun).
Ref: U.P. 52(263).

Object: To study the optimum time of harvesting plant of crop of cane for taking ratoon crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Paddy and Toria. (c) N.A. (ii) Loam. (iii) 300 m³ compost on 26.2.1952. (iv) As per treatments. (v) (a) 12 ploughings; hoeing by kasti on 19.4.1952, 13.5.1952 and 16.6.1952. Weeding on 12.7.1952. (b) Flat system. (c) and (d) 59, three budded sets/row; 472, three budded sets/plot; 8 rows 3' apart. (e) N.A. (vi) 27.3.1952. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) As per treatments.

2. TREATMENTS:
Main-plot treatments:
3 dates of harvest: D₁ = 15.1.1953, D₂ = 15.2.1953 and D₃ = 15.3.1953.
Sub-plot treatments:
2 varieties: V₁ = CO.453 and V₂ = CO.356.

3. DESIGN:
(i), (ii) Split-plot design with 6 replications. (iii) (a) Main-plot 57'x48'. sub-plot 57'x24'. (b) Main-plot 51'x42', sub-plot 51'x18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952–1953. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M). on cultivators' fields.

5. RESULTS:
(i) 23.25 ton/ac.
(ii) (a) 2.554 ton/ac.
   (b) 2.192 ton/ac.
(iii) None of the effects and their interaction is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td>V₁</td>
<td>23.89</td>
<td>22.95</td>
<td>24.87</td>
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<td>V₂</td>
<td>22.95</td>
<td>20.54</td>
<td>24.32</td>
<td>22.60</td>
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<tr>
<td>Mean</td>
<td>23.42</td>
<td>21.74</td>
<td>24.60</td>
<td>23.25</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 1.043 ton/ac.
2. marginal means of V = 0.731 ton/ac.
3. V means at a level of D = 0.895 ton/ac.
4. D means at a level of V = 1.374 ton/ac.

Crop :- Sugarcane.
Zone :- Doiwala (Dehradun).

Object :- To study the effect of time of harvesting plant crop of cane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Plant cane. (c) 300 mds. compost on 26.2.1952. (ii) Loam. (iii) N.A. (iv) As per treatments. (v) (a) 2 ploughings by desi plough, 1 hoeing by spade, 1 hoeing by khurpi. (b) (plant cane) Flat system. (c) and (d) 59, three budded sets/row, 472 buds/plot, 8 rows 3' apart. (e) N.A. (vi) As per treatments. (vii) Irrigation by canal. (viii) N.A. (ix) N.A. (x) 24.12.1953.

2. TREATMENTS :
   Main-plot treatments :
   3 dates of harvesting : D₁= 15.1.1953; D₂= 15.2.1953 and D₃= 15.3.1953.
   Sub-plot treatments :
   2 varieties : V₁= CO.453 and V₂= CO.356.

3. DESIGN :
   (i), (ii) Split-plot design with 6 replications. N.A. (iii) (a) Main-plot 57'x48' and sub-plot 57'x24'. (b) Main-plot 51'x42' and sub-plot 51'x18'. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Tiller count, millable cane and sugarcane yield. (iv) (a) 1952—1953. (b) and (e) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS :
   (i) 21.71 ton/ac.
   (ii) 1.552 tan/ac.
   (b) 0.791 ton/ac.
   (iii) Main effect of V is highly significant and of D is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>21.25</td>
<td>22.19</td>
<td>23.43</td>
<td>22.29</td>
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<tr>
<td>V₂</td>
<td>20.34</td>
<td>20.85</td>
<td>22.19</td>
<td>21.13</td>
</tr>
<tr>
<td>Mean</td>
<td>20.80</td>
<td>21.52</td>
<td>22.81</td>
<td>21.71</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 0.634 ton/ac.
2. marginal mean of V = 0.764 ton/ac.
3. V means at a level of D = 0.457 ton/ac.
4. D means at a level of V = 0.711 ton/ac.
Crop :- Sugarcane.  
Ref :- U.P. 52(203). 
Zone :- Mohammadi (Kheri). 
Type :- 'CV'.

Object :-To study the optimum time of harvesting Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai for G.M. (c) No. (ii) Loam. (iii) Sanai as G.M. Top-dressing G.N.C. at 10 md./ac. on 25.3.1952. and A/S 14 md./ac. on 21.6.1952.  (iv) As per treatments. (v) (a) Ploughing by tractor on 5.2.1952, 6.2.1952, furrow making by tractor on 10 and 11.2.1952, earthling up by tractor on 30.6.1952. (b) Flat planting. (c) 1752 buds/plot (d) 8 rows/plot. (e) N.A. (vi) 11.2.1952. (vii) Irrigated. (viii) Hoeings by kudali on 25.2.1952. and by cultivator on 18.3.1952, 25.4.1952 and 26.5.1952. (ix) N.A. (x) As per treatments.

2. TREATMENTS:
   Main-plot treatments:
   Sub-plot treatments:
   2 varieties: V 1 =CO.K.30 (mid-early) and V 2 =CO.453 (late).

3. DESIGN:
   (i) and (ii) Split plot with 6 replications, 3 main-plots/replication and 2 sub-plots/main-plot. (iii) (a) 73'x28'. (b) 66'x21'. (vi) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R.(S) on cultivators’ fields.

5. RESULTS:
   (i) 11.08 ton/ac.
   (ii) (a) 3.159 ton/ac.  
   (b) 2.512 ton/ac. 
   (iii) Main effects of D and V and interaction D×V are highlysignificant. 
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V 1</th>
<th>V 2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D 1</td>
<td>12.84</td>
<td>8.12</td>
<td>10.48</td>
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<tr>
<td>D 2</td>
<td>8.54</td>
<td>8.25</td>
<td>8.39</td>
</tr>
<tr>
<td>D 3</td>
<td>18.27</td>
<td>10.49</td>
<td>14.38</td>
</tr>
</tbody>
</table>

Mean 13.22  8.95  11.08

S.E. of difference of two
1. marginal means of D =1.290 ton/ac.
2. marginal means of V =0.838 ton/ac.
3. V means at a level of D =1.451 ton/ac.
4. D means at a level of V =1.648 ton/ac.

Crop :- Sugarcane (Ratoon).  
Ref :- U.P. 52(201). 
Zone :- Mohammadi (Kheri). 
Type :- 'CV'.

Object :-To study the effect of time of harvesting of plant crop Sugarcane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy Loam. (iii) N.A. (iv) As per treatments. (v) (a) to (e) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) N.A. (x) 12.1.1953.
2. TREATMENTS:

Main-plot treatments:
3 dates of harvesting of plant sugarcane: $D_1=15.1.1952$, $D_2=15.2.1952$ and $D_3=15.3.1952$.

Sub-plot treatments:
2 varieties: $V_1=$CO.K.30 (mid-early) and $V_2=$CO.453 (late).

3. DESIGN:
(i) and (ii) 6 replications in split-plot, 3 main-plots/replication and 2 sub-plots/main-plot. (iii) (a) 73'×24' (b) 67'×18'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) N.A. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R.(S) on cultivators' fields.

5. RESULTS:
(i) 3.315 ton/ac.
(ii) (a) 1.507 ton/ac.
(b) 2.674 ton/ac.
(iii) Main effect of $V$ is highly significant, main effect of $D$ and interaction $D \times V$ are not significant.
(iv) Av. yield of sugarcane is ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$V_1$</th>
<th>$V_2$</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td>$D_1$</td>
<td>4.970</td>
<td>1.338</td>
<td>3.154</td>
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<td>$D_2$</td>
<td>5.700</td>
<td>1.819</td>
<td>3.759</td>
</tr>
<tr>
<td>$D_3$</td>
<td>4.871</td>
<td>1.194</td>
<td>3.032</td>
</tr>
<tr>
<td>Mean</td>
<td>5.180</td>
<td>1.450</td>
<td>3.31</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of $D$ = 0.615 ton/ac.
2. marginal means of $V$ = 0.891 ton/ac.
3. $V$ means at a level of $D$ = 1.544 ton/ac.
4. $D$ mean at a level of $V$ = 1.253 ton/ac.

Crop :- Sugarcane.
Zone :- Golagokaranath (Kheri).

Type :- 'CV'.

Ref :- U.P. 53(234).

Object :- To study the effect of time of harvesting plant crop of Sugarcane on the yield of succeeding ratoon crop

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Plant sugarcane. (c) G.N.C. at 10 md./ac. on 25.3.1952 and at A/S 14 md./ac. on 21.6.1952. (ii) Loam. (iii) N.A. (iv) As per treatments. (v) (a) to (e) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) 45°. (x) 16 to 18.2.1954.

2. TREATMENTS:

Main-plot treatments:

Sub-plot treatments:
2 varieties: $V_1=$CO.K.30 (mid-early) and $V_2=$CO.453 (late).

3. DESIGN:
(i) (ii) Split-plot with 6 replications. 3 main-plots/block and 2 sub-plots/main-plot. (iii) (a) 73'×28'. (b) 66'×21'. (iv) N.A.
4. GENERAL:
(i) and (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S) on cultivators' fields.

5. RESULTS:
(i) 8.78 ton/ac.
(ii) (a) 2.65 ton/ac.
(b) 3.20 ton/ac.
(iii) Main effect of V is highly significant. Main effect of D and interaction D × V are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
<td>V1</td>
<td>12.80</td>
<td>9.72</td>
<td>12.22</td>
<td>11.58</td>
</tr>
<tr>
<td>V2</td>
<td>5.60</td>
<td>6.16</td>
<td>6.19</td>
<td>5.98</td>
</tr>
<tr>
<td>Mean</td>
<td>9.20</td>
<td>7.94</td>
<td>9.20</td>
<td>8.78</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 1.082 ton/ac.
3. marginal means of V = 1.067 ton/ac.
3. V means at a level of D = 1.848 ton/ac.
4. D means at a level of V = 1.696 ton/ac.

---

Crop :- Sugarcane, Ref :- U.P. 51(157).
Zone :- Gola (Kheri). Type :- 'CV'.

Object :- To study the of optimum time of harvesting plant crop of Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M.. (c) N.A. (ii) Loam. (iii) Mohwa 'cake. (iv) As per treatments (v) (a) Ploughing 4 times by tractor on 21 and 29.1.1951. Earthing up by tractor on 15.6.1951. 4 hoeings by cultivator and kudali. (b) Flat sowing. (c) 3504 buds/plot. (d) rows 3' apart. (e) N.A. (vi) 1 and 2.2.1953. (vii) Irrigated. (viii) N.A. (ix) 47°. (x) As per treatments.

2. TREATMENTS:
Main-plot treatments:
3 dates of harvest : \( D_1 = 15.1.1951, D_2 = 15.2.1951 \) and \( D_3 = 15.3.1951 \).
Sub-plot treatments:
2 varieties : \( V_1 = \text{CO.K.30} \) and \( V_2 = \text{CO.453} \).

3. DESIGN:
(i) and (ii) Split-plot with 6 replications. 3 main-plots/replication and 2 sub-plots/main-plot. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S) on cultivators' fields.

5. RESULTS:
(i) 18.37 ton/ac.
(ii) (a) 5.02 ton/ac.
(b) 4.16 ton/ac.
(iii) Main effect of D alone is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>(D_1)</th>
<th>(D_2)</th>
<th>(D_3)</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
<td>(V_1)</td>
<td>21.59</td>
<td>21.70</td>
<td>13.76</td>
<td>19.02</td>
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<tr>
<td>(V_2)</td>
<td>20.18</td>
<td>18.57</td>
<td>14.42</td>
<td>17.72</td>
</tr>
<tr>
<td>Mean</td>
<td>20.89</td>
<td>20.13</td>
<td>14.09</td>
<td>18.37</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of \(D\) = 2.05 ton/ac.
2. marginal means of \(V\) = 1.35 ton/ac.
3. \(V\) means at a level of \(D\) = 2.40 ton/ac.
4. \(D\) means at a level of \(V\) = 2.66 ton/ac.

Crop: Sugarcane.
Zone: Daurala (Meerut).

Ref: U.P. 50(221).
Type: 'CV'.

Object: To study the optimum time of harvesting plant crop of Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Maize. (c) N.A. (ii) Loam. (iii) N.A. (iv) As per treatments. (v) (a) and (b) N.A. (c) 60 three budded setts/row. (d) 18 rows/main-plot. (e) N.A. (vi) 14.3.1950. (vii) to (ix) N.A. (x) As per treatments.

2. TREATMENTS:
   Main-plot treatments:
   3 dates of harvesting: \(D_1 = 15.1.1951\), \(D_2 = 15.2.1951\) and \(D_3 = 16.3.1951\).
   Sub-plot treatments:
   2 varieties: \(V_1 = \text{COS. 245}\) and \(V_2 = \text{CO. 421}\).

3. DESIGN:
   (i) and (ii) Split-plot design with 4 replications. 3 main-plots/block and 2 sub-plots/main-plot (iv) \(60' \times 27'\). (b) \(54' \times 21'\). (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) 1950—1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS:
   (i) 29.39 ton/ac.
   (ii) (a) 2.988 ton/ac.
   (b) 0.963 ton/ac.
   (iii) None of the effects and their interaction is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>(V_1)</th>
<th>(V_2)</th>
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<td>31.01</td>
<td>31.33</td>
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<td>(D_2)</td>
<td>30.20</td>
<td>29.06</td>
<td>29.63</td>
</tr>
<tr>
<td>(D_3)</td>
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<td>27.21</td>
</tr>
<tr>
<td>Mean</td>
<td>29.52</td>
<td>29.25</td>
<td>29.39</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of \(D\) = 1.494 ton/ac.
2. marginal means of \(V\) = 0.393 ton/ac.
3. \(V\) means at a level of \(D\) = 0.681 ton/ac.
4. \(D\) means at a level of \(V\) = 1.570 ton/ac.
Crop: Sugarcane.  
Zone: Daurala (Meerut).

Object: To study the optimum time of harvesting plant crop of Sugarcane for taking ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Chari and guar. (c) N.A. (ii) Loam. (iii) N.A. (iv) As per treatments. (v) (a) and (b) N.A. (c) 67 three budded setts/row and 2814 buds/plot. (d) 7 rows/plot. (e) N.A. (vi) 26 and 27.2.1951. (vii) to (ix) N.A. (x) As per treatments.

2. TREATMENTS:
   Main-plot treatments:
   3 dates of harvest: \( D_1 = 15.1.1952, D_2 = 15.2.1952 \) and \( D_3 = 15.3.1952 \).

   Sub-plot treatments:
   2 varieties: \( V_1 \) = CO. 245 and CO. 421.

3. DESIGN:
   (i) and (ii) 5 replications in Split-plot. 3 main-plots/block and 2 sub-plots/main-plot (iii) (a) 65'x21'. (b) 59'x15'. (iv) N.A.

4. GENERAL:
   (i) and (ii) N.A. (iii) Germination and sugarcane yield. (iv) (a) 1950-1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS:
   (i) 44.89 ton/ac.  
   (ii) (a) 0.586 ton/ac.  
   (b) 0.575 ton/ac.  
   (iii) None of the effects and their interaction is significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( D_1 )</td>
<td>44.75</td>
<td>44.84</td>
<td>44.80</td>
</tr>
<tr>
<td>( D_2 )</td>
<td>44.75</td>
<td>44.62</td>
<td>44.68</td>
</tr>
<tr>
<td>( D_3 )</td>
<td>44.84</td>
<td>45.56</td>
<td>45.20</td>
</tr>
<tr>
<td>Mean</td>
<td>44.78</td>
<td>45.01</td>
<td>44.89</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 0.262 ton/ac.  
2. marginal means of V = 0.210 ton/ac.  
3. V means at a level of D = 0.363 ton/ac.  
4. D means at a level of V = 0.367 ton/ac.

Crop: Sugarcane.  
Zone: Daurala (Meerut).

Object: To study the effect of time of harvesting plant crop of Sugarcane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Plant sugarcane. (c) N.A. (ii) Loam. (iii) F.Y.M. at 300 md. on 10.4.1952 and A/S at 1 md. 20 seers on 12.5.1952. (iv) As per treatments. (v) Hoeing by cultivator on 19.4.1952, 16.5.1952, hoeing by phawra on 26.5.1952 and 12.6.1952. (b) Flat system of planting. (c) 67 setts/row, 459 setts/plot. (d) 7 rows 3' apart. (e) N.A. (vi) As per treatments (vii) Irrigated (viii) N.A.(ix) N.A. (x) 13.2.1953.

TREATMENTS:
Main-plot treatments:
3 dates of harvest of plant crop: \( D_1 = 15.1.1952, D_2 = 15.2.1952 \) and \( D_3 = 15.3.1952 \).

Sub-plot treatments:
2 varieties: \( V_1 \) = CO. 245 and \( V_2 \) = CO. 421.
3. DESIGN:
(i) and (ii) Split-plot with 5 replications. 3 main-plots/block and 2 sub-plots/main-plot. (iii) (a) Main-plot: 65' x 42' and sub-plot: 65' x 21'. (b) Main-plot: 59' x 36' and sub-plot: 59' x 15'. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
(i) 22.54 ton/ac.
(ii) (a) 0.609 ton/ac. (b) 0.634 ton/ac.
(iii) Main effect of D is highly significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>V₁</th>
<th>V₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>22.24</td>
<td>22.19</td>
</tr>
<tr>
<td>D₂</td>
<td>23.64</td>
<td>23.60</td>
</tr>
<tr>
<td>D₃</td>
<td>21.74</td>
<td>21.83</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal mean of D = 0.273 ton/ac.
2. marginal means of V = 0.013 ton/ac.
3. V means at a level of D = 0.022 ton/ac.
4. D means at a level of V = 0.273 ton/ac.

Crop: Sugarcane.
Zone: Daurala (Meerut).
Ref: - U.P. 52(260).
Type: - 'CV'.

Object: To study the optimum time of harvesting plant crop of Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS:
(i) 'a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) Manuring with okhla sledge at 198 mds. on 28.2.1952- A/S at 1 md. 7 seers 4 chk. on 12.6.1952. (iv) As per treatments. (v) (a) Hoeing by desi plough on 8.4.1952, 3.6.1952, hoeing ty spade 26.5.1952, 21.6.1952 and earthing by phawra on 25.7.1952. (b) Flat system of planting. (c) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) As per treatments.

2. TREATMENTS:
Main-plot treatments:
3 dates of harvest: D₁= 15.1.1953, D₂= 15.2.1953 and D₃= 15.3.1953.
Sub-plot treatments:
2 varieties: V₁= CO. 245 and V₂= CO. 421.

3. DESIGN:
(i) and (ii) Split-plot with 6 replications. 3 main-plots/block and 2 sub-plots/main-plot. (iii) (a) N.A. (b) 1/30.00 ac. (approximately). (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1950-1952. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
(i) 10.17 ton/ac.
(ii) (a) 3.370 ton/ac. (b) 1.857 ton/ac.
(iii) Main effects of D and V and their interaction are not significant.
Crop : Sugarcane.  
Zone : Simbhaoli (Meerut).

Object : To study the time of harvesting plant crop of Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Fallow. (c) No. (ii) Clay loam. (iii) Manuring at 75 lb./ac. of N on 12.5.1951. (iv) As per treatments. (v) (a) Ploughing by praja plough and desi plough. (b) Planting of sugarcane by desi plough, flat system of planting, (c) and (d) 6 rows/plot, 65 setts (three budded)/row, 1170 buds/plot. (vi) 25.2.1951. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) As per treatments.

2. TREATMENTS:
Main-plot treatments : 3 dates of harvest: 01 =15.1.1952, 02 =15.2.1952 and 03 =15.3.1952.
Sub-plot treatments : 2 varieties: V1 = CO.245 and V2 = CO.421.

3. DESIGN:
(i) and (ii) Split-plot with 4 replications. 3 main-plots/block and 2 sub-plot/main-plot. (iii) (a) 63' x 18'. (b) 57' x 12' (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
(i) 55.35 ton/ac.
(ii) (a) 3.710 ton/ac.
(b) 3.648 ton/ac.
(iii) Main effect of D is significant. Main effects of V is highly significant. Interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>D1</th>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.79</td>
<td>54.97</td>
<td>49.71</td>
<td>53.62</td>
</tr>
<tr>
<td>60.46</td>
<td>64.77</td>
<td>55.41</td>
<td>59.87</td>
</tr>
</tbody>
</table>

Mean | 52.56

S.E. of difference of two
1. marginal means of D = 1.855 ton/ac.
2. marginal means of V = 1.489 ton/ac.
3. V means at a level of D = 2.579 ton/ac.
4. D means at a level of V = 2.602 ton/ac.
Crop :- Sugarcane (Ratoon).
Zone :- Simbhaoli (Meerut).
Ref :- U.P. 52(252).
Type :- 'CV'.

Object :- To study the effect of time of harvesting plant crop of Sugarcane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Plant cane. (c) Manuring at 75 lb./ac. of N as F.Y.M. on 12.5.1951. (ii) Clay loam. (iii) G.N.C. at 45 lb./ac. of N on 14.6.1952. A/S at 15 lb./ac. of N on 5.7.1952. (iv) As per treatments. (v) (a) Ploughing by proja plough on 31.3.1952 (for hoeing). Ploughing by desi plough on 18.4.1952, 7.5.1952 and 25.5.1952 (for hoeing). (b) Flat system of sowing. (c) and (d) 65 (three budded) setts/row, 590 setts/plot. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 12 to 24.12.1952.

2. TREATMENTS:
   Main-plot treatments:
   3 dates of harvest of plant crop : D1 = 15.1.1952, D2 = 15.2.1952 and D3 = 15.3.1952.
   Sub-plot treatments:
   2 varieties : V1 = CO.245 and V2 = CO.421.

3. DESIGN:
   (i) and (ii) Split-plot with 4 replications. 3 main-plots/block and 2 sub-plot/main-plot. (iii) (a) Main-plot : 63' x 36'. sub-plot : 53' x 18'. (b) Main-plot : 57' x 30', sub-plot : 57' x 12'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:
   (i) 29.69 ton/ac.
   (ii) (a) 2.786 ton/ac.
   (b) 1.021 ton/ac.
   (iii) Mean
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>27.49</td>
<td>23.86</td>
<td>25.68</td>
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<tr>
<td>D2</td>
<td>32.31</td>
<td>28.36</td>
<td>30.34</td>
</tr>
<tr>
<td>D3</td>
<td>36.26</td>
<td>29.83</td>
<td>33.04</td>
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<tr>
<td>Mean</td>
<td>32.02</td>
<td>27.35</td>
<td>29.69</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 1.393 ton/ac.
2. marginal means of V = 0.417 ton/ac.
3. V means at a level of D = 0.722 ton/ac.
4. D means at a level of V = 1.484 ton/ac.

---

Crop :- Sugarcane.
Zone :- Modinagar (Meerut).
Ref :- U.P. 52(264).
Type :- 'CV'.

Object :- To study the optimum time of harvesting plant crop of Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai (G.M.) (c) No. (ii) Sandy loam. (iii) Sanai (G.M.) (iv) As per treatments. (v) (a) Hoeing by cultivator and spade on 4, 5.4.1952. Hoeing and weeding by cultivator and spade. Hoeing by kassal and earthing. (b) Flat system of planting. (c) and (d) 60, three budded setts/row; 360, three budded setts/plot : 6 rows 2' apart. (e) N.A. (vi) 24 and 25.2.1952. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) As per treatments.
2. TREATMENTS:

Main-plot treatments:
- 3 dates of harvest: \( D_1 = 15.1.1953, D_2 = 15.2.1953 \) and \( D_3 = 15.3.1953 \).

Sub-plot treatments:
- 2 varieties: \( V_1 = \text{CO.245} \) and \( V_2 = \text{CO.421} \).

3. DESIGN:

(i), (ii) Split-plot in 4 replications. 3 main-plots/block and 2 sub-plots/main-plot

(iii) (a) Main-plot: \( 58' \times 36' \). sub-plot: \( 58' \times 18' \). (b) Main-plot: \( 52' \times 30' \). sub-plot: \( 52' \times 12' \). (iv) N.A.

4. GENERAL:

(i) N.A. (ii) Stripping of Pyrilla leaves. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) No. (b) and (c) N.A. (v) N.A. (vi) N.A. (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.

5. RESULTS:

(i) 32.54 ton/ac.
(ii) (a) 5.809 ton/ac.
(b) 2.979 ton/ac.

(iii) Main effect of \( V \) is highly significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( D_1 )</td>
<td>33.06</td>
<td>28.90</td>
<td>30.98</td>
</tr>
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<td>( D_2 )</td>
<td>34.97</td>
<td>29.73</td>
<td>32.35</td>
</tr>
<tr>
<td>( D_3 )</td>
<td>39.33</td>
<td>29.23</td>
<td>34.28</td>
</tr>
</tbody>
</table>

Mean \( 35.79 \) \( 29.29 \) \( 32.54 \)

S.E. of difference of two
1. marginal means of \( D \) \( = 2.904 \) ton/ac.
2. marginal means of \( V \) \( = 1.216 \) ton/ac.
3. \( V \) means at a level of \( D \) \( = 2.107 \) ton/ac.
4. \( D \) means at a level of \( V \) \( = 3.264 \) ton/ac.

Crop: Sugarcane.

Zone: Modinagar (Meerut).

Object: To study the effect of time of harvesting plant crop of Sugarcane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Plant cane. (c) Sanai (G.M.) (ii) Sandy loam. (iii) N.A. (iv) As per treatments. (v) (a) N.A. (b) Flat system. (c) and (d) 60 setts/row; 350, three budded setts/plot; 6 rows/plot 3' apart. (e) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) N.A. (x) 6 and 7.12.1953.

2. TREATMENTS:

Main-plot treatments:
- 3 dates of harvesting plant crop: \( D_1 = 15.1.1953, D_2 = 15.2.1953 \) and \( D_3 = 15.3.1953 \).

Sub-plot treatments:
- 2 varieties: \( V_1 = \text{CO.245} \) and \( V_2 = \text{CO.421} \).

3. DESIGN:

(i), (ii) Split-plot with 4 replications. 3 main-plots/block and 2 sub-plots/main-plot

(iii) Main-plot: \( 58' \times 36' \) and sub-plot: \( 58' \times 18' \). (b) Main-plot: \( 52' \times 30' \) and sub-plot: \( 52' \times 12' \). (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) No. (b) and (c) N.A. (v) N.A. (vi) N.A. (vii) The experiment was conducted by D.S.R. (M) on cultivators' fields.
5. **RESULTS:**

(i) 19.67 ton/ac.

(ii) (a) 9.541 ton/ac.

(b) 4.490 ton/ac.

(iii) Main effect of V is highly significant. Interaction DxV is significant. Effect of D is not significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th><strong>V₁</strong></th>
<th><strong>V₂</strong></th>
<th><strong>Mean</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D₁</strong></td>
<td>9.35</td>
<td>25.58</td>
<td>17.46</td>
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<tr>
<td><strong>D₂</strong></td>
<td>20.14</td>
<td>21.70</td>
<td>20.92</td>
</tr>
<tr>
<td><strong>D₃</strong></td>
<td>15.23</td>
<td>25.02</td>
<td>20.62</td>
</tr>
</tbody>
</table>

Mean: 14.91 24.43 19.67

S.E. of difference of two

1. marginal means of D = 4.770 ton/ac.
2. marginal means of V = 1.833 ton/ac.
3. V means at a level of D = 3.175 ton/ac.
4. D means at a level of V = 5.272 ton/ac.

Crop : Sugarcane.

Zone : Shamli (Muzaffarnagar).

Refer : U.P. 51(203).

Type : ‘CV’.

Object : To study the optimum time of harvesting plant crop of Sugarcane for taking a ratoon crop.

1. **BASAL CONDITIONS** :
   (i) (a) N.A.  (b) Sanai.  (c) No.  (ii) Loam.  (iii) Sanai+A/S at 45 lb./ac. of N on 21.7.1951.  (iv) As per treatments.  (v) (a) Ploughing by dest plough on 2 and 6.3.1951.  Ploughing by tractor on 3 to 5.3.1951, hoeing by kassi, cultivator and phawra.  (b) Flat system.  (c) and (d) 7 rows/sub-plot, 2058 buds/plot. 49 three budded setts/row.  (e) N.A.  (vi) 6.3.1951.  (vii) Irrigated.  (viii) Nil.  (ix) N.A.  (x) As per treatments.

2. **TREATMENTS** :
   Main-plot treatments :
   3 dates of harvest: D₁ = 15.1.1952, D₂ = 15.2.1952 and D₃ = 15.3.1952.

   Sub-plot treatments :
   2 varieties: V₁ = CO.421 and V₂ = CO.245.

3. **DESIGN** :
   (i) and (ii) Split-plot with 4 replications, 3 main-plots/block and 2 sub-plots/main-plot.  (iii) (a) 47’x21’.  (b) 41’x15’.  (iv) N.A.

4. **GENERAL** :
   (i) and (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) 1951 – 1952.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.(M) on cultivators’ fields.

5. **RESULTS** :
   (i) 25.95 ton/ac.

   (ii) (a) 1.977 ton/ac.

   (b) 2.176 ton/ac.

   (iii) None of the effects and their interaction is significant.

   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th><strong>V₁</strong></th>
<th><strong>V₂</strong></th>
<th><strong>Mean</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D₁</strong></td>
<td>24.20</td>
<td>27.55</td>
<td>25.88</td>
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<tr>
<td><strong>D₂</strong></td>
<td>25.86</td>
<td>24.82</td>
<td>25.34</td>
</tr>
<tr>
<td><strong>D₃</strong></td>
<td>26.44</td>
<td>26.83</td>
<td>26.64</td>
</tr>
</tbody>
</table>

Mean: 25.50 26.40 25.95

S.E. of difference of two

1. marginal means of D = 0.989 ton/ac.
2. marginal means of V = 0.888 ton/ac.
3. V means at a level of D = 1.539 ton/ac.
4. D means at a level of V = 1.470 ton/ac.
Crop :- Sugarcane.  Ref :- U.P. 52(259).
Zone :- Shamli (Muzaffarnagar).  Type :- 'CV'.

Object :— To study the optimum time of harvesting of plant crop of Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS :
   (i) (a) N.A.  (b) Paddy.  (c) N.A.  (ii) Loam.  (iii) Sanai G.M. at 75 lb./ac. of N + A/S at 25 lb./ac. N on 20.7.1952 and 2 lb./ac. of N on 18.8.1952.  (iv) As per treatments.  (v) (a) Ploughings by tractor, disc plough and desi plough, hoeings by kasti and cultivator.  (b) Flat system of planting.  (c) and (d) 52, three budded setts/row and 260 three budded setts/plot.  (e) N.A.  (vi) 4.4.1952.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) As per treatments.

2. TREATMENTS :
   Main-plot treatments :
   3 dates of harvest: D₁ = 15.1.1953, D₂ = 15.2.1953 and D₃ = 15.3.1953.
   Sub-plot treatments :
   2 varieties : V₁ = CO.421 and V₂ = CO.S.245.

3. DESIGN :
   (i) and (ii) Split-plot with 4 replications.  3 main-plots/blok; 2 sub-plots/main-plot.  (iii),(a) Main-plot : 50' x 30' and sub-plot : 50' x 15'.  (b) Main-plot : 44' x 24' and sub-plot : 44' x 9'.  (iv) N.A.

4. GENERAL :
   (i) and (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) 1951—1952.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS :
   (i) 32.36 ton/ac.
   (ii) (a) 2.734 ton/ac.
   (b) 2.840 ton/ac.
   (iii) Only main effect of V is highly significant.
   (iv) 'Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>Mean</th>
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<td>D₁</td>
<td>29.09</td>
<td>35.16</td>
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<td>D₂</td>
<td>31.11</td>
<td>34.30</td>
<td>32.70</td>
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<tr>
<td>D₃</td>
<td>29.25</td>
<td>35.26</td>
<td>32.26</td>
</tr>
<tr>
<td>Mean</td>
<td>29.82</td>
<td>34.91</td>
<td>32.36</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D  = 1.367 ton/ac.
2. marginal means of V  = 1.160 ton/ac.
3. V means at a level of D  = 1.008 ton/ac.
4. D means at a level of V  = 1.971 ton/ac.

---

Crop :- Sugarcane (Ratoon).  Ref :- U.P. 51(202).
Zone :- Shamli (Muzaffarnagar).  Type :- 'CV'.

Object :— To study the effect of time of harvesting plant crop of Sugarcane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS :
   (i) (a) N.A.  (b) Plant sugarcane.  (c) N.A.  (ii) Loam.  (iii) 60 lb./ac. of N as A/S on 28.6.1951 and 60 lb./ac. of N as A/S on 22.7.1951.  (iv) As per treatments.  (v) (a) Hoeing by phawara on 3.4.1951, 9.5.1951 and 19.6.1951.  (b) N.A.  (c) 18 rows/plot.  (d) and (e) N.A.  (vi) As per treatments.  (vii) Irrigated.  (viii) and (ix) N.A.  (x) 3 and 4.12.1951.
2. TREATMENTS:

Main-plot treatments:
3 dates of harvest of plant crop: \( D_1 = 15.1.1951, D_2 = 15.2.1951 \) and \( D_3 = 15.3.1951 \).

Sub-plot treatments:
2 varieties: \( V_1 = \text{CO. 421} \) and \( V_2 = \text{CO. 245} \).

3. DESIGN:

(i) and (ii) Split-plot with 4 replications. 3 main-plots/block and 2 sub-plots/main-plot. (iii) (a) \( 60' \times 27' \). (b) \( 54' \times 21' \). (iv) N.A.

4. GENERAL:

(i) and (ii) N.A. (iii) Millable cane and sugarcane yield. (iv) (a) 1951–1953. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS:

(i) 18.93 ton/ac.

(ii) (a) 3.777 ton/ac.

(b) 1.360 ton/ac.

(iii) Main effects of D and V and their interaction are not significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( D_1 )</td>
<td>16.60</td>
<td>15.86</td>
<td>16.23</td>
</tr>
<tr>
<td>( D_2 )</td>
<td>18.84</td>
<td>18.45</td>
<td>18.64</td>
</tr>
<tr>
<td>( D_3 )</td>
<td>22.66</td>
<td>21.18</td>
<td>21.92</td>
</tr>
</tbody>
</table>

Mean 19.37 18.50 18.93

S.E. of difference of two

1. marginal means of D = 1.889 ton/ac.

2. marginal means of V = 0.555 ton/ac.

3. V means at a level of D = 0.961 ton/ac.

4. D means at a level of V = 2.007 ton/ac.

Crop: Sugarcane (Ratoon).
Zone: Shamli (Muzaffarnagar).

Ref.: U.P. 52(258).
Type: 'CV'.

Object: To study the effect of time of harvesting of plant crop of Sugarcane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS:

(i) (a) No. (b) Plant sugarcane. (c) Sanai+manuring by A/S at 45 lb./ac. of N on 21.7.1951. (ii) Loam. (iii) A/S at 60 lb./ac. of N on 16.7.1952 and at 60 lb./ac. of N on 17.8.1952. (iv) (a) As per treatments. (v) (a) N.A. (b) Flat system of planting. (c) and (d) 49 three budded setts/row, 343 setts/plot, 7 rows 3' apart. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) N.A. (x) 12 and 13.1.1953.

2. TREATMENTS:

Main-plot treatments:
3 dates of harvest of plant sugarcane: \( D_1 = 15.1.1952, D_2 = 15.2.1952 \) and \( D_3 = 15.3.1952 \).

Sub-plot treatments:
2 varieties: \( V_1 = \text{CO. 421} \) and \( V_2 = \text{CO.S. 245} \).

3. DESIGN:

(i) and (ii) Split-plot with 4 replications. 3 main-plots/block and 2 sub-plots/main-plot (iii) (a) Main-plot: \( 47' \times 42' \) and sub-plot: \( 47' \times 21' \). (b) Main-plot: \( 41' \times 36' \) and sub-plot: \( 41' \times 15' \). (iv) N.A.

4. GENERAL:

(i) and (ii) N.A. (iii) Millable cane and sugarcane yield. (iv) (a) 1951–1953. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS:

(i) 19.50 ton/ac.

(ii) (a) 1.608 ton/ac.

(b) 1.042 ton/ac.

(iii) Main effects of D and V are highly significant. Interactions D×V is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$V_1$</th>
<th>$V_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_1$</td>
<td>14.44</td>
<td>17.17</td>
<td>15.80</td>
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<td>$D_2$</td>
<td>18.41</td>
<td>21.89</td>
<td>20.15</td>
</tr>
<tr>
<td>$D_3$</td>
<td>20.33</td>
<td>24.78</td>
<td>22.56</td>
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<tr>
<td>Mean</td>
<td>17.73</td>
<td>21.28</td>
<td>19.50</td>
</tr>
</tbody>
</table>

S.E. of difference of two

1. marginal means of $D$ = 0.804 ton/ac.
2. marginal means of $V$ = 0.426 ton/ac.
3. $V$ means at a level of $D$ = 0.737 ton/ac.
4. $D$ means at a level of $V$ = 0.958 ton/ac.

Crop :- Sugarcane (Ratoon).
Zone :- Shamli (Muzaffarnagar).

Ref :- U.P. 53(279).
Type :- 'CV'.

Object :- To study the effect of time of harvesting plant crop of sugarcane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Plant sugarcane. (c) Sanai at 75 lb./ac. of N+A/S at 25 lb./ac. of N on 20.7.1953 and at 20 lb./ac. of N on 18.8.1952. (ii) Loam. (iii) Top dressing 60 lb./ac. of N as castor cake on 29.5.1953 and top dressing 60 lb./ac. of N as A/S on 11.7.1953. (iv) As under treatments. (v) (a) Hoeing by spade and M.C. cultivator on 17.4. 18.5.1953 and 18.5.1953. (b) Flat system (c) 52 three budded setts/row 260 setts/plot, 5 rows 3' apart. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 8.12.1953 to 10.12.1953.

2. TREATMENTS :
   Main-plot treatments :
   3 dates of harvesting plant sugarcane : $D_1$=15.1.1953. $D_2$=15.2.1953, and $D_3$=15.3.1953.
   Sub-plot treatments :
   2 varieties : $V_1=CO.421$ and $V_2=CO.245$.

3. DESIGN :
   (i) and (b) Split-plot with 4 replications. 3 main/plots block; 2 sub-plots/main-plot. (iii) (a) Main-plot : 50'×30' and sub-plot : 50'×15'. (b) Main-plot : 44'×24' and sub-plot : 44'×9'. (iv) N.A.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1951—1953. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R.(M) on cultivators' fields.

5. RESULTS :
   (i) 18.23 ton/ac.
   (ii) (a) 5.131 ton/ac.
   (b) 2.194 ton/ac.
   (iii) Main effect of $V$ is significant, others are not the significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
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<th>$V_1$</th>
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<td>$D_3$</td>
<td>17.13</td>
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<td>20.31</td>
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<tr>
<td>Mean</td>
<td>16.31</td>
<td>20.15</td>
<td>18.23</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.

Zone: Maholi (Sitapur).

Ref: U.P. 52(206).

Type: 'CV'.

Object: To study the optimum time of harvesting plant crop of Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai for G.M. (c) No. (ii) Loam. (iii) F.Y.M. at 12 C.L./ac. on 29.1.1952. (iv) As per treatments. (v) (a) ploughing by tractor, earthing up by tractor and hoeings by kudali. (b) Flat planting. (c) and (d) 1752 buds/plot, 8 rows/plot. (e) N.A. (vi) 1.3.1952. (vii) Irrigated. (viii) N.A. (ix) 35°. (x) As per treatments.

2. TREATMENTS:
   Main-plot treatments:
   Sub-plot treatments:
   $V_1 = COK. 30$ (mid-early) $V_2 = CO. 453$ (late).

3. DESIGN:
   (i) and (ii) split-plot with 6 replications. 3 main-plots/replications and 2 sub-plots/main-plot. (iii) (a) 73'=24'. (b) 66'=18'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The ext. was conducted by D.S.R. (S) on cultivators' fields.

5. RESULTS:
   (i) 37.95 ton/ac.
   (ii) (a) 3.451 ton/ac.
   (b) 4.897 ton/ac.
   (iii) Main effects of D and V are not significant, interaction $D \times V$ is highly significant.
   (iv) Average yield of sugarcane in ton/ac.

<table>
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<th>$V_1$</th>
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<th>Mean</th>
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<td>$D_2$</td>
<td>43.38</td>
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<tr>
<td>$D_3$</td>
<td>37.91</td>
<td>39.44</td>
<td>38.68</td>
</tr>
</tbody>
</table>

Mean | 35.91 | 38.98 | 37.95 |

S.E. of difference of two:
1. marginal means of D = 1.409 ton/ac.
2. marginal means of V = 1.632 ton/ac.
3. V means at a level of D = 2.827 ton/ac.
4. D means at a level of V = 2.446 ton/ac.
Crop: Sugarcane.  
Zone: Maholi (Sitapur).

Object: To study the effect of time of harvesting plant crop of Sugarcane on the yield of succeeding ratoon crop.

1. **BASAL CONDITIONS:**
   (i) (a) N.A.  (b) F.Y.M at 12 C.L./ac. on 29.1.1952.  (ii) Loam.  (iii) N.A.  (iv) As per treatments.
   (v) (a) and (b) N.A.  (c) and (d) 8 rows at 3' distance.  (e) N.A.  (vi) As per treatments.  (vii) N.A.
   (viii) N.A.  (ix) 45°.  (x) ±6, 27.12.1953.

2. **TREATMENTS:**
   Main-plot treatments: 3 dates of harvest of plant sugarcane; D1=26.1.1953, D2=18.2.1953 and D3=9.3.1953.
   Sub-plot treatments: 2 varieties: \( V_1= \) COK 30 (mid-early) and \( V_2= \) CO. 453 (late).

3. **DESIGN:**
   (i) and (ii) Split-plot with 6 replication, 3 main-plots/block, 2 sub-plots/main-plot.  (iii) (a) 73' × 24'.  (b) 67' × 18'.  (iv) N.A.

4. **GENERAL:**
   (i) N.A.  (ii) N.A.  (iii) Tillers, millable cane and sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (S) on cultivators' fields.

5. **RESULTS:**
   (i) 28.48 ton/ac.
   (ii) (a) 2.09 ton/ac.
   (b) 2.78 ton/ac.
   (iii) Main effect of D is significant, main effect of V and interaction D×V are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<th></th>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>Mean</th>
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<td>( D_2 )</td>
<td>29.93</td>
<td>30.37</td>
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<td>( D_3 )</td>
<td>27.07</td>
<td>26.82</td>
<td>26.95</td>
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<tr>
<td>Mean</td>
<td>28.12</td>
<td>28.83</td>
<td>28.48</td>
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</table>

S.E. of difference of two
1. marginal means of D = 0.92 ton/ac.
2. marginal means of V = 0.93 ton/ac.
3. V means at a level of D = 1.60 ton/ac.
4. D means at a level of V = 1.42 ton/ac.

---

Crop: Sugarcane.  
Zone: Haldwani (Nainital).

Object: To study the optimum time of planting Sugarcane in different tracts.

**BASAL CONDITIONS:**
(i) (a) N.A.  (b) G.M., sanai (failed).  (c) N.A.  (ii) Clay loam.  (iii) G.N.C. at 60 lb. + A/S at 20 lb./ac. at the time of planting and 40 lb./ac. of A/S top dressed.  (iv) CO. 453 and CO. 421.  (v) (a) Ploughing by Athens and harrow on 3.10.1950, ploughing by desti on 11.10.1950, ploughing by furrow on 12.10.1950 and pata on 13.10.1950, 3 hoeings by kassi on 26, 27.4.1951, hoeing by cultivator on 8.5.1951 and hoeing by kassi on 26.5.1951.  (b) Flat sowing.  (c) 1440 buds/plot.  (d) and (e) N.A.  (vi) As per treatments.  (vii) Irrigated.  (viii) N.A.  (ix) 50°.  (x) 19 to 21.3.1952.
2. TREATMENTS:

Main-plot treatments:
5 dates of sowing: D1 = Middle of October, 1950, D2 = Middle of November, 1950, D3 = Middle of January, 1951, D4 = Middle of February, 1951 and D5 = Middle of March, 1951.

Sub-plot treatments:
2 varieties: V1 = CO. 421 and V2 = CO. 453.

3. DESIGN:

(i) and (ii) Split-plot with 6 replications, 5 main-plots/replication and 2 sub-plots/main-plot. (iii) (a) 60' x 24'. (b) 54' x 18'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) to (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators' fields.

5. RESULTS:

(i) 27.01 ton/ac.
(ii) (a) 5.51 ton/ac. (b) 5.70 ton/ac.
(iii) Main effects of D and V are highly significant, interaction D X V is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>Mean</th>
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<tr>
<td>V1</td>
<td>33.45</td>
<td>32.09</td>
<td>27.24</td>
<td>14.65</td>
<td>11.38</td>
<td>23.76</td>
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<tr>
<td>V2</td>
<td>41.71</td>
<td>33.62</td>
<td>30.46</td>
<td>29.33</td>
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<td>30.26</td>
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<tr>
<td>Mean</td>
<td>37.58</td>
<td>32.85</td>
<td>28.85</td>
<td>21.99</td>
<td>13.78</td>
<td>27.01</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of D = 2.249 ton/ac.
2. marginal means of V = 1.472 ton/ac.
4. D means at a level of V = 3.380 ton/ac.

---

Crop: Sugarcane.
Zone: Kichha (Nainital).
Ref: U.P. 52(205).
Type: 'CV'.

Object: To study the optimum time of harvesting plant crop of Sugarcane for taking a ratoon crop.

1. BASAL CONDITIONS:


2. TREATMENTS:

Main-plot treatments:
3 dates of harvesting: D1 = Mid January, D2 = Mid February, D3 = Mid March.

Sub-plot treatments:
2 varieties: V1 = CO.421 and V2 = CO.453.

3. DESIGN:

(i) and (ii) 6 replications in split-plot. 3 main-plots/replication and 2 sub-plots/main-plot. (iii) (a) 90' x 18'. (b) 84' x 12'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination % and sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators' fields.
5. RESULTS:

(i) 29.27 ton/ac.
(ii) (a) 3.759 ton/ac.
(b) 5.815 ton/ac.
(iii) Main effect of D is highly significant. Main effect of V and interaction D x V are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
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<td>32.69</td>
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<td>D2</td>
<td>28.58</td>
<td>31.19</td>
<td>29.88</td>
</tr>
<tr>
<td>D3</td>
<td>25.91</td>
<td>24.56</td>
<td>25.24</td>
</tr>
<tr>
<td>Mean</td>
<td>28.71</td>
<td>29.83</td>
<td>29.27</td>
</tr>
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</table>

S.E. of difference of two
1. marginal means of D = 1.534 ton/ac.
2. marginal means of V = 1.939 ton/ac.
4. D means at a level of V = 2.829 ton/ac.

Crop : Sugarcane.
Zone : Kichha (Nainital).
Ref : U.P. 52(200).
Type : 'CV'.

Object : To study the effect of time of harvesting plant crop of Sugarcane on the yield of succeeding ratoon crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) G.N.C. at 40 lb./ac. of N on 14.5.1952.
(iv) As per treatments. (v) (a) Hoeing by tractor on 28.4.1952 by cultivator on 3.5.1952. and by kassi on 6.5.1952. Hoeing by kassi in Jan. plots on 28.1.1952. and in 6, 7.3.1952. on Feb. plots (b) N.A.
(c) 9 rows/plot. (d) and (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) (Av. rainfall 50°). (x) 20 to 24.1.1953.

2. TREATMENTS:

Main-plot treatments:
3 dates of harvesting plant cane: D1 = Mid January, D2 = Mid February and D3 = Mid March. 1952.
Sub-plot treatments:
2 varieties: V1 = CO.421 and V2 = CO.453.

3. DESIGN:

(i) and (ii) 4 replications in split-plot. 3 main-plots/replication and 2 sub-plots/main-plot. (iii) (a) 67' x 27'.
(b) 61' x 21'. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators' fields.

5. RESULTS:

(i) 18.52 ton/ac.
(ii) (a) 4.828 ton/ac.
(b) 3.720 ton/ac.
(iii) Main effects of D and V are significant. Interaction D x V is not significant.
Av. yield of sugarcane in ton/ac.

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<tr>
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<th>V₂</th>
<th>Mean</th>
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</tr>
<tr>
<td>D₃</td>
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<tr>
<td>Mean</td>
<td>16.80</td>
<td>20.25</td>
<td>18.52</td>
</tr>
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</table>

S.E. of difference of two:
1. marginal means of D = 2.414 ton/ac.
2. marginal means of V = 1.519 ton/ac.
3. V means at a level of D = 2.630 ton/ac.
4. D means at a level of V = 3.047 ton/ac.

Crop :-Sugarcane.

Zone :-Haldwani (Nainital).

Object :-To study the optimum time of harvesting plant crop of cane for taking a ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sansai G.M. (c) Nil. (ii) Clayey loam. (iii) Nil. (iv) As per treatments. (v) (a) Ridges drawn by tractor, turning of Sansai by Athens plough on 8.9.1952. Ploughing by Athens plough on 10.5.1952, 11.6.1952, 5 to 7.2.1953 by 19 B harrow on 20.10.1952, 8.2.1953, by desi plough on 12, 13.12.1952, 27 to 29.1.1953, para on 1.2.1953. (b) Flat sowing. (c) and (d) 1344 buds/plot in 7 rows. (e) N.A. (vi) 11 and 12.2.1953. (vii) Irrigated. (viii) N.A. (ix) Av. annual rainfall 35". (x) As per treatments.

2. TREATMENTS:
   Main-plot treatments:
   Sub-plot treatments:
   2 varieties: V₁ = C.J.453 and V₂ = CO.510.

3. DESIGN:
   (i), (ii) Split-plot with 5 replications. 3 main-plots/block and 2 sub-plots/main-plot. (iii) (a) and (b) 64'X21'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R(S) on cultivators' fields.

5. RESULTS:
   (i) 23.96 ton/ac.
   (ii) (a) 3.39 ton/ac.
   (b) 2.58 ton/ac.
   (iii) Main effect of V and interaction D X V are highly significant. Main effect of D is not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
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<td>22.54</td>
<td>25.38</td>
<td>23.96</td>
</tr>
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</table>

S.E. of difference of two:
1. marginal means of D = 1.384 ton/ac.
2. marginal means of V = 0.869 ton/ac.
3. V means at a level of D = 1.489 ton/ac.
4. D means at a level of V = 1.742 ton/ac.
Crop :- Sugarcane.
Zone :- Haldwani (Nainital).

Object :- To study the optimum time of harvesting plant crop of cane for taking a ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai G.M. (c) Nil. (ii) Clayey loam. (iii) F.Y.M.+50 lb./ac. of N on 11.1.1951. Top dressing mohwa cake mixture applied at 50 lb./ac. of N on 7.5.1951. (iv) As per treatments. (v) (a) Ploughing by desi on 26 and 27.12.1950. Harrow plough on 25 and 26.2.1951, pata on 28.3.1951, hoeing with kassi on 9.4.1951 and 4.5.1951, hoeing by cultivator on 17.5.1951. Hoeing by kassi on 26.5.1951. (b) Flat sowing (Furrows by ridges). (c) and (d) 9 rows. (e) N.A. (vi) 20 and 21.3.1951. (vii) Irrigated. (viii) N.A. (ix) Av. annual rainfall 50". (x) As per treatments.

2. TREATMENTS:
   Main-plot treatments :
   3 dates of harvest : D₁ = 15.1.1951, D₂ = 15.2.1951 and D₃ = 15.3.1951.
   Sub-plot treatments :
   2 varieties : V₁ = C0.421 and V₂ = C0.453.

3. DESIGN:
   (i), (ii) Split-plot with 6 replications. 3 main-plots/replication ; 2 sub-plots/main-plot. (iii) (a) ‘67’x27’.
   (b) ‘61’x21’. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination and sugarcane yield. (iv; (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by D.S.R.(S) on cultivators’ fields.

5. RESULTS:
   (i) 25.08 ton/ac.
   (ii) (a) 4.29 ton/ac.
   (b) 2.06 ton/ac.
   (iii) Main effect of V and interactions D x V are highly significant. Main effect of D is not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>D₃</th>
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<td>20.98</td>
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<td>V₂</td>
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<td>29.18</td>
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<td>23.57</td>
<td>26.41</td>
<td>25.25</td>
<td>25.08</td>
</tr>
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S.E. of difference of two
1. marginal means of D = 1.752 ton/ac.
2. marginal means of V = 0.687 ton/ac.
3. V means at a level of D = 1.189 ton/ac.
4. D means at a level of V = 1.943 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Kunraghat.
Ref :- U.P. 52(59).
Type :- ‘CM’.

Object :- To see the effect of harvesting plant Sugarcane planted flat and in trenches on its subsequent ratoon and to find out the proper time of application of manure to the ratoon crop.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Wheat. (b) Dhaincha. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 25 and 27.2.1952. (iv) (a) N.A. (b) As per treatments. (c) 85 three budded setts/row. (d) and (e) N.A. (v) F.Y.M at 50 lb./ac. of N, Castor cake at 30 lb./ac. of N and A/S at 40 lb./ac. of N top dressing. (vi) CO.453. (vii) Irrigated. (viii) 5 earthings and hoeings. (ix) 34.40". (x) 23.1.1953 to 20.2.1953.
2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 2 methods of harvest: \( H_1 = \) at ridge level and \( H_2 = \) at ground level.
(2) 2 methods of planting: \( P_1 = \) flat planting and \( P_2 = \) trench planting.

Sub-plot treatments:
4 manures to ratoon crop: \( M_0 = \) no manure (control), \( M_1 = 120 \) lb./ac. of N to ratoon soon after harvesting the plant crop, \( M_2 = 120 \) lb./ac. of N at commencement of rains and \( M_3 = 120 \) lb./ac. of N in two doses as in \( M_1 \) and as in \( M_2 \).

3. DESIGN:
(i) Split-plot.
(ii) a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) a) 85' x 24'.
(b) 79 x 18'. (v) 3' border around the gross plot was excluded. (vi) Yes.

4. GENERAL:
(i) Normal. No lodging. (ii) Attack of borers, which were killed on 16 and 20.5.1952 to 18.7.1952.
(iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1955. (b) and (c) No. (v) (a) Muzaffarnagar and Shahjahanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R.(G).

5. RESULTS:
(i) 19.0 ton/ac.
(ii) a) 7.49 ton/ac.
(b) 2.91 ton/ac.
(iii) Main effect of M is highly significant. Main effect of P is significant. Other effects and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( M_0 )</th>
<th>( M_1 )</th>
<th>( M_2 )</th>
<th>( M_3 )</th>
<th>Mean</th>
<th>( H_1 )</th>
<th>( H_2 )</th>
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<tr>
<td>( P_1 )</td>
<td>11.91</td>
<td>17.53</td>
<td>17.30</td>
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<td>14.38</td>
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<td>( P_2 )</td>
<td>16.70</td>
<td>24.42</td>
<td>24.87</td>
<td>21.62</td>
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<tr>
<td>Mean</td>
<td>14.40</td>
<td>20.98</td>
<td>21.08</td>
<td>20.35</td>
<td>19.20</td>
<td>20.56</td>
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<td>( H_1 )</td>
<td>15.5( \frac{1}{2} )</td>
<td>22.00</td>
<td>22.85</td>
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<td>( H_2 )</td>
<td>13.2( \frac{1}{2} )</td>
<td>19.96</td>
<td>19.32</td>
<td>18.90</td>
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</table>

S.E. of difference of two
1. P or H marginal means =2.16 ton/ac.
3. M means at the same level of P or H =1.68 ton/ac.
4. P or H means at the same level of M =2.60 ton/ac.
S.E. for any mean in body of table H x R =2.16 ton/ac.

Crop :- Sugarcane.
Ref :-U.P. 52(169).
Site :- Sugarcane Res. Sub-Stn., Kunrghat.
Type :- 'CM'.

Object :- To see the effect of harvesting plant Sugarcane planted flat and in trenches on its subsequent ratoon and to find out the proper time of application of manure to the ratoon crop.

1. BASAL CONDITIONS:
(i) a) G.M.—wheat G.M.—plant sugarcane. (b) Sugarcane (plant sugarcane). (b) 10 srs. G.N.C./full row of 180' and A/S at 4 srs. 12 chh/plot. (ii) a) Sandy loam. (b) N.A. (iii) Plant sugarcane 25 and 27.2.1952 and harvesting planting sugarcane 23.1.1953 to 6.3.1953. (iv) (a) N.A. (b) Trench and flat planting as per treatments. (c) 1 three budded setts per foot of a row. (d) Rows 3' apart (e) N.A. (v) Nil. (vi) CO.453. (vii) Irrigated. (viii) Hoeings—6 i.e. after each irrigation and earthing on 16 and 22 to 26.8.1953. (ix) 50.21'. (x) 17.12.1953 to 5.2.1954.
2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)

(1) 2 methods of harvesting: H1 = at ridge level and H2 = at ground level.
(2) 2 methods of planting: P1 = Flat planting and P2 = trench planting.

Sub-plot treatments:
4 manurings of ratoon crop: M0 = No manure (control), M1 = 120 lb/ac. of N to ratoon soon after harvesting the plant crop, M2 = 120 lb/ac. of N to ratoon at commencement of rains and M3 = 120 lb/ac. of N in two doses as in M1 and ½ as in M2.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 85’x24’. (b) 79’x18’. (v) 3’ border was excluded allround the gross plot. (vi) Yes.

4. GENERAL:
(i) Normal. No lodging. (ii) Attack of borers. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1955. (b) and (c) No. (v) (a) Muzaffarnagar and Shahjahanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:

<table>
<thead>
<tr>
<th></th>
<th>M0</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>Mean</th>
<th>P1</th>
<th>P2</th>
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<td>22.91</td>
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<tr>
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<td>17.36</td>
<td>22.85</td>
<td>21.00</td>
<td>21.82</td>
<td>21.26</td>
<td>19.02</td>
<td>23.50</td>
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<td>22.88</td>
<td>22.90</td>
<td>21.45</td>
<td>19.71</td>
<td>23.20</td>
</tr>
<tr>
<td>P1</td>
<td>15.15</td>
<td>21.16</td>
<td>21.13</td>
<td>21.38</td>
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S.E. of difference of two
1. P or H marginal means = 0.58 ton/ac.
2. M marginal means = 0.78 ton/ac.
3. M means at the same level of P or H = 1.10 ton/ac.
4. P or H means at the same level of M = 1.12 ton/ac.

S.E. for any mean in body of table = 0.58 ton/ac.

Crop :- Sugarcane (Ratoon).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Ref :- U.P. 52(62).
Type :- 'CM'.

Object :- To see the effect of harvesting plant cane, planted flat and in trenches, on its subsequent ratoon and to find out the proper time of application of manures to the ratoon crop.

1. BASAL CONDITIONS:

(i) (a) G.M.—wheat—sandal or moong—sugarcane—ratoon. (b) Sugarcane (plantcane). (c) 1. Compost at 80 lb./ac. of N. 2. Castor cake at 20 lb./ac. of N. 3. A/S at 60 lb./ac. of N. (ii) (a) Light loam. (b) Ref soil analysis, Muzaffarnagar. (iii) plant cane harvested from 20.2.1952 to 15.3.1952. (iv) (a) Trash was burnt. The ridges were dismantled after harvesting plant cane by soil turning plough and remaining ridges broken down by spade. (b) to (e) N.A. (v) Nil. (vi) CO.S.245 (mid-season) (vii) Irrigated. (viii) 7 hoeings and earthing up in August. (ix) 24.62°. (x) 29.11.1952 to 5.12.1952.
2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 2 methods of harvesting: H₁ = at ridge level and H₂ = at ground level.
(2) 2 methods of planting: P₁ = Flat planting and P₂ = Trench planting.

Sub-plot treatments:
4 manuring to ratoon crop: M₀ = No manure (control), M₁ = 120 lb./ac. of N to ratoon soon after harvesting the plant crop, M₂ = 120 lb./ac. of N to ratoon at commencement of rains, M₃ = 120 lb./ac. of N in to 2 doses: ½ as in M₁ and ½ as in M₂.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 90' x 21'. (b) 84' x 15'. (v) One row on each side and 3' border on each end of plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952-1954 (b) N.A. (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:
(i) 16.32 ton/ac.
(ii) (a) 2.04 ton/ac.
(b) 1.52 ton/ac.
(iii) Main effect of M is highly significant. Main effect of P is significant. Other effect and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>M₀</th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
<th>Mean</th>
<th>H₁</th>
<th>H₂</th>
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<td>17.02</td>
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<tr>
<td>P₂</td>
<td>11.87</td>
<td>15.83</td>
<td>18.14</td>
<td>16.65</td>
<td>15.62</td>
<td>16.56</td>
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<tr>
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<td>16.74</td>
<td>18.49</td>
<td>17.79</td>
<td>16.32</td>
<td>15.77</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. P or H marginal means = 0.51 ton/ac.
2. M marginal means = 0.54 ton/ac.
3. M means at the same level of P or H = 0.76 ton/ac.
4. P or H m.ans at the same level of M = 0.83 ton/ac.
5. means in the body of table: P × H = 0.38 ton/ac.

Crop: Sugarcane (Ratoon).
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.
Object: To see the effect of harvesting plant cane, planted flat and in trenches on its subsequent ratoon and to find out the proper time of application of manures to ratoon crop.

1. BASAL CONDITIONS:
(i) (a) G.M. = wheat—sanai or moong—sugarcane ratoon. (b) Sugarcane (plant cane). (c) 1. Compost at 80 lb./ac. of N. 2. Castor cake at 20 lb./ac. of N. 3. A/S at 60 lb./ac. of N. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) Plant cane harvested from 5 to 11.3.1953. (iv) Trash was burnt. The ridges were dismantled after harvesting plant cane by soil turning plough and remaining ridges broken down by spade. (b) to (e) N.A. (v) Nil. (vi) C.O.S. 245 (mid-season) (vii) Irrigated. (viii) 5 hoeings. Earthing up in July. (ix) 28.33'. (x) 13 to 35.11.1953.
2. TREATMENTS:
Main-plot treatments:
All combinations of (1) and (2)
(1) 2 methods of harvesting: H_1 = At ridge level and H_2 = at ground level.
(2) 2 methods of planting: P_1 = Flat planting and P_2 = Trench planting.

Sub-plot treatments:
4 manuring of ratoon crop: M_0 = No manure (control), M_1 = 120 lb/ac. of N to ratoon soon after harvesting the plant crop, M_2 = 120 lb/ac. of N at commencement of rains and M_3 = 120 lb/ac. of N in 2 doses: 1/2 as in M_1 and 1/2 as in M_2.

3. DESIGN:
(i) Split plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 90' x 21'. (b) 84' x 15'. (v) One row on each side and 3' border at each end. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952 to 1954 (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:
(i) 25.30 ton/ac.
(ii) (a) 2.66 ton/ac.
(b) 1.86 ton/ac.
(iii) Sub-plot treatments are highly significant. Main-plot treatments and interactions are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M_0</th>
<th>M_1</th>
<th>M_2</th>
<th>M_3</th>
<th>Mean</th>
<th>H_1</th>
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</tr>
</thead>
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<td>16.17</td>
<td>28.43</td>
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<tr>
<td>P_2</td>
<td>17.43</td>
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<td>26.79</td>
<td>28.34</td>
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<tr>
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<td>28.16</td>
<td>25.30</td>
<td>25.77</td>
<td>24.82</td>
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</table>

S.E. of difference of two
1. M marginal means = 0.94 ton/ac.
2. P or H marginal means = 0.66 ton/ac.
3. M means at the same level of P or H = 0.93 ton/ac.
4. H or P means at the same level of M = 1.04 ton/ac.
5. means in P x H table = 0.93 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Res. Stn., Shahjahanpur.
Object: To find out the effect of placement of A/S in different doses to Sugarcane planted under different spacings between rows.
2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 2 placements of A/S: M1 = Broadcast and M2 = In furrow.
(2) 2 doses of A/S: N1 = 40 and N2 = 120 lb./ac. of N.

Sub-plot treatments:
2 spacings between rows: S1 = 2', S2 = 3' and S3 = 4'.
Gross plot size is 42' x 16', 42' x 18' and 42' x 20' respectively.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) As per treatments. (b) 36' x 12'. (v) One row on each side and 3' at either end of the plot. (vi) Yes.

4. GENERAL:
(i) Good. Crop lodged in October. (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1952-1954. (b) and (c) No. (v) (a) and (b) No. (vi) Replication III was damaged by the rats in October and November. (vii) The expt. was conducted by D.S.R.(S).

5. RESULTS:
(i) 25.09 ton/ac.
(ii) (a) 3.23 ton/ac.
(b) 2.44 ton/ac.
(iii) Main effect of S is highly significant. Main effect of M and interactions N x S are significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>Mean</th>
<th>N1</th>
<th>N2</th>
</tr>
</thead>
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<tr>
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<td>27.64</td>
<td>24.80</td>
<td>26.79</td>
<td>26.30</td>
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<tr>
<td>M2</td>
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<td>23.18</td>
<td>19.82</td>
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<td>24.67</td>
</tr>
<tr>
<td>Mean</td>
<td>27.55</td>
<td>25.41</td>
<td>22.31</td>
<td>25.09</td>
<td>25.48</td>
</tr>
</tbody>
</table>

N1 26.24 26.71 23.50
N2 28.86 24.11 21.11

S.E. of difference of two
1. M or N marginal means = 1.077 ton/ac.
2. means of the body of M x N table = 1.523 ton/ac.
3. S marginal means = 0.994 ton/ac.
4. S means at the same level of M or N = 1.406 ton/ac.
5. M or N means at the same level of S = 1.574 ton/ac.

Crop : - Sugarcane.
Site :- Sugarcane Res. Stn., Shahajanpur.
Object : - To study the effect of placement of A/S in different doses to Sugarcane planted under different spacings between rows.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat—Moong—Sugarcane. (b) Wheat. (c) G.M. (details N.A.) (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11 and 12.3.1953. (iv) (a) N.A. (b) Flat planting. (c) 3 budded setts/line. (d) As per treatments. (e) N.A. (v) Nil. (vi) CO.K. 30 (mid-season). (vii) Irrigated. (viii) One hoeing after each irrigation. (ix) 45.73'. (x) 24.2.1954.

2. TREATMENTS:
Main-plot treatments:
All combination of (1) and (2)
(1) 2 placement of A/S: M1 = Broadcast and M2 = In furrows along rows.
(2) 2 doses of N : N1 = 40 and N2 = 120 lb./ac. of N.

Sub-plot treatments:
3 spacings between rows: S1 = 2', S2 = 3' and S3 = 4'.
3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) \( S_1 = 47' \times 16' \) \( S_2 = 47' \times 18' \) and \( S_3 = 47' \times 20' \). (b) \( 41' \times 12' \). (v) One row on either side of the gross plot and 3' at the ends. (vi) Yes.

4. GENERAL:
(i) No lodging. (ii) No. (iii) Germination, tillering, millable cane and sugarcane yield. (iv) (a) 1952—1954. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R(S).

5. RESULTS:
(i) 17.54 ton/ac.
(ii) (a) 1.724 ton/ac.
(b) 2.635 ton/ac.
(iii) On y interaction N x M is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>Mean</th>
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<th>( N_2 )</th>
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<td>17.94</td>
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S.E. of difference of two
1. M or N marginal means = 0.575 ton/ac.
2. means of body of M x N table = 0.813 ton/ac.
4. S means at a level of M or \( N \) = 1.521 ton/ac.
5. M or N means at a level of \( S \) = 1.368 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.
Ref :- U.P. 48(73).
Type :- 'CM'.

Object :- To find out the utilization of night soil in Sugarcane cultivation.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Guar. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12, 13.3.1948.
(iv) (a) 4 ploughings with soil turning plough and 7 ploughings with desi plough and 3 plankings. (b) As per treatments. (c) 70 three plowed setts/ac. (d) N.A. (e) 9, 10, 11.1.1948 and 7, 12, 19.2.1949.

2. TREATMENTS:
Main-plot treatments:
2 methods of planting: \( M_1 \) =trench planted and \( M_2 \) =flat planted.
Sub-plot treatments:
4 manurial treatments: \( T_0 \) =no manure, \( T_1 \) =town compost at 100 lb/ac. of \( N \), \( T_2 \) =poudrette (night soil compost) at 100 lb./ac. of \( N \) and \( T_3 \) =A/S at 100 lb./ac. of \( N \).

Method of Applications:-Night soil was dropped in trenches in much the same manner as was done in the previous years experiment. The trenches were filled in and covered completely in the flat planted treatments. In the plots where trench planting was to be done, the trenches were widened at the top, leaving the night soil covered at the bed of the trench. Town compost was applied on 9 to 11.1.1948 as basal treatment. Night soil from 1 to 11.1.1948 and A/S at planting time on 12, 13.3.1948 as top dressing.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) \( 79' \times 21' \). (b) \( 63' \times 15' \). (v) 3' around. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Yellow disease in August, increased in September, no incidence in October. (iii) Germination, tillers, millable cane and yield of sugarcane. (iv) (a) 1947–1948. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
(i) 24.33 ton/ac.
(ii) (a) 1.746 ton/ac. (b) 1.512 ton/ac.
(iii) T effect is highly significant, while M effect and interaction T X M are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>T0</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>Mean</th>
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<tr>
<td>M1</td>
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<td>27.00</td>
<td>26.34</td>
<td>17.68</td>
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<td>M2</td>
<td>24.67</td>
<td>26.43</td>
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<td>22.62</td>
<td>26.71</td>
<td>28.02</td>
<td>19.98</td>
<td>24.33</td>
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</table>

S.E. of difference of two
1. marginal means of M = 0.617 ton/ac.
2. marginal means of T = 0.756 ton/ac.
3. T means at the same level of M = 1.069 ton/ac.
4. M means at the same level of T = 1.113 ton/ac.

---

Crop: Sugarcane.
Site: Sugarcane Res. Stn., Shahjahanpur.
Object: To find the effect of incorporation of sugarcane trash directly into soil on Sugarcane planted in different seasons.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 2 ploughings with v desiy plough, 1 dest plough for October planting, 2 ploughings by victory plough and 2 dest ploughings for February planting and 3 plankings. (b) N.A. (c) 68 three budded setts/row. (d) N.A. (e) nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeings with kassi and cultivator, harrowing and earthing. (ix) 34.60". (x) 8 to 10.12.1952.

2. TREATMENTS:
Main-plot treatments:
2 times of planting: T1 = Autumn planting (19.10.1951) and T2 = Spring planting (10.2.1952).
Sub-plot treatments:
9 manurial treatments: M1 = control (no manure), M2 = trash at 75 mds./ac. applied in July, M3 = trash at 75 mds./ac. + 1 mds./ac. of A/S applied in July, M4 = trash at 75 mds./ac. + 1 mds./ac. of A/S applied 1 month before planting, M5 = trash at 75 mds./ac. + 1 mds./ac. of A/S + 100 lb/ac. of P2O5+10 lb/ac. of magnesium sulphate applied in July, M6 = trash at 75 mds./ac. applied in July+1 month before planting, M7 = trash at 75 mds./ac. applied in July+1 mds./ac. of A/S +100 lb/ac. of P2O5+10 lb/ac. of magnesium sulphate applied about 11 months before planting, M8 = 1 mds./ac. of A/S at planting, M9 = 1 mds./ac. of A/S +100 lb/ac. of P2O5+10 lb/ac. of magnesium sulphate at planting and M10 = trash compost made out of 75 mds./ac. of trash applied 11 months before planting.

11 months before planting: 28.9 1952, 10.2.1952 and at planting 19.10.1952.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) (a) 68'x10'. (b) 62'x12'. (v) 3' around. (vi) Yes.
4. GENERAL:
(i) Satisfactory. (ii) No. (iii) Germination count, tillers, marketable cane and sugarcane yield. (iv) (a) 1952–1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
(i) 17.45 ton/ac.
(ii) (a) 1.828 ton/ac. (b) and (c) 3.341 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
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<td>18.89</td>
<td>17.46</td>
<td>16.57</td>
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<td>17.16</td>
<td>18.94</td>
<td>17.66</td>
<td>17.45</td>
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S.E. of difference of two
1. T marginal means = 0.609 ton/ac.
3. M means at the same level of T = 3.341 ton/ac.
4. T means at the same level of M = 3.209 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Res. Stn., Shahjahanpur.
Object: To find out the utility of incorporating sugarcane trash directly into the soil.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat—Fallow—Sugarcane. (b) Wheat. (c) G.M. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) N.A. (b) Flat planting. (c) 3 budded setts/row. (d) Rows 3' apart. (e) Nil. (vi) CO.453 (mid-late). (vii) Irrigated. (viii) 4 hoeings and 3 hoeings for autumn and spring plantings respectively and earthing up during rains. (ix) 45.43°. (x) Last week of December 1953.

2. TREATMENTS:
Main-plot treatments:
2 times of planting: T₁ = autumn planting on 6.10.1952 and T₂ = spring planting on 9.2.1953.

Sub-plot treatments:
9 manural treatments: M₁ = control (no manure), M₂ = trash at 75 md./ac. applied in July, M₃ = trash at 75 md./ac. + 1 md./ac. of A/S applied in July, M₄ = trash at 75 md./ac. + 1 md./ac. of A/S applied in July + 100 lb./ac. of magnesium sulphate applied in July, M₅ = trash at 75 md./ac. + 1 md./ac. of A/S applied in July + 100 lb./ac. of P₂O₅ + 10 lb./ac. of magnesium sulphate applied in July, M₆ = trash at 75 md./ac. + 1 md./ac. of A/S applied in July + 100 lb./ac. of P₂O₅ + 10 lb./ac. of magnesium sulphate applied in July, M₇ = trash at 75 md./ac. + 1 md./ac. of A/S at planting, M₈ = 1 md./ac. of A/S at planting, M₉ = trash compost made out of 75 md./ac. of trash applied 1½ months before planting.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot 65' x 162' and sub-plot 65' x 18'. (b) 39' x 12'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) Fair. No lodging. (ii) No. (iii) Germination, tillering, marketable cane and sugarcane yield. (iv) (a) 1952–1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).
5. RESULTS:

(i) 16.57 ton/ac.
(ii) (a) 4.404 ton/ac.
(b) 3.104 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
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<td>18.15</td>
<td>16.50</td>
<td>17.01</td>
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<tr>
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<td>19.38</td>
<td>17.86</td>
<td>17.32</td>
<td>17.16</td>
<td>15.10</td>
<td>16.34</td>
<td>14.09</td>
<td>15.14</td>
<td>16.57</td>
</tr>
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</table>

S.E. of difference of two
1. T marginal means = 1.199 ton/ac.
2. M marginal means = 1.792 ton/ac.
3. M means at the same level of T = 2.535 ton/ac.
4. T means at the same level of M = 2.674 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Res. Stn., Shahjahanpur.

Ref :- U.P. 51(130).

Type :- 'CM'.

Object :- To study the effect of quality of seed on the yield of Sugarcane crop.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sanai for G.M. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 2.3.1951. (iv) (a) 2 ploughings by victory plough, ploughing by harrow, by desi plough and 5 pata. (b) N.A. (c) 28 three budded setts/row. (d) N.A. (e) ——. (v) Turning in of sanai. (vi) CO.617 (medium late). (vii) Irrigated. (viii) 3 hoeing with cultivator and 1 with desi plough. (ix) 31.02'. (x) 27.3.1952.

2. TREATMENTS:

Main-plot treatments : 2 levels of N : N1 = 120 and N2 = 200 lb./ac. of N.
Sub-plot treatments : 2 qualities of sugarcane seed : Q1 = thick sugarcane = 1.5 to 2.5 cm. diameter and Q2 = thin sugarcane 0.5 to 1.6 cm. diameter.

In N1, G.M. = 40, P.Y.M. = 20, Cake = 30 and A/S = 30 lb./ac. of N. In N2, G.M. = 40, P.Y.M. = 20, Cake = 70 and A/S = 70 lb./ac. of N.


3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication and 2 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 28 x 12'. (v) No. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) No. (iii) Germination, millable cane counts and sugarcane yield. (iv) (a) 1951 to 1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:

(i) 10.46 ton/ac.
(ii) (a) 2.904 ton/ac.
(b) 1.936 ton/ac.
(iii) None of the effects is significant.
Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.
Ref :- U.P. 52(178).
Type :- 'CM'.

Object :- To find out the effect of quality of seed on the yield of Sugarcane crop.

1. BASAL CONDITIONS:

2. TREATMENTS:
   Main-plot treatments : 2 levels of N : N1 = 120 and N2 = 200 lb./ac. of N.
   Sub-plot treatments : 2 qualities of sugarcane seed : Q1 = thick sugarcane 1.5 to 2.5 cm. diameter and Q2 = thin sugarcane 0.5 to 1.5 cm. diameter.
   In N1, G.M. = 40, F.Y.M. = 20, Cake = 30 and A/S = 30 lb./ac. of N. In N2, G.M. = 40, F.Y.M. = 20, Cake = 70 and A/S = 70 lb./ac. of N.

3. DESIGN :
   (i) Split-plot. (ii) (a) 2 main-plots/replication and 2 sub-plots/main-plot. (iii) 4 (iv) (a) 40' x 21' (b) 34' x 15'. (v) around (vi) Yes.

4. GENERAL :
   (i) There was very poor germination in block I and hence it has been rejected. (ii) Nil. (iii) Germination, millable cane and sugarcane yield. (iv) (a) 1951 to 1954. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS :
   (i) 27.80 ton/acre.
   (ii) 0.275 ton/acre.
   (b) 2.101 ton/acre.
   (iii) N effect is highly significant. Q effect is significant, while interaction is not significant.

(iv) Av. yield of sugarcane in ton/acre.

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
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<td>28.47</td>
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<td>26.48</td>
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<td>30.67</td>
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</tr>
<tr>
<td>Mean</td>
<td>29.57</td>
<td>26.04</td>
<td>27.80</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. N marginal means = 2.0540 ton/acre.
2. Q marginal means = 1.3695 ton/acre.
3. Q means at the same level of N = 1.936 ton/acre.
4. N means at the same level of Q = 2.468 ton/acre.
Crop :- Sugarcane.  
Site :- Sugarcane Res. Stn., Shahjahanpur.  
Ref :- U.P. 53(176).  
Type :- 'CM'.

Object :- To find out the effect of quality of seed on Sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Wheat—Fallow—Sugarcane. (b) Wheat. (c) G.M. 
   (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. 
   (iii) 22.2.1953. 
   (iv) (a) N.A. (b) Flat planting. (c) Three budded setts/foot in a row. 
   (d) Rown 3' apart. (e) N.A. (v) Nil. (vi) CO. 617 (mid-season). 
   (vii) Irrigated. (viii) Two hoeings after each irrigation and earthing up during rains. 
   (ix) 45.73'. (x) 4.3.1954.

2. TREATMENTS:
   Main-plot treatments: 
   2 levels of N: N1 = 120 and N2 = 200 lb./ac. of N. 
   Sub-plot treatments: 
   2 qualities of sugarcane seed: Q1 = thick sugarcane and Q2 = thin sugarcane.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/replication and 2 sub-plots/main-plot. (b) N.A. 
   (iii) 48' X 21'. (b) 41' X 15'. (v) Yes.

4. GENERAL:
   (i) Normal. No lodging. 
   (ii) No. (iii) Germination, tillering, millable cane and sugarcane yield. 
   (iv) (a) 1951—1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by 
   D.S.R.(S).

5. RESULTS:
   (i) 20.01 ton/ac. 
   (ii) (a) 2.483 ton/ac. 
   (b) 1.751 ton/ac. 
   (iii) Only Q effect is significant. 
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
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<td>23.62</td>
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<td>22.17</td>
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<tr>
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<td>21.88</td>
<td>18.13</td>
<td>20.01</td>
</tr>
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</table>

S.E. of difference of two
   1. N marginal means = 1.241 ton/ac. 
   2. Q marginal means = 0.875 ton/ac. 
   3. Q means at a level of N = 1.238 ton/ac. 
   4. N means at a level of Q = 1.519 ton/ac.
Crop: Sugarcane (Ratoon).
Site: Sugarcane Res. Stn., Shahjahanpur.

Object: To study the effect of cultural operations and manures on ratoon.

1. BASAL CONDITIONS:
   (c) G.M. of sanai.
   (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 7.2.1953.
   (iv) (a) N.A. (b) As per treatments. (c) 3 one budded sett per foot of a row. (d) rows 3' apart. (e) —.
   (v) Nil. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 4 hoeings during pre-monsoon period followed by earthing up during rains. (ix) 42.46'. (x) 12 to 17.12.1953.

2. TREATMENTS:
   Main-plot treatments:
   All combinations of (1) and (2)
   (1) 2 methods of harvesting: \( H_1 \) = Ground level and \( H_2 \) = Ridge level.
   (2) 2 methods of planting: \( P_1 \) = Flat planting and \( P_2 \) = Trench planting.
   Sub-plot treatments:
   4 manurai doses: \( M_0 \) = no manure (control), \( M_1 \) = 120 lb./ac. of N to ratoon soon after harvesting the plant crop, \( M_2 \) = 120 lb./ac. of N to ratoon at the commencement of rains and \( M_3 \) = 120 lb./ac. of N in to 2 equal doses: \( \frac{1}{2} \) as in \( M_1 \) and \( \frac{1}{2} \) as in \( M_2 \).

   N as A/S+G.N.C in 1:1 ratio.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 61' x 21'.
   (b) 55' x 15'. (v) 3' around. (vi) Yes.

4. GENERAL:
   (b) and (c) No. (v) (a) Muzaffarnagar and Gorkhpur. (b) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:
   (i) 23.33 ton/ac.
   (ii) (a) 2.644 ton/ac.
   (b) 2.143 ton/ac.
   (iii) Only the effect of H is highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

\[
\begin{array}{cccc|ccc}
 & M_0 & M_1 & M_2 & M_3 & \text{Mean} & P_1 & P_2 \\
H_1 & 16.00 & 25.77 & 24.87 & 26.29 & 23.23 & 22.71 & 23.75 \\
H_2 & 17.30 & 26.88 & 24.42 & 25.09 & 23.42 & 23.30 & 23.54 \\
\text{Mean} & 16.65 & 26.32 & 24.64 & 25.69 & 23.33 & 23.01 & 23.65 \\
P_1 & 15.95 & 26.28 & 24.08 & 25.72 & & & \\
P_2 & 17.35 & 26.37 & 25.21 & 25.66 & & & \\
\end{array}
\]

S.E. of the difference of two
1. H or P marginal means = 0.661 ton/ac.
2. M marginal means = 0.758 ton/ac.
3. M means at the level of H or P = 1.072 ton/ac.
4. H or P means at the same level of M = 1.139 ton/ac.
5. means of the body of \( P \times H \) table = 0.935 ton/ac.
Crop :- Sugarcane.  
Site :- Govt. Agri. School Farm, Bulandshahr.  
Object: —To study the effect of varying frequencies and depths of irrigation on Sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sanai and Lobia. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 15, 16.3.1948. (iv) (a) After taking Sanai and Lobia the plots were filled with compost manure, 12 ploughings were given before planting by soil turning and desi plough. (b) Flat system. (c) N.A. (d) N.A. (e) —. (v) Sanai and Lobia were sown for green fodder and green manuring. 15 carts (225 md.) of compost manure per acre was applied. (vi) CO.421. (vii) Irrigated. (viii) Weeding, hoeing and earthing (ix) 43.78°. (x) 22.12.1948 to 6.3.1949.

2. TREATMENTS:
   All combinations of (I) and (2)
   (1) 4 depths of irrigation: L1 =3', L2 =4', L3 =5' and L4 =6'.
   (2) 5 intervals of irrigation: I1 =2, I2 =3, I3 =4, I4 =5 and I5 =6 weeks.

3. DESIGN:
   (i) 4 x 5 Fact. in R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv) (a) 53' x 21'. (b) 48' x 15'. (v) 24' x 3'. (vi) Yes.

4. GENERAL:
   (i) Germination good and tilling fair. Growth was poor in three plots which received water at intervals of 5 and 6 weeks. (ii) No. (iii) Sugarcane yield. (iv) (a) 1945-1948. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) Nil. (vii) The experiment was conducted by I.R.I.

5. RESULTS:
   (i) 32.72 ton/ac.
   (ii) 6.256 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>I1</th>
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<th>I3</th>
<th>I4</th>
<th>I5</th>
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Mean: 35.48 33.46 33.90 28.89 31.86 32.72

S.E. of marginal means of L =2.132 ton/ac.
S.E. of marginal means of I =2.383 ton/ac.
S.E. of body of table =4.767 ton/ac.

Crop :- Sugarcane.
Zone :- Lakshmiganj (Deoria).
Object: —To study the water requirement of Sugarcane crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Bhat soil. (iii) Press mud 6 carts; Ammo. Phos. 1 md. (iv) CO. 356 (mid-late) improved. (v) (a) Ploughings by tractor on 13.1.1952 and 29.2.1952, harrowing, disc plough by tractor—cross ploughing on 6.3.1952. (b) Flat sowing. (c) 1200 buds/plot. (d) Rows 3' apart. (e) —. (vi) 7 to 8.3.1952. (vii) As per treatments. (viii) Hoeing by kudali on 17.3.1952, 12 (ix) 35'. (x) 27.3.1953.
2. TREATMENTS:
1. No irrigation.
2. One irrigation.
3. Two irrigations.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) $50' \times 24'$. (b) $44' \times 18'$. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) 1952–1953.
(b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 15.06 ton/ac.
(ii) 3.030 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.12</td>
</tr>
<tr>
<td>2.</td>
<td>15.58</td>
</tr>
<tr>
<td>3.</td>
<td>18.49</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.515 ton/ac</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.

Zone :- Lakshmiganj (Deoria).

Object :- To study the water requirements of Sugarcane crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) Press mud at 100 mds./ac. on 21.1.1953. Top dressing by Castor cake at 8 mds./ac. on 22.2.1953. A/S at 12 mds./ac. on 22.2.1953. (iv) CO. 617 (medium) improved. (v) (a) 4 ploughings by tractor. (b) Flat planting with spade. (c) 1680 buds/plot. (d) N.A. (e) –. (vi) 22.2.1953. (vii) Irrigated. (viii) Hoeing by kudali on 7.3.1953, 18.4.1953, 22.5.1953 and 10.6.1953. (ix) 40°. (x) 17.2.1954.

2. TREATMENTS:
1. No irrigation.
2. One irrigation in mid May.
3. Two irrigation in 1st week of May and June.
Due to unfavourable weather condition, treatment 3 could get only one irrigation and hence 2 and 3 are same.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) $80' \times 21'$. (b) $74' \times 15'$. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1952–1553.
(b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 6.330 ton/ac.
(ii) 1.280 ton/ac.
(iii) Treatment difference is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>7.210</td>
</tr>
<tr>
<td>2.</td>
<td>5.890</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>treatment (1) =0.640 ton/ac.</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>treatment (2) =0.452 ton/ac.</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.
Zone: Tamkohi (Deohia).
Object: To study the water requirements of Sugarcane crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Bhat soil. (iii) 5 C.L. of F.Y.M. at sowing. (iv) CO.356 (medium-late). (v) (a) Ploughing by desi plough, ploughing by victory plough with planking and ploughing by tractor and levelling. (b) Trench planted. (c) 11 rows/plot and 2178 buds/plot. (vi) N.A. (e) -. (vi) 5.3.1951. (vii) Irrigated. (viii) 3 hoeings by kassi and earthing by spade and kassi. (ix) N.A. (x) 19.3.1952.

2. TREATMENTS:
1. One irrigation in the middle of May.
2. Two irrigations, first in the middle of May and second in the middle of June.

3. DESIGN:
(i) and (ii) R.B.D. with 2 replications. (iii) (a) 66’x33’. (b) 60’x27’. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, millable cane, tillers and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivator’s fields.

5. RESULTS:
(i) 14.27 ton/ac.
(ii) 1.309 ton/ac.
(iii) Treatment difference is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.61</td>
</tr>
<tr>
<td>2.</td>
<td>14.94</td>
</tr>
<tr>
<td>S.E. mean</td>
<td>0.925 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Zone: Lakshmiganj (Deoria).
Object: To study the water requirements of Sugarcane crop.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai as G.M. sown on 19.6.1950. (c) B.M. (ii) Bhat soil. (iii) 120 md. of F.Y.M. (iv) CO.513 (early) improved. (v) (a) 2 ploughings by victory plough followed by planking, 7 ploughings by desi plough, making furrows by victory plough on 19.2.1951 (b) Flat planting system. (c) 1314 buds/plot. (d) N.A. (e) -. (vi) 20 to 22.2.1951. (vii) As per treatments. (viii) 3 hoeings by kassi. (ix) N.A. (x) 24.2.1952.

2. TREATMENTS:
1. No irrigation.
2. One irrigation in the middle of May.
3. Two irrigations, first in the middle of May and second in the middle of June.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73’x18’. (b) 67’x12’. (iv) N.A.

4. GENERAL:
(i) and (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators’ fields.

5. RESULTS:
(i) 17.59 ton/ac.
(ii) 2.787 ton/ac.
(iii) Treatment differences are not significant.
Crop :- Sugarcane.  
Zone :- Ghugli (Gorakhpur).  
Object :- To study the water requirements of Sugarcane crop.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Sugarcane and chari for fodder. (c) N.A. (ii) Bhat soil. (iii) 40 md. of mohwa cake mixture (50% of A/S and cake each) on 29.2.1952. (iv) CO. 356 (mid-late) improved. (v) (a) 2 ploughings by tractor, 1 ploughing by desti plough (b) Flat sowing. (c) 1800 buds/plot. (d) N.A. (e)—. (vi) 29.2.1952. (vii) Irrigated (viii) 6 hoeings by kudali in all plots. (ix) 35.1". (x) 24 to 29.1.1953.

2. TREATMENTS :
1. No irrigation.
2. One irrigation in April.
3. Two irrigations, one in April and one in May.

3. DESIGN :
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' x 30'. (b) 60' x 30'. (iv) N.A.

4. GENERAL :
(i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS :
(i) 20.75 ton/ac.
(ii) 1.617 ton/ac.
(iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22.89</td>
</tr>
<tr>
<td>2</td>
<td>20.97</td>
</tr>
<tr>
<td>3</td>
<td>18.40</td>
</tr>
</tbody>
</table>

S.E./mean = 0.808 ton/ac.

---

Crop :- Sugarcane.  
Zone :- Ghugli (Gorakhpur).  
Object :- To study the water requirements of Sugarcane crop.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) Ratsoon sugarcane. (c) N.A. (ii) Heavy loam. (iii) 50 md. of F.Y.M. at the preparation of field, top dressing castor cake at 4 mds. at the time of planting. (iv) CO. 453 (mid-late), improved. (v) (a) Ploughing by desti plough 8 times from 1 to 27.11.1947, (b) Trench planting. (c) 1728 buds/plot. (d) N.A. (e)—. (vi) 9, 10.2.1948. (vii) Irrigated. (viii) Hoeing by kudali on 9 and 10 March, 1.5.1948, 29.5.1948, 24 and 25.7.1948 and earthing up by kudali on 10.8.1948. (ix) 45.47". (x) 10, 29.1.1949.

2. TREATMENTS :
1. Irrigation.
2. No irrigation.
3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) 72' × 24': (b) 66' × 18'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS:
   (i) 16.8b ton/ac.
   (ii) 0.73 ton/ac.
   (iii) Treatment difference is highly significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment  | Avg. yield | S.E/mean | 0.37 ton/ac.
   -----------|------------|----------|-----------
   1          | 18.93      |          |
   2          | 14.78      |          |

---

Crop :- Sugarcane.
Ref :- U.P. 49 (162).
Site :- Sugarcane Res. Stn., Shahjahanpur.
Type :- 'IV'.

Object — To study the effect of deficient and normal irrigation on the growth of varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai as G.M. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 5.4.1949. (iv) (a) and (b) N.A. (c) 35 three budded setts/row. (d) N.A. (e) —. (v) Sanai as G.M. at 60 lb./ac. of N and top dressing of A/S at 40 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   2 levels of irrigation: \( I_1 = \text{normal} - 5 \) irrigations in the pre-monsoon season and \( I_2 = \text{deficient} - 2 \) irrigations in the pre-monsoon season.

   Sub-plot treatments:
   6 varieties: \( V_1 = \text{CO.453 (late)}, V_2 = \text{CO.421 (medium)}, V_3 = \text{CO.313 (early)}, V_4 = \text{CO.K.26 (medium)}, V_5 = \text{CO.S.186 (medium)}, \) and \( V_6 = \text{CO.622 (early)} \).

3. DESIGN:
   (i) Split-plot (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 3 (iv) (a) N.A. (b) 35' × 21'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1949—1950. (b) and (c) No. (v) (a) and (b) No. (vi) Due to faulty layout replication s.s. is pooled with error (a) to give 4 d.f. in the analysis. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
   (i) 12.80 ton/ac.
   (ii) (a) 7.981 ton/ac.
   (b) 2.06 ton/ac.
   (iii) Main effect of \( V \) alone is highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>( V_3 )</th>
<th>( V_4 )</th>
<th>( V_5 )</th>
<th>( V_6 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.95</td>
<td>7.73</td>
<td>13.29</td>
<td>16.14</td>
<td>16.05</td>
<td>8.24</td>
<td>13.07</td>
</tr>
<tr>
<td>19.20</td>
<td>6.65</td>
<td>11.14</td>
<td>13.28</td>
<td>15.65</td>
<td>9.30</td>
<td>12.54</td>
</tr>
<tr>
<td>Mean</td>
<td>18.08</td>
<td>7.19</td>
<td>12.22</td>
<td>14.71</td>
<td>15.85</td>
<td>8.77</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.  
Site: Sugarcane Res. Stn., Shahjahanpur.  

Object: To investigate the effect of normal and deficient irrigation on the growth of varieties of Sugarcane.

1. **BASAL CONDITIONS**:
   (i) (a) N.A. (b) Samai as G.M. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 1-3-1950. (iv) (a) and (b) N.A. (c) 35, three budded setts/row. (d) N.A. (e) —. (v) G.M. as B.D. and A/S at 100 lb./ac. of N as top dressing. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) 38.72'. (x) 22 and 25.2.1951.

2. **TREATMENTS**:
   **Main-plot treatments**:
   - 2 irrigations: I\(_1\) = one pre-monsoon irrigation (excluding pre-sowing) and I\(_2\) = five pre-monsoon irrigations (excluding pre-sowing).
   **Sub-plot treatments**:
   - 6 varieties: V\(_1\) = C0.453 (late), V\(_2\) = C0.421 (medium), V\(_3\) = C0.313 (early), V\(_4\) = C0.26K.26 (medium), V\(_5\) = C0.186 (medium) and V\(_6\) = C0.622 (early).

3. **DESIGN**:
   (i) Split-plot. (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 34'×27'. (v) N.A. (vi) Yes.

4. **GENERAL**:
   (i) and (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1949—1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. **RESULTS**:
   (i) 19.20 ton/ac.
   (ii) 5.97 ton/ac.
   (iii) Mean effects of I and V are highly significant. Interaction I×V is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V(_1)</th>
<th>V(_5)</th>
<th>V(_3)</th>
<th>V(_4)</th>
<th>V(_6)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I(_1)</td>
<td>25.43</td>
<td>12.20</td>
<td>12.24</td>
<td>21.52</td>
<td>19.12</td>
<td>14.28</td>
</tr>
<tr>
<td>I(_2)</td>
<td>31.17</td>
<td>16.17</td>
<td>15.97</td>
<td>23.01</td>
<td>18.74</td>
<td>20.60</td>
</tr>
<tr>
<td>Mean</td>
<td>28.30</td>
<td>14.18</td>
<td>14.10</td>
<td>22.27</td>
<td>18.93</td>
<td>17.44</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of I = 0.556 ton/ac.
2. marginal means of V = 1.065 ton/ac.
3. V means at the same level of I = 1.506 ton/ac.
4. I means at the same level of M = 1.483 ton/ac.
Crop: Sugarcane.  
Ref: U.P. 51(186).  
Type: 'IV'.

Object: To investigate the effect of normal and deficient irrigation during the pre-monsoon period on the growth, yield and juice quality of Sugarcane varieties.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Sanai.  (c) Loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) 13.2.1951.
   (iv) (a) and (b) N.A.  (c) 35. three budded setts/row.  (d) N.A.  (e) -.  (v) Sanai and top dressing of A/S at 100 lb./ac. of N on 7.5.1951.  (vi) As per treatments.  (vii) Irrigated.  (viii) 4 hoeings on 9.4.1951

2. TREATMENTS:
   Main-plot treatments:
   2 irrigations: 1. =2 pre-monsoon irrigations (including palewa) and 1. =5 pre-monsoon irrigations (excluding palewa).
   Sub-plot treatments:
   4 varieties: V1=CO.453 (late), V2=CO.622 (early), V3=CO.617 (medium) and V4=CO.510 (medium early).

3. DESIGN:
   (i) Split-plot.  (ii) (a) 2 main-plots/replication and 4 sub-plots/main-plot.  (b) N.A.  (iii) 3.  (iv) (a) N.A.  
   (b) 35'x27'.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) The drought during summer adversely affected the growth of sugarcane plants particularly under deficient irrigations.  (ii) N.A.  (iii) Tillers, millable cane and sugarcane yield.  (iv) (a) to (c) No.  (v) (a)' and (b) No.  (vi) Yield of I1 treatments of V2 and V4 were estimated for analysis and summary of results.  
   (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
   (i) 20.42 ton/ac.
   (ii) (a) 13.434 ton/ac.  
   (b) 4.425 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1</td>
<td>21.77</td>
<td>14.04</td>
<td>17.17</td>
<td>18.91</td>
<td>17.97</td>
</tr>
<tr>
<td>I2</td>
<td>27.67</td>
<td>21.87</td>
<td>18.92</td>
<td>23.02</td>
<td>22.87</td>
</tr>
<tr>
<td>Mean</td>
<td>24.72</td>
<td>17.96</td>
<td>18.04</td>
<td>20.96</td>
<td>20.42</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of I = 5.558 ton/ac.
2. marginal means of V1 and V2 = 2.557 ton/ac.
3. marginal means of V one of them contains missing value = 2.759 ton/ac.
4. marginal means of V3 and V4 (with missing values) = 3.129 ton/ac.
5. V means at the same level of I (without missing value) = 3.613 ton/ac.
6. V means at the same level of I (one with missing value and the other without missing value) = 3.902 ton/ac.
7. V means at the same level of I (both are with missing values) = 4.425 ton/ac.
8. I means at the same level of V (without a missing value) = 6.14 ton/ac.
9. I means at the same level of V (one is having a missing value and the other not) = 6.650 ton/ac.
Crop :- Sugarcane.  
Ref :- U.P. 53(224).  
Site :- Sugarcane Res. Stn., Shahjahanpur.  
Type :- 'IV'.

Object :- To investigate the effect of normal and deficient irrigations during the pre-monsoon period on the growth, yield and juice quality of Sugarcane varieties.

1. BASAL CONDITIONS:

(i) (a) N.A.  (b) Sanai.  (c) No. (ii) (a) Loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) 9.2.1953.  (iv) (a) to (c) N.A.  (v) Sanai at 40 lb./ac. Top dressing 60 lb./ac. of N as A/S on 21.4.1953 (at tillering time).  (vi) As per treatments.  (vii) Irrigated.  (viii) Hoeings with cultivator and kassi.  (ix) 45.7Y.  (x) 9.2.1954.

2. TREATMENTS:

Main-plot treatments:
- 2 irrigations: I$_1$=Two pre-monsoon irrigations (deficient irrigation) and I$_2$=Five pre-monsoon irrigations (normal irrigation).

Sub-plot treatments:
- 6 varieties: V$_1$=CO.452 (late), V$_2$=CO.622 (early), V$_3$=CO.617 (medium), V$_4$=CO.S.321 (early), V$_5$=CO.S.510 (mid-early) and V$_6$=CO.S.443 (medium).

3. DESIGN:

(i) Split-plot.  (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 40'×27'.  (v) N.A.  (vi) Yes.

4. GENERAL:

(i) N.A.  (ii) Nil.  (iii) Tillers, millable cane and sugarcane yield.  (iv) (a) 1953—1954.  (b) and (c) N.A.  (v) (a) and (b) N.A.  (vi) One replication omitted for analysis.  (vii) Experiment was conducted by D.S.R. (S).

5. RESULTS:

(i) 25.26 ton/ac.
(ii) (a) 3.00 ton/ac.
(b) 3.06 ton/ac.

(iii) Main effect of I is significant and main effect of V is highly significant. Interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>V$_1$</th>
<th>V$_2$</th>
<th>V$_3$</th>
<th>V$_4$</th>
<th>V$_5$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I$_1$</td>
<td>27.11</td>
<td>20.43</td>
<td>21.37</td>
<td>23.35</td>
<td>22.18</td>
<td>23.95</td>
</tr>
<tr>
<td>I$_2$</td>
<td>30.47</td>
<td>21.37</td>
<td>27.07</td>
<td>30.21</td>
<td>29.93</td>
<td>25.75</td>
</tr>
<tr>
<td>Mean</td>
<td>28.79</td>
<td>20.90</td>
<td>24.22</td>
<td>26.78</td>
<td>26.06</td>
<td>24.85</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. I marginal means = 1.000 ton/ac.
3. V means at the same level of I = 2.499 ton/ac.
4. I means at the same level of V = 2.824 ton/ac.
2. TREATMENTS:

Main-plot treatments:
2 irrigations: \( I_1 = \text{Palewa} \) and one irrigation of nursery and \( I_2 = \text{Palewa} \) on 12.3.1948, and one irrigation each in April, in early May, in late May and in mid June.

Sub-plot treatments:
6 varieties: \( V_1 = \text{CO. 313 (early)} \), \( V_2 = \text{CO. 421 (medium)} \), \( V_3 = \text{CO. 331 (late)} \), \( V_4 = \text{CO. 527 (early)} \), \( V_5 = \text{CO. 453 (late)} \) and \( V_6 = \text{CO. 557 (medium)} \).

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40' x 27'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Germination, tiller counts and sugarcane yield. (iv) (a) 1946—1948. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:

(i) 20.82 ton/ac.
(ii) (a) 6.462 ton/ac.
(b) 3.440 ton/ac.
(iii) Only V effect is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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S.E. of difference of two

1. marginal means of I = 2.154 ton/ac.
2. marginal means of V = 1.986 ton/ac.
3. V means at the same level of I = 2.808 ton/ac.
4. I means at the same level of V = 3.349 ton/ac.

Crop :-Sugarcane.
Site :-Sugarcane Res. Sub-Stn., Kunraghat.
Ref :-U.P. 49(I).
Type :-'IM'.

Object :-To find out the optimum level of irrigation and time of application of N to Sugarcane.

1. BASAL CONDITIONS:

(i) (a) Wheat—Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 23.1.1949. (iv) (a) 8 preparatory ploughings and 3 harrowing with desi and Watt's plough. (b) Flat sowing. (c) 60 three budded setts. (d) N.A. (e) —. (v) Village compost at 60 lb./ac. of N applied in trenches in Dec. 1948. (vi) CO.453 (late). (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (x) 52.65°. (x) 2 to 6.2.1950.

2. TREATMENTS:

Main-plot treatments:
2 levels of irrigations: \( I_1 = 4 \) times, \( I_2 = 6 \) times and \( I_3 = 8 \) times.

Sub-plot treatments:
4 application of N as A/S : \( M_0 = \text{No nitrogen,} \ M_1 = 120 \text{ lb./ac. of N at planting,} \ M_2 = 120 \text{ lb./ac. of N at planting and at germination in two equal doses and} \ M_3 = 120 \text{ lb./ac. of N in six equal doses during planting and tillering.} \)

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 56' x 18'. (b) 50' x 12'. (v) 3' border around the plot. (vi) Yes.
4. GENERAL:
(i) Normal, no lodging. (ii) No. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949-1951. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS:
(i) 25.95 ton/ac.
(ii) (a) 5.986 ton/ac. (b) 4.074 ton/ac.
(iii) Only main effect of M is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
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S.E. of difference of two
1. marginal means of I = 2.444 ton/ac.
2. marginal means of M = 1.920 ton/ac.
3. M means at the same level of I = 3.326 ton/ac.
4. I means at the same level of M = 3.777 ton/ac.

Ref: U.P. 50(26)/49(1).
Type: 'IM'.

Object: To find out the optimum level of irrigation and time of application of N to Sugarcane.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat—Jowar for fodder—Sugarcane. (b) Dhaincha and urid for seed. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 13, 14.2.1950. (iv) (a) 3 preparatory ploughings and harrowings with Watt’s plough. (b) Sown in trenches. (c) 60 three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) CO.453 (late). (vii) Irrigated. (viii) 7 hoeings and earthing. (ix) 44.96". (x) 13.1.1951 to 10.2.1951.

2. TREATMENTS:
Main-plot treatments:
2 levels of irrigations I₁=4 times, I₂=6 times and I₃=8 times.
Sub-plot treatments:
4 applications of N as A/S: M₀=No nitrogen, M₁=120 lb./ac. of N at planting, M₂=120 lb./ac. of N at planting and at germination in two equal doses and M₃=120 lb./ac. of N in six equal doses during planting and tillering.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 56’x21’. (b) 50’x15’. (v) 3’ border around the plot. (vi) Yes.

4. GENERAL:
(i) Normal, no lodging. (ii) Borers attacked and were killed. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949-1951. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).

5. RESULTS:
(i) 21.27 ton/ac.
(ii) (a) 4.221 ton/ac. (b) 2.779 ton/ac.
(iii) Main effect of I is significant and the of M is highly significant. Interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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</table>

Mean 15.57 22.14 22.88 24.47 21.27

S.E. of difference of two
1. marginal means of I = 1.492 ton/ac.
2. marginal means of M = 1.135 ton/ac.
3. M means at the same level of I = 1.905 ton/ac.
4. I means at the same level of M = 2.264 ton/ac.

Crop :- Sugarcane. 
Site :- Sugarcane Res. Sub-Stn., Kunraghat. 
Type :- 'IM'.

Object :- To find out the optimum level of irrigation and time of application of N to Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Wheat, Jowar fodder—Sugarcane. (b) Jowar for fodder. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 29 and 30.1.1951. (iv) (a) 6 preparatory ploughing with desi and victory plough. (b) Sown in trenches. (c) 60 three budded sets/row. (d) N.A. (e)—. (v) Neem cake and A/S each applied at 60 lb./ac. of N. (vi) CO. 453. (vii) Irrigated. (viii) 8 hoeings and 4 earthings (ix) 27.50'. (x) 31.12.1951 to 4.3.1952.

2. TREATMENTS:
   Main-plot treatments: 3 levels of irrigations: I₁=4 times, I₂=6 times and I₃=8 times.
   Sub-plot treatments: 4 applications of N as A/S: M₀=No nitrogen, M₁=120 lb./ac. of N at planting, M₂=120 lb./ac. of N at planting and at germination in two equal doses and M₃=120 lb./ac. of N in six equal doses during planting and tillering.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (iii) 4. (iv) (a) 56' x 21. (b) 51' x 15'. (v) 3' border around the plot. (vi) Yes.

4. GENERAL:
   (i) Normal, no lodging. (ii) No. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949—1951. (b) and (c) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:
   (i) 19.40 ton/ac.
   (ii) (a) 3.197 ton/ac.
   (b) 3.165 ton/ac.
   (iii) Only main effect of M is highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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Mean 15.14 19.95 21.42 21.07 19.40
Crop: Sugarcane.  
Site: Sugarcane Res. Sub-Stn., Kunraghat.  
Ref: U.P. 50(25).  
Type: 'IM'.  
Object: To find out the optimum level of irrigation and N to Sugarcane.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat. (b) Dhaincha for seed. (c) G.M.  
(ii) (a) Sandy loam. (b) N.A.  
(iii) 12 and 13.2.1950.  
(iv) (a) 5 preparatory ploughings with desi and Watt's plough. (b) Sown in trenches. (c) and (d) N.A.  
(ix) 45.00°. (x) 22 to 28.2.1951.

2. TREATMENTS:
Main-plot treatments:  
3 levels of irrigations: I₁ = 4, I₂ = 8 and I₃ = 12 irrigations.

Sub-plot treatments:  
4 levels of N: N₀ = 0, N₁ = 100, N₂ = 200 and N₃ = 300 lb./ac.  
N was top dressed as A/S.

3. DESIGN:
(i) Split-plot.  
(ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (iii) 3. (iv) (a) 56' x 18'. (b) 50' x 12'. (v) 3' border left around the plot. (vi) Yes.

4. GENERAL:
(i) Normal, no lodging. (ii) No.  
(iii) Germination, tillers, millable cane and sugarcane yield.  
(iv) (a) 1950—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS:
(i) 19.41 ton/ac.  
(ii) (a) 2.894 ton/ac.  
(b) 2.164 ton/ac.  
(iii) Only main effect of N is highly significant.  
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<td>21.85</td>
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S.E. of difference of two
1. marginal means of I = 1.130 ton/ac.  
2. marginal means of M = 1.292 ton/ac.  
3. M means at the same level of I = 2.238 ton/ac.  
4. I means at the same level of N = 2.244 ton/ac.
Crop :- Sugarcane.  
Ref :- U.P. 51(20)/50(25).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.  
Type :- 'IM'.

Object :- To find out the optimum level of irrigation and N to Sugarcane.

1. BASAL CONDITIONS :
(i) (a) G.M.- Barley and Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) Sandy loam. (b) N.A. (iii) 10.2.1951. (iv) (a) 3 preparatory ploughings with victory plough. (b) Sown in trenches. (c) 45 three budded setts/row. (d) N.A. (e) --. (vi) CO. 453 (late). (vii) Irrigated. (viii) 9 hoeings and 2 earthings (ix) 27.19'. (x) 1.1.1952 to 2.2.1952.

2. TREATMENTS :
Main-plot treatments : 
3 levels of irrigation : $I_1=4$, $I_2=8$ and $I_3=12$ irrigations.
Sub-plot treatments :
4 levels of N : $N_0=0$, $N_1=100$, $N_2=200$ and $N_3=300$ lb./ac. of N. 
Neem cake and A/S used at 50 : 50 ratio on N basis. Neem cake applied in furrows just before planting. A/S applied in two instalments i.e. at germination and at tillering.

3. DESIGN :
(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 41'X21'. (b) 35'X15'. (d) 3' border around the plot. (vi) Yes.

4. GENERAL :
(i) Normal. No lodging. (ii) Attack of borers. (iii) Germination, tiller, millable cane and sugarcane yield. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (G).

5. RESULTS :
(i) 21.65 ton/ac.
(ii) (a) 5.904 ton/ac.
(b) 2.928 ton/ac.
(iii) Only main effect of N is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>N_2</th>
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<td>27.46</td>
<td>27.75</td>
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Mean 14.10 22.41 23.89 26.20 21.65

S.E. of difference of two
1. marginal mean of I = 2.410 ton/ac.
2. marginal mean of N = 1.380 ton/ac.
3. N means at the same level of I = 2.391 ton/ac.
4. I means at the same level of N = 3.178 ton/ac.

Crop :- Sugarcane.  
Ref :- U.P. 52(57)/51(20)/50(25).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.  
Type :- 'IM'.

Object :- To find out the optimum level of irrigation and N to Sugarcane.

1. BASAL CONDITIONS :
(i) (a) Green manure—Wheat. (b) Guar for seed. (c) Green manure (amount N.A.). (ii) (a) Sandy loam. (b) N.A. (iii) 13 and 14.2.1952. (iv) (a) 5 preparatory ploughings with desi and victory ploughs. (b) Sown in trenches. (c) 45 three budded setts/row. (d) N.A. (e) --. (vi) Nil. (vi) CO 453. (vii) Irrigated. (viii) 7 hoeings one after each irrigation. (ix) 34.40'. (x) 22.1.1953 to 4.3.1953.
2. TREATMENTS:

Main-plot treatments:

- 3 levels of irrigation: $I_1 = 4$, $I_2 = 8$ and $I_3 = 12$ irrigations.

Sub-plot treatments:

- 4 levels of N: $N_0 = 0$, $N_1 = 100$, $N_2 = 200$ and $N_3 = 300$ lb./ac. of N.

Castor cake and A/S used on equal nitrogen basis and applied to give the levels of N. Castor cake applied in furrows just before planting and A/S applied in two equal doses at germination and at tillering.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) Main-plot: $41' \times 84'$ and Sub-plot: $41' \times 21'$. (b) $35' \times 15'$. (vi) 3' border around the gross plot. (vi) Yes.

4. GENERAL:

(i) Normal. No lodging. (ii) Attack of borers controlled. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(G).

5. RESULTS:

(i) 28.66 ton/ac.

(ii) (a) 4.050 ton/ac.

(b) 3.417 ton/ac.

(iii) Main effect of I is significant and main effect of N is highly significant while interaction is not significant.

(iv) Av. yield of sugarcane in ton/ac.

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<th>$N_2$</th>
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<td>25.75</td>
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S.E. of difference of two

1. marginal means of I = 1.653 ton/ac.
2. marginal means of N = 1.611 ton/ac.
3. N means at the same level of I = 2.790 ton/ac.
4. I means at the same level of N = 2.928 ton/ac.

Crop :- Sugarcane.

Ref :- U.P. 52(63).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar. Type :- 'IM'.

Object :- To asses the response of variety COS.321 under heavy manuring and irrigation conditions.

1. BASAL CONDITIONS:

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 29.2.1952. (iv) (a) 10 preparatory ploughings. (c) Flat planted. (e) 60 md. seed sugarcane and 4200 buds/ac. (d) Rows 3' apart. (e) Nil. (v) COS.321 (early). (vii) Irrigated. (viii) 6 hoeings in general before 1st irrigation and afterwards according to irrigational treatments one or two hoeings after each irrigation. Earthing up in July and August. (ix) 26.79'. (x) 7 and 8.3.1953.

2. TREATMENTS:

Main-plot treatments:

- 3 levels of irrigation: $I_1 = 5$, $I_2 = 7$ and $I_3 = 9$ irrigation.

Sub-plot treatments:

- 3 levels of N: $N_0 = 0$ nitrogen, $N_1 = 100$ and $N_2 = 200$ lb./ac. of N.

Nitrogen was applied as A/S and Castor cake in equal nitrogen basis. In all the $I_1$, $I_2$, $I_3$, 2 irrigations are given past-monsoon while the rest are given pre-monsoon.
3. DESIGN:
(i) Split-plot. (ii) 3 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 55'x27'. (b) 49'x21'. (v) 1 row on each side and 3' border at each end of plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Germination, tiller and millable cane counting and sugarcane yield. (iv) (a) Yes. 1952 to 1954. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment was conducted by D.S.R. (M).

5. RESULTS:
(i) 18.78 ton/ac.
(ii) (a) 2.567 ton/ac.
(b) 2.063 ton/ac.
(iii) Only main effect of N is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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</table>

Mean | 13.53| 20.80| 22.01| 18.78|

S.E. of difference of two
1. marginal means of I = 1.048 ton/ac.
2. marginal means of N = 0.842 ton/ac.
3. N means at the same level of I = 1.459 ton/ac.
4. I means at the same level of N = 1.586 ton/ac.

Crop :- Sugarcane.
Ref :- U.P. 53(181).
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar. Type :- '1M'.

Object :- To assess the response of variety CO.S.321 under heavy manuring and irrigation conditions.

1. BASAL CONDITIONS:
(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 14.3.1953. (iv) (a) 10 preparatory ploughings. (b) Flat planted. (c) 60 md. seed cane and 4200 buds/ac. (d) Rows 3' apart. (e) —. (v) Nil. (vi) CO.S.321 (early). (vii) Irrigated. (viii) 2 hoeings in general before first irrigation. Afterwards according to irrigational treatments i.e. one or two hoeings after each irrigation. Earthing up in August. (ix) 28.34°. (x) 2 and 7.12.1953.

2. TREATMENTS:
Main-plot treatments:
3 levels of irrigation: I₁=4, I₂=6 and I₃=8 irrigations.

Sub-plot treatments:
3 levels of N: N₀=0, N₁=100 and N₂=200 lb./ac. of N.
Nitrogen was applied as A/S and G.N.C. in equal nitrogen basis in the month of May after irrigation. In each of I₁, I₂ and I₃, 2 irrigations are given post-monsoon while the rest are given pre-monsoon.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 55'x27' (b) 49'x21'. (v) 1 row on each side 3' border at each end of plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Mild top borer attack. No control measure was possible. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) Yes. 1952 to 1954. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Experiment was conducted by D.S.R. (M).
5. RESULTS:

(i) 19.59 ton/ac.
(ii) (a) 2.459 ton/ac.
(b) 1.537 ton/ac.

(iii) Main effect of N is highly significant. I is significant while interaction is not significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
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<th></th>
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<th>N₂</th>
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<tr>
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<td>21.19</td>
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</table>

Mean 15.75 20.75 22.26 19.59

S.E. of difference of two
1. I marginal means =1.004 ton/ac.
2. N marginal means =0.627 ton/ac.
3. N means at the same level of I =1.087 ton/ac.
4. I means at the same level of N =1.479 ton/ac.

Crop :-Sugarcane.

Object :-To study the response of Sugarcane varieties to irrigation and manuring.

1. BASAL CONDITIONS:

(i) (a) Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 10, 11.3.1949. (iv) (a) 16 preparatory ploughings. (b) Sown flat. (c) 80 md. seed cane, 4200 buds/ac. (d) Rows 3' apart. (e) —. (f) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 8 hoeings. Earthing up in September. (ix) 23.09". (x) 6.1.1950 to 25.2.1950.

2. TREATMENTS:

Main-plot treatments:
3 levels of irrigation : I₁ = 1 pre-sowing palewa, 2 pre-monsoon irrigations at an interval of 7 weeks and a post-monsoon irrigation, I₂ = 1 pre-sowing palewa, 3 monsoon irrigations at an interval of 5 weeks and 2 post-monsoon irrigations in Oct. and Dec. and I₃ = 1 pre-sowing palewa, 4 pre-monsoon irrigations, at an interval of 3 weeks and 3 post-monsoon irrigations in Oct., Nov. and Dec.

Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 varieties : V₁ = CO.S. 245 and V₂ = CO.S. 421.
(2) 3 levels of N : N₀ = 0, N₁ = 100 and N₂ = 200 lb./ac. of N.

N applied as A/S and G.N.C. on equal nitrogen basis. One extra post-monsoon irrigation had to be given in all the treatments due to exceptionally dry weather.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 50'x24'. (b) 46'x18'. (v) One row on each side of plot and 3' border at each end of plot. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Germination, tillers, millable cane counting and sugarcane yield. (iv) (a) 1949-1950. (b) and (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:

(i) 21.52 ton/ac.
(ii) (a) 1.591 ton/ac.
(b) 2.056 ton/ac.

(iii) Main effects of I, V and N are all highly significant. No other effect is significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>N₂</th>
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</table>

S.E. of difference of two
1. I marginal means
2. N marginal means
3. V marginal means
4. N means at the same level of I
5. I means at the same level of N
6. V means at the same level of I
7. I means at the same level of V
8. means of the body of N×V table

-0.459 ton/ac.
-0.594 ton/ac.
-0.485 ton/ac.
-1.028 ton/ac.
-0.957 ton/ac.
-0.839 ton/ac.
-0.751 ton/ac.
-0.839 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Station, Muzaffarnagar.

Object: - To study the response of Sugarcane varieties to irrigation and manuring.

1. BASAL CONDITIONS:
   (i) (a) Fallow- Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 8, 9.3.1950. (iv) (a) 11 preparatory ploughings. (b) Sown flat. (c) N.A. (d) Rows 3' apart. (e) - (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 19 hoeings, earthing up in August. (ix) 39.93'. (x) 11.2.1951 to 18.3.1951.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of irrigation: I₁ = 3 pre-monsoon irrigations each at an interval of 4 weeks and 1 post-monsoon irrigation during Nov., I₂ = 4 pre-monsoon irrigations each at an interval of 3 weeks and 2 post-monsoon irrigations in Oct. and Dec. and I₃ = 5 pre-monsoon irrigations each at an interval of 2 weeks and 3 post-monsoon irrigations in Oct., Dec. and Feb.

Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 varieties: V₁ = CO.S. 245 and V₂ = CO.S. 421.
(2) 3 levels of N: N₀ = 0, N₁ = 100 and N₂ = 150 lb./ac. of N.

N applied as A/S and G.N.C. on equal nitrogen basis.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 55'×27'. (b) 51'×21'. (v) One row on each side and 3' border at each end of plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination, tillers, millable cane counting and sugarcane yield. (iv) (a) 1949-1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:
   (i) 23.15 ton/ac.
   (ii) (a) 4.397 ton/ac.
   (b) 2.584 ton/ac.
   (iii) Main effects of N and V are highly significant. Others are not significant.

Ref :- U.P. 50(35).
Type :- 'IMV'.
### Crop: Sugarcane.

**Site:** Sugarcane Res. Sub-Stn., Muzaffarnagar.

**Ref:** U.P. 51(27).

**Type:** 'IMV'.

Object: To study the response of Sugarcane varieties to irrigation and manuring.

#### 1. BASAL CONDITIONS:

(i) (a) Fallow—Sugarcane. (b) Sanai (crop failed due to rains and Karnal pest). (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 14 and 15.2.1951. (iv) (a) 22 preparatory ploughings. (b) Sown flat. (c) N.A. (d) Rows 3' apart. (e) __. (f) Nil. (vi) As per treatments. (vii) As per treatments. (viii) 19 hoeings. Earthing up in August. (ix) 40.96'. (x) 9.2.1952 to 16.3.1952.

#### 2. TREATMENTS:

**Main-plot treatments:**

- 3 levels of irrigation: $I_1 = 3$ pre-monsoon irrigations each at an interval of 4 weeks and 1 post-monsoon irrigation during November, $I_2 = 4$ pre-monsoon irrigations each at an interval of 3 weeks and 2 post-monsoon irrigations in October and December, and $I_3 = 5$ pre-monsoon irrigations each at an interval of 2 weeks and 3 post-monsoon irrigations in October, December and February.

**Sub-plot treatments:**

- All combinations of (1) and (2)
- (1) 2 varieties: $V_1 =$ CO.S. 245 and $V_2 =$ CO.S. 421.
- (2) 3 levels of N: $N_0 = 0$, $N_1 = 100$ and $N_2 = 200$ lb./ac.

N applied as A/S and Castor cake on equal nitrogen basis.

#### 3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 55'×27'. (b) 49'×21'. (v) One row on each side of plot and 3' border at each end of plot. (vi) Yes.

#### 4. GENERAL:

(i) Good. (ii) Heavy pyrilla infestation, no control measure was taken. (iii) Germination, tillers, millable cane counting and sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (M).
5. RESULTS:
(i) 25.93 ton/ac.
(ii) (a) 4.072 ton/ac.
(b) 2.575 ton/ac.
(iii) Main effects of I and V are highly significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
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<th>V₁</th>
<th>V₂</th>
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<td>24.34</td>
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</table>

S.E. of difference of two
1. I marginal means = 1.176 ton/ac.
2. V marginal means = 0.607 ton/ac.
3. N marginal means = 0.743 ton/ac.
4. N means at the same level of I = 1.288 ton/ac.
5. I means at the same level of N = 1.577 ton/ac.
6. V means at the same level of I = 1.051 ton/ac.
7. I means at the same level of V = 1.391 ton/ac.
8. means of the body of N x V table = 1.051 ton/ac.

Crop : Sugarcane.
Site : Sugarcane Res. Sub-Station, Muzaffarnagar.

Object : To study the response of Sugarcane varieties to different irrigational and manurial treatments.

1. BASAL CONDITIONS :
(a) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) No. (ii) (a) Loam. (b) N.A. (iii) 12.3.1953. (iv) (a) 7 ploughings by desi plough. Levelling of field, palewa and para twice. (b) N.A. (c) 36 three budded setts/row. (d) N.A. (e) —. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings by kassi, 1 by cultivator, 1 by Akola hoe on 2.3.1953 and 3 by spade. (ix) N.A. (x) 10.12.1953.

2. TREATMENTS :
Main-plot treatments :
2 levels of irrigation : I₁ = 2 pre-monsoon and 2 post-monsoon irrigations and I₂ = 5 pre-monsoon and 2 post-monsoon irrigations.

Sub-plot treatments :
All combinations of (1) and (2)
(1) 3 varieties : V₁ = CO.S. 245, V₂ = CO.S. 321 and V₃ = CO. 312.
(2) 2 levels of N : N₁ = 60 lb./ac. of compost and N₂ = N₁ + 60 lb./ac. of A/S.
Compost applied as basal dressing and A/S top dressed.

3. DESIGN :
(i) Split-plot. (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 34° x 15’. (b) 28° x 9’. (v) 3’ on each side of the plot. (vi) Yes.

4. GENERAL :
(i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (M).
5. RESULTS:

(i) 19.96 ton/ac.
(ii) (a) 1.197 ton/ac. (b) 2.568 ton/ac.
(iii) Main effect of V and N are highly significant. Others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>N1</th>
<th>N2</th>
<th>Mean</th>
<th>V1</th>
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<td>20.06</td>
<td>20.64</td>
<td>22.04</td>
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</table>

S.E. of difference of two

1. I marginal means = 0.399 ton/ac.
2. V marginal means = 1.048 ton/ac.
3. N marginal means = 0.856 ton/ac.
4. N means at the same level of I = 1.211 ton/ac.
5. I means at the same level of N = 0.943 ton/ac.
6. V means at the same level of I = 1.483 ton/ac.
7. I means at the same level of V = 1.274 ton/ac.
8. mean in the body of N \times V table = 1.483 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Strn., Kunraghat.

Object — To study the effect of irrigation and cultural practices on Sugarcane yield.

1. BASAL CONDITIONS:

(i) (a) G.M.—Wheat. (b) Guar for seed. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 18 and 20.3.1952. (iv) 4 ploughings with victory plough and desi plough, 1 ploughing with cultivator. (b) Sown flat.
(c) 45 three budded setts/row in single setting. 90 three budded setts/row in double setting. (d) As per treatments. (e) — (v) Castor cake at 30 lb./ac. of N and F.Y.M. at 50 lb./ac. at planting time. (Castor cake 10 md./ac. and F.Y.M. 165 md./ac.). A/S at 40 lb./ac. of N (top dressing). (vi) CO.453. (vii) Irrigated. (viii) 4 hoeings and 2 earthings. (ix) 33.67. (x) 17 to 26.1.1953.

2. TREATMENTS:

Main-plot treatments:
All combination of (1) and (2)
(1) 3 levels of irrigations : I1 = 3, I2 = 5 and I3 = 7 irrigations.
(2) 2 spacing between rows : S1 = 2' and S2 = 3'.

Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 types of seed : R1 = Normal setting and R2 = Double setting.
(2) 2 seed treatments : T1 = Unsoaked and T2 = Soaked in 2% phenyl.


3. DESIGN:

(i) Split-plot. (ii) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) Main-plot : 56' x 60 (5 rows in 3' distances). Sub-plot : 15' x 56'. (b) 15' x 56'. (6 rows in 2' distance). (v) No. (vi) Yes.
4. GENERAL:
(iv) (a) to (c) No (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(G).

5. RESULTS:
(i) 25.96 ton/ac.
(ii) (a) 4.782 ton/ac.
(iii) 2.845 ton/ac.
(iv) Av. yield of sugarcane in ton/ac.

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<th>S2</th>
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S.E. of difference of two
1. I marginal means = 1.195 ton/ac.
2. S marginal means = 0.976 ton/ac.
3. T or R marginal means = 0.581 ton/ac.
4. T or R means at a same level of I = 1.006 ton/ac.
5. I means at a same level of T or R = 1.391 ton/ac.
6. T or R means at a same level of S = 0.821 ton/ac.
7. S means at a same level of T or R = 1.136 ton/ac.
8. means of body of I x S table = 1.691 ton/ac.
9. means of body of R x T table = 0.821 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Strn., Shahjahanpur.
Ref :- U.P. 51(185).
Type :- 'CI'.

Object :- To study the effect of planting cane at different depths and different soil moisture conditions to obtain maximum germination of different seed material of Sugarcane with and without pre-soaking treatment.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai for G.M. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11.3.1951.
(iv) (a) 2 ploughings by victory plough on 29.8.1950, 3.10.1950, 1 by desi plough on 15.10.1950, 6 harrowings
    by tractor, 1 harrow on 25.12.1950 and 6 pata (b) N.A. (c) 50 three budded setts/row. (d) N.A. (e).
(v) Turning in of sanai (G.M.) at 40 lb./ac. of N on 29.8.1950, spreading F.Y.M. at 20 lb./ac. of
    N on 1.1.1951, Castor cake broadcast at 45 lb./ac. of N on 18.2.1951. Top dressing of A/S at
    45 lb./ac. of N on 15 and 19.5.1951. (vi) C.O.K. 30 (medium). (vii) Irrigated. (viii) Hoeings with kassi on
    2, 3.4.1951 in T1 plots, hoeings with cultivator on 4, 5.4.1951 in T2 plots, hoeings with cultivator on 15 and
2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 2 times of irrigation: T1=before planting and T2=after planting.
(2) 2 depths of planting: D1=2" deep by kasti and D2=6" deep by desi plough.

Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 soaking treatments: S0=unsoaked and S1=soaking in water for 20 hours.
(2) 2 portions of cane as seed: P1=top (2 top sett) and P2=bottom (setts) portion.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication; 4 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 50° x 9’. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) Germination count, tiller count, millable cane and sugarcane yield.
(iv) (a) 1951—1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(S).

5. RESULTS:
(i) 17.86 ton/ac.
(ii) (a) 1.999 ton/ac.
(b) 2.219 ton/ac.
(iii) Only S effect is significant. All others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>Mean</th>
<th>S0</th>
<th>S1</th>
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<th>P2</th>
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<tr>
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<td>18.18</td>
<td>18.11</td>
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<tr>
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<td>17.58</td>
<td>19.12</td>
<td>16.04</td>
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<td>17.55</td>
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<tr>
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</table>

S.E. of difference of two
1. T or D marginal means = 0.707 ton/ac.
2. S or P marginal means = 0.785 ton/ac.
3. S or P means at the same level of T or D = 1.110 ton/ac.
4. T or D means at the same level of S or P = 1.056 ton/ac.
5. means in the body of T x D table = 1.000 ton/ac.
6. means in the body of S x P table = 1.110 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Res. Sub-Stn., Shahjahanpur.
Ref.: U.P. 52(236).
Object: To study the effect of planting cane at different depths and different soil moisture conditions to obtain maximum germination of different seed material of Sugarcane with and without pre-soaking treatments.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sanai for G.M. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 22.3.1952. (iv) (a) Ploughings by victory and desi plough. Liver harrow. Pata (b) N.A. (c) 40 three budded setts/row. (d) & (e) N.A. (v) Sanai turned in on 11.9.1952, spreading of F.Y.M on 31.1.1952 and top dressing of A/S and Castor cake on 15, 16.5.1952. (vi) CO.K.30 (medium). (vii) Irrigated. (viii) Hoeing with kasti on 5, 6.4.1951 and cultivator on 16, 17.5.1952. Farthing on 24, 25.9.1952. (ix) 33.30°(x) 6 to 15.3.1953.
2. TREATMENTS:

**Main-plot treatments:**
- All combinations of (1) and (2).
  1. 2 times of irrigation: \(T_1=\) before planting and \(T_2=\) after planting.
  2. 2 depths of planting: \(D_1=2'\) to \(3'\) and \(D_2=5'\) to \(6'\).

**Sub-plot treatments:**
- All combinations of (1) and (2).
  1. 2 soaking treatments: \(S_0=\) no soaking and \(S_1=\) soaking in water for a day.
  2. 2 portions of sugarcane as seed: \(P_1=\) top (2-3 budded setts) portion and \(P_2=\) bottom portion.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 40' × 12'. (b) 34' × 12'. (v) 3 on two sides of the gross plot left as non-experimental area. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) N.A. (iii) Germination count, tillers, millable cane and sugarcane yield. (iv) (a) 1951-1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:
   (i) 22.55 ton/ac.
   (ii) (a) 5.888 ton/ac.
   (b) 2.433 ton/ac.
   (iii) Only \(P\) effect is significant. All others are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>(D_1)</th>
<th>(D_2)</th>
<th>Mean</th>
<th>(S_0)</th>
<th>(S_1)</th>
<th>(P_1)</th>
<th>(P_2)</th>
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<td>22.15</td>
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<td>21.77</td>
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<tr>
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<td>22.86</td>
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<tr>
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</tbody>
</table>

S.E. of difference of two
1. \(T\) or \(D\) marginal means = 1.472 ton/ac.
2. \(S\) or \(P\) marginal means = 0.608 ton/ac.
3. \(S\) or \(P\) means at the same level of \(T\) or \(D\) = 0.860 ton/ac.
4. \(T\) or \(D\) means at the same level of \(S\) or \(P\) = 1.593 ton/ac.
5. means in the body of \(T \times D\) table = 2.082 ton/ac.
6. means in the body of \(S \times P\) table = 0.860 ton/ac.

---

**Crop:** Sugarcane.  
**Ref:** U.P. 53(261).  
**Type:** 'CI'.

**Object:** To study the effect of planting cane at different depths and different soil moisture conditions to obtain maximum germination of different seed material of Sugarcane with and without pre-soaking treatments.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (iii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 13.3.1953.
   (iv) (a) 8 ploughings with desi plough and 1 with victory plough. (b) N.A. (c) 40 three budded setts/row.
   (d) N.A. (e) -. (v) N.A. (vi) CO.K.30 (medium). (vii) Irrigated. (viii) Hoeing with Kassii on 24.3.1953 (irrigated plots) and 4 to 6.5.1953 and 7 to 11.6.1954. (ix) 45.73°. (x) 17.18.2.1954.
2. TREATMENTS:

Main-plot treatments:

All combinations of (1) and (2)

(1) 2 times of irrigation: T1 = before planting and T2 = after planting.

(2) 2 depths of planting: D1 = 2 to 3" and D2 = 5 to 6".

Sub-plot treatments:

All combinations of (1) and (2)

(1) 2 soaking treatments: S0 = no soaking and S1 = soaking in water for a day.

(2) 2 portions of sugarcane as seed: P1 = top (2-3 budded setts) and P2 = bottom portion.

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4 (replication I has been rejected). (iv) (a) 40' x 12'. (b) 34' x 12'.

(v) "Jf" was left at the two ends of the plot in the lengthwise direction as non experimental area. (vi) Yes.

4. GENERAL:

(i) Low yields in replication I, hence rejected for analysis. (ii) N.A. (iii) Germination count, tillers, millable cane and sugarcane yield. (iv) (a) 1951-1953. (b) and (c) N0. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:

(i) 23.80 ton/ac.

(ii) (a) 4.104 ton/ac.

(b) 2.781 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>Mean</th>
<th>S0</th>
<th>S1</th>
<th>P1</th>
<th>P2</th>
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<td>24.24</td>
<td>24.23</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

S.E. of difference of two

1. T or D marginal means = 1.185 ton/ac.

2. S or P marginal means = 0.803 ton/ac.

3. S or P means at the same level of T or D = 1.135 ton/ac.

4. T or D means at the same level of S or P = 1.431 ton/ac.

5. means of the body of T or D table = 1.676 ton/ac.

6. means of the body of S X P table = 1.135 ton/ac.

Crop: Sugarcane.

Site: Sugarcane Res. Stn., Shahjahanpur.

Ref: U.P. 48(76).

Type: 'CIV'.

Object: To find the effect of high and normal moisture content in top soil in relation to depth of planting and Sugarcane variety.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Sanai as G.M. (c) No. (i) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3 and 4.3.1948. (iv) (a) 3 ploughings by victory plough, 7 ploughings by desi plough, 1 by cultivator and 8 ploughings. (b) N.A. (c) 50, three budded setts/tow. (d) N.A. (e) --- (v) Sanai as G.M; at 60 lb./ac. of N on 24.8.1947, applied as B.D., castor cake at 40 lb./ac of N on 24.1.1948 and A/S at 20 lb./ac. of N on 4.5.1948, as top dressing. (vi) As per treatments. (vii) Irrigated. (viii) Planking after planting on 5.3.1948, hoeings by kas/ in T2 plots on 16.3.1948 and in T1 plots on 17.3.1948, planting after hoeing on 23.3.1948, 2 hoeings by kas/ on 14.4.1948 and 1.7.1948, 2 hoeings by cultivator on 5.5.1948 and 21.5.1948 and earthing up on 23, 24.8.1948. (ix) 40.24'. (x) 10, 11, 14.2.1949 and 2, 4, 11, 24.3.1949.
2. TREATMENTS:

Main-plot treatments:
2 times of irrigation: $T_1 =$ irrigation before planting and $T_2 =$ irrigation after planting.

Sub-plot treatments:
4 varieties: $V_1 = CO. 527$ (early), $V_2 = CO. 453$ (late), $V_3 = CO. 421$ (medium) and $V_4 = CO. S. 76$ (medium).

Sub-sub-plot treatments:
2 depths of planting: $D_1 = 2\frac{4}{10} - 3\frac{9}{10}$ (shallow) and $D_2 = 5\frac{1}{10} - 6\frac{1}{10}$ (deep) by delta furrow.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication, 4 sub-plots/main-plot and 2 sub-sub-plots/sub-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 41'x9'. (v) No. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Some traces of leaf yellowing in October 1948, it is more apparent in CO. 527 in November than in other treatments. (iii) Germination, tiller counts, millable cane and sugarcane yield. (iv) (a) 1948—N.A. (b) and (c) No. (v) (a) and (b) Nil. (vi) Experiment was conducted by D.S.R. (S).

5. RESULTS:

(i) $24.40$ ton/ac.
(ii) (a) $3.04$ ton/ac.
(b) $4.01$ ton/ac.
(c) $2.54$ ton/ac.

(iii) $V$ effect is highly significant, $T \times D$ is significant, $T \times V \times D$ is highly significant and all others are not significant.

(iv) Av. yield of sugarcane in ton/ac.

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<tr>
<th></th>
<th>$V_1$</th>
<th>$V_2$</th>
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<th>$V_4$</th>
<th>Mean</th>
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<td>23.50</td>
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<td>21.94</td>
<td>20.69</td>
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</table>

S.E. of difference of two
1. $T$ marginal means $= 0.761$ ton/ac.
2. $V$ marginal means $= 1.419$ ton/ac.
3. $D$ marginal means $= 0.636$ ton/ac.
4. $D$ means at the same level of $V$ $= 1.272$ ton/ac.
5. $V$ means at the same level of $D$ $= 1.680$ ton/ac.
6. $D$ means at the same level of $T$ $= 0.900$ ton/ac.
7. $T$ means at the same level of $D$ $= 0.992$ ton/ac.
8. $V$ means at the same level of $T$ $= 2.007$ ton/ac.
9. $T$ means at the same level of $V$ $= 1.897$ ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Object :- To find out the effect of different insecticides on the incidence of top borers.

Ref :- U.P. 48(89).
Type :- 'D'.
2. TREATMENTS:
1. Control.
2. Dusting gammexane at 30 lb./ac. on 15 June, at 40 lb./ac. on 15 July and at 50 lb./ac. and on 15 August, 1948.
3. Spraying with D.D.T. (2%).

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 59’×27’. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) % of top bored plants. (iv) (a) No. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Yes.
The data has been converted into sin^-1v/p and then analysed. Transformed back mean percentages are given after applying bias correction. (vii) Experiment conducted by D.S.R. (M).

5. RESULTS:
(i) to (iv) Treatment Mean angle Transformed back mean percentages
1. 9.31 3.10
2. 8.58 2.71
3. 8.43 2.63
G.M. 8.77 2.80
Significance N.S.
S.E./mean 0.516

Crop :- Sugar cane.
Site :- Sugar cane Res. Sub-Stn., Muzaffarnagar.

Ref:- U.P. 49(184).

Object :-To find out the efficacy of application of D.D.T. and gammexane to control termite.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 9.3.1952. (iv) (a) to (e) N.A. (v) 120 lb./ac. of N. (vi) CO.312 (late). (vii) Irrigated. (viii) and (ix) N.A. (x) 17.1.1950.

2. TREATMENTS:
1. Control.
2. 5% D.D.T. as dip at planting (Geigy 550-50%).
3. 2.5% D.D.T. as dip at planting (Geigy 550-50%).
4. 25 lb./ac. of D.D.T. (Geigy 410) in rows after 4 weeks of planting on 8.4.1949.
5. 25 lb./ac. of gammexane powder in furrows at planting.
6. 25 lb./ac. of gammexane powder in rows after 4 weeks of planting on 8.4.1949.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) and (b) 58’×27’. (v) N.A. (vi) Yes.

4. GÉNÉRAL:
(i) N.A. (ii) N.A. (iii) Yield of sugarcane for two rows of 11’ each of sugarcane free from termite, cane attacked by termite and sugarcane completely destroyed by termite. % attack of termite to eye buds, ends and setts. % eye buds germinated. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (M). p1 = % of eye buds attacked by termite and p2 = % of ends attacked by termite.

5. RESULTS:
(i) 7.26 Sin^-1v/p1/plot
(ii) 3.479 Sin^-1v/p1/plot
(iii) Treatment differences are highly significant.

(i) 9.76 Sin^-1v/p2/plot
(ii) 3.912 Sin^-1v/p2/plot
(iii) Treatment differences are highly significant.
Object :- To study the efficacy of application of D.D.T., gammexane and crude oil emulsion to control termite.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 13.3.1950. (iv) (a) to (e) N.A. (v) N.A. (vi) CO.312 (late). (vii) N.A. (viii) N.A. (ix) N.A. (x) 5, 6.1.1951.

2. TREATMENTS :
   1. Control.
   2. Dipping the setts in 1% D.D.T. (No. 550) solution and planting when dry.
   3. Dusting the setts with D.D.T. (No. 410) at 5 lb./ac.
   4. Crude oil emulsion at the rate of 5 seer/ac. with 1st irrigation only.
   5. Dusting the setts with gammexane at 20 lb./ac.
   6. Dusting the setts with gammexane at 10 lb./ac.

3. DESIGN :
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 57' x 24'. (v) No. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) Under study. (iii) Yield of canes free from termite, attacked by termite and destroyed by termite. (iv) (a) No. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M). (x) 5. 6.1.1951.

5. RESULTS:
   (i) 4.13 Sin⁻¹\sqrt{p_1}. (ii) 7.260 Sin⁻¹\sqrt{p_1}. (iii) Treatment differences are not significant. (iv) 8.38 Sin⁻¹\sqrt{p_2}. (v) 10.76 Sin⁻¹\sqrt{p_2}. (vi) Treatment differences are not significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of % of eye buds attacked by termite (Transformed back)</th>
<th>Treatment</th>
<th>Mean value of % of ends attacked by termite (Transformed back)</th>
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</thead>
<tbody>
<tr>
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<td>1.</td>
<td>23.38 16.09</td>
</tr>
<tr>
<td>2.</td>
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<td>2.</td>
<td>1.09 0.54</td>
</tr>
<tr>
<td>3.</td>
<td>0.00  0.50</td>
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<td>1.95 0.62</td>
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<tr>
<td>4.</td>
<td>16.34 8.34</td>
<td>4.</td>
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<tr>
<td>5.</td>
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<td>8.38 2.60</td>
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<tr>
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<td>4.00  0.99</td>
<td>6.</td>
<td>3.28 0.83</td>
</tr>
<tr>
<td>G.M.</td>
<td>7.26 0.76</td>
<td>G.M.</td>
<td>9.76</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.420</td>
<td>S.E./mean</td>
<td>1.597</td>
</tr>
</tbody>
</table>

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar. Type :- 'D'.
Crop: Sugarcane.  
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.  
Ref: U.P. 50(231).  
Type: 'D'.

Object: To study the efficacy of gammexane and D.D.T. against moth borers.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Pea for fodder. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 17.3.1950  
(iv) (a) to (e) N.A. (v) 120 lb./ac. of N—No other details are available. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 1.2.1951.

2. TREATMENTS:
1. Control.  
2. Spraying with 0.2% BHC (Gammexane P520).  
3. Spraying with 0.4% BHC (Gammexane P520).  
4. Spraying with 0.5% BHC (Gammexane P520).  
5. Dusting D.D.T. (No. 410) at 20 lb./ac. in May, 25 lb./ac. in June, 30 lb./ac. in July and 35 lb./ac. in August.  
6. Dusting Gammexane at 20 lb./ac. in May, 25 lb./ac. in June, 30 lb./ac. in July and 35 lb./ac. in August.  
7. Treatment differences are not significant.

3. DESIGN:
(i) R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) 58'x27'. (b) 52'x21'. (v) 3' around. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) Counting of top bored canes at harvest, yield of healthy canes, and yield of canes attacked by borers. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R.(M).

5. RESULTS:
(i) 245.4 ton/ac.  
(ii) 32.05 ton/ac.  
(iii) Treatment differences are not significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. no. of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>210.7</td>
</tr>
<tr>
<td>2.</td>
<td>241.0</td>
</tr>
<tr>
<td>3.</td>
<td>255.5</td>
</tr>
<tr>
<td>4.</td>
<td>267.2</td>
</tr>
<tr>
<td>5.</td>
<td>245.5</td>
</tr>
<tr>
<td>6.</td>
<td>252.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>16.02 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.  
Site: Sugarcane Res. Sub-Stn., Muzaffarnagar.  
Ref: U.P. 51(221).  
Type: 'D'.

Object: To find the effect of gammexane and D.D.T. against moth borers.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 19.3.1951.  

2. TREATMENTS:
1. Control.  
2. Spraying with 0.2% BHC (Gammexane P520).  
3. Spraying with 0.4% BHC (Gammexane P520).  
4. Spraying with 0.5% BHC (Gammexane P520).  
5. Dusting D.D.T. (No. 410) at 20 lb./ac. in May, 25 lb./ac. in June, 30 lb./ac. in July and 35 lb./ac. in August.  
6. Dusting Gammexane at 20 lb./ac. in May, 25 lb./ac. in June, 30 lb./ac. in July and 25 lb./ac. in August.  
Albolinium shall be mixed with treatments, 2, 3 and 4 in July and August. The rounds in order are 26. 4.1951, 28.5. 1951, 28.6.1951 1971951 and 2981951.
3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 58’ × 27’. (b) 52’ × 21’. (v) 3’ around. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study. (iii) Population of top borers and sugarcane yield. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (M). x = population of top borer on 13.12.1951.

5. RESULTS:

(i) 2.66 \(\sqrt{x+\frac{1}{2}}/\text{ac.}\)
(ii) 0.173 \(\sqrt{x+\frac{1}{2}}/\text{ac.}\).
(iii) Treatment differences are highly significant.
(iv) Population of borers on 13.2.51.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of (\sqrt{x+1})</th>
<th>Population of top borer on 13.12.1951 (Transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3.03</td>
<td>8.68</td>
</tr>
<tr>
<td>2.</td>
<td>2.54</td>
<td>5.95</td>
</tr>
<tr>
<td>3.</td>
<td>2.54</td>
<td>5.95</td>
</tr>
<tr>
<td>4.</td>
<td>2.34</td>
<td>4.98</td>
</tr>
<tr>
<td>5.</td>
<td>3.19</td>
<td>9.68</td>
</tr>
<tr>
<td>6.</td>
<td>2.45</td>
<td>5.50</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.087 ton/ac.</td>
<td></td>
</tr>
</tbody>
</table>

Crop:— Sugarcane.  
Site:— Sugarcane Res. Sub-Strn., Muzaffarnagar.  
Type:— ‘D’.

Object:— To study the effect of gammexane and D.D.T. against moth borers.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Cotton. (c) N.A.  
(ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 4.3.1952.  

2. TREATMENTS:

1. Control.
2. Sprayings with 0.20% BHC gammexane P 520.
3. Sprayings with 0.4% BHC gammexane P 520.
4. Sprayings with 0.5% BHC gammexane P 520.
5. Dusting with D.D.T. (No. 410) at 20 lb./ac. in May, 25 lb./ac. in June, 30 lb./ac. in July and 35 lb./ac. in August.
6. Dusting with gammexane at 20 lb./ac. in May, 25 lb./ac. in June, 40 lb./ac. in July and 35 lb./ac. in August.

N.B.:— Albolinium is mixed for treatments 1, 2 and 3 in July and August at 8 oz to 100 gallons.

Dates of operations are 19.4.1952, 6.5.1952, 17.5.1952, 23.6.1952 and 30.7.1952.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 58’ × 27’. (b) 52’ × 21’. (v) 3’ on all sides of the plot. (vi) Yes

4. GENERAL:

(i) N.A. (ii) Under study. (iii) Infestation of top borers on 7.10.1952 and 18.11.1952, yield data of 2 rows each of 11’ in respect of healthy and damaged sugarcane. (iv) (a) 1950—1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (M). x is the infestation of top borers.

5. RESULTS:

(i) 7.58 \(\sqrt{x}/\text{plot.}\)
(ii) 0.483 \(\sqrt{x}/\text{plot.}\)
(iii) Treatment differences are not significant.
(iv) Av. infestation of top borers/plot.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of (\sqrt{x}/)plot</th>
<th>Infestation of top borers on 18.11.1952 (Transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>7.68</td>
<td>58.98</td>
</tr>
<tr>
<td>2.</td>
<td>7.56</td>
<td>57.15</td>
</tr>
<tr>
<td>3.</td>
<td>7.46</td>
<td>55.65</td>
</tr>
<tr>
<td>4.</td>
<td>7.26</td>
<td>52.71</td>
</tr>
<tr>
<td>5.</td>
<td>7.92</td>
<td>62.73</td>
</tr>
<tr>
<td>6.</td>
<td>7.62</td>
<td>58.06</td>
</tr>
</tbody>
</table>

S.E./mean = 0.242

Crop: Sugarcane. Site: Sugarcane Res. Sub-Stn., Muzaffarnagar. Object: To find out suitable control measures against the stem and the root borer.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 20.2.1953, (iv) (a) to (c) N.A. (v) N.A. (vi) CO:245 (medium). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 2.12.1953.

2. TREATMENTS:
   1. Control (no treatment).
   2. Spraying with 0.5% D.D.T. suspension at 40 gallons/ac.
   3. Spraying with 0.5% BHC suspension at 40 gallons/ac.
   4. Spraying with 0.5% chlordane suspension at 40 gallons/ac.
   5. Dusting with 5% BHC dust at 20—35 lb./ac.
   6. Dusting with 5% D.D.T. dust at 20—35 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 55’×24’. (v) No. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Under study. (iii) % of attack by borers and yield of two rows of 11' each of healthy and infested sugarcane. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R. (M). x is the no. of dead hearts.

5. RESULTS:
   (i) 8.11 \(\sqrt{x}/\)plot.
   (ii) 1.347 \(\sqrt{x}/\)plot.
   (iii) Treatment differences are not significant.
   (iv) Av. no. of dead hearts/plot.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of (\sqrt{x}/)plot</th>
<th>No. of dead hearts/plot (Transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8.54</td>
<td>72.93</td>
</tr>
<tr>
<td>2.</td>
<td>7.42</td>
<td>55.06</td>
</tr>
<tr>
<td>3.</td>
<td>7.94</td>
<td>63.04</td>
</tr>
<tr>
<td>4.</td>
<td>9.47</td>
<td>89.68</td>
</tr>
<tr>
<td>5.</td>
<td>7.88</td>
<td>62.09</td>
</tr>
<tr>
<td>6.</td>
<td>7.39</td>
<td>54.61</td>
</tr>
</tbody>
</table>

S.E./mean = 0.674

Crop: Sugarcane. Site: Sugarcane Res. Sub-Stn., Muzaffarnagar. Object: To find out suitable control measure against top borer.

1. BASAL CONDITIONS:
2. TREATMENTS:
   1. Control.
   2. Spraying with 0.5 % BHC.
   3. Spraying with 0.5 % Toxaphene.
   4. Spraying with 1.0 % BHC.
   5. Spraying with 1.0 % D.D.T.
   6. Dusting with 5 % BHC.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 6. (b) N.A.  (iii) 4.  (iv) (a) and (b) 58'×27'.  (v) No.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) Germination counts, tiller counts, no. of canes, % attack of top borer, wt. of diseased and healthy sugarcane for 2 rows of 13' each and yield at harvest.  (iv) (a) to (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (M).

5. RESULTS:
   (i) 39.00 Sin⁻¹/plot.
   (ii) 3.96 Sin⁻¹/plot.
   (iii) Treatment differences are not significant.
   (iv) % attack of top borers on sugarcane.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of Sin⁻¹/plot</th>
<th>% attack of top borers on sugarcanes (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>41.54</td>
<td>44.04</td>
</tr>
<tr>
<td>2.</td>
<td>37.18</td>
<td>36.65</td>
</tr>
<tr>
<td>3.</td>
<td>35.38</td>
<td>33.68</td>
</tr>
<tr>
<td>4.</td>
<td>38.29</td>
<td>38.52</td>
</tr>
<tr>
<td>5.</td>
<td>40.80</td>
<td>42.77</td>
</tr>
<tr>
<td>6.</td>
<td>40.82</td>
<td>42.80</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.980</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Shahjahanpur.

Ref :- U.P. 51(146).  Type :- 'D'.

Object :- To test the relative efficiency of different weedicides with regard to the weeds growing in Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) No.  (b) Guar for grain.  (c) No.  (ii) (a) Light loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) 23.2.1951.  (iv) (a) N.A.  (b) Flat planting.  (c) 40 three budded setts/row.  (d) Rows 3' apart.  (e) —.  (v) A/S at 6.9 lb./plot.  (vi) CO.453 (late).  (vii) Irrigated.  (viii) Hoeing by kassi and earthing.  (ix) 31.60° (x) 10, 11.1.1952.

2. TREATMENTS:
   1. 24—D sodium salt at 1 lb./ac. of active material.
   2. 24—D sodium salt at 2 lb./ac. of active material.
   3. Dicotox at 0.1 % solution of active material.
   4. Dicotox at 0.2 % solution of active material.
   5. Femoxone at 1 lb./ac. of active material.
   6. Femoxone at 2 lb./ac. of active material.
   7. Pittsburgh weed killer at 1 lb./ac.
   8. Pittsburgh weed killer at 2 lb./ac.
   10. Normal cultivation without hoeing and weeding.
Spraying of treatments in water at 100 gallon/ac. on 26, 27.4.1951 and 9.7.1951. 24—D sodium salt 24—Dichlorophenoxyacetic acid containing 82% acid equivalent. Dicotox containing 24—D as its active material Pittsburgh Amine weed killer contain 60 % active material Femoxone—80 % sodium salt of24—D.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 10.  (b) N.A.  (iii) 3.  (iv) (a) and (b) 15'×40'.  (v) No.  (vi) Yes.
4. GENERAL:

(i) Fairly good. (ii) No. (iii) Germination, tillering, mortality of weed and sugarcane yield. (iv) (a) 1951-1954. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:

(i) 23.76 ton/ac.
(ii) 4.272 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>24.53</td>
<td>6.</td>
<td>23.33</td>
</tr>
<tr>
<td>2.</td>
<td>22.67</td>
<td>7.</td>
<td>24.60</td>
</tr>
<tr>
<td>3.</td>
<td>26.15</td>
<td>8.</td>
<td>23.99</td>
</tr>
<tr>
<td>4.</td>
<td>26.31</td>
<td>9.</td>
<td>29.26</td>
</tr>
<tr>
<td>5.</td>
<td>18.82</td>
<td>10.</td>
<td>17.95</td>
</tr>
</tbody>
</table>

S.E./mean = 2.467 ton/ac.

Crop : Sugarcane.

Site: Sugarcane Res. Stn., Shahjahanpur.

Object: To test the relative efficiency of the different weedicides with regard to the weeds growing in Sugarcane.

1. BASAL CONDITIONS:

(i) (a) to (c) - N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12.2.1952. (iv) (a) N.A. (b) Flat planting: (c) 33 three budded setts/row. (d) Rows '3' apart: (e) N.A. (v) Application of A/S at the rate of 120 lb./ac. of N in standing water after irrigation. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeing with spring tooth harrow on 27.2.1952 and hoeing with kaisi on 19, 20.3.1952. (ix) 33.49°. (x) 27.12.1952.

2. TREATMENTS:

1. 2-4-D sodium salt at 1 lb./ac. of active material.
2. 2-4-D sodium salt at 2 lb./ac. of active material.
3. Dicotox at 1 lb./ac. of active material.
4. Dicotox at 2 lb./ac. of active material.
5. Fernoxone at 1 lb./ac. of active material.
6. Fernoxone at 2 lb./ac. of active material.
7. Pittsburgh weed killer at 1 lb./ac. of active material.
8. Pittsburgh weeds killer at 2 lb./ac. of active material.
10. Normal cultivation without hoeing and weeding.

Spraying of 100 gallons of water with treatments, spraying of weedicide on 6.8.1952, 7.5.1952 and 18.7.1952. 2-4-Dichlorophenoxyacetic acid containing 80% acid equivalent, Pittsburgh weed killer at 66% of acid equivalent, dicotox and 2-4-D as its active principle and fernoxone at 80% sodium salt of 2-4-D active material.

3. DESIGN:

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) and (b) 30'x18'. (v) No. (vi) Yes.

4. GENERAL:

(i) Fairly good. (ii) No. (iii) Germination count, tillers, mortality % and sugarcane yield. (iv) (a) 1951-1954. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:

(i) 19.01 ton/ac.
(ii) 3.46 ton/ac.
(iii) Treatment differences are significant.
Crop :- Sugarcane.  
Ref :- U.P. 53(223).  
Site :- Sugarcane Res. Stn., Shahjahanpur.  
Type :- ‘D’.

Object :- To test the relative efficiency of the different weedicides with regard to the weeds growing in Sugarcane fields.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  
   (ii) (a) Sandy loam.  
   (b) Refer soil analysis, Shahjahanpur.  
   (iii) 17.2.1953.  
   (iv) (a) N.A.  
   (b) Flat planting.  
   (c) 25 three budded setts/row.  
   (d) Rows 3’ apart.  
   (e) —.  
   (v) Manuring at 100 lb./ac. of N with A/S on 18 and 19.5.1953.  
   (vi) CO. 453 (late).  
   (vii) Irrigated.  
   (ix) 43.43’.  
   (x) 29.1.1954.

2. TREATMENTS:
   1. 2-4-D monohydrate at 0.1% concentration.  
   2. 2-4-D monohydrate at 0.2% concentration.  
   3. Dicotox at 0.1% concentration.  
   4. Dicotox at 0.2% concentration.  
   5. Fernoxone at 0.1% concentration.  
   6. Fernoxone at 0.2% concentration.  
   7. Pittsburgh weed killer at 0.1% concentration.  
   8. Pittsburgh weed killer at 0.2% concentration.  
   9. No hoeing and weedings (control).  

   (Rate of spraying—100 gallons/ac. spray in water, spraying of weedicides on 29, 30.4.1953 and 7.7.1953, Pittsburgh Amine weed killer—60% and equivalent, 2—4 dichlorophenoxyacetic acid—viz., sodium 2-4-D, monohydrate containing 82% acid equivalent, dicotox containing 2—4-D as its active principle and fernoxone—80% sodium salt of 2-4-D).

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 10. (b) N.A.  
   (iii) 6.  
   (iv) (a) and (b) 22′x18’.  
   (v) No.  
   (vi) Yes.

4. GENERAL:
   (i) Fairly good.  
   (ii) No.  
   (iii) Germination, mortality and weeds after 15 days of application and sugarcane yield.  
   (iv) (a) 1951—1954. (b) and (c) No.  
   (v) (a) and (b) No.  
   (vi) Nil.  
   (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
   (i) 24.55 ton/ac.  
   (ii) 4.56 ton/ac.  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.10</td>
<td>6.</td>
<td>24.54</td>
</tr>
<tr>
<td>2.</td>
<td>24.99</td>
<td>7.</td>
<td>28.16</td>
</tr>
<tr>
<td>3.</td>
<td>23.84</td>
<td>8.</td>
<td>20.16</td>
</tr>
<tr>
<td>4.</td>
<td>20.53</td>
<td>9.</td>
<td>24.55</td>
</tr>
<tr>
<td>5.</td>
<td>27.02</td>
<td>10.</td>
<td>31.66</td>
</tr>
</tbody>
</table>

S.E./mean = 2.63 ton/ac.
Crop: - Sugarcane.

Site: - Sugarcane Res. Stn., Shahjahanpur.

Object: - To study the effect of various hormones and other chemicals on the growth, yield and sugar quality of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Pea. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3.3.1951.
   (iv) (a) and (b) N.A. (c) 30 three budded setts/row. (d) N.A. (e) —. (v) Sanai, A/S at 60 lb./ac. of N on 4.5.1951. (vi) CO.453 (late). (vii) Irrigated. (viii) Hoeings on 30.3.1951, 10.4.1951 and 31.5.1951. (ix) 29.86°. (x) 21.2.1952.

2. TREATMENTS:
   1. Control.
   2. Pyruvic acid.
   3. ZnSO₄ (zinc sulphate).
   4. Mixture.
   5. KH₂PO₄ (Potassium dihydro-phosphate).
   About 10 litres of solution was sprayed on each plot. Spraying on 22.5.1951, 13.6.1951, 13.7.1951 and 15.12.1951. (1) ZnSO₄-10 ppm. (2) Mixture of Boric acid—1 ppm., KMnO₄—1 ppm., CuSO₄—1 ppm., ZnCl₂—1 ppm. and MgO—1 ppm. (3) Pyruvic acid—50 ppm. (4) Glutamic—10 ppm. (5) KH₂PO₄—50 ppm.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 30°×18'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) 1951-1952. (b) and (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:
   (i) 20.65 ton/ac.
   (ii) 2.58 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.32</td>
</tr>
<tr>
<td>2.</td>
<td>21.53</td>
</tr>
<tr>
<td>3.</td>
<td>20.89</td>
</tr>
<tr>
<td>4.</td>
<td>20.40</td>
</tr>
<tr>
<td>5.</td>
<td>22.70</td>
</tr>
<tr>
<td>6.</td>
<td>19.04</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>−1.49 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: - Sugarcane.

Site: - Sugarcane Res. Stn., Shahjahanpur.

Object: - To study the effect of different chemicals on Sugarcane.

1. BASAL CONDITIONS:
2. **TREATMENTS**:
   1. Control.
   2. Pyruric acid.
   3. Zinc sulphate.
   4. KH₂PO₄ (potassium dihydro-phosphate).
   5. Lime super
   6. Potassium sulphate.
   7. Sodium nitrate.
   8. A/S.


3. **DESIGN**:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 37'x27'. (v) N.A. (vi) Yes.

4. **GENERAL**:
   (i) N.A. (ii) N.A. (iii) Tillers, millable cane and sugarcane yield. (iv) (a) No. (b) and (c) Nil. (v) (a) and (b) No. (vi) Treatment no. 4 and 8 were damaged by rats in replication no. III. These have been estimated for analysis and summary of results. (vii) The experiment was conducted by D.S.R. (S).

5. **RESULTS**:
   (i) 18.03 ton/ac.
   (ii) 3.164 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.67</td>
<td>5.</td>
<td>17.92</td>
</tr>
<tr>
<td>2.</td>
<td>17.97</td>
<td>6.</td>
<td>16.84</td>
</tr>
<tr>
<td>3.</td>
<td>15.89</td>
<td>7.</td>
<td>21.36</td>
</tr>
<tr>
<td>4.</td>
<td>18.71</td>
<td>8.</td>
<td>18.03</td>
</tr>
</tbody>
</table>

S.E./mean for treatments 1, 2, 3, 5, 6 and 7 =1.827 ton/ac.
S.E. of difference of means of treatment nos. 4 and 8 =3.164 ton/ac.
S.E. of the difference of either of treatment means 4 or 8 with any of the treatment mean 1, 2, 3, 5, 6 or 7 =3.002 ton/ac.

Crop :- Sugarcane.  
Site :- Sugarcane Res. Stn., Shahjahanpur.  
Object :- To study the effect of spraying chemicals in controlling borer attack on Sugarcane.

1. **BASAL CONDITIONS**:
   (i) (a) N.A. (b) Guar. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 15.1.1951.
   (iv) (a) and (b) N.A. (c) 60 three budded setts/row. (d) N.A. (e) -. (v) 100 lb./ac. of N. (vi) CO. 421 (medium). (vii) and (viii) N.A. (ix) 31.26'. (x) N.A.

2. **TREATMENTS**:
   1. 0.5% D.D.T. (Geigy no. 550) spray.
   2. 0.5% BHC (agro wet powder) spray.
   3. 0.5% chlordane spray.
   4. 5.0% BHC gammexane dust.
   5. 50% BHC (hexyclane) dust.
   6. 5 % D.D.T. (Geigy No. 405) dust.
   7. Control (no treatment).

The spraying and dusting was carried out at monthly intervals. The first round was applied as soon as the egg laying began. Gammexane at 2 lb./ac. in furrows before planting.

3. **DESIGN**:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 55'x24'. (v) N.A. (vi) Yes.

4. **GENERAL**:
   (i) N.A. (ii) Under study. (iii) Sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R. (S).
5. RESULTS:

(i) 15.47 ton/ac.
(ii) 1.97 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.57</td>
</tr>
<tr>
<td>2.</td>
<td>16.65</td>
</tr>
<tr>
<td>3.</td>
<td>15.09</td>
</tr>
<tr>
<td>4.</td>
<td>15.35</td>
</tr>
<tr>
<td>5.</td>
<td>16.08</td>
</tr>
<tr>
<td>6.</td>
<td>14.87</td>
</tr>
<tr>
<td>7.</td>
<td>13.67</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.14 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Sugarcane.  
Ref :-U.P. 49(168).  
Site :-Sugarcane Res. Stn., Shahjahanpur.  
Type :-‘D’.  

Object :-To study the effect of spraying chemicals in controlling stem borer attack on Sugarcane.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Loam.  (b) Refer soil analysis, Shahjahanpur.  (iii) 3.4.1949.  
(iv) (a) and (b) N.A.  (c) 440 three budded setts/plot.  (d) N.A. (e) —.  (v) N.A. (vi) CO. 421 (medium).  
(vii) and (viii) N.A. (ix) 50.02°.  (x) 10.2.1950.

2. TREATMENTS:

2. Spraying with 2% BHC. (fortnightly).  
3. Control.


3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) 55°×24°.  (v) Nil.  (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study.  (iii) Germination, tillers, total dead hearts before sprayings, during sprayings and after sprayings, % stem borer and sugarcane yield.  (iv) (a) to (c) No.  (v) (a) and (b) No.  (vi) Nil.  
(vii) Experiment conducted by D.S.R.(S).  p-% attack of stem borer.

5. RESULTS:

(i) 6.16 ton/ac.  
(ii) 2.083 ton/ac.  
(iii) Treatment differences are not significant.  
(iv) Av. yield of sugarcane in ton/ac.  
(v) Av. yield of sugarcane in sin⁻¹√p/plot.  
(vi) Mean value of sin⁻¹√p/plot.  
(vii) % attack of stem borer (transformed back).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Mean value of sin⁻¹√p/plot.</th>
<th>% attack of stem borer (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5.88</td>
<td>1.</td>
<td>8.14</td>
<td>2.48</td>
</tr>
<tr>
<td>2.</td>
<td>6.54</td>
<td>2.</td>
<td>8.58</td>
<td>2.71</td>
</tr>
<tr>
<td>3.</td>
<td>6.06</td>
<td>3.</td>
<td>9.59</td>
<td>3.25</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.041 ton/ac.</td>
<td>S.E./mean</td>
<td>2.582</td>
<td></td>
</tr>
</tbody>
</table>
Crop:- Sugarcane. Site:- Sugarcane Res. Stn., Shahjahanpur.

Object:- To study the effect of spraying weak solutions of certain chemical mixtures on the growth, juice quality and yield of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Sandy. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 10.2.1953. (iv) (a) Field has been prepared before planting. (b) to (e) N.A. (v) Sandy as B.D. and A/S at 60 lb/ac. of N top dressed on 22.4.1953. (vi) CO-453 (late). (vii) Irrigated. (viii) Hoeing with cultivator on 26.2.1953, 19.2.1953. Hoeing with karsi on 13.4.1953, and 17.5.1953 and earthing on 17.5.1953. (ix) 45.79°. (x) 8.3.1954.

2. TREATMENTS:
1. Control.
2. FeSO₄ 20 p.p.m. + MnSO₄ 50 p.p.m.
3. CuSO₄ 1 p.p.m. + ZnSO₄ 100 p.p.m.
4. CaCl₂ 1000 p.p.m. + Boric acid 1 p.p.m.
5. MnSO₄ 5 p.p.m. + CaCl₂ 150 p.p.m.
6. Iodine 1 p.p.m.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 30'x18'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tillers, millable sugarcane and cane yield. (iv) (a) 1953-1955. (b) and (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by D.S.R.(S).

5. RESULTS:
(i) 29.69 ton/ac.
(ii) 3.85 ton/ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>31.23</td>
</tr>
<tr>
<td>2.</td>
<td>31.06</td>
</tr>
<tr>
<td>3.</td>
<td>29.48</td>
</tr>
<tr>
<td>4.</td>
<td>30.53</td>
</tr>
<tr>
<td>5.</td>
<td>28.49</td>
</tr>
<tr>
<td>6.</td>
<td>27.33</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.22 ton/ac.</td>
</tr>
</tbody>
</table>

Crop:- Sugarcane. Site:- Sugarcane Res. Stn., Shahjahanpur.

Object:- To find out the optimum number and time of application of weedicides to Sugarcane fields with a view to obtaining good weed free crop stand.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 7.2.1953. (iv) (a) N.A. (b) Flat planting. (c) 25, three budded setts/row. (d) rows 3' apart. (e) —. (f) A/S at 100 lb/ac. of N on 18 and 19.5.1953 with irrigation. (vi) CO-453 (late). (vii) Irrigated. (viii) Hoeings by karsi on 4.4.1953, hoeings by karsi in control on 25.4.1953, 25.5.1953, 11.6.1953 and earthing in plots on 20.8.1953. (ix) 43.43°. (x) 29.1.1954.

2. TREATMENTS:
All combinations (1) and (2)+a control.
(1) 3 times of weedicide spraying: W₁=Pre-emergence, end of April and July, W₂=Pre-emergence and July and W₃=April and July.
Treatment in water spray at 100 gallons/ac. 2,4-D Amine formulation applied as 0.2% of acid equivalent; Sprays in pre-emergence plots on 27, 28.2.1953; Sprays in April spraying plots on 29, 30.4.1953; Spraying in July spraying plots on 7.7.1953.

3. DESIGN:
(i) R.B.D.  (ii) 10.  (b) N.A.  (iii) 3.  (iv) (a) and (b) 2 x 18'.  (v) No.  (vi) Yes.

4. GENERAL:
(i) Fairly good.  (ii) No.  (iii) Germination, av. infestation of weeds per unit area after pre-emergence treatments, mortality and yield.  (iv) (a) 1953-1956.  (b) and (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment conducted by D.S.R. (S).

5. RESULTS:
(i) 24.76 ton/ac.
(ii) 5.986 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>29.55 ton/ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W₁</td>
<td>W₂</td>
</tr>
<tr>
<td>H₁</td>
<td>22.26</td>
<td>26.96</td>
</tr>
<tr>
<td>H₂</td>
<td>18.84</td>
<td>27.52</td>
</tr>
<tr>
<td>H₃</td>
<td>19.23</td>
<td>26.98</td>
</tr>
<tr>
<td>Mean</td>
<td>20.11</td>
<td>27.15</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.995 ton/ac.
S.E. of body of table = 3.456 ton/ac.

Object:—To find out suitable control measures for termite in Sugarcane.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A.  (ii) Loam.  (iii) N.A.  (iv) N.A.  (v) (a) to (c) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 10/2.1950.

2. TREATMENTS:
1. D.D.T.
2. Lead arsenate.
3. Corrosive sublimate.
5. Control.

3. DESIGN:
(i) and (ii) 4 replications in R.B.D.  (iii) (a) N.A.  (b) 31 x 22'.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Germination, tillers, millable cane and sugarcane yield.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R. (G) on cultivators' fields.

5. RESULTS:
(i) 19.30 ton/ac.
(ii) 1.892 ton/ac.
(iii) Treatment differences are not significant

Crop:—Sugarcane.
Zone:—Sardarnagar (Gorakhpur).
Ref:—U.P. 49(151).
Type:—'D'.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18.11</td>
</tr>
<tr>
<td>2.</td>
<td>20.41</td>
</tr>
<tr>
<td>3.</td>
<td>19.08</td>
</tr>
<tr>
<td>4.</td>
<td>19.47</td>
</tr>
<tr>
<td>5.</td>
<td>19.41</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.946 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Zone :- Lakhimpur (Lakhimpur Kheri).  
Ref :- U.P. 49(167).  
Type := ‘D’.  

Object := To find out suitable control measures for termite in Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Lahi.  (c) N.A.  (iii) N.A.  (iv) CO. 290-improved.  (v) (a) and (b) N.A.  (c) 1200 buds/plot.  (d) and (e) N.A.  (vi) 20.2.1949.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 23.12.1949.

2. TREATMENTS:
   1. 2.5% D.D.T. solution as dip.
   2. 5.0% lead arsenate solution as dip.
   3. 0.25% corrosive sublimate solution as dip.
   4. Gammaxene powder at 25 lb./ac. in furrows.
   5. Control.

3. DESIGN:
   (i) and (ii) 4 replications in R.B.D.  (iii) (a) and (b) 24’×25’.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Germination condition of eyebuds, termite damage and yield of sugarcane.  (iv) (a) No.  (b) and (c) N.A.  (v) (a) and (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by D.S.R.  (S) on cultivators’ fields.

5. RESULTS:
   (i) 37.56 ton/ac.
   (ii) 1.547 ton/ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>39.25</td>
</tr>
<tr>
<td>2.</td>
<td>35.75</td>
</tr>
<tr>
<td>3.</td>
<td>37.92</td>
</tr>
<tr>
<td>4.</td>
<td>42.40</td>
</tr>
<tr>
<td>5.</td>
<td>32.50</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.773 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Zone :- Khatauli (Muzaffarnagar).  
Ref :- U.P. 49(172).  
Type := ‘D’.  

Object := To find out suitable control measure for termites in Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) N.A.  (iii) N.A.  (iv) Improved.  (v) (a) to (e) N.A.  (vi) 17.3.1949.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.
2. TREATMENTS:
   1. 2.5% D.D.T. solution as dip.
   2. 5% Lead Arsenate solution as dip.
   3. 0.25% Corrosive sublimate solution as dip.
   4. Gammexane at 25 lb./ac.
   5. Control.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications. (iii) (a) 45'×24'. (b) 39′×18′. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield. (iv) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R.(M). on cultivators' fields.

5. RESULTS:
   (i) 53.61 ton/ac.
   (ii) 3.270 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>52.69</td>
</tr>
<tr>
<td>2</td>
<td>52.58</td>
</tr>
<tr>
<td>3</td>
<td>51.80</td>
</tr>
<tr>
<td>4</td>
<td>54.22</td>
</tr>
<tr>
<td>5</td>
<td>56.76</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.635 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :-Sugarcane.  
Zone :-Haldwani (Nainital).

Object :-To find out suitable control measures for termite in Sugarcane.

BASAL CONDITIONS:
   (i) (a) N.A. (b) Jowar. (c) N.A. (ii) Clay, loam. (iii) N.A. (iv) CO. 421 (medium) improved. (v) (a) Ploughings—1 by mould board plough, 3 by Athens' plough, 1 by disc plough. Parsons harrowing twice and planking twice. (b) Flat planting. (c) 7 rows/plot; 1050 buds/plot (350 three budded setts).

2. TREATMENTS:
   1. 2.5% D.D.T. solution as dip.
   2. 5% Lead Arsenate solution as dip.
   3. 0.25% Corrosive sublimate solution as dip.
   4. Gammexane powder at 25 lb./ac. in furrows.
   5. Control.

3. DESIGN:
   (i), (ii) 4 replications in R.B.D. (iii) (a) and (b) 45'×24'. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination and sugarcane yield. (iv) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by D.S.R(S) on cultivators' fields.

5. RESULTS:
   (i) 41.59 ton/ac.
   (ii) 3.919 ton/ac.
   (iii) Treatment differences are significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>43.41</td>
</tr>
<tr>
<td>2.</td>
<td>39.82</td>
</tr>
<tr>
<td>3.</td>
<td>43.81</td>
</tr>
<tr>
<td>4.</td>
<td>44.77</td>
</tr>
<tr>
<td>5.</td>
<td>36.15</td>
</tr>
</tbody>
</table>

S.E./mean = 1.959 ton/ac.

Crop :- Sugarcane.

Zone :- Shahjahanpur (Shahjahanpur).

Object :- To find out suitable control measures for termite in Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Jowar. (c) N.A. (ii) and (iii) N.A. (iv) CO. 313 (early) improved. (v) (a) and (b) N.A. (c) 1200 buds/plot. (d) and (e) N.A. (vi) 1.3.1949. (vii) N.A. (viii) N.A. (ix) N.A. (x) 24.12.1949.

2. TREATMENTS :
   1. 2.5% D.D.T. solution as dip.
   2. 5% Lead Arsenate solution as dip.
   3. 0.25% Corrosive sublimate solution as dip.
   4. Gammexane powder at 25 lb./ac. in furrows.
   5. Control

3. DESIGN :
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 45°×24'. (iv) N.A.

4. GENERAL :
   (i) and (ii) N.A. (iii) Germination condition of eyebuds, tiller counts, termite attack at harvest and yield of sugarcane. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S) on cultivators' fields.

5. RESULTS :
   (i) 8.98 ton/ac.
   (ii) 4.316 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6.46</td>
</tr>
<tr>
<td>2.</td>
<td>8.98</td>
</tr>
<tr>
<td>3.</td>
<td>11.41</td>
</tr>
<tr>
<td>4.</td>
<td>11.88</td>
</tr>
<tr>
<td>5.</td>
<td>6.18</td>
</tr>
</tbody>
</table>

S.E./mean = 2.158 ton/ac.

p = % of termite attack

(i) 5.86 sin⁻¹√p/plot.
(ii) 3.945 sin⁻¹√p/plot.
(iii) Treatment differences are not significant.
(iv) Mean angle and transformed back % attack per plot.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (i.e. sin⁻¹√p/plot)</th>
<th>Transformed back (% of termite attack/plot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5.04</td>
<td>1.26</td>
</tr>
<tr>
<td>2.</td>
<td>6.22</td>
<td>1.66</td>
</tr>
<tr>
<td>3.</td>
<td>5.04</td>
<td>1.26</td>
</tr>
<tr>
<td>4.</td>
<td>2.50</td>
<td>0.69</td>
</tr>
<tr>
<td>5.</td>
<td>10.49</td>
<td>3.82</td>
</tr>
</tbody>
</table>

S.E./mean = 1.972 sin⁻¹√p/plot
Crop: Sugarcane. Site: Allahabad Agricultural Institute, Allahabad.

Object: To find best seed treatment and manural schedule for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) N.A. (b) Refer soil analysis, Allahabad. (iii) 25.2.1952. (iv) (a) to (c) N.A. (d) Rows 3’ apart. (e) N.A. (v) N.A. (vi) CO. 453. (vii) and (viii) N.A. (ix) 29.42°. (x) 24.12.1952.

2. TREATMENTS:
   Main-plot treatments:
   4 sources of N: S<sub>1</sub>=no manure (control), S<sub>1</sub>=150 lb./ac. of N as F.Y.M., S<sub>2</sub>=150 lb./ac. of N as G.N.C. and S<sub>3</sub>=150 lb./ac. of N as A/S.
   Sub-plot treatments:
   2 seed treatments: T<sub>1</sub>=sugarcane setts treated with gammexane dust and T<sub>2</sub>=control (untreated setts).
   The setts were treated before planting to protect from white ants. Manures applied on 8.8.1952 as top dressing.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 2 sub-plots/main-plot. (b) 104’x60’. (iii) 6. (iv) (a) 52’x15’. (b) 46’x9’. (v) One row on either side and 3’ at either end of the net sub-plot. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by A.A.I.

5. RESULTS:
   (i) 23.87 ton/ac. (ii) (a) 4.837 ton/ac. (b) 4.564 ton/ac. (iii) Only S effect is significant. Others are not significant. (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>T&lt;sub&gt;1&lt;/sub&gt;</th>
<th>T&lt;sub&gt;2&lt;/sub&gt;</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&lt;sub&gt;0&lt;/sub&gt;</td>
<td>22.24</td>
<td>23.05</td>
<td>22.64</td>
</tr>
<tr>
<td>S&lt;sub&gt;1&lt;/sub&gt;</td>
<td>21.56</td>
<td>24.50</td>
<td>23.03</td>
</tr>
<tr>
<td>S&lt;sub&gt;2&lt;/sub&gt;</td>
<td>22.84</td>
<td>21.97</td>
<td>22.41</td>
</tr>
<tr>
<td>S&lt;sub&gt;3&lt;/sub&gt;</td>
<td>26.06</td>
<td>28.70</td>
<td>27.38</td>
</tr>
<tr>
<td>Mean</td>
<td>23.18</td>
<td>24.56</td>
<td>23.87</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of S = 1.975 ton/ac.
2. marginal means of T = 1.317 ton/ac.
3. T means at the same level of S = 2.635 ton/ac.
4. S means at the same level of T = 2.715 ton/ac.


Object: To study the effect of spraying weak solution of certain chemicals on leaves on the growth, juice quality and sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) to (e) N.A. (v) A/S at 60 lb./ac. of N at sowing on 14.10.1952 and 10.4.1953. Castor cake at 40 lb./ac. of N at tillering on 1.6.1953. (vi) CO.453 (late). (vii) Irrigated. (viii) 9 hoeings and earthing. (ix) 44.20°. (x) 22.1.1954.
2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 times of planting: \( T_1 = 11.10.1952 \) and \( T_2 = 8.3.1953 \).

(2) 4 sprayings: \( S_1 = \text{Control (water spray)} \), \( S_2 = \text{A/N spray} \), \( S_3 = \text{Pot. acid phosphate spray} \) and \( S_4 = \text{Ammo. Phos. sprays} \).

Spraying on 17.4.1953, 12.5.1953, 9.6.1953 and 21.7.1953 with concentration of 200 parts/million.

3. DESIGN:

(i) \( 2 \times 4 \) Fact. in R.B.D. (ii) (a) N.A. (iii) 5. (iv) (a) N.A. (b) \( 40' \times 27' \). (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Millable cane, tillers and sugarcane yield. (iv) (a) No. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (S).

5. RESULTS:

(i) 33.93 ton/ac.

(ii) 1.682 ton/ac.

(iii) None of the effects is significant.

(iv) Ave. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>( S_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( T_1 )</td>
<td>34.43</td>
<td>33.26</td>
<td>35.44</td>
<td>34.49</td>
<td>34.40</td>
</tr>
<tr>
<td>( T_2 )</td>
<td>32.18</td>
<td>34.82</td>
<td>33.38</td>
<td>33.44</td>
<td>33.46</td>
</tr>
<tr>
<td>Mean</td>
<td>33.30</td>
<td>34.04</td>
<td>34.41</td>
<td>33.96</td>
<td>33.93</td>
</tr>
</tbody>
</table>

S.E. of T marginal means = 0.486 ton/ac.

S.E. of S marginal means = 0.687 ton/ac.

S.E. of body of table = 0.971 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Ref :- U.P. 49(5).

Type :- 'DIV'.

Object :- To investigate the possibility of improving sugarcane yield for the late planted crop.

1. BASAL CONDITIONS:

(i) (a) G.M.—Wheat. (b) Sansai as G.M. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 1.4.1949. (iv) (a) 4 preparatory ploughings and 4 harrowings with desl and walt's plough. (b) Sown in trenches. (c) 60 three budded setts/row. (d) N.A. (e) —. (v) Village compost at 60 lb./ac. of N and Castor cake at 60 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) 51.4°'. (x) 2.4.1950.

2. TREATMENTS:

Main-plot treatments:

2 levels of irrigation: \( I_1 = 3 \) and \( I_2 = 6 \) irrigations.

Sub-plot treatments:

2 levels of insecticide: \( T_0 = \text{No insecticide} \) and \( T_1 = \text{Insecticide applied} \).

Sub-sub-plot treatments:

2 varieties: \( V_1 = \text{CO.453} \) and \( V_2 = \text{CO.395} \).

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication, 2 sub-plots/main-plot and 2 sub-sub-plots/sub-plot. (b) N.A. (iii) 3. (iv) (a) 56' x 18'. (b) 50' x 12'. (v) 3' border around gross plot. (vi) Yes.

4. GENERAL:

(i) Normal, no lodging. (ii) No. (iii) Germination, tillers, millable cane and sugarcane yield. (iv) (a) 1949-1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by D.S.R. (G).
5. RESULTS:

(i) 10.37 ton/ac.
(ii) (a) 0.974 ton/ac.
   (b) 2.309 ton/ac.
   (c) 1.486 ton/ac.
(iii) Main effect of V and interaction I×V are highly significant. Main effect of I and interaction T×V, I×T×V are significant while others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>T₀</th>
<th>T₁</th>
<th>Mean</th>
<th>V₁</th>
<th>V₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>I₁</td>
<td>9.38</td>
<td>9.15</td>
<td>9.26</td>
<td>10.25</td>
<td>8.28</td>
</tr>
<tr>
<td>I₂</td>
<td>11.15</td>
<td>11.80</td>
<td>11.48</td>
<td>-14.60</td>
<td>8.35</td>
</tr>
<tr>
<td>Mean</td>
<td>10.26</td>
<td>10.48</td>
<td>10.37</td>
<td>12.42</td>
<td>8.32</td>
</tr>
<tr>
<td>V₁</td>
<td>13.04</td>
<td>11.81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V₂</td>
<td>7.49</td>
<td>9.14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. I marginal means = 0.397 ton/ac.
2. T marginal means = 0.943 ton/ac.
3. V marginal means = 0.607 ton/ac.
4. V means at the same level of I = 0.838 ton/ac.
5. I means at the same level of V = 1.026 ton/ac.
6. T means at the same level of I = 1.333 ton/ac.
7. I means at the same level of T = 1.023 ton/ac.
8. V means at the same level of T = 0.858 ton/ac.
9. T means at the same level of V = 1.121 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Res. Sub-Stn., Kunraghat.
Ref :- U.P. 50(29).
Type :- ‘DIV’.

Object :- To investigate the possibility of improving Sugarcane yield for late planted crop.

1. BASAL CONDITIONS:
   (i) (a) G.M.-Wheat. (b) Sanai as G.M. (c) Green manure.
   (ii) (a) Sandy loam. (b) N.A.
   (iii) 3, 4.4.1950.
   (iv) (a) 4 preparatory ploughings and harrowings with desai and wait’s ploughs. (b) Sown in trenches. (c) and (d) N.A. (e) –. (v) 100 lb./ac. of N as A/S and 100 lb./ac. of N as FYM. Top dressing before sowing (vi) As per treatments. (vii) Irrigated. (viii) 9 hoeings. (ix) 44.07”. (x) 24 to 29.1.1951.

2. TREATMENTS:
   Main-plot treatments:
   All combinations of (1) and (2)
   2 levels of irrigation : T₁=3 and I₂=6 irrigations.
   2 varieties: V₁=Co-453 ; V₂=Co. 395.
   Sub-plot treatments:
   2 levels of insecticide : T₀=No insecticide, T₁=Insecticide applied (soaked in 2% Phenyle).

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 2 sub-plots/ main-plot. (b) N.A. (iii) 4. (iv) (a) 84’×15’.
   (b) 78’×9’. (v) 3’ border around the net plot. (vi) Yes.

4. GENERAL:
   (iv) (a) 1949-1950. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by D.S.R.(S).
5. RESULTS:

(i) 18.12 ton/ac.
(ii) (a) 3.871 ton/ac.
(b) 1.241 ton/ac.
(iii) Main effect of V is highly significant. Interaction I x T is significant while all others are not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$V_1$</th>
<th>$V_2$</th>
<th>Mean</th>
<th>$T_0$</th>
<th>$T_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_1$</td>
<td>21.10</td>
<td>13.94</td>
<td>17.52</td>
<td>16.63</td>
<td>18.41</td>
</tr>
<tr>
<td>$I_2$</td>
<td>22.58</td>
<td>14.86</td>
<td>18.72</td>
<td>18.82</td>
<td>18.61</td>
</tr>
<tr>
<td>Mean</td>
<td>21.84</td>
<td>14.40</td>
<td>18.12</td>
<td>17.72</td>
<td>18.51</td>
</tr>
</tbody>
</table>

S.E. of difference of two

1. I or V marginal means
2. T marginal means
3. T means at the same level of I or V
4. I or V means at the same level of T
5. Means of the body I x V table

Crop : Cotton (Kharif).
Site : Institutional Res. Farm, B.R. College, Bichpuri, Agra.

Object : To study the effect of N on growth, development and yield of Cotton.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Wheat. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri (Agra). (iii) 31.5.1952. (iv) (a) One cultivation by rigid shank cultivation by tractor, palawa, 4 pata, 1 ploughing by desi plough and cultivation by Mr. Cornick cultivator to mix manure. (b) By opening of furrows 3" deep by desi plough and sowing seeds by hand followed by pata. (c) 10 seers/ac. (d) 2' x 14". (e) —. (v) Nil. (vi) 35/1. (vii) Nil. (viii) 2 weedicings and 2 hoeings with kharpi, thinning done to leave the plants 14" apart along with second hoeing and weeding. (ix) 43.3". (x) 7 pickings from 22.9.1952 to October.

2. TREATMENTS:
5 levels of N : $N_0=0$, $N_1=20$, $N_2=40$, $N_3=60$ and $N_4=80$ lb./ac. of N.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 56' x 16', 56' x 18'. (b) 48' x 12'. (v) Block order 4', Plot border 2' and breadth of channel 4". (vi) Yes.

4. GENERAL:
(i) Water logging in fields in August due to heavy rains. Partial lodging in cotton on 25.8.1952 due to heavy rains and strong wind. Poor germination, 32% less stand after thinning on the basis of the spacing 2' x 14'.
(ii) N.A. (iii) Germination count, ht. of main stem, no. of leaves, no. of branches, no. of flowers, no. of bolls/plant and yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.R.C. The weather was not favourable to cotton cultivation due to heavy rains and wet weather and hence the low yield. No plotwise yield data was available in the thesis.

5. RESULTS:

(i) 458.2 lb./ac.
(ii) 108.21 lb./ac.
(iii) Treatment differences are highly significant.

Ref : U.P. 52(335).
Type : 'M'.
Crop: Cotton (Kharif).
Site: Institutional Research Farm, B. R. College, Bichpuri, Agra. Type: 'M'.

Object: To study the effect of varying doses of N with and without basal dressing of P on growth, development and yield of Cotton.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri (Agra). (iii) 20.6.1953 and dibbling on 28.6.1953. (iv) (a) Pulewa and ploughing. (b) Dropping the seed behind the plough and dibbling to fill up gaps. (c) N.A. (d) 2'×2'. (e) N.A. (v) Nil. (vi) 216 P. (vii) N.A. (viii) 1 thinning, 3 weedings, 2 hoeings and one desi plough run in between the rows. (ix) 13.05°. (a) 5 pickings from 6.10.1953 to 13.12.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 levels of P$_2$O$_5$ as Super: P$_0$=0 and P$_1$=60 lb./ac.
(2) 5 levels of N as A/S: N$_0$=0, N$_1$=20, N$_2$=40, N$_3$=60 and N$_4$=80 lb./ac.
Super applied in furrows behind the plough at the time of sowing. N broadcast at the time of sowing.

3. DESIGN:
(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 20'×42' and 22½'×42'. (b) 15'×36'. (v) Block border=3' along breath and 4' along length. plot border=2' along the length and 2½' along breath, breadth of channel=4'. (vi) Yes.

4. GENERAL:
(i) Poor germination, stand very poor due to defective germination and lack of sufficient moisture. (ii) Severe attack of stem borer in early seedling stage. (iii) Height branches, flowering, bolls, kapas (seed cotton), yield/plant and kapas yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R.C.

5. RESULTS:
(i) 753.7 lb./ac.
(ii) 136.0 lb./ac.
(iii) Only N effect is significant.
(iv) Av. yield of kapas in lb./ac.

<table>
<thead>
<tr>
<th>N$_0$</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>N$_3$</th>
<th>N$_4$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>711.5</td>
<td>779.0</td>
<td>611.6</td>
<td>796.3</td>
<td>870.3</td>
<td>753.7</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N =48.10 lb./ac.
S.E. of marginal mean of P =30.42 lb./ac.
S.E. of body of table =68.02 lb./ac.
Crop : Cotton. Ref : U.P. 51(51).
Site : Govt. Cotton Res. Stn., Bulandshahr. Type : 'M'.

Object :—To test the effect of pre-soaking Cotton seed in solutions on the yield and quality.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 4.6.1951. (iv) (a) Ploughed by desi and victory ploughs. (b) Sown behind the plough. (c) 10 lb./ac. (d) 2' x 1'. (e) N.A. (v) No. (vi) 35/1 (medium). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Pre-soaking of cotton seeds in solutions: S0 = Nil, S1 = A/S, S2 = Ammo. Phos., S3 = Cowdung, S4 = Boron solution and S5 = Mono Potassium Phosphate.

3. DESIGN:
   (i) R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) 36' x 14'. (b) 32' x 10'. (v) 2' alround. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) No. (iii) Yield of cotton and plant no. (iv) (a) 1951 to 1952. (b) and (c) No. (v) (a) and (b) Nil. (vi) Experiment conducted by E.B. (C). Treatment S4 dropped for analysis due to low yield.

5. RESULTS:
   (i) 465.8 lb./ac.
   (ii) 122.2 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of kapas in lb./ac.
   Treatment | Av. yield
   --- | ---
   S0 | 410.5
   S1 | 399.8
   S2 | 544.5
   S3 | 538.1
   S4 | 436.1
   S.E./mean | =61.09 lb./ac.

Site : Govt. Cotton Res. Sub-Stn., Raya. Type : 'M'.

Object :—To find out the comparative efficiency of A/S and C/N on desi and American Cotton at different levels of N.

1. BASAL CONDITIONS:
   (i) (a) Cotton—Pea—Green manuring—Wheat. (b) Wheat. (c) Green manuring. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 23.5.1953. (iv) (a) 3 ploughings in May. (b) Sown behind the plough. (c) N.A. (d) 2' x 1.5'. (e) N.A. (v) Nil. (vi) Desi 35/1 and American 216 F. (vii) Irrigated. (viii) 3 harrowing, 2 weedings and 3 intercultures by cultivator and 1 thinning. (ix) 14.98'. (x) 4 pickings for desi and 3 for American Cotton.

2. TREATMENTS:
   All combinations of (1) and (2)+a control.
   (1) 2 sources of N: S1 = A/S and S2 = C/N.
   (2) 3 levels of N: N1 = 30, N2 = 60 and N3 = 90 lb./ac.
   The treatments were applied to the two varieties desi 35/1 and American 216 F separately.

3. DESIGN:
   (i) R.B.D. (ii) 7 for each variety. (b) N.A. (iii) 6. (iv) (a) 38' x 12'. (b) 34' x 8'. (v) 2' alround. (vi) Separately done for each variety.

4. GENERAL:
   (i) Good. (ii) Mild attack of leaf roller. Assistance of plant protection staff was taken to control the pest. (iii) Kapas yield and plant stand. (iv) (a) to (c) No. (v) (a) and (b) Nil. (vi) Nil. (vii) Analysis of covariance technique was applied. Experiment conducted by E.B. (C).
5. RESULTS:

Variety 216 F.
(i) 1322 lb./ac.
(ii) 137.1 lb./ac.
(iii) Only control vs treated effect is highly significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>997</td>
</tr>
<tr>
<td>S1N1</td>
<td>1404</td>
</tr>
<tr>
<td>S1N2</td>
<td>1360</td>
</tr>
<tr>
<td>S2N1</td>
<td>1377</td>
</tr>
<tr>
<td>S2N2</td>
<td>1288</td>
</tr>
<tr>
<td>S2Ns</td>
<td>1447</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>55.97 lb./ac.</td>
</tr>
</tbody>
</table>

Variety 35/1
(i) 1319 lb./ac.
(ii) 181.4 lb./ac.
(iii) N and control vs treated effects are highly significant while other effects are not significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>926</td>
</tr>
<tr>
<td>S1N1</td>
<td>1269</td>
</tr>
<tr>
<td>S1N2</td>
<td>1341</td>
</tr>
<tr>
<td>S2N1</td>
<td>1342</td>
</tr>
<tr>
<td>S2N2</td>
<td>1515</td>
</tr>
<tr>
<td>S2Ns</td>
<td>1544</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>74.04 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Cotton.
Site :- Govt. Cotton Res. Sub-Stn., Raya.
Ref :- U.P. 52(270).
Type :- "M".

Object :- To find the availability of N from A/S by addition of organic matter.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A, (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 31.5.1952. (iv) (a) Ploughing with desi and victory plough. (b) Sown behind plough. (c) 12 lb./ac. (d) Rows 2' apart. (e) N.A. (v) N.A. (vi) 35/1, (vii) Irrigated. (viii) 5 intercultures with cultivator and digging. (ix) N.A. (x) 20.9.1952, 11 and 22.10.1952, 9, 18 and 30.11.1952 and 5.12.1952.

2. TREATMENTS:
All combinations (1) and (2)
(1) 3 levels of A/S : A0=0, A1=2 and A2=4 cwt./ac.
(2) 3 levels of F.Y.M. : F0=0, F1=2 and F2=5 ton/ac.
A/S top dressed on 31.5.1952 and F.Y.M. on 22.5.1952.

3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) 9. (b) N.A. (iii) 4. (iv) (a) 78'x10'. (b) 72'x10'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Plant stand and cotton yield. (iv) (a) 1952 to 1955. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment was conducted by E.B.(C).

5. RESULTS:
(i) 389 lb./ac.
(ii) 33.00 lb./ac.
(iii) Only interaction A X P is significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>A0</th>
<th>A1</th>
<th>A2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>F0</td>
<td>355</td>
<td>361</td>
<td>306</td>
</tr>
<tr>
<td>F1</td>
<td>346</td>
<td>385</td>
<td>388</td>
</tr>
<tr>
<td>F2</td>
<td>388</td>
<td>326</td>
<td>649</td>
</tr>
<tr>
<td>Mean</td>
<td>363</td>
<td>557</td>
<td>448</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 9.52 lb./ac.
S.E. of body of table = 16.50 lb./ac.
Crop :- Cotton.  
Site :- Govt. Cotton Res. Sub-Stn., Raya.  
Type :- 'M'.

Object :- To find out the availability of N from A/S by addition of organic matter.

1. BASAL CONDITIONS:
   (i) (a) Cotton—Pea—G.M.—Wheat.  (b) Wheat.  (c) Green manuring.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Raya.  (iii) 75.5.1953.  (iv) (a) 3 ploughings with desi plough and 1 harrowing.  (b) Sown behind the plough.  (c) 16 lb/ac.  (d) 2' x 1'.  (e) N.A.  (vi) Nil.  (vii) Desi cotton 35 lb.  (viii) Irrigated.  (ix) 3 weedings, 3 intercultures by cultivator and 1 thinning.  (ix) 14.98.  (x) 6 pickings from 27.9.1953 to 12.11.1953.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of A/S: A_0=0, A_1=2 and A_2=4 cwt/ac.
   (2) 3 levels of compost: C_0=0, C_1=2 and C_2=5 ton/ac.
   Compost applied on 10.5.1953 and A/S top dressing on 14.8.1953.

3. DESIGN:
   (i) 3 X 3 Fact. in R.B.D.  (ii) (a) 9.  (b) N.A.  (iii) 4.  (iv) (a) 84' x 16'  (b) 78' x 12'.  (v) 3' x 2'.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) The crop was slightly affected by wilt.  No control measures were taken.  (iii) KAPAS yield and plant stand.  (iv) (a) 1952 to 1955.  (b) and (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment was conducted by E.B(C).  As analysis of covariance technique was applied only one S.E. has been given and marginal means have not been given.

5. RESULTS:
   (i) 989 lb/ac.
   (ii) 60.96 lb/ac.
   (iii) A effect is highly significant, C effect is significant while interaction A X C is not significant.
   (iv) Av. yield of kapas in lb/ac.

<table>
<thead>
<tr>
<th></th>
<th>A_0</th>
<th>A_1</th>
<th>A_2</th>
</tr>
</thead>
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<tr>
<td>C_0</td>
<td>650</td>
<td>1092</td>
<td>1083</td>
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<tr>
<td>C_1</td>
<td>713</td>
<td>1141</td>
<td>1154</td>
</tr>
<tr>
<td>C_2</td>
<td>684</td>
<td>1171</td>
<td>1207</td>
</tr>
</tbody>
</table>

Av. S.E./mean (adjusted) = 30.48 lb/ac.

Crop :- Cotton.  
Site :- Govt. Cotton Res. Sub-Stn., Raya.  
Type :- 'M'.

Object :- To find the availability of N from A/S by addition of organic matter.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Raya.  (iii) 9.6.1952.  (iv) (a) Ploughed by victory and desi ploughs.  (b) Sown behind plough.  (c) 12 lb/ac.  (d) 2' x 1'.  (e) N.A.  (v) N.A.  (vi) 100 F.  (vii) Irrigated.  (viii) 5 intercultures with cultivator, 2 weedings, 1 digging and 1 thinning.  (ix) N.A.  (x) 22.10.1952, 10, 23.11.1952 and 11.12.1952.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of A/S: A_0=0, A_1=2 and A_2=4 cwt/ac.
   (2) 3 levels of F.Y.M.: F_0=0, F_1=2 and F_3=5 ton/ac.
3. DESIGN:
(i) $3 \times 3$ Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) $78' \times 12'$. (b) $72' \times 12'$. (v) N.A. (vi) Yes.

4. GENERAL:
(i) and (ii) N.A. (iii) Plant stand and cotton yield. (iv) (a) 1952 to 1955. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment was conducted by E.B.(C).

5. RESULTS:
(i) 483 lb./ac.
(ii) 93.80 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$A_0$</th>
<th>$A_1$</th>
<th>$A_2$</th>
<th>Mean</th>
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<td>$F_0$</td>
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<td>475</td>
<td>399</td>
<td>447</td>
</tr>
<tr>
<td>$F_1$</td>
<td>615</td>
<td>577</td>
<td>456</td>
<td>549</td>
</tr>
<tr>
<td>$F_2$</td>
<td>447</td>
<td>448</td>
<td>461</td>
<td>452</td>
</tr>
<tr>
<td>Mean</td>
<td>510</td>
<td>500</td>
<td>439</td>
<td>483</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =27.08 lb./ac.
S.E. of body of table =46.90 lb./ac.

Crop : Cotton.
Site : Govt. Cotton Res. Sub-Stn., Raya.

Object : To find out the availability of N from A/S by addition of organic matter.

1. BASAL CONDITIONS:
(i) (a) Cotton—Pea—G.M.—Wheat. (b) Wheat. (c) G.M. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 24.5.1953. (iv) (a) N.A. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' $\times$ 1.5'. (e) N.A. (v) Nil. (vi) 216 F. (vii) Irrigated. (viii) 1 harrowing, 2 weedings, 2 intercultures and 1 thinning. (ix) 14.98° (x) 10.10.1953 and 20.11.1953.

2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 levels of A/S : $A_2=0$, $A_1=2$ and $A_2=4$ cwt./ac.
(2) 3 levels of compost : $C_0=0$, $C_1=2$ and $C_2=5$ cwt./ac.
Compost and A/S top dressed.

3. DESIGN:
(i) $3 \times 3$ Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) $84' \times 16'$. (b) $78' \times 12'$. (v) One row on either side and 5' at each end of every plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) The crop had a mild attack of leaf roller. Assistance of plant protection staff was secured to control the pest. (iii) Kapas yield and plant stand. (iv) (a) 1952-1955. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by E.B.(C). As a analysis of covariance technique was applied only one S.E. has been given and marginal means have not been given.

5. RESULTS:
(i) 1310 lb./ac.
(ii) 119.60 lb./ac.
(iii) Only A effect is highly significant.
Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( A_0 )</th>
<th>( A_1 )</th>
<th>( A_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( A_0 )</td>
<td>1066</td>
<td>1333</td>
<td>1364</td>
</tr>
<tr>
<td>( A_1 )</td>
<td>974</td>
<td>1437</td>
<td>1606</td>
</tr>
<tr>
<td>( A_2 )</td>
<td>977</td>
<td>1459</td>
<td>1523</td>
</tr>
</tbody>
</table>

Av. S.E./mean Adjusted = 59.8 lb./ac.

Crop :- Cotton.  
Site :- Govt. Cotton Res. Sub-Stn., Raya.  
Ref :- U.P. 50(48).  
Type :- 'M'.

Object :- To find the effect of different doses of N from C/N.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 19.5.1950. (iv) (a) Ploughing once with victory plough and twice with desi plough. (b) Sown behind the plough. (c) 20 lb./ac. (d) and (e) N.A. (v) Nil. (vi) P. American (medium). (vii) Irrigated. (viii) 1 harrowing, 3 hoeings, 3 weedings and 1 thinning. (ix) 17.63". (x) 8.10.1950, 24.11.1950 and 14.11.1950.

2. TREATMENTS:
4 doses of N as C/N: \( N_0 = 0 \), \( N_1 = 20 \), \( N_2 = 40 \) and \( N_3 = 60 \) lb./ac.
N applied on 20.9.1950.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 60'x18'. (v) No. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) No. (iii) Plant stand and cotton yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by E.B. (C).

5. RESULTS:
   (i) 401.10 lb./ac.
   (ii) 64.18 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>( N_0 )</td>
<td>371.8</td>
</tr>
<tr>
<td>( N_1 )</td>
<td>432.8</td>
</tr>
<tr>
<td>( N_2 )</td>
<td>423.9</td>
</tr>
<tr>
<td>( N_3 )</td>
<td>375.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>32.09 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Cotton.  
Site :- Govt. Cotton Res. Sub-Stn., Raya.  
Ref :- U.P. 51(216).  
Type :- 'M'.

Object :- To find the effect of manures as basal dose in combination with inorganic manures.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 9.6.1951. (iv) (a) Once cultivated with victory plough and once with desi plough. (b) Sown behind plough. (c) 12 lb./ac. (d) 2'x1'. (e) N.A. (v) N.A. (vi) 100 F. (vii) Irrigated. (viii) 1 harrowing, 1 hoeing and 1 thinning. (ix) N.A. (x) 24.10.1951.
2. TREATMENTS:
1. Control (no manure).
2. 20 lb./ac. of N as C/N.
3. 40 lb./ac. of N as C/N.
4. 60 lb./ac. of N as C/N.
5. 40 lb./ac. of N as A/S.

3. DESIGN:
(i) R.B.D. (ii) (a) S. (b) N.A. (iii) 6. (iv) (a) 80'×14'. (b) 76'×10'. (v) One row on either side and 2' at each end of every plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) kapas yield. (iv) (a) No. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by E.B. (C).

5. RESULTS:
(i) 677 lb./ac.
(ii) 44.18 lb./ac.
(iii) Treatments are highly significantly different.
(iv) Av. yield of kapas in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>551</td>
</tr>
<tr>
<td>2.</td>
<td>684</td>
</tr>
<tr>
<td>3.</td>
<td>777</td>
</tr>
<tr>
<td>4.</td>
<td>739</td>
</tr>
<tr>
<td>5.</td>
<td>633</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>18.04 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Cotton.
Site : Govt. Cotton Res. Sub-Stn., Raya.

Object : To find out the reaction of lime in addition to the application of A/S and C/N.

1. BASAL CONDITIONS:
(i) (a) Cotton—Peas—G. M.—Wheat. (b) Wheat. (c) G. M. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 21.5.1953. (iv) (a) 3 ploughings with desi plough. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2'×1.5'. (e) N.A. (v) Nil. (vi) American cotton 216 F. (vii) Irrigated. (viii) 1 harrowing, 1 weeding with khurpi, 2 intercultures by cultivator and 1 thinning. (ix) 14.98°. (x) 3 pickings on 8.10.1953, 29.10.1953 and 25.11.1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 levels of lime : L₀=0 and L₁=300 lb./ac.
(2) 5 levels of N : N₀=No manure, N₁=40 lb./ac. of N as A/S, N₂=60 lb./ac. of N as A/S, N₃=40 lb./ac. of N as C/N and N₄=60 lb./ac. of N as C/N.


3. DESIGN:
(i) 2×5 Fact, in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 78°×12°. (b) 72°×8°. (v) One row on either side and 3' at each end of every plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) The crop had a mild attack of leaf roller, assistance of plant protection staff was secured to control the pest. (iii) Kapas yield and plant stand. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment conducted by E.B. (C). Analysis of covariance technique applied.

5. RESULTS:
(i) 984 lb./ac.
(ii) 828.1 lb./ac.
None of the effects is significant.

Av. yield of kapat in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>N₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₀</td>
<td>933</td>
<td>986</td>
<td>978</td>
<td>903</td>
<td>996</td>
</tr>
<tr>
<td>L₁</td>
<td>911</td>
<td>1048</td>
<td>990</td>
<td>1052</td>
<td>1043</td>
</tr>
</tbody>
</table>

Av. S.E./mean (adjusted) = 338.1 lb./ac.

Crop: Cotton.
Site: Govt. Cotton Res. Sub-Stn., Raya.
Ref: U.P. 48(86).
Type: 'M'.

Object: To find out the effect of application of A/S at flowering of Cotton.

1. BASAL CONDITIONS:
   - (i) (a) N.A. (b) Barley. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 21, 27.5.1948.
   - (iv) (a) 1 ploughing by victory plough, 1 ploughing by desi plough and ploughed by cultivator. (b) Sown behind the plough. (c) 20 lb./ac. (d) 2' x 1.5'. (e) N.A. (vii) C-520 (medium). (viii) Irrigated. (x) 39.76'. (xi) 29, 30.9.1948, 10, 11, 16, 17, 25.10.1948 and 8.11.1948.

2. TREATMENTS:
   - 1. Control.
   - 2. 40 lb./ac. of N as A/S applied at flowering time on 4.9.1948.

3. DESIGN:
   - (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 20. (iv) (a) 42' x 80'. (b) 32' x 74'. (v) 3 rows on either side and 3' at each end of every plot. (vi) Yes.

4. GENERAL:
   - (i) N.A. (ii) N.A. (iii) Yield of cotton. (iv) (a) No. (b) and (c) No. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by E.B.(C).

5. RESULTS:
   - (i) 790.9 lb./ac.
   - (ii) 117.0 lb./ac.
   - (iii) Treatment difference is highly significant.
   - (iv) Av. yield of cotton in lb./ac.
     Treatment   | Av. yield | S.E./mean
     1.          | 731.5     | =26.16 lb./ac.
     2.          | 850.4     |

Crop: Cotton.
Site: Govt. Cotton Res. Sub-Stn., Raya.
Ref: U.P. 48(86).
Type: 'M'.

Object: To study the effect of T.C. on Cotton.

1. BASAL CONDITIONS:
   - (i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 4.6.1948. (iv) (a) Ploughing by victory plough, ploughings with desi plough twice on 4.6.1948. (b) Sown behind the plough. (c) 20 lb./ac. (d) 2' x 2'. (e) N.A. (v) N.A. (vi) P. American (medium). (vii) Irrigated. (viii) 3 weedings, 2 harrowings, 1 thinning and 1 cultivation. (ix) 27.76'. (x) 22.10.1948, 7.11.1948 and 23.11.1948.

2. TREATMENTS:
   - 4 doses of N as T.C.: N₀ = 0, N₁ = 50, N₂ = 100 and N₃ = 150 lb./ac.
Manures applied on 3.6.1948.
3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 60'×18'. (b) 54'×10'. (v) 2 rows and 3' at each end of plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. (iii) Yield of cotton. (iv) (a) 1945—1948. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B.(C).

5. RESULTS:
(i) 471.4 lb./ac.
(ii) 133.5 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
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</tr>
<tr>
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<td>393.1</td>
</tr>
<tr>
<td>N₂</td>
<td>564.9</td>
</tr>
<tr>
<td>N₃</td>
<td>565.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>54.31 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Cotton.  
Ref : - U.P. 49(13).  
Type :- 'M'.

Object :- To study the effect of Coconut cake on Cotton yield.

1. BASAL CONDITIONS:
(i) (a) G. M.—Wheat—Cotton—Peas. (b) Wheat. (c) G.M. (ii) (a) Sandy loam. (b) Refer soil analysis. Raya. (iii) 31.5.1949. (iv) (a) 2 ploughings by dest plough, and 1 ploughing by victory plough. (b) N.A. (c) 20 lb./ac. (d) N.A. (e) N.A. (v) Nil. (vi) C 520. (vii) Irrigated. (viii) Harrowing and weeding. (ix) 38.86'. (x) 4 pickings on 8, 17 and 29.10.1949 and 10.11.1949.

2. TREATMENTS:
5 levels of N : N₀=0, N₁=25, N₂=50, N₃=75 and N₄=100 lb./ac. N as Coconut cake applied on 9.7.1949.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 42'×26'. (b) 34'×20'. (v) 2 rows and 3' at each end. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Plant stand and cotton yield. (iv) (a) to. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by E.B.(C).

5. RESULTS:
(i) 493.4 lb./ac.
(ii) 101.5 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>399.1</td>
</tr>
<tr>
<td>N₁</td>
<td>486.6</td>
</tr>
<tr>
<td>N₂</td>
<td>493.8</td>
</tr>
<tr>
<td>N₃</td>
<td>559.7</td>
</tr>
<tr>
<td>N₄</td>
<td>527.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>41.46 lb./ac.</td>
</tr>
</tbody>
</table>
Object: To study the effect of N on the incidence of Cotton leaf roller.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) N.A. (iv) (a) to (c) N.A. (v) N.A. (vi) 100-F (early, and P.American. (vii) Irrigated. (viii) Thinning. (ix) N.A. (x) N.A.

2. TREATMENTS:
   3 levels of N : N₀=0, N₁=40 and N₂=80 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) 1/43 acre. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) As under study. (iii) % incidence. (iv) (a) to (c) No. (v) (a) Kalyanpur. (b) N.A. (vi) Nil. (vii) The experiment was conducted by Ento. (K). Transformed back mean percentages are given after applying bias correction.

5. RESULTS:
   Variety : 100-F
   (i) 29.09 degrees.  
   (ii) 6.84 degrees.  
   (iii) Treatment differences are highly significant.  
   (iv) Incidence observations.  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle N₀</th>
<th>Transformed back mean% N₀</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>14.62</td>
<td>6.84</td>
<td></td>
</tr>
<tr>
<td>N₁</td>
<td>26.59</td>
<td>20.30</td>
<td></td>
</tr>
<tr>
<td>N₂</td>
<td>46.05</td>
<td>51.81</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>3.610 degrees</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Variety : P. American
   (i) 34.93 degrees.  
   (ii) 14.352 degrees.  
   (iii) Treatments are not significantly different.  
   (iv) Incidence observations.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle N₀</th>
<th>Transformed back mean% N₀</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>32.21</td>
<td>28.62</td>
<td></td>
</tr>
<tr>
<td>N₁</td>
<td>38.71</td>
<td>39.22</td>
<td></td>
</tr>
<tr>
<td>N₂</td>
<td>33.68</td>
<td>30.94</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>7.176 degrees</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Object: To study the effect of different manurial solutions on Cotton yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A (iii) 5.6.1952. (iv) (a) Ploughed by drai and victory plough. (b) Sown behind plough. (c) 10 lb./ac. (d) Rows 2' apart. (e) N.A. (vi) As per treatments. (vii) N.A. (viii) Thinning. (ix) and (x) N.A.

2. TREATMENTS:
   Main-plot treatments : 8 different manures: M₀=No manure, M₁=A/S at 2 lb./ac. of N, M₂=Ammo. Phos. at 1–2 lb./ac. of P₂O₅, M₃=Cowdung at 0.05 lb./ac. of N, M₄=Pot. Phos. at 1–2 lb./ac. of K₂O, M₅=Soaking in water for 3 hours and M₆=Mixture of ash, cowdung and A/S.
   Sub-plot treatments : 2 varieties: V₁=35/1 and V₂=100-F.
   Cowdung at 3 times the seed weight and ash equal to seed weight given to form mixture.

3. DESIGN:
   (i) Split-plot. (ii) (a) 8 main-plots/block and 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 20'×12'. (b) 16'×8'. (v) One row on either side and at each end. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Cotton yield. (iv) (a) 1951–1952. (b) No. (c) N.A. (v) (a) and (b) Nil. (vi) Due to poor germination treatment M₄ was dropped out from analysis. (vii) Experiment conducted by E.B. (C).
5. RESULTS:
(i) 520 lb./ac.
(ii) (a) 119.3 lb./ac.
(b) 128.2 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of kapas in lb./ac.

<table>
<thead>
<tr>
<th>V₁</th>
<th>M₀</th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
<th>M₄</th>
<th>M₅</th>
<th>M₆</th>
<th>M₇</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₂</td>
<td>643</td>
<td>659</td>
<td>468</td>
<td>596</td>
<td>479</td>
<td>500</td>
<td>495</td>
<td></td>
<td>549</td>
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<tr>
<td>Mean</td>
<td>574</td>
<td>556</td>
<td>478</td>
<td>550</td>
<td>471</td>
<td>540</td>
<td>471</td>
<td></td>
<td>574</td>
</tr>
</tbody>
</table>

S.E. of difference between two
1. M marginal means = 59.66 lb./ac.
2. V marginal means = 34.27 lb./ac.
3. V means at the same level of M = 90.68 lb./ac.
4. M means at the same level of V = 87.58 lb./ac.

Crop :- Cotton (Kharif).
Site :- Govt. Agri. Res. Farm, Kalyanpur.

Ref :- U.P. 50(267).
Type :- 'MV'.

Object :- To study the effect of N on the incidence of Cotton leaf roller.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.
   (ii) (a) Loam. (b) N.A.
   (iii) N.A.
   (iv) (a) to (e) N.A.
   (v) N.A.
   (vi) As per treatments.
   (vii) Irrigated.
   (viii) Thinning and weeding etc.
   (ix) and (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V₁ = P. American and V₂ = 100 F.
   (2) 3 levels of N: N₀ = 0, N₁ = 40 and N₂ = 60 lb./ac.

3. DESIGN:
   (i) 3 x 2 Fact. in R.B.D.
   (ii) (a) 6.
   (b) N.A.
   (iii) 4.
   (iv) (a) N.A.
   (b) 78' x 20'.
   (v) N.A.
   (vi) Yes.

4. GENERAL:
   (i) N.A.
   (ii) Under study.
   (iii) Percentage of incidence of cotton leaf roller.
   (iv) (a) to (c) No.
   (v) (a) Raya.
   (b) N.A.
   (vi) Nil.
   (vii) The experiment was conducted by Ento (K).

5. RESULTS:
   (i) 71.02 degrees.
   (ii) 6.488 degrees.
   (iii) Only N effect is highly significant.
   (iv) Incidence of cotton leaf roller.

<table>
<thead>
<tr>
<th>V₁</th>
<th>V₂</th>
<th>Mean</th>
<th>V₁</th>
<th>V₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>60.86</td>
<td>58.04</td>
<td>59.45</td>
<td>N₀</td>
</tr>
<tr>
<td>N₁</td>
<td>72.81</td>
<td>75.49</td>
<td>74.15</td>
<td>N₁</td>
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<tr>
<td>N₂</td>
<td>76.77</td>
<td>82.20</td>
<td>79.48</td>
<td>N₂</td>
</tr>
<tr>
<td>Mean</td>
<td>70.15</td>
<td>71.89</td>
<td>71.02</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of V marginal mean = 1.873 degree.
S.E. of N marginal mean = 2.294 degree.
S.E. of body of table = 3.244 degree.
Crop :- Cotton. Ref :- U.P. 52 (147).
Site :- Govt. Cotton Res. Stn., Bulandshahr. Type :- ‘C’.

Object :- To study the effect on Cotton yield when taken after *rabi* crops.

1. **BASAL CONDITIONS**:
   (i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 27.5.1952. (iv) (a) Ploughed by desi and victory plough. (b) Sown behind the *desi* plough. (c) 10 lb./ac. (d) and (e) N.A. (v) No. (vi) 35/l (medium). (vii) N.A. (viii) Weeding, hoeing and thinning. (ix) N.A. (x) N.A.

2. **TREATMENTS**:
   1. Cotton after wheat.
   2. Cotton after barley.
   3. Cotton after pea.

3. **DESIGN**:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 36'×12'. (b) 32'×8'. (v) One row on either side and 2' at each end. (vi) Yes.

4. **GENERAL**:
   (i) Normal. (ii) No. (iii) Cotton yield and plant stand. (iv) (a) 1952–1953. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B. (C).

5. **RESULTS**:
   (i) 1917 lb./ac.
   (ii) 171.2 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1574</td>
</tr>
<tr>
<td>2.</td>
<td>1890</td>
</tr>
<tr>
<td>3.</td>
<td>2002</td>
</tr>
<tr>
<td>4.</td>
<td>1901</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=85.62 lb./ac,</td>
</tr>
</tbody>
</table>

Crop :- Cotton. Ref :- U.P. 51(52).
Site :- Govt. Cotton Res. Stn., Bulandshahr. Type :- ‘C’.

Object :- To study the effect on Cotton yield when taken after *rabi* crops.

1. **BASAL CONDITIONS**:
   (i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 11.6.1951. (iv) (a) N.A. (b) Behind the plough. (c) 10 lb./ac. (d) Rows 2' apart and plants 11' apart. (e) N.A. (v) Nil. (vi) C. 520 (medium). (vii) N.A. (viii) Thinning (ix) N.A. (x) Pickings on 26.9.1951, 5.10.1951, 16.10.1951 and 29.10.1951.

2. **TREATMENTS**:
   1. Cotton after wheat in *rabi*.
   2. Cotton after barley in *rabi*.
   3. Cotton after pea in *rabi*.
   4. Cotton after pea+barley in *rabi*.

3. **DESIGN**:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 45'×18'. (b) 41'×14'. (v) One row on either side and 2' at each end. (vi) Yes.

4. **GENERAL**:
   (i) Normal. (ii) No. (iii) Plant stand and cotton yield. (iv) (a) 1951–1952. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B. (C).
5. RESULTS:

(i) 654.6 lb./ac.
(ii) 104.1 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of kapas in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>717.4</td>
</tr>
<tr>
<td>2.</td>
<td>694.9</td>
</tr>
<tr>
<td>3.</td>
<td>569.4</td>
</tr>
<tr>
<td>4.</td>
<td>636.8</td>
</tr>
</tbody>
</table>

S.E./mean = 52.05 lb./ac.

Crop :- Cotton.
Site :- Govt. Cotton Res. Stn., Bulandshahr.

Ref :- U.P. 51(217).
Type :- 'CM'.

Object:—To find out a method to increase the Cotton yield by the best combination of treatments and work out the economics.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.  
(ii) (a) and (b) N.A.  
(iii) N.A.  
(iv) (a) N.A. (b) Sown behind plough.  
(c) 10 lb./ac.  
(d) and (e) N.A.  
(v) N.A.  
(vi) 35/1.  
(vii) to (x) N.A.

2. TREATMENTS:

1. Control—no manure, one hand weeding and one bullock interculture.
2. 60 lb./ac. of N as A/S applied at early flowering, two hand weedings and two bullock intercultures during early growing period.

3. DESIGN:

(i) R.B.D.  
(ii) (a) 2.  
(iii) 12.  
(iv) (a) 78' x 20'.  
(b) 72' x 16'.  
(v) N.A.  
(vi) Yes.

4. GENERAL:

(i) N.A.  
(ii) N.A.  
(iii) Cotton yield.  
(iv) (a) No.  
(b) and (c) N.A.  
(v) (a) and (b) N.A.  
(vi) Nil.

(vii) The experiment was conducted by E.B. (C).

5. RESULTS:

(i) 1006 lb./ac.
(ii) 115.2 lb./ac.
(iii) Treatment difference is highly significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>862</td>
</tr>
<tr>
<td>2.</td>
<td>1150</td>
</tr>
</tbody>
</table>

S.E./mean = 56.35 lb./ac.

Crop :- Cotton.
Site :- Govt. Cotton Res. Sub-Stn., Raya.

Ref :- U.P. 48(87).
Type :- 'CM'.

Object:—To study the effect on Cotton yield when taken after leguminous crops.

1. BASAL CONDITIONS:

(i) (a) to (c) As per treatments.  
(ii) (a) Sandy loam.  
(b) Refer soil analysis, Raya.  
(iii) 7,8,6,48.  
(iv) (a) 4 ploughings with victory plough.  
(b) Sown behind desi plough.  
(c) 20 lb./ac.  
(d) Rows 1½ apart.  
(e) N.A.  
(v) Nil.  
(vi) CO.520 (medium).  
(vii) Irrigated.  
(viii) harrowings, 4 weeding and thinning.  
(ix) 27.76.  
(x) 6, 7, 15 and 23.10.1948 and 7.11.1948.
2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 4 rabi crops: \( R_1 = \) wheat, \( R_2 = \) gram, \( R_3 = \) barley and \( R_4 = \) peas.
(2) 2 manures given to rabi crops: \( P_0 = \) no manure and \( P_1 = 30 \) lb./ac. of \( P_2 O_5 \) as Super.

Sub-plot treatments:
2 manures given to cotton crop: \( N_0 = \) no manure and \( N_1 = 30 \) lb./ac. of \( N \) as A/S.
A/S given on 4.9.1948 as top dressing.

3. DESIGN:
(i) Split-plot.
(ii) (a) 8 main-plots/replication; 2 sub-plots/main-plot.
(b) N.A.
(iii) 4.
(iv) (a) 80' x 18'.
(b) 70' x 12'.
(v) Two rows on either side and 5' at each end of every plot.
(vi) Yes.

4. GENERAL:
(i) N.A.
(ii) N.A.
(iii) Plant stand and cotton yield.
(iv) (a) 1946 to 1949.
(b) Yes.
(c) N.A.
(v) (a) and (b) No.
(vi) Nil.
(vii) The experiment was conducted by E.B. (C).

5. RESULTS:
(i) 448.5 lb./ac.
(ii) (a) 185.2 lb./ac.
(b) 61.4 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( N_0 )</th>
<th>( N_1 )</th>
<th>Mean</th>
<th>( P_0 )</th>
<th>( P_1 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( R_1 )</td>
<td>419.7</td>
<td>485.5</td>
<td>452.6</td>
<td>358.1</td>
<td>547.1</td>
</tr>
<tr>
<td>( R_2 )</td>
<td>392.8</td>
<td>432.7</td>
<td>412.8</td>
<td>419.9</td>
<td>405.7</td>
</tr>
<tr>
<td>( R_3 )</td>
<td>423.4</td>
<td>435.4</td>
<td>429.4</td>
<td>476.2</td>
<td>382.6</td>
</tr>
<tr>
<td>( R_4 )</td>
<td>504.9</td>
<td>493.9</td>
<td>499.4</td>
<td>556.0</td>
<td>442.8</td>
</tr>
<tr>
<td>Mean</td>
<td>435.2</td>
<td>461.9</td>
<td>448.5</td>
<td>452.5</td>
<td>444.5</td>
</tr>
<tr>
<td>( P_0 )</td>
<td>439.3</td>
<td>465.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( P_1 )</td>
<td>431.1</td>
<td>458.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of the difference of two
1. R marginal means = 66.53 lb./ac.
2. P marginal means = 47.04 lb./ac.
3. N marginal means = 15.36 lb./ac.
4. N means at the same level of R = 30.72 lb./ac.
5. N means at the same level of P = 21.72 lb./ac.
6. R means at the same level of N = 69.98 lb./ac.
7. P means at the same level of N = 49.49 lb./ac.
S.E. of body of R x P table = 66.53 lb./ac.

Crop :- Cotton.
Ref :- U.P. 49(179)/48(87).
Site :- Govt. Cotton Res. Sub-Stn., Raya,
Type :- 'CM'.

Object :- To study the effect on Cotton yield when taken after leguminous crops.

1. BASAL CONDITIONS:
(i) to (c) As per treatments.
(ii) (a) Sandy loam.
(b) Refer soil analysis, Raya.
(iii) 6, 7.6.1949.
(iv) (a) 3 ploughings with victory plough.
(b) Behind the plough.
(c) 20 lb./ac.
(d) Rows 1' apart.
(e) N.A.
(v) Nil.
(vi) CO-520 (medium).
(vii) Irrigated.
(viii) One harrowing, 4 weedings and thinning.
(ix) 38.86'.
(x) Pickings on 4, 5.10.1949, 14, 26, 27.10.1949, 11, 12, 23.11.1949.
2. TREATMENTS:

Main-plot treatments:
All combinations of (1) and (2)
(1) 4 rabi crops: R₁ = gram, R₂ = wheat, R₃ = peas and R₄ = barley.
(2) 2 manures given to rabi crops: P₀ = no manure and P₁ = 30 lb./ac. of P₂O₅ as Super.

Sub-plot treatments:
2 manures given to cotton crop: N₀ = no manure and N₁ = 30 lb./ac. of N as A/S. A/S given on 26.8.1949 as top dressing.

3. DESIGN:
(i) Split-plot. (ii) (a) 8 main-plots/replication and 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 80' x 18'. (b) 70' x 12'. (v) Two rows on either side and 5' at each end of every plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Plant number and yield of cotton. (iv) (a) 1946—1949. (b) Yes. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by E.B.(C).

5. RESULTS:
(i) 534.9 lb./ac.
(ii) (a) 161.8 lb./ac. 
 (b) 63.0 lb./ac. 
 (iii) Only N effect is highly significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>Mean</th>
<th>P₀</th>
<th>P₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>R₁</td>
<td>452.9</td>
<td>568.8</td>
<td>510.9</td>
<td>447.5</td>
<td>574.2</td>
</tr>
<tr>
<td>R₂</td>
<td>429.6</td>
<td>533.4</td>
<td>481.5</td>
<td>516.3</td>
<td>446.7</td>
</tr>
<tr>
<td>R₃</td>
<td>519.6</td>
<td>589.2</td>
<td>554.4</td>
<td>545.9</td>
<td>563.0</td>
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<td>638.0</td>
<td>592.8</td>
<td>571.3</td>
<td>614.2</td>
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<td>582.3</td>
<td>534.9</td>
<td>520.2</td>
<td>549.5</td>
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<td>558.2</td>
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<td></td>
</tr>
<tr>
<td>P₁</td>
<td>492.5</td>
<td>606.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. R marginal means = 57.22 lb./ac.
2. P marginal means = 40.46 lb./ac.
3. N marginal means = 15.76 lb./ac.
4. N means at the same level of R = 31.51 lb./ac.
5. R means at the same level of N = 61.40 lb./ac.
6. N means at the same level of P = 22.28 lb./ac.
7. P means at the same level of N = 43.42 lb./ac.
S.E. of body of R x P table = 57.22 lb./ac.

Crop: Cotton.
Ref: U.P. 51(50).
Type: 'CM'.
Object: To find out a method to increase Cotton yield by the best combination of treatments and work out economics.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 9.6.1951. (iv) (a) Ploughed by victory plough once and twice by desi plough. (b) Sown behind the plough. (c) 10 lb./ac. (d) 2' x 1.5'. (e) N.A. (v) Nil. (vi) 35/1 (early). (vii) Irrigated. (viii) 1 harrowing, 1 cultivator, 1 Akola and 1 thinning. (ix) 16.63'. (x) 10 11.1951.

2. TREATMENTS:
1. Control—no manure, one hand weeding and one bullock inter culture.
2. 60 lb./ac. of N as A/S applied at early flowering; 2 hand weedicings and 2 bullock inter cultures during early growing periods.
3. DESIGN:
(i) R.B.D.  (ii) (a) 2.  (b) N.A.  (iii) 12.  (iv) (a) 78'x20'.  (b) 72'x16'.  (v) 3'x2'.  (vi) Yes.

4. GENERAL:
(i) Normal.  (ii) No.  (iii) Yield of cotton and plant number.  (iv) (a) 1951—1952.  (b) to (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Experiment conducted by E.B.(C).

5. RESULTS:
(i) 819 lb./ac.
(ii) 95.60 lb./ac.
(iii) Treatment difference is highly significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>577</td>
<td>=27.60 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>1062</td>
<td></td>
</tr>
</tbody>
</table>

Crop:- Cotton.  
Site:- Govt. Cotton Res. sub-Stn., Raya. 
Ref:- U.P. 52(148).  
Type:- 'CM'.

Object: — To find out a method to increase Cotton yield by the best combination of treatments and work out the economics.

1. BASAL CONDITIONS:
(i) (a) No.  (b) Fallow.  (c) No.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Raya.  (iii) 31.5.1952.  (iv) (a) 1 ploughing with victory plough and 3 ploughings with desi plough.  (b) Sown behind the plough.  (c) N.A.  (d) Rows 2' apart.  (e) N.A.  (v) Nil.  (vi) 35/1 (late).  (vii) Irrigated.  (viii) 2 weedings and 2 cultivations.  (ix) N.A.  (x) 7 pickings from 20.9.1952 to 5.12.1952.

2. TREATMENTS:
1. Control—no manure, one hand weeding and one bullock interculture.
2. 60 lb./ac. of N as A/S applied at early stages of flowering, 2 hand weedings and 2 intercultures.

3. DESIGN:
(i) R.B.D.  (ii) (a) 2.  (b) N.A.  (iii) 12.  (iv) (a) 78'x20'.  (b) 72'x16'.  (v) One row on either side and 3' at each end of every plot.  (vi) Yes.

4. GENERAL:
(i) Normal.  (ii) No.  (iii) Cotton yield and plant stand.  (iv) (a) 1951—1952.  (b) to (c) No.  (v) (a) and (b) No.  (vi) Nil.  (vii) Expt. was conducted by E.B.(C).

5. RESULTS:
(i) 384.5 lb./ac.
(ii) 92.04 lb./ac.
(iii) Treatment difference is highly significant.
(iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>272.4</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>496.6</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=26.57 lb./ac.</td>
<td></td>
</tr>
</tbody>
</table>
Crop: Cotton.  
Site: Govt. Agri. Res. Farm, Kalyanpur.  
Ref: U.P. 50(228).  
Type: 'CMV'.

Object: To study the effect of various cultural practices on the yield of Cotton.

1. **BASAL CONDITIONS**:
   (i) (a) to (c) N.A.  (ii) (a) Loam (b) N.A.  (iii) 26.5.1950.  (iv) (a) Field ploughed by cultivator.  (b) Sown by cotton planter in lines and broadcast. (c) N.A.  (d) As per treatments.  (e) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) As per treatments.  (ix) N.A.  (x) N.A.

2. **TREATMENTS**:
   All combinations of (1) and (2)
   (1) 3 cultural and manurial treatments: $C_1$ = 60 lb./ac. of N + 2 weedings + 6 hoeings + spacing 2' x 14'
   $C_2$ = 40 lb./ac. of N + 2 weedings + 4 hoeings + spacing 2' x 14'
   $C_3$ = No manure + 2 weedings + 4 hoeings and broadcasting seed.
   (2) 4 medium varieties: $V_1$ = C 520, $V_2$ = 351, $V_3$ = Persio American and $V_4$ = 100 F.

3. **DESIGN**:
   (i) 4 x 3 Fact. in R.B.D.  (ii) (a) 12. (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 78' x 20'.  (v) N.A.  (vi) Yes.

4. **GENERAL**:
   (i) N.A.  (ii) N.A.  (iii) Cotton yield.  (iv) (a) and (b) No. (c) N.A.  (v) (a) No. (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by E.B.(C).

5. **RESULTS**:
   (i) 667.9 lb./ac.
   (ii) 125.5 lb./ac.
   (iii) Both V and C effects are highly significant. Interaction V x C is not significant
   (iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$C_1$</th>
<th>$C_2$</th>
<th>$C_3$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_1$</td>
<td>708.1</td>
<td>775.2</td>
<td>352.3</td>
<td>611.9</td>
</tr>
<tr>
<td>$V_2$</td>
<td>1302.2</td>
<td>1117.3</td>
<td>674.9</td>
<td>1031.5</td>
</tr>
<tr>
<td>$V_3$</td>
<td>703.2</td>
<td>631.8</td>
<td>345.5</td>
<td>506.2</td>
</tr>
<tr>
<td>$V_4$</td>
<td>568.5</td>
<td>500.8</td>
<td>334.8</td>
<td>468.0</td>
</tr>
<tr>
<td>Mean</td>
<td>820.5</td>
<td>756.3</td>
<td>426.9</td>
<td>667.9</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of V = 36.22 lb./ac.
S.E. of marginal mean of C = 31.37 lb./ac.
S.E. of body of table = 62.73 lb./ac.

Crop: Cotton (Kharif).  
Site: Govt. Cotton Res. Sub-Stn., Raya.  
Ref: U.P. 50 (268).  
Type: 'CMV'.

Object: To study the effect of manuring and interculture operations on Cotton varieties in controlling the infection of pests and diseases.

1. **BASAL CONDITIONS**:
   (i) (a) to (c) N.A.  (ii) (a) and (b) Refer soil analysis, Raya.  (iii) 28.5.1950.  (iv) (a) to (e) N.A.  (v) N.A.  (vi) As per treatments.  (vii) N.A.  (viii) As per treatments.  (ix) and (x) N.A.

2. **TREATMENTS**:
   All combinations of (1) and (2)
   (1) 2 varieties: $V_1$ = Persio American and $V_4$ = 100 F.
   (2) 3 manurial and intercultural operations: $C_1$ = 2 weedings, $C_2$ = 40 lb./ac. of N + 2 weedings + 2 hoeings, and $C_3$ = 60 lb./ac. of N + 2 weedings + 4 hoeings.
3. DESIGN:
(i) 3×2 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 78'×18'. (b) 72'×12'. (v) 3' alround. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) % of infected plants. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by Ento (K). Transformed back mean percentage are given after applying bias correction.

4. RESULTS:
(i) 31.90 degrees.
(ii) 11.48 degrees.
(iii) Only C effect is significant.
(iv) Av. mean angles.

<table>
<thead>
<tr>
<th></th>
<th>$V_1$</th>
<th>$V_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$</td>
<td>14.62</td>
<td>32.23</td>
<td>23.42</td>
</tr>
<tr>
<td>$C_2$</td>
<td>28.24</td>
<td>36.42</td>
<td>32.33</td>
</tr>
<tr>
<td>$C_3$</td>
<td>36.42</td>
<td>43.86</td>
<td>39.96</td>
</tr>
<tr>
<td>Mean</td>
<td>29.64</td>
<td>34.17</td>
<td>31.90</td>
</tr>
</tbody>
</table>

S.E. of $V$ marginal means = 3.264 degree.
S.E. of $C$ marginal means = 4.058 degree.
S.E. of body of table = 5.739 degree.

Transformed back mean percentages of infected plants.

<table>
<thead>
<tr>
<th></th>
<th>$V_1$</th>
<th>$V_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$</td>
<td>6.84</td>
<td>28.62</td>
</tr>
<tr>
<td>$C_2$</td>
<td>22.68</td>
<td>35.40</td>
</tr>
<tr>
<td>$C_3$</td>
<td>51.83</td>
<td>31.24</td>
</tr>
</tbody>
</table>

Crop :– Cotton.
Site :– Govt. Cotton Res. Sub-Stn., Raya.

Object :– To work out the economics of optimum cultivation practices in relation to the out-turn of Kapas.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 28.5.1950. (iv) (a) 1 ploughing with victory plough and 2 ploughings with desi plough. (b) S’wn behind the plough. (c) 20 lb./ac. (d) 2'×1.5'. (e) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings, 6 hoeings and 1 thinning. (ix) 36.26'. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 cultural and manural treatments: $C_1$=60 lb./ac. of N+2 weedings+6 hoeings+spacing 2'×14'.
$C_2$=40 lb./ac. of N+2 weedings+4 hoeings+2 spacing'×14' and
$C_3$=No manure +2 weedings + 4 hoeings and broadcasting of seed.
(2) 4 medium varieties: $V_1$=C.520, $V_2$=35/1, $V_2$=Perso American and $V_4$=100.F.

3. DESIGN:
(i) 3×4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 78'×18'. (b) 72'×14'. (v) 2'×3'. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) No. (iii) Plant stand and kapas yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment was conducted by E.B. (C).
Crop :- Cotton (Kharif).
Site :- Govt. Agri. Res. Farm., Belatal.

Object :- To study the effect of different control measures against the spotted bollworms of Cotton.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 18.7.1953. (iv) (a) to (e) N.A. (v) Nil. (vi) 35/1. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) Oct. and Nov. 1953.

2. TREATMENTS:
   1. Dusting with 5% D.D.T. (Guesrol 405, 5% D.D.T.)
   2. Dusting with 50% BHC. (Gammexane 5% BHC.)
   3. Spraying with 0.2% BHC. (Agrocide wett powder 5% BHC.)
   4. Spraying with 0.2% D.D.T. (Guesrol 550, 5% D.D.T.)
   5. Removal of tops of seedlings from below the bored plants and destruction of insect within, followed by treatment.
   6. Control.
   Dust at 8 lb./ac. Sprays at 20 gallons/ac. First application on 15.8.1953. Second application on 6.9.1953.

3. DESIGN:
   (i) (a) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 22'x12'. (v) N.A. (iv) Yes.

4. GENERAL:
   (i) Fair. (ii) Under study. (iii) % incidence of pest before and after application of treatments. (20 plants were examined for each plot). (iv) (a) 1953 - contd. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) N.A. (vii) Inverse transformation has been done after applying bias correction. The experiment was conducted by Ento (K).

5. RESULTS:
   (i) to (iv) % incidence of pest on 26.9.1953/plot (transformed back)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value</th>
<th>% incidence of pest on 26.9.1953/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>43.08</td>
<td>46.68</td>
</tr>
<tr>
<td>2.</td>
<td>43.09</td>
<td>46.70</td>
</tr>
<tr>
<td>3.</td>
<td>40.10</td>
<td>41.56</td>
</tr>
<tr>
<td>4.</td>
<td>42.12</td>
<td>45.03</td>
</tr>
<tr>
<td>5.</td>
<td>43.08</td>
<td>46.68</td>
</tr>
<tr>
<td>6.</td>
<td>44.03</td>
<td>48.32</td>
</tr>
</tbody>
</table>

S.E./mean 2.058 lb./ac.
Crop :- Cotton (Kharif).

Site :- Govt. Agri. Farm, Kanpur.

Object :- To study the effect of different control measures against Cotton leaf roller.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) Perso American and 100 F. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :
   1. Spraying with 0.5% D D.T. suspension in water.
   2. Spraying with 0.5% BHC: suspension.
   3. Dusting with pyrodust 400.
   4. Dusting with toxaphene dust.

   Dust used at 50 lb./ac. and spray at 100 gallons/ac.; application in 1st week of September, 1950 for all treatments.

3. DESIGN :
   (i) R.B.D. (ii) (a) 4. (t) N.A. (iii) 3 for each variety. (iv) (a) N.A. (b) 78'x20'. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) Under study. (iii) 50 plants were examined for leaf roller disease. (iv) (a) No. (b) and (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The analysis has been done after transforming the data to \( \sin^{-1}\sqrt{p} \) where \( p \) =% of plants having rolled leaves. Transformation has been done after applying bias correction. The experiment was conducted by Ento (K).
5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle per pot</th>
<th>% of plants having rolled leaves (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>73.71</td>
<td>91.68</td>
</tr>
<tr>
<td>2.</td>
<td>66.09</td>
<td>83.33</td>
</tr>
<tr>
<td>3.</td>
<td>65.96</td>
<td>83.07</td>
</tr>
<tr>
<td>4.</td>
<td>71.69</td>
<td>90.70</td>
</tr>
<tr>
<td>G.M.</td>
<td>69.36</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>3.486</td>
<td></td>
</tr>
</tbody>
</table>

Significance: Not significant

Variety: Perso American

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle per plot</th>
<th>% of plants having rolled leaves (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>74.67</td>
<td>92.57</td>
</tr>
<tr>
<td>2.</td>
<td>54.89</td>
<td>66.83</td>
</tr>
<tr>
<td>3.</td>
<td>76.69</td>
<td>94.25</td>
</tr>
<tr>
<td>4.</td>
<td>84.52</td>
<td>98.61</td>
</tr>
<tr>
<td>G.M.</td>
<td>72.69</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>5.401</td>
<td></td>
</tr>
</tbody>
</table>

Significance: Significant

Crop: Cotton (Kharif).  
Ref:- U.P. 49(216).  
Type:- 'D'.  
Object:—To study the effect of different control measures against the Cotton leaf roller.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) (a) N.A.  (b) Refer soil analysis, Raya.  (iii) 19.5.1949.  (iv) (a) to (e) N.A.  (v) N.A.  (vi) Perso American (early).  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) 2nd picking on 9.11.1949.

2. TREATMENTS:
   1. Hand picking of rolled leaves.
   2. Dusting with sodium fluosilicate.
   3. Dusting with 5% benzene-hexachloride dust.
   4. Dusting with 5% D.D.T. dust.
   5. Control.

Insecticides dusted at 80 lb./ac. in last week of August and first week of October.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 6.  (iv) (a) N.A.  (b) 36°X30°.  (v) 4° all round the plot.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) Yield and number of plants.  (iv) (a) No.  (b) and (c) No.  (v) (a) No.  (b) Nil.  (vi) Nil.  (vii) The experiment was conducted by Ento (K).

5. RESULTS:
   (i) 322 lb./ac.
   (ii) 90.19 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of cotton in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>374</td>
</tr>
<tr>
<td>2.</td>
<td>255</td>
</tr>
<tr>
<td>3.</td>
<td>328</td>
</tr>
<tr>
<td>4.</td>
<td>368</td>
</tr>
<tr>
<td>5.</td>
<td>283</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=36.82 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Cotton (Kharif).  
Site: Govt. Cotton Res. Sub-Stn., Raya.  
Ref:- U.P. 50(266).  
Type:-'D'.  
Object:—To study the effect of different control measures against Cotton leaf roller.

1. BASAL CONDITIONS:
2. TREATMENTS:
1. Hand picking of rolled leaves and destruction of larvae and pupae inside the leaves.
2. Dusting with sodium fluosilicate in the ratio of 1 : 8 to ash.
3. Dusting with gammexane.
4. Dusting with (guestrol 405) 5% D.D.T. dust.
5. Spraying with (guestrol 550) 0.5% D.D.T.
6. Control.
Dusted at 50 lb./ac. and suspension liquid at 100 gallon per acre once in last week of August.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 36'x30'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) Percentage of plants having rolled leaves, one week and one month after application f treatments. (iv) (a) 1949 - 1950 (modified this year). (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The data has been converted into sin^{-1}p and then analysed. The experiment was conducted by Ento(K).

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Mean % of rolled leaves (transformed back)</th>
<th>Mean angle</th>
<th>Mean % of rolled leaves (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14.92</td>
<td>7.03</td>
<td>11.04</td>
<td>4.11</td>
</tr>
<tr>
<td>2.</td>
<td>25.88</td>
<td>19.36</td>
<td>16.23</td>
<td>8.23</td>
</tr>
<tr>
<td>3.</td>
<td>19.18</td>
<td>11.19</td>
<td>11.64</td>
<td>4.53</td>
</tr>
<tr>
<td>4.</td>
<td>13.51</td>
<td>5.94</td>
<td>8.53</td>
<td>2.68</td>
</tr>
<tr>
<td>5.</td>
<td>12.33</td>
<td>5.01</td>
<td>4.09</td>
<td>1.00</td>
</tr>
<tr>
<td>6.</td>
<td>.53</td>
<td>0.88</td>
<td>0.96</td>
<td>0.53</td>
</tr>
<tr>
<td>G.M.</td>
<td>14.89</td>
<td></td>
<td>8.75</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.379</td>
<td></td>
<td>2.146</td>
<td></td>
</tr>
</tbody>
</table>

Significance: Highly significant

Crop :- Cotton (Kharif).
Site :- Govt. Cotton Res. Sub-Stn., Raya.

Ref :- U.P. 53(312).
Type :- 'D'.

Object :- To study the effect of different control measures against the spotted boll worms of Cotton.

1. BASAL CONDITIONS:
(i) (a) Wheat or Rabi crop–Cotton. (b) and (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) 20.5.1953. (iv) (a) to (e) N.A. (v) Nil. (vi) Perso American and 216 F. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) October and November, 1953.

2 TREATMENTS:
1. Dusting with 5% D.D.T. (guestrol 405. 5% D.D.T.).
2. Dusting with 5% BHC. (gammexane D.O. 25, 5% BHC.).
3. Spraying with 2% BHC. (agrocide wettable powder, 50% BHC.).
4. Spraying with 0.2% (guestral 550, 50% D.D.T.).
5. Removal of tops of seedlings from below the bored plant and destruction of insect within, followed by a treatment.
6. Control.
Dust at 8 lb./ac. and sprays at 20 gallons/ac ; first application on 9.8.1953.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) 40'x27.2' (v) N.A. (vi) Yes.

4. GENERAL:
(i) Fair. (ii) Under study. (iii) % incidence of pest before and 10 days after application. (iv) (a) and (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Bias correction has been applied while transforming back the means. The data has been converted into sin^{-1}p where p is the % incidence and then analysed. The experiment was conducted by Ento (K).
5. RESULTS:
(i) to (iv) % incidence 10 days after 1st application.

\[
\begin{array}{ccc}
\text{Treatment} & \text{Mean angle} & \% \text{incidence of pest} \\
1. & 44.04 & 48.34 \\
2. & 43.07 & 46.66 \\
3. & 43.08 & 46.68 \\
4. & 36.66 & 35.79 \\
5. & 42.12 & 45.03 \\
6. & 49.32 & 57.45 \\
\text{G.M.} & 43.05 & \text{S.E./mean } 1.364 \\
\text{Significance} & \text{Highly significant} & \\
\end{array}
\]

Crop :- Cotton (Kharif).
Site :- Govt. Cotton Res. Sub-Stn., Raya.

Object :- To find out the effect of treating Cotton seed with Perenox on its yield.

1. BASAL CONDITIONS :
(i) (a) Cotton-Pea-G.M.-Wheat. (b) Wheat. (c) G.M. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya.
(iii) 9.6.1953. (iv) (a) N.A. (b) Sown behind plough. (c) N.A. (d) Rows 2' apart ; plant to plant 1'.

2. TREATMENTS:
1. Control.
2. Seed dressed with 1 part of Perenox to 300 parts of seed by weight.
3. Seed dressed with 1 part of Perenox to 400 parts of seed by weight.

3. DESIGN :
(i) R.B.D. (ii) 3. (b) N.A. (iii) 6. (iv) (a) 74' x 12'. (b) 66' x 8'. (v) One row on either side and 4 ft. at each end of every plot. (vi) Yes.

4. GENERAL :
(i) Fair. (ii) Attack of leaf roller on 216 F plots only. (iii) Yield of kapas. (iv) (a) 1953—1954. (b) No. (c) Nil. (v) (a) and (b) Cotton Research Station, Bulandshahar. (vi) Nil. (vii) The experiment was conducted by E.B.(C).

5. RESULTS:
Variety : 216 F
(i) 581.1 lb./ac.
(ii) 68.5 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of kapas in lb./ac.

\[
\begin{array}{ccc}
\text{Treatment} & \text{Av. yield} \\
1. & 575.8 \\
2. & 599.9 \\
3. & 567.7 \\
\text{S.E./mean} & 27.9 lb./ac. \\
\end{array}
\]

Variety : 35/1
(i) 477.7 lb./ac.
(ii) 86.6 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of kapas in lb./ac.

\[
\begin{array}{ccc}
\text{Treatment} & \text{Av. yield} \\
1. & 454.7 \\
2. & 477.4 \\
3. & 501.1 \\
\text{S.E./mean} & 35.4 lb./ac. \\
\end{array}
\]

Ref :- U.P. 53(135).
Type :-'D'.
Crop: Tobacco.
Site: College Farm, B H.U., Varanasi.
Object: To study the effect of single and split application of A/S on growth, yield and quality of Tobacco.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi. (iii) N.A. (iv) (a) Ploughed with victory plough, twice with Meston plough and twice with desi plough and planking. (b) Transplanting. (c) —. (d) Between rows 2′, between plants 2′. (e) 2 seedlings/hole; 1 seedling/hole. (v) A mixture of 1 lb. triple Super and 1 lb. Pot. sul. p.r plot. (vi) I.P. 58 (Improved chewing and hooka type). (vii) Irrigated. (viii) Thinning, topping and suckering. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2) + a control.
(1) 3 doses of N as A/S: N₁ =30, N₂ =60 and N₃ =90 lb./ac.
(2) 3 applications of doses: F₁ = Single dose, F₂ = ½ dose at transplanting + ½ dose 2 months after transplanting and F₃ = ½ dose at transplanting + ½ dose 2 months after transplanting.

3. DESIGN:
(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 24′×22′.5. (b) 20′×17.5′. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A (iii) Fresh and dry weight of plant, no. of leaves, ht. of plant etc. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:
(i) 771.2 lb./ac.
(ii) 15.11 lb./ac.
(iii) Effect of 'A' and control vz. treated are highly significant.
(iv) Av. yield of tobacco in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>F₁</th>
<th>F₂</th>
<th>F₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁</td>
<td>720.5</td>
<td>722.5</td>
<td>715.4</td>
<td>719.5</td>
</tr>
<tr>
<td>N₂</td>
<td>790.5</td>
<td>794.2</td>
<td>785.4</td>
<td>791.0</td>
</tr>
<tr>
<td>N₃</td>
<td>850.6</td>
<td>861.2</td>
<td>840.4</td>
<td>850.7</td>
</tr>
<tr>
<td>Mean</td>
<td>787.2</td>
<td>792.6</td>
<td>780.4</td>
<td>786.7</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 4.36 lb./ac.
S.E. of body of table = 7.56 lb./ac.

Crop: Jute (Kharif).
Site: Jute Exptl. and Demon. Farm, Gogrighat.
Object: To compare different methods of sowing Jute.

1. BASAL CONDITIONS:
(i) (a) and (b) Nil. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 25.3.1951. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) Plant to plant distance = 3′ and between rows as per treatments. (e) N.A. (v) N.A. (vi) and (vii) N.A. (viii) Weeding. (ix) 10.68°. (x) N.A.

2. TREATMENTS:
4 methods of sowing:
1. Sowing by broadcasting.
2. Sowing at a distance of 1′—3′ line by line.
3. Sowing at a distance of 1′—6′ line by line.
4. Sowing at a distance of 1′—0′ line by line.
3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) 175' x 10'. (iii) 4. (iv) (a) 40' x 10'. (b) 1/144 ac. (v) Distance between plots—3', and distance between blocks—3'. (vi) Yes.

4. GENERAL:
(i) and (ii) N.A. (iii) Wt. of green jute plant, wt. of wet fibre and wt. of dry fibre. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by J.D.O.

5. RESULTS:
(i) 1564 lb./ac. (ii) 703.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of dry fibre in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1606</td>
</tr>
<tr>
<td>2.</td>
<td>1599</td>
</tr>
<tr>
<td>3.</td>
<td>1699</td>
</tr>
<tr>
<td>4.</td>
<td>1444</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>351.6 lb./ac.</td>
</tr>
</tbody>
</table>

---

Crop: Jute (Kharif).  
Ref: U.P. 51(299).  
Site: Jute Exptl. and Demon. Farm, Gogrghat.  
Type: 'C'.

Object:—To compare different methods of sowing Jute.

1. BASAL CONDITIONS:
(i) (a) and (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 19.3.1851. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) Plant to plant distance—3'-4' and distance between lines as per treatments. (e) N.A. (v) to (vii) N.A. (viii) Weeding. (ix) 10.68'. (x) N.A.

2. TREATMENTS:
3 methods of sowing
1. Sowing by broadcasting and pata.  
2. Sowing in lines at a distance of 6" apart and pata.  
3. Sowing in lines at a distance of 1' apart and pata.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) 135' x 20'. (iii) 4. (iv) (a) 42' x 20'. (b) 1/60.5 ac. (v) Distance between blocks=3' and distance between plots=2'. (vi) Yes.

4. GENERAL:
(i) and (ii) N.A. (iii) Wt. of green jute plant, wt. of wet fibre and wt. of dry fibre. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by J.D.O.

5. RESULTS:
(i) 1248 lb./ac. (ii) 391.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of dry fibre in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>931</td>
</tr>
<tr>
<td>2.</td>
<td>1598</td>
</tr>
<tr>
<td>3.</td>
<td>1213</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>196.6 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Jute (Kharif).
Site: Jute Exptl. and Demon. Farm, Gograghat.
Ref: U.P. 52(341).
Type: 'C'.

Object: To compare different seed rates.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 47.1952. (iv) (a) N.A. (b) N.A. (c) As per treatments. (d) N.A. (e) N.A. (v) N.A. (vi) D-154. (vii) N.A. (viii) N.A. (ix) 15.50°. (x) N.A.

2. TREATMENTS:
3 seed rates: S1=3, S2=4 and S3=4$\frac{1}{2}$ seer/ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 42'X20'. (b) 1/60.3 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Wt. of green jute plant, wt. of wet fibre, and wt. of dry fibre. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by J.D.O.

5. RESULTS:
(i) 821.8 lb./ac.
(ii) 401.6 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of dry fibre in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>368.3</td>
</tr>
<tr>
<td>S2</td>
<td>1184.2</td>
</tr>
<tr>
<td>S3</td>
<td>912.9</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>$=200.8$ lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Groundnut (Kharif).
Site: Govt. Agri. Res. Farm, Kalyanpur.
Ref: U.P. 53(28).
Type: 'CV'.

Object: To find out the best time of harvesting different varieties of Groundnut.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Chari and gram. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) 5.7.1953. (iv) (a) to (e) N.A. (v) No. (vi) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) 13.375°. (x) As per treatments.

2. TREATMENTS:
All combinations (1) and (2)
(2) 4 varieties: V1=R.B. 1 (early), V2=T.M.V. 2 (early), V3=A.K. 12-24 (early) and V4=T.19 (late).

3. DESIGN:
(i) 4X4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b) 24'$\times$194'. (v) No. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) % of germination, growth, 50% flowering date, yield, weight of two parts in gm., no. of kernels in 100 parts, ws of kernels in gm., kernel size, % of oil content, free fatty acids and wt. of unhealthy kernel and their %. (iv) (a) 1953=N.A. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.(O).

5. RESULTS:
(i) 203.8 lb./ac.
(ii) 101.9 lb./ac.
(iii) V effect is highly significant.
(iv) Av. yield of pod in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>161.2</td>
<td>176.7</td>
<td>83.7</td>
<td>96.1</td>
<td>129.4</td>
</tr>
<tr>
<td>V₂</td>
<td>139.5</td>
<td>136.4</td>
<td>167.4</td>
<td>133.3</td>
<td>144.2</td>
</tr>
<tr>
<td>V₃</td>
<td>158.1</td>
<td>130.2</td>
<td>89.9</td>
<td>117.8</td>
<td>124.0</td>
</tr>
<tr>
<td>V₄</td>
<td>430.9</td>
<td>471.2</td>
<td>362.7</td>
<td>406.1</td>
<td>417.7</td>
</tr>
<tr>
<td>Mean</td>
<td>222.4</td>
<td>228.6</td>
<td>175.9</td>
<td>188.3</td>
<td>203.8</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 29.43 lb./ac.
S.E. of body of table = 58.87 lb./ac.

Crop: Groundnut (Kharij).
Site: Govt. Agri. Res. Farm, Kalyanpur.
Object: To find out the best seed rate and spacing for different varieties of Groundnut.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari and gram. (c) Nil.
   (ii) (a) Sandy loam. (b) N.A. (iii) 5.7/1953
   (iv) (a) and (b) N.A. (c) and (d) As per treatments.
   (v) (a) and (b) N.A. (vi) As per treatments.
   (vii) Unirrigated. (viii) N.A. (ix) 13.375°. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   - 2 spacings between rows: S₁ = 11’ and S₂ = 2’.
   Sub-plot treatments:
   - All combinations of (1) and (2)
   (1) 2 varieties: V₁ = T-25 (late) and V₂ = EC 1699.
   (2) 3 seed rates: R₁ = 40, R₂ = 60 and R₃ = 80 lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block and 6 sub-plots/main-plot. (b) N.A. (iii) 3.
   (iv) (a) and (b) 46’x18’. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) No. (iii) % germination, growth, 50% flowering date and groundnut yield.
   (iv) 1953—N.A. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (O).

5. RESULTS:
   (i) 238.2 lb./ac.
   (ii) (a) 24.64 lb./ac.
   (b) 87.36 lb./ac.
   (iii) V and R effect and interaction V×R are significant. Others are not significant.
   (iv) Av. yield of pod in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>S₁</th>
<th>S₂</th>
<th>Mean</th>
<th>V₁</th>
<th>V₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>R₁</td>
<td>209.6</td>
<td>143.8</td>
<td>176.7</td>
<td>255.2</td>
<td>98.2</td>
</tr>
<tr>
<td>R₂</td>
<td>224.5</td>
<td>259.5</td>
<td>242.0</td>
<td>229.7</td>
<td>254.3</td>
</tr>
<tr>
<td>R₃</td>
<td>297.3</td>
<td>294.6</td>
<td>295.9</td>
<td>356.0</td>
<td>235.9</td>
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<tr>
<td>Mean</td>
<td>243.8</td>
<td>232.6</td>
<td>238.2</td>
<td>280.3</td>
<td>196.1</td>
</tr>
</tbody>
</table>

Ref.: U.P. 53(27). Type: ‘CV’.
S.E. of difference of two
1. S marginal means = 8.21 lb./ac.
2. V marginal means = 29.12 lb./ac.
3. R marginal means = 35.66 lb./ac.
4. V means at a level of S = 41.18 lb./ac.
5. S means at a level of V = 30.27 lb./ac.
6. R means at a level of S = 50.44 lb./ac.
7. S means at a level of R = 42.01 lb./ac.
S.E. of body of V × R table = 35.66 lb./ac.

Crop: Groundnut (Kharif).
Site: Govt. Res. Farm, Kanpur.
Ref: U.P. 52(250).
Type: 'CV'.

Object: To find out the best time of harvesting different varieties of Groundnut.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) As per treatments
(vii) N.A. (viii) N.A. (ix) N.A. (x) As per treatments.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 dates of harvesting: D1 = 12, 13.10.1952, D2 = 21, 22.10.1952, D3 = 28, 29.10.1953 and D4 = 4, 5.11.1952.
(2) 4 varieties: V1 = T.19 (late), V2 = T.M.V-2 (late), V3 = R.B. 1 (late) and V4 = A.K. 12-24 (late).

3. DESIGN:
(i) 4×4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b) 24'×50'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Germination, growth, flowering and yield of pods. (iv) (a) 1952—N.A. (b) N.A.
(c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Data considered only for two replications because in one replication pig destroyed many plots. The original plot-wise data was not available, the analysis and the average yield has been given by research station. The experiment was conducted by E.B. (O).

5. RESULTS:
(i) 1132 lb./ac.
(ii) 176.0 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of pod in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>1009</td>
<td>1338</td>
<td>1122</td>
<td>1009</td>
<td>1119</td>
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<tr>
<td>D2</td>
<td>1243</td>
<td>1147</td>
<td>1289</td>
<td>1234</td>
<td>1228</td>
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<td>D3</td>
<td>1129</td>
<td>1149</td>
<td>1045</td>
<td>1123</td>
<td>1112</td>
</tr>
<tr>
<td>D4</td>
<td>1252</td>
<td>916</td>
<td>1036</td>
<td>1056</td>
<td>1065</td>
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<tr>
<td>Mean</td>
<td>1158</td>
<td>1136</td>
<td>1123</td>
<td>1106</td>
<td>1132</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 62.3 lb./ac.
S.E. of body of table = 124.5 lb./ac.
Crop: Groundnut (Kharif).
Site: Govt. Res. Farm, Kanpur.
Object: To test the efficacy of various seed treatments on germination and stand of Groundnut.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A.  (ii) (a) Loam. (b) N.A.  (iii) 27.6.1950. (iv) (a) to (e) N.A.  (v) N.A.
(vi) Local.  (vii) to (x) N.A.

2. TREATMENTS:
1. Agrosan G.N.
2. Ceresan.
3. Copper carbonate.
4. Spergon (dust).
5. Spergon (wettable).
6. Phygonel.
7. Control.

3. DESIGN:
(i) R.B.D.  (ii) (a) 7. (b) N.A.  (iii) 2. (iv) (a) and (b) 2 rows/plot.  (v) Nil.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) % of germination.  (iv) 1950-1952.  (b) No.  (c) N.A.  (v) (a) No. (b) N.A.
(vi) Nil.  (vii) The experiment was conducted by P.P.  Transformed back mean percentages are given after applying bids correction. The yield data could not be taken due to damage by Porcupines.

5. RESULTS:
(i) to (iv) Treatment  Mean angle  % germination (transformed back)
1. 62.48 78.41
2. 56.17 68.81
3. 54.78 66.53
4. 58.44 72.37
5. 54.84 66.63
6. 47.06 53.56
7. 51.20 60.59
S.E./mean 55.00
Significance Significant

Crop: Groundnut (Kharif).
Site: Govt. Res. Farm, Kanpur.
Object: To test the efficacy of various seed dressings on germination and stand of Groundnut.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A.  (ii) (a) Loam. (iii) 8.6.1951. (iv) (a) and (b) N.A.  (c) 500 seeds/treatment (d) and (e) N.A.  (v) N.A.  (vi) T-25.  (vii) to (x) N.A.

2. TREATMENTS:
1. Agrosan G.N.
2. Ceresan.
3. Spergon.
4. Spergon (wettable).
5. Phygonel.
6. Tilex.
7. Copper carbonate.
8. Control.

3. DESIGN:
(i) R.B.D.  (ii) (a) 8. (b) N.A.  (iii) 4. (iv) (a) and (b) 4 rows/plot.  (v) Nil.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) % germination.  (iv) 1950-1952.  (b) No.  (c) N.A.  (v) (a) No. (b) N.A.
(vi) Nil.  (vii) The experiment was conducted by P.P.  The data has been converted in Sin-1 and then analysed.
5. RESULTS:

(i) 65.42 degrees.
(ii) 4.933 degrees.
(iii) Treatment differences are highly significant.
(iv) % germination.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>transformed back</th>
<th>Treatment</th>
<th>Mean angle</th>
<th>transformed back</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>73.63</td>
<td>91.53</td>
<td>5.</td>
<td>61.06</td>
<td>76.33</td>
</tr>
<tr>
<td>2.</td>
<td>60.91</td>
<td>76.14</td>
<td>6.</td>
<td>69.42</td>
<td>87.22</td>
</tr>
<tr>
<td>3.</td>
<td>68.88</td>
<td>86.63</td>
<td>7.</td>
<td>64.82</td>
<td>81.58</td>
</tr>
<tr>
<td>4.</td>
<td>64.34</td>
<td>80.99</td>
<td>8.</td>
<td>60.33</td>
<td>75.25</td>
</tr>
</tbody>
</table>

S.E./mean = 2.467

Crop: - Groundnut (Kharif).
Site: - Govt. Res. Farm, Kanpur.

Object: - To test the efficacy of various seed treatments on germination, stand and yield of Groundnut.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) (a) and (b) N.A. (iii) 22.7.1952. (iv) (a) to (e) N.A. (v) N.A. (vi) T. 25 for 1st expt. and T. 27 for 2nd expt. (vii) to (x) N.A.

2. TREATMENTS:

1. Control.
2. Tritisan 1 : 30 dosage.
3. Agrosan G.N. 1 : 30 dosage.
4. Ceresan 1 : 30 dosage.
5. Tilex 1 : 30 dosage.
6. Spergon 1 : 30 dosage.
7. Hevasan 1 : 30 dosage.

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4 for 1st expt. and 2 for 2nd expt. (iv) (a) and (b) 1st expt. — single row of 40' and 2nd expt. — single row of 80'. (v) Nil. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Percentage of germination. (iv) (a) 1950—1952. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) Transformed back mean percentages are given after applying bias correction. The data has been converted into $\sin^{-1}\sqrt{p}$ and then analyzed. The experiment was conducted by P.P.

5. RESULTS:

<table>
<thead>
<tr>
<th>1st expt.</th>
<th>Treatment</th>
<th>Mean angle in degrees</th>
<th>Mean %—transformed back</th>
<th>2nd expt.</th>
<th>Treatment</th>
<th>Mean angle in degrees</th>
<th>Mean %—transformed back</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>48.23</td>
<td>55.54</td>
<td>38.03</td>
<td>1.</td>
<td>37.38</td>
<td>38.03</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>44.40</td>
<td>49.01</td>
<td>43.96</td>
<td>2.</td>
<td>41.48</td>
<td>43.96</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>36.25</td>
<td>35.17</td>
<td>34.06</td>
<td>3.</td>
<td>35.59</td>
<td>34.06</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>37.32</td>
<td>36.83</td>
<td>38.12</td>
<td>4.</td>
<td>38.05</td>
<td>38.12</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>49.42</td>
<td>57.62</td>
<td>50.99</td>
<td>5.</td>
<td>45.58</td>
<td>50.99</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>47.66</td>
<td>54.55</td>
<td>49.01</td>
<td>6.</td>
<td>44.42</td>
<td>49.01</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>46.05</td>
<td>51.77</td>
<td>47.03</td>
<td>7.</td>
<td>43.26</td>
<td>47.03</td>
<td></td>
</tr>
<tr>
<td>G.M.</td>
<td>44.19</td>
<td>G.M.</td>
<td>40.82</td>
<td>S.E./mean</td>
<td>4.036</td>
<td>S.E./mean</td>
<td>3.998</td>
</tr>
<tr>
<td>Significance</td>
<td>N.S.</td>
<td>Significance</td>
<td>N.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ref: - U.P. 52(292).
Type: - 'D'.
Object:—To study the efficacy of sulphur dusting at different intervals in controlling leaf spots of Groundnut.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 27.6.1950. (iv) (a) to (e) N.A. (v) N.A. (vi) T. 27 (late) and T. 31 (early). (vii) to (x) N.A.

2. TREATMENTS:
   1. 7 sulphur dustings at an interval of 7 days.
   2. 5 sulphur dustings at an interval of 10 days.
   3. 3 sulphur dustings at an interval of 15 days.
   4. Control (no dusting).
   Sulphur dusting from 20.8.1950 at the rate of 30 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 10'×8'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Leaf spot—as per treatments. (iii) % of affected leaves and pod yield. (iv) (a) 1950—1953. (a) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Transformed back mean percentages are given after applying bias correction. The data has been converted into sin^-1√p and then analysed. The experiment was conducted by P.P.

5. RESULTS:

<table>
<thead>
<tr>
<th>Variety T. 27: (i) to (iv)</th>
<th>Treatment</th>
<th>Mean angle in degrees</th>
<th>Mean %—transformed back</th>
<th>Mean %—transformed back</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>55.02</td>
<td>66.93</td>
<td>66.93</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>43.85</td>
<td>48.12</td>
<td>48.12</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>53.75</td>
<td>64.85</td>
<td>64.85</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>66.88</td>
<td>84.32</td>
<td>84.32</td>
<td></td>
</tr>
<tr>
<td>G.M.</td>
<td>54.88</td>
<td>G.M.</td>
<td>60.66</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>3.423</td>
<td>S.E./mean</td>
<td>2.926</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Significant</td>
<td>Significance</td>
<td>N.S.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variety T. 31: (i) to (iv)</th>
<th>Treatment</th>
<th>Mean angle in degrees</th>
<th>Mean %—transformed back</th>
<th>Mean %—transformed back</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>52.58</td>
<td>62.97</td>
<td>62.97</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>60.04</td>
<td>74.84</td>
<td>74.84</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>59.86</td>
<td>74.55</td>
<td>74.55</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>70.18</td>
<td>88.12</td>
<td>88.12</td>
<td></td>
</tr>
</tbody>
</table>

Crop :—Groundnut (Khari/).
Site :—Govt. Res. Farm, Kanpur.
Ref :—U.P. 51(241).
Type :- ‘D’.

Object:—To study the efficacy of sulphur dusting at different intervals in controlling leaf spots of Groundnut.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 27 and 28.6.1951. (iv) (a) to (e) N.A. (v) N.A. (vi) T.25 (late) T.31 and B.1 (early). (vii) to (x) N.A.

2. TREATMENTS:
   1. No dusting (control).
   2. 5 sulphur dustings at an interval of 10 days.
   3. 4 sulphur dustings at an interval of 15 days.
   Sulphur dusting started on 29.8 1951 at the rate of 16 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 10'×8'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Leaf spot—as per treatment. (iii) % of diseased area in a leaf and groundnut yield. (iv) (a) 1950—1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vi) The experiment was conducted by P.P.
5. RESULTS:

Groundnut late variety (Kharif)
(i) 2113 lb./ac.
(ii) 357.9 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of pod in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1750</td>
</tr>
<tr>
<td>2.</td>
<td>2506</td>
</tr>
<tr>
<td>3.</td>
<td>2128</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=160.0 lb./ac.</td>
</tr>
</tbody>
</table>

Groundnut early variety (Kharif)
(i) 1171 lb./ac.
(ii) 494.9 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of pod in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1400</td>
</tr>
<tr>
<td>2.</td>
<td>840</td>
</tr>
<tr>
<td>3.</td>
<td>1274</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 221.3 lb./ac.</td>
</tr>
</tbody>
</table>


crop: Groundnut (Kharif).
site: Govt. Res. Farm, Kanpur.

Object: To test the efficacy of sulphur dusting at different intervals in controlling the leaf spots of Groundnut.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) and (b) N.A. (iii) 8.7.1952. (iv) (a) to (e) N.A. (v) N.A. (vi) T.25 (late) (vii) to (x) N.A.

2. TREATMENTS:
   1. Control.
   2. Sulphur dusting at an interval of 10 days.
   3. Sulphur dusting at an interval of 15 days.
   4. Copper sandoz dust (7½ metallic copper) at an interval of 15 days.
   Date of 1st dusting 7.10.1952.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 10' x 8'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Leaf spot—as per treatments. (iii) Groundnut yield. (iv) (a) 1950—1953. (b) and (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.F.

5. RESULTS:
   (i) 1158 lb./ac.
   (ii) 494.6 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of pod in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1132</td>
</tr>
<tr>
<td>2.</td>
<td>1038</td>
</tr>
<tr>
<td>3.</td>
<td>1400</td>
</tr>
<tr>
<td>4.</td>
<td>1062</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 20.19 lb./ac.</td>
</tr>
</tbody>
</table>


crop: Groundnut (Kharif).
site: Govt. Res. Farm, Kanpur.

Object: To test the efficiency of sulphur dusting at different intervals in controlling leaf spots of Groundnut.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (j) (a) Loam. (b) N.A. (iii) 6.7.1953. (iv) (a) 2 ploughings. (b) N.A. (c) N.A. (d) 9 rows in a plot and distance between plots 6'. (e) N.A. (v) Nil. (vi) T-25 (late). (vii) Unirrigated. (viii) One weeding done. (ix) 33.28°. (x) 12.11.1953.
2. TREATMENTS:
1. Control.
2. Dusting at the interval of 10 days.
3. Dusting at the interval of 15 days.
Dusting done at the rate of 16 lb./ac. of sulphur mixed with finer powdered dust.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) and (b) 10'×8'. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) Badly damaged by pacuines. Sulphur dusting as per treatments. (iii) % leaf affected and yield. (iv) (a) 1950—1953. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) The disease appeared in mild form and therefore only two dustings were given. There was heavy rainfall just after sowing which affected germination of seed in general. (vii) The experiment was conducted by P.P. (G).

5. RESULTS:
(i) 233.4 lb./ac.
(ii) 139.3 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of pods in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>221.7</td>
</tr>
<tr>
<td>2.</td>
<td>256.7</td>
</tr>
<tr>
<td>3.</td>
<td>221.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=56.9 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Groundnut (Kharif).
Site : Govt. Res. Farm, Kanpur.
Object : To determine the efficacy of various fungicide sprays in controlling leaf spots of Groundnut.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) and (b) N.A. (iii) 28.6.1950. (iv) (a) to (e) N.A. (v) N.A. (vi) T-27 (late); T-31 (early). (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Bordeaux mixture+linseed oil.
2. Perenox (4.5 ozs. in 10 gallons)+linseed oil.
3. Dilhan Z.78+linseed oil.
4. Dilhan D-14+linseed oil.
5. Control.
Number of sprays—3. Interval between sprays 15 days. First spraying on 21.8.1950.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 10'×8'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Attack of leaf spots—as per treatments. (iii) Percentages of affected pods. (iv) (a) 1950—1951. (b) No. (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) Transformed back mean percentages are given after applying the bias correction. The data has been converted into \( \sin^{-1}\sqrt{y/p} \) and then analysed. The experiment was conducted by P.P.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle transformed back</th>
<th>Variance T-31 : (i) to (iv)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>43.80 47.92</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>52.86 63.36</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>61.03 76.23</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>70.28 88.22</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>77.34 94.75</td>
<td>5.</td>
</tr>
<tr>
<td>G.M.</td>
<td>61.06</td>
<td>G.M.</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=2.469</td>
<td>S.E./mean</td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant.</td>
<td>Significance</td>
</tr>
</tbody>
</table>

Ref :—U.P. 50(252).
Type :—D'.
Crop: Groundnut (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To determine the efficacy of various copper fungicidal sprays in controlling leaf spots of Groundnut.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) 28.6.1951. (iv) (a) to (c) N.A. (v) N.A. (vi) T-25 (late), T-31 and RBI (early) maturing variety. (vii) to (x) N.A.

2. TREATMENTS:
   1. Control (no spraying).
   2. Bordeaux mixture (2 : 2 : 5)+linseed oil as sticker.
   3. Perenox 0.15%+linseed oil.
   4. Cupravite 0.15%+linseed oil.
   Spraying done at an interval of 15 days. Number of spraying is 4. 1st spraying on 4.9.1951.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 10’x8’. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Groundnut yield. (iv) (a) 1950-1951. (b) and (c) N.A. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by P.P. As exact percentage of disease was not given replication-wise only yield data was analysed.

5. RESULTS:
   Variety T-25:
   (i) 2770 lb./ac.
   (ii) 355.6 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of pods in lb./ac.
   Treatment | Av. yield
   1. | 2398
   2. | 2730
   3. | 2853
   4. | 3098
   S.E./mean = 177.8 lb./ac.
   Variety T-31+RBI:
   (i) 1321 lb./ac.
   (ii) 557.3 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of pods in lb./ac.
   Treatment | Av. yield
   1. | 1453
   2. | 1085
   3. | 1400
   4. | 1348
   S.E./mean = 278.7 lb./ac.

Crop: Castor.
Site: Govt. Agri. Res. Farm, Kalyanpur.

Object: To see the effect of time of sowing and spacing on the growth of Castor.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Chari and gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) and (b) N.A. (c) 144 seeds or 11 chk /plot. (d) As per treatments. (e) 2 seeds/hole. (v) Nil. (vi) T-25. (vii) Unirrigated. (viii) N.A. (ix) 13.38’. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   4 dates of sowing: D1=7.7.1953, D2=7.8.1953, D3=12.9.1953 and D4=1st week of October.
   Sub-plot treatments:
   3 spacings: S1=3’-2”, S2=3’-3” and S3=3’-4”.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/block and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 12’x24’. (b) 6’x24’.
   (v) 3’ along breadth only. (vi) No.

4. GENERAL:
   (i) Good. (ii) Attack of alternaria. (iii) No. of plants, flowering %, growth, disease and pest incidences, ht. of plants and length of spikes, maturity and yield. (iv) (a) 1953—N.A. (b) No (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B.O.
5. RESULTS:
(i) 459.6 lb/ac.
(ii) (a) 259.9 lb/ac. 
(b) 135.4 lb/ac.
(iii) Only D effect is significant.
(iv) Av. yield of castor in lb/ac.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>813.0</td>
<td>554.3</td>
<td>627.3</td>
<td>664.9</td>
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<tr>
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<tr>
<td>D4</td>
<td>287.0</td>
<td>277.2</td>
<td>218.6</td>
<td>260.9</td>
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</table>

S.E. of the difference of two
1. D marginal means = 102.4 lb/ac.
2. S marginal means = 47.9 lb/ac.
3. S means at the same level of D = 95.7 lb/ac.
4. D means at the same level of S = 128.8 lb/ac.

Crop: Linseed (Rabi).

Site: Students' Instructional Farm, Kanpur. Type: 'MV'.

Object: To study the effect of different organic and inorganic manures on Linseed.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Jowar for fodder. (c) No. (ii) (a) Loam. (b) N.A. (iii) 18.10.1952. (iv) (a) Two deep ploughings by victory plough and the stubble removed with a chain harrow and 3 ploughings by country plough. (b) Sown in rows. (c) N.A. (d) Rows 1' apart. (e) N.A. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) One weeding. (ix) 2.34'. (x) 20.3.1933.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: V1=T-1193-2 (early) and V2=T-477-3/2 (late).
(2) 7 applications of manures: M0=no manure, M1=F.Y.M., M2=G.N.C., M3=Blood manure, M4=A/S, M5=Super and M6=Pot. Sul.
Amount of manure applied—N.A.

3. DESIGN:
(i) 7×2 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 34'×22'. (b) 30'×18'. (v) 2' all round the net plot. (vi) Yes.

4. GENERAL:
(i) Poor germination. (ii) N.A. (iii) Flowering, maturity of crop, height of plant, no. of basal branches/plot, no. of seed bell and yield of linseed. (iv) (a) 1951—1952. The experiment was cancelled in 1951. (b) Yes. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by P.A.C. (K). Original data were not available, only summary and the analysis were available.

5. RESULTS:
(i) 1001 lb/ac.
(ii) 129.6 lb/ac.
(iii) Loth M and V effects are highly significant.
(iv) Av. yield of linseed in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
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<td>V2</td>
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<td>M6</td>
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</table>
Object: To study the effect of different sowing dates on different Til varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) to (c) N.A. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 4 thinnings. (ix) N.A. (x) 23,27.9.1949 and 3 to 13.10.1949.

2. TREATMENTS:
Main-plot treatments:
4 dates of sowing: \(D_1\) =16.6.1949, \(D_2\) =27.6.1949, \(D_3\) =8.7.1949 and \(D_4\) =18.7.1949.

Sub-plot treatments:
4 varieties: \(N_1\) =T-10 (early), \(N_2\) =T-11 (early), \(N_3\) =T-17 (early) and \(N_4\) =Kalyanpur local (mid-early). \(N_4\) was not included in analysis as germination was very poor.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/block and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 15'x53'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Not satisfactory. (ii) Attack of phyllody and wilt. (iii) Yield of til. (iv) (a) 1949—1950. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Soon after 4th sowing, there were very heavy and continuous rains, hence there was practically no germination. The plots were resown on 7 August to see if very late sowing proves successful but again the germination was poor and the growth was far from normal. So 4th sowing was neglected from analysis. (vii) The experiment was conducted by E.B. (O).

5. RESULTS:
(i) 130.4 lb./ac.
(ii) (a) 78.37 lb./ac.
(b) 38.32 lb./ac.
(iii) Only V effect and interaction D x V are highly significant.
(iv) Av. yield of til in lb./ac.

<table>
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<tr>
<th></th>
<th>(V_1)</th>
<th>(V_2)</th>
<th>(V_3)</th>
<th>(V_4)</th>
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<td>143.0</td>
<td>69.0</td>
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<td>130.4</td>
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</table>

S.E. of difference of two
1. D marginal means = 27.71 lb./ac.
2. V marginal means = 15.64 lb./ac.
3. V means at a level of D = 27.10 lb./ac.
4. D means at a level of V = 36.31 lb./ac.

---

Crop: Til (Kharif).
Site: Govt. Res. Farm, Kanpur.
Object: To study the effect of different sowing dates on Til varieties.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) and (b) N.A. (c) 15 oz/plot. (d) and (e) N.A. (v) No. (vi) As per treatments. (vii) N.A. (viii) 3 thinnings and 3 weedings. (ix) N.A. (x) \(D_1\) =18 and 20.9.1950 and 9.10.1950, \(D_2\) =30.9.1950, \(D_3\) =23.10.1950 and \(D_4\) =16.11.1950.
2. TREATMENTS:
   Main-plot treatments:
   4 dates of sowing: \( D_1 = 18.6.1950, D_2 = 3.7.1950, D_3 = 22.7.1950 \) and \( D_4 = 17.8.1950 \).
   Sub-plot treatments:
   4 varieties: \( V_1 = T.10 \) (early), \( V_2 = T.11 \) (early), \( V_3 = T.17 \) (early) and \( V_4 = \text{Kanpur local} \) (medium early).

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/block and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 16'x44'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Damage by rust. (iii) Til yield. (iv) (a) 1949-1950. (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by E.B. (O).

5. RESULTS:
   (i) 116.5 lb./ac.
   (ii) (a) 129.7 lb./ac. (b) 67.0 lb./ac.
   (iii) D effect is significant. Effect of V and interaction D x V are highly significant.
   (iv) Av. yield of til in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( V_1 )</th>
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<th>( V_3 )</th>
<th>( V_4 )</th>
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<td>208.8</td>
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<td>96.5</td>
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<td>78.3</td>
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<tr>
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<td>143.3</td>
<td>50.8</td>
<td>105.3</td>
<td>116.5</td>
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S.E. of difference of two
1. D marginal means = 45.9 lb./ac.
2. V marginal means = 23.7 lb./ac.
3. V means at a level of D = 47.4 lb./ac.
4. D means at a level of V = 61.5 lb./ac.

---

Crop: Mustard (Rabi).
Ref: U.P. 54(386).
Type: 'M'.

Object: To study the effect of N, P and K on the yield, growth and oil content of Mustard.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis, Agriculture College, B.H.U., Varanasi (iii) 26.10.1953. (iv) 5 ploughings and planking after every ploughing. (b) Drilling. (c) 3 seers/ac.
   (d) Rows 2' apart. (e) —. (v) N.A. (vi) R.T.11. (vii) Irrigated. (vii) Hoeing, thinning and weeding. (ix) N.A. (x) 4.3.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 levels of N: \( N_0 = 0 \) and \( N_1 = 45 \) lb./ac.
   (2) 2 levels of \( P_2O_5 \) : \( P_0 = 0 \) and \( P_1 = 20 \) lb./ac.
   (3) 2 levels of \( K_2O \) : \( K_0 = 0 \) and \( K_1 = 20 \) lb./ac.

3. DESIGN:
   (i) 25 Fact. in R.B.D. (ii) (a) 8. (b) 36.5'x176'. (iii) 3. (iv) (a) 22'x36.5'. (b) 20'x33.5'. (v) 1'x1' all round the plot. (vi) Yes.
4. GENERAL:

(i) Very poor. (ii) Crop badly damaged by aphids—B.H.C. (5%) dusted on 8.1.1954, tobacco—decoction sprayed at 60 gallons/ac. on 17.1.1954. The field was heavily infected with white ants. These damaged many plots. (iii) Oil content of seed, weight of shoot and yield. (iv) (a) to (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:

(i) 194.4 lb./ac.
(ii) 73.0 lb./ac.
(iii) Only main effect of N is significant.
(iv) Av. yield of mustard in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
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<th>K0</th>
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<td>153.2</td>
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<td>177.8</td>
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<td>218.1</td>
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</table>

S.E. of any marginal mean =21.1 lb./ac.
S.E. of body of any table =29.8 lb./ac.

Crop :-Mustard (Rabi).
Ref :-U.P. 53(390).
Type :-'MV'.

Object :-To study the effect of F.Y.M., neem cake and fertilizer mixture on growth, yield and chemical composition of different varieties of Mustard.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, Agricultural College, B.H.U., Varanasi. (iii) N.A. (iv) (a) 8 ploughings and planking and harrowing after every ploughing. (b) Sown in lines in 2" deep furrows. (c) N.A. (d) Line to line distance—2'. (e) N.A. (v) N.A. (vi) R.T. 11 (early) and AGH—A (late). (vii) to (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2)
(1) 4 manures : M1=control (no manure), M2=F.Y.M. at 50 lb./ac. of N, M3=neem cake at 50 lb./ac. of N and M4=fertilizer mixture (N, P and K) in the proportion 50 : 100 : 50 at 50 lb./ac. of N.
(2) 2 varieties : V1=R.T. 11 and V2=AGH—A.

3. DESIGN:

(i) 4×2 Fact. in R.B.D. (ii) (a) 8. (b) 62’×106’. (iii) 3. (iv) (a) N.A. (b) 29’×25’. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Mustard yield, fat % etc. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS:

(i) 526.8 lb./ac.
(ii) 102.8 lb./ac.
(iii) Main effects of V and M are highly significant. Interaction M×V is not significant.
(iv) Av. yield of mustard in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>M₀</th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
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<td>424.1</td>
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</table>

S.E. of M marginal mean = 42.0 lb./ac.
S.E. of V marginal mean = 29.7 lb./ac.
S.E. of body of table = 59.4 lb./ac.

Crop :-Mustard.
Ref :-U.P. 53(389).
Type :-'CMV'.

Object :-To study the effect of spacing and fertilizers on different varieties of Mustard.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium loam. (b) Refer soil analysis, B.H.U., Varanasi.
   (iii) 26.10.1953. (iv) (a) 5 ploughings and planking after every ploughing. (b) Dibbled in furrows. (c) 3 seers/ac. (d) As per treatments. (e) —. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) Thinning, light hoeing and weeding. (ix) N.A. (x) 1.3.1954.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (1) 2 spacings between rows : S₁=1' and S₂=2'.
   (2) 2 varieties : V₁=RT. 11 (early) and V₂=AGH—A (late).
   (3) 3 levels of fertilizers : M₀=no manure, M₁=40 lb./ac. of N+20 lb./ac. of P₂O₅+20 lb./ac. of K₂O and M₂=80 lb./ac. of N+40 lb./ac. of P₂O₅+40 lb./ac. of K₂O.

3. DESIGN :
   (i) 2x2x3 Fact. in R.B.D.  (ii) (a) 12. (b) 36'x136'.  (iii) 3. (iv) (a) 11'-4"x36'. (b) 9'-4"x33'. (v) One row left as border around. (vi) Yes.

4. GENERAL :
   (i) Not satisfactory. (ii) Attack of white ants and aphids B.H.C. dusted at 30 lb./ac. and spraying with tobacco decoction at 50 gallon/ac. (iii) Seed yield, no. of seeds per pod, height of plant, etc. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.H.U.

5. RESULTS :
   (i) 143.6 lb./ac.
   (ii) 61.3 lb./ac.
   (iii) Only main effects of M, V and S are highly significant.
   (iv) Av. yield of mustard in lb./ac.

<table>
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<th></th>
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<th>M₂</th>
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S.E. of marginal mean of M = 17.7 lb./ac.
S.E. of marginal mean of V or S = 14.4 lb./ac.
S.E' of body of MxV or MxS table = 25.0 lb./ac.
S.E. of body of SxV table = 20.4 lb./ac.
Crop :-Mustard.  
Object :-To study the effect of date of sowing and fertilizers on different varieties of Mustard.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) G.M. (c) N.A.  
   (ii) (a) Medium loam. (b) Refer soil analysis, Agricultural College, B.H.U., Varanasi.  
   (iii) As per treatments
   (iv) 5 ploughings and planking after every ploughing.
   (b) Sown in furrows.  
   (c) 3 srs./ac.  
   (d) Between rows 9'.  
   (e) As per treatments
   (f) G.M. applied Quantity N.A.
   (vi) As per treatments
   (vii) Irrigated.
   (viii) 2 weeding, thinning and hosing.  
   (ix) N.A. (x) 26.2.1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 varieties: V₁=RT. 11 (early) and V₂=AGH-A (late).
   (2) 2 dates of sowing: D₁=24.10.1953 and D₂=3.11.1953.
   (3) 3 levels of fertilizers: M₀=no manure, M₁=40 lb./ac. of N+20 lb./ac. of P₂O₅+20 lb./ac. of K₂O
   and M₂=80 lb./ac. of N+40 lb./ac. of P₂O₅+40 lb./ac. of K₂O.  
   N as A/S, P₂O₅ as Super and K₂O as Pot. Sul.
   The fertilizers were applied 20 days after sowing as top dressing in between rows of the plants.

3. DESIGN:
   (i) 2x2x3 Fakt. in R.B D.  
   (ii) (a) 12. (b) 38.5'x180'.  
   (iii) 3. (iv) (a) 38.5'x15'. (b) 35.5'x12'. (v) 1' around the net plot. (vi) Yes.

4. GENERAL:
   (i) Poor. (ii) The crop was severely infested with aphids; first dusted with B.H.C. (5%) at 40 lb./ac. on
   5.1.1954 and subsequently tobacco decoction was sprayed on 15.1.1954 at 60 gall./infac. Attack of white ants
   also. (iii) Mustard yield, height of plant and no. of seeds/plot. (iv) (a) and (b) No. (c) Nil. (v) (a) No.
   (b) Nil. (vi) Nil. (vii) The expt. was conducted by B.H.U.

5. RESULTS:
   (i) 259.6 lb./ac.  
   (ii) 93.8 lb./ac.
   (iii) Only main effects of M, V and D are highly significant.
   (iv) Av. yield of mustard in lb./ac.

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</tr>
<tr>
<td>D₁</td>
<td>254.9</td>
<td>457.0</td>
<td>480.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D₂</td>
<td>67.9</td>
<td>144.6</td>
<td>153.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean of M = 27.1 lb./ac.
S.E. of marginal mean of V or D = 22.1 lb./ac.
S.E. of body of M×V or M×D table = 38.3 lb./ac.
S.E. of V×D table = 31.3 lb./ac.
2. TREATMENTS:
1. Dusting with Gammexane (5% B.H.C.) at 60 lb./ac.
2. Spraying with 0.25% D.D.T. emulsion (16% D.D.T. diluted with water in the ratio of 1:63) at 300 gallons/ac.
3. Spraying with 2% soap solution at 300 gallons/ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 27' X 40'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Attack of aphids. Control means as per treatments. (iii) Volume of mustard aphids. (iv) No. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) Nil. (vii) The exp. was conducted by Ento. (K).

5. RESULTS:
(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>24 hrs. after application</th>
<th>3 days after application</th>
<th>7 days after application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3.80</td>
<td>4.38</td>
<td>4.80</td>
</tr>
<tr>
<td>2.</td>
<td>2.55</td>
<td>1.70</td>
<td>1.55</td>
</tr>
<tr>
<td>3.</td>
<td>1.25</td>
<td>1.42</td>
<td>1.75</td>
</tr>
<tr>
<td>4.</td>
<td>3.90</td>
<td>4.42</td>
<td>4.88</td>
</tr>
<tr>
<td>Mean</td>
<td>2.88</td>
<td>2.98</td>
<td>3.17</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.064</td>
<td>0.096</td>
<td>0.05</td>
</tr>
<tr>
<td>Significance</td>
<td>highly significant</td>
<td>highly significant</td>
<td>highly significant</td>
</tr>
</tbody>
</table>

Crop: Mustard (Rabi).
Ref: U.P. 49(215).
Site: Regional Res. Stn., Meerut.
Type: 'D'.

Object: To test the efficacy of D.D.T. and gamexane against Mustard aphids.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) (a) and (b) N.A. (iii) 11.1.1948. (iv) (a) to (e) N.A. (v) N.A. (vi) Ral type-9.
(vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

TREATMENTS:
1. Dusting with gammexane (5% B.H.C.) at 60 lb./ac.
2. Spraying with 0.25% D.D.T. emulsion at 30 gallon/ac.
3. Dusting with 2% soap solution at 30 gallon/ac.
4. No treatment (control).
Treatments applied on 27.1.1949.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 33' X 33'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Attack of aphids. Control means as per treatments. (iii) Volume of aphids. (iv) No. (v) (a) Kanpur. (b) N.A. (vi) Nil. (vii) No. of aphids per c.c. = 1000 approximately. The experiment was conducted by Ento. (K).

5. RESULTS:
(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>24 hrs. after application</th>
<th>3 days after application</th>
<th>7 days after application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>13.62</td>
<td>16.50</td>
<td>17.05</td>
</tr>
<tr>
<td>2.</td>
<td>1.18</td>
<td>0.88</td>
<td>0.35</td>
</tr>
<tr>
<td>3.</td>
<td>0.45</td>
<td>1.15</td>
<td>1.60</td>
</tr>
<tr>
<td>4.</td>
<td>13.62</td>
<td>18.12</td>
<td>18.32</td>
</tr>
<tr>
<td>Mean</td>
<td>7.22</td>
<td>9.16</td>
<td>9.33</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.186</td>
<td>0.455</td>
<td>0.141</td>
</tr>
<tr>
<td>Significance</td>
<td>highly significant</td>
<td>highly significant</td>
<td>highly significant</td>
</tr>
</tbody>
</table>
Crop :-Rape (Rabi).
Site :- Matkota (Nainital).

Object :-To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A.  (ii) One block on loam (slightly calcareous), two blocks on sandy loam and one block on clay loam. (iii) N.A.  (iv) Improved.  (v) (a) After manuring, levelling by *pata*  (b) Seeds sown in lines parallel to the fertilizer band.  (c) N.A.  (d) 1"-2" away from the fertilizer line.  (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS :
   1. Control.
   2. 25 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   3. 50 lb./ac. of P<sub>2</sub>O<sub>5</sub>.

   P<sub>2</sub>O<sub>5</sub> as Super placed at a depth of about 3"-4" at the sole of the furrow and in the side of the row made either by the iron plough or two *desi* ploughs one behind the other in the same furrow.

3. DESIGN :
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) and (b) N.A.  (iv) N.A.

4. GENERAL :
   (i) Good.  (ii) N.A.  (iii) Yield of grain and straw.  (iv) (a) No.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by A.C. on cultivator's fields.

5. RESULTS :
   (i) 1185 lb./ac.
   (ii) 141.5 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of rape in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>850</td>
</tr>
<tr>
<td>2.</td>
<td>1290</td>
</tr>
<tr>
<td>3.</td>
<td>1415</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>70.8 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Berseem (Rabi).
Site :- Agri. Institute, Allahabad.

Object :-To study the response of Berseem to the application of fertilizers.

1. BASAL CONDITIONS :
   (i) (a) to (c) N.A.  (ii) (a) Fine sandy loam.  (b) Refer soil analysis, Agri. Institute, Allahabad.  (iii) 31.10.1953.  (iv) (a) N.A.  (b) N.A.  (c) 10 seers/ac.  (d) N.A.  (e) N.A.  (v) N.A.  (vi) N.A.  (vii) Irrigated.  (viii) N.A.  (ix) 12".  (x) Four cuttings on 25 to 28.10.1954, 6.3.1954, 10.4.1954 and 5.5.1954.

2. TREATMENTS :
   All combinations of (1), (2) and (3)+T<sub>1</sub> (40 lb./ac. of N+120 lb./ac. of Mg).
   (1) 2 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0 and P<sub>1</sub>=40 lb./ac.
   (2) 2 levels of N as A/S : N<sub>0</sub>=0 and N<sub>1</sub>=40 lb./ac.
   (3) 2 levels of K as Pot. Chloride : K<sub>0</sub>=0 and K<sub>1</sub>=41.5 lb./ac.

   Fertilizers were spread on the ploughed land and mixed with the surface soil by cultivation just before the crop was planted.

3. DESIGN :
   (i) R.B.D.  (ii) (a) 9.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 9'×36'.  (v) N.A.  (vi) Yes.
4. GENERAL:

(i) N.A. (ii) N.A. (iii) Yield of dry matter per acre from 4 cuttings, height of berseem plants before taking the first cutting, estimated amount of red leaflets on plants prior to taking the first cutting, yield of dry matter in the weeds in the first cutting. Height of weeds at the time of first cutting. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Weeds, particularly *bathua*, were present on all the plots of berseem. Information collected from the "Allahabad Farmer". No original records or the plot wise yield data were available. Experiment was conducted by A.A.I. on cultivators’ fields.

5. RESULTS:

(i) 9501 lb./ac.
(ii) 935.9 lb./ac.
(iii) Main effect of P, interaction N×P, N×K are significant. Other effects are not significant.
(iv) Av. yield of dry berseem in lb./ac. $T_1 = 9652$ lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>Mean</th>
<th>$K_0$</th>
<th>$K_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>8336</td>
<td>10195</td>
<td>9265</td>
<td>9467</td>
<td>9064</td>
</tr>
<tr>
<td>$N_1$</td>
<td>8957</td>
<td>10442</td>
<td>9699</td>
<td>9467</td>
<td>9932</td>
</tr>
<tr>
<td>Mean</td>
<td>8646</td>
<td>10319</td>
<td>9182</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$K_0$</td>
<td>8755</td>
<td>10179</td>
<td>9467</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$K_1$</td>
<td>8537</td>
<td>10459</td>
<td>9498</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 234.0 lb./ac.
S.E. of body of any table or $T_1$ mean = 330.9 lb./ac.

Crop :-Berseem (Rabi).
Site :-Students’ Instructional Farm, Kanpur.
Object — To study the effect of Ammonium molybdate on the yield of berseem fodder.

1. BASAL CONDITIONS:

(i) (a) Charli-Berceem. (b) Charli. (c) 80 mds/ac. of F.Y.M. (ii) (a) Sandy loam. (b) N.A. (iii) 9.10.1953.
(iv) (a) Two ploughings with soil turning plough and two with desi plough. (b) Broadcast. (c) 12 seers/ac.
(d) N.A. (e) N.A. (f) Nil. (g) Local. (h) Irrigated. (i) Nil. (j) N.A. (x) 1st cutting on 2.12.1953, 2nd cutting on 8.1.1954, 3rd cutting on 17.1.1954 and final harvest on 1.5.1954.

3. TREATMENTS:

1. Treated with Ammonium molybdate at 1 lb./ac.
2. Control.

4. DESIGN:

(i) R.B.D. (ii) 2. (b) N.A. (iii) 12. (iv) (a) 15’×16’ . (b) 13’×4’. (v) 1’×6’. (vi) Yes.

5. RESULTS:

(i) 332.1 lb./ac.
(ii) 52.8 lb./ac.
(iii) Treatment difference is not significant.
(iv) Av. yield of berseem seed in lb./ac. $T_1 = 49145$ lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>345.5</td>
</tr>
<tr>
<td>2.</td>
<td>318.6</td>
</tr>
</tbody>
</table>

S.E/mean = 15.23 lb./ac.

(i) 49145 lb./ac.
(ii) 5336 lb./ac.
(iii) Treatment difference is not significant.
(iv) Av. yield of berseem fodder in lb./ac. $T_1 = 48447$

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>48447</td>
</tr>
<tr>
<td>2.</td>
<td>49843</td>
</tr>
</tbody>
</table>

S.E/mean = 1540 lb./ac.
Crop :- Guar.  Ref :- U.P. 51(125).
Site :- Crop Physiological Res. Stn., Lucknow.  Type :- 'M'.

Object :- To study the effect of different doses of P and CaO on yield and growth of Guar.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Wheat. (c) N.A.  (ii) (a) Sandy loam. (b) N.A.  (iii) 27.7.1951.  (iv) (a) Hot weather cultivation. (b) Broadcast. (c) 8 seers/ac. (d) and (e) N.A.  (v) 50 lb./ac. of N in the form of stable manure on 25.7.1951.  (vi) Guar local (medium).  (vii) to (ix) N.A.  (x) 30.11.1951.

2. TREATMENTS :
All combinations of (1) and (2)
(1) 3 levels of P$_2$O$_5$ : P$_0$=0, P$_1$=30 and P$_2$=60 lb./ac.
(2) 3 levels of CaO : C$_0$=0, C$_1$=30 and C$_2$=60 lb./ac.
P$_2$O$_5$ as Super and CaO as Gypsum. Date of manuring 27.7.1951.

3. DESIGN :
(i) 3 x 3 Fact. in R.B.D.  (ii) (a) N.A. (b) N.A. (iii) 3.  (iv) (a) 25'x20'.  (b) 22'x17',  (v) 1' around the net plot.  (vi) Yes.

4. GENERAL :
(i) Poor.  (ii) Nil.  (iii) Grain yield.  (iv) (a) to (c) No.  (v) (a) and (b) No.  (vi) Crop suffered badly due to lack of rains.  (viii) Experiment was conducted by C.P. on cultivator's field.

5. RESULTS :
(i) 535.9 lb./ac.
(ii) 178.1 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P$_0$</th>
<th>P$_1$</th>
<th>P$_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>C$_0$</td>
<td>658.6</td>
<td>698.9</td>
<td>404.3</td>
<td>587.3</td>
</tr>
<tr>
<td>C$_1$</td>
<td>564.5</td>
<td>684.3</td>
<td>359.5</td>
<td>536.1</td>
</tr>
<tr>
<td>C$_2$</td>
<td>469.3</td>
<td>509.6</td>
<td>473.8</td>
<td>484.2</td>
</tr>
<tr>
<td>Mean</td>
<td>564.1</td>
<td>630.9</td>
<td>412.5</td>
<td>535.9</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 72.7 lb./ac.
S.E. of body of table = 102.8 lb./ac.

---

Crop :- Kakun (Kharif).  Ref :- U.P. 50(45).
Site :- Govt. Agri. Farm, Kalyanpur.  Type :- 'CV'.

Object :- To study the effect of different dates of sowing on different varieties of Kakun.

1. BASAL CONDITIONS :
(i) (a) No. (b) and (c) N.A.  (ii) (a) Sandy loam. (b) N.A.  (iii) As per treatments.  (iv) (a) and (b) N.A.  (c) 3.21 seers/ac. (d) Between rows 1'.  (e) N.A.  (v) N.A.  (vi) As per treatments.  (vii) Unirrigated.  (viii) Weeding.  (ix) N.A.  (x) 18 and 19.8.1950.

2. TREATMENTS :
Main-plot treatments :
4 dates of sowing : D$_1$=5.6.1950, D$_2$=20.6.1950, D$_3$=5.7.1950 and D$_4$=20.7.1950.
Sub-plot treatments :
2 varieties : V$_1$=T4A/2-1 (early) and V$_2$=T43A/1-1 (early).

3. DESIGN :
(i) Split-plot.  (ii) (a) 4 main-plots/replication and 2 sub-plots/main-plot. (b) N.A.  (iii) 5.  (iv) (a) 17'x55'.  (b) 16'x53'.  (v) 1' along breadth on both sides.  (vi) Yes.
4. GENERAL:
   (i) Good.  (ii) N.A.  (iii) Germination, flowering, tillering and grain yield.  (iv) (a) No.  (b) and (c) No.  (v) (a) and (b) No.  (vi) The experiment was actually laid with two crops, the two varieties of *sawan* and *kakun* being taken in the sub-plots. There were 4 sub-plots in each main-plot, two for each crop. Another proforma has been filled in for the *sawan* crop. (vii) Experiment conducted by E.B. (Oil-seeds) to Govt., U.P., Kanpur.

5. RESULTS:
   (i) 978 lb./ac.
   (ii) (a) 408.8 lb./ac.
       (b) 336.1 lb./ac.
   (iii) Only D effect is highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>547</td>
<td>1753</td>
<td>1003</td>
<td>659</td>
<td>990</td>
</tr>
<tr>
<td>V₂</td>
<td>713</td>
<td>1683</td>
<td>1019</td>
<td>417</td>
<td>965</td>
</tr>
<tr>
<td>Mean</td>
<td>630</td>
<td>1718</td>
<td>1026</td>
<td>538</td>
<td>978</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. D marginal means = 182.8 lb./ac.
2. V marginal means = 106.3 lb./ac.
3. V means at a level of D = 212.6 lb./ac.
4. D means at a level of V = 236.7 lb./ac.

Crop: *Sawan* (*Kharif*).
Site: Govt. Agri. Res. Farm, Kalyanpur.

Ref: U.P. 50(299).
Type: 'CV'.

Object: To study the effect of different dates of sowing on different varieties of *Sawan*.

1. BASAL CONDITIONS:
   (i) (a) No.  (b) and (c) N.A.  (ii) (a) Sandy loam.  (b) N.A.  (iii) As per treatments.  (iv) (a) and (b) N.A.  (c) 3.21 seer/ac.  (d) Between rows 1'.  (e) N.A.  (v) N.A.  (vi) As per treatments.  (vii) Unirrigated.  (viii) Weeding.  (ix) N.A.  (x) V₁ on 18, 19.8.1950, and V₂ on 2.9.1950.

2. TREATMENTS:
   Main-plot treatments:
   Sub-plot treatments:
   - 2 varieties: V₁ = T 46 (early) and V₂ = T 4108 (early).

3. DESIGN:
   (i) Split-plot.  (ii) (a) 4 main-plots/replication and 2 sub-plots/main-plot.  (b) N.A.  (iii) 5.  (iv) (a) 17' x 53'.  (b) 16' x 53'.  (v) ½' along the breadth on both sides.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) N.A.  (iii) Germination, flowering, tillering and grain yield.  (iv) (a) and (b) No.  (c) N.A.  (v) (a) and (b) No.  (vi) The experiment was actually laid with two crops, the two varieties of *sawan* and *kakun* being taken in the sub-plots. There were 4 sub-plots in each main-plot, two for each crop. Another proforma has been filled in for the *kakun* crop. (vii) The experiment was conducted by E.B. (oil seed) to Govt. U.P., Kanpur.

5. RESULTS:
   (i) 1174 lb./ac.
   (ii) (a) 235.3 lb./ac.
       (b) 252.8 lb./ac.
   (iii) D and V effects are highly significant.  Interaction D × V is significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>D₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>1667</td>
<td>1942</td>
<td>1181</td>
<td>671</td>
<td>1365</td>
</tr>
<tr>
<td>V₂</td>
<td>941</td>
<td>1361</td>
<td>981</td>
<td>649</td>
<td>983</td>
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<tr>
<td>Mean</td>
<td>1304</td>
<td>1652</td>
<td>1081</td>
<td>660</td>
<td>1174</td>
</tr>
</tbody>
</table>

S.E. of difference of two

1. D marginal means = 105.3 lb./ac.
2. V marginal means = 80.0 lb./ac.
3. V means at a level of D = 160.0 lb./ac.
4. D means at a level of V = 154.7 lb./ac.

Crop :-Sanai (Kharif).

Site :-B.R. College Farm, Bichpuri (Agra)

Object :-To study the effect of P₂O₅ on the growth of Sanai and the effect of different dates of green manuring with Sanai on the succeeding Wheat crop.

1. BASAL CONDITIONS:

   (i) (a) Nil. (b) Wheat. (c) N.A.  (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri Farm, Agra. (iii) 6.7.1952.  (iv) (a) Field harrowed two times (before sowing of sanai) by disc harrow after rains. (b) Broadcast. (c) 40 seer/ac. (d) and (e) N.A.  (v) N. (vi) C 12. (vii) N. (viii) Nil. (ix) 43.3'. (x) As per treatments.

2. TREATMENTS:

   Main-plot treatments:

   Sub-plot treatments:
   3 doses of P₂O₅ as Super : P₀ = 0, P₁ = 80 and P₂ = 160 lb./ac.

   P₂O₅ broadcast on 6.7.1952 [before sowing of sanai] and then mixed in soil by harrowing with disc harrow.

3. DESIGN:

   (i) Split-plot. (ii) (a) 3 main-plots/block and 3 sub-plots/main-plot. (b) N.A.  (iii) 6. (iv) (a) 37'×26', 39'×26', 39'×28' and 37'×28'. (b) 33'×22'. (v) N.A.  (vi) Yes.

4. GENERAL:

   (i) Satisfactory. (ii) Nil. (iii) Germination count, height of plants, root length, number and size of nodules. Periodic nitrogen contribution to field after ploughing in of sanai and yield of green matter. (iv) (a) No. (b) and (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R.C. No original plot-wise yield data or analysis is given and hence S.E.'s and results could not be given.

5. RESULTS:

   (i) 24768 lb./ac.
   (ii) N.A.
   (iii) N.A.
   (iv) Av. yield of sanai in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>13659</td>
<td>17938</td>
<td>19584</td>
<td>17060</td>
</tr>
<tr>
<td>D₂</td>
<td>24521</td>
<td>27977</td>
<td>30528</td>
<td>27675</td>
</tr>
<tr>
<td>D₃</td>
<td>25920</td>
<td>30034</td>
<td>32750</td>
<td>29568</td>
</tr>
<tr>
<td>Mean</td>
<td>21367</td>
<td>25316</td>
<td>27621</td>
<td>24768</td>
</tr>
</tbody>
</table>

S.E.'s—N.A.
Crop :-Sanai \((Kharif)\).  
Site :-B.R. College Farm, Bichpuri, Agra.  
Ref :-U.P. 53(384).  
Type :-'M'.

Object :-To study the effect of \(P_2O_5\) on the growth of Sanai and the effect of different dates of green manuring with Sanai on the succeeding Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Jowar+Arhar. (c) N.A.  (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri Farm, Agra.  (iii) 27.7.1953.  (iv) (a) Field harrowed once with disc harrow. (b) Broadcast. (c) 40 seers/ac. (d) and (e) N.A.  (v) Nil. (vi) C. 12. (vii) and (viii) Nil.  (ix) 13.05".  (x) 1, 4 and 18.9.1953.

2. TREATMENTS:
   Main-plot treatments :
   3 dates of burying sanai:  
   \(D_1 = 1.9.1953\), \(D_2 = 14.9.1953\) and \(D_3 = 22.9.1953\).
   Sub-plot treatments :
   3 doses of \(P_2O_5\) as Super: \(P_0 = 0\), \(P_1 = 80\) and \(P_2 = 160\) lb./ac.
   \(P_2O_5\) broadcast on 27.7.1953 before sowing sanai and then mixed in soil by harrowing with disc harrow.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block and 3 sub-plots/main-plot. (b) N.A.  (iii) 6. (iv) (a) 40'×28', 40'×26', 39'×28', 3'×26', 38'×28' and 38'×26'. (b) 33'×22'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Attack of caterpillar. (iii) Germination count, stand of the crop, height of plants, number of leaves, root studies, root length, length of lateral root, wt. of lateral root, no. of nodules per plant and sanai yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Nil. (vii) The experiment was conducted by B.R.C. No original plot-wise yield data or analysis is given and hence S.E.'s and conclusions could not be given.

5. RESULTS:
   (i) 29001 lb./ac.  
   (ii) N.A.  
   (iii) N.A.  
   (iv) Av. yield of sanai in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>(P_0)</th>
<th>(P_1)</th>
<th>(P_2)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>(D_1)</td>
<td>15634</td>
<td>19337</td>
<td>2217</td>
<td>19063</td>
</tr>
<tr>
<td>(D_2)</td>
<td>24686</td>
<td>30857</td>
<td>36041</td>
<td>30528</td>
</tr>
<tr>
<td>(D_3)</td>
<td>31433</td>
<td>35959</td>
<td>44846</td>
<td>37413</td>
</tr>
<tr>
<td>Mean</td>
<td>23918</td>
<td>28718</td>
<td>34368</td>
<td>29001</td>
</tr>
</tbody>
</table>

S.E.'s--N.A.

Crop :-Sanai \((Kharif)\).  
Site :-Govt. Res. Farm, Kanpur.  
Ref :-U.P. 48(36).  
Type :-'M'.

Object :-To study the effect of applying Super to green manure crop and its effect on the subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) Sanai–wheat. (b) Wheat. (c) No. (ii) (a) Loam. (b) N.A.  (iii) 27.1948. (iv) (a) and (b) N.A.  (c) 50 seers/ac. (d) and (e) N.A.  (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 30 and 31.8.1948.
2. TREATMENTS:
   1. Sanai grown without P₂O₅.
   2. Sanai grown with 25 lb./ac. of P₂O₅.
   3. Sanai grown with 50 lb./ac. of P₂O₅.
   4. Sanai grown with 75 lb./ac. of P₂O₅.
   5. Sanai + 25 lb./ac. of P₂O₅ at the time of burying of Sanai.
   6. Sanai + 50 lb./ac. of P₂O₅ at the time of burying of Sanai.
   7. Sanai + 75 lb./ac. of P₂O₅ at the time of burying of Sanai.
   8. Fallow.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 37.5' x 28.5'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) No. (iii) Sanai yield. (iv) (a) 1945—1954. (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The object of the experiment was to study the effect of G.M. on wheat. Hence no analysis has been carried out for Sanai crop. The experiment was conducted by A.C.

5. RESULTS:
   Av. yield of Sanai in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6847</td>
<td>5.</td>
<td>7785</td>
</tr>
<tr>
<td>2.</td>
<td>7724</td>
<td>6.</td>
<td>8396</td>
</tr>
<tr>
<td>3.</td>
<td>8050</td>
<td>7.</td>
<td>8743</td>
</tr>
<tr>
<td>4.</td>
<td>8783</td>
<td>8.</td>
<td>—</td>
</tr>
<tr>
<td>G.M.</td>
<td></td>
<td></td>
<td>= 8047 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Sanai ('Kharif').
Site :- Govt. Res. Farm, Kanpur.

Object :- To study the effect of applying Super to green manure crop and its effect on the subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) Sanai—Wheat. (b) Wheat. (c) No. (ii) (a) Loam. (b) N.A. (iii) 13.6.1949. (iv) (a) and (b) N.A. (c) 50 srs/ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 13 and 14.8.1949.

2. TREATMENTS:
   1. Sanai grown without P₂O₅.
   2. Sanai grown with 25 lb./ac. of P₂O₅.
   3. Sanai grown with 50 lb./ac. of P₂O₅.
   4. Sanai grown with 75 lb./ac. of P₂O₅.
   5. Sanai + 25 lb./ac. of P₂O₅ at the time of burying of Sanai.
   6. Sanai + 50 lb./ac. of P₂O₅ at the time of burying of Sanai.
   7. Sanai + 75 lb./ac. of P₂O₅ at the time of burying of Sanai.
   8. Fallow.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 28.5' x 37.5'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) No. (iii) Sanai yield. (iv) (a) 1945—1954 (experiment was cancelled in 1951.) (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) N.A. (vii) The object of expt. was to study the effect of G.M. on wheat. Hence no analysis has been carried out for Sanai crop. The experiment was conducted by A.C.
5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8987</td>
<td>5.</td>
<td>8732</td>
</tr>
<tr>
<td>2.</td>
<td>8233</td>
<td>6.</td>
<td>10495</td>
</tr>
<tr>
<td>3.</td>
<td>7622</td>
<td>7.</td>
<td>9262</td>
</tr>
<tr>
<td>4.</td>
<td>9150</td>
<td>8.</td>
<td>—</td>
</tr>
</tbody>
</table>

G.M. = 8926 lb./ac.

Crop: Sanai (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of applying Super to green manure crop and its effect on the subsequent Wheat crop.

1. BASAL CONDITIONS:
   (i) (a) Sanai—Wheat. (b) Wheat. (c) No. (ii) (a) Loam. (b) N.A. (iii) 8.7.1950. (iv) (a), (b) N.A. (c) 50 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) 23.8.1950.

2. TREATMENTS:
   1. Sanai grown without P₂O₅.
   2. Sanai grown with 75 lb./ac. of P₂O₅.
   3. Sanai grown with 100 lb./ac. of P₂O₅.
   4. Sanai grown with 125 lb./ac. of P₂O₅.
   5. Sanai+ 75 lb./ac. of P₂O₅ at the time of burying of Sanai.
   6. Sanai+100 lb./ac. of P₂O₅ at the time of burying of Sanai.
   7. Sanai+125 lb./ac. of P₂O₅ at the time of burying of Sanai.
   8. Fallow.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 28.5’x 37.5’. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Satisfactory (ii) No. (iii) Sanai yield. (iv) (a) 1945—1954 (experiment was cancelled for 1951). (b) Yes. (c) N.A. (v) (a) No. (b) N.A: (vi) N.A. (vii) The expt. was conducted by A.C. The object of the expt. was to study the effect of G.M. on wheat. Hence no analysis has been carried out for sanai crop.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8782</td>
<td>5.</td>
<td>9272</td>
</tr>
<tr>
<td>2.</td>
<td>9884</td>
<td>6.</td>
<td>10189</td>
</tr>
<tr>
<td>3.</td>
<td>9069</td>
<td>7.</td>
<td>10193</td>
</tr>
<tr>
<td>4.</td>
<td>12125</td>
<td>8.</td>
<td>—</td>
</tr>
</tbody>
</table>

G.M. = 9959 lb./ac.

Crop: Sanai (Kharif).
Site: Govt. Res. Farm, Kanpur.

Object: To study the effect of applying Super to G.M. crop and its effect on the subsequent Wheat crop.

BASAL CONDITIONS:
   (i) (a) Sanai—Wheat. (b) Wheat. (c) No. (ii) (a) Loam. (b) N.A. (iii) 8.7.1952. (iv) (a) and (b) N.A. (c) 50 sers/ac. (v) Nil. (vi) N.A. (vii) N.A. (ix) N.A. (x) 5.9.1952.
2. TREATMENTS:

1. Sanai grown without P₂O₅.
2. Sanai grown with 75 lb./ac. of P₂O₅.
3. Sanai grown with 100 lb./ac. of P₂O₅.
4. Sanai grown with 125 lb./ac. of P₂O₅.
5. Sanai+75 lb./ac. of P₂O₅ at the time of burying.
6. Sanai+100 lb./ac. of P₂O₅ at the time of burying.
7. Sanai+125 lb./ac. of P₂O₅ at the time of burying.
8. Fallow.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 37.5' x 28.5'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) No. (iii) Yield of sanai. (iv) (a) 1945—1954. (experiment was cancelled for 1951.) (b) Yes. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The object of the experiment was to study the effect of G.M. on wheat. Hence no analysis has been carried out for sanai crop. The experiment was conducted by A.C.

5. RESULTS:

Av. yield of sanai in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11117</td>
<td>5.</td>
<td>11657</td>
</tr>
<tr>
<td>2.</td>
<td>11280</td>
<td>6.</td>
<td>10994</td>
</tr>
<tr>
<td>3.</td>
<td>11708</td>
<td>7.</td>
<td>12197</td>
</tr>
<tr>
<td>4.</td>
<td>12747</td>
<td>8.</td>
<td>—</td>
</tr>
<tr>
<td>G.M.</td>
<td>—</td>
<td>=11671 lb./ac.</td>
<td></td>
</tr>
</tbody>
</table>


Object: To study the effect of applying Super to G.M. crop and its effect on the subsequent Wheat crop.

1. BASAL CONDITIONS:

(i) (a) Sanai—Wheat. (b) Wheat. (c) No. (ii) (a) Loam. (b) N.A. (iii) 9.7.1953. (iv) (a) and (b) N.A. (c) 50 seers./ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 23.9.1953.

2. TREATMENTS:

1. Sanai grown without P₂O₅.
2. Sanai grown with 75 lb./ac. of P₂O₅.
3. Sanai grown with 100 lb./ac. of P₂O₅.
4. Sanai grown with 150 lb./ac. of P₂O₅.
5. Sanai+75 lb./ac. of P₂O₅ at the time of burying.
6. Sanai+100 lb./ac. of P₂O₅ at the time of burying.
7. Sanai+150 lb./ac. of P₂O₅ at the time of burying.
8. Fallow.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 37.5' x 28.5'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) No. (iii) Sanai yield. (iv) (a) 1945—1954. (experiment was cancelled for 1951.) (b) Yes. (c) No. (v) (a) No. (b) N.A. (vi) Nil. (vii) The object of the experiment is to study the effect of G.M. on wheat. Hence no analysis has been carried out for sanai crop. The experiment was conducted by A.C.

5. RESULTS:

Av. yield of sanai in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10179</td>
<td>5.</td>
<td>10780</td>
</tr>
<tr>
<td>2.</td>
<td>11585</td>
<td>6.</td>
<td>11361</td>
</tr>
<tr>
<td>3.</td>
<td>11861</td>
<td>7.</td>
<td>10842</td>
</tr>
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<td>4.</td>
<td>11728</td>
<td>8.</td>
<td>—</td>
</tr>
<tr>
<td>G.M.</td>
<td>11191 lb./ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*
Crop: Oats (Rabi)  
Site: Matkota (Nainital).

Object: To draw out a fertilizer schedule for agriculturally important soil types.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) 3 blocks on loam (slightly calcareous), one block on loam (highly calcareous), one block on sandy loam and one block on loam (non calcareous). (iii) N.A. (iv) Improved. (v) (a) After manuring the field was levelled by pata. (b) Seed sown in lines parallel to the fertilizer band. (c) N.A. (d) 1" to 2" away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control.
   2. 30 lb./ac. of N.
   3. 50 lb./ac. of N+60 lb./ac. of P₂O₅.

   N as A/S and P₂O₅ as Super. N added to surface at sowing time. Super placed at a depth of 3"—4" at the sole of the furrow and on the side of the seed, row made either by the iron plough or two desi ploughs one behind the other in the same furrow.

3. DESIGN:
   (i), (ii) Blocks selected in the farm and R.B.D. with 6 replications laid out. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
   (i) Normal but attacked by rats at seed formation stage causing heavy damage. (ii) N.A. (iii) Yield of oats grain and straw. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by A.C. on cultivators' fields.

5. RESULTS:
   (i) 498 lb./ac.
   (ii) 32.61 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment    Av. yield
   1.          405
   2.          496
   3.          593
   S.E./mean  = 13.31 lb./ac.

Crop: Wheat and Gram.  
Site: Govt. Agri. Farm, Atarra.

Object: To study the effect of different seed rate proportions of Wheat and Gram grown mixed on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Parwa soil. (b) N.A. (iii) 30.10.1950. (iv) (a) Ploughed five times by Watt's plough and once with desi plough. Again ploughing by desi plough and subsequently covered by planking after broadcasting seed. (b) Broadcast after mixing the seeds of both crops in the given proportions. (c) Wheat 50 seers/ac. Gram 30 seers/ac. (d) and (e) N.A. (v) F.Y.M. at 40 lb./ac. of N. (vi) Wheat C-13—(early), Gram—Local (late). (vii) Unirrigated. (viii) Nil. (ix) 3.01". (x) 30.3.1951.

2. TREATMENTS:
<p>| Seed rate proportions | Seed required in chk./gross plot |</p>
<table>
<thead>
<tr>
<th>Wheat</th>
<th>Gram</th>
<th>Wheat</th>
<th>Gram</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0</td>
<td>100</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2. 20</td>
<td>80</td>
<td>3.2</td>
<td>8</td>
</tr>
<tr>
<td>3. 40</td>
<td>60</td>
<td>6.4</td>
<td>6</td>
</tr>
<tr>
<td>4. 50</td>
<td>50</td>
<td>8.0</td>
<td>5</td>
</tr>
<tr>
<td>5. 60</td>
<td>40</td>
<td>9.6</td>
<td>4</td>
</tr>
<tr>
<td>6. 80</td>
<td>20</td>
<td>12.8</td>
<td>2</td>
</tr>
<tr>
<td>7. 100</td>
<td>0</td>
<td>16.0</td>
<td>0</td>
</tr>
</tbody>
</table>
3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) $25' \times 35'$. (b) $22' \times 32'$. (v) Field border $3'$ alround, irrigation channel $3'$ and plot border $1\frac{1}{2}'$ alround. (vi) Yes.

4. GENERAL:
(i) Very good. (ii) Nil. (iii) Yield of Wheat+Gram (Rabi). (iv) (a) 1950—1954. (b) Yes. (c) N.A. (iv) (a) Kalyanpur (Kanpur), Lucknow, Bahraich and Partapgarh. (b) N.A. (vi) Nil. (vii) Experiment was conducted by C.P.

5. RESULTS:
(i) $1513$ lb./ac.
(ii) $281.9$ lb./ac.
(iii) Treatments differ significantly.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1436</td>
</tr>
<tr>
<td>2.</td>
<td>1496</td>
</tr>
<tr>
<td>3.</td>
<td>1531</td>
</tr>
<tr>
<td>4.</td>
<td>1464</td>
</tr>
<tr>
<td>5.</td>
<td>1881</td>
</tr>
<tr>
<td>6.</td>
<td>1424</td>
</tr>
<tr>
<td>7.</td>
<td>1360</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>$\approx 141.0$ lb./ac.</td>
</tr>
</tbody>
</table>

Object:—To study the effect of different seed rate proportions of Wheat and Gram grown mixed on yield, and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Light kadar. (b) N.A. (iii) 22 and 23.11.1952. (iv) (a) ploughings with Watt's plough and pata. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) 3 C.L. of well decayed F.Y.M. applied to entire field, $1\frac{1}{2}$ md. of Super placed at a depth of $3'—4'$ in furrows behind the plough all over the field 2 days before sowing. (vi) Wheat C.13 and Gram 87. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 5.4.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed required in chk./gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Gram : Wheat</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 10.1</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 8.0</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) $42' \times 33'$. (b) $39' \times 30'$. (v) Field border—$3'$ alround and plot border—$1\frac{1}{2}'$ alround. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Grain and straw yield of Wheat+Gram (iv) (a) 1950 to 1954. (experiment not conducted in 1951.). (b) and (c) No. (v) (a) Lucknow, Varanasi, Kanpur, Bahraich. Pratapgarh, Aligarh, Etawah and Jhansi. (b) N.A. (vi) Nil. (vii) Experiment was conducted by C.P. (R).
5. RESULTS:

(i) 1354 lb./ac.
(ii) 41.78 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1496</td>
</tr>
<tr>
<td>2.</td>
<td>1543</td>
</tr>
<tr>
<td>3.</td>
<td>1237</td>
</tr>
<tr>
<td>4.</td>
<td>1022</td>
</tr>
<tr>
<td>5.</td>
<td>1627</td>
</tr>
<tr>
<td>6.</td>
<td>1277</td>
</tr>
<tr>
<td>7.</td>
<td>1277</td>
</tr>
</tbody>
</table>

S.E./mean = 20.89 lb./ac.

Crop: Wheat and Gram.
Site: Govt. Agri. Farm, Atarra.

Object: To study the effect of different seed rate proportions of Wheat and Gram, grown mixed on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Cereal—cereal. (b) Paddy. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 24.11.1953. (iv) (a) 4 ploughings after harvest of paddy on 2, 7, 13 and 21.10.1953, and palewa on 22.10.1953. (b) Sown by local seed drill, wheat sown first in lines east-west behind the plough, subsequently gram was to be similarly sown north-south i.e., across the wheat lines. (c) As per treatments. (d) and (e) N.A. (v) 3 C.L. of F.Y.M. on 10.11.1953, fertilizers on 21.11.1953—1/2 md. of Super to be placed at a depth of 3"—4" in furrows behind the plough all over the sides. (vi) Wheat C.13 and gram.87 (improved). (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 16.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed used in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 25.3</td>
</tr>
<tr>
<td>2. 20 : 20</td>
<td>5.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.0 : 12.0</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.5 : 10.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.0 : 8.0</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 4.0</td>
</tr>
<tr>
<td>7. 0 : 100</td>
<td>25.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 39'×30'. (v) Field border—3' alround, plot border—11' alround and irrigation channel—3'. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) No. (iii) Grain and straw yield of wheat and gram. (iv) (a) 1950 to 1954. (b) and (c) No. (v) (a) Etawah, Kalyanpur, Baharaich, Kalai and Varanasi. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:

(i) 1377 lb./ac.
(ii) 36.15 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1589</td>
</tr>
<tr>
<td>2.</td>
<td>1544</td>
</tr>
<tr>
<td>3.</td>
<td>1224</td>
</tr>
<tr>
<td>4.</td>
<td>1058</td>
</tr>
<tr>
<td>5.</td>
<td>1733</td>
</tr>
<tr>
<td>6.</td>
<td>1175</td>
</tr>
<tr>
<td>7.</td>
<td>1314</td>
</tr>
</tbody>
</table>

S.E./mean = 18.08 lb./ac.
Object: -To study the effect of different seed rate proportions of Gram and Linseed grown mixed, on yield and the residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Light kobar, clay loam. (b) N.A. (iii) 26.11.1952. (iv) (a) 3 ploughings with Watt's plough and pata. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) 3 C.L. of well decayed F.Y.M. applied all over the field. 11 mds. of super placed at a depth of 3"-4" in furrows behind the plough all over the field. (vi) Gram : T. 87 (late). (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 4.4.1953.

2. TREATMENTS:
   Seed rate proportions in seed rate in chk./gross plot of
   
<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed rate in chk./gross plot of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram : Linseed</td>
<td>Gram : Linseed</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 6.1</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.0 : 4.8</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>8.1 : 3.6</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>10.1 : 3.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>12.2 : 2.4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>16.3 : 1.2</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>20.3 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 39'×30'. (v) Field border=3' all around. Plot border=1'-1'. (vi) Yes.

4. GENERAL:
   (i) Poor. (ii) No. (iii) Grain and straw yield. (iv) (a) 1952-1954. (b) and (c) No. (v) (a) Lucknow, Varanasi, Baharaich and Hanipur. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 577 lb./ac.
   (ii) 18.73 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>130</td>
</tr>
<tr>
<td>2.</td>
<td>288</td>
</tr>
<tr>
<td>3.</td>
<td>465</td>
</tr>
<tr>
<td>4.</td>
<td>543</td>
</tr>
<tr>
<td>5.</td>
<td>627</td>
</tr>
<tr>
<td>6.</td>
<td>892</td>
</tr>
<tr>
<td>7.</td>
<td>1094</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>9.36 lb./ac.</td>
</tr>
</tbody>
</table>

Object: -To study the effect of different seed rate proportions of Gram and Linseed grown mixed, on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Paddy. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 25.11.1953. (iv) (a) 4 ploughings after harvest of paddy on 2, 7, 13 and 21.11.1353. (b) Sown by local seed drill to obtain uniform distribution of seeds all over the field. (c) As per treatments. (d) and (e) N.A. (v) F.Y.M. applied on 10.11.1953-3 C.L. Fertilizer applied on 21.11 1953-11 mds of Super at a depth of 3"-4" in furrows behind the plough all over the field. (vi) Gram : 87 and linseed (improved). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 16.4.1954.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed rate in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram : Linseed</td>
<td>Gram : Linseed</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 6.1</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.0 : 4.8</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>8.1 : 3.6</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>10.1 : 3.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>12.2 : 2.4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>16.3 : 1.2</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>20.3 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 59'×30'. (v) Field border=3' around. Plot border=1'. Irrigation channel=3'. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) No. (iii) Grain and straw yield of gram and linseed. (iv) (a) 1952-1954. (b) and (c) No. (v) (a) Varanasi, Baharaich, Belatal (Hamirpur) and Hardoi. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:

(i) 538 lb./ac.
(ii) 8.98 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>110</td>
</tr>
<tr>
<td>2.</td>
<td>262</td>
</tr>
<tr>
<td>3.</td>
<td>401</td>
</tr>
<tr>
<td>4.</td>
<td>553</td>
</tr>
<tr>
<td>5.</td>
<td>604</td>
</tr>
<tr>
<td>6.</td>
<td>819</td>
</tr>
<tr>
<td>7.</td>
<td>1018</td>
</tr>
</tbody>
</table>

S.E./mean = 4.49 lb./ac.

Crop :- Barley and Pea.
Site :- Govt. Agri. Farm, Atarra.
Object:—To study the effect of different seed rate proportions of Barley and Pea grown mixed, on yield, and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Kabor; Clay loam. (b) N.A. (iii) 25.11.1952. (iv) (a) 3 ploughings with Watt's plough and pata. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Manuring on 20.11.1952. (1) 3 C.L. (45 mds.) of F.Y.M. applied to entire field. (2) 1½ mds. of super placed at a depth of 3"—4" in furrows behind the plough all over the field 2 days before sowing. (vi) Barley—C.251 (medium); Pea—T. 163 early. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 4.4.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed required in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 190</td>
<td>0.0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>8.1 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>10.1 : 10.1</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>12.2 : 8.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>16.3 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>20.3 : 0.0</td>
</tr>
</tbody>
</table>
3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 42' x 33'. (b) 39' x 30'. (v) Field border = 3' alround. Plot border = 1'. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) No. (iii) Grain and straw yield. (iv) (a) 1952—56. (b) and (c) No. (v) (a) Lucknow, Faizabad, Etawah, Kanpur, Hardoi and Aligarh. (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.(R).

5. RESULTS:
(i) 577.8 lb/ac.
(ii) 16.14 lb/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>499.0</td>
</tr>
<tr>
<td>2.</td>
<td>591.2</td>
</tr>
<tr>
<td>3.</td>
<td>429.6</td>
</tr>
<tr>
<td>4.</td>
<td>677.3</td>
</tr>
<tr>
<td>5.</td>
<td>726.4</td>
</tr>
<tr>
<td>6.</td>
<td>671.3</td>
</tr>
<tr>
<td>7.</td>
<td>450.0</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 8.07 lb/ac.</td>
</tr>
</tbody>
</table>

CROP: Barley and Pea. Site: Govt. Agri. Farm, Atarra. Object: To study the effect of different seed rate proportions of Barley and Pea grown mixed on yield and residual effect on the succeeding kharij crop.

1. BASAL CONDITIONS:
(i) (a) Legume—Cereal. (b) Dhaincha. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 24.11.1953. (iv) (a) 4 ploughings after harvest of paddy on 4, 8, 14, 22.11.1953. Palewa on 29.10.1953. Barley to be sown first in lines east—west behind the plough and then pea to north—south of it across barley lines. (b) Sown by seed drill. (c) to (e) N.A. (v) F.Y.M.—3 C.L. on 11.11.1953. 1½ mds. Super at the depth of 3"—4" in furrows behind the plough all over the field 22.11.1953. (vi) Barley—2½ (improved); Pea—163. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 16.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed rate in chk/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>8.1 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>10.1 : 10.1</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>12.2 : 8.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>16.3 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>20.3 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42' x 33'. (b) 39' x 30'. (v) Field border = 3' alround. Irrigation channel = 3'. Plot border = 1'. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) No. (iii) Grain and straw yield. (iv) (a) 1952—1956. (b) and (c) No. (v) (a) Varanasi, Faizabad, Kalyanpur. Kalai, Etawah. (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.(R).

5. RESULTS:
(i) 634.6 lb/ac.
(ii) 15.6 lb/ac.
(iii) Treatment differences are highly significant.
Crop: Wheat and Gram.  
Site: Govt. Agri. Farm, Baharaich.  
Ref: U.P. 50(89).  
Type: ‘X’.

Object: To study the effect of different seed rate proportions of Wheat and Gram grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A.  
(ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich.  
(iii) 1.11.1950.  
(iv) (a) Ploughing by desi plough and subsequently covered by planking. (b) Broadcast after mixing the seeds in the given proportion. (c) Wheat at 50 seers/ac. and gram at 30 seers/ac.  
(d) and (e) N.A.  
(v) F.Y.M. at 40 lb./ac. of N.  
(vi) Wheat—NP52 (medium-early) and gram—local (late).  
(vii) Irrigated.  
(viii) Harrowing twice.  
(ix) 3.08" (x) 18.4.1951.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rates Proportion</th>
<th>Seed required in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 10</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.2 : 8</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>6.4 : 6</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>8.0 : 5</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>9.6 : 4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>12.8 : 2</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>16.0 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D.  
(ii) (a) 7. (b) N.A.  
(iii) 4. (iv) (a) 25’x35’. (b) 22’x32’.  
(v) Field border=3’ alround, plot border=1½’ alround and irrigation channel=3’.  
(vi) Yes.

4. GENERAL:

(i) Satisfactory.  
(ii) Nil.  
(iii) Grain yield.  
(iv) (a) 1950—1953.  
(b) and (c) No.  
(v) (a) Atarra Kalyanpur, Lucknow and Partapgarh.  
(b) N.A.  
(vi) Nil.  
(vii) Experiment conducted by C.P.

5. RESULTS:

(i) 1061 lb./ac.  
(ii) 214.9 lb./ac.  
(iii) Treatment differences are highly significant.  
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>175</td>
</tr>
<tr>
<td>2.</td>
<td>1066</td>
</tr>
<tr>
<td>3.</td>
<td>1034</td>
</tr>
<tr>
<td>4.</td>
<td>1265</td>
</tr>
<tr>
<td>5.</td>
<td>1352</td>
</tr>
<tr>
<td>6.</td>
<td>1257</td>
</tr>
<tr>
<td>7.</td>
<td>1281</td>
</tr>
</tbody>
</table>

S.E./mean =107.5 lb./ac.
Crop: - Wheat and Gram.  
Site: - Govt. Agri. Farm, Baharaich.  
Ref: - U.P. 51(71).  
Type: - 'X'.

Object: — To study the effect of different seed rate proportions of Wheat and Gram, grown mixed on yield and its residual effect on the succeeding kharif crop.

1. **BASAL CONDITIONS:**

   (i) (a) No.  (b) Fallow.  (c) No.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Baharaich.  (iii) Last week of October.  (iv) (a) Ploughings by desi plough and subsequently covered by planking.  (b) Broadcast after mixing both the seeds in the given proportion.  (c) Wheat 50 seers/ac. and gram 30 seers/ac.  (d) and (e) N.A.  (v) G.M. at 40 lb./ac of N.  (vi) Wheat—NP. 52 (medium early) and gram—local (late).  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. **TREATMENTS:**

<table>
<thead>
<tr>
<th>Seed rate Proportions</th>
<th>Seed used in chk / gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>00 : 10.0</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.2 : 8.0</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>6.4 : 6.0</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>8.0 : 5.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>9.6 : 4.0</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>12.8 : 2.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>16.0 : 0.0</td>
</tr>
</tbody>
</table>

3. **DESIGN:**

   (i) R.B.D.  (ii) (a) 7.  (b) N.A.  (iii) 4.  (iv) (a) 25'×35'.  (b) 22'×32'.  (v) Field border=3' around, plot border=1' around and irrigation channel=3'.  (vi) Yes.

4. **GENERAL:**

   (i) Normal.  (ii) Nil.  (iii) Yield of wheat and gram grain.  (iv) 1950—1953.  (b) and (c) No.  (v) (a) Partapgarh, Etawah and Kanpur.  (b) N.A.  (vi) Nil  (vii) Experiment conducted by C.P.

5. **RESULTS:**

   (i) 455.2 lb./ac.  
   (ii) 173.9 lb./ac.  
   (iii) Treatment differences are highly significant.  
   (iv) Av. yield of grain in lb./ac.  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>103.4</td>
</tr>
<tr>
<td>2.</td>
<td>429.6</td>
</tr>
<tr>
<td>3.</td>
<td>596.7</td>
</tr>
<tr>
<td>4.</td>
<td>544.9</td>
</tr>
<tr>
<td>5.</td>
<td>461.4</td>
</tr>
<tr>
<td>6.</td>
<td>636.4</td>
</tr>
<tr>
<td>7.</td>
<td>413.7</td>
</tr>
</tbody>
</table>

   S.E./mean = 86.96 lb./ac.

---

Crop: - Wheat and Gram.  
Site: - Govt. Agri. Farm, Baharaich.  
Ref: - U.P. 52(83).  
Type: - 'X'.

Object: — To study the effect of different seed rate proportions of Wheat and Gram, grown mixed on yield and its residual effect on the succeeding kharif crop.

1. **BASAL CONDITIONS:**

   (i) (a) to (c) N.A.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Baharaich.  (iii) 3.11.1952.  (iv) (a) 3 ploughings on 25.10.1952 and 1, 4.11.1952.  (b) N.A.  (c) As per treatments.  (d) N.A.  (e) N.A.  (v) Date of manuring 16.10.1952.  (1) 3 C.L. (45 md.) of well decayed F.Y.M. all over the field.  (2) 1½ md. of Super placed at a depth of 3"—4" in furrows behind the plough all over the field 2 days before sowing.  (vi) Wheat—NP. 52, Gram-T-87.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 6.4.1953.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td></td>
<td>1. 0 : 100 0</td>
</tr>
<tr>
<td></td>
<td>2. 20 : 80 5.0</td>
</tr>
<tr>
<td></td>
<td>3. 40 : 60 10.1</td>
</tr>
<tr>
<td></td>
<td>4. 50 : 50 12.7</td>
</tr>
<tr>
<td></td>
<td>5. 60 : 40 15.2</td>
</tr>
<tr>
<td></td>
<td>6. 80 : 20 20.3</td>
</tr>
<tr>
<td></td>
<td>7. 100 : 0 25.4</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 42’X33’. (b) 39’X30’. (v) Field border 3’ around, plot border 1’. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) Attacked by yellow rust—35% damage. (iii) Grain and straw yield. (iv) (a) 1950—1953. (b) No. (c) No. (v) (a) Lucknow, Varanasi, Kanpur, Partapgarh, Aligarh, Banda, Etawah and Jhansi. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 627.7 lb./ac.
(ii) 211.3 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>256.1</td>
</tr>
<tr>
<td>2.</td>
<td>696.1</td>
</tr>
<tr>
<td>3.</td>
<td>762.3</td>
</tr>
<tr>
<td>4.</td>
<td>860.4</td>
</tr>
<tr>
<td>5.</td>
<td>777.8</td>
</tr>
<tr>
<td>6.</td>
<td>730.0</td>
</tr>
<tr>
<td>7.</td>
<td>538.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>105.7 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Wheat and Gram (Rabi).
Site : Govt. Agri. Farm, Baharaich.
Ref : U.P. 53(266).
Type : ‘X’.

Object : To study the effect of different seed rate proportions of Wheat and Gram, grown mixed on yield and its residual effect on the succeeding crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (d) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 3, 4.11.1953. (iv) (a) Ploughing on 6, 7.9.1953 and 1.11.1953. (b) Wheat is to be sown first in line east west behind plough, subsequently Gram to be sown similarly. (c) Wheat—50 seers/ac.; Gram—30 seers/ac. (d) N.A. (e) N.A. (v) 3 C.L. (45 md.) of well decayed F.Y.M. or compost to be applied 2-3 weeks before sowing all over the field. 1" md. of Super to be applied at a depth of 3'-4" in furrows behind the plough all over the field, a couple of days before sowing. (vi) Wheat-NP. 52; Gram-T. 87. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 5.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed used in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 15.2</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 12.2</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 9.1</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 7.6</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 6.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 3.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 2.0</td>
</tr>
</tbody>
</table>
3. DESIGN:
  (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'5". (b) 39'×30'. (v) Field border 3' allround, plot border 1'. (vi) Yes.

4. GENERAL:
  (i) Gram failed—reason not given. (ii) White rust. (iii) Grain yield. (iv) (a) 1950—1953. (b) No. (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
  (i) 1429 lb./ac.
  (ii) 694.1 lb./ac.
  (iii) Treatment differences are significant.
  (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>451</td>
</tr>
<tr>
<td>2.</td>
<td>1241</td>
</tr>
<tr>
<td>3.</td>
<td>1902</td>
</tr>
<tr>
<td>4.</td>
<td>2113</td>
</tr>
<tr>
<td>5.</td>
<td>1229</td>
</tr>
<tr>
<td>6.</td>
<td>1854</td>
</tr>
<tr>
<td>7.</td>
<td>1212</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>=347.1 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat and Gram.  
Site: Govt. Agri. Farm, Baharaich.  
Ref: U.P. 53(216).  
Type: 'X'.

Object: To study the physiological response of mixed crops to application of fertilisers.

1. BASAL CONDITIONS:
  (i) (a) Nil. (b) Dhaincha. (c) No. (ii) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 4.11.1953.  
  (iv) (a) Ploughing on 16, 20.10.1953 and harrowing on 22.10.1953. (b) By a seed drill, gram sown in between two rows of wheat. (c) Wheat—25 seer/ac. and gram—10 seer/ac. (d) and (e) N.A. (v) Nil. (vi) Wheat—C13 (early) and gram—T. 87 (late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 4.4.1954.

2. TREATMENTS:
  All combinations of (1), (2), (3) and (4):
  (1) 2 levels of N as A/S: N0=0 and N1=40 lb./ac. (N)
  (2) 2 levels of P2O5 as Super: P0=0 and P1=40 lb./ac. (P)
  (3) 2 levels of K2O as Pot. Sul.: K0=0 and K1=40 lb./ac. (K)
  (4) 2 levels of CaO as Gypsum: C0=0 and C1=40 lb./ac. (C)
  Manuring on 10, 12, 26.10.1953 and 1, 2.11.1953.

3. DESIGN:
  (i) 2' Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 22'×37'. (b) 19'×34'. (v) 1' ring round the net plot. (vi) Yes.

4. GENERAL:
  (i) Gram failed—reason not recorded. (ii) Wheat rust, other details—N.A. (iii) Grain yield. (iv) (a) 1953—N.A. (b) and (c) No. (v) (a) Lucknow. (b) N.A. (vi) Gram failed—reason not recorded. Hence the yield of wheat is taken for analysis. (vii) The experiment was conducted by C.P.

5. RESULTS:
  (i) 1445 lb./ac.
  (ii) 294.9 lb./ac.
  (iii) Interaction N×P is highly significant. Other effects and interactions are not significant.
<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean Response</th>
<th>N</th>
<th>Absence</th>
<th>Presence</th>
<th>P</th>
<th>Absence</th>
<th>Presence</th>
<th>K</th>
<th>Absence</th>
<th>Presence</th>
<th>C</th>
<th>Absence</th>
<th>Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>155.9</td>
<td>...</td>
<td>...</td>
<td>391.3</td>
<td>-79.4</td>
<td>102.5</td>
<td>209.4</td>
<td>130.0</td>
<td>181.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>105.4</td>
<td>340.6</td>
<td>-129.7</td>
<td>...</td>
<td>...</td>
<td>150.2</td>
<td>60.6</td>
<td>132.2</td>
<td>78.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>82.3</td>
<td>28.9</td>
<td>135.7</td>
<td>127.1</td>
<td>37.5</td>
<td>...</td>
<td>...</td>
<td>89.5</td>
<td>75.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>170.4</td>
<td>144.4</td>
<td>196.4</td>
<td>197.8</td>
<td>142.9</td>
<td>177.6</td>
<td>163.2</td>
<td>...</td>
<td>...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of differential response = 120.4 lb/ac.
S.E. of mean response = 85.1 lb/ac.

Crop :- Wheat and Barley.
Site :- Govt. Agri. Farm, Baharaich.
Ref :- U.P. 52(82).
Type :- 'X'.

Object :- To study the effect of different seed rate proportions of Wheat and Barley, grown mixed on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 3 and 4.11.1952. (iv) (a) Ploughing on 29, 30 and 31.10.1952. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) (i) 3 C.L. (45 md.) of well decayed F.Y.M. applied equally all over the field. (ii) 1½ md. of Super placed at a depth of 3"-4" in furrows behind the plough all over the field 2 days before sowing. Date of manuring 15, 16.10.1952. (vi) Wheat—NP-52 and barley—NP-31 (medium early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 5.4.1953.

2. TREATMENTS:
<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed required in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Barley</td>
<td>Wheat : Barley</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 10.1</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 8.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 39'×30'. (v) Field border = 3' around. Plot border = 1½'. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Yellow rust upto stem and ears. (iii) Grain and straw yield. (iv) (a) 1952-1953. (b) and (c) No. (v) (a) Hardy and Partapgarh. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
(i) 1064 lb/ac.
(ii) 448.6 lb/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1385</td>
</tr>
<tr>
<td>2.</td>
<td>1142</td>
</tr>
<tr>
<td>3.</td>
<td>1149</td>
</tr>
<tr>
<td>4.</td>
<td>973</td>
</tr>
<tr>
<td>5.</td>
<td>938</td>
</tr>
<tr>
<td>6.</td>
<td>997</td>
</tr>
<tr>
<td>7.</td>
<td>865</td>
</tr>
</tbody>
</table>

S.E./mean = 224.3 lb/ac.
Crop: Wheat and Barley (Rabi).
Site: Govt. Agri. Farm, Baharaich.
Object: To study the effect of different seed rate proportions of Wheat and Barley, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 5 and 6.11.1953. (iv) (a) Ploughing on 3.4 and 12.10.1953. (b) Sown by seed drill. (c) Wheat—50 srs./ac. and barley—40 srs./ac. (d) and (e) N.A. (v) (1) 3 C.L. (45 md.) of well decayed F.Y.M. or compost to be applied equally all over the field 2—3 weeks before sowing. (2) 1½ md. of Super to be applied at depth of 3½—4 in furrows behind plough all over field a couple of days before sowing. (vi) Wheat—NP.52 and barley—NP.21. (vii) Irrigated. (viii) and (ix) N.A. (x) 4.4.1952.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed used in chk./gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Barley</td>
<td>Wheat : Barley</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 10.1</td>
</tr>
<tr>
<td>5. 40 : 60</td>
<td>15.2 : 8.1</td>
</tr>
<tr>
<td>6. 20 : 80</td>
<td>20.3 : 4.0</td>
</tr>
<tr>
<td>7. 0 : 100</td>
<td>25.4 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'x33'. (b) 39'x30'. (v) Field border=3' allround, plot border=1½' and irrigation channel=3'. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Wheat rust and smut in barley. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 1153 lb./ac.
   (ii) 358.9 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>880</td>
</tr>
<tr>
<td>2.</td>
<td>1307</td>
</tr>
<tr>
<td>3.</td>
<td>982</td>
</tr>
<tr>
<td>4.</td>
<td>1046</td>
</tr>
<tr>
<td>5.</td>
<td>1265</td>
</tr>
<tr>
<td>6.</td>
<td>1321</td>
</tr>
<tr>
<td>7.</td>
<td>1267</td>
</tr>
</tbody>
</table>
   S.E./mean = 179.5 lb./ac.

Crop: Gram and Linseed.
Site: Govt. Agri. Farm, Baharaich.
Object: To study the effect of different seed rate proportions of Gram and Linseed grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 4.11.1952. (iv) (a) Ploughing on 2 and 8.10.1952. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) (1) 3 C.L. (45 md.) of well decayed F.Y.M. applied equally all over the field. (2) 1½ md. of Super placed at a depth of 3½—4 in furrows behind the plough 2 days before sowing. Date of manuring 29.10.1952. (vi) Gram—T.87 (late) linseed 1193. (vii) Irrigated. (viii) and (ix) N.A. (x) 6.4.1953.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seeds used in chk./gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram : Linseed</td>
<td>Gram : Linseed</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 6.7</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.0 : 4.8</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>6.1 : 3.6</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>7.6 : 3.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>9.1 : 2.4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>12.2 : 1.2</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>15.2 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42' × 33'. (b) 39' × 30'. (v) Field border=3' alround and plot border=1½' alround. (vi) Yes.

4. GENERAL:

(i) Poor. (ii) Yellow rust on stem. (iii) Grain and straw yield. (iv) (a) 1952 to 1954. (b) and (c) No. (v) Lucknow, Varansai, Hamirpur and Banda. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:

(i) 570.1 lb./ac.
(ii) 110.1 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>663.0</td>
</tr>
<tr>
<td>2.</td>
<td>610.3</td>
</tr>
<tr>
<td>3.</td>
<td>587.6</td>
</tr>
<tr>
<td>4.</td>
<td>674.9</td>
</tr>
<tr>
<td>5.</td>
<td>561.2</td>
</tr>
<tr>
<td>6.</td>
<td>642.6</td>
</tr>
<tr>
<td>7.</td>
<td>251.3</td>
</tr>
</tbody>
</table>

S.E./mean = 55.04 lb./ac.

CROP: Gram and Linseed.  
SITE: Govt. Agri. Farm, Baharaich.  
REF: U.P. 53(267).  
TYPE: 'X'.

Object: To study the effect of different seed rate proportions of Gram and Linseed grown mixed on yield and its residual effect on the succeeding kharif crop.

1.4. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Baharaich. (iii) 8.11.1953. (iv) (a) Ploughing on 3, 4 and 24.10.1953. (b) Gram sown by seed drill in rows and linseed sown so as to obtain uniform distribution all over field. (c) As per treatments. gram=30 seers/ac. and linseed=12 seers/ac. (d) and (e) N.A. (v) (1) 3 C.L. (45 md.) of well decayed F.Y M. or compost applied equally all over the field. 2–3’ weeks before sowing and (2) 14’ md. of Super to be placed at a depth of 3”–4” in furrows behind the plough all over the field; a couple of days before sowing. (vi) Gram T. 87 and linseed 1193 (vii) Irrigated. (viii) and (ix) N.A. (x) 4.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram : Linseed</td>
<td>Gram : Linseed</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 6.1</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.0 : 4.8</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>6.1 : 3.6</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>7.6 : 3.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>9.1 : 2.4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>12.2 : 1.2</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>15.2 : 0.0</td>
</tr>
</tbody>
</table>
3. DESIGN:
   (i) R.B.D.  (ii) (a) 7.  (b) N.A.  (iii) 4.  (iv) (a) 42' x 33'. (b) 39' x 30'.  (v) Field border = 3' all round, irrigation channel = 3' and plot border = ½'.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Rust.  (iii) Grain yield.  (iv) (a) and (b) No.  (c) Nil.  (v) (a) and (b) No.  (vi) Nil (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 172.8 lb./ac.
   (ii) 310.3 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment     Av. yield
   1.            506.2
   2.            823.3
   3.            852.0
   4.            617.5
   5.            951.4
   6.            700.1
   7.            601.9
   S.E./mean = 155.1 lb./ac.

Crop :- Wheat and Mustard.
Site :- Govt. Agri. Farm, Baharaich.

Object :- To study the effect of different seed rate proportions of Wheat and Mustard grown mixed on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Moong.  (c) N.A.  (ii) (a) Sandy loam.  (b) Refer soil analysis, Baharaich.  (iii) 2.11.1952.  (iv) (a) Ploughings on 29, 30.10.1952 and 2.11.1952.  (b) N.A.  (c) As per treatments.  (d) and (e) N.A.  (v) (1) 3 C.L. (45 md.) of well decayed F.Y.M. applied all over the field and (2) 1½ md. of Super placed at a depth of 3"—4" in furrows behind the plough 2 days before sowing.  (vi) Wheat — N.P. 52 (medium early) and mustard — local.  (vii) Irrigated.  (viii) and (ix) N.A.  (x) Wheat 5.4.1953 and mustard 15.3.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seeds used in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Mustard</td>
<td>Wheat : Mustard</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 1.5</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 1.2</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 0.9</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 0.7</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 0.6</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 0.3</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D.  (ii) (a) 7.  (b) N.A.  (iii) 4.  (iv) (a) 42' x 33'. (b) 39' x 30'.  (v) Field border = 3' all round and plot border = ½'.  (vi) Yes.

4. GENERAL:
   (i) Normal.  (ii) Yellow rust upto stem.  (iii) Grain and straw yield.  (iv) (a) 1952—1953 (experiment failed in 1953).  (b) and (c) No.  (v) (a) and (b) Etawah and jRaya.  (b) N.A.  (vi) Nil.  (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 954 lb./ac.
   (ii) 242.5 lb./ac.
   (iii) Treatment differences are significant.
Crop : Gram and Linseed.
Site : Govt. Agri. Res. Farm, Belatal.

Object : To study the effect of different seed rate proportions on Gram and Linseed mixed on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Jowar. (c) Nil. (ii) (a) Kabar mixed with Parwa clay loam. (b) N.A. (iii) 7.11.1952. (iv) Ploughing with Watt's plough on 3.11.1952. Ploughing with desi plough on 4 and 5.11.1952. (b) N.A. (c) Gram 30 s.r./a. and linseed 12 s.r./a. (d) and (e) N.A. (v) F.Y.M. 3 C.L. on 2.11.1952 all over the field. Super on 7.11.1952; placed at a depth of 3-4" in furrows behind the plough all over the field. (vi) Gram T87 (late) Linseed T2. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) Gram 27.3.1953. Linseed 2.4.1953.

2. TREATMENTS :

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed rate in chk./gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram : Linseed</td>
<td>Gram : Linseed</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 6.1</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.0 : 4.8</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>6.1 : 3.6</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>7.6 : 3.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>9.1 : 2.4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>12.2 : 1.2</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>15.2 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN :
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42’×33’. (b) 39’×30’. (v) Field border=3’ around, plot border=1’. (vi) Yes.

4. GENERAL :
   (i) Poor. (ii) Both gram and linseed suffered from wilt. (iii) Grain and straw yield. (iv) (a) 1952—1954. (b) and (c) No. (v) Lucknow, Varanasi, Baharaich and Banda. (b) N.A. (vi) Nil. (vii) The exppt. was conducted by C.P.(R).

5. RESULTS :
   (i) 237.1 lb./a.c.
   (ii) 59.89 lb./a.c.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./a.c.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>76.6</td>
</tr>
<tr>
<td>2.</td>
<td>173.5</td>
</tr>
<tr>
<td>3.</td>
<td>198.6</td>
</tr>
<tr>
<td>4.</td>
<td>221.4</td>
</tr>
<tr>
<td>5.</td>
<td>327.9</td>
</tr>
<tr>
<td>6.</td>
<td>315.9</td>
</tr>
<tr>
<td>7.</td>
<td>345.8</td>
</tr>
</tbody>
</table>

S.E./mean = 29.94 lb./a.c.
Crop : - Gram and Linseed.  
Site : - Govt. Agri. Res. Farm, Belatal.

Object : - To study the effect of different seed rate proportions of Gram and Linseed grown mixed on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Kabar.  (b) N.A. (iii) 21.10.1953.  (iv) (a) 5 ploughings by Watt’s plough and 5 with desi plough.  (b) Gram to be sown first through seed drill in rows and after it linseed is sown uniformly; behind the plough.  (c) As per treatments.  (d) and (e) N.A.  (v) (a) 45 md. of well decayed F.Y.M. or compost to be applied equally all over the field 2–3 weeks before sowing (b) 1.25 md. of Super to be placed at the depth of 3”–4” in furrows behind the plough all over the field a couple of days before sowing (20.10.1953).  (vi) Gram T87 (late) linseed local.  (vii) Nil. (viii) Nil. (ix) N.A. (x) 8.4.1954.

2. TREATMENTS :

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram :</td>
<td>Linseed :</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 6.1</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.0 : 4.8</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>6.1 : 3.6</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>7.6 : 3.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>9.1 : 2.4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>12.2 : 1.2</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>15.2 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN :
   (i) R.B.D.  (ii) 7.  (b) N.A.  (iii) 4.  (iv) (a) 42’x33’.  (b) 39’x30’.  (v) Plot border 1.5’, field border 3’ around.  Block partition 3’ to serve as irrigation channel.  (vi) Yes.

4. GENERAL :
   (i) Bad.  (ii) Nominal damage due to wilt disease and rust to linseed.  (iii) Grain and straw yield.  (iv) (a) 1952–1954.  (b) and (c) No.  (v) (a) Banda, Baharaich.  (vi) During the month of January 1954, the linseed capsules were damaged by the frost when temperature went as low as 31°F.  The gram crop escaped as it was late variety.  (vii) The experiment conducted by C.P.(R).

5. RESULTS :
   (i) 571.7 lb./ac.
   (ii) 133.4 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>320.7</td>
</tr>
<tr>
<td>2.</td>
<td>432.0</td>
</tr>
<tr>
<td>3.</td>
<td>489.4</td>
</tr>
<tr>
<td>4.</td>
<td>605.5</td>
</tr>
<tr>
<td>5.</td>
<td>554.1</td>
</tr>
<tr>
<td>6.</td>
<td>746.7</td>
</tr>
<tr>
<td>7.</td>
<td>853.2</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=66.72 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : - Wheat and Gram.  
Site : - State Mechanised Farm, Bharari.

Object : - To study the effect of different seed rate proportions of Wheat and Gram mixed on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS :
   (i) (a) Sanai/Wheat.  (b) Sanai.  (c) Nil.  (ii) (a) Parwa soil, clay loam.  (b) N.A.  (iii) 11.12.11.1952.  
   (iv) (a) Ploughing on 28.7.1952; 2 harrowings on 26, 31.10.1952.  (b) N.A.  (c) As per treatments.  (d) N.A.  
   (e) N.A.  (v) Date of manure 1.11.1952.  (1) 3 C.L. (45 md.) of well decayed F.Y.M. applied all over the field.  
   (2) 1.25 md. of Super placed at a depth of 3”–4” in furrows behind the plough all over the field 2 days before sowing.  (vi) Wheat-Pb-597; Gram T87 (late).  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 24.3.1953.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seeds used in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 10.1</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 8.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D.  (ii) (a) N.A.  (iii) 4.  (iv) (a) 42'×33'. (b) 39'×30'. (v) Field border 3' around. Plot border 1'. (vi) Yes.

4. GENERAL:

(i) Normal.  (ii) Slight rust was traceable in wheat during February. (iii) Grain and straw yield. (iv) (a) 1952 -1956. (b) and (c) No.  (v) (a) Lucknow, Varanasi, Kanpur, Bahraich, Pratapgarh, Aligarh, Banda and Etawah. (b) N.A.  (vi) Nil.  (vii) Experiment conducted by C.P.(R).

5. RESULTS:

(i) 2074 lb./ac. 
(ii) 151.0 lb./ac. 
(iii) Treatment differences are highly significant. 
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1429</td>
</tr>
<tr>
<td>2.</td>
<td>1998</td>
</tr>
<tr>
<td>3.</td>
<td>1965</td>
</tr>
<tr>
<td>4.</td>
<td>2149</td>
</tr>
<tr>
<td>5.</td>
<td>2353</td>
</tr>
<tr>
<td>6.</td>
<td>2408</td>
</tr>
<tr>
<td>7.</td>
<td>2226</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>75.52 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :-Wheat and Gram (Rabi),
Site :-State Mechanised Farm, Bharari.
Object :-To study the effect of different seed rate proportions of Wheat and Gram grown mixed on yield and its residual effect on succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Qamai-Wheat. (b) Sanai. (c) Nil. (ii) (a) Parwa. (b) N.A. (iii) 17.11.1953.  (iv) (a) Ploughing 8-10 times on 20.8.1953 and 28.10.1953. Harrowing on 14.11.1953. (b) Wheat to be sown first in lines east-west behind the plough; similarly gram to be sown north-south in lines. (c) Wheat 50 seers/ac.; Gram 40 seers/ac. (d) N.A. (e) N.A. (v) (1) 45 md./ac. of well decayed F.Y.M. on 10.11.1953. (2) 1.25 md./ac. of Super to be placed 3"-4" deep in soil in furrows behind the plough all over the field on 16.11.1953. (vi) Wheat-Pb 591, Gram-T-87. (vii) Irrigated. (viii) Weeding and hoeing at the proper time are common in practice. (ix) N.A. (x) 4.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed rate lb./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 2.61</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>0.64 : 2.09</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>1.29 : 1.57</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>1.63 : 1.29</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>1.95 : 1.04</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>2.61 : 0.52</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>3.26 : 0.0</td>
</tr>
</tbody>
</table>
3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42’x33’. (b) 39’x30’. (v) Plot border 1.5’ around and field border 3’ around and block partition 3’ to serve as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight effect of rust and frost. (iii) Grain and straw yield. (iv) (a) 1952—continued. (b) No. (c) No. (v) (a) Varanasi, Partapgarh, Kanpur, Banda, Baharaich, Aligarh and Etawah. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 1143 lb./ac.
(ii) 319.1 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1180</td>
</tr>
<tr>
<td>2.</td>
<td>1553</td>
</tr>
<tr>
<td>3.</td>
<td>1067</td>
</tr>
<tr>
<td>4.</td>
<td>1464</td>
</tr>
<tr>
<td>5.</td>
<td>1529</td>
</tr>
<tr>
<td>6.</td>
<td>1436</td>
</tr>
<tr>
<td>7.</td>
<td>1172</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 159.6 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Barley, Gram and Mustard.  
Site :- Institutional Res. Farm, Bichpuri (Agra).  
Type :- 'X'.

1. BASAL CONDITIONS:
(i) (a) Fallow—wheat, guar—fallow, sanai—wheat, fallow—gram, barley—mustard. (b) Fallow. (c) Nil. (ii) (a) Well drained, apparently light loam with av. fertility, porus and friable, possessing a good water holding capacity. (b) Refer soil analysis, Bichpuri. (iii) 25.10.1950. (iv) (a) 6 ploughing by tractor(5’—6’ and off set disc harrow and 1 ploughing by Punjab plough and 1 by Watt’s plough and 5 ploughings by desi plough. (b) N.A. (c) When crop raised pure. 45 seer/ac.—barley, 30 seer/ac.—gram and 3 seer/ac.—mustard. Crops when raised in mixture. Barley—22.5 seer/ac., gram—15.0 seer/ac. and mustard—1.5 seer/ac. (d) and (e) N.A. (v) N.A. (vi) Barley—C.251, gram—N.P.25 and mustard (pili sarson). local. (vii) N.A. (viii) No intercultural operations were done, weeds were allowed to grow as such for study. (ix) 0.49’. (x) Barley and mustard on 22 to 24.3.1951. Gram on 8, 9.4.1951.  

2. TREATMENTS:
1. Barley sown pure.
2. Gram sown pure.
3. Mustard sown pure.
5. Barley—mustard sown in alternate rows of pure stand.
7. Barley—gram sown mixed in the same row.
8. Barley—mustard sown mixed in the same row.
9. Gram—mustard sown mixed in the same row.

3. DESIGN:
(i) R.B.D. (ii) (a) 9. (b) 115’x82’. (iii) 4. (iv) (a) 39’x28’, 39’x26’, 37’x28’ and 37’x26’. (b) 33’x22’. (v) Block border=4’ and Plot border=2’. (vi) Yes.

4. GENERAL:
(i) Germination counts, highest in barley followed by mustard and gram. (ii) N.A. (iii) Germination counts, stand of crops (5 lines), height of plant, fresh and dry weight of plants number of green tillers and green branches per plant, no. of dry tillers, no. of green and dry leaves, no. of days taken for earing. No. of ear bearing tillers, number of non bearing tillers weight of grain per plant etc. (iv) (a) No. (b) No. (c) Nil (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by B.R.C.
5. RESULTS:

(i) 1627 lb./ac.
(ii) 243.8 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1627</td>
</tr>
<tr>
<td>2.</td>
<td>1964</td>
</tr>
<tr>
<td>3.</td>
<td>1225</td>
</tr>
<tr>
<td>4.</td>
<td>1732</td>
</tr>
</tbody>
</table>

S.E./mean = 121.9 lb./ac.

Crop :- Wheat and Mustard.
Site :- Govt. Agri. Farm, Etawah.

Ref :- U.P. 52(88).
Type :- ‘X’.

Object :- To study the effect of differing seed rate proportions of Wheat and Mustard grown mixed on yield and residual effect on the succeeding *kharif* crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) 6.11.1952. (iv) (a) and (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) (1) 3 C.L. (45 md.) of well decayed F.Y.M. applied all over the field 2—3 weeks before sowing. (2) 14 mds of Super placed at a depth of 3—4” in furrows behind the plough all over the field 2 days before sowing. (vi) to (ix) N.A. (x) Mustard—2.4.1953 and wheat—14.4.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed required in chh./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>Mustard</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 1.5</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 1.2</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 0.9</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 0.7</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 0.6</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 0.3</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42’×33’. (b) 39’×30’. (v) Field border 3’ around.

Plot border 1 1/2’. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Mustardly Aphis. (iii) Grain and straw yield. (iv) (a) 1952-1954. (b) and (c) No. (v) (a) Baharaich and Raya. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:

(i) 888 lb./ac.
(ii) 173.5 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>520</td>
</tr>
<tr>
<td>2.</td>
<td>924</td>
</tr>
<tr>
<td>3.</td>
<td>820</td>
</tr>
<tr>
<td>4.</td>
<td>822</td>
</tr>
<tr>
<td>5.</td>
<td>872</td>
</tr>
<tr>
<td>6.</td>
<td>1003</td>
</tr>
<tr>
<td>7.</td>
<td>1253</td>
</tr>
</tbody>
</table>

S.E./mean = 86.74 lb./ac.
Crop: Wheat and Mustard (Rabi).

Site: Govt. Agri. Farm, Etawah.

Object: To study the effect of different seed rate proportions of Wheat and Mustard grown mixed on yield and residual effect on succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 5.11.1953. (iv) (a) Ploughing and harrowing on 4 and 11.7.1953, 12.8.1953, 19 and 26.9.1953 and 15 and 26.10.1953, Watt's plough, cultivator plough and desi plough. (b) Through seed drill. (c) As per treatments. (d) and (e) N.A. (v) (1) 45 md. of well decayed F.Y.M. or compost to be applied 2-3 weeks before sowing all over the field. (2) 1.25 md. of Super to be placed at a depth of 3'-4' in furrows behind the plough all over the field, a couple of days before sowing (vi) Wheat Pb.591 and mustard T.101. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 27.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate Proportion Wheat : Mustard</th>
<th>Seed rate in chk./plot. Wheat : Mustard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
<td>0 : 13.2</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.4 : 10.6</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>8.8 : 7.9</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>11.0 : 6.6</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>13.2 : 5.3</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>17.7 : 2.6</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>22.1 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 43'x28'. (b) 40'x25'. (v) Plot border 1.5' and field border 3' alround. Block partition 3' serves as irrigation channel also.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952 to 1954. (b) and (c) No. (v) (a) Bhatraich, and Raya (Mathura). (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
   (i) 977 lb./ac.
   (ii) 234.9 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment   | Av. yield |
   1.           | 563       |
   2.           | 602       |
   3.           | 989       |
   4.           | 809       |
   5.           | 1001      |
   6.           | 1318      |
   7.           | 1554      |
   S.E./mean    = 117.5 lb./ac.

Crop: Barley and Pea (Rabi).

Site: Govt. Agri. Farm, Etawah.

Object: To study the effect of different seed rate proportions of Barley and Pea grown mixed, on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) 5.11.1952. (iv) (a) 3 ploughings with Watt's plough, 1 ploughing with desi plough and 2 ploughings with cultivator. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Nil. (vi) Barley NP.21 and pea T.163 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 15.4.1953.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed required in chk./gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.0</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 16.0</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.0 : 12.0</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.5 : 10.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.0 : 8.0</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.0 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.0 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42' x 33'. (b) 39' x 30'. (v) Field border = 3' around and plot border = 1' around. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) 2% barley attacked by smut. (iii) Grain and straw yield. (iv) (a) 1952—continued. (b) and (c) No. (v) (a) Lucknow, Faizabad, Kanpur, Hardoi, Aligarh and Banda. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:

(i) 1494 lb./ac.  
(ii) 287.8 lb./ac.

(iii) Treatment differences are not significant.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1373</td>
</tr>
<tr>
<td>2.</td>
<td>1507</td>
</tr>
<tr>
<td>3.</td>
<td>1551</td>
</tr>
<tr>
<td>4.</td>
<td>1484</td>
</tr>
<tr>
<td>5.</td>
<td>1508</td>
</tr>
<tr>
<td>6.</td>
<td>1541</td>
</tr>
<tr>
<td>7.</td>
<td>1497</td>
</tr>
</tbody>
</table>

S.E./mean = 143.9 lb./ac.

Ref: U.P. 53(106).

Crop: Barley and Pea (Rabi).
Site: Govt. Agri. Farm, Etawah.
Type: -X'.

Object:—To study the effects of different seed rate proportions of Barley and Pea grown mixed on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 30.10.1953. (iv) (a) 9 ploughings and harrowings by Watt's plough, cultivator and desi plough. (b) Sown behind the plough, barley in east-west 'direction and then pea in north-south direction (c) As per treatments. (d) and (e) N.A. (v) (i) 45 mds. of well decayed F.Y.M. or compost be supplied all over the field 2—3 weeks before sowing and (2) 1.25 md. of Super to be placed at a depth of 3"—4" in furrows behind the plough all over the field a couple of days before sowing on 28.10.1953. (vi) Barley C. 251. and pea T. 163. (vii) Irrigated.


2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed rate in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 20.0</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 16.0</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.0 : 12.0</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.5 : 10.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.0 : 8.0</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>25.0 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.0 : 0</td>
</tr>
</tbody>
</table>
3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 39'×30'. (v) Plot border 1.5' and field border 3' around; block partition 3' to serve as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight attack of cut worm in pea. (iii) Grain and straw yield. (iv) (a) 1952—continued. (b) and (c) No. (v) (a) Varanasi, Faizabad, Kanpur, Banda, Aligarh and Hardoi. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 1636 lb./ac.
(ii) 218.9 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1245</td>
</tr>
<tr>
<td>2.</td>
<td>1538</td>
</tr>
<tr>
<td>3.</td>
<td>1785</td>
</tr>
<tr>
<td>4.</td>
<td>1589</td>
</tr>
<tr>
<td>5.</td>
<td>1608</td>
</tr>
<tr>
<td>6.</td>
<td>1747</td>
</tr>
<tr>
<td>7.</td>
<td>1941</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=109.5 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat and Gram (Rabi). Site: Govt. Agri. Farm, Etawah. Object: To study the effect of different seed rate proportions of Wheat and Gram grown mixed on yield and residual effect on the succeeding kharif crop.  

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Loam. (b) N.A. (iii) N.A. (iv) (a) Ploughings by desi plough and seed covered by planking. (b) Broadcast after mixing both seeds in the given proportions. (c) Wheat seed rate 40—50 seers/ac. and gram seed rate 30 seers/ac. (d) and (e) N.A. (v) Green manure at 40 lb./ac. of N. (vi) Wheat—Pb. 591 (medium late) and gram—local (late). (vii) and (viii) N.A. (ix) 1.10°. (x) N.A.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rates proportion</th>
<th>Seed required in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 11.5</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.8 : 9.2</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>7.6 : 6.9</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>9.5 : 5.8</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>11.4 : 4.6</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>15.2 : 2.3</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>19.0 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 24'×43'. (b) 21'×40'. (v) Plot border = 14' around; field border = 3' around and sown space left between blocks = 6'—also to be used as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Not good. (ii) Nil. (iii) Grain yield. (iv) (a) 1951 to 1954 (b) and (c) No. (v) (a) Pratapgarh, Kanpur and Bahraich. (b) N.A. (vi) Nil. (vii) Experiment was conducted by C.P.

5. RESULTS:
(i) 1061 lb./ac.
(ii) 178.3 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>703</td>
</tr>
<tr>
<td>2.</td>
<td>833</td>
</tr>
<tr>
<td>3.</td>
<td>1134</td>
</tr>
<tr>
<td>4.</td>
<td>993</td>
</tr>
<tr>
<td>5.</td>
<td>1257</td>
</tr>
<tr>
<td>6.</td>
<td>1194</td>
</tr>
<tr>
<td>7.</td>
<td>1314</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>89.1 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat and Gram (Rabi).

Site :- Govt. Agri. Farm, Etawah.

Object :- To study the effect of different seed rate proportions of Wheat and Gram grown mixed on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sanai. (c) No. (ii) (a) Loam inclined to heavy loam. (b) N.A. (iii) 3.11.1952. (iv) (a) Turning of sanai with victory plough on 16.8.1952, 2 ploughings with Watt’s plough on 6.9.1952, 2 ploughings with desi plough on 20.9.1952. 2 ploughings with cultivator on 20.9.1952. (b) N.A. (c) Wheat 50 srs./ac. and Gram 30 srs./ac. (d) and (e) N.A. (v) 1.3 cart loads (45 md.) of well decayed F.Y.M. applied 2—3 weeks before sowing all over the field. 1/4 md. of Super placed at a depth of 3”—4” in furrows behind the plough over the field 2 days before sowing. (vi) Wheat—Pb. 591 and gram—T. 87. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 13.4.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed required in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 13.2</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.4 : 10.6</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>8.8 : 7.9</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>11.0 : 6.6</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>13.2 : 5.3</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>17.7 : 2.6</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>22.1 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 43’×28’. (b) 40’×25’. (v) Field border—3’ alround. Plot border=1’’. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1951—1952. (b) and (c) N.A. (v) (a) Lucknow, Varanasi, Kanpur, Buhraich, Pratapgarh, Aligarh, Banda, and Jhansi. (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.

5. RESULTS:

(i) 1092 lb./ac.
(ii) 160.5 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>713</td>
</tr>
<tr>
<td>2.</td>
<td>1040</td>
</tr>
<tr>
<td>3.</td>
<td>1053</td>
</tr>
<tr>
<td>4.</td>
<td>1096</td>
</tr>
<tr>
<td>5.</td>
<td>1204</td>
</tr>
<tr>
<td>6.</td>
<td>1269</td>
</tr>
<tr>
<td>7.</td>
<td>1267</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>80.3 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Wheat and Gram (Rabi).
Site :- Govt. Agri. Farm, Etawah.
Object :- To study the effect of different seed-rate proportions of Wheat and Gram, grown mixed on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 2.11.1953. (iv) (a) 7 ploughings and harrowings by Watt's plough cultivator and desi plough. (b) Wheat sown first (east-west in lines) and gram across (north-south) wheat lines behind the plough. (c) As per treatments. (d) and (e) N.A. (v) 45 md. of well decayed F.Y.M. or compost to be applied 2-3 weeks before sowing all over the field. 1.25 md. of Super to be placed at depth of 3'-4' in furrows behind the plough all over the field a couple of days before sowing (vi) Wheat Pb. 591 (late). Gram T. 87. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 22.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed rate in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 13.2</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.4 : 10.6</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>8.8 : 7.9</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>11.0 : 6.6</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>13.2 : 5.3</td>
</tr>
<tr>
<td>6. 80 : 30</td>
<td>17.7 : 2.6</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>22.1 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 43'x28', (b) 40'x25'. (v) Plot border 1.5' and field border 3' around, irrigation channel between blocks 3'. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain and straw yield of both crops separately. (iv) (a) 1951-1954. (b) and (c) No. (v) (a) Varanasi, Pratagarh, Kanpur, Banda, Bahraich, Jhansi and Aligarh. (vi) Nil. (vii) The exp. was conducted by C.P.(R).

5. RESULTS:
   (i) 1439 lb./ac.
   (ii) 252.8 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>672</td>
</tr>
<tr>
<td>2.</td>
<td>1253</td>
</tr>
<tr>
<td>3.</td>
<td>1568</td>
</tr>
<tr>
<td>4.</td>
<td>1437</td>
</tr>
<tr>
<td>5.</td>
<td>1575</td>
</tr>
<tr>
<td>6.</td>
<td>1782</td>
</tr>
<tr>
<td>7.</td>
<td>1785</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=126.4 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Barley and Pea.
Site :- Govt. Agri. Farm, Faizabad.
Object :- To study the effect of different seed-rate proportions of Barley and Pea grown mixed, on yield and residual effect on succeeding Kharif crop.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Moong. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 16.11.1953. (iv) (a) Ploughing with praja and due plough on 17.10.1953 and 13.11.1953. (b) Barley to be sown first east-west in lines behind the plough and subsequently pea to be sown north-south. (c) Barley at 60 srs./ac. and pea at 40 srs./ac. (d) and (e) N.A. (v) (1) Compost at 45 md./a c. applied all over the field on 26.10.1953 and (2) Super to be placed 3'-4' deep in soil behind the plough furrows at 1.5 md./ac. (applied on 9.11.1953). (vi) Barley K-3 and pea T-163. (vii) Irrigated. (viii) Weeding and hoeing are common in practice at the proper time. (ix) N.A. (x) 24.3.1954.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed rate in lb./plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 2.66</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>0.80 : 2.13</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>1.60 : 1.59</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>1.99 : 1.32</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>2.40 : 1.06</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>3.20 : 0.53</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>4.00 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 47'×30'. (b) 44'×27'. (v) Plot border 1.5' and field border 3' around and block partition 3' to serve as irrigation channel. (vi) Yes.

4. GENERAL:

(i) Good. (ii) About 10% smut attack on barley crop. (iii) Yield of mixed grain. (iv) (a) 1952-1956. (b) and (c) No. (v) (a) Varanasi, Kanpur, Banda, Aligarh, Etawah and Hardoi. (vi) Nil. (vii) Experiment conducted by C.P.(R)

5. RESULTS:

(i) 627.4 lb./ac.
(ii) 86.39 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>95.5</td>
</tr>
<tr>
<td>2.</td>
<td>609.4</td>
</tr>
<tr>
<td>3.</td>
<td>713.1</td>
</tr>
<tr>
<td>4.</td>
<td>728.4</td>
</tr>
<tr>
<td>5.</td>
<td>648.3</td>
</tr>
<tr>
<td>6.</td>
<td>772.0</td>
</tr>
<tr>
<td>7.</td>
<td>825.1</td>
</tr>
<tr>
<td>S.d./mean</td>
<td>=43.20 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Barley and Pea.  
Site: Govt. Agri. Farm, Faizabad.  
Object: To study the effect of different seed-rate proportions of Barley and Pea grown mixed, on yield and residual effect on the succeeding Kharif crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 26.10.1952. (iv) (a) 5 ploughings by *proja* and *desi* ploughs. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Compost applied all over the field on 23.10.1952, Super placed at a depth of 3 1/2" in furrow behind the plough, all over the field on 26.10.1952. (vi) Pea T-163 and barley T-21. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 6 to 8.4.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seeds used in ch./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.7</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>6.2 : 16.6</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>12.4 : 12.4</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>15.5 : 10.3</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>18.7 : 8.3</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>24.9 : 4.1</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>31.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 47'×30'. (b) 44'×27'. (v) Field border=3' around and plot border=11'. (vi) Yes.
4. GENERAL:
(i) Normal. (ii) Attack of smut on ears in barley and pest in pea. (iii) Grain and straw yield. (iv) (a) 1952–1956. (b) and (c) No. (v) (a) Lucknow, Etawah, Kanpur, Hardoi, Aligarh and Banda. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
(i) 1486 lb./ac.
(ii) 121.0 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>787</td>
</tr>
<tr>
<td>2.</td>
<td>1357</td>
</tr>
<tr>
<td>3.</td>
<td>1492</td>
</tr>
<tr>
<td>4.</td>
<td>1603</td>
</tr>
<tr>
<td>5.</td>
<td>1485</td>
</tr>
<tr>
<td>6.</td>
<td>1931</td>
</tr>
<tr>
<td>7.</td>
<td>1749</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>60.48 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat and Barley.
Site :- Regional Res. Stn., Hardoi.

Object :- To study the effect of different seed rate proportions of Wheat and Barley grown mixed, on yield and residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 8.11.1952. (iv) (a) 12 ploughings (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) F.Y.M. applied to entire field on 12.10.1952 and Super applied on 28.10.1952. (1) 3 C.L. (45 md.) of well decayed F.Y.M. (2) 1/4 md. of Super placed at 3'–4' depth in furrows behind the plough all over the field. (vi) Barley C.251 (medium) and wheat C.13 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 28 and 31.3.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed required in chk./plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Barley</td>
<td>Wheat : Barley</td>
</tr>
<tr>
<td></td>
<td>100 :</td>
</tr>
<tr>
<td>1.</td>
<td>0 : 100</td>
</tr>
<tr>
<td>2.</td>
<td>20 : 80</td>
</tr>
<tr>
<td>3.</td>
<td>40 : 60</td>
</tr>
<tr>
<td>4.</td>
<td>50 : 50</td>
</tr>
<tr>
<td>5.</td>
<td>60 : 40</td>
</tr>
<tr>
<td>6.</td>
<td>80 : 20</td>
</tr>
<tr>
<td>7.</td>
<td>100 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) 35'×34'. (b) 32'×31'. (v) Field border=3' allround and plot border=14' allround. (vi) Yes.

4. GENERAL:
(i) Damage to barley upto 20%. (ii) Attack of orange rust in barley upto 80%, leaves especially attacked. (iii) Grain and straw yield. (iv) (a) 1952–1953. (b) and (c) No. (v) (a) Bahraich and Pratappgarh. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
(i) 2311 lb./ac.
(ii) 197.2 lb./ac.
(iii) Treatment differences are highly significant.
Crop : Wheat and Barley (Rabi).
Site : Regional Res. Stn., Hardoi.

Object : To study the effect of different seed rate proportions of Wheat and Barley grown mixed on yield and residual effect on succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Moong T.1. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 12.11.1953. (iv) (a) Ploughing on 21 and 30.10.1953 and 1, 2, 8 and 12.11.1953. (b) Wheat to be sown 1st in lines east-west behind desi plough and similarly barley across wheat lines. (c) Wheat 50 srs./ac. and barley 60 srs./ac. (d) and (e) N.A. (v) (1) Compost on F.Y.M. at 45 md./ac. (2) Super to be placed 3'-4' deep in soil in furrows behind the plough at 1.5 md./ac. on 5.11.1953. (vi) Wheat C.13 (early) and barley K.12. (vii) Irrigated. (viii) Weeding and hoeing at the proper time are common in practice. (ix) Not recorded. (x) 26.3.1954.

2. TREATMENTS:
   Seedrate proportion
<table>
<thead>
<tr>
<th>Wheat</th>
<th>Barley</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 :</td>
<td>100</td>
</tr>
<tr>
<td>20 :</td>
<td>80</td>
</tr>
<tr>
<td>40 :</td>
<td>60</td>
</tr>
<tr>
<td>50 :</td>
<td>50</td>
</tr>
<tr>
<td>60 :</td>
<td>40</td>
</tr>
<tr>
<td>80 :</td>
<td>20</td>
</tr>
<tr>
<td>100 :</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wheat used in lb./plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
</tr>
<tr>
<td>0 :</td>
</tr>
<tr>
<td>0.55</td>
</tr>
<tr>
<td>1.12</td>
</tr>
<tr>
<td>1.40</td>
</tr>
<tr>
<td>1.68</td>
</tr>
<tr>
<td>2.25</td>
</tr>
<tr>
<td>2.82</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 35'×34'. (b) 32'×31'. (v) Plot border 1.5' and field border 3' around and block partition 4' to serve as irrigation channel. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Attack of yellow rust in barley. (iii) Grain and straw yield of each crop. (iv) (a) 1952—1953. (b) and (c) No. (v) (a) Bahraich. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
   Seed rate proportion
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1818</td>
</tr>
<tr>
<td>2.</td>
<td>1411</td>
</tr>
<tr>
<td>3.</td>
<td>1547</td>
</tr>
<tr>
<td>4.</td>
<td>1603</td>
</tr>
<tr>
<td>5.</td>
<td>1735</td>
</tr>
<tr>
<td>6.</td>
<td>1479</td>
</tr>
<tr>
<td>7.</td>
<td>570</td>
</tr>
</tbody>
</table>

   S.E./mean = 141.6 lb./ac.
Crop :- Barley and Pea.  
Site :- Regional Res. Stn., Hardoi.  
Ref :- U.P. 52(93).  
Type :- 'X'.  

Object :- To study the effect of different seed rate proportions of Barley and Pea, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Fallow.  (c) Nil.  (ii) (a) Loam.  (b) N.A.  (iii) 8.11.1952.  (iv) (a) 11 ploughings (b) N.A.  (c) As per treatments.  (d) and (e) N.A.  (v) (i) 45 md of well decayed F.Y.M. applied all over the field on 12.10.1952.  (2) 1 1/4 md of Super placed at a depth of 3'—4' in furrows behind the plough on 28.10.1953 all over the field.  (vi) Barley C251 (medium) pea improved (local).  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) 28.3.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion Barley : Pea</th>
<th>Seed required in chk./gross plot Barley : Pea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 19.0</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.7 : 15.2</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>9.5 : 11.4</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>11.9 : 9.5</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>14.2 : 7.6</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>19.0 : 3.9</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>23.8 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D.  (ii) (a) 7.  (b) N.A.  (iii) 4.  (iv) (a) 36'×36'.  (b) 33'×33'.  (v) Field border=3' around.  Plot border=14'.  (vi) Yes.

4. GENERAL:
   (i) Damage to barley 20%.  (ii) There was an attack of orange rust on barley crop upto 80%. The leaves were especially attacked.  (iii) Grain and straw yield.  (iv) (a) 1952-1954.  (b) and (c) No.  (v) (a) Lucknow, Faizabad, Etawah, Kanpur, Aligarh and Banda.  (vi) Nil.  (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 2123 lb./ac.
   (ii) 165.3 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1716</td>
</tr>
<tr>
<td>2.</td>
<td>2217</td>
</tr>
<tr>
<td>3.</td>
<td>2186</td>
</tr>
<tr>
<td>4.</td>
<td>2142</td>
</tr>
<tr>
<td>5.</td>
<td>2327</td>
</tr>
<tr>
<td>6.</td>
<td>2193</td>
</tr>
<tr>
<td>7.</td>
<td>2060</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>82.64 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Barley and Pea.  
Site :- Regional Res. Stn., Hardoi.  
Ref :- U.P. 53(58).  
Type :- 'X'.  

Object :- To study the effect of different seed rate proportions of Barley and Pea, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) N.J.  (b) Moong.  (c) Nil.  (ii) (a) Loam.  (b) N.A.  (iii) 11.11.1953.  (iv) (a) Ploughing on 21, 30.10.1953, 1, 2, 8, 11.11.1953.  (b) Barley sown 1st in lines in east-west direction and similarly pea to be sown across barley line.  (c) Barley at 50 seer/acre and pea at 40 seer/acre.  (v) (1) Compost or F.Y.M. at 45 md/acre.  (2) Super to be placed 3'—4' deep in soil in furrows behind the plough at 1.5 md/acre on 4.11.1953.  (vi) Barley K.12 and pea T.163.  (vii) Irrigated.  (viii) Weeding and hoeing.  (ix) N.A.  (x) 25, 26.3.1954.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed rate in lb./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 2.47</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>0.61 : 1.95</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>1.22 : 1.46</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>1.53 : 1.22</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>1.83 : 0.98</td>
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<tr>
<td>6. 80 : 20</td>
<td>2.44 : 0.50</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>3.06 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) 36'×36'. (b) 33'×33'. (v) Plot border 1.5' and field border 3' around. Block partition 3' serves as irrigation channel. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Yellow rust and smut in barley crop and powdery mildew in traces in pea. Damage 8–10% in barley and 3–4% in pea. (iii) Grain and straw yield. (iv) (a) 1952-1954. (b) and (c) No. (v) (a) Varanasi, Faizabad, Kanpur, Banda, Aligarh and Etawah. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:

(i) 1910 lb./ac.
(ii) 267.9 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1337</td>
</tr>
<tr>
<td>2.</td>
<td>1749</td>
</tr>
<tr>
<td>3.</td>
<td>1831</td>
</tr>
<tr>
<td>4.</td>
<td>2067</td>
</tr>
<tr>
<td>5.</td>
<td>2175</td>
</tr>
<tr>
<td>6.</td>
<td>2242</td>
</tr>
<tr>
<td>7.</td>
<td>1970</td>
</tr>
</tbody>
</table>

S.E./mean = 133.9 lb./ac.

Crop: Wheat and Gram (Rabi).
Site: Govt. Agri. Farm, Kalai.

Ref.: U.P. 52(89). Type:-'X'.

Object:—To study the effect of different seed rate proportions of Wheat and Gram, grown mixed, on yield and its residual effect on succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Gujor fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 6.11.1952. (iv) (a) Ploughing with gujar plough on 26.10.1952 ploughing with desi plough on 27.10.1952. Harrowing twice and ploughing with desi plough 3, 4.11.1952. (b) N.A. (c) As per treatments. (d) N.A. (e) N.A. (v) (1) 3 C.L. (45 md.) of well decayed F.Y.M. applied 2 weeks before sowing all over the field. (2) 1½ md. of Super placed at a depth of 3'-4' in furrows behind the plough all over the field 2 days before sowing. (vi) Wheat—Pb. 591 Gram—T.87. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 7.4.1953.
3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'x33'. (b) 39'x30'. (v) Field border 3' around. Plot border 14'. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952—1954. (b) No. (c) N.A. (v) (a) Varanasi, Kanpur, Baharaich, Partapgarth, Banda, Etawah, Jhansi and Lucknow. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.(R).

5. RESULTS:
(i) 541.1 lb./ac.
(ii) 95.19 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>258.5</td>
</tr>
<tr>
<td>2.</td>
<td>679.7</td>
</tr>
<tr>
<td>3.</td>
<td>570.8</td>
</tr>
<tr>
<td>4.</td>
<td>600.7</td>
</tr>
<tr>
<td>5.</td>
<td>584.0</td>
</tr>
<tr>
<td>6.</td>
<td>610.3</td>
</tr>
<tr>
<td>7.</td>
<td>483.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=47.60 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :-Wheat and Fram (Rabi). 
Site :-Govt. Agri. Farm, Kalai.
Ref :-U.P. 53(100).
Type :-'X'.

Object :-To study the effect of different seed rate proportions of Wheat and Gram grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 21.10.1953. (iv) (a) Palewa on 17.9.1953, 6 ploughings and harrowings. (b) Main crop wheat is sown first in lines east-west behind the plough and subsequently gram is sown across wheat lines i.e. north-south. (c) As per treatments. (d) N.A. (e) N.A. (v) (1) 45 md/ac. of compost to be applied 2—3 weeks before sowing all over the field (2) 2.25 md/ac. of Super to be placed 3'-4' deep in furrows behind the plough all over the field a couple of days before sowing (vi) Wheat—Pb. 591; Gram—T.87. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 9.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in terms of chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed rate proportion</td>
<td>Wheat</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 15.2</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 12.2</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 9.1</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 7.6</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 6.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 3.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'x33'. (b) 39'x30'. (v) 14' ring round the net plot. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952—1955. (b) No. (c) N.A. (v) (a) Etawah, Kalyanpur, (Kanpur) Atarra, (Banda) Baharaich and Varanasi. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.(R).
5. RESULTS:

(i) 576.6 lb./ac.
(ii) 79.70 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>275</td>
</tr>
<tr>
<td>2.</td>
<td>697</td>
</tr>
<tr>
<td>3.</td>
<td>609</td>
</tr>
<tr>
<td>4.</td>
<td>585</td>
</tr>
<tr>
<td>5.</td>
<td>651</td>
</tr>
<tr>
<td>6.</td>
<td>603</td>
</tr>
<tr>
<td>7.</td>
<td>616</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>39.85 lb./ac.</td>
</tr>
</tbody>
</table>

S.E./mean = 39.85 lb./ac.

Crop: Barley and Pea (Rabi).
Site: Govt. Agri. Farm, Kalai.
Ref: U.P. 52(91).
Type: 'X'.

Object: To study the effect of different seed rate proportions of Barley and Pea, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Jowar for fodder. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 7.11.1952. (iv) (a) Ploughing with gorja plough, ploughing with desi plough and harrowing with spring tin harrows (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Date of manuring 4.11.1952. (1) 3 C.L. (45 md.) of well decayed F.Y.M. applied all over the field 2—3 weeks before sowing and (2) '1½' md. of Super placed at a depth 3"—4" in furrows behind the plough all over the field. (vi) Barley—K 12. and Pea—NP. 163. (vii) Irrigated, (viii) and (ix) N.A. (x) 14.3.1953.

TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 10.1</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 8.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'x33'. (b) 39'x30'. (v) 1½" ring round the net plot. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952—1954. (b) No. (c) N.A. (v) (a) Lucknow, Faizabad, Etawah, Kanpur, Hardoi and Banda. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P. (R).
Crop: Barley and Pea (Rabi).
Site: Govt. Agri. Farm, Kalai.

Object: To study the effect of different seed rate proportions of Barley and Pea grown mixed on yield and its residual affect on succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 21.10.1953. (iv) (a) Ploughing and harrowing on 18, 23.9.1953, 16 and 20.10.1953. (b) Barley to be sown first in lines and in east-west behind the plough and subsequently pea to be sown in north-south lines. (c) Barley 50 seers/ac. and pea 40 seers/ac. (d) and (e) N.A. (v) (1) 45 md. of well decayed compost supplied all over the field on 15.10.1953 and (2) 1.25 md. of Super to be placed at a depth of 3'-4' in furrows behind the plough on 19.10.1953. (vi) Barley—K. 2 and pea—163. (vii) Irrigated. (viii) Nil. (ix) Not recorded. (x) 24.3.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 12.2</td>
</tr>
<tr>
<td>5. 50 : 50</td>
<td>12.7 : 10.1</td>
</tr>
<tr>
<td>6. 60 : 40</td>
<td>15.2 : 8.1</td>
</tr>
<tr>
<td>7. 80 : 20</td>
<td>20.3 : 4.0</td>
</tr>
<tr>
<td>100 : 0</td>
<td>25.4 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42' x 23'. (b) 39' x 30'. (v) 1½' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952—1954. (b) No. (c) N.A. (v) (a) Banaras, Faizabad, Etawah, Kalyanpur, Atarra and Lucknow. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.(R).

5. RESULTS:
   (i) 1235 lb./ac.
   (ii) 305.0 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1474</td>
</tr>
<tr>
<td>2.</td>
<td>1321</td>
</tr>
<tr>
<td>3.</td>
<td>895</td>
</tr>
<tr>
<td>4.</td>
<td>1484</td>
</tr>
<tr>
<td>5.</td>
<td>1431</td>
</tr>
<tr>
<td>6.</td>
<td>1168</td>
</tr>
<tr>
<td>7.</td>
<td>871</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 152.5 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Barley and Pea (Rabi).
Site: Govt. Agri. Farm, Kalai.

Object: To study the physiological response of mixed crops to fertilizers.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 28.10.1953. (iv) (a) Ploughing and harrowing (b) Sown behind the plough and pea lines in between barley lines. (c) Barley at 30 srs./ac. and pea at 8 srs./ac. (d) and (e) N.A. (v) N.A. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) Not recorded (x) 26.3.1954.
2. TREATMENTS:

All combinations of (1), (2), (3) and (4)

(1) 2 levels of N as A/S: N₀ = 0 and N₁ = 40 lb./ac. of N.

(2) 2 levels of P₂O₅ as Super: P₀ = 0 and P₁ = 50 lb./ac. of P₂O₅.

(3) 2 levels of K₂O as Pot. Sol.: K₀ = 0 and K₁ = 40 lb./ac. of K₂O.

(4) 2 levels of CaO as Gypsum: C₀ = 0 and C₁ = 60 lb./ac. of CaO.

Manuring on 26.10.1953.

3. DESIGN:

(i) 2 š Fact. in R.B.D.

(ii) 16 (2 flanks of 8 plots each).

(iii) 3.

(iv) 22' x 37'.

(v) 1½' ring round the net plot.

(vi) Yes.

4. GENERAL:

(i) Good.

(ii) Nil.

(iii) Grain and straw yield.

(iv) 1953—1954.

(b) No.

(c) N.A.

(v) (a) Bahraich, Hardoi, Raya, Mathura and Lucknow.

(b) N.A.

(vi) Nil.

(vii) The experiment was conducted by C.P. (R).

5. RESULTS:

(i) 3678 lb./ac.

(ii) 342.7 lb./ac.

(iii) None of the effects is significant.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Av. Response</th>
<th>Absence</th>
<th>Presence</th>
<th>Absence</th>
<th>Presence</th>
<th>Absence</th>
<th>Presence</th>
<th>Absence</th>
<th>Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>40.46</td>
<td>—</td>
<td>—</td>
<td>39.74</td>
<td>41.18</td>
<td>21.67</td>
<td>59.24</td>
<td>—</td>
</tr>
<tr>
<td>P</td>
<td>56.09</td>
<td>95.37</td>
<td>96.81</td>
<td>—</td>
<td>—</td>
<td>140.16</td>
<td>52.02</td>
<td>98.98</td>
</tr>
<tr>
<td>K</td>
<td>—4.33</td>
<td>—23.12</td>
<td>14.45</td>
<td>39.74</td>
<td>—68.40</td>
<td>—</td>
<td>—</td>
<td>96.09</td>
</tr>
<tr>
<td>C</td>
<td>—0.73</td>
<td>—49.13</td>
<td>47.69</td>
<td>2.16</td>
<td>—3.62</td>
<td>99.70</td>
<td>—101.14</td>
<td>—</td>
</tr>
</tbody>
</table>

S.E of average response = 98.9 lb./ac.

S.E of differential response = 139.9 lb./ac.

Crop:— Wheat and Gram (Rabi)

Site:— Govt. Agri. Res. Farm, Kalyanpur.

Object:— To study the effect of varying seed rate proportions of Wheat and Gram on the yield.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Udīl. (c) Nil.

(ii) (a) Loam. (b) N.A.

(iii) 14,11.1949.

(iv) (a) One ploughing by Wett's plough, one harrowing by tractor and planking, fine ploughing by cultivator and pata. (b) Broadcast after mixing the seed in the given proportions, ploughing by desi plough and subsequently covered by planking.

(c) Wheat at 50 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A.

(v) 40 lb./ac. of N, no other information is available (vi) Wheat-C-13 (early) and gram-local. (vii) N.A. (viii) Interculture by palent junior on 15.12.1949. (ix) N.A. (x) 26.4.1950.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed required in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1.  20 : 80</td>
<td>4 : 9.6</td>
</tr>
<tr>
<td>2.  40 : 60</td>
<td>8 : 7.2</td>
</tr>
<tr>
<td>3.  50 : 50</td>
<td>10 : 6.0</td>
</tr>
<tr>
<td>4.  60 : 40</td>
<td>12 : 4.8</td>
</tr>
<tr>
<td>5.  80 : 20</td>
<td>16 : 2.4</td>
</tr>
</tbody>
</table>
3. DESIGN:
   (i) R.B.D.  (ii) 5.  (b) N.A.  (iii) 5.  (iv) (a) 32' x 34'. (b) 28' x 30'. (v) 2' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Yield of mixture of grain and bhusa. (iv) (a), (b) and (c) No.  (v) (a) Lucknow.  (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by C.P.

RESULTS:
   (i) 1490 lb./ac.
   (ii) 106.1 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1131</td>
</tr>
<tr>
<td>2.</td>
<td>1459</td>
</tr>
<tr>
<td>3.</td>
<td>1515</td>
</tr>
<tr>
<td>4.</td>
<td>1590</td>
</tr>
<tr>
<td>5.</td>
<td>1755</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=47.45 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat and Gram.
Site: Govt. Agri. Res. Farm, Kalyanpur.
Ref: U.P. 51(55).
Type: 'X'.

Object: To study the effect of different seed rate proportions of Wheat and Gram, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) kakun. (c) N.A.  (ii) (a) Loam. (b) N.A.  (iii) 28.10.1951. (iv) (d) 8—10 ploughings
   (b) Wheat to be sown first in lines east-west behind the plough, subsequently gram to be sown similarly
   north-south across the wheat lines. (c) 40—50 seer/ac. for wheat 30 seer/ac. for gram. (d) and (e) N.A.
   (v) (1) 3 C.L. (45 ml.) of well decayed F.Y.M. or compost to be placed 2—3 weeks before sowing.
   (2) 1½ lb. of Super to be placed at a depth of 3”—4” in furrows behind the plough all over the field, a
   couple of days before sowing. (vi) Wheat—C.13 (early) gram—local (late). (vii) Irrigated. (viii) N.A.
   (ix) 1.07’. (x) N.A.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td></td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1.</td>
<td>0 : 103</td>
</tr>
<tr>
<td>2.</td>
<td>20 : 80</td>
</tr>
<tr>
<td>3.</td>
<td>40 : 60</td>
</tr>
<tr>
<td>4.</td>
<td>50 : 50</td>
</tr>
<tr>
<td>5.</td>
<td>60 : 40</td>
</tr>
<tr>
<td>6.</td>
<td>80 : 20</td>
</tr>
<tr>
<td>7.</td>
<td>100 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D.  (ii) 7.  (b) N.A.  (iii) 4.  (iv) (a) 25' x 35'. (b) 22' x 32'. (v) 1 ½' ring round the net plot.
   (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) Nil.  (iii) Grain yield. (iv) (a) 1951—1953. (b) No.  (c) N.A.  (v) (a) Pratapgarth, Etawah and
   Bahraich.  (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 1424 lb./ac.
   (ii) 222.9 lb./ac.
   (iii) Treatment differences are highly significant.
Crop :- Wheat and Gram (Rabi).

Site :- Govt. Agri. Res. Farm, Kalyanpur.

Object :-To study the effect of different seed rate proportions of Wheat and Gram, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

2. TREATMENTS:

   \[
   \begin{array}{ccc}
   \text{Seed rate proportion} & \text{Seed in chk./gross plot} & \\
   \text{Wheat : Gram} & \text{Wheat : Gram} & \\
   1. & 0 : 100 & 0.0 : 8.0 \\
   2. & 20 : 80 & 2.5 : 6.4 \\
   3. & 40 : 60 & 5.1 : 4.8 \\
   4. & 50 : 50 & 6.4 : 4.0 \\
   5. & 60 : 40 & 7.6 : 3.2 \\
   6. & 80 : 20 & 10.2 : 1.6 \\
   7. & 100 : 0 & 12.8 : 0.0 \\
   \end{array}
   \]

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 25’×35’. (b) 22’×32’. (v) 1½ ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1951—1953. (b) No. (c) N.A. (v) (a) Lucknow Varanasi, Baharaich, Pratapgarh, Aligarh, Banda, Etawah and Jhansi. (b) N.A. (vi) Nil. (vi) The experiment was conducted by C.P. (R).

5. RESULTS:
   (i) 1352 lb./ac.
   (ii) 166.6 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

   \[
   \begin{array}{cc}
   \text{Treatment} & \text{Av. yield} \\
   1. & 979 \\
   2. & 1372 \\
   3. & 1484 \\
   4. & 1321 \\
   5. & 1341 \\
   6. & 1380 \\
   7. & 1587 \\
   \text{S.E./mean} & 83.3 lb./ac. \\
   \end{array}
   \]
Crop: Wheat and Gram (Rabi).  
Site: Govt. Agri. Res. Farm, Kalyanpur.  
Ref: U.P. 53(161).  
Type: 'X'.

Object: To study the effect of different seed rate proportions of Wheat and Gram grown mixed, on yield and its residual effect on succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Legume-cereal. (b) Lobia and Moong T1. (c) Nil.  (ii) (a) Loam. (b) N.A. (iii) 17.12.1953. (iv) (a) 8 ploughings and pata. (b) Wheat to be sown first in east-west lines behind desi plough and subsequently gram across wheat lines. (c) As per treatments. (d) N.A. (e) N.A. (v) Moong and Lobia turned in. Application of F.Y.M. at 45 md./ac. on 14.10.1953 and Super to be placed at a depth of 3' - 4' in furrows behind the plough on 25.10.1953. (vi) Wheat C-13; Gram T-87. (vii) Irrigated. (viii) Weeding and hoeing are common in practice after irrigation. (ix) N.A. (x) 19.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in chak./plot</th>
<th>Wheat</th>
<th>Gram</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
<td>0 : 8.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.  20 : 80</td>
<td>2.5 : 6.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.  40 : 60</td>
<td>5.1 : 4.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.  50 : 50</td>
<td>6.4 : 4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.  60 : 40</td>
<td>7.6 : 3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.  80 : 20</td>
<td>10.2 : 1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>12.8 : 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 25 x 35'. (b) 22 x 32'. (v) 1' ring round the net plot. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Germination per square yard, grain and straw yield. (iv) (a) 1951 - 1953. (b) No. (c) N.A. (v) (a) Etawah, Atarara, Banda, Baharaich, Kalai, Aligarh and Varanasi. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P.(R).

5. RESULTS:
   (i) 1043 lb./ac.
   (ii) 277.6 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 810</td>
<td></td>
</tr>
<tr>
<td>2. 698</td>
<td></td>
</tr>
<tr>
<td>3. 911</td>
<td></td>
</tr>
<tr>
<td>4. 857</td>
<td></td>
</tr>
<tr>
<td>5. 1084</td>
<td></td>
</tr>
<tr>
<td>6. 1353</td>
<td></td>
</tr>
<tr>
<td>7. 1591</td>
<td></td>
</tr>
<tr>
<td>S.E/mean</td>
<td>138.8 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Barley and Pea (Rabi).  
Site: Govt. Agri. Res. Farm, Kalyanpur.  
Ref: U.P. 52(86).  
Type: 'X'.

Object: To study the effect of different seed rate proportions of Barley and Pea, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Moong T1. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 4.11.1952. (iv) (a) Moong T1 ploughed in on 23.8.1952. ploughing with Watt's plough and pata 19, 20.9.1952, ploughing with cultivator + pata on 9,10.10.1952, 3.11.1952 pulewa on 20.10.1952 ploughing with desi plough and pata on 30, 31.10.1952, 4.11.1952. (b) N.A. (c) As per treatments. (d) N.A. (e) N.A. (v) (1) Castor cake applied on 25.10.1952 all over field. (2) 1' md. of Super placed at a depth of 3' - 4' in furrows behind the plough all over the field on 1.11.1952 (vi) Barley C-251 (medium) Pea T-163 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 26.3.1953.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 9.5</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>2.6 : 7.6</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>5.3 : 5.7</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>6.7 : 4.7</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>8.0 : 3.8</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>10.7 : 1.9</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>13.4 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 36' \times 29'. (b) 33' \times 26'. (v) 1\frac{1}{2}' ring round the net plot. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952—1953. (b) No. (c) N.A. (v) Lucknow (vi) Nil. (vii) The experiment was conducted by C.P.(R).

5. RESULTS:

(i) 2338 lb./ac.
(ii) 299.9 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1818</td>
</tr>
<tr>
<td>2.</td>
<td>2229</td>
</tr>
<tr>
<td>3.</td>
<td>2126</td>
</tr>
<tr>
<td>4.</td>
<td>2418</td>
</tr>
<tr>
<td>5.</td>
<td>2503</td>
</tr>
<tr>
<td>6.</td>
<td>2609</td>
</tr>
<tr>
<td>7.</td>
<td>2665</td>
</tr>
</tbody>
</table>

S.E./mean = 149.9 lb./ac.

---

Crop : Barley and Pea (Rabi).
Site : Govt. Agri. Res. Farm, Kalyanpur.
Ref : U.P. 53(147).
Type : ‘X’.

Object :—To study the effect of different seed rate proportions of Barley and Pea grown mixed on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Legume—Cereal. (b) Moong and lobola. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 31.10.1953. (iv) (a) 7 ploughings and pata. (b) Barley to be sown first in lines east-west behind the plough and pea across barley lines north-south. Moong and lobola turned in. (c) As per treatments. (d) and (e) N.A. (v) (1) 45 md./ac. of well decayed F.Y.M. be supplied all over the field 2—3 weeks before sowing. (2) 1\frac{1}{2} md. of Super to be placed at a depth of 3”—4” in furrows behind the plough all over the field a couple of days before sowing. (vi) Barley T.251 (medium) and pea T.163 (early). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 4.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed used in chk./plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley : Pea</td>
<td>Barley : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 9.5</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>2.6 : 7.6</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>5.3 : 5.7</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>6.7 : 4.7</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>8.0 : 3.8</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>10.7 : 1.9</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>13.4 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 36' \times 29'. (b) 33' \times 26'. (v) 1\frac{1}{2}' ring round the net plot (vi) Yes.
4. GENERAL:
(i) Nil. (ii) Nil. (iii) Germination per square yard and grain and straw yield. (iv) (a) 1952—1953. (b) No. (c) N.A. (v) (a) Varanasi, Faizabad, Etawah, Kalai (Aligarh), Atarra (Banda) and Lucknow. (b) N.A. (vi) Nil. (vii) The experiment was conducted by C.P. (R).

5. RESULTS:
(i) 1713 lb./ac.
(ii) 158.3 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1331</td>
</tr>
<tr>
<td>2.</td>
<td>1738</td>
</tr>
<tr>
<td>3.</td>
<td>1708</td>
</tr>
<tr>
<td>4.</td>
<td>1859</td>
</tr>
<tr>
<td>5.</td>
<td>1697</td>
</tr>
<tr>
<td>6.</td>
<td>1713</td>
</tr>
<tr>
<td>7.</td>
<td>1743</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>79.16 lb./ac.</td>
</tr>
</tbody>
</table>

Crop:—Wheat and Gram (Rabi).

Site:—Student’s Instructional Farm, Kanpur.

Ref:—U.P. 52(191).

Type:—‘X’.

Object:—To study the effect of mixed cropping of Wheat and Gram on yield under irrigated and unirrigated conditions.

1. BASAL CONDITIONS:
(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 27.10.1952. (iv) (a) N.A. (b) and (c) As per treatments. (d) and (e) N.A. (v) N.A. (vi) Wheat C.13 (early) and Gram T.87 (late). (vii) Partly irrigated. (viii) and (ix) N.A. (x) 25 and 26.3.1953.

2. TREATMENTS:
1. Sown cross-wise—seed rate wheat at 40 srs./ac.+gram at 40 srs./ac.
2. Along same line—seed rate wheat at 40 srs./ac.+gram at 40 srs./ac.
3. Sown crosswise—seed rate wheat at 20 srs./ac.+gram at 20 srs./ac.
4. Along same line—seed rate wheat at 20 srs./ac.+gram at 20 srs./ac.
5. Wheat pure—40 srs./ac.
6. Gram pure—40 srs./ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. In each irrigated and unirrigated portion of expt. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) and (ii) N.A. (iii) Wheat and gram yield. (iv) (a) and (b) N.A. (v) (a) and (b) No. (vi) Nil. (vii) The expt. was conducted by P.A. C. Plotwise data not available at the station.

5. RESULTS:

Irrigated conditions
(i) 1747 lb./ac.
(ii) 133.8 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1895</td>
</tr>
<tr>
<td>2.</td>
<td>1883</td>
</tr>
<tr>
<td>3.</td>
<td>1772</td>
</tr>
<tr>
<td>4.</td>
<td>1721</td>
</tr>
<tr>
<td>5.</td>
<td>1566</td>
</tr>
<tr>
<td>6.</td>
<td>1646</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>66.9 lb./ac.</td>
</tr>
</tbody>
</table>

Unirrigated conditions
(i) 1418 lb./ac.
(ii) 251.2 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1874</td>
</tr>
<tr>
<td>2.</td>
<td>1741</td>
</tr>
<tr>
<td>3.</td>
<td>1439</td>
</tr>
<tr>
<td>4.</td>
<td>1283</td>
</tr>
<tr>
<td>5.</td>
<td>198</td>
</tr>
<tr>
<td>6.</td>
<td>1970</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>125.6 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Jowar and Guar.  
Site: Students' Instructional Farm, Kanpur.  

Object: A study of Jowar and Kharif mixture for fodder at different levels of N and their residual effect on barley.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai G.M. followed by Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.7.1952.  
   (iv) (a) Hot weather cultivation was done in the field after the harvest. Preceding wheat crop, after monsoon field was planked twice on July 5, after that a cultivator was used to incorporate the cake and seed into soil, the field was then lightly planked and suitable ridges thrown up to demarcate plots. (b) to (e) N.A. (v) N.A. (vi) Local variety of jowar and guar. (vii) Unirrigated. (viii) No interculture. (ix) N.A. (x) N.A.

2. TREATMENTS:
   **Main-plot treatments:**
   - 4 levels of N: N<sub>0</sub> = control, N<sub>1</sub> = 30 lb./ac., N<sub>2</sub> = 60 lb./ac. and N<sub>3</sub> = 90 lb./ac.
   **Sub-plot treatments:**
   - Seed rate of Jowar+guar in lb./ac.: R<sub>1</sub> = 40+0, R<sub>2</sub> = 30+10, R<sub>3</sub> = 20+20, R<sub>4</sub> = 10+30 and R<sub>6</sub> = 0+40.
   N applied as A/S+castor cake in equal proportion. Manures broadcast separately.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 5 sub-plots/main-plot. (iii) 4. (iv) (a) N.A. (b) 54.5°X16'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Germination of jowar 82.00% and guar 90.00%. (ii) Light attack of jowar stem borer at the beginning of August and a very moderate incidence of zonate leaf-spot disease during the 2nd and 3rd weeks of September, no measures being taken for control. (iii) Yield of jowar+guar (green fodder) in lb./ac. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was conducted by P.A.C. (K). Original data was not available.

5. RESULTS:
   (i) 31457 lb./ac.  
   (ii) (a) 1623.6 lb./ac.  
   (b) 919.1 lb./ac.  
   (iii) Mean effects of N, R and interaction N X R are highly significant.  
   (iv) Av. yield of fodder in lb./ac.

<table>
<thead>
<tr>
<th>R&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;0&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;3&lt;/sub&gt;</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>20743</td>
<td>29973</td>
<td>40759</td>
<td>45945</td>
<td>34355</td>
<td></td>
</tr>
<tr>
<td>25306</td>
<td>31529</td>
<td>35856</td>
<td>43456</td>
<td>34037</td>
<td></td>
</tr>
<tr>
<td>25634</td>
<td>32774</td>
<td>41043</td>
<td>42004</td>
<td>35364</td>
<td></td>
</tr>
<tr>
<td>25980</td>
<td>32259</td>
<td>38374</td>
<td>42834</td>
<td>34887</td>
<td></td>
</tr>
<tr>
<td>17113</td>
<td>19498</td>
<td>19395</td>
<td>18564</td>
<td>18642</td>
<td></td>
</tr>
</tbody>
</table>

Mean 22955 29227 35085 38561 31457

S.E. of difference of two
1. marginal means of N =513.4 lb./ac.  
2. marginal means of R =324.9 lb./ac.  
3. R means at the same level of N =649.9 lb./ac.  
4. N means at the same level of R =775.6 lb./ac.

Crop: Wheat and Mustard (Rabi).  
Site: Students' Instructional Farm, Kanpur.  

Object: To study the mixed cropping of Wheat and Mustard.

1. BASAL CONDITIONS:
   (i) (a) Sanai (G.M.)—wheat. (b) Sanai for G.M. (c) No manuring. (ii) (a) Sandy loam. (b) N.A. (iii) 5.11.1953. (iv) (a) to (c) N.A. (d) As per treatments. (e) N.A. (v) The field was green manured with Sanai, sanai was sown on 8.7.1953 at one md./ac. and was ploughed in on 18.8.1953. (vi) Wheat C-13 and Laha T-01. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) N.A.
2. TREATMENTS:
1. Wheat with mustard at 6' distance.
2. Wheat with mustard at 9' distance.
3. Wheat with mustard at 12' distance.
5. Mustard alone at 2' distance.

3. DESIGN:
(i) R.B.D. (ii) 5. (b) N.A. (iii) 6. (iv) (a) 40'×27'. (b) 38'×15'. (v) 1' ring round the net plot. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Yield of mixed grain and bhua of wheat. (iv) (a) and (b) No. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) The experiment was conducted by P.A.C.

5. RESULTS:
(i) 1313 lb./ac.
(ii) 256.1 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1634</td>
</tr>
<tr>
<td>2.</td>
<td>1595</td>
</tr>
<tr>
<td>3.</td>
<td>1500</td>
</tr>
<tr>
<td>4.</td>
<td>1471</td>
</tr>
<tr>
<td>5.</td>
<td>364</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>104.6 lb/ac.</td>
</tr>
</tbody>
</table>

Crop: - Paddy, Kodon, Arhar and Maize.
Ref: - U.P. 52(310).
Type: - 'X'.

Object: - To study the mixed cropping pattern for early Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Arhar. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 26.6.1952. (iv) (a) One ploughing by Punjab plough and 3 ploughings by desi plough. (b) Broadcast (paddy) and no information about other crops. (c) Paddy at 37 seers/ac., kodon at 2 seers/ac., arhar at 3 seers/ac. and maize at 4 seers/ac.
(d) Arhar at a distance of 3'. (e) N.A. (v) A/S at 61.72 lb./ac. on 9.8.1952 as top dressing by broadcast.

2. TREATMENTS:
1. Paddy.
2. Paddy+arhar.
3. Paddy+maize.
4. Paddy+kodon.
5. Paddy+arhar+maize+kodon.

3. DESIGN:
(i) R.B.D. (ii) 5. (b) N.A. (iii) 5. (iv) (a) 29'×26'-4''. (b) 27'×24'-4''. (v) 1' around the net plot left as non experimental area. (vi) Yes.

4. GENERAL:
(i) Good and uniform growth. Lodging on 18.9.1952. Arhar crop was severely damaged by the hailstorm on 16.1.1953, when the crop was totally flowered. (ii) Grass hoppers were very common during the first fortnight of August. Arhar caterpillar and gundhi bug were two other pests which were observed in arhar and paddy crop. Efforts made to control by dusting gammexane. (iii) Height, tillering and yield of components of the mixture. (iv) (a) 1952 to 1954. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The experiment was conducted by Assistant Economic Botanist, (Paddy) to Govt., U.P., Nagina. Rates of the different crops for the year 1952 as supplied by the station have been used.
RESULTS:

(i) to (iv) Treatment Mean value of \( \sqrt{x+\frac{1}{2}}/\text{plot} \)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rs./ac. (transformed back values)</th>
<th>Rs./ac. (by direct calculations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.3861</td>
<td>94.23</td>
</tr>
<tr>
<td>2.</td>
<td>2.0319</td>
<td>240.58</td>
</tr>
<tr>
<td>3.</td>
<td>1.7326</td>
<td>165.88</td>
</tr>
<tr>
<td>4.</td>
<td>1.8761</td>
<td>200.22</td>
</tr>
<tr>
<td>5.</td>
<td>2.1400</td>
<td>267.65</td>
</tr>
<tr>
<td>G.M.</td>
<td>1.8313</td>
<td>193.71</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.0693</td>
<td></td>
</tr>
</tbody>
</table>

\( x \) is the value of produce in Rs./plot.

Treatment differences are highly significant.

Crop :- Paddy, Arhar, Kodon and Maize (Kharif).

Site :- Rice Res. Sub-Stn., Kunraghat.

Object :- To find out the economics of mixed cropping for early Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) As per treatments. (c) A/S at 61.72 lb./ac. on 9.8.1952 as top dressing to previous crop.
(ii) (a) Light loam. (b) N.A. (iii) 25.6.1953. (iv) (a) 3 ploughings. (b) Paddy broadcast. No information about other crops. (c) Paddy at 37 seers/ac., arhar at 3 seers/ac., maize at 4 seers/ac. and kodon at 2 seers/ac.
(d) and (e) N.A. (v) Village compost at 10 C.L./ac. giving about 40 lb./ac. of N. A/S at 20 seers/ac. as top dressing. (vi) Paddy - N. 22 (early). All other crops sown were of local varieties. (vii) Unirrigated. (viii) Weeding on 7.7.1953. (ix) 47.09w. (x) 25 and 26.9.1953; and arhar on 27.3.1954.

2. TREATMENTS:

1. Paddy.
2. Paddy+arhar.
3. Paddy+maize.
4. Paddy+kodon.
5. Paddy+arhar+maize+kodon.

3. DESIGN:

(i) R.B.D. (ii) 5. (b) N.A. (iii) 5. (iv) (a) 29'x26'-4". (b) 27'x24'-4". (v) 1' left alround the net plot as non experimental area. (vi) Yes.

4. GENERAL:

(i) Growth not good due to excessive weeds and low fertility of soil. The growth of arhar and maize is affected due to the continuous and heavy rains during July. Maize crop totally failed. No yield in any plot at all. No lodging. (ii) Only slight attack of leafspot disease at a later stage of the crop. Gandhi bug which was observed in early stages of the crop was controlled by dusting gammexane. (iii) Height, tillering and yield of the components of the mixture. (iv) (a) 1952-1954. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by Assistant Economic Botanist (Paddy) to Gov., U.P., Nagina. Rates of different crops for the year 1953, as supplied by the station have been used.

5. RESULTS:

(i) to (iv) Treatment Mean value of \( \sqrt{x+\frac{1}{2}}/\text{plot} \)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rs./ac. (transformed back values)</th>
<th>Rs./ac. (by direct calculation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.3091</td>
<td>80.47</td>
</tr>
<tr>
<td>2.</td>
<td>1.7181</td>
<td>162.56</td>
</tr>
<tr>
<td>3.</td>
<td>1.3114</td>
<td>80.87</td>
</tr>
<tr>
<td>4.</td>
<td>1.2798</td>
<td>75.44</td>
</tr>
<tr>
<td>5.</td>
<td>1.6577</td>
<td>149.05</td>
</tr>
<tr>
<td>G.M.</td>
<td>1.4552</td>
<td>109.68</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1317</td>
<td></td>
</tr>
</tbody>
</table>

\( x \) is the value of produce in Rs./plot.

Treatment differences are highly significant.
Crop :- Paddy, Til, Kodon and Arhar (Kharif).  
Site :- Rice Res. Sub-Strn., Kunraghat.  
Ref :- U.P. 49(232).  
Type :- 'X'.

Object :- To find out the economics of mixed cropping for early Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy—gram. (b) Gram. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 30.6.1949. (iv) (a) 1 ploughing by victory plough and 3 ploughings by desi plough. (b) Kodon, paddy and til broadcast. 
Arhar—dibbling. (c) Paddy at 36 srs./ac., kodon at 2 srs./ac., til at 2 chk./ac. and arhar at 3 srs./ac. (d) Arhar 3' apart. (e) Arhar—1 seedling/hole. (v) Village compost at 10 C.L. fac. giving about 40 lb./ac. of N. (vi) Paddy N.22 (early). All the other crops were sown with local varieties. (vii) Unirrigated. (viii) Weeding on 7.8.1949 and 4.9.1949. (ix) 49.16"'. (x) 7.10.1949 and arhar 13.4.1950.

2. TREATMENTS:
   1. Paddy.
   2. Paddy+arhar.
   3. Paddy+til.
   4. Paddy+kodon.
   5. Paddy+arhar+til+kodon.

3. DESIGN:
   (i) L. Sq. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 29'x26'-4'. (b) 27'x24'·4'. (v) 1' left alround the net plot as non experimental area. (vi) Yes.

4. GENERAL:
   (i) With the exception of two treatments in which til and arhar are sown as mixed crop, the rest of the crop is very good. (ii) There is no incidence of disease. In certain plots where the growth is very vigorous kharif grass hoppers are found in very minute number. (iii) Height, tillering and yield of crop for different components. (iv) (a) 1949—1951. (b) and (c) N.A. (v) Nil. (vi) Experiment conducted by Assistant Economic Botainst (Paddy) to Govt. U.P., Nagina. The rates of the various crops for the year 1949, as supplied by the station have been used.

5. RESULTS:
   (i) to (iv) Treatment  Mean value of transformed back value  Rs./ac.  Rs./ac.  
   Treatment  \( \sqrt{x+1} \)
   1. 1.1993 62.21 64.31
   2. 1.4285 102.14 103.56
   3. 1.3821 93.30 94.94
   4. 1.6436 145.96 146.66
   5. 1.9431 217.18 218.00
   G.M. 1.5193 124.20 125.49

S.E./mean = 0.0799

where \( x = \) money value of the produce in Rs./plot. Treatment differences are highly significant.

---

Crop :- Paddy, Til, Kodon and Arhar (Kharif).  
Site :- Rice Res. Sub-Strn., Kunraghat.  
Ref :- U.P. 50(280).  
Type :- 'X'.

Object :- To study the economics of mixed cropping of early Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy—gram. (b) Gram. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 15.6.1950. (iv) (a) 1 ploughing by victory plough and 3 by desi plough. (b) Paddy, til, kodon by broadcast and arhar by dibbling. 
Paddy—37 srs./ac., kodon—2 srs./ac., til—2 chk./ac. and arhar—3 srs./ac. (d) Arhar 3' apart. 
2. TREATMENTS:
1. Paddy.
2. Paddy+arhar.
3. Paddy+til.
4. Paddy+kodon.
5. Paddy+arhar+til+kodon.

3. DESIGN:
(i) L. Sq. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 29'×26'4". (b) 27'×24'4". (v) 1' around the net plot left as non experimental area. (vi) Yes.

4. GENERAL:
(i) Good and uniform growth. (ii) Grass hopper was very common during July. Til bug and arhar cater-piller were two other pests which totally ruined the til crop. A very early action was taken to kill the til bug but the crop could not survive. (iii) Height, tillering and yield of components of the mixture (iv) (a) 1949 to 1951. (b) and (c) No. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment was conducted by Assistant Economic Botanist (Paddy) to Govt., U.P., Nagina. Rates of the various crops for the year 1950 as supplied by the station have been used.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of Rs./ac.</th>
<th>Rs./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Transformed back value)</td>
<td>(By direct calculation)</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>1.9754</td>
<td>235.57</td>
</tr>
<tr>
<td>2.</td>
<td>1.8784</td>
<td>200.79</td>
</tr>
<tr>
<td>3.</td>
<td>1.5965</td>
<td>135.84</td>
</tr>
<tr>
<td>4.</td>
<td>1.939</td>
<td>135.29</td>
</tr>
<tr>
<td>5.</td>
<td>1.5510</td>
<td>126.34</td>
</tr>
<tr>
<td>G.M.</td>
<td>1.7190</td>
<td>164.77</td>
</tr>
</tbody>
</table>

S.E./mean = 0.0629

x= value of the produce in Rs./plot

Treatment differences are highly significant.

Crop: Paddy, Til, Kodon and Arhar (Kharif).
Site: Rice Res. Sub-Stn., Kunraghat.
Object: To study the economics of mixed cropping for early Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Gram. (c) No. (ii) (a) Light loam. (b) N.A. (iii) 17.6.1951. (iv) (a) One ploughing by Punjab plough and two ploughings by dest plough. (b) Paddy, Kodon, til as broadcast arhar by dibbling. (c) Paddy 37 seers/ac., kodon 2 seers/ac., til 2 chk./ac. and arhar 3 seers/ac. (d) Arhar 3' apart. (e) 1 seeding per hole. (v) Nil. (vi) Paddy N-22 (early) Rest of the varieties are all local. (vii) Unirrigated. (viii) Weeding on 12.7.1951, 23.7.1951 and 19.8.1951. (ix) 29.01". (x) 30.9.1951 and 1.10.1951 For arhar—N.A.

2. TREATMENTS:
1. Paddy.
2. Paddy+arhar.
3. Paddy+til.
4. Paddy+kodon.
5. Paddy+arhar+til+kodon.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 29'×26'—4". (b) 27'×24'—4". (v) 1' around the net plot left as non experimental area. (vi) Yes.

4. GENERAL:
(i) Satisfactory growth. (ii) Grass hoppers were observed in the 1st week of August. Til bugs and Arhar cater-pillers were two other pests which were observed in Til and Arhar crops. A very early action was taken to remove them. (iii) Height, tillering and yield of different components of the mixture. (iv) (a) 1949–1951. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Lower yields were obtained due to the shortage of water and less rains during the crop season. Til crop completely failed. (vii) Rates of the various crops for the year 1951, as supplied by the station have been used. Experiment conducted by Assistant Economic Botanist (Paddy) to Govt., U.P., Nagina.
5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of $\sqrt{x+y}$/plot</th>
<th>Transformed back value</th>
<th>By direct calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.4257</td>
<td>101.61</td>
<td>103.43</td>
</tr>
<tr>
<td>2.</td>
<td>1.9874</td>
<td>228.73</td>
<td>233.91</td>
</tr>
<tr>
<td>3.</td>
<td>1.4739</td>
<td>110.88</td>
<td>111.12</td>
</tr>
<tr>
<td>4.</td>
<td>1.8869</td>
<td>202.91</td>
<td>203.94</td>
</tr>
<tr>
<td>5.</td>
<td>2.0373</td>
<td>242.04</td>
<td>243.99</td>
</tr>
<tr>
<td>G.M.</td>
<td>1.7622</td>
<td>177.23</td>
<td>179.28</td>
</tr>
</tbody>
</table>

S.E./mean = 0.0890 lb./ac.

x = value of produce in Re./plot.

Treatment differences are highly significant.

---

Crop: - Gram and Linseed.
Site: - Crop Physiological Res. Stn., Lucknow.

Object: - To study the effect of different seed rate proportions of Gram and Linseed grown mixed, on the yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.  (ii) (a) Sandy loam.  (b) N.A.  (iii) 12.10.1952.  (iv) (a) and (b) N.A.  (c) Gram 40 seers/ac. Linseed 12 seers/ac.  (d) and (e) N.A.  (v) Date of application of fertilizers 11.10.1952., T.C. 8 C.L./ac. Super at 20 lb./ac. of P₂O₅ and Gypsum at 10 lb./ac. of Cao.  (vi) Gram T-87 (late), Linseed T-1193 (medium).  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:

Seed rate proportion

<table>
<thead>
<tr>
<th>Gram</th>
<th>Linseed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>100 : 0</td>
</tr>
<tr>
<td>2.</td>
<td>80 : 20</td>
</tr>
<tr>
<td>3.</td>
<td>60 : 40</td>
</tr>
<tr>
<td>4.</td>
<td>50 : 50</td>
</tr>
<tr>
<td>5.</td>
<td>40 : 60</td>
</tr>
<tr>
<td>6.</td>
<td>20 : 80</td>
</tr>
<tr>
<td>7.</td>
<td>0 : 100</td>
</tr>
<tr>
<td>8.</td>
<td>Fallow</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D.  (ii) (a) 8.  (b) N.A.  (iii) 4.  (iv) (a) 19' X 29'.  (b) 14' X 24'.  (v) Plot border 2' allround.  (vi) Yes.

4. GENERAL:

(i) Satisfactory.  (ii) Nil.  (iii) Grain yield.  (iv) (a) 1952—1953.  (b) and (c) No.  (v) (a) Varanasi, Bahraich, Hamirpur and Banda.  (b) N.A.  (vi) Nil.  (vii) Experiment conducted by C.P.

5. RESULTS:

(i) 548.8 lb./ac.
(ii) 42.56 lb./ac.

(iii) Treatment differences are highly significant.

(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>658.6</td>
</tr>
<tr>
<td>2.</td>
<td>683.2</td>
</tr>
<tr>
<td>3.</td>
<td>574.6</td>
</tr>
<tr>
<td>4.</td>
<td>499.5</td>
</tr>
<tr>
<td>5.</td>
<td>491.7</td>
</tr>
<tr>
<td>6.</td>
<td>483.8</td>
</tr>
<tr>
<td>7.</td>
<td>450.2</td>
</tr>
</tbody>
</table>

S.E./mean = 21.28 lb./ac.
Crop : Gram and Linseed.  
Site : Crop Physiological Res. Stn. Lucknow.  

Object :- To study the effect of different seed rate proportions of Gram and Linseed, grown mixed, on growth and yield and the residual effects on the succeeding kharif crop.

1. BASAL CONDITIONS :
   (i) (a) Jowar+guar+gram+linseed.  (b) Jowar and guar.  (c) Nil.  (ii) (a) Sandy loam.  (b) N.A.  (iii) 18.10.1953.  (iv) (a) 2 ploughings by mould board plough on 1.10.1953. Cultivator and planking twice on 6.10.1953.  (b) Linseed sown by broadcast and gram behind the plough in lines.  (c) to (e) N.A.  (v) Application of town compost on 14.10.1953 at 84 md./ac., Super at 80 srs./ac. on 17.10.1953 applied at 3"-4" deep in soil through drill.  (vi) Gram T.87 (medium) and linseed T.1193 (medium).  (vii) Unirrigated.  (viii) Nil.  (ix) 5.78".  (x) 27.3.1954.

2. TREATMENTS :

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed used in gms./plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram</td>
<td>Linseed</td>
</tr>
<tr>
<td>Gram</td>
<td>Linseed</td>
</tr>
<tr>
<td>1. 0</td>
<td>0</td>
</tr>
<tr>
<td>2. 20</td>
<td>80</td>
</tr>
<tr>
<td>3. 40</td>
<td>60</td>
</tr>
<tr>
<td>4. 50</td>
<td>50</td>
</tr>
<tr>
<td>5. 60</td>
<td>40</td>
</tr>
<tr>
<td>6. 80</td>
<td>20</td>
</tr>
<tr>
<td>7. 100</td>
<td>0</td>
</tr>
</tbody>
</table>

3. DESIGN :
   (i) R.B.D.  (ii) (a) 7.  (b) N.A.  (iii) 2.  (iv) (a) 13' x 39'.  (b) 9' x 35'.  (v) Plot border 2' and field border 1' around and block partition 5' to serve as irrigation channel.  (vi) Yes.

4. GENERAL :
   (i) Good.  (ii) Nil.  (iii) Grain and straw yield.  (iv) (a) 1952-1953.  (b) and (c) No.  (v) (a) Varanasi, Atarra (Banda), Bahraich and Belatal.  (b) N.A.  (vi) Nil.  (vii) Conducted by C.P. (R).

5. RESULTS :
   (i) 881.1 lb./ac.
   (ii) 67.56 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>648.5</td>
</tr>
<tr>
<td>2.</td>
<td>781.8</td>
</tr>
<tr>
<td>3.</td>
<td>941.9</td>
</tr>
<tr>
<td>4.</td>
<td>889.3</td>
</tr>
<tr>
<td>5.</td>
<td>950.9</td>
</tr>
<tr>
<td>6.</td>
<td>995.7</td>
</tr>
<tr>
<td>7.</td>
<td>959.8</td>
</tr>
<tr>
<td>S.E./mean = 47.77 lb./ac.</td>
<td></td>
</tr>
</tbody>
</table>

---

Crop : Wheat and Gram.  
Site : Crop Physiological Res. Stn., Lucknow.  

Object :- To study the effect of varying seed rate proportions of Wheat and Gram grown mixed on yield.

1. BASAL CONDITIONS :
   (i) (a) Nil.  (b) Fallow.  (c) Nil.  (ii) (a) Sandy loam.  (b) N.A.  (iii) 8.11.1949.  (iv) (a) Ploughing and harrowings etc. on 6, 7 and 10 10.1949.  (b) to (e) N.A.  (v) T.C. on 21.10.1949.  (vi) NP.125 wheat (medium) and Banda gram.  (N.A.).  (vii) Irrigated.  (viii) Weeding and hoeing on 16.11.1949.  (ix) N.A. (x) 3.4.1950.
2. TREATMENTS:

Seed rate proportions

<table>
<thead>
<tr>
<th>Wheat</th>
<th>Gram</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20 : 80</td>
</tr>
<tr>
<td>2.</td>
<td>40 : 60</td>
</tr>
<tr>
<td>3.</td>
<td>50 : 50</td>
</tr>
<tr>
<td>4.</td>
<td>60 : 40</td>
</tr>
<tr>
<td>5.</td>
<td>80 : 20</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 40'x20'. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Weight of grain per ear, length of shoots, length and breadth of leaf, no. of tillers and grain yield. (iv) (a) 1949—1950. (b) and (c) No. (v) (a) Kanpur. (b) N.A. (vi) N.A. (vii) Experiment conducted by C.P. (R).

5. RESULTS:

(i) 505 lb./ac. (ii) 269.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>525</td>
</tr>
<tr>
<td>2.</td>
<td>679</td>
</tr>
<tr>
<td>3.</td>
<td>560</td>
</tr>
<tr>
<td>4.</td>
<td>497</td>
</tr>
<tr>
<td>5.</td>
<td>266</td>
</tr>
</tbody>
</table>

S.E./mean = 134.5 lb./ac.

---

Crop :- Wheat and Gram (Rabi).

Site :- Crop Physiological Res. Stn., Lucknow.

Ref :- U.P. 50(210).

Type :- 'X'.

Object :- To study the effect of varying seed rate proportions of Wheat and Gram grown mixed on yield.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.10.1950. (iv) (a) Two ploughings by mould board plough, four ploughings by dest plough. (b) Broadcasting. (c) Wheat-50 seers./ac. and gram-30 srs./ac. (d) and (e) N.A. (v) 75 mds/ac. stable manure on 2.10.1950. (vi) N.A. (vii) No. (viii) Interculture on 5.1.1951 and 25.1.1951, weeding and hoeing. (ix) N.A. (x) Wheat 7.4.1951 and gram 22.3.1951.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed required in chk./gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>Gram</td>
</tr>
<tr>
<td>1.</td>
<td>0 : 100</td>
</tr>
<tr>
<td>2.</td>
<td>20 : 80</td>
</tr>
<tr>
<td>3.</td>
<td>40 : 60</td>
</tr>
<tr>
<td>4.</td>
<td>50 : 50</td>
</tr>
<tr>
<td>5.</td>
<td>60 : 40</td>
</tr>
<tr>
<td>6.</td>
<td>80 : 20</td>
</tr>
<tr>
<td>7.</td>
<td>100 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 17'x43'. (b) 13'x39'. (v) Field border=2'. (vi) Yes.

4. GENERAL:

(i) Rain did not come in time and hence germination was poor. Land was sloping. (ii) N.A. (iii) Length of root, height of shoot, length and breadth of leaf and yield of crop. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) and (b) Lucknow, Aatarra, Bahraich and Pratapgarh. (vi) Nil. (vii) Experiment was conducted by CP.
5. RESULTS:
(i) 157.4 lb./ac.
(ii) 81.54 lb./ac.
(iii) Treatment differences are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>44</td>
</tr>
<tr>
<td>2.</td>
<td>113</td>
</tr>
<tr>
<td>3.</td>
<td>155</td>
</tr>
<tr>
<td>4.</td>
<td>122</td>
</tr>
<tr>
<td>5.</td>
<td>229</td>
</tr>
<tr>
<td>6.</td>
<td>180</td>
</tr>
<tr>
<td>7.</td>
<td>260</td>
</tr>
</tbody>
</table>

S.E./mean = 40.77 lb./ac.

Crop :- Wheat and Gram.
Ref :- U.P. 52(151).
Site :- Crop Physiological Res. Stn., Lucknow.
Type :- 'X'.
Object :- To study the effect of different seed rate proportions of Wheat and Gram grown mixed, on yield and its residual effect on the succeeding Kharif crop.

1. BASAL CONDITIONS:
(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 29.10.1952. (iv) (a) and (b) N.A. (c) Wheat at 50 srs./ac. and gram at 40 srs./ac. (d) and (e) N.A. (v) Date of manuring on 22.10.1952 and manures used. 1. T.C., 2. Super at 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> and gypsum at 10 lb./ac. of CaO. (vi) Wheat Pb-591 (medium-late) and gram T-87 (late). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Wheat</th>
<th>Gram</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 100 : 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 80 : 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 60 : 40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. 40 : 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. 20 : 80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. 0 : 100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 20' x 21'. (b) 16' x 15'. (v) Plot border=2' around and field border=3' around. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1950-1952. (b) and (c) No. (v) (a) Varanasi, Kanpur, Bahraich, Pratapgarh, Aligarh, Banda, Etawah and Jhansi. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 742.3 lb./ac.
(ii) 92.96 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>762.7</td>
</tr>
<tr>
<td>2.</td>
<td>840.0</td>
</tr>
<tr>
<td>3.</td>
<td>855.7</td>
</tr>
<tr>
<td>4.</td>
<td>731.4</td>
</tr>
<tr>
<td>5.</td>
<td>700.0</td>
</tr>
<tr>
<td>6.</td>
<td>655.0</td>
</tr>
<tr>
<td>7.</td>
<td>655.0</td>
</tr>
</tbody>
</table>

S.E./mean = 53.67 lb./ac.
Crop: Wheat and Gram (Rabi).
Ref: U.P. 53(194).
Site: Crop Physiological Res. Stn., Lucknow.
Type: 'X'.

Object: To study the manurial requirement of mixed crop Wheat and Gram.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Clayey loam. (b) N.A. (iii) 28.10.1953. (iv) (a) 7 ploughings. (b) Sown behind the plough in alternate lines. (c), (d) and (e) N.A. (v) T.C. at 84 md./ac. (vi) Wheat C. 13 (early). Gram T87 (late). (vii) Irrigated. (viii) Weeding on 27 and 28.11.1953. (ix) 5.78'. (x) 13.4.1954.

2. TREATMENTS:
   All combinations of (1), (2), (3) and (4)
   1. 2 levels of N as A/S: N0 = 0 and N1 = 40 lb./ac.
   2. 2 levels of P2O5 as Super: P0 = 0 and P1 = 50 lb./ac.
   3. 2 levels of K2O as Pot. Sul.: K0 = 0 and K1 = 40 lb./ac.
   4. 2 levels of CaO as Gypsum: C0 = 0 and C1 = 60 lb./ac.

3. DESIGN:
   (i) 2^2 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 14'×26'. (b) 10'×22'. (v) Plot border 2' and field border 3' around. Block partition 5' and irrigation channel 3'. (vi) Yes.

4. GENERAL:
   (i) Gram damaged by shade of wheat. (ii) Nil. (iii) Grain and straw yield. (iv) (a) to (c) N.A. (v) (a) Raya Hardoi, Kalai and Baharaich. (b) N.A. (vi) Nil. (vii) The expt. conducted by C.P.

5. RESULTS:
   (i) 1252 lb./ac.
   (ii) 170.4 lb./ac.
   (iii) Main effects of N and K are highly significant. Other effects and interactions are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>K0</th>
<th>K1</th>
<th>Mean</th>
<th>P0</th>
<th>P1</th>
<th>C0</th>
<th>C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1088</td>
<td>1251</td>
<td>1185</td>
<td>1154</td>
<td>1216</td>
<td>1198</td>
<td>1171</td>
</tr>
<tr>
<td>1255</td>
<td>1384</td>
<td>1320</td>
<td>1271</td>
<td>1368</td>
<td>1290</td>
<td>1349</td>
</tr>
<tr>
<td>Mean</td>
<td>1172</td>
<td>1333</td>
<td>1252</td>
<td>1212</td>
<td>1292</td>
<td>1244</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P0</th>
<th>1131</th>
<th>1294</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>1212</td>
<td>1372</td>
</tr>
<tr>
<td>C0</td>
<td>1147</td>
<td>1341</td>
</tr>
<tr>
<td>C1</td>
<td>1196</td>
<td>1324</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 30.12 lb./ac.
S.E. of body of table = 42.59 lb./ac.

Crop: Gram and Mustard.
Ref: U.P. 52(150).
Site: Crop Physiological Res. Stn., Lucknow.
Type: 'X'.

Object: To study the effect of different seed rate proportions of Gram and Mustard grown mixed, on the yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.10.1952. (iv) (a) to (e) N.A. (v) Date of application of fertilizers 11.10.1952. T.C. at 8 cwt./ac. Super at 20 lb./ac. of P2O5 and Gypsum at 10 lb./ac. of CaO. (vi) Gram T87 (late) and Mustard RT. 11 (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.
2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Gram : Mustard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100 : 0</td>
</tr>
<tr>
<td></td>
<td>80 : 20</td>
</tr>
<tr>
<td></td>
<td>60 : 40</td>
</tr>
<tr>
<td></td>
<td>50 : 50</td>
</tr>
<tr>
<td></td>
<td>40 : 60</td>
</tr>
<tr>
<td></td>
<td>20 : 80</td>
</tr>
<tr>
<td></td>
<td>0 : 100</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 8. but the effective number of treatments is 7 only, as the 8th treatment is fallow. (b) N.A. (iii) 4. (iv) (a) 19',x29'. (b) 14'x24'. (v) Plot border 2½ alround. Block space 4'. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The expt. was conducted by C.P.

5. RESULTS:

(i) 588.0 lb./ac.
(ii) 45.92 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>700.0</td>
</tr>
<tr>
<td>2.</td>
<td>724.6</td>
</tr>
<tr>
<td>3.</td>
<td>666.4</td>
</tr>
<tr>
<td>4.</td>
<td>591.4</td>
</tr>
<tr>
<td>5.</td>
<td>542.1</td>
</tr>
<tr>
<td>6.</td>
<td>508.5</td>
</tr>
<tr>
<td>7.</td>
<td>383.0</td>
</tr>
</tbody>
</table>

S.E./mean = 22.96 lb./ac.

Object: To study the effect of different seed rate proportions of Barley and Pea grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.  (ii) (a) Sandy loam. (b) N.A.  (iii) 1, 2.11.1952. (iv) (a) to (e) N.A.  (v) (1) T.C at 160 md./ac.  (2) Super at 20 lb./ac. of P_2O_5 and (3) Gypsum at 10 lb./ac. of CaO.  (vi) Barley C-251 (medium) Pea-163 (early). (vii) Irrigated. (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Barley : Pea</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100 : 0</td>
</tr>
<tr>
<td></td>
<td>80 : 20</td>
</tr>
<tr>
<td></td>
<td>60 : 40</td>
</tr>
<tr>
<td></td>
<td>50 : 50</td>
</tr>
<tr>
<td></td>
<td>40 : 60</td>
</tr>
<tr>
<td></td>
<td>20 : 80</td>
</tr>
<tr>
<td></td>
<td>0 : 100</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 16½'x21'. (b) 11½'x16'. (v) Plot border 2½ alround, field border 3'. (vi) Yes.

4. GENERAL:

(i) Good. (ii) No. (iii) Grain yield. (iv) (a) No. (b) and (c) No. (v) (a) Faizabad, Etawah, Kanpur, Hardoi, Aligarh and Banda. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

Crop: Barley and Pea.  
Site: Crop Physiological Res. Stn., Lucknow.  
Ref: U.P. 52(152).  
Type: 'X'.

Object: To study the effect of different seed rate proportions of Barley and Pea grown mixed, on yield and its residual effect on the succeeding kharif crop.
5. RESULTS:
(i) 957 lb./ac.
(ii) 78.40 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1015</td>
<td>45.26 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>1137</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>1055</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>995</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>872</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>852</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>771</td>
<td></td>
</tr>
</tbody>
</table>

Crop:--Wheat and Pea (Rabi),
Site:--Crop Physiological Res. Stn., Lucknow.
Object:--To study the effect of different seed rate proportions of Barley and Pea grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed rate in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Pea</td>
<td>Wheat : Pea</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 4.70</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>1.86 : 3.76</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>3.72 : 2.82</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>4.65 : 2.35</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>5.58 : 1.88</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>7.44 : 0.94</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>9.30 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 42'×12'. (b) 40'×10'. (v) Field border 2' alround. Plot border 1' alround. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Height of shoot, length of leaf, breadth of leaf, length of root and shoot, and grain yield. (iv) (a) No. (b) and (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 226.0 lb./ac.
(ii) 99.79 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>157.5</td>
<td>49.89 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>253.8</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>262.5</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>245.0</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>197.8</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>171.5</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>294.0</td>
<td></td>
</tr>
</tbody>
</table>
Crop :- Wheat and Linseed (Rabi).

Site :- Crop Physiological Res. Stn., Lucknow.

Object :- To study the effect of different seedrate proportions of Barley and Pea grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Sandy loam. (c) Nil. (ii) (a) N.A. (b) Sandy loam. (c) As per treatments. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) No. (viii) Weeding. (ix) and (x) N.A.

2. TREATMENTS :

<table>
<thead>
<tr>
<th>Seedrate proportions</th>
<th>Seed rate in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Linseed</td>
<td>Wheat : Linseed</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 2.6</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>2.8 : 2.0</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>5.6 : 1.5</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>7.0 : 1.3</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>8.4 : 1.0</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>11.2 : 0.5</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>14.0 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN :
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) 17'x43'. (v) Field border=2' around. (vi) Yes.

4. GENERAL :
   (i) and (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS :
   (i) 313.6 lb./ac.
   (ii) 146.1 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>241.3</td>
</tr>
<tr>
<td>2.</td>
<td>325.6</td>
</tr>
<tr>
<td>3.</td>
<td>279.6</td>
</tr>
<tr>
<td>4.</td>
<td>425.2</td>
</tr>
<tr>
<td>5.</td>
<td>306.5</td>
</tr>
<tr>
<td>6.</td>
<td>289.2</td>
</tr>
<tr>
<td>7.</td>
<td>327.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>73.04 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Jowar and Guar.

Site :- Crop Physiological Res. Stn., Lucknow.

Object :- To study the effect of different doses of Nitrogen in the form of A/S and A.S.N. on growth and fodder yield of Jowar and Guar.

1. BASAL CONDITIONS :
   (i) (a) Nil (b) Wheat+Gram. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 27.6.1953.
   (iv) (a) Ploughing on 18.6.1953. (b) to (e) N.A. (v) One truck load of T.C. i.e. 150 cu. ft. or 84 m³, on 22 and 23.6.1953. (vi) and (vii) N.A. (viii) Weeding and hoeing on 31.7.1953. (ix) N.A. (x) 11.9.1953.

2. TREATMENTS :
   All combinations of (1) and (2) + a control
   (1) 2 sources of N : S₁=A/S and S₂=A.S.N.
   (2) 3 levels of N : N₁=30, N₂=50 and N₃=90 lb./ac.
   Manures applied on 27.6.1953.
3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) and (b) 25 '×' 20'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Fodder yield. (iv) (a) to (c) No. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 42499 lb./ac.
   (ii) 2326 lb./ac.
   (iii) Control vs others and main effect of N are highly significant. Main effect of S and interaction S×N are not significant.
   (iv) Av. yield of fodder in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N_1</th>
<th>N_2</th>
<th>N_3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S_1</td>
<td>40622</td>
<td>46894</td>
<td>48388</td>
<td>45201</td>
</tr>
<tr>
<td>S_2</td>
<td>38830</td>
<td>45700</td>
<td>49284</td>
<td>44605</td>
</tr>
<tr>
<td>Mean</td>
<td>39726</td>
<td>46297</td>
<td>48826</td>
<td>44953</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N = 950 lb./ac.
S.E. of marginal mean of S = 776 lb./ac.
S.E. of body of table = 1343 lb./ac.

Crop: - Maize and Moong.
Site: - Crop Physiological Res. Stn., Lucknow.
Object: - To study the effect of P_2O_5 and Gypsum on the mixed crop of Maize and Moong.

Ref: - U.P. 50(97).
Type: - 'X'.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 4.7.1950. (iv) (a) Hot weather cultivation; 1 ploughing by mould board plough; 1 by patent junior horse cultivator; cross wise ploughing by desi plough. (b) Dibbling. (c) Maize—7 srs./ac. Moong—3½ srs./ac. (d) Distance for maize line to line 2' apart; seed to seed 1' apart. Distance for Moong—line to line 2' apart, seed to seed 9' apart. Moong seeds were sown between two rows of Maize. (v) 80 md. stable manures mixed for the crop on 4.7.1950. (vi) Maize—Jaunpuri (medium). Moong T_1 (medium). (vii) N.A. (viii) Hoeing 14.7.1950, weeding 4.8.1950 and earthing up on 7.8.1950 (Maize plants). (ix) N.A. (x) Picking of Moong on 24 and 31.8.1950. Harvest of Maize on 16.9.1950.

2. TREATMENTS:
   All combinations of (1) and (2)
   1. 2 levels of CaO as Gypsum: C_0=0 and C_1=50 lb./ac.
   2. 3 applications of P_2O_5: P_0=0, P_1=50 lb./ac. double Super and P'_1=50 lb./ac. as Ammo. Phos. Manuring on 4.7.1950.

3. DESIGN:
   (i) 3×2 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 30 '×' 20'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The expt. was conducted by C.P.

5. RESULTS:
   (i) 1352 lb./ac.
   (ii) 68.32 lb./ac.
   (iii) Main effects of C and P and interaction C×P are significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₁'</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₀</td>
<td>1114</td>
<td>1223</td>
<td>1456</td>
<td>1264</td>
</tr>
<tr>
<td>C₁</td>
<td>1257</td>
<td>1468</td>
<td>1596</td>
<td>1440</td>
</tr>
<tr>
<td>Mean</td>
<td>1185</td>
<td>1346</td>
<td>1526</td>
<td>1352</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of C = 22.77 lb./ac.
S.E. of marginal mean of P = 27.50 lb./ac.
S.E. of body of table = 39.44 lb./ac.

Crop: Wheat and Barley (Rabi).
Site: Crop Physiological Res. Stn., Lucknow.
Ref: U.P. 53(140).
Type: 'X'.

Object: To study the effect of different seed rate proportions of Wheat and Barley grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
(i) (a) Nil.  (b) Dhaincha (G.M.)  (c) Nil.  (ii) (a) Loam.  (b) N.A.  (iii) 26.10.1953.  (iv) (a) 6 ploughings (b) Wheat and barley sown mixed in lines behind plough through funnel.  (c) As per treatments.  (d) and (e) N.A.  (v) Nil.  (vi) Barley C 251. Wheat Pb. 591.  (vii) Irrigated.  (viii) Nil.  (ix) 5.48°.  (x) 11.4.1954.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed rate in gm./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Barley</td>
<td>Wheat : Barley</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 542.0</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>108.4 : 433.6</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>216.8 : 325.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>271.0 : 271.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>325.2 : 216.4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>433.6 : 108.4</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>542.0 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D.  (ii) (a) 7.  (b) N.A.  (iii) 4.  (iv) (a) 20' × 26'.  (b) 16' × 22'.  (v) Plot border 2' and field border 4' around; Block partition 5'; Irrigation channel 2'.  (vi) Yes.

4. GENERAL:
(i) Fair.  Slight lodging of barley.  (ii) Smut incidence on barley 1% approximately.  (iii) Grain and straw yield.  (iv) (a) to (c) No.  (v) (a) and (b) Nil.  (vi) Nil.  (vii) The expt. was conducted by C.P.(R).

5. RESULTS:
(i) 1288 lb./ac.
(ii) 163.4 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1464</td>
</tr>
<tr>
<td>2.</td>
<td>1347</td>
</tr>
<tr>
<td>3.</td>
<td>1369</td>
</tr>
<tr>
<td>4.</td>
<td>1336</td>
</tr>
<tr>
<td>5.</td>
<td>1193</td>
</tr>
<tr>
<td>6.</td>
<td>1167</td>
</tr>
<tr>
<td>7.</td>
<td>1142</td>
</tr>
</tbody>
</table>

S.E./mean = 81.7 lb./ac.
Crop: Jowar, Guar, Lobia, Til and Urd.
Site: Crop Physiological Res. Stn., Lucknow.
Object: To study the effect of N and P on Jowar and legume mixture.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Gram+mustard. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 8.7.1930. (iv) (a) 2 ploughings by mould board plough, 2 by desi, 1 by cultivator and 4 planking etc. (b) N.A. (c) Jowar—12 srs./ac., guar—12 srs./ac., lobia—10 srs./ac., til—6 srs./ac. and urd—12 srs./ac. (d) and (e) Nil. (vi) Jowar—T.86, lobia—Jhansli and ti—T.10. (vii) to (ix) N.A. (x) 11 to 15.10.1930.

2. TREATMENTS:
   Main-plot treatments:
   3 levels of manure: M_0 = no manure, M_1 = 80 lb./ac. of N as A/N (33.5%N) and M_2 = 60 lb./ac. of P_2O_5 as double Super (40%P_2O_5).
   Sub-plot treatments:

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block and 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 21'×46', main-plot-126'×46'. (v) No (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Dry fodder yield. (iv) (a) to (c) No. (v) (a) and (b) No. (vi) N.A. (vii) Experiment conducted by C.P.

5. RESULTS:
   (i) 2922 lb./ac.
   (ii) (a) 852.6 lb./ac.
   (b) 428.2 lb./ac.
   (iii) Main effects of M and C and interaction M×C are highly significant.
   (iv) Av. yield of fodder in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>C_1</th>
<th>C_2</th>
<th>C_3</th>
<th>C_4</th>
<th>C_5</th>
<th>C_6</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>M_0</td>
<td>3833</td>
<td>1338</td>
<td>1804</td>
<td>1428</td>
<td>1879</td>
<td>1518</td>
<td>1967</td>
</tr>
<tr>
<td>M_1</td>
<td>8267</td>
<td>2901</td>
<td>3983</td>
<td>3382</td>
<td>3818</td>
<td>3457</td>
<td>4301</td>
</tr>
<tr>
<td>M_2</td>
<td>4945</td>
<td>1834</td>
<td>2300</td>
<td>1864</td>
<td>2270</td>
<td>1774</td>
<td>2498</td>
</tr>
<tr>
<td>Mean</td>
<td>5682</td>
<td>2024</td>
<td>2696</td>
<td>2225</td>
<td>2656</td>
<td>2250</td>
<td>2922</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of M = 294.1 lb./ac.
2. marginal means of C = 201.8 lb./ac.
3. C means at a level of M = 347.9 lb./ac.
4. M means at a level of C = 434.1 lb./ac.

Crop: Wheat, Gram and Mustard (Rabi).
Site: National Botanical Gardens, Lucknow.
Object: To study the effect of mixed cropping on growth and yield of Wheat, Gram and Mustard with and without applications of N.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Three years old gauva. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 17 and 18.11.1948. (iv) (a) 2 disc ploughings by tractor on 23.10.1948, ploughing by desi plough on 10 and 11.11.1948 and 1 disc ploughing by tractor on 13.10.1948. (b) N.A. (c) Wheat—50 srs./ac., gram—30 srs./ac. and mustard—3 srs./ac. (d) and (e) N.A. (v) 2 trucks of M.C. on 16.11.1948 in field of 1.3 ac. (vi) Mustard—rape local, wheat—C.13 (early) and gram—local. (vii) Irrigated. (viii) and (ix) N.A. (x) 12.4.1950.
2. TREATMENTS:

All combinations of (1) and (2)
(1) 2 levels of N: \(N_0=0\) and \(N_1=50\) lb./ac.
(2) 7 crop mixtures:
- \(C_1=\) wheat alone,
- \(C_2=\) gram alone,
- \(C_3=\) mustard alone,
- \(C_4=\) wheat + gram as 50 : 50,
- \(C_5=\) wheat + mustard as 50 : 50,
- \(C_6=\) wheat + gram + mustard as 33 : 33 : 33,
- \(C_7=\) fallow.

Seed sown/plot:
- Wheat alone—16 srs., Wheat 50%—8 srs. and wheat 33%—4 srs.
- Gram alone—12 srs., Gram 50%—6 srs. and gram 33%—4 srs.
- Mustard alone—1 chk., mustard 50%—1 chk. and mustard 33%—1 chk.

3. DESIGN:

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 20' \times 45'. (b) 15' \times 40'. (v) 2½' around. (vi) Yes.

4. GENERAL:

(i) Rain and slight hail storm on 3, 4, 5 Jan. 1949. (ii) N.A. (iii) Grain yield. (iv) (a) to (c) No. (v) (a) and (b) N.A. (vi) Data for wheat and gram was available but for mustard data was not available. Hence analysis could not be done in the absence of any information about the mustard yield. (vii) Experiment conducted by C.P.

5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield of wheat in lb./ac.</th>
<th>Treatment</th>
<th>Av. yield of gram in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N_0C_1)</td>
<td>531.6</td>
<td>(N_0C_2)</td>
<td>1686.3</td>
</tr>
<tr>
<td>(N_0C_4)</td>
<td>456.7</td>
<td>(N_0C_3)</td>
<td>436.1</td>
</tr>
<tr>
<td>(N_0C_6)</td>
<td>555.4</td>
<td>(N_0C_5)</td>
<td>566.9</td>
</tr>
<tr>
<td>(N_1C_1)</td>
<td>690.4</td>
<td>(N_1C_2)</td>
<td>1143.8</td>
</tr>
<tr>
<td>(N_1C_4)</td>
<td>562.8</td>
<td>(N_1C_3)</td>
<td>592.5</td>
</tr>
<tr>
<td>(N_1C_6)</td>
<td>560.4</td>
<td>(N_1C_5)</td>
<td>422.9</td>
</tr>
<tr>
<td>G.M.</td>
<td>559.6</td>
<td>G.M.</td>
<td>808.2</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>N.A.</td>
<td>S.E./mean</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Crop: - Wheat and Gram.
Site: - Govt. Agri. Farm, Partapgarh.

Object: - To study the effect of different seed rate proportions of Wheat and Gram, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Sanat—Wheat. (b) Sanat for fibre. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) Seeds broadcast after mixing them in the given proportions, ploughing by desi plough and subsequently covered by planking. (c) Wheat at 40-50 seers./ac. and gram at 30 seers./ac. (d) and (e) N.A. (v) G.M. at 40 lb./ac. of N. (vi) Wheat—NP-52 (medium early) and gram—local (late). (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions,</th>
<th>Wheat : Gram</th>
<th>Seed rate in chk./gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0  : 100</td>
<td>0.0 : 10.0</td>
<td></td>
</tr>
<tr>
<td>20 : 80</td>
<td>3.2 : 8.0</td>
<td></td>
</tr>
<tr>
<td>40 : 60</td>
<td>6.4 : 6.0</td>
<td></td>
</tr>
<tr>
<td>50 : 50</td>
<td>8.0 : 5.0</td>
<td></td>
</tr>
<tr>
<td>60 : 40</td>
<td>9.6 : 4.0</td>
<td></td>
</tr>
<tr>
<td>80 : 20</td>
<td>12.8 : 2.0</td>
<td></td>
</tr>
<tr>
<td>100 : 0</td>
<td>16.0 : 0.0</td>
<td></td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 28' \times 31'. (b) 25' \times 28'. (v) 1½' around the plot. (vi) Yes.
4. GENERAL:

(i) Poor stand, no lodging. (iii) Yield of wheat and gram grain. (iv) (a) 1950–1953. The experiment was canceled in 1950. (b) and (c) No. (v) (a) Kanpur, Etawah and Baharaich. (b) N.A. (vi) Nil. (vii) Experiment conducted by A.C.

5. RESULTS:

(i) 154.2 lb./ac.
(ii) 63.84 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>114.2</td>
</tr>
<tr>
<td>2.</td>
<td>147.8</td>
</tr>
<tr>
<td>3.</td>
<td>137.8</td>
</tr>
<tr>
<td>4.</td>
<td>144.5</td>
</tr>
<tr>
<td>5.</td>
<td>163.5</td>
</tr>
<tr>
<td>6.</td>
<td>165.8</td>
</tr>
<tr>
<td>7.</td>
<td>206.1</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 31.92 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat and Gram.
Site: Govt. Agri. Farm, Partapgarh.
Object: To study the effect of different seed rate proportions of Wheat and Gram, grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Maize. (c) N.A. (ii) (a) L-ram. (b) N.A. (iii) 31.10.1952. (iv) (a) 5 ploughings from 1 to 24.10.1952 and Palewa on 22.11.1952. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) 3 cart loads (45 mds.) of well decayed F.Y.M. applied all over the field and 1/2 mds. of Super placed at a depth of 3"–4" in furrows behind the plough all over the field on 30. 10.1951. (vi) Wheat C-13 (medium) and gram T-87 (late). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 3.4.1953.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed rate in chk./gross plot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0 : 9.6</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.2 : 7.6</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>6.4 : 5.7</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>8.0 : 4.8</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>9.6 : 3.8</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>12.8 : 1.9</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>16.0 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 28'×31'. (b) 25'×28'. (v) 14': all round the plot. (vi) Yes.

4. GENERAL:

(i) Damage about 10%. (ii) Rust on wheat. (iii) Grain and straw yield. (iv) (a) 1950 to 1954. (b) and (c) No. (v) (a) Varanasi, Kanpur, Baharaich, Aligarh, Banda, Etawah, Jhansi and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:

(i) 2271 lb./ac.
(ii) 160.2 lb./ac.
(iii) Treatment differences are significant.
Crop: Wheat and Gram (Rabi).
Site: Govt. Agri. Farm, Partapgarh.
Object: To study the effect of different seed rate proportions of Wheat and Gram grown mixed, on yield and its residual effect on succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 1.11.1953. (iv) (a) 6 ploughings and harrowings. (b) N.A. (c) As per treatments. (d) N.A. (e) N.A. (v) 3 C.L. (45 mds./ac.) of well decayed F.Y.M. to be applied 2-3 weeks before sowing all over the field. 1.25 mds./ac. of Super to be placed at a depth of 3"-4" in furrows behind the plough on 22.10.1953. (vi) Wheat C-13 (early) Gram T-87 (medium). (vii) Irrigated. (viii) One weeding. (ix) N.A. (x) 27.3.1954.

2. TREATMENTS:
<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed rate in chk./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 9.0</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>3.0 : 7.2</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>6.0 : 5.4</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>7.5 : 4.5</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>9.0 : 3.6</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>12.0 : 1.8</td>
</tr>
<tr>
<td>7. 103 : 0</td>
<td>15.1 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 33'x25'. (b) 30'x22'. (v) Plot border 1.5' all round the plot. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1950-1953. (b) and (c) No. (v) (a) Kanpur, Atarra, Baharaich, Bhareri, Kalai, Etawah and Varanasi. (b) N.A (vi) The grain yield of gram in the proportion W : G : 20 : 80 was totally destroyed. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
   (i) 1415 lb./ac.
   (ii) 97.02 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1274</td>
</tr>
<tr>
<td>2.</td>
<td>1086</td>
</tr>
<tr>
<td>3.</td>
<td>1827</td>
</tr>
<tr>
<td>4.</td>
<td>1656</td>
</tr>
<tr>
<td>5.</td>
<td>1627</td>
</tr>
<tr>
<td>6.</td>
<td>1434</td>
</tr>
<tr>
<td>7.</td>
<td>1001</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=43.51 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Wheat and Barley.  
Site :- Govt. Agri. Farm, Partapgarh.  
Ref :- U.P. 52(77).  
Type :- 'X'.

Object :- To study the effect of different seed rate proportions of Wheat and Barley grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai for green manure. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 30.10.1952. (iv) (a) 5 ploughings. (b) N.A. (c) As per treatments. (d) N.A. (e) N.A. (v) (1) 3 C.L. (45 mds.) of well decayed F.Y.M. applied equally all over the field 2 to 3 weeks before sowing. (2) 1½ mds. of Super placed at a depth of 3"-4" in furrows behind the plough all over the field an 29.10.1952. (vi) Wheat C-13, Barley C-251. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 30.3.1953.

2. TREATMENTS:
   Seed rate proportions  
   Seed rate in chk./gross plot
   Wheat : Barley
   1. 0 : 100 0.0 : 25.4
   2. 20 : 80 4.1 : 20.3
   3. 40 : 60 8.2 : 15.2
   4. 50 : 50 10.1 : 12.7
   5. 60 : 40 12.3 : 10.0
   6. 80 : 20 16.4 : 5.0
   7. 100 : 0 20.2 : 0.0

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42′x33′. (b) 39′x30′. (v) Field border 3′ alround. Plot border 1½′. (vi) Yes.

4. GENERAL:
   (i) Poor. Damage is about 10%. (ii) Rust. (iii) Grain and straw yield. (iv) (a) 1952—1953. (b) and (c) No. (v) (a) Hardoi and Baharaich. (b) N.A. (vi) (vii) Experiment conducted by C.P.(R).

5. RESULTS:
   (i) 637.3 lb./ac.
   (ii) 104.2 lb./ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment  Av. yield
   1. 728.0
   2. 579.0
   3. 607.0
   4. 612.0
   5. 562.2
   6. 622.7
   7. 749.3
   S.E./mean = 52.1 lb./ac.
2. **TREATMENTS**:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Seed rate in lb./plot</th>
<th>Wheat : Barley</th>
<th>Wheat : Barley</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 1.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>0.31 : 1.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>0.62 : 1.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>0.78 : 0.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>0.93 : 0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>1.24 : 0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>1.56 : 0.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. **DESIGN**:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 33' x 25'. (b) 30' x 22', (v) Plot border 1.5' and field border 3' alround. Block partition 3' to serve as irrigation channel. (vi) Yes.

4. **GENERAL**:

(i) Good. (ii) Rust attack on both crops. (iii) Grain and straw yield. (iv) (a) 1952-1953. (b) and (c) No. (v) (a) Baharaich and Hardoi. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. **RESULTS**:

(i) 1165 lb./ac.
(ii) 94.38 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1428</td>
</tr>
<tr>
<td>2.</td>
<td>1230</td>
</tr>
<tr>
<td>3.</td>
<td>1291</td>
</tr>
<tr>
<td>4.</td>
<td>1210</td>
</tr>
<tr>
<td>5.</td>
<td>1014</td>
</tr>
<tr>
<td>6.</td>
<td>1011</td>
</tr>
<tr>
<td>7.</td>
<td>968</td>
</tr>
</tbody>
</table>

S E./mean = 47.19 lb./ac.

---

**Crop**: Jowar and Lobia (Kharif).

**Site**: Govt. Agri. Farm, Partapgarh.

**Ref**: UP P. 53(35).

**Type**: 'X'.

Object: To study the effect of different seed rate proportions of Jowar and Lobia grown mixed, on growth and yield and its residual effect on the succeeding rabi crop.

1. **BASAL CONDITIONS**:

(i) (a) Nil. (b) Fallow. (c) Nil., (ii) (a) Light loam. (b) N.A. (iii) 13.7.1953. (v) (a) Ploughing on 7.7.1953, preparation of land on 13.7.1953. (b) Sown behind the plough. (c) Jowar 8 srs./ac. and lobia 4 srs./ac. (alternate line of each). (d) and (e) N.A. (v) (1) Well decayed F.Y.M. at 150-200 mds/acre all over the field 2-3 weeks before sowing, (2) Super is placed at 30 srs./acre, 3'-4' deep in the soil behind the plough 4-5 days before sowing and (3) gypsum applied as surface dressing. (xii) Jowar 88 and Lobia T. 2. (vii) Unirrigated. (viii) Weeding and hoeing on 9.8.1953. (ix) N.A. (x) 7 and 8.12.1953.

2. **TREATMENTS**:

<table>
<thead>
<tr>
<th>Seed rate proportions</th>
<th>Jowar : Lobia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
<td></td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td></td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td></td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td></td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td></td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td></td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td></td>
</tr>
</tbody>
</table>
3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 42' x 33'. (b) 39' x 30'. (v) Plot border 1.5' and field border 3' all round; block partition 3'. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield of each crop. (iv) (a) 1953—continued. (b) and (c) No. (v) (a) and (b) No. (vi) Nil. (vii) Experiment conducted by C.P.

5. RESULTS:
(i) 110.6 lb./ac.
(ii) 10.42 lb./ac.
(iii) Treatment differences are highly significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>57.1</td>
</tr>
<tr>
<td>2.</td>
<td>106.4</td>
</tr>
<tr>
<td>3.</td>
<td>112.0</td>
</tr>
<tr>
<td>4.</td>
<td>119.8</td>
</tr>
<tr>
<td>5.</td>
<td>125.4</td>
</tr>
<tr>
<td>6.</td>
<td>129.9</td>
</tr>
<tr>
<td>7.</td>
<td>123.2</td>
</tr>
</tbody>
</table>

S.E./mean = 5.21 lb./ac.

Crop: Jowar and Arhar.
Site: Govt. Agri. Farm, Partapgarh.
Ref: U.P. 53(213).
Type: X.

Object: To study the effect of different seed rate proportions of Jowar and Arhar grown mixed, on growth and yield and its residual effect on the succeeding rabi crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Wheat and Barley. (c) Green manuring. (ii) (a) Light loam. (b) N.A. (iii) 6.7.1953 (iv) (a) Ploughing and preparation on 5 and 6.7.1953. (b) Sown behind the plough. (c), (d) and (e) N.A. (v) Date of Manuring 5.7.1953. F.Y.M. or ghura 150—200 mds./ac. all over the field 2—3 weeks before sowing. Super 30 lb./ac. of P2O5 3—4' deep in soil behind the plough, 4—5 days before sowing apply gypsum 20 srs./ac. as surface dressing. Apply 15 srs./ac. of A/S as top dressing about a fortnight after germination following a light shower of rain. (vi) Jowar 8B and Arhar 66 (early). (vii) Unirrigated. (viii) Weeding on 12 and 15.8.1953. (ix) N.A. (x) 7 and 8.12.1953.

2. TREATMENTS:
Seed rate proportions

<table>
<thead>
<tr>
<th>Jowar : Arhar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
</tr>
<tr>
<td>2. 20 : 83</td>
</tr>
<tr>
<td>3. 40 : 60</td>
</tr>
<tr>
<td>4. 60 : 50</td>
</tr>
<tr>
<td>5. 80 : 40</td>
</tr>
<tr>
<td>6. 100 : 20</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 42' x 23'. (b) 39' x 30'. (v) 1½ ring round the net plot. (vi) Yes.

4. GENERAL:
(i) The crop of jowar was almost wiped out by heavy rains. (ii) No. (iii) Grain yield. (iv) (a) to (c) No, (v) (a) and (b) No. (vi) The yield of arhar in treatment 1 is not available. (vii) The experiment was conducted by C.P.

5. RESULTS:
(i) 70.26 lb./ac.
(ii) 10.35 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>30.80</td>
</tr>
<tr>
<td>2.</td>
<td>43.06</td>
</tr>
<tr>
<td>3.</td>
<td>62.19</td>
</tr>
<tr>
<td>4.</td>
<td>75.65</td>
</tr>
<tr>
<td>5.</td>
<td>89.40</td>
</tr>
<tr>
<td>6.</td>
<td>120.50</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=5.18 lb.jac.</td>
</tr>
</tbody>
</table>

Crop: Cotton and Groundnut.

Site: Govt. Cotton Res. Sub-Stn., Raya.

Object: To study the effect of inter cropping Groundnut with Cotton.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Gram. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 5.6.1948. (iv) (a) Ploughings with desi twice 4.6.1948. (b) Sown behind desi plough. (c) 20 lb./ac. (d) 8 rows 2' apart per plot and plants 1½ apart, (e) N.A. (v) Nil. (vi) Cotton C 520 (medium). (vii) Irrigated. (viii) Harrowing on 6.6.1948, 1.7.1948. Weeding on 2, 11 and 26.8.1948 and 28 and 29.9.1948. Thinning on 24.7.1948. (ix) 27.76q. (x) 15 and 23.10.1948 and 7.11.1948.

2. TREATMENTS:

1. Cotton 100%.
2. Cotton 75%+Groundnut 25%.
3. Cotton 50%+Groundnut 50%.
4. Cotton 25%+Groundnut 75%.
5. Groundnut 100%.

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) and (b) 78' x 16'. (v) No. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) No. (iii) Cotton and Groundnut yield. (iv) to (c) No. (v) (a) and (b) No. (vi) Nil. (vii) The exp. was conducted by E.B.(C).

5. RESULTS:

(i) 139.2 Rs./ac.
(ii) 29.29 Rs./ac.
(iii) Treatment differences are highly significant.
(iv) Av. value of produce in Rs. /ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>88.3</td>
</tr>
<tr>
<td>2.</td>
<td>121.4</td>
</tr>
<tr>
<td>3.</td>
<td>144.3</td>
</tr>
<tr>
<td>4.</td>
<td>160.8</td>
</tr>
<tr>
<td>5.</td>
<td>181.4</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=11.96 Rs./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat and Mustard.

Site: Govt. Cotton Res. Sub-Stn., Raya.

Object: To study the effect of different seed rate proportions of Wheat and Mustard grown mixed, on yield and its residual effect on the succeeding kharif crop.

1 BASAL CONDITIONS:

(i) (a) Nil. (b) Moong. (c) N.A. (i) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 1.11.1952. (iv) (a) 4 desi ploughings. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) (i) 3 C.L. compost applied all over the field 2-3 weeks before sowing and (2) 1½ mds. of Super placed at a depth of 3"-4" behind the plough all over the field 2 days before sowing. (vi) Wheat Pb. 591 (medium-late) and mustard-yellow. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) Mustard 13.3.1953 and wheat 16.3.1953.
2. **TREATMENTS:**

<table>
<thead>
<tr>
<th>Seed rate proportions Wheat : Mustard</th>
<th>Seed rate required in chk./gross plot Wheat : Mustard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 1.5</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>5.0 : 1.2</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>10.1 : 0.9</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>12.7 : 0.7</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>15.2 : 0.6</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>20.3 : 0.3</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>25.4 : 0.0</td>
</tr>
</tbody>
</table>

3. **DESIGN:**

(i) R.B.D. (ii) (a) N.A. (iii) 4. (iv) (a) 42' x 33'. (b) 39' x 30'. (v) Plot border = 1½' around and field border = 3' around. (vi) Yes.

4. **GENERAL:**

(i) Normal. (ii) Some plants of mustard were attacked by aphids. (iii) Grain and straw yield. (iv) (a) 1952 - 1953. (b) and (c) No. (v) (a) Baharaich and Etawah. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. **RESULTS:**

(i) 1194 lb./ac.
(ii) 222.9 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>558</td>
</tr>
<tr>
<td>2.</td>
<td>825</td>
</tr>
<tr>
<td>3.</td>
<td>1102</td>
</tr>
<tr>
<td>4.</td>
<td>1307</td>
</tr>
<tr>
<td>5.</td>
<td>1429</td>
</tr>
<tr>
<td>6.</td>
<td>1410</td>
</tr>
<tr>
<td>7.</td>
<td>1724</td>
</tr>
</tbody>
</table>

S.E./mean = 111.4 lb./ac.

---

**Crop:** Wheat and Mustard.  
**Ref:** U.P. 53(65).  
**Type:** ‘X’.

**Site:** Govt. Cotton Res. Sub-Stn., Raya.

Object: To study the effect of different seed rate proportions of Wheat and Mustard grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. **BASAL CONDITIONS:**

(i) (a) Nil. (b) Moong. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 16.11.1953. (iv) (a) Ploughing with desi plough on 25, 26, 10.1953 and with cultivator on 18.10.1953. (b) Sown behind plough in alternate lines. (c) Wheat at 50 srs./ac. and mustard at 3 srs./ac. (d) and (e) N.A. (v) (1) 45 mds./ac. well decayed F.Y.M. 2-3 weeks before sowing and (2) 1.25 mds./ac. of P₂O₅ as (Super to be placed 3'-4' deep in soil in furrows behind the plough a couple of days before sowing. (vi) Wheat Pb. 591 and mustard-yellow. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) Mustard on 23.3.1954 and wheat on 8.4.1954.

2. **TREATMENTS:**

<table>
<thead>
<tr>
<th>Seed rate proportions Wheat : Mustard</th>
<th>Seed rate required in chk./gross plot Wheat : Mustard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
<td>0 : 0.19</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>0.64 : 0.15</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>1.29 : 0.12</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>1.63 : 0.08</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>1.95 : 0.07</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>2.61 : 0.04</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>3.26 : 0</td>
</tr>
</tbody>
</table>
5. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42' x 33'. (b) 39' x 30'. (v) Plot border 1.5' and field border 3' around; block partition 3' to serve as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952—1953, (b) and (c) No. (v) (a) Etawah and Baharaich. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P. (R).

5. RESULTS:
(i) 1565 lb./ac.
(ii) 152.6 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>665</td>
</tr>
<tr>
<td>2.</td>
<td>1208</td>
</tr>
<tr>
<td>3.</td>
<td>1626</td>
</tr>
<tr>
<td>4.</td>
<td>1689</td>
</tr>
<tr>
<td>5.</td>
<td>1959</td>
</tr>
<tr>
<td>6.</td>
<td>1762</td>
</tr>
<tr>
<td>7.</td>
<td>2048</td>
</tr>
<tr>
<td>S.E/.mean</td>
<td>76.3 lb./ac.</td>
</tr>
</tbody>
</table>


Object:—To study the physiological response of mixed cropping to application of N, P, K and CaO.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 2.12.1953. (iv) (a) Ploughing with victory plough on 14.9.1953 and with desi plough on 27.9.1953, 29.9.1953 15.10.1953 and 16.11.1953. (b) Sown behind the plough in alternate lines. (c) Barley 30 seers/ac. (1.56 lb./plot) and Pea 8 seers/ac. (10.32 lb./plot.) (d) N.A. (e) N.A. (f) Nil. (g) Barley C-54, Pea T-63. (h) Irrigated. (i) Weeding and hoeing at the proper time are common in practice. (ix) N.A. (x) Pea 25.3.1954 and Barley 4.4.1954.

2. TREATMENTS:
All combinations of (1), (2), (3) and (4)
(1) Two levels of N as A/S: N0 =0 and N1 =40 lb./ac.
(2) Two levels of P2O5 as Super: P0 =0 and P1 =50 lb./ac.
(3) Two levels of K2O as Pot. Sul: K0 =0 and K1 =40 lb./ac.
(4) Two levels of CaO as Gypsum: C0 =0 and C1 =60 lb./ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 22' x 37'. (b) 19' x 34'. (v) Plot border 1.5' and field border 2' around. Block partition 3' to serve as irrigation channel. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Slight damage caused by incidence of aphids. (iii) Grain and straw yield. (iv) (a) 1953—continued. (b) and (c) No. (v) (a) Baharaich, Kalai, Aligarh and Lucknow. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 1962 lb./ac.
(ii) 260.5 lb./ac.
(iii) Main effect of K and interactions N x K, K x C, N x K x C are all significant. Main effect of C is highly significant. Other main effects and interactions are not significant.
(iv) Table of mean and differential response in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>P</th>
<th>K</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absence</td>
<td>Presence</td>
<td>Absence</td>
<td>Presence</td>
</tr>
<tr>
<td>N</td>
<td>-15.54</td>
<td>-58.51</td>
<td>-89</td>
<td>-59</td>
</tr>
<tr>
<td>P</td>
<td>-72.61</td>
<td>1.44</td>
<td>-146.66</td>
<td>-</td>
</tr>
<tr>
<td>K</td>
<td>169.42</td>
<td>-28.90</td>
<td>367.73</td>
<td>71.53</td>
</tr>
<tr>
<td>C</td>
<td>247.44</td>
<td>352.56</td>
<td>142.33</td>
<td>344.61</td>
</tr>
</tbody>
</table>

S.E. of mean response = 75.19 lb./ac.
S.E. of differential response = 106.34 lb./ac.

Crop :- Barley and Pea.
Site :- Govt. Res. Stn., Varanasi.

Object :- To study the effect of differing seed rate proportions of Barley and Pea grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Pea, Fallow-Barley and Paddy-Fallow. (b) Paddy. (c) Nil. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 29.11.1953. (iv) (a) palewa 20.11.1953, ploughings 28, 29.11.1953. (b) Sown behind the plough; main crop barley sown first in lines east-west behind the plough; subsequently Pea similarly sown north-south; i.e. across the barley lines. (c) As per treatments. (d) N.A. (e) N.A. (v) (1) 3 C.L. (45 md.) of well decayed F.Y.M. or compost supplied all over the field 2-3 weeks before sowing. (2) 11 md. of Super to be placed at a depth of 3"-4" in furrows behind the plough all over the field a couple of days before sowing. (vi) Barley and Pea (Improved). (vii) Irrigated. (viii) N.A. (ix) N.A. (x) 12.4.1954.

2. TREATMENTS:
   Seed rate proportion
   Barley : Pea
   1. 0 : 100
   2. 20 : 80
   3. 40 : 60
   4. 50 : 50
   5. 60 : 40
   6. 80 : 20
   7. 100 : 0

   Seed rate in chk./plot
   Barley : Pea
   1. 0 : 20.3
   2. 5.0 : 16.3
   3. 10.1 : 12.2
   4. 12.7 : 10.0
   5. 15.2 : 8.1
   6. 20.3 : 4.0
   7. 25.4 : 0.0

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'X33'. (b) 39'X30'. (v) Field border 3' alround. Plot border 1½'. Irrigation channel 3'. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) Attacked by rust. (iii) Grain and straw yield. (iv) (a) 1952—contd. (b) No. (c) No. (v) (a) Faizabad, Kalyanpur, Atarra, Kalai, Etawah and Kanpur. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
   (i) 887.9 lb./ac.
   (ii) 94.73 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb./ac.
Crop: Gram and Linseed.
Site: Regional Res. Stn., Varanasi.
Ref: U.P. 52(79).
Type: 'X'.

Object: To study the effect of different seed rate proportions of Gram and Linseed grown mixed on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 1 and 2.11.1952.
   (iv) (a) Floughing and harrowing on 11, 27.9.1952; 1, 18, 31.10.1952 and 1.11.1952. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Date of manuring 15.10.1952. (1) 3 C.L. of well decayed F.Y.M. applied equally all over the field and (2) 1\(\frac{1}{2}\) md. of Super to be placed at a depth of 3"~4" in furrows behind the plough all over the field. (vi) Gram T. 87 (late) and linseed local. (vii) Irrigated. (viii) and (ix) N.A. (x) 28.3.1953.

2. TREATMENTS:
   Seed rate proportion
<table>
<thead>
<tr>
<th>Gram : Linseed</th>
<th>Seed rate in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 6.1</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>4.0 : 4.8</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>8.1 : 3.6</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>10.1 : 3.0</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>12.2 : 2.4</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>16.3 : 1.2</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>20.3 : 0</td>
</tr>
</tbody>
</table>

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'x33'. (b) 39'x30'. (v) Field border=3' around and plot border=1\(\frac{1}{4}\). (vi) Yes.

4. GENERAL:
   (i) Poor. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952~1954. The experiment failed in 1953. (b) and (c) No. (v) (a) Lucknow, Baharaich, Hamirpur and Banda. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
   (i) 464.1 lb./ac.
   (ii) 139.3 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield: f grain in lb./ac.
   Treatment | Av. yield |
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 177.1</td>
</tr>
<tr>
<td>2. 351.8</td>
</tr>
<tr>
<td>3. 451.1</td>
</tr>
<tr>
<td>4. 473.9</td>
</tr>
<tr>
<td>5. 521.8</td>
</tr>
<tr>
<td>6. 607.9</td>
</tr>
<tr>
<td>7. 665.4</td>
</tr>
</tbody>
</table>
   S.E./mean = 69.63 lb./ac.
Crop :- Wheat and Gram.  
Site :- Regional Res. Stn., Varanasi.  
Ref :- U.P. 52(95).  
Type :- 'X'.  

Object :- To study the effect of different seed rate proportions of Wheat and Gram grown mixed, on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Clay loam. (b) Refer soil analysis, Varanasi. (iii) 15.11.1952. (iv) (a) 7 Ploughings. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) (1) 3 C.L. (45 md.) of well decayed F.Y.M. applied all over the field on 30.10.1952 and (1) 1 ½ md. of Super placed at a depth of 3'—4” in furrows behind the plough all over the field on 14.11.1952. (vi) Wheat—NP. 52 (medium early) and gram T. 87 (late). (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed used in chk./gross plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>6.1 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>12.2 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>15.2 : 10.1</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>18.3 : 8.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>24.4 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>30.5 : 0.0</td>
</tr>
</tbody>
</table>

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 39'×30'. (v) Field border=3' alround and plot border=14'. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Grain and straw yield. (iv) (a) 1952—1956. (b) and (c) No. (v) (a) Lucknow, Kanpur, Baharaich, Pratapgarh, Aligarh, Banda, Etawah and Jhansi. (b) N.A. (vi) Nil. (vii) Experiment conducted by C.P.(R).

5. RESULTS:
(i) 1045 lb./ac.  
(ii) 171.6 lb./ac.  
(iii) Treatment differences are highly significant.  
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>232</td>
</tr>
<tr>
<td>2.</td>
<td>795</td>
</tr>
<tr>
<td>3.</td>
<td>1180</td>
</tr>
<tr>
<td>4.</td>
<td>1230</td>
</tr>
<tr>
<td>5.</td>
<td>1231</td>
</tr>
<tr>
<td>6.</td>
<td>1219</td>
</tr>
<tr>
<td>7.</td>
<td>1393</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=85.8 lb/ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat and Gram.  
Site :- Regional Res. Stn., Varanasi.  
Ref :- 53(152).  
Type :- 'X'.  

Object :- To study the effect of different seed rate proportions of Wheat and Gram grown mixed on yield and its residual effect on the succeeding kharif crop.

1. BASAL CONDITIONS:
(i) (a) Sugarcane—Sugarcane, Fallow—Wheat, Sanai—Wheat. (b) Sanai (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 16.11.1953. (iv) (a) Ploughings on 10 and 31.10.1953, 12 and 14 11.1953. (b) Sown behind the plough, main crop wheat sown first in lines east—west behind the plough, subsequently gram sown north—south i.e across the wheat lines. (c) As per treatments. (d) and (e) N.A. (v) 3 C.L. (45 md.) of well decayed F.Y.M or compost to be applied 2—3 weeks before sowing all over the field. (ii) 1 ½ md. of Super to be placed at a depth of 3’—4” in furrows behind the plough all over the field, a couple of days before sowing. Date of manuring 31.10.1953. (vi) Wheat NP. 52 and Gram T 87 (vii) Irrigated. (viii) Not recorded. (ix) N.A. (x) 27.3.1954.
2. **TREATMENTS:**

<table>
<thead>
<tr>
<th>Seed rate proportion</th>
<th>Seed rate in chk/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat : Gram</td>
<td>Wheat : Gram</td>
</tr>
<tr>
<td>1. 0 : 100</td>
<td>0.0 : 20.3</td>
</tr>
<tr>
<td>2. 20 : 80</td>
<td>6.1 : 16.3</td>
</tr>
<tr>
<td>3. 40 : 60</td>
<td>12.2 : 12.2</td>
</tr>
<tr>
<td>4. 50 : 50</td>
<td>15.2 : 10.1</td>
</tr>
<tr>
<td>5. 60 : 40</td>
<td>18.3 : 8.1</td>
</tr>
<tr>
<td>6. 80 : 20</td>
<td>24.4 : 4.0</td>
</tr>
<tr>
<td>7. 100 : 0</td>
<td>30.5 : 0.0</td>
</tr>
</tbody>
</table>

5. **DESIGN:**

(i) R.B.D.  (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'; (b) 39'×30'. (v) Field border 3'; plot border 14'; irrigation channel 3'. (vi) Yes.

4. **GENERAL:**

(i) Satisfactory. (ii) Attacked by rust. (iii) Grain and straw yield. (iv) (a) 1952–1956. (b) and (c) No. (v) (a) Etawah, Kajlpur (Kanpur), Atarra, Baharaich, Kalai (Aligarh). (b) N.A. (vi) Nil. (vii) The expt. was conducted by C.P.(R).

5. **RESULTS:**

(i) 1167 lb./ac.
(ii) 171.2 lb./ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>890</td>
</tr>
<tr>
<td>2.</td>
<td>1264</td>
</tr>
<tr>
<td>3.</td>
<td>1109</td>
</tr>
<tr>
<td>4.</td>
<td>1215</td>
</tr>
<tr>
<td>5.</td>
<td>1270</td>
</tr>
<tr>
<td>6.</td>
<td>1239</td>
</tr>
<tr>
<td>7.</td>
<td>1188</td>
</tr>
</tbody>
</table>

S.E./mean = 85.6 lb./ac.

**Crop:** Wheat and Gram (Rabi).

**Zone:** Orrai (Jalaun).

**Ref:** U.P. 52(253).

**Type:** 'X'.

Object:—To draw out a suitable fertilizer schedule for the agriculturally important soil types.

1. **BASAL CONDITIONS:**

(i) (a) to (c) N.A. (ii) Bundelkhand Type 2 and 3 (iii) N.A. (iv) Improved. (v) (a) After application of manure, the field was levelled by drawing a para. (b) Sown in lines parallel to the fertilizer line. (c) N.A. (d) 1" to 2" away from the fertilizer line. (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. **TREATMENTS:**

1. Control (no manure).
2. 50 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Super.

A/S added to surface at sowing time super is placed at a depth of about 3"—4" at the sole of the furrow and in the side of the seed row made by either an iron plough or two desi ploughs one behind the other in the same furrow.

3. **DESIGN:**

(i), (ii) Villages selected in the district and unreplicated experiment laid out. 18 trials. (iii) (a) N.A. (b) 1/40 ac. (iv) N.A.

**GENERAL:**

(i) N.A. (ii) N.A. (iii) Grain and straw yield. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by A.C. on cultivators' fields.
5. RESULTS:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Treatment Av. yield</th>
<th>Treatment Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1091</td>
<td>1. 216</td>
</tr>
<tr>
<td>II</td>
<td>1393</td>
<td>2. 252</td>
</tr>
<tr>
<td></td>
<td>1529</td>
<td>3. 288</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=39.1 lb./ac.</td>
<td>S.E./mean</td>
</tr>
</tbody>
</table>

Crop: Wheat
(i) 1338 lb./ac.
(ii) 165.8 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain lb./ac.

Crop: Gram
(i) 252 lb./ac.
(ii) 39.70 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain lb./ac.

Treatment Av. yield
1. 1091
2. 1393
3. 1529
S.E./mean =39.1 lb./ac.

Ref: - U.P. 50(246).
Type: 'X'.

Object: To draw out a fertilizer schedule for agriculturally important soil type.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Control.
   2. 15 lb./ac. of N as A/S.
   3. 15 lb./ac. of N as A/S + 30 lb./ac. of P2O5 as Super.

3. DESIGN:
   (i) and (ii) R.B.D. in which villages have been taken as replications (no. of villages = 17) and field selected randomly in a randomly selected village.  (iii) (a) and (b) N.A.  (iv) N.A.

4. GENERAL:
   (i) Satisfactory.  (ii) N.A.  (iii) Yield of arhar and jowar.  (iv) (a) No. (b) and (c) N.A.  (v) (a) and (b) N.A.  (vi) Nil.  (vii) The experiment was conducted by A.C.

5. RESULTS:
   (i) 567 lb./ac.
   (ii) 61.84 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.

Treatment Av. yield
1. 454
2. 573
3. 673
S.E./mean =15.00 lb./ac.

Crop: Arhar and Jowar (Kharif.)
Zone: In 5 tahsils of Kanpur.

Ref: - U.P. 48(110).
Type: 'M'.

Object: To find out the residual effect of manures on the growth and bearing of Apple.

1. BASAL CONDITIONS:
   (i) Under orchard.  (ii) (a) Clay loam.  (b) N.A.  (iii) Budding.  (iv) Delicious.  (v) Last week of November 1939 and spacing : 20' x 20'.  (vi) About 2 years.  (vii) Application of lime according to the requirements of soil, by spreading and mixing in the soil, given at the time of planting and also in 1951.  (viii) Grass is turned in the soil and not removed.  (ix) Nil.  (x) Unirrigated.  (xi) Nil.  (xii) From August to September.
2. TREATMENTS:
All combinations of (1), (2), (3) and (4)
(1) 2 levels of N as A/S : N₀ = 0 and N₁ = 4.4 oz./tree.
(2) 2 levels of K : K₀ = 0 and K₁ = 2.4 oz./tree.
(3) 2 levels of P₂O₅ as Super : P₀ = 0, P₁ = 6.9 oz./tree.
(4) 4 root stocks: R₁ = Malling type XIII, R₂ = Malling type II, R₃ = Meston-779 and R₄ = Meston-793.
Treatments applied in 1939.

3. DESIGN:
(i) 2² x 4 confounded Fact. in R.B.D., RxNxP x K, interaction is totally confounded. (b) 16 plots/block and 2 blocks/replication. (iii) 1. (iv) 6. (v) A row of trees left around the plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Wooly aphis, stem black, stem brown and apple root borer ; mechanical control methods used like pruning etc. (i) Measurement of girth and yield of fruit. (iv) (a) 1939—contd. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Hort (C). It appears that the manures were applied in 1939 and continued upto 1944, but in the original records or files, it is no where clearly mentioned that the manures were applied each year from 1939 to 1944, from 1945 no manures were applied but again the manures were applied in 1950, but it is not known when manuring was stopped.

5. RESULTS:
(i) 20.49 lb./tree.
(ii) 10.50 lb./tree.
(iii) None of the effects is significant.
(iv) Av. yield of apple in lb./tree.

<table>
<thead>
<tr>
<th></th>
<th>R₁</th>
<th>R₂</th>
<th>R₃</th>
<th>R₄</th>
<th>Mean</th>
<th>K₀</th>
<th>K₁</th>
<th>P₀</th>
<th>P₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁</td>
<td>24.40</td>
<td>30.00</td>
<td>18.35</td>
<td>10.71</td>
<td>20.86</td>
<td>22.05</td>
<td>19.68</td>
<td>18.78</td>
<td>22.95</td>
</tr>
<tr>
<td>Mean</td>
<td>19.44</td>
<td>26.30</td>
<td>19.66</td>
<td>16.58</td>
<td>20.49</td>
<td>21.96</td>
<td>19.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P₀</td>
<td>14.26</td>
<td>28.93</td>
<td>11.09</td>
<td>19.54</td>
<td>18.46</td>
<td>17.71</td>
<td>19.20</td>
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</tr>
<tr>
<td>K₀</td>
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<td>26.60</td>
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<td>19.07</td>
<td>14.17</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of marginal means of N, P or K = 2.62 lb./tree.
S.E. of marginal mean of R = 3.71 lb./tree.
S.E. of body of R x K, R x N or R x P table = 5.25 lb./tree.
S.E. of body of N x P, N x K or P x K table = 3.71 lb./tree.

Crop :- Apple.  
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.  
Ref :- U.P. 49(219).  
Type :- 'M'.

Object: To find out the residual effect of manures on the growth and bearing of Apple.

1. BASAL CONDITIONS:
(i) Under orchard.  
(b) (a) Clay loam.  
(b) N.A.  
(iii) Budding.  
(iv) Delicious.  
(v) Last week of Nov, 1939 and spacing 20' x 20'.  
(vi) About 2 years.  
(vii) Application of lime according to the requirements of soil by spreading and mixing in the soil at the time of planting and also in 1951.  
(viii) Grass is turned in the soil and not removed from the soil.  
(ix) Nil.  
(x) Unirrigated.  
(xi) N.A.  
(xii) August to September.
2. TREATMENTS:

All combinations of (1), (2), (3) and (4)

(1) 2 levels of N as A/S: No=0 and N1=4.4 oz/tree.
(2) 2 levels of K: K0=0 and K1=2.4 oz/tree.
(3) 2 levels of P2O5 as Super: P0=0 and P1=6.9 oz/tree.
(4) 4 root stocks: R1=Malling type XIII, R2=Malling type II, R3=Meston 773 and R4=Meston 793.

Treatments applied in 1939.

3. DESIGN:

(i) 2^4 (confounded Fact. in R.B.D., R\times N\times P\times K interaction is totally confounded. (ii) (a) 16 plots/block and 2 blocks/replication. (b) N.A. (iii) 1. (iv) 6. (v) All round each plot a row of tree left. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Wooly aphis, stem black, stem brown and apple root borer; mechanical control method like pruning etc. (iii) Girth measurements and fruit yield. (iv) (a) 1939—contd. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Hort (C). It appears that the manures were applied in 1939 and continued upto 1944, but in the original records or files, it is no where clear that the manures were applied each year from 1939 to 1944. From 1945 no manures were applied but again the manures were applied in 1950, but it is not known when manuring was stopped.

5. RESULTS:

(i) 41.88 lb./tree.
(ii) 16.99 lb./tree.
(iii) R effect is highly significant and interaction R\times P is significant. Others are not significant.
(iv) Av. yield of apple in lb./tree.

<table>
<thead>
<tr>
<th></th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
<th>Mean</th>
<th>K0</th>
<th>K1</th>
<th>P0</th>
<th>P1</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>29.07</td>
<td>60.50</td>
<td>38.44</td>
<td>46.22</td>
<td>43.56</td>
<td>47.03</td>
<td>40.09</td>
<td>40.01</td>
<td>47.11</td>
</tr>
<tr>
<td>N1</td>
<td>30.50</td>
<td>47.62</td>
<td>33.65</td>
<td>22.00</td>
<td>40.19</td>
<td>41.99</td>
<td>38.39</td>
<td>45.51</td>
<td>34.87</td>
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<tr>
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<td>29.78</td>
<td>67.56</td>
<td>36.04</td>
<td>34.11</td>
<td>41.88</td>
<td>44.51</td>
<td>39.24</td>
<td>42.76</td>
<td>40.99</td>
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<td>P0</td>
<td>27.04</td>
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<td>34.48</td>
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<td>49.46</td>
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<tr>
<td>P1</td>
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<td>48.90</td>
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<td>33.74</td>
<td>40.99</td>
<td>39.56</td>
<td>42.42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N, P or K =4.25 lb./tree.
S.E. of marginal means of R =6.01 lb./tree.
S.E. of body of R\times K, R\times N or R\times P tables =5.50 lb./tree.
S.E. of body of N\times P, P\times K or N\times K tables =6.01 lb./tree.

<table>
<thead>
<tr>
<th></th>
<th>K0</th>
<th>K1</th>
<th>P0</th>
<th>P1</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2</td>
<td>29.18</td>
<td>75.16</td>
<td>33.88</td>
<td>39.82</td>
</tr>
<tr>
<td>R4</td>
<td>30.38</td>
<td>59.96</td>
<td>38.21</td>
<td>28.41</td>
</tr>
</tbody>
</table>

Crop : Apple.
Site : Govt. Hill Fruit Res. Stn., Chaubattia.
Type : 'M'.

Object : To find out the residual effects of manures on the growth and bearing of Apple.

1. BASAL CONDITIONS:

(i) Under orchard. (ii) Clay loam. (b) N.A. (iii) Budding. (iv) Delicious. (v) Last week of Nov., 1939. Spacing 20'x20'. (vi) About two years. (vii) Application of lime according to the requirements of soil, by spreading and mixing in the soil at the time of planting and iso in 1951. (viii) Grass is turned in the soil and not removed from the land. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) August to September.
2. TREATMENTS:
All combinations of (1), (2), (3) and (4)
(1) 2 levels of N as A/S : N₀ = 0 and N₁ = 4.4 oz/tree.
(2) 2 levels of K : K₁ = 0 and K₂ = 2.4 oz/tree.
(3) 2 levels of P₂O₅ as Super : P₀ = 0 and P₁ = 6.9 oz/tree.
(4) 4 root stocks : R₁ = Malling type XIII, R₂ = Malling type II, R₃ = Meston-779 and R₄ = Meston-793.
Treatments applied in 1939.

3. DESIGN:
(i) 2³ x 4 confounded fact. in R.B.D. R x N x P x K interaction totally confounded. (ii) (a) 16 plots/block and 2 blocks/replication. (b) N.A. (iii) 1. (iv) 6. (v) All round each plot one row of tree left. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Wooly aphis, stem black, stem brown and apple root borer—mechanical methods like pruning etc. applied. (iii) Girth measurement and fruit yield. (iv) (a) 1939—contd. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Hort (C). It appears that the manures were applied in 1939 and continued up to 1944, but in the original records or files it is nowhere clearly mentioned that the manures were applied each year from 1939 to 1944. From 1945 no manures were applied but again the manures were applied in 1950, but is not known when manuring was stopped.

5. RESULTS:
(i) 45.70 lb./tree.
(ii) 50 lb./tree.
(iii) None of the effects is significant.
(iv) Av. yield of fruit in lb./tree.

<table>
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S.E. of marginal mean of N, P or K = 8.88 lb./tree.
S.E. of marginal mean of R = 12.55 lb./tree.
S.E. of body of R x K, R x N or R x P table = 17.75 lb./tree.
S.E. of body of N x P, P x K or N x K table = 12.55 lb./tree.

Crop : Apple.
Site : Govt. Hill Fruit Res. Stn., Chaubattia.
Object : To find out the residual effect of manures on the growth and bearing of Apple.

1. BASAL CONDITIONS:
(i) Under orchard. (ii) (a) Clay loam. (b) N.A. (iii) Budding. (iv) Delicious. (v) Last week of Nov. 1939. Spacings 20' x 20'. (vi) About 2 years. (vii) Application of lime according to the requirements of soil by spreading and mixing in the soil, at the time of planting and also in 1951. (viii) Grass is turned in the soil and is not removed from the land. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) From August to September 1951.
2. TREATMENTS:

All combinations of (1), (2), (3) and (4)
(1) 2 levels of N as A/S: N₀=0 and N₁=4.4 oz./tree.
(2) 2 levels of K : K₀=0 and K₁=2.4 oz./tree.
(3) 2 levels of P₂O₅ as Super : P₀=0 and P₁=6.9 oz./tree.
(4) 4 root stocks: R₁=Malling type XIII, R₂=Malling type II, R₃=Meston 779 and R₄=Meston 793.

Treatments applied in 1939.

3. DESIGN:

(i) 2³×4 confounded fact. in R.B.D. R×N×P×K interaction is totally confounded. (ii) (a) 16 plots/block, 2 blocks/replication. (b) N.A. (iii) 1. (iv) 6. (v) One row of trees left all round each plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Wooly aphis, stem block, stem brown and apple root borer. Mechanical methods like pruning etc. applied. (iii) Girth measurement and yield of fruit. (iv) (a) 1939—condt. (b) N.A. (v) N.A. (vi) Nil. (vii) Th: experiment was conducted by Hort (C). It appears that the manures were applied in 1939 and continued up to 1944, but in the original records or files it is nowhere clearly mentioned that the manures were applied each year from 1939 to 1944. From 1945 no manures were applied but again the manures were applied in 1953, but it is not known when manuring stopped.

5. RESULTS:

(i) 48.53 lb./tree.
(ii) 24.10 lb./tree.

(iii) None of the effects is significant.
(iv) Av. yield of fruits in lb./tree.

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S.E. of marginal means of N, P or K = 6.03 lb./tree
S.E. of marginal means of R = 8.52 lb./tree
S.E. of body of R×K, R×N or R×P tables = 12.05 lb./tree
S.E. of body of N×P, P×K or N×K tables = 8.52 lb./tree

Crop :- Apple.
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.
Object:—To find out the residual effects of manures on the growth and bearing of Apple.

Ref :- U.P. 52:301.
Type :- 'M'.

1. BASAL CONDITIONS:

(i) Under orchard. (ii) (a) Clay loam. (b) N.A. (iii) By budding. (iv) Delicious. (v) Last week of November 1939; spacing 20’×20’.(vi) About 2 years. (vii) Application of lime according to the requirements of soil, by spreading and mixing in the soil, given at the time of planting and also in 1951. (viii) Grass is turned in the soil and is not removed from the soil. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) August to September 1952.
2. TREATMENTS:

All combinations of (1), (2), (3) and (4)

(1) 2 levels of N as A/S: N₀ = 0 and N₁ = 4.4 oz./tree.

(2) 2 levels of K: K₀ = 0 and K₁ = 2.4 oz./ac.

(3) 2 levels of P₀₀ as Super: P₀₀ = 0 and P₁₀ = 6.9 oz./tree.

(4) 4 root stocks: R₁ = Malling type XII, R₂ = Malling type II, R₃ = Meston 779 and R₄ = Meston 793.

Treatments applied in 1939.

3. DESIGN:

(i) 2⁵×⁴ confounded Fact. in R.B.D R×N×P×K interaction is totally confounded. (ii) (a) 16 plots/block and 2 blocks/replication. (b) N.A. (iii) 1. (iv) 6. (v) A row of tree left around the plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Wooly aphis, stem black, stem brown and apple root borer—mechanical control methods like pruning etc. (iii) Girth measurement and yield. (iv) (a) 1939—contd. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Hort (C). It appears that the manures were applied in 1939 and continued upto 1944, but in the original records or files it is no where clear that the manures were applied each year from 1939 to 1944. From 1945 no manures were applied but again the manures were applied in 1950, but it is not known when manuring was stopped.

5. RESULTS:

(i) 106.0 lb./tree.

(ii) 50.6 lb./tree.

(iii) None of the effects is significant.

(iv) Av. yield of fruit in lb./tree.

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<th>R₂</th>
<th>R₃</th>
<th>R₄</th>
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S.E. of marginal means of N, P or K = 12.67 lb./tree.

S.E. of marginal mean of R = 17.92 lb./tree.

S.E. of body of R×K, R×N or R×P tables = 25.34 lb./tree.

S.E. of body of N×P, P×K or N×K tables = 17.92 lb./tree.

Crop: Apple.

Site: Govt. Hill Fruit Res. Stn., Chaubattia.

Ref: U.P. 53(82).

Type: 'M'.

Object: To find out the residual effect of manures upon the growth and bearing of Apple.

1. BASAL CONDITIONS:

(i) Under forest. (ii) N.A. (iii) Budding. (iv) Delicious. (v) Last week of Nov. 1939. Spacing: 20'×20'. (vi) About 2 years. (vii) Application of lime according to the requirement of soil by spreading and mixing in the soil, given at the time of planting and also in 1951. (viii) N.A. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) N.A.
2. TREATMENTS:
All combinations of (1), (2), (3) and (4)
(1) 2 levels of N as A/S: N1=4.4 oz./tree and N2=1.0 lb./ac.
(2) 2 levels of K: K1=6.9 oz./tree and K2=2.7 lb./tree.
(3) 2 levels of P2O5 as Super: P1=2.4 oz./tree and P2=0.3 lb./tree.
(4) 4 root stocks: R1=Malling type XIII, R2=Malling type II, R4=Meston 779 and R5=Meston 794.

3. DESIGN:
(i) 2*4 confounded Fact. in R.B.D. R x N x P x K is totally confounded. (ii) (a) 16 plots/block ; 2 blocks/replication. (b) N.A. (iii) 1. (iv) 6. (v) A row of other trees kept around each plot. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 76.37 lb./tree.
(ii) 30.53 lb./tree.
(iii) None of the effects is significant.
(iv) Av. yield of fruits in lb./tree.

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<th>R3</th>
<th>R4</th>
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S.E. of marginal means of N, P or K = 7.63 lb./tree.
S.E. of marginal mean of R = 10.79 lb./tree.
S.E. of body of R x K, R x N or R x P tables = 15.26 lb./tree.
S.E. of body of N x P, P x K or N x K tables = 10.79 lb./tree.

Crop:—Apple.
Site:—Govt. Hill Fruit Res. Stn., Chaubattia.
Object:—To find out a suitable depth for applying P2O5.

1. BASAL CONDITIONS:
(i) The trees were under catch crop trial before bearing. (ii) (a) Clay loam. (b) N.A. (iii) Grafted. (iv) Apple Delicious—grown on Root stock MT II. (v) 1st. week of December, 1939. Spacing 20’ x 20’. (vi) One year after grafting. (vii) Lime was applied according to requirements before starting the experiment in 1951. (viii) N.A. (ix) No. (x) Unirrigated. (xi) N.A. (xii) August to September 1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 levels of P2O5 as Super: P0=0, P1=4 and P2=6 lb./tree.
(2) 2 depths of application: D1=9” and D2=18”.
Super sprinkled in the bottom of trenches, dug 9” or 18” deep around the tree, just below the drip of the tree, which is filled afterwards. Date of application: early March 1951.
3. DESIGN:
   (i) 3×2 Fact. in R.B.D.  (ii) (a) 6. (b) N.A.  (iii) 9.  (iv) One.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Wooly aphis, stem black, stem brown, and apple root borer—mechanical method of controlling applied.  (iii) Girth measurement and apple yield.  (iv) (a) 1951—contd.  (b) N.A.  (v) N.A.  (vi) P₂D₂ yield is estimated in replication VIII.  (vii) The experiment was conducted by Hort (C).

5. RESULTS:
   (i) 26.08 lb./tree.
   (ii) 26.04 lb./tree.
   (iii) None of the effects is significant.
   (iv) Av. yield of fruits in lb./tree.

   Control = 23.12

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S.E. of D₁ or P₂ marginal mean = 4.72 lb./tree
S.E. of control mean = 4.72 lb./tree.
S.E. of P₁D₂ mean = 7.16 lb./tree.
S.E. of any mean in the body of table except P₁D₂ mean = 6.68 lb./tree.

Crop :- Apple.
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.
Object :- To find out a suitable depth for applying P₂O₅.

1. BASAL CONDITIONS:
   (i) The trees were under catch crop trial before bearing.  (ii) (a) Clay loam.  (b) N.A.  (iii) Grafted.  (iv) Apple delicious grown on root stock MTII.  (v) 1st week of December, 1939 and spacings 20’x20’.
   (vi) One year after grafting.  (vii) Lime was applied according to the requirement before starting the experiment in 1951.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 levels of P₂O₅ as Super: P₀=0, P₁=4 and P₂=6 lb./tree.
   (2) 2 depths of application: D₁=9" and D₂=18".
   Super sprinkled in the bottom of trenches, dug 9” or 18” deep around the tree, just below the drip of the tree, which is filled afterwards. Date of application: early March, 1951.

3. DESIGN:
   (i) 3×2 Fact. in R.B.D.  (ii) (a) 6. (b) N.A.  (iii) 9.  (iv) 1.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Wooly aphis, stem black, stem brown and apple root borer—mechanical methods for controlling adopted.  (iii) Girth measurement and yield of fruits.  (iv) (a) 1951—contd.  (b) N.A.  (v) N.A.  (vi) Control yield was estimated for replication II, III and P₁D₂ yield for replication no. VIII (v) Experiment conducted by Hort. (C).

5. RESULTS:
   (i) 74.07 lb./tree.
   (ii) 31.22 lb./tree.
   (iii) Only effect of D is significant.
(iv) Av. yield of fruit in lb./tree.

Control = 63.46

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</table>

S.E. of P₂ or D₁ marginal mean = 7.36 lb./tree
S.E. of control mean = 7.36 lb./tree.
S.E. of P₁D₂ mean = 11.16 lb./tree
S.E. of any mean in body of table except P₁D₂ mean = 10.41 lb./tree.

Crop : Apple.
Site : Govt. Hill Fruit Res. Stn., Chaubattia.
Object : To find out a suitable depth for applying P₂O₅.

1. BASAL CONDITIONS :
(i) The trees were under check crop trial before bearing. (ii) (a) Clay loam. (b) N.A. (iii) Grafted. (iv) Apple delicious. (v) 1st week of December, 1939. Spacing 20' x 20'. (vi) One year after grafting. (vii) Lime was applied according to requirement before starting the experiment. (viii) Digging, preparation of soil. (ix) No. (x) Unirrigated. (xi) 42.84'. (xii) 22.8.1953.

2. TREATMENTS :
All combinations of (1) and (2)
(1) 3 levels of P₂O₅ as Super : P₀ = 0, P₁ = 4 and P₂ = 6 lb./tree.
(2) 2 depths of application : D₁ = 9' and D₂ = 18'.

3. DESIGN :
(i) 3 x 2 Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 9. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :
(i) N.A. (ii) Wooly aphis, stem black, stem brown and apple root borer—mechanical control. (iii) Girth and yield (iv) (a) 1951—contd. (b) N.A. (v) N.A. (vi) Control yield in replication II and III and treatment P₁D₂ in replication VIII were estimated as these were missing. (vii) The experiment was conducted by Hort (C).

5. RESULTS :
(i) 116.1 lb./tree.
(ii) 65.05 lb./tree.
(iii) Only effect of D is significant.
(iv) Av. yield of fruit in lb./tree.

Control = 106.5

<table>
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</tr>
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<td>Mean</td>
<td>149.3</td>
<td>92.4</td>
<td>123.9</td>
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</table>

S.E. of D₁ or P₁ marginal mean = 15.33 lb./tree.
S.E. of control mean = 15.33 lb./tree.
S.E. of P₁D₂ mean = 23.25 lb./tree.
S.E. of any mean in body of table except P₁D₂ mean = 21.68 lb./tree.

Ref : U P. 53(80).
Type : 'M'.
Crop :- Apple.
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Ref :- U.P. 53(298).
Type :- 'M'.

Object :- To evolve methods for the improvement of spent up land in Kumaon Hills.

1. BASAL CONDITIONS:
   (i) After deforestation in 1948 potato crop was taken, after which Belladona was planted. In 1920-1921 apple and cherries were planted. For the last ten years it was covered by grassine grasses, wild rose and other bushes. (ii) (a) Loam. (b) N.A. (iii) By budding. (iv) (a) Cox's orange. Pippin on Meston 779. (v) Terracing of about an acre of land done. The pits 4' x 4' x 4' and 20' apart dug and apple plants planted. One replication planted in 1951, two in 1952 and one in 1953. (vi) 2 years. (vii) 3 lb. of A/S and 0-65 mds. of compost every year per tree in March by spreading round the tree and then digging it in. (viii) Pruning, digging, sowing of soyabeans and turning it in. (x) Soyabeans planted during the rains and buried in the soil just before flowering. (xi) Unirrigated. (xii) No yield of fruits.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 doses of lime : \( L_1 = \text{single} \) and \( L_2 = \text{double} \).
   (2) 4 doses of \( P_2O_5 \) as Super : \( P_0 = 0 \), \( P_1 = 1 \), \( P_2 = 3 \) and \( P_3 = 4 \) lb./tree.

Actual doses of lime N.A. Lime spread in September every year during turning in of soyabeans. Super in March, by spreading round the tree and then digging in.

3. DESIGN:
   (i) 4 x 2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) 6. (v) One row of apple trees around the field. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 3.17 cm./tree.
   (ii) 0.18 cm./tree.
   (iii) Only P effect is significant.
   (iv) Av. girth of tree in cm.

<table>
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<tr>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( P_3 )</th>
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<tr>
<td>( L_2 )</td>
<td>3.14</td>
<td>3.42</td>
<td>2.97</td>
<td>3.13</td>
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<tr>
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<td>3.18</td>
<td>3.37</td>
<td>3.02</td>
<td>3.12</td>
</tr>
</tbody>
</table>

   S.E. of \( L \) means =0.05 cm./tree.
   S.E. of \( P \) means =0.07 cm./tree.
   S.E. of body of table =0.10 cm./tree.

Crop :- Apple.
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Ref :- U.P. (4896).
Type :- 'C'.

Object :- To find out the effect of mulching on the growth and bearing of Apple trees raised on deep and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hailstorm damage can be reduced materially.

1. BASAL CONDITIONS:
2. TREATMENTS:

Main-plot treatments:
3 mulchings: M₁ = pine needles, M₂ = oak needles and M₃ = no mulching (control).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 shapes of trees: S₁ = Pyramid and S₂ = Vase.
(2) 2 root stocks: R₁ = Crab C (deep rooted) and R₂ = Malling type II (shallow rooted).

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6. (v) No. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Wooly aphis, stem black and stem brown—mechanical methods of controlling. (iii) Yield and girth measurement. (iv) (a) 1939—N.A. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Hort (C).

5. RESULTS:
(i) 16.69 lb./tree.
(ii) (a) 15.40 lb./tree.
(b) 7.83 lb./tree.
(iii) None of the effects is significant.
(iv) Av. yield of fruits in lb./tree.

<table>
<thead>
<tr>
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<td>16.92</td>
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<td>14.32</td>
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<tr>
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<td>S₂</td>
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<td>15.70</td>
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S.E. of difference of two:
1. M marginal means = 6.29 lb./tree.
2. S or R marginal means = 2.61 lb./tree.
3. S or R means at a level of M = 4.52 lb./tree.
4. M means at a level of S = 7.05 lb./tree.
S.E. of body of S×R table = 2.61 lb./tree.

Crop : Apple. 
Site : Govt. Hill Fruit Res. Stn., Chaubattia.  
Object : To find out the effect of mulching upon the growth and bearing of Apple trees raised on deep rooted and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hailstorm damage can be reduced materially.

1. BASAL CONDITIONS:
2. TREATMENTS:

Main-plot treatments:
3 mulchings: M₁ = pine needles, M₂ = oak needles and M₃ = no mulching (control).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 shapes of trees: S₁ = Pyramid and S₂ = Vase.
(2) 2 root stocks: R₁ = Crab C (deep rooted) and R₂ = Malling type II (shallow rooted).

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6. (v) No. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Wooly aphis, stem block and stem brown—mechanical method of controlling. (iii) Girth measurement and yield. (iv) (a) 1939—N.A. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Hort (C).

5. RESULTS:
(i) 41.84 lb./tree.
(ii) (a) 36.36 lb./tree.
(b) 20.23 lb./tree.
(iii) Only S effect is highly significant.
(iv) Av. yield of fruit in lb./tree.

<table>
<thead>
<tr>
<th></th>
<th>R₁</th>
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<td>37.90</td>
<td></td>
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<td></td>
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</table>

S.E. of difference of two
1. M marginal means = 14.84 lb./tree.
2. S or R marginal means = 6.74 lb./tree.
3. S or R means at a level of M = 11.68 lb./tree.
4. M means at a level of S or R = 16.99 lb./tree.
S.E. of body of S x R table = 6.74 lb./tree.

Site: Govt. Hill Fruit Res. Stn., Chaubattia. Type: "C".

Object: To find out the effect of mulching on the growth and bearing of Apple trees raised on deep rooted and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hailstorm damage can be reduced materially.

1. BASAL CONDITIONS:
2. TREATMENTS:

Main-plot treatments:
3 mulching: \( M_1 = \) pine needles, \( M_2 = \) oak needles and \( M_3 = \) no mulching (control).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 shapes of trees: \( S_1 = \) Pyramid and \( S_2 = \) Vase.
(2) 2 root stocks: \( R_1 = \) Crab C (deep rooted) and \( R_2 = \) Malling type II (shallow rooted).

3. DESIGN:
(i) Split-plot. (ii) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6. (v) No. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Wooly aphid, stem black and stem brown—mechanical methods of controlling. (iii) Girth measurement and yield. (iv) (a) 1939—N.A. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Horr (C).

5. RESULTS:
(i) 39.55 lb./tree.
(ii) (a) 44.16 lb./tree.
(b) 18.04 lb./tree.
(iii) Only S effect and interaction \( S \times R \) are highly significant.
(iv) Av. yield of fruit in lb./tree.

<table>
<thead>
<tr>
<th></th>
<th>( R_1 )</th>
<th>( R_2 )</th>
<th>Mean</th>
<th>( S_1 )</th>
<th>( S_2 )</th>
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<td>48.65</td>
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<td>Mean</td>
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<td>39.55</td>
<td>48.28</td>
<td>30.83</td>
</tr>
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</table>

S.E. of difference of two:
1. \( M \) marginal means
2. \( S \) or \( R \) marginal means
3. \( S \) or \( R \) means at a level of \( M \)
4. \( M \) means at a level of \( S \) or \( R \)
S.E. of body of \( S \times R \) table

Crop : - Apple.
Site : - Govt. Hill Fruit Res. Stn., Chaubattia.
Object : - To find out the effect of mulching on the growth and bearing of apple trees raised on deep rooted and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hailstorm damage can be reduced materially.

1. BASAL CONDITIONS:

2. TREATMENTS:
Main-plot treatments:
3 mulchings: \( M_1 = \) pine needle, \( M_2 = \) oak needles and \( M_3 = \) no mulching (control).

Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 shapes of trees: \( S_1 = \) Pyramid and \( S_2 = \) Vase.
(2) 2 root stocks: \( R_1 = \) Crab C (deep rooted) and \( R_2 = \) Malling type II (shallow rooted).
3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6. (v) No. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Wooly aphis, stem black and stem brown—mechanical methods of controlling. (iii) Yield and girth measurement. (iv) (a) 1939—N.A. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Hort (C).

5. RESULTS:
(i) 10.92 lb./tree.
(ii) (a) 18.48 lb./tree. (b) 8.78 lb./tree.
(iii) None of the effects is significant.
(iv) Av. yield of fruits in lb./tree.

<table>
<thead>
<tr>
<th></th>
<th>R_1</th>
<th>R_2</th>
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<th>S_1</th>
<th>S_2</th>
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S.E. of difference of two
1. M marginal means = 7.54 lb./tree.
2. S or R marginal means = 2.93 lb./tree.
3. S or R means at a level of M = 5.07 lb./tree.
4. M means at a level of S or R = 8.35 lb./tree.
S.E. of body of S X R table = 2.93 lb./tree.

Crop :- Apple.
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.
Object :- To find out the effect of mulching on the growth and bearing of Apple trees raised on deep-rooted and shallow-rooted stocks and also to determine if by training trees into different shapes the extent of hailstorm damage can be reduced materially.

1. BASAL CONDITIONS:

2. TREATMENTS:
Main-plot treatments:
3 mulchings : M_1 = pine needles, M_2 = oak needles and M_3 = no mulching (control).
Sub-plot treatments:
All combinations of (1) and (2)
(1) 2 shapes of trees : S_1 = Pyramid and S_2 = Vase.
(2) 2 root stocks : R_1 = Crab C (deep rooted) and R_2 = Malling type II (shallow rooted).

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6. (v) No. (vi) Yes.
4. GENERAL:
   (i) N.A. (ii) Wooly aphis, stem black and stem brown—mechanical methods of controlling. (iii) Yield and
girth measurement. (iv) (a) 1939—N.A. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted
by Hort (C).

5. RESULTS:
   (i) 40.74 lb./ree.
   (ii) (a) 42.67 lb./tree.
   (b) 22.48 lb./tree.
   (iii) None of the effects is significant.
   (iv) Av. yield of fruits in lb./tree.

<table>
<thead>
<tr>
<th></th>
<th>R1</th>
<th>R2</th>
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<th>S2</th>
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<td>40.59</td>
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</table>

S.E. of difference of two
1. M marginal means
2. S or R marginal means
3. S or R means at a level of M
4. M means at a level of S or R
S.E. of body of S×R table

Crop :- Apple.
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.
Object :-To find out the effect of mulching on the growth and bearing of Apple trees raised on deep rooted
and shallow rooted stocks and also to determine if by training trees into different shapes the
extent of hailstorm damage can be reduced materially.

1. BASAL CONDITIONS:
   (i) Under forest. (ii) N.A. (iii) Budding. (iv) Scion variety Delicious. (v) 2nd week of December 1939.
   Spacing 20’x20’ (vi) One year after budding. (vii) Nil. (viii) Pruning, digging below the trees and prepara-
tion of thalas. (ix) No. (x) Unirrigated. (xi) 42.84’. (xii) 3.9.1953 to 7.9.1953.

2. TREATMENTS:
   Main-plot treatments:
   3 mulchings: M1=pine needles, M2= oak needles and M3= no mulching (control).
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 2 shapes of trees : S1=Pyramid and S2= Vase.
   (2) 2 root stocks : R1=Crab C (deep rooted) and R2=Malling type II (shallow rooted).

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6.
   (v) No. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Wooly aphis, stem black, stem brown and apple root borer—mechanical control adopted. (iii)
   Yield and girth measurement. (iv) (a) 1939—N.A. (b) N.A. (v) N.A. (vi) Hail storm did not occur
during the period under report, the damage due to it was not recorded. (vii) The experiment was conducted
by Hort (C).
5. RESULTS:

(i) 75.53 lb./tree.
(ii) (a) 72.55 lb./tree.  
(b) 56.27 lb./tree.
(iii) None of the effects is significant.
(iv) Av. yield of fruit in lb./tree.

<table>
<thead>
<tr>
<th>Treatment</th>
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<th>R2</th>
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<th>S2</th>
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</table>

S.E. of difference of two
1. M marginal means = 29.62 lb./tree.
2. S or R marginal means = 18.76 lb./tree.
3. S or R means at a level of M = 37.48 lb./tree.
4. M means at a level of S or R = 18.76 lb./tree.

Crop :: Apple.
Site :: Govt. Hill Fruit Res. Stn., Chaubattia.
Type :: 'C'.
Ref :: U.P. 51(248).
Object :: To find out the comparative value of Kudzu Vine, local variety of soya beans and common grass grown in the orchard in influencing the vigour and productivity of Apple.

1. BASAL CONDITIONS:


2. TREATMENTS:

1. Kudzu growings.
2. Local soyabeans.
3. Control—common cultural methods.
Kudzu was planted in 1951 and soyabean was sown in the 3rd week of June 1951.

3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 30. (iv) I. (v) Nil. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Girth measurement and yield. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Hort (C).

5. RESULTS:

(i) 30.11 lb./tree.
(ii) 32.31 lb./tree.
(iii) Treatment differences are not significant.
(iv) Av. yield of fruits in lb./tree.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25.98</td>
</tr>
<tr>
<td>2.</td>
<td>40.83</td>
</tr>
<tr>
<td>3.</td>
<td>25.51</td>
</tr>
</tbody>
</table>
S.E./mean = 5.90 lb./tree.
Object: To find out a suitable insecticidal control measure against defoliating beetles.

1. BASAL CONDITIONS:
   (i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) By grafting. (iv) Delicious. (v) Planting during February at a space of 20'x20' in pits filled during January. (Pits were dug 4'x4'x4'). (vi) 2 years. (vii) Nil. (viii) Pruning during winter and ringing around the base of trees during February. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) Plucking fruits from July and August 1950.

2. TREATMENTS:
   1. D.D.T. emulsion 0.25%.
   2. Lead chromate at 6 lbs. in 100 gallons of water.
   3. D.D.T. wettable powder 0.125%.
   4. Paris green at 6 lbs. in 100 gallons of water.
   5. Control.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) One tree. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Defoliating leaves, controlled by spraying. (iii) % area of damaged leaves a few days after treatments. (iv) (a) No. (b) N.A. (v) N.A. (vi) No plot wise yield data is available. The results have been taken from the report. (vii) The experiment was conducted by Ento(C). Paris green and D.D.T. wet powder had a phytocidal effect on the leaves. No data could, therefore, be obtained on these two treatments.

5. RESULTS:
   (i) 25.85 percent.
   (ii) 6.2930 percent.
   (iii) Treatment differences are significant.
   (iv) Av. percent of damaged area/plot.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>11.67</td>
</tr>
<tr>
<td>2.</td>
<td>21.81</td>
</tr>
<tr>
<td>3.</td>
<td>—</td>
</tr>
<tr>
<td>4.</td>
<td>—</td>
</tr>
<tr>
<td>5.</td>
<td>44.08</td>
</tr>
<tr>
<td>S./mean</td>
<td>=2.8143 percent.</td>
</tr>
</tbody>
</table>


Object: To study the effect of growing different catch crops on the incidence of stem black disease of different varieties of Apple.

1. BASAL CONDITIONS:
   (i) Under orchard. (ii) (a) Clay Loam. (b) N.A. (iii) By grafting. (iv) As per treatments. (v) Planted in 1939. (vi) About 2 years. (vii) N.A. (viii) Prunings, digging below the trees etc. (ix) As per treatments. (x) Unirrigated. (xi) N.A. (xii) From August to September 1948.

2. TREATMENTS:
   Main-plot treatments:
   5 catch crops: C1 = Potatoes, C2 = Soyabeans, C3 = Maduwa, D4 = Sawan and raddish. and C5 = Control (No catch crops.)

   Sub-plot treatments:
   3 varieties of apple: V1 = Delicious (on root stock Malling Type II), V4 = Beauty of Bath (on root stock Malling Type II). and V5 = Peach Alexander (on Prunus dirvaricata root stock).
3. DESIGN:
(i) Split-plot. (ii) (a) 5 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 6. (v) Apple trees between main-plot treatments. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study and stem brown. (iii) Girth measurement, yield and no. of twigs affected with the stem black disease. (iv) (a) 1945—1949. (b) N.A. (v) N.A. (vi) Nil. (vii) The exp. was conducted by Myco (C). x=no. of affected twigs/plot.

5. RESULTS:
(i) \(0.74 \sqrt{x+1}/\text{plot.}\)
(ii) (a) \(0.5213 \sqrt{x+1}/\text{plot.}\)
(b) \(0.6488 \sqrt{x+1}/\text{plot.}\)
(iii) Main effect of C is not significant. Main effect of \(V\) is highly significant. Interaction is not significant.
(iv) Twigs affected/plot

<table>
<thead>
<tr>
<th>Treatment</th>
<th>mean value of (\sqrt{x+1}/\text{plots.})</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V_1)</td>
<td>1.50</td>
</tr>
<tr>
<td>(V_2)</td>
<td>0.70</td>
</tr>
<tr>
<td>(V_3)</td>
<td>0.01</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1451 (\sqrt{x+1}/\text{plot.})</td>
</tr>
</tbody>
</table>

Crop :- Apple.  
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.  
Ref :- U.P. 49(204).  
Type :- ‘D’.

Object :- To study the effect of growing different catch crops on the incidence of stem black disease of different varieties of Apple.

1. BASAL CONDITIONS:
(i) Under orchard. (ii) (a) Clay loam. (b) N.A. (iii) By grafting. (iv) As per treatments. (v) Planted in 1939. (vi) About 2 years. (vii) N.A. (viii) Prunings and diggings below the trees etc. (ix) As per treatments. (x) Unirrigated. (xi) N.A. (xii) August to September 1949.

2. TREATMENTS:
Main-plot treatments:
5 catch crops : \(C_1=\text{Potatoes}, C_2=\text{Soyabeans}, C_3=\text{Maduwa}, C_4=\text{Sawan}\) and reddish and \(C_5=\text{control}\) (no catch crop).

Sub-plot treatments:
3 varieties : \(V_1=\text{Delicious (on root stock Malling type II)}, V_2=\text{Beauty of Bath (on root stock Malling type II)}\) and \(V_3=\text{Peach Alexander (on prunus dirvaricara root stock)}\).

3. DESIGN:
(i) Split-plot. (ii) (a) 5 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 6. (v) Apple trees between main-plot treatments. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study and stem brown. (iii) Girth measurement, yield and the number of twigs affected with the stem black disease. (iv) (a) 1945—1949. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C). x=no. of affected twigs/plot.

5. RESULTS:
(i) \(1.62 \sqrt{x+1}/\text{plot.}\)
(ii) (a) \(0.6122 \sqrt{x+1}/\text{plot.}\)
(b) \(0.5852 \sqrt{x+1}/\text{plot.}\)
(iii) Main effect of C is not significant. Main effect of \(V\) is highly significant. Interaction \(C \times V\) is not significant.
(iv) Twigs affected/plot.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>mean value of (\sqrt{x+1}/\text{plots.})</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V_1)</td>
<td>2.30</td>
</tr>
<tr>
<td>(V_2)</td>
<td>1.84</td>
</tr>
<tr>
<td>(V_3)</td>
<td>0.71</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1309 (\sqrt{x+1}/\text{plot.})</td>
</tr>
</tbody>
</table>
Crop: Apple. 
Site: Govt. Hill Fruit Res. Stn., Chaubattia. 
Object: To study the correlation of the stem black disease with different types of pruning and mulching operations.

1. BASAL CONDITIONS:

2. TREATMENTS:
Main-plot treatments:
3 mulchings: \( M_1 = \text{Pine needles}, M_2 = \text{Oak leaves} \) and \( M_3 = \text{No mulching (control)} \).

Sub-plot treatments:
All combinations of (1) and (2):
(a) 2 prunings: \( P_1 = \text{Pyramid shaped} \) and \( P_2 = \text{Vase shaped} \).
(b) 2 root stocks: \( S_1 = \text{Crab C (deep rooted)} \) and \( S_2 = \text{Malling type II (shallow rooted)} \).

3. DESIGN:
(i) Split-plot. (ii) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) No. (v) Yes.

4. GENERAL:
(i) N.A. (ii) Under study and stem brown. (iii) Girth measurement, yield of fruits, no. of twigs affected with the disease. (iv) (a) 1945 to 1949. (b) N.A. (v) N.A. (vi) Original records are not available. Results taken from reports. (vii) The expt. was conducted by Myco (C). \( x \) = number of affected twigs/tree.

5. RESULTS:
(i) \( 0.82 \sqrt{x + 1} / \text{tree} \).
(ii) \( 8.5718 \sqrt{x + 1} / \text{tree} \).
(iii) Only \( P \) effect is highly significant.
(iv) Twigs affected/plot.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of ( \sqrt{x + 1} / \text{tree} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_1 )</td>
<td>0.40</td>
</tr>
<tr>
<td>( P_2 )</td>
<td>1.23</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>( = 0.0849 \sqrt{x + 1} / \text{plot} )</td>
</tr>
</tbody>
</table>

Crop: Apple. 
Site: Govt. Hill Fruit Res. Stn., Chaubattia. 
Object: To study the correlation of the stem black disease with different types of pruning and mulching operations.

4. BASAL CONDITIONS:

2. TREATMENTS:
Main-plot treatments:
3 mulchings: \( M_1 = \text{Pine needles}, M_2 = \text{Oak leaves} \) and \( M_3 = \text{No mulching (control)} \).

Sub-plot treatments:
All combinations of (1) and (2):
(a) 2 prunings: \( P_1 = \text{Pyramid shaped} \) and \( P_2 = \text{Vase shaped} \).
(b) 2 root stocks: \( S_1 = \text{Crab C (deep rooted)} \) and \( S_2 = \text{Malling type II (shallow rooted)} \).

3. DESIGN:
(i) Split-plot. (ii) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) No. (v) Yes.
4. GENERAL:
   (i) N.A. (ii) Under study and stem brown. (iii) Girth measurement, fruit yield and no. of twigs affected with the disease. (iv) (a) 1945—1949. (b) N.A. (v) N.A. (vi) Nil. (vii) The expt. conducted by Myco. (C). x = no. of affected twigs/plot.

5. RESULTS:
   (i) 1.69 $\sqrt{x+\frac{1}{2}}$/plot.
   (ii) (a) 0.7062 $\sqrt{x+\frac{1}{2}}$/plot.
   (b) 0.5220 $\sqrt{x+\frac{1}{2}}$/plot.
   (iii) Main affects of M and S are not significant. Main effect of P is highly significant. Interactions M $\times$ P and M $\times$ S are significant.
   (iv) Av. value of $\sqrt{x+\frac{1}{2}}$/plot.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>Mean</th>
<th>P1</th>
<th>P2</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0</td>
<td>1.90</td>
<td>1.44</td>
<td>1.67</td>
<td>0.94</td>
<td>2.40</td>
</tr>
<tr>
<td>M1</td>
<td>1.36</td>
<td>2.00</td>
<td>1.68</td>
<td>1.62</td>
<td>1.75</td>
</tr>
<tr>
<td>M2</td>
<td>2.00</td>
<td>1.45</td>
<td>1.73</td>
<td>1.56</td>
<td>1.90</td>
</tr>
<tr>
<td>Mean</td>
<td>1.75</td>
<td>1.63</td>
<td>1.69</td>
<td>1.37</td>
<td>2.01</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of M = 0.2883 $\sqrt{x+\frac{1}{2}}$/plot.
2. marginal means of P or S = 0.1740 $\sqrt{x+\frac{1}{2}}$/plot.
3. P or S means at a level of M = 0.3014 $\sqrt{x+\frac{1}{2}}$/plot.
4. M means at a level of P or S = 0.3585 $\sqrt{x+\frac{1}{2}}$/plot.

Crop :- Apple.
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.
Ref :- U.P. 49(202).
Type :- 'D'.

Object :- A field trial on the efficacy of Perenox and Bordeaux against latent infection.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Control.
   2. Bordeaux mixture (2 : 10 : 40)
   3. Perenox 0.125%.
   4. Perenox 0.25%.
   5. Perenox 0.125% + Albolinium 2 at 4 ozs./100 gallons of spray.
   These were used in April 1949 and observations taken during 5 weeks beginning from the first week of September.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) Onec. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Under study. (iii) % of latent infection. (iv) (a) 1948—1949. (b) N.A. (v) N.A. (vi) The plotwise yield data is not available. The results are taken from the report. (vii) The experiment was conducted by Myco (C).

5. RESULTS:
   (i) 29.2 % of latent infection.
   (ii) 7.7470 % of latent infection.
   (iii) Treatment differences are highly significant.
(iv) Av. % of latent infection.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>% of latent infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>41.3</td>
</tr>
<tr>
<td>2.</td>
<td>25.0</td>
</tr>
<tr>
<td>3.</td>
<td>34.0</td>
</tr>
<tr>
<td>4.</td>
<td>23.0</td>
</tr>
<tr>
<td>5.</td>
<td>22.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>3.4646 % of latent infection</td>
</tr>
</tbody>
</table>

Site: - Govt. Hill Fruit Res. Stn., Chaubattia.  Type: - 'D'.

Object: - A field trial on the efficacy of Perenox and Bordeaux against storage rot of Apple fruit.

1. BASAL CONDITIONS:
   (i) N.A.  (ii) (a) and (b) N.A.  (iii) N.A.  (iv) Delicious.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.
   (ix) N.A.  (x) N.A.  (xi) N.A.  (xii) N.A.

2. TREATMENTS:
   1. Control.
   2. Bordeaux mixture (2: 10: 40).
   3. Perenox 0.125%.
   4. Perenox 0.25%.
   5. Perenox 0.125% + Aibolinium 2 at 4 ozs./100 gallons of spray.
   Spraying done in April 1949 at the petal fall stage.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 5.  (iv) 1.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) % of storage rot.  (iv) (a) 1948—1949.  (b) N.A.  (v) N.A.  (vi) The plotwise yield data is N.A. The results have been taken from the reports.  (vii) The experiment was conducted by Myco (C).

5. RESULTS:
   (i) 33 % of storage rot.
   (ii) 8.94 % of storage rot.
   (iii) Treatment differences are significant.
   (iv) Av. % of storage rot.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>% of storage rot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>49</td>
</tr>
<tr>
<td>2.</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>24</td>
</tr>
<tr>
<td>5.</td>
<td>31</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>4.00 % of storage rot</td>
</tr>
</tbody>
</table>

Site: - Govt. Hill Fruit Res. Stn., Chaubattia.  Type: - 'D'.

Object: - A field trial on the efficacy of Perenox and Bordeaux mixture against leaf spot disease.

1. BASAL CONDITIONS:
   (viii) N.A.  (ix) No.  (x) Unirrigated.  (xi) N.A.  (xii) N.A.
2. TREATMENTS:
1. Control.
2. Bordeaux mixture (2:10:40).
3. Perenox 0.125%.
4. Perenox 0.25%.
5. Perenox 0.125% + Albolinium at 4 ozs./100 gallons.
Spraying was done on 3rd April 1948 at petal fall stage, observations taken in August.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) % of leaf spot disease. (iv) (a) 1948—1949. (b) N.A. (v) N.A. (vi) The plot wise yield data is N.A. The results have been taken from the report. (vii) The experiment was conducted by Myco (C).

5. RESULTS:
(i) 1.133 % of leaf spot disease.
(ii) 0.2179 % of leaf spot disease.
(iii) Treatment differences are highly significant.
(iv) Treatment % of leaf spot disease
   Treatment | % of leaf spot disease
   1.         | 2.394
   2.         | 0.636
   3.         | 1.083
   4.         | 0.758
   5.         | 0.794
S.E./mean   = 0.974 % of leaf spot.

Crop :- Apple. Ref :- U.P. 49(200).
Site : - Govt. Hill Fruit Res. Stn., Chaubattia. Type :- 'D'.

Object : - A field trial on the efficacy of Perenox and Bordeaux mixture to control leaf spot disease.

1. BASAL CONDITIONS:
(i) Under orchard. (ii) (a) Clay loam. (b) N.A (iii) By grafting. (iv) Delicious. (v) and (vi) N.A. (vii) No. (viii) N.A. (ix) and (x) N.A. (xi) and (xii) N.A.

2. TREATMENTS:
1. Control.
2. Bordeaux mixture (2:10:40).
3. Perenox 0.125%.
4. Perenox 0.25%.
5. Perenox 0.125% + Albolinium 2 at 4 oz/100 gallons of spray.
Spraying was done at the petal fall stage and observations were taken in August for leaf spot disease.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) % of infection of leaf spot disease. (iv) (a) 1948—1949. (b) N.A. (v) N.A. (vi) The plot wise data is not available. The results are taken from report. (vii) The experiment was conducted by Myco (C).

5. RESULTS:
(i) 1.133 % of leaf spot.
(ii) 0.2179 % of leaf spot.
(iii) Treatment differences are highly significant.
(iv) Treatment % of leaf spot infection
   Treatment | % of leaf spot infection
   1.         | 2.394
   2.         | 0.636
   3.         | 1.083
   4.         | 0.758
   5.         | 0.794
S.E./mean   = 0.974 % of leaf spot.
Crop :- Apple. 
Ref :- U.P. 50(261).
Site :- Govt. Hill Fruit Res. Stn., Chaubattia. Type :- 'D'.

Object :- To control the pre-harvest fruit drop of Apple by means of harmones.

1. BASAL CONDITIONS :

2. TREATMENTS :
   Spraying of :
   1. 10 p.p.m. of 2,4-Dichlorophenoxyacetic acid.
   2. 15 p.p.m. of 2,4-Dichlorophenoxyacetic acid.
   3. 20 p.p.m. of 2,4-Dichlorophenoxyacetic acid.
   4. 10 p.p.m. of L-Naphthaleneacetic acid (commercial chemical used=Planofox).
   5. 15 p.p.m. of L-Naphthaleneacetic acid.
   6. 20 p.p.m. of L-Naphthaleneacetic acid.
   7. Control
   Spraying done on 8.7.1950.

3. DESIGN :
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) 2. (v) Generally one or two rows of trees on either side of the plot. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) Wooly aphis, stem black, stem brown and apple root borer—mechanical methods of control adopted. (iii) Record of no. fruits present on the trees on the day of spraying, no. of fruits shed at weekly intervals and then finally the no. of fruits harvested. Analysis is done of % of fruits dropped. (iv) (a) 1950 to 1953. (b) N.A. (v) N.A. (vi) The data was converted into sin⁻¹√p and then analysed where p=percent of fruits dropped. (vii) The experiment was conducted by Hort (C).

5. RESULTS :
   (i) 24.63 degrees.
   (ii) 6.037 degrees.
   (iii) Treatment differences are significant.
   (iv) Treatment | Mean angle | Av. % of fruit drop (transformed back)
   1. 22.52 | 15.05 
   2. 29.97 | 15.25 
   3. 22.98 | 15.55 
   4. 26.62 | 20.40 
   5. 18.97 | 10.99 
   6. 22.93 | 15.55 
   7. 28.43 | 22.97 
   S.E./mean = 2.464 degrees.

Crop :- Apple. 
Ref :- U.P. 51(250).
Site :- Govt. Hill Fruit Res. Stn., Chaubattia. Type :- 'D'.

Object :- To control the pre-harvest fruit drop of Apple by means of harmones.

1. BASAL CONDITIONS :

2. TREATMENTS :
   1. 10 p.p.m. of 2,4-Dichlorophenoxyacetic acid.
   2. 15 p.p.m. of 2,4-Dichlorophenoxyacetic acid.
   3. 20 p.p.m. of 2,4-Dichlorophenoxyacetic acid.
   4. 10 p.p.m. of L-Naphthaleneacetic acid (commercial chemical used=Planofox)
5. 15 p.p.m. of L—Napthaleneacetic acid.
6. 20 p.p.m. of L—Napthaleneacetic acid.
7. Control.
Spraying done on 20.6.1951.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) 2. (v) Generally 1 or 2 rows of trees on either side of the plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Wooly aphis, stem black, stem brown and apple root-borer—mechanical methods of control adopted. (iii) Fruits dropped and the total no. of fruits including those finally harvested. (iv) (a) 1950—1953. (b) N.A. (v) N.A. (vi) The data has been converted into sin—1√p and then analysed where p=percentage of fruits dropped. (vii) The experiment was conducted by Hort (C).

5. RESULTS:
(i) 29.64 degrees.
(ii) 8.649 degrees.
(iii) Treatment differences are not significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Av. % drop of fruits (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>34.38</td>
<td>32.08</td>
</tr>
<tr>
<td>2.</td>
<td>35.45</td>
<td>33.76</td>
</tr>
<tr>
<td>3.</td>
<td>25.61</td>
<td>19.01</td>
</tr>
<tr>
<td>4.</td>
<td>25.74</td>
<td>19.21</td>
</tr>
<tr>
<td>5.</td>
<td>27.67</td>
<td>21.68</td>
</tr>
<tr>
<td>6.</td>
<td>26.98</td>
<td>20.89</td>
</tr>
<tr>
<td>7.</td>
<td>31.62</td>
<td>27.72</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S.E./mean = 3.5310 degrees.</td>
</tr>
</tbody>
</table>

Crop :- Apple.                                           Ref :- U.P. 52(297).
Site :- Govt. Hill Fruit Res. Stn., Chaubattia.          Type :- 'D'.

Object :—To control the pre-harvest fruit drop of Apple by means of harmones.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. 10 p.p.m. 2,4—Dichlorophenoxyacetic acid.
2. 15 p.p.m. 2,4—Dichlorophenoxyacetic acid.
3. 20 p.p.m. 2,4—Dichlorophenoxyacetic acid.
4. 10 p.p.m. L—Napthaleneacetic acid (commercial chemical used = Planofex).
5. 15 p.p.m. L—Napthaleneacetic acid.
6. 20 p.p.m. L—Napthaleneacetic acid.
7. Control.
Spraying on 2.8.1952.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) 2. (v) Generally 1 or 2 rows of trees on either side of the plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Wooly aphis, stem black, stem brown, apple root borer—mechanical methods adopted for controlling. (iii) % of fruits dropped. (iv) (a) 1950—1953. (b) N.A. (v) N.A. (vi) The data has been converted into sin—1√p and then analysed where p=percent of fruits dropped. (vii) The experiment was conducted by Hort (C).
5. RESULTS:
   (i) 38.32 degrees
   (ii) 6.1257 degrees.
   (iii) Treatment differences are not significant.
   (iv) Treatment differences are not significant.
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angles</th>
<th>Av. % of fruits drop (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>37.94</td>
<td>37.92</td>
</tr>
<tr>
<td>2.</td>
<td>43.03</td>
<td>46.63</td>
</tr>
<tr>
<td>3.</td>
<td>41.38</td>
<td>43.75</td>
</tr>
<tr>
<td>4.</td>
<td>40.03</td>
<td>41.49</td>
</tr>
<tr>
<td>5.</td>
<td>35.85</td>
<td>34.46</td>
</tr>
<tr>
<td>6.</td>
<td>31.94</td>
<td>28.22</td>
</tr>
<tr>
<td>7.</td>
<td>38.08</td>
<td>38.12</td>
</tr>
</tbody>
</table>
   
   S.E./mean = 2.5008 degrees.

Crop : Apple

Site : Govt. Hill Fruit Res. Stn., Chaubattia.

Object : To control the pre-harvest drop of Apple.

1. BASAL CONDITIONS:

2. TREATMENTS:
   Two frequencies of spray viz. one spraying and two sprayings at an interval of 10 days with 3 concentrations as follows :—
   1. 10 p.p.m.
   2. 15 p.p.m.
   3. 20 p.p.m.
   4. 10 p.p.m.

   Treatments 1, 2, 3 given on 24.7.1953 and treatments 4, 5, 6 on 3.8.1953. Name of the chemical sprayed — N.A.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) 1. (v) No. (vi) Yes.

4. GENERAL:
   (i) Good (ii) Wooly Aphis—D.D.T. sprayed. Stem black, stem brown, apple root borers—mechanical control. (iii) No. of fruits dropping at weekly interval and total no. of fruits harvested. (iv) (a) 1948—1949. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by Hort (C).

5. RESULTS:
   (i) 26.71 degrees/tree.
   (ii) 6.31 degrees/tree.
   (iii) Treatment differences are not significant.
   (iv) Mean no. of fruits dropped per tree [converted to sin^-1
   p when p is % drop of fruit].

   Treatment | Mean sin^-1
   1.         | 26.46
   2.         | 25.10
   3.         | 26.28
   4.         | 27.94
   5.         | 25.84
   6.         | 24.00
   7.         | 31.34
   
   S.E./mean = 2.8250 degrees.
Crop :- Apple. Ref :- U.P. 48(44).
Site :- Ranikhet (Almora). Type :- 'D'.

Object :- A trial on the efficacy of stomach poisons against defoliating beetles.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Lead Arsenate-lime mixture (Lead arsenate 1 oz, lime 2 ozs, and water 3 gallons).
   2. Lead nitrate—Potassium bichromate mixture (Lead nitrate 2 ozs, pot. bichro. 1 oz, and water 4 gallons).
   3. Paris green—lime mixture (P. green ½ oz, lime ½ ozs, and water 4 gallons).
   4. Control. Chemicals sprayed in June (a little before the start of monsoon).

3. DESIGN:
   (i), (ii) R.B.D. with six replications. (iii) one tree as a unit of plot. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Under study. (iii) Assessment of the effect was made on the % of defoliation recorded in five degrees of perforation (slight, quarter, ½, ¾th and totally damaged) and converting them in terms of total defoliation. (iv) (a) 1948-49. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The exp't. was conducted by Ento (C). The plotwise yield data is not available. The results have been taken from the report.

5. RESULTS:
   (i) 20.9 % of attacked leaves/plot (in terms of total defoliation).
   (ii) 11.02 % of attacked leaves/plot (in terms of total defoliation).
   (iii) Treatment differences are significant.
   (iv) Treatment Mean % of attacked leaves per plot in terms of complete defoliation
   1. 19.9
   2. 11.2
   3. 27.7
   4. 24.9
   S.E./mean = 4.50 % of attacked leaves/plot.

Crop :- Apple. Ref :- U.P. 49 (104).
Site :- Ranikhet (Almora). Type :- 'D'.

Object :- A trial on the efficacy of stomach poisons against defoliating beetles.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Lead arsenate-lime spray (Lead arsenate one ozs., quick lime 3 ozs. and water 3 gallons).
   2. Lead chromate spray (Lead acetate 2 ozs. and potassium bichromate 1 oz, water 3 gallons).

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) one tree/plot. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Under study. (iii) The estimation of damage was made in October, when the attack of the beetles was completely over. (iv) (a) 1948-1949. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C). The plotwise yield data is not available and the results have been taken from report.
5. RESULTS:
(i) 18.95% of damaged leaves/plot (in terms of complete defoliation).
(ii) 4.85% of damaged leaves/plot (in terms of complete defoliation).
(iii) Treatment differences are highly significant.
(iv) Treatments % of damaged leaves/plot

<table>
<thead>
<tr>
<th></th>
<th>Treatments</th>
<th>% of damaged leaves/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>15.2</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>9.3</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>17.1</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>34.2</td>
</tr>
<tr>
<td></td>
<td>S.E./mean</td>
<td>1.98</td>
</tr>
</tbody>
</table>

Crop: Apple.
Site: Ramgarh (Nainital).
Object: To study the efficacy of stomach poisons against defoliating beetles.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) Improved. (v) (a) Ringing around the tree and pruning during winter. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. D.D.T. emulsion 0.25%.
2. Lead chromate.
3. Control.
Spraying on 18.7.1951.

3. DESIGN:
(i) Surveying at the spot. (ii) 7 replications in R.B.D. (iii) 20'×20' (1 tree per plot). (iv) N.A.

4. GENERAL:
(i) Good. (ii) Under study. (iii) Percentage damage to the leaves of apple trees. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by Ento (C).
2. TREATMENTS:
1. Diesel oil emulsion 4%.
2. D.D.T. emulsion 0.5%.
3. Sandolin A+Euphyton 2%.
4. Lime Sulphur (S. gr. 1.3, 1 in 10).
5. Control.
Date of spraying 8/9.2.1952.

3. DESIGN:
(i) By surveying. (ii) 5 replications in R.B.D. (iii) (a) and (b) 20' × 20' (1 apple tree/plot). (iv) N.A.

4. GENERAL:
(i) Pair. (ii) San Jose scale—as per treatments. (iii) Counting dead and live scales-two months after the spray. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C).

5. RESULTS:
(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>G.M.</th>
<th>S.E./mean</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>62.71</td>
<td>60.45</td>
<td>1.8584</td>
<td>Highly significant</td>
</tr>
<tr>
<td>2.</td>
<td>75.97</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>73.41</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>64.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>26.08</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Apple.  
Site :- Ramgarh (Nainital).
Ref :- U.P. 52(104).  
Type :- 'D'.

Object :-To study the effect of stomach poisons against defoliating beetles during rainy season.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) Leaf mould and cowdung. (iv) Improved. (v) (a) Pruning and ringing round the tree. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Lead arsenate 4 lbs./100 gallons.
2. Calcium arsenate 2 lbs./100 gallons.
3. Lead chromate 6 lbs./100 gallons.
4. Paris green 2 lbs./100 gallons.
5. D.D.T. emulsion 0.5%.
6. Control.
Spraying on 2, 3.7.1953.

3. DESIGN:
(i) By survey. (ii) 5 replications in R.B.D. (iii) (a) and (b) 20' × 20' (1 apple tree/plot). (iv) N.A.

4. GENERAL:
(i) Good. (ii) Defoliating beetles—as per treatments. (iii) Percentage leaf area eaten away by the beetles. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C).

5. RESULTS:
(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>17.47</td>
<td>9.42</td>
</tr>
<tr>
<td>2.</td>
<td>20.24</td>
<td>12.33</td>
</tr>
<tr>
<td>3.</td>
<td>19.93</td>
<td>11.33</td>
</tr>
<tr>
<td>4.</td>
<td>19.04</td>
<td>11.03</td>
</tr>
<tr>
<td>5.</td>
<td>12.50</td>
<td>5.14</td>
</tr>
<tr>
<td>6.</td>
<td>31.74</td>
<td>27.90</td>
</tr>
<tr>
<td>G.M.</td>
<td>20.15</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.7304</td>
<td></td>
</tr>
</tbody>
</table>
Significance Highly significant
Crop :• Apple.  
Site :• Jeolikote (Nainital).

Ref :• U.P. 53(70).
Type :• ‘D’.

Object :—To study different control measures of the chrysomelid beetle.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. D.D.T. emulsion 0.25%.
2. Parathion emulsion 0.05%.
3. Lead Arsenate 2 lbs. in 100 gallons of water.
4. Lead Chromate 4 lbs. in 100 gallons of water.
5. Lime Sulphur (sp. gr. 1.3) 1 in 30 parts of water.
7. Control.
Spraying on 24.2.1953.

3. DESIGN:
(i) and (ii) 4 replications in R.B.D. (iii) (a) and (b) 10’x10’. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Percentage area of leaves damaged by grubs and adults. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C).

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6.63</td>
<td>1.82</td>
</tr>
<tr>
<td>2.</td>
<td>8.15</td>
<td>2.49</td>
</tr>
<tr>
<td>3.</td>
<td>8.37</td>
<td>2.87</td>
</tr>
<tr>
<td>4.</td>
<td>8.94</td>
<td>2.90</td>
</tr>
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<td>5.</td>
<td>9.34</td>
<td>3.10</td>
</tr>
<tr>
<td>6.</td>
<td>10.07</td>
<td>3.53</td>
</tr>
<tr>
<td>7.</td>
<td>16.23</td>
<td>8.23</td>
</tr>
<tr>
<td>G.M.</td>
<td></td>
<td>9.75</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>0.5010</td>
</tr>
<tr>
<td>Significance</td>
<td></td>
<td>Highly significant</td>
</tr>
</tbody>
</table>

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Crop :• Citrus (Mosambi).  
Site :• Castle Grant Orchard, B.R. College, Agra.  
Ref :• U.P. 51(290).  
Type :• ‘M’.

Object :—To study the effect of Nitrogen obtained from different sources on the performance of Mosambi.

1. BASAL CONDITIONS:
(i) In young age upto 6 years the plants receive 20 seers of compost/tree in every year with frequent addition of fish manure or bone meal every third year till the age of 9 years. Manuring only then in the last two years by 40 seers of compost per tree annually. Irrigation and weeding according to needs. (ii) (a) Locam. (b) Refer soil analysis, B.R. College, Agra. (iii) Budded on khatta stock. (iv) N.A. (v) Planted in 1934 at 29’x20’ in pits 3’x3’ filled with 4 mds. of F.Y.M. and soil mixed together. (vi) N.A. (vii) Nil. (viii) Two weedings (ix) Nil. (x) Irrigated. (xi) N.A. (xii) N.A.

2. TREATMENTS:
All combinations of (1) and (2)+a control.
(1) Forms of N : M1=compost and M2=A/S.
(2) 3 levels of N : N1=1, N2=2, N3=3 lb./tree.
A/S as uniform texture mixed with equal amount of dry powdered soil broadcast evenly in the assigned basin and thoroughly incorporated in the soil by a light hoeding followed by light irrigation, same method for compost (not mixed with soil). Applied on 9.1.1951.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) 1. (b) N.A. (v) 20’x20’. (vi) Yes.
4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Girth measurement, length of shoot, no. of leaves, size of leaves, fruit size and yield.  (iv) (a) No.  (b) N.A.  (v) N.A.  (vi) N.A.  (vii) The experiment was conducted by B.R.C.  No plot wise yield data were available in the thesis.

5. RESULTS:
   (i) 19.68 lb./tree.
   (ii) 8.34 lb./tree.
   (iii) Effect of N and interaction M x N are significant, effect of M is not significant.
   (iv) Av. yield of mosambi in lb./tree.

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1</td>
<td>12.58</td>
<td>11.47</td>
<td>12.03</td>
</tr>
<tr>
<td>N2</td>
<td>31.47</td>
<td>12.13</td>
<td>21.80</td>
</tr>
<tr>
<td>N3</td>
<td>23.50</td>
<td>33.22</td>
<td>28.30</td>
</tr>
</tbody>
</table>

   Mean = 13.42

S.E. of difference of two
1. marginal means of N = 4.81 lb./tree.
2. marginal means of M = 3.93 lb./tree.
3. means of body of M x N table = 6.81 lb./tree.
S.E. for the control mean = 4.81 lb./tree.

Crop :- Citrus (Grape fruit)  
Ref :- U. P. 52 (71).
Site :- Govt. Nursery, Bageswar.
Type :- 'D'.

Object :- To study the effect of various fungicides against fruit spot disease of Grape fruit variety.

1. BASAL CONDITIONS:
   (i) Nil.  (ii) (a) Sandy loam. (b) N. A.  (iii) N. A.  (iv) Mixed.  (v) N. A.  (vi) More than 8 years  
   (vii) Nil.  (viii) Nil.  (ix) Nil.  (x) Irrigated.  (xi) N. A.  (xii) N. A.

2. TREATMENTS:
   1. Perenox 0.3%.
   2. Lime sulphur 1 : 20, sp. gr. 1.3.
   3. Thiovit 0.3%.
   4. Sandolin.
   5. Control.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) N. A.  (iii) 6.  (iv) One.  (v) Nil.  (vi) Yes.

4. GENERAL:
   (i) N. A.  (ii) Under study.  (iii) Percentage of infection.  (iv) (a) No.  (b) N. A.  (v) N. A.  (vi) N. A.  (vii) The experiment was conducted by Myco (C).

5. RESULTS:
   (i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>31.00</td>
<td>26.76</td>
</tr>
<tr>
<td>2.</td>
<td>35.44</td>
<td>33.77</td>
</tr>
<tr>
<td>3.</td>
<td>25.45</td>
<td>18.78</td>
</tr>
<tr>
<td>4.</td>
<td>28.60</td>
<td>23.18</td>
</tr>
<tr>
<td>5.</td>
<td>34.36</td>
<td>32.03</td>
</tr>
<tr>
<td>G. M.</td>
<td>30.97</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.5068</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>N.S.</td>
<td></td>
</tr>
</tbody>
</table>
Object: To study the effect of various fungicides against leaf scab disease of citrus.

1. BASAL CONDITIONS:
   (i) Nil.  (ii) (a) Sandy loam.  (b) N.A.  (iii) By seed.  (iv) Lemon local.  (v) N.A.  (vi) 2 years.  (vii) Nil.  (viii) Nil.  (ix) No.  (x) Irrigated.  (xi) N.A.  (xii) N.A.

2. TREATMENTS:
   1. Lime sulphur (1 : 20. sp. gravity 1.13)
   2. Thiovit 0.25%.
   3. Perenox 0.25%.
   4. Sandolin 0.25%.
   5. Ultra sulphur 0.25%.
   6. Control.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) One row of seedlings (3' high). 30 ft. in lengths with adequate buffer rows. (v) Two rows. (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) Percentage of infection on 5 and 6 December 1952. (iv) (a) No. (b) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Myco (C).

5. RESULTS:
   (i) to (iv)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean percentage.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>36.83</td>
<td>36.07</td>
</tr>
<tr>
<td>2.</td>
<td>45.69</td>
<td>51.19</td>
</tr>
<tr>
<td>3.</td>
<td>49.81</td>
<td>58.27</td>
</tr>
<tr>
<td>4.</td>
<td>42.12</td>
<td>45.04</td>
</tr>
<tr>
<td>5.</td>
<td>46.26</td>
<td>52.18</td>
</tr>
<tr>
<td>6.</td>
<td>55.50</td>
<td>67.81</td>
</tr>
<tr>
<td>G. M.</td>
<td>46.04</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.2226</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
</tr>
</tbody>
</table>

---

Crop: Citrus (Grape Fruit).
Ref: U.P. 53(189).
Object: To study the control measures of fruit spot disease of Citrus (grape fruit).

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Lime Sulphur 1 : 30 (Sp. gravity 1.33)
   2. Perenox 0.3%.
   3. Coppesan 0.3%.
   4. Thiovit 0.3%.
   5. Sandolin 0.3%
   6. Dithane Z.78 0.3%
   7. Ultra Sulphur 0.3%
   8. Control.

3. DESIGN:
   (i) R.B D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) 8. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) Percentage of infection on January 13, 1954. (iv) (a) 1953—54. (b) N.A.  (v) N.A  (vi) Nil.  (vii) The experiment was conducted by Myco (C) at Bageswar (Almora).
5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>43.35</td>
<td>47.14</td>
</tr>
<tr>
<td>2.</td>
<td>37.54</td>
<td>37.26</td>
</tr>
<tr>
<td>3.</td>
<td>42.60</td>
<td>45.85</td>
</tr>
<tr>
<td>4.</td>
<td>40.35</td>
<td>41.99</td>
</tr>
<tr>
<td>5.</td>
<td>42.31</td>
<td>45.36</td>
</tr>
<tr>
<td>6.</td>
<td>45.58</td>
<td>51.00</td>
</tr>
<tr>
<td>7.</td>
<td>46.54</td>
<td>52.66</td>
</tr>
<tr>
<td>8.</td>
<td>51.19</td>
<td>60.60</td>
</tr>
<tr>
<td>G.M.</td>
<td>43.68</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.4650</td>
<td></td>
</tr>
</tbody>
</table>

Significance: Highly significant

Crop: Citrus (Lemon Seedlings).
Site: Govt. Hort. Farm, Jeolikote.

Ref: U.P. 53(187)
Type: ‘D’.

Object: To study the efficacy of different insecticides against Leaf scab disease.

1. BASAL CONDITIONS:

(i) Nursery plots. (ii) (a) Sandy loam. (b) N.A. (iii) By seed. (iv) Lemon (Local). (v) 4 rows of 14' each (16-18 plants/row) at a distance 1' apart. (vi) 2 years old. (2.5'—3.5' in height). (vii) N.A. (viii) N.A. (ix) Nil. (x) Irrigated. (xi) N.A. (xii) N.A.

2. TREATMENTS:

1. Lime Sulphur 1 : 30 (Sp. gravity 1.33).
2. Perenox 0.25%.
3. Coppesan 0.25%.
4. Thiovit 0.25%.
5. Dithane Z.78 0.25%.
6. Ultra Sulphur 0.25%.
7. Sandolin 0.25%.
8. Control.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 5. (iv) 64-72 plants/plot. (v) 3' between plots. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study. (iii) Percentage infection/plot on 5.12.1953. (iv) (a) 1953—contd. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C) at Bageswar (Almora).

5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angles (in degrees)</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>33.42</td>
<td>30.53</td>
</tr>
<tr>
<td>2.</td>
<td>47.76</td>
<td>54.76</td>
</tr>
<tr>
<td>3.</td>
<td>36.48</td>
<td>33.50</td>
</tr>
<tr>
<td>4.</td>
<td>46.15</td>
<td>51.98</td>
</tr>
<tr>
<td>5.</td>
<td>45.35</td>
<td>50.60</td>
</tr>
<tr>
<td>6.</td>
<td>43.96</td>
<td>48.21</td>
</tr>
<tr>
<td>7.</td>
<td>41.55</td>
<td>44.06</td>
</tr>
<tr>
<td>8.</td>
<td>57.33</td>
<td>70.60</td>
</tr>
<tr>
<td>G.M.</td>
<td>44.00</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.0901</td>
<td></td>
</tr>
</tbody>
</table>

Significance: Highly significant.
Crop: Citrus (Malta).
Site: Govt. Hort. Farm, Jeolikote.

Object: To study the effectiveness of ovicides on eggs of Citrus white fly.

1. BASAL CONDITIONS:
   (i) Experiments were conducted on *Malta* to which G.M. (soyabean) and N were given. (ii) (a) Gravelly soil. (b) N.A. (iii) By budding. (iv) *Malta*. (v) N.A. (vi) One year old. (vii) Pine leaf compost. (viii) Hoeing. (ix) Wheat during winter. (x) Irrigated. (xi) 69.49°. (xii) N.A.

2. TREATMENTS:
   1. Lime Sulphur (sp. gr. 1.3) 5%.
   2. D.D.T. emulsion 0.25%.
   3. Control.
   Sprayed on 31.7.1953 at 2 gallons/tree.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 7. (iv) 1. (v) No. (vi) Yes.

4. GENERAL:
   (i) Medium. (ii) Under study. (iii) No. of living nymphs and no. of eggs from which they hatched. (iv) (a) 1953—contd. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C). The data has been converted into $\sin^{-1} y/p$ and then analysed where $p$ is % no. eggs to no. of hatched nymphs.

5. RESULTS:
   (i) to (iv)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean emergence of nymphs per tree in $\sin^{-1} y/p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14.01</td>
</tr>
<tr>
<td>2.</td>
<td>21.90</td>
</tr>
<tr>
<td>3.</td>
<td>56.83</td>
</tr>
<tr>
<td>G.M.</td>
<td>30.92</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.50</td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
</tr>
</tbody>
</table>

Crop: Citrus (Malta).
Site: Govt. Hort. Farm, Jeolikote.

Object: To study the effectiveness of ovicides on eggs of Citrus white fly.

1. BASAL CONDITIONS:
   (i) Experiment were conducted on *Malta* to which G.M. (soyabean) and N were given. (ii) (a) Gravelly soil. (b) N.A. (iii) By budding. (iv) *Malta*. (v) N.A. (vi) One year old. (vii) Pine leaf compost. (viii) Hoeing. (ix) Wheat during winter. (x) Irrigated. (xi) 69.49°. (xii) November.

2. TREATMENTS:
   1. D.D.T. emulsion 0.25%.
   2. B.H.C. wettable powder 0.01%.
   3. Toxaphene emulsion 0.125%.
   4. Chlordane emulsion 0.125%.
   5. Parathion emulsion 0.05%.
   6. Lime Sulphur 5%.
   7. Fresh oil resin soap 2.5%.
   8. Kerosene oil emulsion 4%.
   9. Control (no treatment).
   Sprayed on 30.3.1953 at 1½ gallons per tree.

3. DESIGN:
   (i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 5. (iv) 1. (v) No. (vi) Yes.

4. GENERAL:
   (i) Medium. (ii) Under study. (iii) The no. of living nymphs and no. of eggs from which they hatched on 30.4.1953. (iv) (a) 1953—contd. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C).
5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean emergence of nymphs per tree in $\sin^{-1}\sqrt{p}$</th>
<th>Treatment</th>
<th>Mean emergence of nymphs per tree in $\sin^{-1}\sqrt{p}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.70</td>
<td>6.</td>
<td>17.04</td>
</tr>
<tr>
<td>2.</td>
<td>21.90</td>
<td>7.</td>
<td>37.24</td>
</tr>
<tr>
<td>3.</td>
<td>20.30</td>
<td>8.</td>
<td>36.52</td>
</tr>
<tr>
<td>4.</td>
<td>22.44</td>
<td>9.</td>
<td>40.24</td>
</tr>
<tr>
<td>5.</td>
<td>19.46</td>
<td>G.M.</td>
<td>25.76</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.78</td>
<td>Significance</td>
<td>Highly significant</td>
</tr>
</tbody>
</table>

Crop: - Citrus.
Site: - Govt. Hort. Farm, Jeolikote.
Object: - To study the efficacy of different insecticides against Citrus leaf miner.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. D.D.T. emulsion 0.5 % (1 : 50)
2. D.D.T. emulsion 0.25% (1 : 100)
3. Fish oil rosin soap 2 lbs in 4 gallons.
4. Soft soap nicotine sulphate (soap 4.2, nicotine 102 and water 2.5 gallons.)
5. Parathion 0.1% (1 : 200).
6. Parathion 0.5% (1 : 400).
7. Control.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Stunted. (ii) Under study. (iii) % mortality. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C).

5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>55.31</td>
<td>67.43</td>
</tr>
<tr>
<td>2.</td>
<td>31.63</td>
<td>27.72</td>
</tr>
<tr>
<td>3.</td>
<td>28.22</td>
<td>22.64</td>
</tr>
<tr>
<td>4.</td>
<td>27.84</td>
<td>22.09</td>
</tr>
<tr>
<td>5.</td>
<td>41.39</td>
<td>43.77</td>
</tr>
<tr>
<td>6.</td>
<td>41.93</td>
<td>44.70</td>
</tr>
<tr>
<td>7.</td>
<td>27.08</td>
<td>21.02</td>
</tr>
<tr>
<td>G.M.</td>
<td>36.20</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.4658</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
</tr>
</tbody>
</table>

Crop: - Citrus.
Object: - To study the effect of insecticides on immature Citrus leaf miner.

1. BASAL CONDITIONS:
(i) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A. (xi) N.A. (xii) N.A.
2. TREATMENTS:
1. Spraying with 0.25 D.D.T. emulsion.
2. Spraying with 0.60 D.D.T. emulsion.
3. Nicotine in 2% kerosene oil was sprayed.
4. Nicotine in 3% kerosene oil was sprayed.
5. Spraying with nicotine sulphate soap emulsion.
6. Control.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) Population and mortality of larvae and pupae. (iv) (a) and (b) N.A. (v) Nil. (vi) Nil. (vii) The experiment was conducted by Ento (K).

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>19.03</td>
<td>10.99</td>
</tr>
<tr>
<td>2.</td>
<td>16.97</td>
<td>8.91</td>
</tr>
<tr>
<td>3.</td>
<td>15.49</td>
<td>7.53</td>
</tr>
<tr>
<td>4.</td>
<td>14.65</td>
<td>6.84</td>
</tr>
<tr>
<td>5.</td>
<td>14.11</td>
<td>6.38</td>
</tr>
<tr>
<td>6.</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>G.M.</td>
<td>13.38</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.4931</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td></td>
<td>Highly significant.</td>
</tr>
</tbody>
</table>

Crop :- Citrus. Ref :- U.P. 52(308).
Site :- National Bot. Gardens, Lucknow. Type :- 'D'.

Object :- To study the effect of insecticides on immature Citrus leaf miner.

1. BASAL CONDITIONS:
(i) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A. (xi) N.A. (xii) N.A.

2. TREATMENTS:
1. Parathion spray 0.025%.
2. Parathion spray 0.05%.
3. B.H.C. water suspension spray 0.25%.
4. B.H.C. (Hexyclan M.O.) emulsion spray 0.25%.
5. D.D.T. emulsion spray 0.25%.
6. Lead Arsenate spray (Lead Arsenate powder 1 part, lime 1 part, Gur 3 parts water 320 parts).
7. Control (No treatment).

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) 8 plants in one set, each set having two plots. (v) No. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) Population and mortality of larvae and pupae. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The expt. was conducted by Ento (K).
5. RESULTS:

(i) to (iv).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of $\sqrt{x} + 0.5$</th>
<th>Transformed back mortality counts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.4184</td>
<td>1.51</td>
</tr>
<tr>
<td>2.</td>
<td>1.4753</td>
<td>1.68</td>
</tr>
<tr>
<td>3.</td>
<td>1.0550</td>
<td>0.61</td>
</tr>
<tr>
<td>4.</td>
<td>1.2735</td>
<td>1.12</td>
</tr>
<tr>
<td>5.</td>
<td>1.5380</td>
<td>1.87</td>
</tr>
<tr>
<td>6.</td>
<td>1.6104</td>
<td>2.09</td>
</tr>
<tr>
<td>7.</td>
<td>0.7071</td>
<td>0.00</td>
</tr>
</tbody>
</table>

G.M. 1.2971
S.E./mean 0.2026
Significance N.S.

Crop: Citrus.

Object: To study the effect of insecticides on the mortality of immature Citrus leaf miner.

1. BASAL CONDITIONS:
   (i) N.A.  (ii) (a) and (b) N.A.  (iii) N.A.  (iv) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.
   (ix) N.A.  (x) N.A.  (xi) N.A.  (xii) N.A.

2. TREATMENTS:
   1. Spraying with 0.05% parathion emulsion.
   2. Spraying with 0.1% parathion emulsion.
   3. Spraying with Nicotine sulphate (4%) + 50% D.D.T soap + water (1 : 4 : 800 by weight) spray.
   4. Spraying with 0.5% B.H.C suspension.
   5. Control.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 5.  (iv) one.  (v) No.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) Population and mortality of larvae and pupea.  (iv) (a) No.  (b) N.A.
   (v) N.A.  (vi) N.A.  (vii) The data has been converted into $\sin^{-1}\sqrt{p}$ and then analysed. Transformed back mean percentages are given after applying bias correction. The expr. was conducte d by Ento (K.)

5. RESULTS:

(i) to (iv).

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Mean angle</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>64.20</td>
<td>80.75</td>
</tr>
<tr>
<td>2.</td>
<td>72.05</td>
<td>90.10</td>
</tr>
<tr>
<td>3.</td>
<td>57.24</td>
<td>70.58</td>
</tr>
<tr>
<td>4.</td>
<td>38.82</td>
<td>39.41</td>
</tr>
<tr>
<td>5.</td>
<td>0.00</td>
<td>0.50</td>
</tr>
</tbody>
</table>

G.M. 46.46
S.E./mean 2.2006
Significance Highly significant

Crop : Citrus.

Object : To study the effect of insecticides on immature Citrus leaf miner.

1. BASAL CONDITIONS:
   (i) N.A.  (ii) (a) and (b) N.A.  (iii) N.A.  (iv) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix)
   N.A.  (x) N.A.  (xi) N.A.  (xii) N.A.
2. TREATMENTS:
1. Spraying with 0.25% D.D.T. emulsion.
2. Spraying with 0.5% D.D.T. emulsion.
4. Spraying with Nicotine sulphate and soap emulsion.
5. Control.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) Population and mortality of larvae and pupae. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento(K).

5. RESULTS:
(i) to (iv) Treatment | Mean value of concomitant variate | Mean value of $\sqrt{x+0.5}$
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.80</td>
<td>1.2304</td>
</tr>
<tr>
<td>2.</td>
<td>1.20</td>
<td>1.1602</td>
</tr>
<tr>
<td>3.</td>
<td>1.60</td>
<td>1.3718</td>
</tr>
<tr>
<td>4.</td>
<td>1.40</td>
<td>1.0177</td>
</tr>
<tr>
<td>5.</td>
<td>3.20</td>
<td>0.7071</td>
</tr>
<tr>
<td>G.M.</td>
<td>1.84</td>
<td>1.1014</td>
</tr>
<tr>
<td>Error mean square</td>
<td>2.8650</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1095</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
</tr>
</tbody>
</table>


1. BASAL CONDITIONS:
(i) N.A. (ii) (a) and (b) N.A. (iii) N.A. (iv) N.A. (v) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A. (xi) N.A. (xii) N.A.

2. TREATMENTS:
1. Spraying with 0.25% D.D.T. emulsion.
2. Spraying with 0.5% D.D.T. emulsion.
3. Spraying with 0.25% Hexyclan M.O. spray.
4. Spraying with Nicotine sulphate, soap and Guesrol 550.
5. Spraying with 0.05% Ekatox.
6. Spraying with 0.1% Ekatox.
7. Control (No treatment).

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) Population and mortality of larvae and pupae. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (K).

5. RESULTS:
(i) to (iv) Treatment | Mean value of $\sqrt{x+0.5}$ | Transformed back mortality counts
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.0550</td>
<td>0.61</td>
</tr>
<tr>
<td>2.</td>
<td>1.6995</td>
<td>2.38</td>
</tr>
<tr>
<td>3.</td>
<td>0.9659</td>
<td>0.43</td>
</tr>
<tr>
<td>4.</td>
<td>1.3862</td>
<td>1.42</td>
</tr>
<tr>
<td>5.</td>
<td>1.4183</td>
<td>1.51</td>
</tr>
<tr>
<td>6.</td>
<td>1.0550</td>
<td>0.61</td>
</tr>
<tr>
<td>7.</td>
<td>0.7071</td>
<td>0.00</td>
</tr>
<tr>
<td>G.M.</td>
<td>1.1839</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1552</td>
<td>N.A.</td>
</tr>
</tbody>
</table>
Crop: Citrus. 
Site: Jeolikote (Nainital).

Object: To find out insecticidal control measures against Citrus green bug.

1. BASAL CONDITIONS:
   - (i) (a) Nil. (b) Citrus. (c) N.A. (ii) Clay. (iii) Nil. (iv) Improved. (v) (a) Ringing around the base of tree. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   - 1. D.D.T. emulsion 0.5%.
   - 2. D.D.T. emulsion 0.25%.
   - 3. D.D.T. guesrol 550 0.25%.
   - 4. D.D.T. guesrol 550 0.25%.

3. DESIGN:
   - (i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 20’x20’ (1 tree/plot). (iv) N.A.

4. GENERAL:
   - (i) Good. (ii) Control measures as per treatments. (iii) % of fruit fall. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (v) Nil. (vi) Nil. (vii) The experiment was conducted by Ento (c).

5. RESULTS:
   - (i) 34.69 degree.
   - (ii) 2.9669 degree.
   - (iii) Treatment differences are highly significant.
   - (iv) Treatments Mean angle (in degree) corresponding to % of fall of fruits after second spraying. 
     |   |         |
     |---|--------|
     | 1 | 22.04  |
     | 2 | 28.58  |
     | 3 | 25.78  |
     | 4 | 38.32  |
     | 5 | 42.98  |
     | 6 | 50.45  |
     | S.E./mean | 1.4834 |
     | Transformed back mean percentage after applying bias correction. |
     | 1 | 14.44  |
     | 2 | 23.16  |
     | 3 | 19.22  |
     | 4 | 38.57  |
     | 5 | 46.52  |
     | 6 | 59.36  |

Crop: Citrus. 
Site: Jeolikote (Nainital).

Object: To find out insecticidal control measures against Citrus leaf miner.

1. BASAL CONDITIONS:
   - (i) (a) N.A. (b) Citrus. (c) N.A. (ii) Clay. (iii) N.A. (iv) Improved. (v) (a) Ringing around the tree. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   - 1. D.D.T. emulsion 0.5%.
   - 2. D.D.T. emulsion 0.25%.
   - 3. Guesrol 550 0.5%.
   - 4. Guesrol 550 0.25%.
   - 5. Fish oil rosin soap.
   - 6. Control Spraying on 5 9.51.

3. DESIGN:
   - (i) and (ii) R.B.D. with 4 Replications. (iii) (a) and (b) 20’x20’ (one tree/plot). (iv) N.A.

4. GENERAL:
   - (i) Stunted. (ii) Control measures as per treatments. (iii) % mortality. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C).
5. RESULTS:

(i) 54.41 degree.
(ii) 2.5502 degree.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean angle (in degrees) corresponding to % mortality of citrus leaf miner.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean % after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>64.10</td>
<td>80.61</td>
</tr>
<tr>
<td>2.</td>
<td>57.92</td>
<td>71.67</td>
</tr>
<tr>
<td>3.</td>
<td>65.16</td>
<td>82.03</td>
</tr>
<tr>
<td>4.</td>
<td>56.90</td>
<td>69.99</td>
</tr>
<tr>
<td>5.</td>
<td>54.91</td>
<td>66.78</td>
</tr>
<tr>
<td>6.</td>
<td>27.39</td>
<td>21.45</td>
</tr>
</tbody>
</table>

S.E./mean = 1.2751

Crop: Citrus.
Site: Jeolikote (Nainital).
Object: To find out the insecticidal control measures against Citrus green bug.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Citrus. (c) N.A. (ii) Clay. (iii) Nil. (iv) Improved. (v) (a) Ringing around the base of tree. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. D.D.T. emulsion 0.5%.
   2. D.D.T. emulsion 0.25%.
   3. D.D.T. 550 0.5%.
   4. D.D.T. 550 0.25%.
   5. Fish oil rosin soap 1 lb. in 4 gallons of water.
   6. Control.
   Spraying on 28.81.95.

3. DESIGN:
   (i) and (ii) R.B.D. with 2 replications. (iii) (a) and (b) 20' x 20' (1 tree/plot.) (iv) N.A.

4. GENERAL:
   (i) Good. (ii) Control measures as per treatments. (iii) % of fruit fall. (iv) (a) No. (b) and (c) No. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C) on cultivators' fields.

5. RESULTS:

(i) 36.40 degree.
(ii) 5.5453 degree.
(iii) Treatment differences are significant.
(iv) Treatment Mean angle (in degrees) corresponding to % fall of fruit

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean % after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>24.64</td>
<td>17.72</td>
</tr>
<tr>
<td>2.</td>
<td>31.17</td>
<td>27.02</td>
</tr>
<tr>
<td>3.</td>
<td>28.06</td>
<td>22.41</td>
</tr>
<tr>
<td>4.</td>
<td>39.92</td>
<td>41.28</td>
</tr>
<tr>
<td>5.</td>
<td>45.40</td>
<td>50.69</td>
</tr>
<tr>
<td>6.</td>
<td>49.22</td>
<td>57.28</td>
</tr>
</tbody>
</table>

S.E./mean = 3.921
Crop :- Citrus.  
Site :- Jeolikote (Nainital).

Object :- To find out the effect of different ovicides sprayed over the eggs of Citrus white fly.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Citrus.  (c) N.A.  (ii) Clay.  (iii) Compost at 1 md./pit.  (iv) Improved.  (v) (a) Ringing around the base of stem.  (b) to (e) N.A.  (vi) Perennial crop.  (vii) Unirrigated.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. Kerosene oil emulsion 4%.
   2. D.D.T. 0.25%.
   3. Fish oil rosin soap 1 lb. in 4 gallons of water.
   4. Lime sulphur 1 in 20 (sp. gr. 1.3).
   5. Control.
   Date of spray 25.7.1952.

3. DESIGN:
   (i) and (ii) R.B.D with 5 replications.  (iii) (a) and (b) 20' × 20' (1 tree/plot).  (iv) N.A.

4. GENERAL:
   (i) Good.  (ii) Control measures as per treatments.  (iii) Population of eggs before and after treatments.  (iv) (a) No. (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Ento (C) on cultivators' fields.

5. RESULTS:
   (i) 23.26 degree.
   (ii) 3.435 degree.
   (iii) Treatment differences are highly significant.
   (iv) Treatment Mean angle (in degree) corresponding to % nymphs
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>after applying bias correction</td>
</tr>
<tr>
<td>1.</td>
<td>20.15</td>
<td>12.25</td>
</tr>
<tr>
<td>2.</td>
<td>11.23</td>
<td>4.25</td>
</tr>
<tr>
<td>3.</td>
<td>25.78</td>
<td>19.22</td>
</tr>
<tr>
<td>4.</td>
<td>8.62</td>
<td>2.73</td>
</tr>
<tr>
<td>5.</td>
<td>50.50</td>
<td>59.44</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>1.536</td>
</tr>
</tbody>
</table>

Crop :- Citrus.  
Site :- Majhkoli (Nainital).

Object :- To find out suitable insecticides for the pupae of Citrus white fly.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. D.D.T. 0.5%.
   2. D.D.T. 0.25%.
   3. Parathion (1 c.c. in 800 c.c. of water).
   4. Fish oil rosin soap 1 lb. in 4 gallons of water.
   5. Sandolin 0.5% +Ephyton 2%.
   7. Control.
   Date of experiment 17 and 18.12.1952.

3. DESIGN:
   (i) and (ii) R.B.D with 5 replications.  (iii) (a) and (b) 20' × 20' (1 tree/plot).  (iv) N.A.
4. GENERAL:
(i) Stunted. (ii) Control measures as per treatments. (iii) Number of eggs and the number of nymphs.
(iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C) on cultivators' fields.

5. RESULTS:
(i) 53.88 degree.
(ii) 2.961 degrees.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean angle (in degree) corresponding to % kill

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degree)</th>
<th>Transformed back mean percentage after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>72.88</td>
<td>90.93</td>
</tr>
<tr>
<td>2.</td>
<td>65.93</td>
<td>83.03</td>
</tr>
<tr>
<td>3.</td>
<td>60.79</td>
<td>75.93</td>
</tr>
<tr>
<td>4.</td>
<td>45.38</td>
<td>50.66</td>
</tr>
<tr>
<td>5.</td>
<td>63.23</td>
<td>79.41</td>
</tr>
<tr>
<td>6.</td>
<td>49.20</td>
<td>57.23</td>
</tr>
<tr>
<td>7.</td>
<td>19.77</td>
<td>11.83</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>1.324</td>
</tr>
</tbody>
</table>

Crop :-Citrus.
Site :-Jeolikote (Nainital).

Object :-To find out the effect of different ovicides sprayed over the eggs of Citrus white fly.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Citrus. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) Improved. (v) (a) Ringing round the tree. (b) to (e) N.A. (vi) Perennial crop. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Gaevenalin 5 c.c. in one gallon of water.
2. Lime sulphur 1 in 20.
3. D.D.T. 0.25%.
4. Fish oil rosin soap 1 lb. in 4 gallons of water.
5. Kerosene oil emulsion 4% : stock sol. 33.3%.
6. Control.
Date of spray 15.4.1952.

3. DESIGN;
(i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) 20'x20' (1 tree/plot). (iv) N.A.

4. GENERAL:
(i) Good. (ii) Control measures as per treatments. (iii) Number of eggs and number of nymphs. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C) on cultivators' fields.

5. RESULTS:
(i) 31.97 degree.
(ii) 4.024 degree.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean angle (in degree) corresponding % hatched nymphs transformed back mean % after applying bias correction

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degree)</th>
<th>Transformed back mean % after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>41.90</td>
<td>44.65</td>
</tr>
<tr>
<td>2.</td>
<td>5.60</td>
<td>1.44</td>
</tr>
<tr>
<td>3.</td>
<td>10.50</td>
<td>3.79</td>
</tr>
<tr>
<td>4.</td>
<td>45.84</td>
<td>51.46</td>
</tr>
<tr>
<td>5.</td>
<td>42.52</td>
<td>45.73</td>
</tr>
<tr>
<td>6.</td>
<td>65.48</td>
<td>82.45</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>1.799</td>
</tr>
</tbody>
</table>
Crop : Citrus.  
Site : Bhimtal (Nainital).  

Object :- To find the effect of nymphicides against the nymphs of Citrus white fly.

1. BASAL CONDITIONS :
(i) (a) to (c) N.A.  (ii) N.A.  (iii) N.A.  (iv) N.A.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS :
1. D.D.T. emulsion 0.25%.
2. Sandolin 0.5%.
3. Sandolin+Emphyton 2%.
4. D.T. Suspension 0.5%.
5. Control.

Date of spraying 30.8.1953 sprayed 2 gallons per tree with the help of sprayer.

3. DESIGN :
(i) to (ii) R.B.D. with 4 replications.  (iii) (a) and (b) 2 citrus trees,  (iv) N.A.

4. GENERAL :
(i) N.A.  (ii) N.A.  (iii) Population of nymphs and % of kill.  (iv) (a) 1953—N.A.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) The data was converted to sin^{-1}p and then analysed.  (vii) The experiment was conducted by Ento. (C) on cultivators' fields.

5. RESULTS :
(i) 48.95 for 2 sq. inch leaf area.
(ii) 6.26 for 2 sq. inch leaf area.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean % of reduction in sin^{-1}p

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean % of reduction in sin^{-1}p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>57.95</td>
</tr>
<tr>
<td>2.</td>
<td>56.38</td>
</tr>
<tr>
<td>3.</td>
<td>52.45</td>
</tr>
<tr>
<td>4.</td>
<td>47.02</td>
</tr>
<tr>
<td>5.</td>
<td>30.95</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=3.13</td>
</tr>
</tbody>
</table>

Crop : Citrus.  
Site : Jelekote (Nainital).  

Object :- To find out suitable control measures against the Citrus green bug, *Rhynchocoris humeralis* causing premature drop of Citrus fruit.

1. BASAL CONDITIONS :
(i) (a) to (c) N.A.  (ii) N.A.  (iii) N.A.  (iv) N.A.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS :
1. D.D.T. emulsion 0.25%.
2. D.D.T. emulsion 0.5%.
3. D.D.T. suspension 0.5%.
4. B.H.C. suspension 0.5%.
5. Control.

Date of treatments 4.8.1953. Quantity of spray used—4 gallons per tree. *Malta* and Orange trees of varying height bearing 5 - 107 fruits and fruit has started falling ; sprayer used.

3. DESIGN :
(i) to (ii) R.B.D. with 4 replications.  (iii) (a) and (b) 2 citrus trees.  (iv) N.A.
GENERAL:
(i) % of fall was varying. (ii) N.A. (iii) Pupae of Citrus green bug and number of fruits examined i.e. Citrus green bugs per 100 fruits. (iv) (a) and (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C) on cultivators' fields. x = population of Citrus green bug per 100 fruits.

RESULTS:
(i) 2.57 \( \sqrt{x+0.5}/plot \)
(ii) 0.3678 \( \sqrt{x+0.5}/plot \)
(iii) Treatment differences are highly significant.
(iv) Treatment | Mean value of \( \sqrt{x+0.5}/plot \) | Population of Citrus green bug per 100 fruits/plot (Transformed back)
--- | --- | ---
1. | 2.39 | 5.21
2. | 1.79 | 2.70
3. | 2.58 | 6.16
4. | 2.45 | 5.50
5. | 3.64 | 12.75
S.E./mean = 0.184 \( \sqrt{x+0.5}/plot \)

Crop :- Citrus.
Site :- Ranikhet (Almora).
Ref :- U.P. 49(102).
Type :- 'D'.
Object :- To find out suitable insecticides for Citrus white fly eggs.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (c) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Soft soap Nicotine sulphate (Nicotine sulphate 40%, 1 in 800 parts of water).
2. Kerosene oil emulsion 3%.
3. Fish oil rosin (1 lb. in 4 gallons of water).
4. Lime sulphur (sp. gravity 1.17, dilution 1 in 15 parts of water).
5. D.D.T. emulsion 0.25% (Gladstone Marshall).
6. Control.
Treatments used in August 1949 as ovicides. Treatments used in October 1949 as nymphicides.

3. DESIGN:
(i) and (ii) R.B.D. (iii) (a) and (b) One tree/plot. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) Control measures part of treatments. (iii) Counts of living and dead insects. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C) on cultivators' fields.

5. RESULTS:
(i) to (iv)
| Treatment | % of hatching of eggs after treatments | % of kill of white Nymphs |
--- | --- | ---
1. | 51.7 | 22.1
2. | 45.4 | 38.9
3. | 43.7 | 69.6
4. | 9.8 | 74.7
5. | 11.8 | 94.7
6. | 67.3 | 14.3
S.E./mean = 3.96

S.E./mean = 3.78
Crop :- Citrus.  
Site :- Majkholi (Almora).  
Object :- To find out a suitable insecticidal control measure against Citrus white fly.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Citrus.  (c) N.A.  (ii) Clay loam.  (iii) Nil.  (iv) Improved.  (v) (a) Ringing round the base of tree.  (b) to (e) N.A.  (vi) N.A.  (vii) Unirrigated.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. D.D.T. emulsion 0.25%.
   2. Rosin soap 1 lb. in 4 gallons of water.
   4. Control.
   Spraying during February 1951.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications.  (iii) (a) 20' x 20' (1 malta tree/plot).  (b) N.A.  (iv) N.A.

4. GENERAL:
   (i) Fair.  (ii) Control measures as per treatments.  (iii) % mortality of nymphs of white fly after spraying.  
   (iv) (a) Yes.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Ento (c) on cultivators' fields.

5. RESULTS:
   (i) 39.96 degree.
   (ii) 5.405 degree.
   (iii) Treatment differences are highly significant.
   (iv) Treatment Mean angle (in degree) corresponding to % mortality of Nymphs  
        Transformed back mean %
        after applying bias correction
        1. 67.21  84.65
        2. 43.07  46.66
        3. 35.30  33.57
        4. 14.23  6.50
        S.E./mean = 2.207

Crop :- Citrus  
Site :- Majkholi (Almora).  
Object :- To find out a suitable insecticidal control measure against Citrus white fly.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Citrus.  (c) N.A.  (ii) Clay loam.  (iii) Nil.  (iv) Improved.  (v) (a) Ringing around the main base of tree.  (b) to (e) N.A.  (vi) N.A.  (vii) Unirrigated.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. D.D.T. emulsion 0.25%.
   2. D.D.T. emulsion 5%.
   4. Linseed oil rosin soap 1 lb. in 4 gallons of water.
   5. Sandolin 0.5% + Enphyton 2%.
   6. Control.
   Spraying during Dec. 1951.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications.  (iii) (a) 20' x 20' (1 tree/plot).  (b) N.A.  (iv) N.A.

4. GENERAL:
   (i) Good.  (ii) Control measures as per treatments.  (iii) % mortality in pupae 2 months after treatment during 1st week of Feb. 1951.  (iv) (a) No.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Ento (c) on cultivators' fields.
5. RESULTS:

(i) 52.72 degree.
(ii) 2.67 degree.
(iii) Treatment differences are highly significant.

(iv) Treatment Mean angle Transformed back mean percentage after applying bias correction

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>65.16</td>
<td>82.03</td>
</tr>
<tr>
<td>2</td>
<td>73.53</td>
<td>91.56</td>
</tr>
<tr>
<td>3</td>
<td>50.00</td>
<td>58.60</td>
</tr>
<tr>
<td>4</td>
<td>49.73</td>
<td>58.13</td>
</tr>
<tr>
<td>5</td>
<td>59.36</td>
<td>73.79</td>
</tr>
<tr>
<td>6</td>
<td>18.52</td>
<td>10.49</td>
</tr>
</tbody>
</table>

S.E./mean = 1.3375

---

Crop: Citrus.
Site: Majkhali (Almora).
Object: To find out suitable insecticides against the pupae of Citrus white fly.

1. BASAL CONDITIONS:


2. TREATMENTS:

1. D.D.T. emulsin 0.5%.
2. D.D.T. emulsion 0.25%.
3. Lime sulphur (33% B) 1 : 20.
4. Parathion emulsion 0.05%.
5. Sandolin A 0.5% + Albolinium at 4 oz. per 100 gallons.
6. Sandolin A 0.25% + Albolinium at 4 oz. per 100 gallons.

Date of treatment 13.12.53. Av. quantity of spray 5 lb./tree.

3. DESIGN:

(i) to (ii) R.B.D. with 4 replications. (iii) (a) and (b) 2 citrus trees/plot. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) Control measures as per treatments. (iii) % reduction in pupae. (iv) (a) and (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C) on cultivators' field.

5. RESULTS:

(i) 58.38 degree.
(ii) 11.1034 degree.
(iii) Treatment differences are not significant.

(iv) Treatment Mean angle (in degree) corresponding % reduction in population of pupae Transformed back mean % after applying bias correction

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>% reduction in population of pupae</th>
<th>Transformed back mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>67.63</td>
<td>85.15</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>59.99</td>
<td>74.74</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>56.70</td>
<td>69.66</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>57.39</td>
<td>70.75</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>63.52</td>
<td>79.81</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>57.66</td>
<td>70.23</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>46.34</td>
<td>52.31</td>
<td></td>
</tr>
</tbody>
</table>

S.E./mean = 5.552 degree.
Crop :- Citrus (Malta).  
Site :- Ranikhet (Almora).

Object :-To find out suitable control measures for Citrus sooty mould disease.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Under orchard. (c) N.A. (ii) Clay loam. (iii) Nil, (iv) Malta. (v) (a) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control.
   2. Lime sulphur (1:10).
   3. Lime sulphur (1:15).
   5. Perenox (0.125% with Albolinium at 4 oz. per 100 gallons).

Spraying was done on 20, 21/4/1949 Sp. gravity of lime sulphur = 1.17.

3. DESIGN:
   (i) and (ii) R.B.D. with 5 replications, one branch of tree as one unit i.e. plot. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Control measures as per treatments. (iii) % infection on 100 leaves in each unit plot was recorded. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) The data was converted into sin^-1v/p and then analysed, transformed back means have been presented after applying bias correction. (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. RESULTS:
   (i) 34.90 sin^-1v/p/plot.
   (ii) 13.307 sin^-1v/p/plot.
   (iii) Treatment differences are highly significant.
   (iv) Treatment  | Mean value of sin^-1v/p per plot | % infection/plot (transformed back)
   1.             | 60.35                        | 75.27
   2.             | 26.62                        | 20.38
   3.             | 21.23                        | 13.37
   4.             | 33.37                        | 30.45
   5.             | 32.94                        | 29.77
   S.E./mean     | = 5.948

---

Crop :- Citrus (Malta).  
Site :- Ranikhet (Almora).

Object :-To find out suitable fungicidal and insecticidal spray fluids against sooty mould disease of Citrus.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Under orchard. (c) N.A. (ii) Clay loam. (iii) Nil, (iv) Improved. (v) (a) to (c) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Perenox (0.2% with Albolinium at 4 oz. per 100 gallons).
   2. Dithane Z-78 (0.2% with Triton at 4 oz. in 100 gallons).
   3. Lime Sulphur (1:30, sp. gravity 1.25).
   4. Fish oil rosin soap 1 lb. in 4 gallons of water.
   5. D.D.T. emulsion (0.25%).
   6. Control.

3. DESIGN:
   (i) and (ii) R.B.D. with 6 replications and one tree as a unit of a plot. (iii) (a) and (b) Nil. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) The disease was very severe during February, control measures as per treatments. (iii) Two hundred leaves were picked at random from each plant and the % infection was determined. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) The data was converted into sin^-1v/p and then analysed. The transformed back means have been presented after applying bias correction. (vii) The experiment was conducted by Myco (C) on cultivators' fields.
5. RESULTS:

(i) 50.22 sin⁻¹v/p plot.
(ii) 6.140 sin⁻¹v/p plot.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean value of sin⁻¹v/p per plot  % infection/plot (transformed back)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of sin⁻¹v/p per plot</th>
<th>% infection/plot (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>52.95</td>
<td>63.56</td>
</tr>
<tr>
<td>2.</td>
<td>53.16</td>
<td>63.91</td>
</tr>
<tr>
<td>3.</td>
<td>33.28</td>
<td>30.31</td>
</tr>
<tr>
<td>4.</td>
<td>59.10</td>
<td>73.39</td>
</tr>
<tr>
<td>5.</td>
<td>34.11</td>
<td>31.64</td>
</tr>
<tr>
<td>6.</td>
<td>68.73</td>
<td>86.47</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.507</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Citrus (Malta).
Site :- Majkholi Almora.

Ref :- U.P. 51(37).
Type :- 'D'.

Object :- To find out suitable insecticides and fungicides against Citrus sooty mould disease.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A.  (ii) Loam.  (iii) N.A. (iv) Mixed.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) Unirrigated.
(viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:

1. D.D.T. 0.25%.
2. D.D.T. 0.5%.
3. Lime sulphur 1:10 (14° Banne).
4. Home made oil rosin soap 1 lb. in 4 gallons.
5. Spersul 0.5%.
6. Sandolin A 0.5% + Enphyton ton W—0.2%.
7. Thiovit 0.5%.
8. Thiovit 0.1%.
9. Control.

The experiment was laid out on 10.12.1951.

3. DESIGN:

(i), (ii) R.B.D. with 4 replications.  (iii) (a) and (b) One tree of malta.  (iv) N.A.

4. GENERAL:

(i) N.A.  (ii) Control of citrus sooty mould disease as per treatments.  (iii) Percentage of infection.
(iv) (a) to (c) N.A. (v) N.A. (vi) Nil.  (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. RESULTS:

(i) 39.33 degree.
(ii) 5.031 degree.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean angle (in degree) corresponding to % infection

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degree) corresponding to % infection</th>
<th>Transformed back mean % after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>42.25</td>
<td>45.25</td>
</tr>
<tr>
<td>2.</td>
<td>38.74</td>
<td>39.38</td>
</tr>
<tr>
<td>3.</td>
<td>41.24</td>
<td>43.52</td>
</tr>
<tr>
<td>4.</td>
<td>34.90</td>
<td>32.90</td>
</tr>
<tr>
<td>5.</td>
<td>47.05</td>
<td>53.55</td>
</tr>
<tr>
<td>6.</td>
<td>17.25</td>
<td>9.20</td>
</tr>
<tr>
<td>7.</td>
<td>38.14</td>
<td>38.26</td>
</tr>
<tr>
<td>8.</td>
<td>40.90</td>
<td>42.92</td>
</tr>
<tr>
<td>9.</td>
<td>53.48</td>
<td>64.44</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>=2.516</td>
</tr>
</tbody>
</table>


Crop :: Citrus (Malta).

Site :: Majkholi (Almora).

Object :: To find out suitable control measures of sooty mould disease of Citrus.

1. BASEL CONDITIONS:
   (i) (a) N.A. (b) and (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) Mixed. (v) (a) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. D.D.T. 0.5%.
   2. D.D.T. 0.25%.
   3. Parathion 1 : 300.
   4. Fish oil rosin soap 1 lb. in 4 gallons.

   The treatments were on 17.12.1952.

3. DESIGN:
   (i) and (ii) 5 replications in R.B.D. (iii) (a) and (b) One tree of Malta orange. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Control of citrus sooty mould as per treatments. (iii) Percentage of infection as determined on 1st March, 1953. (iv) (a) and (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C) on cultivator's field.

5. RESULTS:
   (i) 40.53 degree.
   (ii) 5.901 degree.
   (iii) Treatment differences are highly significant.
   (iv) Treatment Mean angle (in degree) corresponding to % infection Transformed back mean percentage after applying bias correction
<table>
<thead>
<tr>
<th></th>
<th>% Infection</th>
<th>Mean angle (in degree)</th>
<th>Transformed back mean percentage after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26.50</td>
<td>20.21</td>
<td>26.50</td>
</tr>
<tr>
<td>2</td>
<td>35.20</td>
<td>33.40</td>
<td>35.20</td>
</tr>
<tr>
<td>3</td>
<td>48.60</td>
<td>56.21</td>
<td>48.60</td>
</tr>
<tr>
<td>4</td>
<td>49.48</td>
<td>57.71</td>
<td>49.48</td>
</tr>
<tr>
<td>5</td>
<td>12.45</td>
<td>5.10</td>
<td>12.45</td>
</tr>
<tr>
<td>6</td>
<td>40.50</td>
<td>42.27</td>
<td>40.50</td>
</tr>
<tr>
<td>7</td>
<td>40.92</td>
<td>42.97</td>
<td>40.92</td>
</tr>
<tr>
<td>8</td>
<td>70.59</td>
<td>88.57</td>
<td>70.59</td>
</tr>
</tbody>
</table>
   
   S.E./mean = 2.6391.
4. GENERAL:
(i) N.A. (ii) Control of citrus sooty mould disease as per treatments. (iii) Percentage of infection on 14.1.54. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. RESULTS:
(i) 43.85 degree.
(ii) 2.2772 degree.
(iii) Treatment differences are highly significant.

(iv) Treatment | Mean angle (in degrees) corresponding to % infection | Transformed back mean percentage after applying bias correction
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>39.81</td>
<td>41.08</td>
</tr>
<tr>
<td>2.</td>
<td>47.30</td>
<td>53.97</td>
</tr>
<tr>
<td>3.</td>
<td>51.24</td>
<td>60.69</td>
</tr>
<tr>
<td>4.</td>
<td>20.76</td>
<td>12.94</td>
</tr>
<tr>
<td>5.</td>
<td>42.83</td>
<td>46.25</td>
</tr>
<tr>
<td>6.</td>
<td>36.55</td>
<td>35.62</td>
</tr>
<tr>
<td>7.</td>
<td>68.45</td>
<td>86.14</td>
</tr>
</tbody>
</table>

S.E./mean = 1.1386 degree.

Crop :- Guava.
Site :- Minto Park, Allahabad.
Object :- To study the effect of soil amendment on the control of Guava wilt.

1. BASAL CONDITIONS

2. TREATMENTS:
1. Molasses at 4 lb./tree.
2. Lime at 4 lb./tree.
3. Sulphur at 4 lb./tree.
4. Control—no chemical was applied.
The chemicals were applied after exposing the roots to a depth of six inches. Date of application November, 1953.

3. DESIGN:
(i) C.R.D. (ii) (a) 4 [Each treatment has been applied on 4 trees and there are 4 treatments/repetition. Each tree is considered as a unit]. (b) N.A. (iii) 7. (iv) 4 (apparently healthy trees). (v) Nil. (vi) Yes.

4. GENERAL:
(i) Favourable. (ii) Incidence of the disease on the trees is under experiment and record of soil samples are collected periodically for each treatment. (iii) Soil reaction pH. at different intervals. (iv) (a) 1953 to 1956. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by P.P.

5. RESULTS:
(i) $1.334 \sqrt{x + 0.5}$
(ii) $0.468 \sqrt{x + 0.5}$
(iii) Treatment differences are not significant.
(iv) Treatment | Mean value of $\sqrt{x + 0.5}$ where x is the number of trees killed | Transformed back no. of trees killed
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.642</td>
<td>2.20</td>
</tr>
<tr>
<td>2.</td>
<td>1.021</td>
<td>0.54</td>
</tr>
<tr>
<td>3.</td>
<td>1.325</td>
<td>1.26</td>
</tr>
<tr>
<td>4.</td>
<td>1.348</td>
<td>1.32</td>
</tr>
</tbody>
</table>

S.E./mean = 0.1768 $\sqrt{x + 0.5}$
Crop: Guava  
Site: Govt. Horticulture Farm, Jeolikote.

Object: To find out the efficacy of various fungicides for controlling leaf blight of Guava.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Perenox 0.5%.
   2. Dithane Z-78 0.3%.
   3. Thiovit 0.5%.
   5. Copper sandoz. 0.5%.
   6. Control.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 6.  (b) N.A.  (iii) 5.  (iv) One row of 16' accommodating 35 to 40 seedlings.  (v) Two rows (3' distance per treatment).  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Control of leaf blight disease of guava.  (iii) Percentage infection.  (iv) (a) No.  (b) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Myco (C).

5. RESULTS:
   (i) 39.93 degree.
   (ii) 2.740 degree.
   (iii) Treatment differences are highly significant.
   (iv) Treatment Mean angle (in degrees) corresponding to % infection Transformed back mean percentages
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees)</th>
<th>Transformed back mean percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>38.62</td>
<td>39.06</td>
</tr>
<tr>
<td>2.</td>
<td>38.15</td>
<td>38.28</td>
</tr>
<tr>
<td>3.</td>
<td>36.00</td>
<td>34.70</td>
</tr>
<tr>
<td>4.</td>
<td>38.98</td>
<td>39.67</td>
</tr>
<tr>
<td>5.</td>
<td>38.76</td>
<td>39.11</td>
</tr>
<tr>
<td>6.</td>
<td>49.05</td>
<td>57.12</td>
</tr>
</tbody>
</table>
   S.E./mean 1.225 degrees.

Crop: Guava.  
Site: National Botanical Gardens, Lucknow.

Object: To study the effect of soil amendment on the control of Guava wilt.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Molasses at 4 lb./tree.
   2. Lime at 4 lb./tree.
   3. Sulphur at 4 lb./tree.
   4. Control — No chemical.

Chemicals were applied after exposing the roots to a depth of 6'' in October 1953.

3. DESIGN:
   (i) C.R.D.  (ii) (a) 16 [Each treatment has been applied on 4 trees and there are 4 treatments/replication. Each tree has been considered as a unit].  (b) N.A.  (iii) 6.  (iv) 4.  (v) Nil.  (vi) Yes.

4. GENERAL:
   (i) Favourable.  (ii) Incidence of the disease on the trees is under expt. and record of soil samples are collected periodically for each treatment.  (iii) Soil reaction (pH) at different intervals.  (iv) (a) 1953 to
1956. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by P.P. Guava trees were dying from year to year at a fairly rapid rate on the orchard selected for this experiment.

5. RESULTS:
(i) $0.984 \sqrt{x+0.5}$.
(ii) $0.471 \sqrt{x+0.5}$.
(iii) Treatments differences are not significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of $\sqrt{x+0.5}$ where $x$ is number of trees killed</th>
<th>Transformed back av. no. of trees killed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.2016</td>
<td>0.94</td>
</tr>
<tr>
<td>2.</td>
<td>0.8528</td>
<td>0.23</td>
</tr>
<tr>
<td>3.</td>
<td>0.9428</td>
<td>0.38</td>
</tr>
<tr>
<td>4.</td>
<td>0.9390</td>
<td>0.38</td>
</tr>
<tr>
<td>S.E./Mean</td>
<td>0.192</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Guava.

Site :- Nainital (Nainital).

Object :- To find out suitable control measures for fruit scab of Guava.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) Mixed (v) (a) to (c) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 sprays: $S_1=$ Perenox 0.25% and $S_2=$ Lime sulphur 1 : 20 (21° Baume).
(2) 6 spray schedules: $D_1=$ Bud stage, $D_2=$ Petal fall, $D_3=$ Guaval fruit, $D_4=$ Bud+petal fall, $D_5=$ Bud+petal fall+green fruit and $D_6=$ Control.
Dates of sprays: (1) Bud stage—on 30th April and 1st May, (2) Petal fall—on 6-7 June and (3) Green fruit—13 and 14 July.

3. DESIGN:
(i) and (ii) R.B.D. with 6 replications, one tree of guava/plot. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL.
(i) N.A. (ii) Control measures—as per treatments. (iii) The no. of diseased and healthy fruits and the number of fruit spot per tree were recorded. (iv) (a) to (c) N.A. (v) N.A. (vi) The data has been converted into $\sin^{-1}\sqrt{y}$ and then analysed. (vii) The experiment was conducted by Myco (C) on cultivators’ fields.

5. RESULTS:
(i) 37.27 $\sin^{-1}\sqrt{y}$/plot.
(ii) 10.642 $\sin^{-1}\sqrt{y}$/plot.
(iii) Only treated vs control is highly significant.
(iv)

<table>
<thead>
<tr>
<th></th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_1$</td>
<td>28.41 (22.91)</td>
<td>29.21 (24.07)</td>
<td>28.81</td>
</tr>
<tr>
<td>$D_2$</td>
<td>42.68 (45.99)</td>
<td>26.29 (19.91)</td>
<td>34.48</td>
</tr>
<tr>
<td>$D_3$</td>
<td>35.02 (33.10)</td>
<td>31.27 (27.17)</td>
<td>33.14</td>
</tr>
<tr>
<td>$D_4$</td>
<td>38.03 (38.07)</td>
<td>29.69 (24.78)</td>
<td>33.86</td>
</tr>
<tr>
<td>$D_5$</td>
<td>29.28 (24.18)</td>
<td>32.01 (28.32)</td>
<td>30.64</td>
</tr>
<tr>
<td>Mean</td>
<td>34.68</td>
<td>29.69</td>
<td>32.19</td>
</tr>
</tbody>
</table>

(Figures in brackets are the average % of diseased fruits)
S.E. of marginal mean of sprays $=1.943 \sin^{-1}\sqrt{y}$/plot.
S.E. of marginal mean of spray schedule $=3.072 \sin^{-1}\sqrt{y}$/plot.
S.E. of body of table $=4.344 \sin^{-1}\sqrt{y}$/plot.
S.E. of control mean $=3.072 \sin^{-1}\sqrt{y}$/plot.

Ref :- U.P. 51(251). Type :- ‘D’.
Crop: Guava. Site: Nainital (Nainital). Ref.: U.P. 52(300). Type: 'D'.

Object: To find out suitable control measures for Guava fruit rot.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Under orchard. (c) Nil. (d) Sandy loam. (e) Nil. (f) N.A. (g) (a) to (e) N.A. (h) N.A. (i) Unirrigated. (j) N.A. (k) N.A. (l) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 sprays: $S_1$ = Perenox 0.3% and $S_2$ = Lime sulphur 1 in 30.
   (2) 4 times of spacing: $T_1$ = Pre-blossom stage (25.3.1952), $T_2$ = Pre-blossom stage + green fruit stage, $T_3$ = Green fruit stage (5.7.1952) and $T_4$ = Control — no spray.

3. DESIGN:
   (i) and (ii) R.B.D. with 5 replications (iii) One tree of guava/plot. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Control measures — as per treatments. (iii) % infection. (iv) (a) No. (b) and (c) No. (v) N.A. (vi) The data has been converted into $\sin^{-1}\sqrt{p}$ and then analysed. (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. RESULTS:
   (i) 19.73 $\sin^{-1}\sqrt{p}$/plot.
   (ii) 2.733 $\sin^{-1}\sqrt{p}$/plot.
   (iii) Effect of T and interaction T x S are significant. Others are not significant.
   (iv)

   \[
   T_4 = 20.64 \pm 12.80 \, \text{sin}^{-1} \sqrt{p} / \text{plot.}
   \]

   \[
   \begin{array}{|c|c|c|c|}
   \hline
   & T_1 & T_2 & T_3 & \text{Mean} \\
   \hline
   S_1 & 17.07 (9.03) & 20.64 (12.80) & 22.01 (14.40) & 19.91 \\
   S_2 & 19.60 (11.65) & 16.20 (8.20) & 21.08 (13.31) & 18.96 \\
   \hline
   \text{Mean} & 18.34 & 18.42 & 21.54 & 19.43 \\
   \hline
   \end{array}
   \]

   (Figures in the brackets are the average % of diseased fruits)

   S.E. of $S$ margina mean $= 0.706 \, \text{sin}^{-1} \sqrt{p}$/plot.
   S.E. of $T$ marginal mean $= 0.864 \, \text{sin}^{-1} \sqrt{p}$/plot.
   S.E. of body of table $= 1.222 \, \text{sin}^{-1} \sqrt{p}$/plot.
   S.E. of control mean $= 0.864 \, \text{sin}^{-1} \sqrt{p}$/plot.

Crop: Guava. Site: Jeolikote (Nainital). Ref.: U.P. 52(298). Type: 'D'.

Object: To find out suitable control measures against Guava fruit spot.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (d) Sandy Loam. (e) N.A. (f) Mixed. (g) (a) to (e) N.A. (h) N.A. (i) Unirrigated. (j) N.A. (k) N.A. (l) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 sprays: $S_1$ = Perenox 0.3% and $S_2$ = Lime sulphur 1:15, sp.gr = 1.13.
   (2) 4 times of spraying: $T_1$ = Pre-blossom stage (on 25.3.1952), $T_2$ = Green fruit stage (on 5.7.1952) + pre-blossom stage (on 25.3.1952), $T_3$ = Green fruit stage (on 5.7.1952) and $T_4$ = Control.
3. DESIGN:
(i), (ii) R.B.D. with 5 replications; one tree/plot. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) Control measures as per treatments. (iii) On 13th and 14th September the number of diseased and healthy fruits were counted. (iv) (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) The data has been converted into sin^(-1)v'p and then analysed. (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. RESULTS:
(i) 36.69 sin^(-1)v'p/plot.
(ii) 4.399 sin^(-1)v'p/plot.
(iii) Only treated vs control is highly significant.
(iv) Control = 51.74 (61.53) sin^(-1)v'p/plot.

<table>
<thead>
<tr>
<th></th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>31.86 (28.09)</td>
<td>31.34 (27.28)</td>
<td>34.20 (31.78)</td>
<td>32.47</td>
</tr>
<tr>
<td>S₂</td>
<td>31.44 (27.43)</td>
<td>32.69 (29.38)</td>
<td>28.47 (23.00)</td>
<td>30.87</td>
</tr>
<tr>
<td>Mean</td>
<td>31.65</td>
<td>32.02</td>
<td>31.34</td>
<td>31.67</td>
</tr>
</tbody>
</table>

(The figures in the brackets are average % of diseased fruit)
S.E. of marginal mean of S = 1.136 sin^(-1)v'p/plot.
S.E. of marginal mean of T = 1.391 sin^(-1)v'p/plot.
S.E. of body of table = 1.967 sin^(-1)v'p/plot.
S.E. of control mean = 1.391 sin^(-1)v'p/plot.

Site: Jeolikote (Nainital). Type: 'D'.
Object: To find out the efficacy of various fungicides for the control of Guava fruit scab disease.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) Sandy Loam. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) Not required. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Coppesan 0.3%
2. Dithane 2.78
3. Dithane 0.14
4. Perenox 0.3%
5. Lime sulphur 0.3%
6. Sandolin
7. Thiovit
8. Control

3. DESIGN:
(i), (ii) R.B.D. with 4 replications. (iii) 2 trees/plot. (iv) N.A.

4. GENERAL:
(i) Damage of fruit. (vii) Control measures as per treatments. (iii) Percentage of spotted fruits determined during 18–23rd August 1953. (iv) (a) to (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. RESULTS:
(i) 27.93 degrees.
(ii) 2.952 degrees.
(iii) Treatment differences are highly significant.
### Treatment Mean angle (in degrees) corresponding to % infection

<table>
<thead>
<tr>
<th></th>
<th>Mean angle</th>
<th>Transformed back % after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.59</td>
<td>8.57</td>
</tr>
<tr>
<td>2.</td>
<td>22.04</td>
<td>14.44</td>
</tr>
<tr>
<td>3.</td>
<td>30.46</td>
<td>25.94</td>
</tr>
<tr>
<td>4.</td>
<td>28.18</td>
<td>22.58</td>
</tr>
<tr>
<td>5.</td>
<td>26.93</td>
<td>20.80</td>
</tr>
<tr>
<td>6.</td>
<td>28.46</td>
<td>22.98</td>
</tr>
<tr>
<td>7.</td>
<td>34.68</td>
<td>32.55</td>
</tr>
<tr>
<td>8.</td>
<td>36.07</td>
<td>34.62</td>
</tr>
</tbody>
</table>

S.E./mean 1.476 degrees.

---

**Crop:** Guava.  
**Site:** Nainital (Nainital).  
**Ref:** U.P. 51(135).  
**Type:** 'D'.

Object: To find out suitable control measures against scale insect of Guava.

1. **BASAL CONDITIONS:**

2. **TREATMENTS:**
   1. D.D.T. emulsion (0.25%).
   2. Lime sulphur (sp. gravity 1.25—One part in 20 parts of water).
   3. Rosin soap (1 lb. in 4 gallons of water).
   4. Control.

Sprayed in January 1951.

2. **DESIGN:**
   - (i) and (ii) R.B.D. with 5 replications and 4 plots/block, (iii) (a) and (b) One tree/plot. (iv) N.A.

4. **GENERAL:**
   - (i) N.A. (ii) Control measures as per treatments. (iii) % of mortality of the scale insect recorded a week after spray. (iv) (a) and (b) N.A. (c) N.A. (v) N.A. (vi) The plot wise yield data is N.A. Results are taken from report. (vii) The experiment was conducted by Ento (C) on cultivators' fields.

5. **RESULTS:**
   - (i) 65.90 % mortality.
   - (ii) 5.16 % mortality.
   - (iii) Treatment differences are significant.
   - (iv) Treatment % of mortality/plot
     - 1. 97.5
     - 2. 78.3
     - 3. 79.6
     - 4. 8.2

S.E./mean=2.31

---

**Crop:** Guava.  
**Site:** Varanasi (Varanasi).  
**Ref:** U.P. 53(302).  
**Type:** 'D'.

Object: To find suitable control measures against mealy bugs of Guava.

1. **BASAL CONDITIONS:**
   - (i) (a) N.A. (b) N.A. (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (k) N.A.
2. TREATMENTS:
1. Parathion emulsion 0.04% (2 ozs. Ekatox 20 in 6 1/2 gallons of water).
2. Parathion emulsion 0.02% (1 oz. Ekatox 20 in 6 1/2 gallons of water).
3. Fish oil rosin soap—4%.
4. Control (with water only).

3. DESIGN:
(i) and (ii) R.B.D. with 5 replication, 4 treatments/block.  (iii) (a) and (b) 5 trees/plot.  (iv) N.A.

4. GENERAL:
(i) N.A.  (ii) Control measures as per treatments.  (iii) Population of bugs.  (iv) (a) No.  (b) N.A.  (c) N.A.
(v) N.A.  (vi) The data has been converted into \( \sin^{-1} \sqrt{\text{x}/p} \) and then analysed. Transformed back means have been presented after applying bias correction.  (vii) The experiment was conducted by Ento (K).

5. RESULTS:
(i) 29.52 degree.
(ii) 4.9240 degree.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean angle  Transformed back mean percentages of survivals 72 hours after spraying.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentages of survivals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16.07</td>
<td>8.08</td>
</tr>
<tr>
<td>2.</td>
<td>30.46</td>
<td>25.94</td>
</tr>
<tr>
<td>3.</td>
<td>23.62</td>
<td>16.39</td>
</tr>
<tr>
<td>4.</td>
<td>47.91</td>
<td>55.12</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 2.202 degrees.</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Kharbooza.  
Site :- Govt. Potato Res. Farm, Farukhabad.  
Ref: U.P. 53(306).  
Type : 'D'.

Object :- To find out control measures against *Halacophira Poveicolis* Lue pest of Kharbooza.

1. BASAL CONDITIONS:
(i) (a) to (c) N.A.  (ii) N.A.  (iii) N.A.  (iv) N.A.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
1. Dusting with 3% D.D.T. dust at 15 lb./ac.
2. Spraying with 0.25% D.D.T. suspension at 30 to 50 gallons/ac.
3. Spraying with lead arsenate.
4. Spraying with 0.006% parathion emulsion at 30 to 50 gallon/ac.
5. No treatment (control).

3. DESIGN:
(i) R.B.D.  (ii) (a) 5.  (b) N.A.  (iii) 5.  (iv) (a) N.A.  (b) 16' × 28'.  (v) 2' around.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) *Halacophira Poveicolis* Lue—control measures as per treatments.  (iii) Number of adults before and after the application of treatments.  (iv) (a) to (c) No.  (v) No.  (vi) The data has been converted in \( \sqrt{x+\frac{1}{2}} \) (where \( x=\) no. of adult survivor) and then analysed.  (vii) The experiment was conducted by Ento (K).

5. RESULTS:
(i) to (iv) Number of adults 15 days after 2nd application of treatment.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean of ( \sqrt{x+0.5} )</th>
<th>Transformed back mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.18</td>
<td>4.25</td>
</tr>
<tr>
<td>2.</td>
<td>3.08</td>
<td>8.99</td>
</tr>
<tr>
<td>3.</td>
<td>3.60</td>
<td>12.46</td>
</tr>
<tr>
<td>4.</td>
<td>3.44</td>
<td>11.33</td>
</tr>
<tr>
<td>5.</td>
<td>4.92</td>
<td>23.71</td>
</tr>
<tr>
<td>G.M.</td>
<td>3.44</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.1351</td>
<td></td>
</tr>
</tbody>
</table>

Significance  Highly significant
Crop :- Lokat.  
Site :- Govt. Valley Fruit Res. Stn., Jeolikote.  
Object :- To study the effect of different control measures against die-back disease of Lokat.

1. BASAL CONDITIONS :

2. TREATMENTS :
   1. Chaubattia paste (Copper carbonate+ red lead+ lanolin 2 : 2 : 2).
   2. Copper oxychloride paste (prepared by mixing 2 oz. copper nesan with 2 oz. lanolin).
   3. Chevaston solution (prepared by mixing 6% solution of copper sulphate and potassium dichromate).
   4. Control.

3. DESIGN :
   (i) R.B.D.  (ii) (a) 4.  (b) N.A.  (iii) 12.  (iv) 1.  (v) Nil.  (vi) Yes.

4. GENERAL :
   (i) Nil.  (ii) Incidence of lokat die-back disease — control measures as per treatments.  (iii) Percentage of infection after the application of treatments.  (iv) (a) No.  (b) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Myco (C) at Haldwani.

5. RESULTS :
   (i) to (iv)  
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle in degree</th>
<th>Mean percentage (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>48.75</td>
<td>56.42</td>
</tr>
<tr>
<td>2.</td>
<td>63.59</td>
<td>79.91</td>
</tr>
<tr>
<td>3.</td>
<td>46.27</td>
<td>52.19</td>
</tr>
<tr>
<td>4.</td>
<td>69.09</td>
<td>86.89</td>
</tr>
<tr>
<td>G.M.</td>
<td>56.92</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.1688</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Lokat.  
Site :- Haldwani (Nainital).  
Object :- To study the effect of different control measures against die-back disease of Lokat.

1. BASAL CONDITIONS :
   (i) (a) N.A.  (b) Nil.  (c) N.A.  (ii) Sandy loam.  (iii) N.A.  (iv) Mixed.  (v) (a) to (e) N.A.  (vi) Nil.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS :
   1. Perenox paste (1 lb. in 220 c.c. of linseed oil).
   2. Chaubattia paste (2 ozs. of copper carbonate, 2 ozs. of red lead in 2 ozs. of lanolin).
   3. Chevaston solution (prepared by mixing cold solution of 6% K₂Cr₂O₇).
   4. Control.

3. DESIGN :
   (i) and (ii) R.B.D. with 12 replication.  (iii) 2 trees.  (iv) N.A.

4. GENERAL :
   (i) N.A.  (ii) Attack of lokat die back disease — control measures as per treatments.  (iii) Percentage of twigs showing callus formation as determined on 12.6.1952.  (iv) (a) No.  (b) and (c) —.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Myco (C) on cultivators’ fields.
5. RESULTS:

(i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle in degrees</th>
<th>Mean % (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>46.43</td>
<td>52.47</td>
</tr>
<tr>
<td>2.</td>
<td>36.86</td>
<td>36.12</td>
</tr>
<tr>
<td>3.</td>
<td>28.48</td>
<td>23.01</td>
</tr>
<tr>
<td>4.</td>
<td>51.11</td>
<td>60.47</td>
</tr>
<tr>
<td>G.M.</td>
<td>40.70</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.7454</td>
<td></td>
</tr>
</tbody>
</table>

Significance: Highly significant

Crop: Mango.
Site: Govt. Botanical Gardens, Kanpur.

Object: To study the control measure of the Mango gall fly *Amradiplosis viridi galbcola* (Mani) by spraying the galled leaves with parathion and D.D.T. emulsions.

1. BASAL CONDITIONS:


2. TREATMENTS:

1. Spraying the galls with 0.1% parathion emulsion.
2. Spraying the galls with 0.25% D.D.T. emulsion.
3. Spraying the galls with 0.05% parathion emulsion.
4. Spraying the galls with 0.1% D.D.T. emulsion.
5. Control—no spraying.

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) One bunch/plot. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study. (iii) Total no. of galls and number of galls for which emergence of pest did not take place. (iv) (a) and (b) N.A. (v) N.A. (vi) The data has been converted into $\sin^{-1}\sqrt{p}$ and then analysed. (vii) The experiment was conducted by Ento (K).

5. RESULTS:

(i) 63.04 degrees.
(ii) 12.12 degrees.
(iii) Treatment differences are highly significant.
(iv) Treatment | Mean angle | Transformed back mean percentages showing no emergence of pest |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>78.91</td>
<td>95.84</td>
</tr>
<tr>
<td>2.</td>
<td>86.82</td>
<td>95.84</td>
</tr>
<tr>
<td>3.</td>
<td>74.66</td>
<td>92.57</td>
</tr>
<tr>
<td>4.</td>
<td>49.32</td>
<td>57.43</td>
</tr>
<tr>
<td>5.</td>
<td>25.51</td>
<td>18.84</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>4.9467</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Mango.
Site: Govt. Botanical Gardens, Kanpur.

Object: A study on the control of the mango gall fly (*Procontarinia marciilor marciilor kieff*) by spraying the galled leaves with parathion and D.D.T. emulsions.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. Spraying parathion emulsion 0.05%.
2. Spraying parathion emulsion 0.1%.
3. Spraying D.D.T. emulsion 0.25%.
4. Spraying D.D.T. emulsion 1.00%.
5. Control (no spraying).

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) Total number of galls and number of galls for which emergence did not take place. (iv) (a) N.A. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (K).

5. RESULTS:
(i) 58.63 degree.
(ii) 15.15 degree.
(iii) Treatment differences are significant.
(iv) Treatment Mean Angle Transformed back mean percentages of galls for which emergence did not take place.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean Angle</th>
<th>Transformed back mean percentages of galls for which emergence did not take place.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>65.34</td>
<td>82.27</td>
</tr>
<tr>
<td>2.</td>
<td>77.41</td>
<td>94.80</td>
</tr>
<tr>
<td>3.</td>
<td>56.24</td>
<td>68.92</td>
</tr>
<tr>
<td>4.</td>
<td>45.28</td>
<td>50.50</td>
</tr>
<tr>
<td>5.</td>
<td>48.90</td>
<td>56.73</td>
</tr>
<tr>
<td>S.E. mean</td>
<td>6.7746</td>
<td></td>
</tr>
</tbody>
</table>

Object:—To test the efficacy of *Isopestox Capsticks* as a system of insecticide against mango bugs *Drosicha Stellibingi gree* on Mango trees.

1. BASAL CONDITIONS:

2. TREATMENTS:
1. Applying 4 *Isopestox capsticks* on one tree.
2. Applying 2 *Isopestox capsticks* on one tree.
3. Control (No treatment).

Method and plan:—Thalas, round the mango trunk to be watered so as to make the soil completely wet. The *Isopestox capsticks* would then be inserted in the soil near the base of the stem before the mealy bugs start hatching and ascending the tree with the view that the insecticide after being taken by the roots may come in the plant sap and act on the mealy bug nymphs when they emerge and live on the trees in large number.

Observation:—Treatments to be applied when the bugs had not appeared. Regular observations taken when bugs started hatching. The number of mealy bugs surviving after one and two months after the application of treatments noted.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of bugs connected on 10 inflorescence branches on twigs around mango tree after one month and also after two months. (iv) (a) and (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (K).

5. RESULTS:
(i) 4.8588 √/x.
(ii) 0.8042 √/x.
(iii) Treatment differences are not significant.
Crop: Mango.  
Site: National Botanical Gardens, Lucknow.  
Object: To find out suitable control measures for Mango hoppers.

1. BASAL CONDITIONS:
   (i) N.A.  (ii) (a) and (b) N.A.  (iii) Grafted trees.  (iv) N.A.  (v) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.  (xi) N.A.  (xii) N.A.

2. TREATMENTS:
   1. 0.25% D.D.T. suspension (guesarol 550).
   2. 0.25% D.D.T. emulsion (16% bugges D.D.T. emulsion).
   3. 0.25% B.H.C. suspension.
   4. 5% D.D.T. dust (guesarol 405).
   5. Dusting with hexyclan (mango special).
   6. No treatment (control).

3. DESIGN:
   (i) R.B.D.  (ii) (a) 6.  (b) N.A.  (iii) 6.  (iv) 1.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) Population of nymphs on inflorescence (per 10 inflorescence per tree) before and after application.  (iv) (a) No.  (b) N.A.  (v) N.A.  (vi) The data has been converted into \( \sin^{-1}\sqrt{p} \) and then analysed.  (vii) The experiment was conducted by Ento (K).

5. RESULTS:
   (i) 65.48 degree
   (ii) 9.9343 degree.
   (iii) Treatment differences are highly significant.
   (iv) Treatment  Mean angle  Transformed back mean percentages of reduction in population of Nymphs 24 hours after the application of treatment
   
   | 1. | 77.78 | 95.05 |
   | 2. | 88.66 | 99.45 |
   | 3. | 69.34 | 87.17 |
   | 4. | 85.05 | 98.77 |
   | 5. | 68.15 | 85.79 |
   | 6. | 3.92  | 0.97  |

   S.E./mean 4.0557 degrees.

Crop: Mango.  
Site: Nainital (Nainital).  
Object: A study on the efficacy of various fungicides against powdery mildew of Mango.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Under orchard.  (c) Nil.  (ii) Loam.  (iii) No.  (iv) Mixed variety.  (v) (a) to (c) N.A.  (vi) Nil.  (vii) Unirrigated.  (viii) N.A.  (ix) N.A.  (x) Nil.
2. TREATMENTS:
1. Perenox (0.25% with alboleum at 4 ozs. per 100 gallons).
2. Lime Sulphur (21° baume, 1 : 20).
3. Spersul (I.C.I.) 0.3%.
4. Control.
The spraying was conducted on 3.5.1951 and observations recorded on 4.7.1951.

3. DESIGN:
(i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) Nil. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) Under study. (iii) Three hundred leaves were collected at random and % infection was determined. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C), U.P. on cultivators' fields.

5. RESULTS:
(i) 56.69 \( \text{in}^{-1} / \text{p/plot} \).
(ii) 5.8444 \( \text{sin}^{-1} \text{v/plot} \).
(iii) Treatment differences are highly significant.
(iv) Treatment Mean value of \( \text{sin}^{-1} \text{v/plot} \) % infection (transformed back)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of ( \text{sin}^{-1} \text{v/plot} )</th>
<th>% infection (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>64.70</td>
<td>81.42</td>
</tr>
<tr>
<td>2.</td>
<td>37.20</td>
<td>36.68</td>
</tr>
<tr>
<td>3.</td>
<td>55.26</td>
<td>64.08</td>
</tr>
<tr>
<td>4.</td>
<td>71.60</td>
<td>89.64</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.6743</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Mango. 
Site: Jeolikote (Nainital).
Object: To study the efficacy of various fungicides against powdery mildew of Mango.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Under orchard. (c) Nil. (ii) Sandy loam. (iii) Nil. (iv) Mixed. (v) (a) to (e) N.A. (vi) Nil. (vii) Sandy loam. (viii) N.A. (ix) Nil. (x) Nil.

2. TREATMENTS:
1. Lime Sulphur 1 : 15 (1.13 sp. gr.).
2. Spersul 0.3%.
3. Thiovit 0.3%.
4. Sandolin 0.3%.
5. No treatment (control).
The experiment was laid out at Jeolikote on 3.3.1952.

3. DESIGN:
(i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) One mango tree (8 year old) as unit of plot. (iv) N.A.

4. GENERAL:
(i) N.A. (ii) Control of powdery mildew of mango. (iii) Percentage of infection determined. (iv) (a) 1952-1954. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. RESULTS:
(i) 39.64 degree. 
(ii) 6.7401 degree.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean angle (in degree) Transformed back mean %

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degree)</th>
<th>Transformed back mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>41.31</td>
<td>43.65</td>
</tr>
<tr>
<td>2.</td>
<td>41.14</td>
<td>43.36</td>
</tr>
<tr>
<td>3.</td>
<td>34.15</td>
<td>31.69</td>
</tr>
<tr>
<td>4.</td>
<td>29.04</td>
<td>23.83</td>
</tr>
<tr>
<td>5.</td>
<td>52.56</td>
<td>62.92</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>3.0143 degrees</td>
<td></td>
</tr>
</tbody>
</table>
Crop: Mango.  
Ref: U.P. 53(183).  
Type: 'D'.

Site: Jeolikote (Nainital).

Object: To study the efficacy of various fungicides for the control of Mango mildew.

1. **BASAL CONDITIONS:**
   (i) (a) N.A.  (b) Under orchard.  (c) Nil.  (ii) Loam.  (iii) Nil.  (iv) Improved and local mixed.  (v) a to (e) N.A.  (vi) Nil.  (vii) Nil.  (viii) N.A.  (ix) N.A.  (x) Nil.

2. **TREATMENTS:**
   1. Lime Sulphur 1 : 50 (sp. gravity 1.13).
   2. Thiovit 0.3%.
   3. Sandolin 0.3%.
   4. Ultra Sulphur 0.3%.
   5. Dithane 2.78—0.3%.
   6. Control.

The experiment was conducted during 1953 at Jeolikote.

3. **DESIGN:**
   (i) and (ii) R.B.D. with 5 replications.  (iii) (a) and (b) 1 mango tree/plot (6 years old).  (iv) N.A.

4. **GENERAL:**
   (i) N.A.  (ii) Control of mango mildew disease.  (iii) Percentage of infection on 26.3.1953.  (iv) (a) 1952—1954.  (b) and (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. **RESULTS:**
   (i) 46.46 degree.
   (ii) 3.660 degree.
   (iii) Treatment differences are highly significant.
   (iv) Treatment differences are highly significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degree) corresponding to percentage infection</th>
<th>Transformed back mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>42.03</td>
<td>44.96</td>
</tr>
<tr>
<td>2.</td>
<td>46.26</td>
<td>52.18</td>
</tr>
<tr>
<td>3.</td>
<td>41.53</td>
<td>44.02</td>
</tr>
<tr>
<td>4.</td>
<td>49.16</td>
<td>57.16</td>
</tr>
<tr>
<td>5.</td>
<td>43.73</td>
<td>47.81</td>
</tr>
<tr>
<td>6.</td>
<td>56.97</td>
<td>70.09</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.637 degrees.</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Mango.  
Ref: U.P. 52,107).  
Type: 'D'.

Site: Haldwani (Nainital).

Object: To find out a suitable insecticidal control measure against the mango shoot cane psyllids.

1. **BASAL CONDITIONS:**
   (i) (a) N.A.  (b) Mango.  (c) No manuring.  (ii) Sandy Loam.  (iii) N.A.  (iv) Improved.  (v) (a) to (e) N.A.  (vi) Nil.  (vii) Unirrigated.  (viii) N.A.  (ix) N.A.  (x) Nil.

2. **TREATMENTS:**
   1. D.D.T.
   2. Lime Sulphur.
   3. Fish oil rosin soap.
   4. Control.

Date of spray 9.10.1952.

3. **DESIGN:**
   (i), (a) R.B.D. with 5 replications ; 1 tree/plot.  (iii) 40'×40'.  (iv) N.A.

4. **GENERAL:**
   (i) Fair.  (ii) Under study.  (iii) No. of galls formed and number of psyllids before and after spraying was recorded.  % reduction was noticed.  (iv) (a) to (c) N.A.  (v) N.A.  (vi) Nil.  (vii) The experiment was conducted by Ento (C) on cultivators' fields.
5. RESULTS:

(i) 36.34 degree.
(ii) 7.984 degree.
(iii) Treatment differences are highly significant.
(iv) Treatment differences are highly significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle (in degrees corresponding to % shoot canes)</th>
<th>Transformed back %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>52.62</td>
<td>63.02</td>
</tr>
<tr>
<td>2.</td>
<td>37.98</td>
<td>37.99</td>
</tr>
<tr>
<td>3.</td>
<td>31.75</td>
<td>27.91</td>
</tr>
<tr>
<td>4.</td>
<td>23.03</td>
<td>15.64</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 3.570</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Peach.
Site: Govt. Hill fruit Res. Stn., Chaubattia.
Object: To compare the effectiveness of an ovicide over that of a nymphicide against Peach leaf curling aphis.

1. BASAL CONDITIONS:

(i) N.A.
(ii) Clay Loam.
(iii) Budding and grafting, both and transplanting.
(iv) Alexander.
(v) December 1952.
(vi) 1 year.
(vii) Nil.
(viii) Rings around the trees.
(ix) Nil.
(x) Unirrigated.
(xi) N.A.
(xii) N.A.

2. TREATMENTS:

1. Diesel oil emulsion 4%.
2. Lime sulphur (sp. gr=1.3) 1 in 20 parts of water.
3. D.D.T. emulsion 0.5%.
4. Lindane wettable powder 0.02% 1 lb(6.5%) in 32.5 gallons of water.
5. D.D.T. emulsion 0.25%
6. Lindane wettable powder 0.01% 1 lb (6.5%) in 32.5 gallons water.
7. Parathion emulsifiable concentrat 0.25—I.C.C. Ekatox+800 C.C. water.
8. Soft soap 2.5. chk.+Nicotine sulphate (4%) 1 oz.
9. Control
Treatments 1 to 4 sprayed on 20,21.1952 and 5 to 8 on 7, 8,3,1953.

3. DESIGN:

(i) R.B.D.
(ii) and (b) N.A.
(iii) 5
(iv) One peach tree.
(v) Nil.
(vi) Yes.

4. GENERAL:

(i) Good.
(ii) Attacked by peach leaf curling aphis.
(iii) Percentage of infection on 18,19.5.1962.
(iv) (a) No.
(v) N.A.
(vi) N.A.
(vii) The experiment was conducted by Ento(C).

5. RESULTS:

(i) 24.74 degrees.
(ii) 5.123 degrees.
(iii) Treatment differences are highly significant.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Mean angle in degrees corresponding to % curled leaves</th>
<th>Transformed back mean percentages after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>35.52</td>
<td>33.91</td>
</tr>
<tr>
<td>2.</td>
<td>30.64</td>
<td>26.31</td>
</tr>
<tr>
<td>3.</td>
<td>3.03</td>
<td>0.78</td>
</tr>
<tr>
<td>4.</td>
<td>18.69</td>
<td>10.67</td>
</tr>
<tr>
<td>5.</td>
<td>13.89</td>
<td>6.21</td>
</tr>
<tr>
<td>6.</td>
<td>14.16</td>
<td>6.43</td>
</tr>
<tr>
<td>7.</td>
<td>14.16</td>
<td>6.43</td>
</tr>
<tr>
<td>8.</td>
<td>29.81</td>
<td>24.96</td>
</tr>
<tr>
<td>9.</td>
<td>62.74</td>
<td>79.74</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 2.291 degrees.</td>
<td></td>
</tr>
</tbody>
</table>
Crop:-Peach.
Site:-Govt. Hill Fruit Res. Stn., Chaubattia.

Object:-To compare the efficiency of an ovicide over a nymphicide against Peach leaf curling aphis.

1. BASAL CONDITIONS:

2. TREATMENTS:
All combinations of (1) and (2)
(1) 5 ovicide sprays: $C_0$=No spray, $C_1$=Diesel oil emulsion 4%, $C_2$=Lime sulphur, $C_3$=D.D.T. 0.5% and $C_4$=D.D.T. 0.25%.
(2) 4 nymphicide sprays: $D_0$=No spray, $D_1$=Soft soap nicotine, $D_2$=D.D.T. emulsion 0.5% and $D_3$=D.D.T. emulsion 0.25%.
Ovicides applied on 2.1.1952 and nymphicides on 18, 19.3.1952.

3. DESIGN:
(i) R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv) One peach tree. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Attacked by leaf curling aphis. (iii) Percentage of infection on 18, 19.5.1952. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C) at Ramgarh (Nainital).

5. RESULTS:
(i) 21.53 degrees.
(ii) 12.82 degrees.
(iii) Main affect of C and interaction CxD are highly significant while D effect is significant.
(iv) (a) Mean angle (in degrees) corresponding to % of curled leaves.

<table>
<thead>
<tr>
<th></th>
<th>$C_0$</th>
<th>$C_1$</th>
<th>$C_2$</th>
<th>$C_3$</th>
<th>$C_4$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_0$</td>
<td>67.9</td>
<td>46.39</td>
<td>29.03</td>
<td>2.35</td>
<td>11.59</td>
<td>31.53</td>
</tr>
<tr>
<td>$D_1$</td>
<td>31.71</td>
<td>52.77</td>
<td>43.08</td>
<td>0.00</td>
<td>6.60</td>
<td>26.83</td>
</tr>
<tr>
<td>$D_2$</td>
<td>4.69</td>
<td>20.19</td>
<td>17.80</td>
<td>4.55</td>
<td>0.00</td>
<td>9.45</td>
</tr>
<tr>
<td>$D_3$</td>
<td>10.39</td>
<td>30.04</td>
<td>35.65</td>
<td>9.66</td>
<td>5.88</td>
<td>18.32</td>
</tr>
</tbody>
</table>

Mean 28.70 37.35 31.39 4.14 6.09 21.53

S.E. of marginal mean of C =3.70 degrees.
S.E. of marginal mean of D =3.31 degrees.
S.E. of body of table =7.40 degrees.

(b) Transformed back mean % after applying bias correction.

<table>
<thead>
<tr>
<th></th>
<th>$C_0$</th>
<th>$C_1$</th>
<th>$C_2$</th>
<th>$C_3$</th>
<th>$C_4$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_0$</td>
<td>85.60</td>
<td>52.39</td>
<td>23.81</td>
<td>0.67</td>
<td>4.70</td>
<td>33.43</td>
</tr>
<tr>
<td>$D_1$</td>
<td>27.85</td>
<td>63.27</td>
<td>46.68</td>
<td>0.50</td>
<td>1.81</td>
<td>28.02</td>
</tr>
<tr>
<td>$D_2$</td>
<td>1.16</td>
<td>12.29</td>
<td>9.75</td>
<td>1.12</td>
<td>0.50</td>
<td>4.96</td>
</tr>
<tr>
<td>$D_3$</td>
<td>3.72</td>
<td>25.31</td>
<td>34.13</td>
<td>3.29</td>
<td>1.54</td>
<td>13.60</td>
</tr>
</tbody>
</table>

Mean 29.58 38.32 28.59 1.40 2.14 20.00
Object: To compare the effectiveness of an ovicide over that of a nymphicide against Peach leaf curling aphis.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) N.A.  (iii) N.A.  (iv) N.A.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 5 ovicide sprays in early January 1951: C_2=No spray, C_1=Diesel oil emulsion 4%, C_3=Lime sulphur (sp. gr=1.25) one in 20 parts of water, C_4=D.D.T. emulsion 0.25% and C_5=D.D.T. emulsion 0.5%.
   (2) 4 nymphicide sprays in mid-March 1951: D_0=No spray, D_1=Soft soap 5% + nicotine sulphate (4%) 1 oz. in 5 gallons of water, D_2=D.D.T. emulsion 0.25% and D_3=D.D.T. emulsion 0.5%.

3. DESIGN:
   (i) and (ii) R.B.D. with 2 replications. (iii) (a) and (b) One tree/plot. (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) Under study. (iii) % of curled leaves. (iv) (a) No. (b) and (c) N.A.  (v) N.A.  (vi) Plot wise yield—N.A.  (vii) The experiment was conducted by Ent. (C).

5. RESULTS:
   (i) 2.38% curled leaves/plot.
   (ii) 3.83% curled leaves/plot.
   (iii) Main effect of C is highly significant and interaction C x D is significant.
   (iv) Mean % of curled leaves/plot

<table>
<thead>
<tr>
<th></th>
<th>C_0</th>
<th>C_1</th>
<th>C_2</th>
<th>C_3</th>
<th>C_4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D_0</td>
<td>19.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>3.9</td>
</tr>
<tr>
<td>D_1</td>
<td>13.5</td>
<td>0.0</td>
<td>4.1</td>
<td>0.0</td>
<td>0.0</td>
<td>3.5</td>
</tr>
<tr>
<td>D_2</td>
<td>0.0</td>
<td>0.0</td>
<td>6.3</td>
<td>0.0</td>
<td>0.0</td>
<td>1.3</td>
</tr>
<tr>
<td>D_3</td>
<td>2.9</td>
<td>1.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Mean</td>
<td>9.0</td>
<td>0.3</td>
<td>2.6</td>
<td>0.0</td>
<td>0.0</td>
<td>2.4</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of C = 1.35 % curled leaves/plot.
S.E. of marginal mean of D = 1.21 % curled leaves/plot.
S.E. of body of table = 2.71 % curled leaves/plot.

Crop :- Peach.
Site :- Ranikhet (Almora).
Object: To compare the effectiveness of an ovicide over that of a nymphicide against Peach leaf curling aphis.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) N.A.  (iii) N.A.  (iv) N.A.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. Diesel oil emulsion as ovicide sprayed in January,
   2. Soft soap Nicotine emulsion as nymphicide sprayed in the middle of March,
   3. 1+2 above.
   4. Control.
3. DESIGN:
   (i) and (ii) R.B.D. with 7 replications. (iii) (a) and (b) One tree served as a block having all the treatments applied to the four different branches of a tree. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Under study. (iii) % of curled leaves. (iv) (a) N.A. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Transforming back has been done after applying bias correction. The experiment was conducted by Ento (C).

5. RESULTS:
   (i) 27.78 sin⁻¹√p/plot.
   (ii) 4.040 sin⁻¹√p/plot.
   (iii) Treatment differences are highly significant.
   (iv) Treatment
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of sin⁻¹√p/plot</th>
<th>% of curled leaves transformed back</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>24.79</td>
<td>17.91</td>
</tr>
<tr>
<td>2.</td>
<td>27.44</td>
<td>21.52</td>
</tr>
<tr>
<td>3.</td>
<td>25.48</td>
<td>18.81</td>
</tr>
<tr>
<td>4.</td>
<td>33.39</td>
<td>30.48</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.527 sin⁻¹√p/plot</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Peach.
Site: Ranikhet (Almora).

Object: To compare the effectiveness of an ovicide and nymphicide against Peach leaf curling aphis.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (c) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Diesel oil emulsion (2%).
   2. Lime Sulphur solution (sp. gr. 1.10, diluted ten times in water).
   4. 1 and 3 above.
   5. 2 and 3 above.
   6. Control.
   Ovicides sprayed in December and nymphicides in 3rd week of February 1949.

3. DESIGN:
   (i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) One tree as a unit of plot. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Under study. (iii) % of curled leaves (1000 leaves were picked up at random from 10 different branches in a tree). (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C).

5. RESULTS:
   (i) 32.73 sin⁻¹√p/plot.
   (ii) 4.643 sin⁻¹√p/plot.
   (iii) Treatment differences are highly significant.
   (iv) Treatment
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of sin⁻¹√p/plot</th>
<th>% of curled leaves transformed back</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>31.03</td>
<td>26.80</td>
</tr>
<tr>
<td>2.</td>
<td>26.67</td>
<td>20.44</td>
</tr>
<tr>
<td>3.</td>
<td>27.93</td>
<td>22.22</td>
</tr>
<tr>
<td>4.</td>
<td>25.58</td>
<td>18.95</td>
</tr>
<tr>
<td>5.</td>
<td>21.57</td>
<td>13.88</td>
</tr>
<tr>
<td>6.</td>
<td>63.58</td>
<td>79.90</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.076 sin⁻¹√p/plot</td>
<td></td>
</tr>
</tbody>
</table>

Ref: U.P. 48(88).
Type: 'D'.
Crop : Peach.
Site : Ranikhet (Almora).

Object : To compare the effectiveness of an ovicide over that of a nymphicide against Peach leaf curling aphis.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A.  (ii) N.A.  (iii) N.A.  (iv) N.A.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (i) 6 ovicide sprays in first week of January 1950: C₀ = No spray, C₁ = Diesel oil emulsion 2%, C₂ = Diesel oil emulsion 4%, C₃ = Creosote oil emulsion 2.5%, C₄ = Lime sulphur (sp. gr. 1.25) 1 in 20 parts of water, C₅ = D.D.T. emulsion.
   (2) 3 nymphicide sprays in March 1950: D₀ = No spray, D₁ = Soft soap + nicotine emulsion 4% in 800 parts of water.

3. DESIGN:
   (i) and (ii) R.B.D. with 3 replications scattered over several orchards. (iii) (a) and (b) One tree/plot.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) Under study.  (iii) % of curled leaves.  (iv) (a) 1950—N.A. This experiment is conducted every year with altogether different treatments. (b) and (c) N.A.  (v) N.A.  (vi) The plot wise yield data is N.A.  (vii) The experiment was conducted by Ento (C).

5. RESULTS:
   (i) 27.12 % curled leaves/plot.
   (ii) 13.30 % curled leaves/plot.
   (iii) Main effects of C and D are significant while interaction C×D is highly significant.
   (iv) Mean % of curled leaves/plot.

<table>
<thead>
<tr>
<th></th>
<th>C₀</th>
<th>C₁</th>
<th>C₂</th>
<th>C₃</th>
<th>C₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₀</td>
<td>87.3</td>
<td>40.7</td>
<td>37.0</td>
<td>51.8</td>
<td>17.1</td>
<td>2.9</td>
</tr>
<tr>
<td>D₁</td>
<td>74.8</td>
<td>41.9</td>
<td>49.3</td>
<td>19.3</td>
<td>13.3</td>
<td>5.7</td>
</tr>
<tr>
<td>D₂</td>
<td>2.7</td>
<td>14.9</td>
<td>4.8</td>
<td>10.8</td>
<td>11.3</td>
<td>2.6</td>
</tr>
<tr>
<td>Mean</td>
<td>54.9</td>
<td>32.5</td>
<td>30.4</td>
<td>27.3</td>
<td>13.9</td>
<td>3.7</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of C = 4.43 % curled leaves/plot.
S.E. of marginal mean of D = 3.13 % curled leaves/plot.
S.E. of body of table = 7.68 % curled leaves/plot.

Crop : Strawberry.
Site : Govt. Horticulture Farm, Jeolikote.

Object : To study the effect of various fungicides against leaf spot disease of Strawberry.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Soyabean.  (c) N.A.  (ii) (a) Loam.  (b) N.A.  (iii) N.A.  (iv) N.A.  (v) Nil.  (vi) N.A.  (vii) Irrigated.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. Perenox 0.25 %
   3. Dithane 278—0.25 %.
   4. Control (no treatment).
   Treatments sprayed on 4.7.1951.
3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 4 rows of 10' each at equal distance. (v) No. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Leaf spot disease—as per treatments. (iii) Percentage of infection on 17.8.1951. (iv) (a) 1951—1953. (b) and (c) No. (v) (a) and (b) Nil. (vi) Nil. (vi) The experiment was conducted by Myco (C).

5. RESULTS:
   (i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle in degrees corresponding to % infection</th>
<th>Transformed back mean percentage after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>38.35</td>
<td>38.62</td>
</tr>
<tr>
<td>2.</td>
<td>37.35</td>
<td>36.93</td>
</tr>
<tr>
<td>3.</td>
<td>38.33</td>
<td>38.59</td>
</tr>
<tr>
<td>4.</td>
<td>46.43</td>
<td>52.48</td>
</tr>
<tr>
<td>G.M.</td>
<td>40.12</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.7896</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>highly significant</td>
<td></td>
</tr>
</tbody>
</table>

Crop:—Strawberry.  
Site:—Govt. Horticulture Farm, Jeolikote.  
Ref:—U.P. 52(68).  
Type:—‘D’.

Object:—To study the effect of various fungicides against leaf spot disease of Strawberry.

1. BASAL CONDITIONS:
   (i) (a) and (b) Soyabean. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) N.A. (v) N.A. (vi) Mixed medium. (vii) Irrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Lime Sulphur 1 : 15 (sp. gr. 1.13).
   2. Dithane 7.78, 0.5%.
   3. Perenox 0.5%.
   4. Yellow cuprocides 0.5%.
   5. Copper Sandoz 0.5%.
   6. Control (no treatment).
   Applied on 19.3.1952.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) and (b) 4 rows of 9'. (v) Adequate buffer rows between randomised plot were left. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Control of leaf spot disease of strawberry. (iii) Percentage of infection on 14.7.1952. (iv) (a) 1951—1953. (b) No. (v) (a) and (b) No. (vi) At the time of spraying the initial infection was negligible. (vii) Experiment conducted by Myco (C).

5. RESULTS:
   (i) to (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle in degrees corresponding to percentage infection</th>
<th>Transformed back mean percentage after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>35.26</td>
<td>33.50</td>
</tr>
<tr>
<td>2.</td>
<td>35.44</td>
<td>33.78</td>
</tr>
<tr>
<td>3.</td>
<td>35.60</td>
<td>34.04</td>
</tr>
<tr>
<td>4.</td>
<td>33.26</td>
<td>30.28</td>
</tr>
<tr>
<td>5.</td>
<td>34.11</td>
<td>31.64</td>
</tr>
<tr>
<td>6.</td>
<td>40.87</td>
<td>42.89</td>
</tr>
<tr>
<td>G.M.</td>
<td>35.76</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.0% degree.</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Highly significant</td>
<td></td>
</tr>
</tbody>
</table>
Crop :- Strawberry.  
Ref :- U.P. 53(184).  
Type :- 'D'.

Object :- To study different control measures against leaf spot fungi of Strawberry.

1. BASAL CONDITIONS:
   (i) (a) Strawberry leguminous crop. (b) and (c) N.A.  
   (ii) (a) Clay loam. (b) N.A.  
   (iii) 10.4.1953.  
   (iv) N.A.  
   (v) N.A.  
   (vi) N.A.  
   (vii) Irrigated.  
   (viii) N.A.  
   (ix) N.A.  
   (x) N.A.

2. TREATMENTS:
   1. Cupesan 0.3%.  
   2. Copper Sandoz.  
   4. Dithane 7.78, 0.3%.  
   5. Dithane D.14, 0.45% with Zinc Sulphate  
   6. Thiovit 0.3%  
   7. Sandolin 0.3%  
   8. No treatment (control)

3. DESIGN:
   (i) R.B.D.  
   (ii) 8.  
   (iii) 5.  
   (iv) (a) and (b) 80–100 plants/plot. (v) 4 rows. (vi) Yes.

4. GENERAL:
   (i) N.A.  
   (ii) Leaf spot disease—as per treatments.  
   (iv) 1951–1953.  
   (v) N.A.  
   (vi) N.A.  
   (vii) N.A.  
   (viii) N.A.  
   (ix) N.A.  
   (x) N.A.  
   (xi) N.A.  
   (xii) N.A.

5. RESULTS:
   (i) to (iv)
   Treatment Mean angle in degrees corresponding to % infection  
   1. 34.42  
   2. 32.53  
   3. 35.39  
   4. 36.36  
   5. 36.34  
   6. 36.38  
   7. 34.02  
   8. 35.63  
   G.M. 35.63  
   S.E./mean = 1.139 degree.  
   Significance Highly significant  
   Transformed back mean percentage
   12.13  
   29.27  
   33.69  
   35.30  
   35.27  
   35.33  
   31.49  
   40.67

Crop :- Temperate Fruit.  
Ref :- U.P. 53(182).  
Type :- 'D'.

Object :- To find suitable control measures for Lichen on temperate fruit plants.

1. BASAL CONDITIONS: 
   (i) N.A.  
   (ii) N.A.  
   (iii) N.A.  
   (iv) N.A.  
   (v) N.A.  
   (vi) N.A.  
   (vii) N.A.  
   (viii) N.A.  
   (ix) N.A.  
   (x) N.A.  
   (xi) N.A.  
   (xii) N.A.

2. TREATMENTS:
   1. Fernoxone 0.2%.  
   2. Fernoxone 0.1%.  
   3. Fernoxone 0.5%.  
   4. Dicotax 50 c.c. in 5000 c.c. of water.  
   5. Dicotax 25 c.c. in 5000 c.c. of water.  
   6. Dicotax 12.5 c.c. in 5000 c.c. of water.  
   7. Control.

3. DESIGN:
   (i) R.B.D.  
   (ii) 7.  
   (iii) 4.  
   (iv) Nil (distance between trees 15' to 18'). (vi) Yes,
4. GENERAL:
   (i) N.A.  (ii) Attack of Lichens. Control measures—as per treatments. (iii) Percentage infection. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C).

5. RESULTS:
   (i) 50.33 degrees,
   (ii) 6.088 degrees.
   (iii) Treatment differences are highly significant.
   (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle in degrees corresponding to % infection</th>
<th>Transformed back mean percentage after applying bias correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>45.72</td>
<td>51.04</td>
</tr>
<tr>
<td>2.</td>
<td>43.98</td>
<td>48.23</td>
</tr>
<tr>
<td>3.</td>
<td>41.61</td>
<td>44.16</td>
</tr>
<tr>
<td>4.</td>
<td>48.92</td>
<td>56.74</td>
</tr>
<tr>
<td>5.</td>
<td>49.98</td>
<td>58.56</td>
</tr>
<tr>
<td>6.</td>
<td>47.16</td>
<td>53.73</td>
</tr>
<tr>
<td>7.</td>
<td>74.91</td>
<td>92.73</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>3.044 degree.</td>
</tr>
</tbody>
</table>

Crop :- Pomegranate.  
Site :- Ranikhet (Almora).  
Ref :- U.P. 50(263).  
Type :- 'D'.

Object :- To find out a suitable control measure against Anar borer.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) Pomegranate. (c) N.A.  (ii) Clay loam. (iii) Nil. (iv) Improved. (v) (a) Ringing around the trees. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Lead Chromate at 6 lb. in 100 gallons of water.
   2. Lead Arsenate at 6 lb. in 100 gallons of water.
   3. Paris green at 6 lb. in 100 gallons of water.
   4. D.D.T. emulsion 0.5%.
   5. Control.
   Only one spray during summer at the time of fruit formation could be applied.

3. DESIGN:
   (i) and (ii) R B.D. with 4 replications, unit of block one pomegranate tree.  (iii) (a) and (b) N.A.  (iv) N.A.

4. GENERAL:
   (i) Good. (ii) Control measures—as per treatments. (iii) % of bored fruits during rainy season. (iv) (a) 1952—No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was consulted by Ento (C). No original plotwise data available.

5. RESULTS:
   (i) 40.00 % of bored fruits.
   (ii) 14.26 % of bored fruits.
   (iii) N.A.
   (iv)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>% of bored fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>42.1</td>
</tr>
<tr>
<td>2.</td>
<td>39.5</td>
</tr>
<tr>
<td>3.</td>
<td>38.8</td>
</tr>
<tr>
<td>4.</td>
<td>22.9</td>
</tr>
<tr>
<td>5.</td>
<td>56.6</td>
</tr>
<tr>
<td>G.M.</td>
<td>40.00</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>7.029 % of bored fruits</td>
</tr>
</tbody>
</table>
Crop :- Pomegranate.  
Site :- Ranikhet (Almora).

Object:—Field trial of various insecticides and fungicides separately and in combination against fruit rot of Anar.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Under orchard. (c) No. (ii) Clay loam. (iii) No. (iv) Local (called darim).
   (v) (a) to (e) N.A. (vi) N.A. (vii) No. (viii) N.A. (ix) and (x) N.A.

2. TREATMENTS:
   1. Lead chromate (lead chromate 6 lb., Potassium bichromate 2 lb. and water 100 gallons).
   2. Lead Arsenate (lead arsenate 6 lb., quick lime 9 lb. and water 100 gallons).
   3. Paris green (Paris green 6 lb., quick lime 9 lb. and water 100 gallons).
   4. D.D.T. 0.5% emulsion.
   5. Perenox 0.25%.
   7. 1+5.
   8. 2+5.
   9. 3+5.
   10. 4+5.
   11. 4+6.
   12. 2+6.
   13. 3+6.
   14. 4+6.
   15. Control.

   Treatments applied on 25, 26.7.1950.

3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Control measures as per treatments. (iii) % of rotted, bored and sound fruits were determined after two months of spray. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Myco (C). No original plot-wise data is available. The summary of results are taken from the records. 8 values have been estimated, but it is not given which one are estimated.

5. RESULTS:
   (i) 37.5 % of bored fruits/tree.  (i) 54.5 % of sound fruits/tree.
   (ii) 12.41 % of bored fruits/tree. (ii) 14.06 % of sound fruits/tree.
   (iii) Treatment differences are significant.  (iii) Treatment differences are significant.
   (iv) Av. % of bored fruits/tree. (iv) Av. % of sound fruits/tree.

   Treatments Av. % Treatments Av. % Treatments Av. % Treatments Av. %
   1. 53.7 8. 38.5 1. 39.9 8. 54.7
   2. 38.3 9. 39.0 2. 41.9 9. 43.6
   3. 39.4 10. 23.1 3. 58.9 10. 71.1
   4. 22.3 11. 40.7 4. 71.7 11. 48.8
   5. 35.4 12. 41.7 5. 59.5 12. 52.3
   6. 40.2 13. 38.0 6. 56.9 13. 56.2
   7. 31.9 14. 23.3 7. 59.4 14. 68.1
   8. 15. 56.6 8. 15. 34.6

   S.E./mean =6.20

   S.E./mean =7.03

---

Crop :- Pomegranate.  
Site :- Bulandshahr.

Object:—Control of Pomegranate butterfly Iracchola isocrate fab. by spraying the fruits with D.D.T. sodium fluosilate, lead arsenate and B.H.C suspension (Agrocide).

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Spraying with 0.25% D.D.T. water suspension.
   2. Spraying with 0.25% B.H.C. water suspension.
   3. Spraying with lead Arsenate suspension.
   4. Spraying with 1.4% sodium fluosilate suspension.
   5. Control (no spraying).
3. DESIGN:
   (i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 1 tree/plot. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Control measures as per treatment. (iii) Number of bored and sound or otherwise damaged fruits. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) The data has been converted into \( \sin^{-1}v/p \) and then analysed; transformed back means have been presented after applying bias correction. (vii) The experiment was conducted by Ento (K).

5. RESULTS:
   (i) 9.43 degree. 
   (ii) 4.702 degree. 
   (iii) Treatment differences are not significant.
   (iv) Treatment Mean angle
   
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean % of bored fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5.73</td>
<td>1.48</td>
</tr>
<tr>
<td>2.</td>
<td>10.47</td>
<td>3.77</td>
</tr>
<tr>
<td>3.</td>
<td>5.89</td>
<td>1.54</td>
</tr>
<tr>
<td>4.</td>
<td>10.30</td>
<td>3.67</td>
</tr>
<tr>
<td>5.</td>
<td>14.76</td>
<td>6.93</td>
</tr>
<tr>
<td>S.E./mean</td>
<td></td>
<td>2.351 degree.</td>
</tr>
</tbody>
</table>

Crop: Pomegranate.

Site: Govt. Valley Fruit Res. Stn., Jeolikote (Nainital). Type: 'D'.

Object: To test the efficacy of different insecticides against Aear butterfly.

1. BASAL CONDITIONS:

2. TREATMENTS:
   1. Lead chromate 6 lb. in 100 gallons of water.
   2. D.D.T. emulsion 0.5%.
   4. Lime sulphur (sp. gravity 1.3).
   5. Lead arsenate 2 lb. in 100 gallons of water.
   6. Calcium arsenate (2 lb. in 100 gallons of water with 6 lb. lime to prevent burning due to high acid contents).
   7. Control.

Dates of spray: (i) 26.4.1952 to 2.5.1952. (ii) 3 to 10.6.1952 and (iii) 9 to 15.7.1952.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) 3 trees/plot. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Control measures as per treatments. (iii) % of bored fruits was recorded before and after each application of treatment; efficacy of insecticides is based on % of bored fruit 3 months after treatment. (iv) (a) No. (b) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C).

'SULTS:

30.84 degree.
2.69 degree.

Treatment differences are highly significant.
Object: To find out suitable control measure for pomegranate butterfly by spraying the fruits with D.D.T and sodium fluosilicate.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Spraying with D.D.T. emulsion 0.5%.
   2. Spraying with D.D.T. emulsion 0.25%.
   3. Spraying with sodium fluosilicate.
   4. Control.
   Spraying started on 27.4.1949 and continued up to 28.6.1949.

3. DESIGN:
   (i), (ii) R.B.D. with 2 replications. (iii) (a) and (b) 2 trees/plot. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Control measures as per treatments. (iii) The number of bored and sound, or; otherwise damaged fruits recorded before each spraying and finally at the time of plucking. (iv) (a) No. (b) N.A. (c) N.A. (d) N.A. (e) N.A. (vi) The data has been converted into \( \sin^{-1}\sqrt{p} \) and then analysed. Transformed back means have been presented after applying bias correction. (vii) The experiment was conducted by Ento (K) on cultivators' fields.

5. RESULTS:
   (i) 38.76 degree.
   (ii) 4.243 degree.
   (iii) Treatment differences are highly significant.
   (iv) Treatment Mean angle in degrees. Transformed back mean percentage of sound fruits.
      Treatment Mean angle in degrees. Transformed back mean percentage of sound fruits.
      1. 43.96 48.22
      2. 56.00 68.51
      3. 38.99 39.70
      4. 16.10 8.12
      S.E./mean = 3.0

Site: Kanpur (Kanpur).  Type: 'D'.

Object: The control of Pomegranate butterfly by removal of eggs from the fruit surface.

1. BASAL CONDITIONS.
   (i) (a) to (c) N.A.  (ii) N.A.  (iii) N.A.  (iv) N.A.  (v) (a) to (e) N.A.  (vi) N.A.  (vii) N.A.  (viii) N.A.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   1. Removal of eggs from the fruits by hand.
   2. No removal (control).

Every 5th day from the middle of April to the beginning of July, the eggs have been removed.

DESIGN:
(i), (ii) R.B.D.; each of the treatments tried on one tree each at 3 places. Three replications. Replication III was rejected as many of the fruits found were not bored.  (iii) (a) and (b) N.A.  (iv) N.A.

4. GENERAL:
   (i) N.A.  (ii) Control measures as per treatments.  (iii) Number of bored and sound fruits recorded at the time of each operation and finally at the picking time.  (iv) (a) No.  (b) N.A.  (c) N.A.  (v) N.A.  (vi) The data has been converted into \( \sin^{-1} \sqrt{p} \) and then analysed. Transformed back means have been presented after applying bias correction.  (vii) The experiment was conducted by Ento (K) on cultivators' fields.

5. RESULTS:
   (i) 24.53 degrees.
   (ii) 8.855 degrees.
   (iii) Treatment difference is highly significant.
   (iv) Treatment 1.  Mean angle in degrees 23.10 25.96
   2.  Mean angle in degrees 23.10 25.96
   S.E./mean = 6.261 degrees
   Transformed back percentages of bored fruits 15.75 19.51
5. RESULTS:

(i) 38.00 degrees.
(ii) 10.52 degrees.
(iii) Treatment differences are not significant.
(iv) Treatment differences are not significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentages of sound fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>37.41</td>
<td>37.03</td>
</tr>
<tr>
<td>2.</td>
<td>42.30</td>
<td>45.35</td>
</tr>
<tr>
<td>3.</td>
<td>35.63</td>
<td>34.06</td>
</tr>
<tr>
<td>4.</td>
<td>36.66</td>
<td>35.79</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>4.70 degrees</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Pomegranate.
Site: Meerut (Meerut).

Object: To find suitable control measures of the Pomegranate butterfly.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

1. Spraying the fruits with D.D.T. emulsion 0.25%.
2. Spraying the fruits with Agrocide suspension 0.5%.
3. Spraying the fruits with Lead Arsenate 0.4%.
4. Spraying the fruits with Sodium fluosilicate 1.4%.
5. Control (no spraying).

3. DESIGN:

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 1 tree/plot. (iv) N.A.

4. GENERAL:

(i) N.A. (ii) Control measures as per treatments. (iii) Total number of fruits and number of sound fruits.
(iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) The data has been converted into sin^-1y/p and then analysed. Transformed back means have been presented after applying bias correction. (vii) The experiment was conducted by Ento (K) on cultivators' fields.

5. RESULTS:

(i) 26.65 degrees.
(ii) 5.714 degrees.
(iii) Treatment differences are not significant.
(iv) Treatment differences are not significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentage of bored fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>27.55</td>
<td>21.69</td>
</tr>
<tr>
<td>2.</td>
<td>25.20</td>
<td>18.42</td>
</tr>
<tr>
<td>3.</td>
<td>26.49</td>
<td>20.19</td>
</tr>
<tr>
<td>4.</td>
<td>28.49</td>
<td>23.07</td>
</tr>
<tr>
<td>5.</td>
<td>25.51</td>
<td>18.81</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.333 degrees</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Pomegranate.
Site: Meerut (Meerut).

Object: To find suitable control measure of the Anar butterfly.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A
(ix) N.A. (x) N.A.
2. TREATMENTS:
   1. Spraying the fruits with Ekatox (parathion 0.02%).
   2. Spraying the fruits with Hectyl miscible oil (B.H.C. 0.25%).
   3. Spraying the fruits with Lime Sulphur (Lime 1 lb., Sulphur—2 lb., water 1 gallon).
   4. Spraying the fruits with 0.25% D.D.T. water suspension.
   5. Control (no spraying).
   Spraying at fortnightly interval from beginning of May to the end of July.

3. DESIGN:
   (i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) 1 tree/plot (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Control measures as per treatments. (iii) Percentage of bored and sound fruits. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) The data has been converted into sin^2/15 and analysed. Transformed back means have been presented after applying bias correction. (vii) The experiment was conducted by Ento (K) on cultivators' fields.

5. RESULTS:
   (i) 38.65 degrees.
   (ii) 8.385 degrees.
   (iii) Treatment differences are not significant.
   (iv) Treatment Mean angle Transformed back mean percentage of bored fruits
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean angle</th>
<th>Transformed back mean percentage of bored fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>37.68</td>
<td>57.53</td>
</tr>
<tr>
<td>2.</td>
<td>46.24</td>
<td>52.18</td>
</tr>
<tr>
<td>3.</td>
<td>31.44</td>
<td>27.43</td>
</tr>
<tr>
<td>4.</td>
<td>35.34</td>
<td>33.61</td>
</tr>
<tr>
<td>5.</td>
<td>42.56</td>
<td>45.79</td>
</tr>
</tbody>
</table>
   S.E./mean = 3.75 degrees.

Crop :- Pomegranate.                                  Ref :- U.P. 52(304).
Site :- Meerut (Meerut).                              Type :- 'D'.
Object :- To find out suitable control measures of Anar butterfly.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) N.A. (v) (a) to (e) N.A. (vi) N.A. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Spraying the fruits with 2.5% ovicide (strength reduced to 1.5% from 3rd spraying).
   2. Spraying the fruits with Lime Sulphur (Lime 1 lb., Sulphur 2 lb., water 1 gallon then diluted with fifteen gallons of water).
   3. Spraying the fruits with 1% parathion (Ekatox 20%).
   4. Spraying the fruits 0.25% D.D.T. wettable powder.
   5. Control (no treatment).

3. DESIGN:
   (i) and (ii) R.B.D. with 5 replications; 5 plots/replication. (iii) (a) and (b) N.A. (iv) N.A.

4. GENERAL:
   (i) N.A. (ii) Control measures—as per treatments. (iii) % of bored fruits. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) The data has been converted into sin^-1/√p and then analysed. Transformed back means have been presented after applying bias correction. (vii) The experiment was conducted by Ento (K) on cultivators' fields.

5. RESULTS:
   (i) 22.93 degree.
   (ii) 6.494 degree.
   (iii) Treatment differences are not significant.
Object: To find out suitable control measures against Pomegranate butterfly.

1. BASAL CONDITIONS:

   (i) (a) to (c) N.A.  
   (ii) N.A.  
   (iii) N.A.  
   (iv) N.A.  
   (v) (a) to (c) N.A.  
   (vi) N.A.  
   (vii) N.A.  
   (viii) N.A.  
   (ix) N.A.  
   (x) N.A.

2. TREATMENTS:

   1. Bagging the fruits with cloth bags.
   2. Spraying with D.D.T. 0.5% emulsion.
   3. Spraying with sodium fluosilicate.
   4. Control (no treatment).

   Treatment No. 2: 10% ready made D.D.T. emulsion (Jopeos) diluted to make 0.5% spray. Treatment No.

   3: Sodium fluosilicate spray was used as follows:—Sodium fluosilicate: 125 grams, Lime: 140 grams,
   Flour: 25 grams, Tale: 400 grams and Water: 4 gallons.

3. DESIGN:

   (i), (ii) R.B.D. with 3 replications  
   (iii) (a) and (b) N.A.  
   (iv) N.A.

4. GENERAL:

   (i) N.A.  
   (ii) Control measures as per treatments. (iii) Total number of bored or otherwise damaged and
   sound fruits will be noticed before each application of treatments. The total number of bored and sound
   fruits at the time of plucking of fruits. (iv) (a) No.  
   (b) N.A.  
   (c) N.A.  
   (v) N.A.  
   (vi) The data has been converted into sin-1/p and then analysed. (vii) 0.50 percent corresponds to 0.00 angle. The experiment
   was conducted by Ento (K). on cultivators’ fields.

5. RESULTS:

   (i) 4.56 degrees.
   (ii) 5.16 degrees.
   (iii) Treatment differences are not significant.

   (iv) Treatment  
   |
   | Mean angle |
   | in degrees |  |
   | 1.  | 0.00 |
   | 2.  | 7.48 |
   | 3.  | 3.82 |
   | 4.  | 6.95 |
   |
   | S.E/mean | =2.979 degrees |

   Mean angle:

   19.41  
   25.65  
   20.15  
   23.62  
   25.83  

   = 2.904 degrees.

   Transformed back mean percentage of bored fruits:

   11.45  
   19.05  
   12.28  
   16.39  
   19.31  

   Crop: Pomegranate.
   Site: Hapur (Meerut).

Ref: U.P. 48(108).

Type: ‘D’.
Crop :- Pomegranate.  
Site :- Nainital (Nainital).  

Object :- To find suitable control measure for Anar fruit rot.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Anar. (c) Nil. (ii) Sandy loam. (iii) Nil. (iv) Local Darimi. (v) N.A. (vi) N.A. 
   (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. D.D.T. emulsion 0.5%.
   2. Lime sulphur 1.15 (21° Baume).
   3. Lead chromate 6 lbs. in 100 gallons.
   4. Perenox 0.5%.
   5. Control.

3. DESIGN:
   (i), (ii) R.B.D. with 4 replications; site selected by surveying method. (iii) (a) and (b) 4 trees/plot 
   (iv) N.A.

4. GENERAL:
   (i) Stunted. (ii) Control of Anar fruit rot – as per treatments. (iii) The % of affected and sound fruits. (iv) 
   (a) No. (b) N.A. (c) N.A. (v) N.A. (vi) The data has been converted into sin⁻¹y/p and then analysed. 
   Transformed back means have been presented after applying bias correction. (vii) The experiment was 
   conducted by Myco (C) on cultivators’ field.

5. RESULTS:
   (i) 46.72 sin⁻¹y/p/plot.
   (ii) 4.358 sin⁻¹y/p/plot.
   (iii) Treatment differences are highly significant.
   (iv) Treatment Mean value in sin⁻¹y/p/plot  
       1.  58.64  72.69  
       2.  51.55  61.22  
       3.  48.20  55.51  
       4.  40.09  41.55  
       5.  35.10  33.24  
       S.E./mean = 2.179 sin⁻¹y/p/plot.

Crop :- Pomegranate.  
Site :- Nainital (Nainital).  

Object :- To find out suitable control measure for Anar fruit rot.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) Local Darimi. (v) (a) to (c) N.A. (vi) N.A. (vii) Unirrigated. 
   (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. D.D.T. 0.5%.
   2. Lime Sulphur 1 : 30.
   3. Gamma 1%.
   4. Lead Arsenate at 2 lb. in 100 gallons.
   5. Lead Chromate.
   6. Calcium Arsenate at 2 lb. in 100 gallons.
   7. Control (no spray), Sprayings on 26.4.1252 and 5.5.1952.

3. DESIGN:
   (i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) N.A. (iv) N.A.
4. GENERAL:
(i) Stunted. (ii) Control measures as per treatments. (iii) On 9.7.1952 the number of healthy and infected fruits were counted. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) The data has been converted into $\sin^{-1}\sqrt{p}$ and then analysed. Transformed back means have been presented after applying bias correction. (vii) The experiment was conducted by Myco (C) on cultivators' fields.

5. RESULTS:
(i) $59.73 \sin^{-1}\sqrt{p}$/plot.
(ii) $1.9606 \sin^{-1}\sqrt{p}$/plot.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean value of $\sin^{-1}\sqrt{p}$/plot
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean value of $\sin^{-1}\sqrt{p}$/plot</th>
<th>% of healthy fruits (transformed back)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>66.00</td>
<td>83.13</td>
</tr>
<tr>
<td>2.</td>
<td>60.91</td>
<td>76.10</td>
</tr>
<tr>
<td>3.</td>
<td>64.11</td>
<td>80.63</td>
</tr>
<tr>
<td>4.</td>
<td>56.34</td>
<td>69.09</td>
</tr>
<tr>
<td>5.</td>
<td>57.47</td>
<td>70.87</td>
</tr>
<tr>
<td>6.</td>
<td>59.88</td>
<td>74.57</td>
</tr>
<tr>
<td>7.</td>
<td>53.40</td>
<td>64.31</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.877 $\sin^{-1}\sqrt{p}$/plot.</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Pomegranate.
Site :- Jeolikote (Nainital).

Object :- To find out a suitable insecticidal control measure against Pomegranate borer.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) Pomegranate. (c) N.A. (ii) Clay. (iii) Nil. (iv) Improved. (v) (a) Ringing around the tree. (b) to (e) N.A. (vi) Not required. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) Not required.

2. TREATMENTS:
1. D.D.T. emulsion 0.5%.
2. Lime Sulphur (sp. gravity 1.1) 1 : 10.
3. Lead Chromate at 6 lb. in 100 gallons water.
4. Perenox 0.5%.
5. Control.
Spraying during April 1951.

3. DESIGN:
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 20' x 20' (3 trees/plot). (b) N.A. (iv) N.A.

4. GENERAL:
(i) Good. (ii) Control measures as per treatments. (iii) % bored fruits. (iv) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) The experiment was conducted by Ento (C) on cultivators' fields.

5. RESULTS:
(i) 42.89 degrees.
(ii) 4.797 degrees.
(iii) Treatment differences are highly significant.
(iv) Treatment Mean Angle Transformed back mean%
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean Angle</th>
<th>Transformed back mean%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>29.36</td>
<td>24.30</td>
</tr>
<tr>
<td>2.</td>
<td>38.32</td>
<td>38.57</td>
</tr>
<tr>
<td>3.</td>
<td>41.81</td>
<td>44.51</td>
</tr>
<tr>
<td>4.</td>
<td>50.08</td>
<td>58.72</td>
</tr>
<tr>
<td>5.</td>
<td>54.90</td>
<td>66.76</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>2.398</td>
<td></td>
</tr>
</tbody>
</table>
Crop: Pomegranate.  
Site: Jeolikote (Nainital).

Ref: U.P. 53(72).  
Type: 'D'.

Object: To find out suitable control measures for eggs and newly hatched caterpillers.

1. **Basal Conditions:**
   
   1. (a) to (c) N.A.  
   2. (iii) N.A.  
   3. (iv) N.A.  
   4. (v) N.A.  
   5. (vi) N.A.  
   6. (vii) N.A.  
   7. (viii) N.A.  

2. **Treatments:**

   1. D.D.T. emulsion 0.5% (To be diluted 1:50 water).
   2. B.H.C. W.P. 0.01% (Sindan 6.5% W.P., 1 oz. in 4 gallons of water with 2 oz. soap).
   3. Toxaphene emulsion 0.25% (to be diluted. 1:100 water).
   4. Chlordane emulsion 0.25% (to be diluted. 1:300 water).
   5. Parathion emulsion 0.1% (to be diluted. 1:20 water).
   6. Lime sulphur 1.20 (Sp. gr. 1.3) (To be diluted 1:20 water).
   7. Calcium arsenate 4% (4 lb. in 100 gallons of water).
   8. Lead arsenate 0.4% (4 lb. in 100 gallons of water).
   9. Lead chromate 0.6% (4 lb. in 100 gallons of water).
   10. No treatment (control).

   Date of treatment: 21.4.1953 and 1.7.1953.

3. **Design:**

   1. (i), (ii) R.B.D. with 4 replications.  
   2. (iii) (a) and (b) 2 trees/plot.  
   3. (iv) N.A.

4. **General:**

   1. (i) N.A.  
   2. (ii) Control measures as per treatments.  
   3. (iii) % of bored fruits has been recorded after each spray.  
   4. (iv) No.  
   5. (b) N.A.  
   6. (c) N.A.  
   7. (v) N.A.  
   8. (vi) % data converted to sin⁻¹√p where p is % of bored fruits.  
   9. (vii) The experiment was conducted by Ento (C) on cultivators' fields.

5. **Results:**

   1. (i) 51.31 per plot.  
   2. (ii) 11.04 per plot.  
   3. (iii) Treatment differences are not significant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean % of bored fruits in terms of sin⁻¹√p</th>
<th>Treatment</th>
<th>Mean % of bored fruits in terms of sin⁻¹√p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>39.60</td>
<td>6.</td>
<td>57.75</td>
</tr>
<tr>
<td>2.</td>
<td>47.18</td>
<td>7.</td>
<td>59.48</td>
</tr>
<tr>
<td>3.</td>
<td>57.72</td>
<td>8.</td>
<td>42.90</td>
</tr>
<tr>
<td>4.</td>
<td>47.55</td>
<td>9.</td>
<td>50.45</td>
</tr>
<tr>
<td>5.</td>
<td>58.35</td>
<td>10.</td>
<td>61.10</td>
</tr>
</tbody>
</table>

S.E./mean = 5.52 per plot