NATIONAL INDEX

OF

AGRICULTURAL

FIELD

EXPERIMENTS

VOL. 3 PART 1

BIHAR

1948—53

PUBLISHED BY
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
NEW DELHI
FORWORD

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 up to 1953 and similar compendia arc 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,
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, Jammu & 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. Kulkarni, 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. Dymundi, 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 acknowledges this willing co-operation 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.

NEW DELHI,
August 16, 1962.

V.G. PANSE
Statistical Adviser

"Institute of Agricultural Research Statistics
Indore"
REGIONAL SUPERVISORS FOR THE NATIONAL INDEX OF FIELD EXPERIMENTS

Region and headquarters

1. **Andhra Pradesh (Hyderabad)**
   - Regional Supervisors:
   - **S.K. D.V.G. KALANIANAMOTHY,**
     Deputy Director of Food Production, Andhra Pradesh.
   - **S.K. JAGANNATH RAO,**
     Joint Director of Agriculture (Research), Andhra Pradesh.
   - **DR. KHALIDUDDIN KHAN,**
     Joint Director of Agriculture (Research), Andhra Pradesh.
   - **R. WANIHODH,**
     Headquarters: Deputy Director of Agriculture (Research), Andhra Pradesh.

2. **Assam, Manipur and Tripura (Shillong)**
   - Regional Supervisors:
   - **L.K. HANDRIQUE,**
     Director of Agriculture, Assam.
   - **S.S. MAJUI,**
     Director of Agriculture, Assam.
   - **DR. S.R. BAROIMA,**
     Director of Agriculture, Assam.

3. **Bihar (Sabour)**
   - Regional Supervisors:
   - **DR. R. RIVARIA,**
     Principal, Agriculture College, Sabour.
   - **R.S. ROY,**
     Principal, Agriculture College, Sabour.

4. **Kerala (Trivandrum)**
   - Regional Supervisors:
   - **S.P. SHANKARA MENON,**
     Director of Agriculture, Kerala.
   - **P.D. NAIR,**
     Director of Agriculture, Kerala.

5. **Madhya Pradesh (Gwalior)**
   - Regional Supervisors:
   - **DR. T.R. MEHTA,**
     Principal, Agriculture College, Gwalior.

6. **Madras (Coimbatore)**
   - Regional Supervisors:
   - **S.R. SESHADRI,**
     Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.
   - **S.P.A. VENKATESWARAN,**
     Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.
   - **LATE S.R. BHAVANI SANKARA RAO,**
     Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.
   - **S.R. T. NATARAJAN,**
     Agronomist & Secretary, Research Council, Agriculture College, Coimbatore.

7. **Maharashtra & Gujarat (Former Bombay Statistician, Department of Agriculture, State) (Poona)**
   - Regional Supervisors:
   - **S.R. D.S. RANGA RAO,**
     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 Supervisors during different periods from 1955 to 1962.*
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<td>State Statistician, Mysore State</td>
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<td>Orissa (Bhubaneshwar)</td>
<td>Dr. U. N. Mohanty</td>
<td>Dy. Director of Agriculture (H.Q.), Orissa</td>
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<td>Shri P.S. Sahota</td>
<td>Statistician, Department of Agriculture, Punjab.</td>
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<td>11.</td>
<td>Rajasthan (Jaipur)</td>
<td>Shri H.C. Kothari</td>
<td>Statistician, Department of Agriculture, Rajasthan</td>
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<td>12.</td>
<td>Uttar Pradesh (Lucknow)</td>
<td>Dr. K. Kishen</td>
<td>Chief Statistician to Govt. of U.P.</td>
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<td>13.</td>
<td>West Bengal (Calcutta)</td>
<td>Shri S. N. Mukherjee</td>
<td>Statistical Officer, Directorate of Agriculture, West Bengal</td>
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<td></td>
<td></td>
<td></td>
<td>Dr. S. Basu</td>
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<td></td>
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<td>Statistical Officer, Directorate of Agriculture, West Bengal</td>
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</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:

- A.P.: Andhra Pradesh
- As.: Assam
- Bh.: Bihar
- Di.: Delhi
- Gj.: Gujarat
- H.P.: Himachal Pradesh
- J.K.: Jammu & Kashmir
- K.: Kerala
- M.: Madras
- U.P.: Uttar Pradesh
- W.B.: West Bengal
- M.: Manipur
- Mh.: Maharashtra
- Ms.: Mysore
- M.P.: Madhya Pradesh
- Or.: Orissa
- Pb.: Punjab
- Rj.: Rajasthan
- Tr.: Tripura
- Ph.: Punjab
- Tr.: Tripura

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 and X—Mixed cropping. e.g. UM. is to be read as Cultural-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.
(vi)

G.M.C.—Green Manure Compost. P.—Phosphate.
lb.—Pounds. Super—Super Phosphate.

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 crops. (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. (k) 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; Cond.—Confounded; Fac.—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; Cond.—Confounded. (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) 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.
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<th>Marathi</th>
<th>Gujarati</th>
<th>Hindi</th>
<th>Punjabi</th>
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<td>Dhan</td>
<td>Dhan</td>
<td>Yadi, Biyamu</td>
<td>Nei</td>
<td>Nei</td>
<td>Bhutta</td>
<td>Bhut</td>
<td>Dangar</td>
<td>Dhan</td>
<td>Chaal</td>
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<td>Godhum</td>
<td>Korhunu</td>
<td>Gotha-</td>
<td>Godhi</td>
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<td>Baari</td>
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<td>Kadali</td>
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<td>Uruzhai</td>
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</tr>
</tbody>
</table>
MAP OF BIHAR STATE SHOWING AGRO-CLIMATIC REGIONS, SOILS AND AGRICULTURAL RESEARCH STATIONS ETC.

BOUNDARY OF AGRO CLIMATIC REGIONS.
DISTRICT BOUNDARIES.
RIVERS.
AGRICULTURAL RESEARCH STATIONS.

HIGHLY CALCAREOUS ALLUVIAL SOIL.
LIME STONE ROCK.
MICA MINES.
SANDY OLD ALLUVIUM.

RED ACID UPLAND AND BROWN LOWLAND SOMETIMES MIXED WITH LATERITE SOIL.
SANDY ALLUVIAL SOILS HAVING ALKALINE REACTION AND SALINE DEPOSITS HERE AND THERE.
CALCAREOUS SOILS.
ALLUVIAL SOILS OF HEAVY TEXTURE HAVING NEUTRAL OR ALKALINE REACTION.
LOOSE GRAVELLY SOILS.
HILLY & FOREST AREAS WITH RED GRAVELLY SOILS.
MIXED RED & BLACK SOIL.
BIHAR STATE

1. GENERAL.

Bihar occupies an area of about 87,112 sq. miles. In the north it touches the periphery of Nepal, in the west and south-west is bounded by Uttar Pradesh and Madhya Pradesh by Orissa in the south and West Bengal in the east. Patna is the capital city of Bihar State. The State is divided into 4 administrative divisions comprising of 17 districts. The administrative divisions are Patna, Bhagalpur, Tirhut and Chhota Nagpur. The districts in each division are:

- Patna: Patna, Gaya, and Shahabad.
- Bhagalpur: Bhagalpur, Monghyr, Purnea, Santhal Parganas and Saharsa.
- Tirhut: Muzaffarpur, Saran, Champaran and Darbhanga.
- Chhota Nagpur: Ranchi, Hazaribagh, Palman, Siribhum and Dhanbad.

The total cropped area in the State in 1966-67 was nearly 25 million acres. The classification of land according to its utilization is given below:

<table>
<thead>
<tr>
<th>Classification of area for 1956-57 (000 acres)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Land under Forests</td>
<td>9,676</td>
</tr>
<tr>
<td>2. Area not available for cultivation</td>
<td>5,299</td>
</tr>
<tr>
<td>3. Uncultivated land excluding fallows</td>
<td>2,692</td>
</tr>
<tr>
<td>4. Fallow land</td>
<td>5,699</td>
</tr>
<tr>
<td>5. Total cropped area</td>
<td>211,005</td>
</tr>
</tbody>
</table>

Bihar is predominantly an agricultural State, over 80% of the population depending wholly on agriculture.

2. PHYSICAL FEATURES.

Physiographically the State can be divided into three main divisions viz. North Bihar Plain Division, South Bihar Plain Division and Chhota Nagpur Division. The former two belong to the Lower Gangetic Plain sub-region of Northern Plains while Chhota Nagpur division belongs to North East Plateau sub-region of Peninsular Hills and Plateau.

The Gangetic depression probably represents the bed of an ancient sea now filled up with alluvial deposits. The Someshwar Hills are composed of sandstones and gravels of the Siwalik system. The southern parts of Bhagalpur present a considerable area of grainoid and porphyritic gneisses towards Monghyr and the Santhal Parganas. The great rivers of Gandak and Kosi and innumerable smaller ones, divide the alluvial plain to the north of the Ganges into areas of varying fertility.

The southern tract is a region of plateau and mountainous spurs which are the eastern terminations of the huge Satpura-Vindhyan range. Near this point, rise the Narbada, running to the west, the Sone running towards Ganges and the Mahanadi to the South-east. To the east of the central high lands and between it and the Bengal boundary, is an irregular, not very wide, area of low lying ground, chiefly in Manbhum. This merges gradually into the lower Gangetic plain of Bengal. The basis of southern tract is the Archean which gives rise to the reddish stiff loamy soil suited to forest growth. The soil is of immense depth on the plateau. Laterite occurs principally as cap on the higher plateau, but is also found in fair thickness in some valleys. In most cases it appears to rest directly on the gneiss or a felspatic granite.
3. SOILS.

North Bihar Plain Division:—In general, the soils of this division are alluvial in origin and may be differentiated into non-calcareous and calcareous soils. The non-calcareous soils are found in the more humid region occupying the major portion of North Bihar in a belt extending from the Someshwar valley at the foot of the Himalayas in the North-East to the extreme South-west, covering the northern halves of Champaran, Muzaffarpur and Darbhanga districts as also the entire districts of Saharsa and Purnea. The soils vary in colour from grey brown to dark brown at the surface, show good physical condition but are generally, poor in plant food constituents. Generally soil reaction is on the alkaline side of neutrality but towards extreme North-west and North-east a tendency to development and intensification of acidity is apparent due to heavy bleaching of basts. The calcareous soils occur in the region of lower rainfall covering the whole of Saran, the southern portions of Champaran and Muzaffarpur besides a portion of Darbhanga districts. The soils are chalk-coloured often tinged grey at the surface (due to admixture of organic matter) profiles being characterised by high contents of calcium carbonate often showing accumulation zones and concretionary deposits very rich in lime.

South Bihar Plain Division:—The soils of this division are of alluvial origin, except in the southern parts of Shahabad, Gaya and Monghyr districts where they have been formed from Vindhyan, Dharwar and Gneiss rocks. Shahabad and Patna soils appear to be of similar composition to those of Bhagalpur soils. Patna soils are more clayey. The soils of Shahabad are heavy clays, with patches of black soils which crack on drying. Infertile patches of usar lands are found in the west and central portions of the State. In the south of the districts mentioned above, the soils are characterised by having a definitely low pH, ranging from 4.7 to 6.8, the southern most districts showing the most acid reaction. Low contents of available phosphoric acid and potash and of lime are common features of the soils.

The eastern portion covering the south of Kharagpur Hills is sandy, having somewhat rocky sub-soil. The area between the Kiul and Sakri rivers contains stiff clayey soils with sandy sub-soil. Beyond Sakri the soils are again of a light texture and as we proceed west, the sub-soils become harder. In the area between Wazirganj and Phalgu river, both the surface and sub-soils are stiff clay. The heavy clay soils between Wazirganj and Phalgu get a further deposit from the Paimer which has bed of clay.

Chhota Nagpur Division:—The soils of this division are of sedentary character. Upland soils are reddish and acidic, while low land soils are dark, neutral and clayey. A large variety of soils is met with, in every district. The principal types are: (1) Loam (Doras) (2) Red ferruginous gravel (3) Hard clay (4) Calcareous soil (5) Sandy soil and (6) Whitish clay. The last three types are largely infertile. Reddish gravel is most common to all. Good clay soils containing rich alluvium and rich organic matter are found in depressions. Loamy soils are met with near hills and sandy soils in the vicinity of rivers. Calcareous soils mainly in Palamau, but small patches may be found in other districts also. Whitish clay is scattered in patches all over the division.

4. CLIMATE AND RAINFALL.

The principal rainfall occurs from June to September with occasional showers in December-January and heavy showers accompanied by thunders in May and thereby cause these months to be considerably humid. The relative humidity is greatest (88%) in Purnea where the rainfall is also high. The rest of the tracts have an annual average humidity varying from 60% to 77%. The maximum temperature (100° to 118° F) occurs generally in April-May and minimum (35° to 46° F) in December-January and the greatest variation (46° to 68° F) between the maximum and the minimum temperatures occurs in February-March.

The season-wise normal rainfall for regions of the State is shown in Table 1.
3

TABLE 1.
Normal Seasonwise Rainfall in inches for different divisions of Bihar.

<table>
<thead>
<tr>
<th>Divisions</th>
<th>Seasons</th>
<th>June to Sept</th>
<th>October to December</th>
<th>January to February</th>
<th>March to May</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Bihar Plain Division</td>
<td>42.8</td>
<td>3.1</td>
<td>0.2</td>
<td>3.5</td>
<td></td>
<td>49.6</td>
</tr>
<tr>
<td>2. South Bihar Plain Division</td>
<td>52.4</td>
<td>2.7</td>
<td>0.2</td>
<td>1.5</td>
<td></td>
<td>56.1</td>
</tr>
<tr>
<td>3. Chhota Nagpur Division.</td>
<td>41.5</td>
<td>1.6</td>
<td>0.3</td>
<td>3.3</td>
<td></td>
<td>46.7</td>
</tr>
<tr>
<td>State Average (Simple)</td>
<td>45.6</td>
<td>2.5</td>
<td>0.2</td>
<td>2.8</td>
<td></td>
<td>53.1</td>
</tr>
</tbody>
</table>

1"=25.4 mm.

5. IRRIGATION

The area under assured irrigation before the inception of the First Plan was 8.98 lakh acres in South Bihar and 1.39 lakh acres in North Bihar. Area added during First Plan was 3.34 lakh acres in South Bihar and 2.81 lakh acres in North Bihar. Target for the Second Plan is 6.55 lakh acres, in South Bihar and 0.24 lakh acres in North Bihar.

The total water resources available in the State are 26.99 million acre ft. of which 9.57 million acre ft. can be utilised for assured irrigation of 41.32 lakh acres at an estimated cost of Rs. 79.59 crores.

North Bihar abounds in snow-fed rivers and the problem there is primarily that of flood control. Irrigation is provided only in pockets, where the rainfall is erratic and where the area is made partially or wholly flood-free. For tackling these problems North Bihar has been divided into four river basins viz. (i) basin between Gagra and Gandak (ii) basin between Gandak and Burhi Gandak (iii) basin between Kosi and Kosi and (iv) basin between Kosi and Mahanawala.

Most of the important rivers of North Bihar have already been embanked or are scheduled to be embanked in the near future with provision of irrigation-cum-drainage sluices in the embankments. The table below gives the sourcewise distribution of irrigated area.

TABLE 2.
Sourcewise distribution of net irrigated area (1956-57).

<table>
<thead>
<tr>
<th>Source</th>
<th>Area irrigated (1000 acres)</th>
<th>% total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Govt. Canals</td>
<td>949</td>
<td>21.6</td>
</tr>
<tr>
<td>2. Private canals</td>
<td>566</td>
<td>12.9</td>
</tr>
<tr>
<td>3. Tanks</td>
<td>595</td>
<td>13.6</td>
</tr>
<tr>
<td>4. Wells</td>
<td>525</td>
<td>12.0</td>
</tr>
<tr>
<td>5. Others</td>
<td>1749</td>
<td>39.0</td>
</tr>
<tr>
<td></td>
<td>4384</td>
<td>100.0</td>
</tr>
</tbody>
</table>

6. NORMAL CROPPING PATTERN AND AGRICULTURAL PRODUCTION.

Rice occupies about 48.48% of the total cropped area and is a major crop of the State. Most of the districts grow Wheat, Barley, Maize, Menan, Gram and Arhar. Shahabad, Monghyr and to a less extent Patna, Gaya, Saran, Champaran, Muzaffarpur and Darbhanga are the main Wheat and Barely producing districts. Monghyr, Santal Parganas, Saran, Champaran, Darbhanga and Muzaffarpur have the largest areas under maize. The Patna division as well as Monghyr and Bhagalpur grow Gram and Tirhut division grows arhar over wide areas. Saran, Santal Parganas and Palaman have large areas of land under Til whereas Rape and Mustard occupy mainly Patna, Tirhut and Bhagalpur divisions. Sugarcane covers the largest areas of Patna and Tirhut divisions major portion being cultivated in Saran, Darbhanga and Champaran. After U.P., Bihar
is the most important Sugarcane growing State in India, nearly one-sixth of the total production of white-sugar in the country being turned out in Bihar factories.

Jute has been an important crop and is confined almost entirely to the Purnea and Saharsa districts though part of Purnea district has gone to West Bengal after reorganisation of States.

Tobacco is a crop of increasing importance in the State and one which is likely to expand in importance.

The different rotations followed in different parts of the State are:

**PADDY**

1. North Bihar Region:
   (a) In upland, early Paddy is rotated with Wheat/Gram and other pulse crops.
   (b) In low lands, medium/late Paddy is rotated with Gram/Khasari/Peas or transplanted Paddy is followed by Sugarcane at some places.

2. South Bihar Region:
   (a) Uplands: Early Paddy is rotated with Wheat/Gram or Khasari.
   (b) Lowlands: Medium/late Paddy rotated with Gram/Khasari/Peas or even left fallow.

3. Chhota Nagpur Region:
   Paddy is rotated with Horsegram/early varieties of black and green gram or other pulse crops.

**WHEAT**

1. North Bihar Region:
   (i) *Urid*/*Moong*/*Cowpea*/*Maize*, Green manure, Wheat.
   (ii) Maize mixed with *Arlar* or fallow rotated with Gram or other pulse crop.
   (iii) Rice/Maize-*Berseem*, Fallow, Wheat alone or mixed with Gram.
   (iv) Maize-Wheat, Green manuring-Sugarcane (3 years).
   (v) Maize-Potato, Sugarcane, Fallow, Wheat alone or mixed with Gram.

2. South Bihar Region:
   (i) Maize/Jowar-Gram, Fallow-Wheat.
   (ii) *Urid*/*Moong*/*Maize* (alone or mixed)/G.M. and Wheat (irrigated).
   (iii) Rice-Beans (irrigated) Fallow-Wheat (2 years).

3. Chhota Nagpur Region:
   (i) Rice/Maize-Groundnut-Wheat alone or mixed with Gram.
   (ii) Rice-Peas or other Pulse-Fallow-Wheat.

**SUGARCANE**

1. North Bihar Region:
   (i) Maize-Wheat, Green manuring-Sugarcane.
   (ii) Fallow or early, ripening legumes like *Moong*-Wheat, Maize-Potato, Sugarcane.
   (iii) *Urid* or *Moong* or *Cowpea*-Wheat, Arhar and Groundnut with Sugarcane, S. ratoon.
   (iv) Fallow or Green manuring-Wheat, Paddy-Fallow, Sugarcane.
2. South Bihar Region

(i) Fallow or early ripening legumes-Wheat, Rape, Fallow, Sugarcane.

(ii) Green manuring-Wheat, Green manuring-Sugarcane.

(iii) Maize-Wheat, Green manuring-Sugarcane, S. Ratoon.

(iv) Fallow or early ripening legumes-Wheat, Arhar and Groundnut with Sugarcane, S. Ratoon (4 years).

The following table gives the area, production and yield per acre of different crops in the State.

**TABLE 3.**

Area, production and yield per acre of principal crops (1957-58).

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area (000 acres)</th>
<th>Production (000 tons)</th>
<th>Yield in lb/ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>12,215</td>
<td>2,198</td>
<td>403</td>
</tr>
<tr>
<td>Jowar</td>
<td>5</td>
<td>1</td>
<td>448</td>
</tr>
<tr>
<td>Bajra</td>
<td>13</td>
<td>2</td>
<td>345</td>
</tr>
<tr>
<td>Maize</td>
<td>1,590</td>
<td>344</td>
<td>485</td>
</tr>
<tr>
<td>Ragi</td>
<td>412</td>
<td>74</td>
<td>402</td>
</tr>
<tr>
<td>Small millets</td>
<td>557</td>
<td>71</td>
<td>280</td>
</tr>
<tr>
<td>Wheat</td>
<td>1,188</td>
<td>243</td>
<td>458</td>
</tr>
<tr>
<td>Barley</td>
<td>797</td>
<td>129</td>
<td>563</td>
</tr>
<tr>
<td>Pulses</td>
<td>4,020</td>
<td>621</td>
<td>246</td>
</tr>
<tr>
<td>Tobacco</td>
<td>35</td>
<td>9</td>
<td>576</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>976</td>
<td>318</td>
<td>1894</td>
</tr>
<tr>
<td>Oilseeds</td>
<td>352</td>
<td>36</td>
<td>229</td>
</tr>
<tr>
<td>Jute</td>
<td>477</td>
<td>778</td>
<td>652</td>
</tr>
</tbody>
</table>

@ In 000 bales of 400 lb each.

7. AGRICULTURAL RESEARCH AND EXPERIMENTAL STATIONS

During the period 1948—53 experiments were conducted on twenty five experimental stations. These are evenly distributed among the districts of the State. The soils in the stations were mostly sandy loam, clayey loam or loam. In few cases they were of calcareous and alluvial types. Besides this, a number of experiments have been conducted under Bihar Manurial Trials. Patsa, Motipur, Harinagar, Dehri-on-Sone, Lalgarh, Pachrukhi and C.S.R.S. Pusa were devoted exclusively for experiments on Sugarcane. A large number of experiments on Sugarcane was conducted at Pusa and Patna. The experiments on Paddy were conducted at Banka, Kanke, Patna, Purnea and Bikramganj. The experiments on oilseeds were also conducted at these stations. On Wheat, experiments were carried out at Sabour, Monghyr and Pusa.

8. EXPERIMENTS

Although Paddy is major food crop of the State, few agronomic experiments are conducted during the period 1948—53 on this crop. It may be that large number of varietal trials for selection might have been conducted on this crop and hence not included in the compendium. The only crop which has received great attention from agronomic
point of view is the cash crop Sugarcane. Nearly 73% of the experiments are on this crop only. All other crops like wheat, oilseeds etc., have not received the attention as much as paddy, so far as agronomic problems and control of pests and diseases are concerned.

Table—4 gives the distribution of the experiments collected during the period 1948—03 according to the crops and type of treatments studied. Nearly 72% of the experiments have manures and fertilizers as treatments. Experiments having cultivation practices as treatments are nearly 13%. The type of experiments where irrigation formed one of the treatments were nearly 5% of total.

**TABLE 4**

Distribution of experiments according to crops and types of treatments tried.

<table>
<thead>
<tr>
<th>Crop</th>
<th>M</th>
<th>MV</th>
<th>C</th>
<th>CM</th>
<th>CV</th>
<th>IM</th>
<th>IV</th>
<th>CIM</th>
<th>IMV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>9</td>
<td>5</td>
<td>11</td>
<td>1</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>27</td>
</tr>
<tr>
<td>Wheat</td>
<td>8</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>11</td>
</tr>
<tr>
<td>Maize</td>
<td>5</td>
<td>17</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>23</td>
</tr>
<tr>
<td>Pulses</td>
<td>3</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>4</td>
</tr>
<tr>
<td>Potato</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>85</td>
<td>103</td>
<td>7</td>
<td>20</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>240</td>
</tr>
<tr>
<td>Oilseeds</td>
<td>9</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>10</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2</td>
</tr>
<tr>
<td>Mixed</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>122</td>
<td>108</td>
<td>38</td>
<td>20</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>7</td>
<td>325</td>
</tr>
</tbody>
</table>

So far as the types of manures tried on sugarcane are concerned both organic and inorganic are used separately and in combination. Among inorganic manures, Ammonium Sulphate and Ammonium Nitrate as source of nitrogen and Single or Triple Super as source of P₂O₅ are mostly used. Organic manures like F.Y.M., Compost, Oilcakes etc. are used as sources of nitrogen in combination with inorganic manures. Factorial combinations of levels of nitrogen and phosphoric acid have been very often used.

Nearly half of the total number of experiments on sugarcane are manurial-comparative. These experiments are generally laid in split-plots with varieties as main-plot treatments and levels of nitrogen as sub-plot treatments. In some cases the sub-plot treatments are the factorial combinations of levels of nitrogen and acid. The varieties commonly used are BO 11 and CO 463 in main-plots. The levels of nitrogen vary from 40 lb./ac. to 200 lb./ac. and the levels of P₂O₅ vary from 0 lb./ac. to 150 lb./ac.

The next common type of experiments on sugarcane are manurial. The type of design generally adopted is randomized blocks. The levels of nitrogen sometimes is as high as 400 lb./ac. in these experiments. Few experiments have been laid as 3² confounded design. The factors used were levels of N, P₂O₅ and K₂O.

The gross plot size is 1/30th of an acre and the net plot size is 1/40th of an acre.

On crops other than sugarcane viz. paddy, maize and wheat the manurial treatments tried were of both organic and inorganic types. The inorganic sources of nitrogen were usually Ammonium Sulphate, Ammonium Nitrate and that of Phosphoric acid were Single and Triple Super Phosphate. The organic manures were Castor cake, F.Y.M., Compost and Green manures like Sunnhemp, Dhaincha, used either singly or in combination with inorganic manures. The levels of N varied from 0 to 80 lb./ac. and of P₂O₅ from 0 to 150 lb./ac. and of K₂O from 0 to 100 lb./ac. The design usually adopted for these crops is randomized blocks. The number of plots per block varied from 3 to 18. There were also a few 3² partially confounded experiments on paddy with cultural practices as treatments viz. spacings, age of seedlings and number of seedlings/hole.
The number of replications varied from 2 to 6 and in few cases it was 8.

For these crops the split plot designs with main-plots varying from 2 to 3 per replication and sub-plots varying from 3 to 5 per main-plot for manurial-cum-varietal trials as well as for some cultural trials were also used.

The experiments on cultivator's fields are being conducted in this State from 1948-49 onwards, with the object of (1) determining the responses of various crops to different fertilizers under cultivator's field conditions and (2) to study the variation in response over different soil types.

The main types of fertilizers used in all the years were Ammonium Sulphate (Nitrogen), Single and Triple Super and Bonemeal (P₂O₅) and Muriate of Potash (K₂O).

The results of these experiments for the period 1948-53 in the form of treatment means are presented in this volume in a form of two way tables between districts and treatments for each year and for each crop.

Results obtained under Stewarts scheme and T.C.M. trials conducted by I.C.A.R. during the period 1948-53 are also presented. The objects of these schemes were also as mentioned above.

The details of Fertilizer trial, conducted under Fertilizer Use Project and called T.C.M. trials are given in the two reports published by the I.C.A.R. (1956). The trials were mainly confined to paddy and wheat crops.
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the experimental station with location, year of experiment and major crops</th>
<th>Soil type and soil analysis</th>
<th>Normal rainfall in inches</th>
<th>No. of Experiments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Banka : Govt. Agricultural Farm, District Bhagalpur, about 6 miles from Barahat railway station. Major crop : Paddy.</td>
<td>Heavy clayey soil with gangal</td>
<td>40&quot;</td>
<td>Paddy—3</td>
</tr>
<tr>
<td>2</td>
<td>Bikramganj : Botanical Sub-Station : Distt. Shahabad about two miles from Bikramganj railway station. Year of establishment-1951. Major crops-Paddy. Paddy growing area.</td>
<td>Clayey to Sandy loam</td>
<td>38.9&quot;</td>
<td>Paddy—3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paddy—3</td>
</tr>
<tr>
<td>3</td>
<td>Dehri-on-Sone : Zonal centre. Major crop : Sugarcane.</td>
<td>Alluvium non-calcareous soil</td>
<td>N.A.</td>
<td>Sugarcane—15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Maize—5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Oilseeds—3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total—10</td>
</tr>
<tr>
<td>5</td>
<td>Harimagar : Zonal centre. Major crop :- Sugarcane.</td>
<td>Sandy loam</td>
<td>N.A.</td>
<td>Sugarcane—17</td>
</tr>
<tr>
<td>6</td>
<td>Kanke : Botanical Sub-Station. District Ranchi, 9 miles from Ranchi railway station. Major crops : Paddy.</td>
<td>Laterite to sandy loam soil</td>
<td>60&quot;</td>
<td>Paddy—5</td>
</tr>
<tr>
<td>7</td>
<td>Majhauli : Zonal Centre. Major crops : Sugarcane.</td>
<td>Alluvial calcareous soil</td>
<td>N.A.</td>
<td>Sugarcane—24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Maize—3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mixed cropping—2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total—7</td>
</tr>
<tr>
<td>9</td>
<td>Motihari : Zonal Centre. Major Crops : Sugarcane.</td>
<td>Sandy loam ; Calcareous</td>
<td>N.A.</td>
<td>Sugarcane—26</td>
</tr>
<tr>
<td>10</td>
<td>Motipur : Zonal Centre. Major crops : Sugarcane.</td>
<td>Sandy loam</td>
<td>N.A.</td>
<td>Sugarcane—5</td>
</tr>
<tr>
<td>11</td>
<td>Nawadah : Sub-Divisional Farm Distt. Gaya, about 2 miles from Nawadah railway station. Year of establishment-1924. Major crops : Paddy.</td>
<td>Sandy loam ; Alkaline</td>
<td>40.3&quot;</td>
<td>Paddy—1</td>
</tr>
<tr>
<td>12</td>
<td>Pachrulkhi : Zonal Centre. Major crop : Sugarcane.</td>
<td>Sandy loam, Calcareous</td>
<td>N.A.</td>
<td>Sugarcane—16</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of the experimental station with location, year of experiment and Major crops</td>
<td>Soil type and soil analysis</td>
<td>Normal rainfall in inches</td>
<td>No. of Experiments</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>--------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>15.</td>
<td>Patna : Sugarcane Research Sta. district Patna. 1 mile from Patna railway station. recently converted into a research station for work on all crops. Year of Establishment - 1932. Major Crops : Sugarcane.</td>
<td>Clay soil</td>
<td>37.7&quot;</td>
<td>Sugarcane — 45</td>
</tr>
</tbody>
</table>

Total — 31
Crop: Paddy. Site: Govt. Agri. Farm, Banka.

Object: To find out the effect of application of inorganic manures on soil fertility.

1. BASAL CONDITIONS:
   (i) (a) None. (b) Kharif Paddy. (c) N.A. (ii) (a) Heavy clay soil with ganga. (b) N.A. (iii) 10.8.30.
   (iv) (a) Ploughing by bullocks & beaming. (b) to (e) N.A. (v) Nil. (vi) Ek-36 (late). (vii) Unirrigated.

2. TREATMENTS:
   1. Control.
   2. A/S at 60 lb. N/ac.
   3. F.Y.M. at 60 lb. N/ac.

3. DESIGN:
   (i) L. Sq. (ii) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/80th ac. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Grain & straw yield. (iv) (a) 1949-1951. (b) Yes. (c) Nil. (v) (a) None. (b) Nil.
   (vi) Nil. (vii) Experiment conducted in 1949 not traceable.

5. RESULTS:
   (i) 2.03 lb/ac.
   (ii) 248.4 lb/ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb/ac.
   Treatment   Av. yield
   1. 2459
   2. 2300
   3. 2299
   4. 2338
   5. 2403
   6. 2626
   S.E./mean = 10.4 lb/ac.

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

Object: To find out the effect of application of inorganic manure on soil fertility.

1. BASAL CONDITIONS:
   (i) (a) None. (b) Paddy. (c) As per treatments. (ii) (a) Heavy clay soil with ganga. (b) N.A. (iii) 4.8.51.
   (iv) (a) Ploughing by bullocks and beaming. (b) to (e) N.A. (v) Nil. (vi) E.K. 36 (late). (vii) Unirrigated.

2. TREATMENTS:
   1. Control.
   2. A/S at 60 lb. N/ac.
   3. F.Y.M. at 60 lb. N/ac.
   5. A/S at 60 lb. N/ac. + Super at 40 lb. P<sub>2</sub>O<sub>5</sub>/ac.

3. DESIGN:
   (i) L. Sq. (ii) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/80th ac. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Yield of paddy: grain and straw weight. (iv) (a) 1949-1951. (b) Yes. (c) Nil.
   (v) (a) None (b) —. (vi) and (vii) Nil.
5. RESULTS:

(i) 2075 lb./ac.
(ii) 222.0 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></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1982</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>2126</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>1990</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>2191</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>2231</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>1992</td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>90.6 lb./ac.</td>
<td></td>
</tr>
</tbody>
</table>

Crop :-Paddy.
Site :-Govt. Agri. Farm, Banka.
Ref :-Bh. 52(28).
Type :-'M'.

Object :-To find out the effect of application of Potash and trace elements on soil fertility.

1. BASEL CONDITIONS:
   (i) (a) Paddy—G.M.—Paddy. (b) Paddy. (c) A/S and Super each at 200 lb./ac. (ii) (a) Heavy clay soil with gampal. (b) N.A. (iii) 7.8.52. (iv) (a) Ploughing by bullocks and beaming. (b) to (e) N.A. (v) Nil. (vi) B.K. 115 (early). (vii) Unirrigated. (viii) Hoeing and weeding by Japanese method. (ix) 16.43°. (x) 24.11.52.

2. TREATMENTS:
   1. No manure.
   3. 2+Super at 40 lb. P₂O₅/ac.
   4. 3+Mur. of Pot. at 40 lb. K₂O/ac.
   5. 3+Mn. Sul. at 30 lb./ac.
   6. 3+Borax at 20 lb./ac.
   7. 3+Zn. Sul. at 20 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) 7. (b) N.A. (iii) 4. (iv) (a) 47°—4°×14'. (b) 45°—4°×12'. (v) 1' around. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) None. (iii) Grain yield. (iv) (a) No. (b) and (c)—. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS:
   (i) 1999 lb./ac.
   (ii) 181.0 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>1173</td>
</tr>
<tr>
<td>2.</td>
<td>1805</td>
</tr>
<tr>
<td>3.</td>
<td>2196</td>
</tr>
<tr>
<td>4.</td>
<td>2201</td>
</tr>
<tr>
<td>5.</td>
<td>2368</td>
</tr>
<tr>
<td>6.</td>
<td>2168</td>
</tr>
<tr>
<td>7.</td>
<td>2083</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>90.5 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Paddy.  
Ref :- Bh. 53(34).  
Type :- ‘M’.  

Object :- To find out the effect of application of Potash & trace elements on soil fertility.

1. BASAL CONDITIONS:  
   (i) Wheat—Paddy—Wheat.  
   (ii) Wheat.  
   (iii) A/S and Super each at 100 lb./ac.  
   (iv) Sandy loam.  
   (vi) (a) 3 deshi ploughings.  
   (vii) Transplanting.  
   (viii) 9’x9’.  
   (ix) 2 to 3.  
   (x) Nil.  
   (xi) K.  
   (xii) II.  
   (xiii) B.  
   (xiv) 42.90’.  
   (xv) 25/26.  
   (xvi) 1.53.  

2. TREATMENTS:  
   1. No manure.  
   3. A/S at 40 lb. P$_2$O$_5$/ac.  
   4. 3+Mur. Pot. at 40 lb. K$_2$O/ac.  
   5. 3+Mn. Sul. at 30 lb./ac.  
   6. 3+Borax at 20 lb./ac.  
   7. 3+Zn. Sul. at 20 lb./ac.  
   Full dose of P at planting, 1/2 dose of N at planting and the other half one month later.

3. DESIGN:  
   (i) R.B.D.  
   (ii) (a) 7.  
   (iii) N.A.  
   (iv) 33”x16’6”.  
   (v) Nil.  
   (vi) Yes.

4. GENERAL:  
   (i) N.A.  
   (ii) N.A.  
   (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>2017</td>
</tr>
<tr>
<td>2.</td>
<td>2366</td>
</tr>
<tr>
<td>3.</td>
<td>2337</td>
</tr>
<tr>
<td>4.</td>
<td>2688</td>
</tr>
<tr>
<td>5.</td>
<td>2495</td>
</tr>
<tr>
<td>6.</td>
<td>2702</td>
</tr>
<tr>
<td>7.</td>
<td>2640</td>
</tr>
<tr>
<td></td>
<td>S.E./mean</td>
</tr>
</tbody>
</table>

---

Crop :- Paddy.  
Ref :- Bh. 53(42).  
Type :- ‘M’.  

Object :- To find out suitable manural treatment to check drying of leaves.

1. BASAL CONDITIONS:  
   (i) Wheat—Paddy—Wheat.  
   (ii) Lateritic soil.  
   (iii) 24.6.53/24.7.53.  
   (iv) (a) After 3 ploughings by deshi plough, the field was green manured with shitecha.  
   (b) N.A.  
   (c) 10 srs./ac.  
   (d) 12”x12”.  
   (e) 2 to 3.  
   (v) Nil.  
   (vi) BK-141 (early).  
   (vii) Unirrigated.  
   (viii) 3 weedings only after weeding after 10 days of transplanting, then two at an interval of 15 days.  
   (ix) 55.31’.  
   (x) 15.12.53.

2. TREATMENTS:  
   1. Control (no manure).  
   3. A/S at 40 lb. N/ac.  
   5. Ferrous Sul. at 2.5 oz./plot.  
   6. Borax at 2.6 oz./plot.  
   7. Mg. Sul. at 2.6 oz./plot.  
   8. Sodium Sul. at 5.2 oz./plot.
3. DESIGN:
(i) R.B.D.  (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 10'×36'. (b) 8'×34'. (v) 1' border all round the plot. (vi) Yes.

4. GENERAL:
(i) Good—no lodging. (ii) No incidence of pests. (iii) Yield of grain and straw; date of flowering. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 2285 lb./ac. (ii) 435.3 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>2429</td>
</tr>
<tr>
<td>2.</td>
<td>2429</td>
</tr>
<tr>
<td>3.</td>
<td>2035</td>
</tr>
<tr>
<td>4.</td>
<td>2069</td>
</tr>
<tr>
<td>5.</td>
<td>2115</td>
</tr>
<tr>
<td>6.</td>
<td>2302</td>
</tr>
<tr>
<td>7.</td>
<td>2432</td>
</tr>
<tr>
<td>8.</td>
<td>2469</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 251.3 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :— Paddy (Kharif).  
Ref :— Bh. 52(70). 
Site :— Botanical Sub-Stn, Sepays.  
Type :— 'M'.

Object :— To study the effect of Potash and trace elements on soil fertility.

1. BASAL CONDITIONS:
(i) (a) Paddy-Fallow-Paddy. (b) Paddy. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 11.7.52. (iv) (a) 4 ploughings by Bihar plough. (b) Japanese Method. (c) 7 in./ac. (d) 10'×10'. (e) 3. (v) 40 lb./ac. of N as A/S+40 lb. P₂O₅/ac. as Super; ½ in seed beds and ½ at the time of planting. (vi) Local (medium). (vii) Irrigated. (viii) Hoeing and earthing once. (ix) 37.16'. (x) 9.12.52.

2. TREATMENTS:
1. Control (no manure).

Time and method of application of manures N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 20'-5'×16'-6'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Fair (no lodging). (ii) Nil. (iii) Yield of grain and straw. (iv) (a) No. (b) No. (c) No. (v) (a) N.A. (b)—(v) & (vii) Nil.

5. RESULTS:
(i) 1491 lb./ac. (ii) 341.3 lb./ac. (iii) Treatment differences are not significant.
Crop: Paddy.  
Site: Rice Res. Stn. Sabour.  
Ref: Bh. 52(15).  
Type: 'M'.

Object: To find out suitable organic manure to get the high Paddy yield.

1. BASAL CONDITIONS:
   (i) (a) Pairs—Pbara gram—G.M.—Paddy. (b) Gram.  
   (c) Nil.  
   (ii) (a) Sandy loam. (b) N.A.  
   (iii) 19.6.52.  
   (iv) (a) 3 ploughings. (b) Planting in lines. (c) 20 ar./ac. (d) Between rows 12' and plants 10'  
   (e) 2 to 3. (v) Nil.  
   (vi) B.k—36.  
   (vii) Irrigated.  
   (viii) Weeding twice. (ix) 17.09.52. (x) 18.11.52.

2. TREATMENTS:
   Application of 20 lb/ac. of N in the form of  
   1. Pith (Ischium Species).  
   2. Sunnhemp.  
   3. Dhalinha.  
   4. Mustard Cake.  
   5. Linsed Cake.  
   7. Goat dung.  
   8. Horse dung.  
   10. Cow dung.  
   11. B.M.  
   12. A/S.

   Time and method of application N.A.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 12. (b) N.A.  
   (iii) 2.  
   (iv) (a) N.A. (b) 10'-6'×15'.  
   (v) N.A.  
   (vi) Yes.

4. GENERAL:
   (i) Normal.  
   (ii) Nil.  
   (iii) Grain yield.  
   (iv) (a) No. (b) No. (c)— (d) (e) N.A. (b)—(vi) & (vii) Nil.

5. RESULTS:
   (i) 680.6 lb/ac.  
   (ii) 145.2 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>829.7</td>
<td>7.</td>
<td>665.5</td>
</tr>
<tr>
<td>2.</td>
<td>665.5</td>
<td>8.</td>
<td>872.9</td>
</tr>
<tr>
<td>3.</td>
<td>751.9</td>
<td>9.</td>
<td>579.1</td>
</tr>
<tr>
<td>4.</td>
<td>760.6</td>
<td>10.</td>
<td>484.0</td>
</tr>
<tr>
<td>5.</td>
<td>515.9</td>
<td>11.</td>
<td>795.1</td>
</tr>
<tr>
<td>6.</td>
<td>553.1</td>
<td>12.</td>
<td>674.1</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>—197.1 lb/ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Crop :- Paddy.  
Site :- College Farm, Sabour.  
Ref :- Bh. 53(2).  
Type :- 'M'.

Object :- To find out the effect of placement of A/S on Paddy.

1. BASAL CONDITIONS :
   (i) (a) Paddy—Paira gram—Paddy. (b) Paira gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 29.8.53. (iv) (a) 4 desi ploughings and puddling. (b) Transplanting. (c) 30 sq. ac. (d) Not fixed. (e) 4 to 8. (v) Nil. (vi) B.K. 36 (late). (vii) Irrigated. (viii) N.A. (ix) 32.38'. (x) 11.12.53. and 2.12.53.

2. TREATMENTS :
   1. Control.
   2. A/S at 113.5 lb./ac. applied before transplanting (29.8.53).
   3. A/S at 113.5 lb./ac. applied 4 weeks after transplanting (1.10.53).
   4. A/S at 113.5 lb./ac. applied at the time of weeding mixed with earth (11.10.53).

3. DESIGN :
   (i) C.R.D. (ii) (a) No block formation. (b) —. (iii) Control 6 ; other treatments 2. (iv) (a) N.A. (b) 344 acres ; dimensions N.A. (v) 3' wide path between adjacent plots. (vi) Yes.

4. GENERAL :
   (i) Good (No lodging). (ii) N.A. (iii) Weight of grain and straw ; plant height and tiller counting. (iv) (a) 1952-1954. (b) No. (c) Nil. (v) (a) N.A. (b) Nl. (vi) & (vii) Nil.

5. RESULTS :
   (i) 2027 lb./ac.
   (ii) 65.1 lb./ac.
   (iii) Treatments are not significantly different.
   (iv) Av. yield of grain in lb./ac.  
      Treatment  
      Av. yield  
      1. 2037  
      2. 2091  
      3. 1896  
      4. 2013
      S.E./mean (other than control) = 46.0 lb./ac.
      S.E. of control mean = 26.6 lb./ac.

==

Crop :- Paddy.  
Ref :- Bh. 52(32).  
Type :- 'C'.

Object :- To study the response to different combinations of age of seedlings, spacing and no. of seedlings per hole.

1. BASAL CONDITIONS :
   (i) (a) Wheat-Paddy-Wheat. (b) Wheat. (c) A/S and Super each at 100 lb./ac. (ii) (a) Sandy loam. (b) N.A. (iii) 29.6.53, 22.6.51 and 15.6.53 for S1, S2 and S3 respectively/24.7.53 and 27.7.53. (iv) (a) 3 desi ploughings. (b) Transplanting. (c) 20 sq. ac. (d) & (e) As per treatments. (v) A/S at 40 lb. N/ac + Super at 40 lb. P2O5/ac. + Castor cake 5 md./ac. (vi) B.K. 113—(early). (vii) Irrigated. (viii) Roguing 1.11.53. (x) 43.90'. (x) 21.11.53 and 24.11.53.

2. TREATMENTS :
   All combinations of (1), (2) and (3)  
   (1) 3 spacings : S1=6' x 6', S2=6' x 10' and S3=10' x 10'.  
   (2) 3 levels of age of seedlings at planting : A1=3, A2=4 and A3=5 weeks.  
   (3) 3 levels of no. of seedlings/hole : B1=2, B2=4 and B3=6.

3. DESIGN :
   (i) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) & (b) 15' x 40'. (v) Nil. (vi) Yes.
4. GENERAL:

(i) Good—no lodging. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1953—contd. (b) Yes. (c) Nil. (v) (a) Sabour, Patna, Kanke, Purnea & Dumka. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:

(i) 3158 lb./ac.
(ii) 325.6 lb./ac.
(iii) Only the effect of spacing is highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>Mean</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
</tr>
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<tbody>
<tr>
<td>S1</td>
<td>2928</td>
<td>2733</td>
<td>2691</td>
<td>2734</td>
<td>2809</td>
<td>2842</td>
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<tr>
<td>S2</td>
<td>3259</td>
<td>3469</td>
<td>3165</td>
<td>3291</td>
<td>3380</td>
<td>3329</td>
</tr>
<tr>
<td>S3</td>
<td>3469</td>
<td>3430</td>
<td>3296</td>
<td>3378</td>
<td>3503</td>
<td>3259</td>
</tr>
</tbody>
</table>

Mean 3212 3211 3031 3138
B1 3365 3319 3089 3321
B2 3161 3122 3147 3143
B3 3170 3271 2856 3209

S.E. of any marginal mean = 76.7 lb./ac.
S.E. of body of table = 132.9 lb./ac.

Crop :- Paddy.
Site :- Botanical Sub-Strn., Dumka.
Ref :- Bh. 53(47).
Type :- 'C'.

Object :- To study the response to different combinations of age of seedling, spacing and no. of seedlings per hole.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy Loam. (b) N.A. (iii) 10.6.1953, 17.6.1953, 24.6.1953, for S1, S2 and S3 respectively/18.7.1953. (iv) (a) 3 ploughings by deep plough. (b) Transplanting. (c) 10 lb./ac. (d) & (e) As per treatments. (v) Super and A/S each at 50 lb./ac. applied at the time of transplanting. (vi) B.K. 36 (late). (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 3.12.1953 and 4.12.1953.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 spacings: S1 = 6" X 6", S2 = 6" X 10" and S3 = 10" X 10".
(2) 3 levels of age of seedlings at planting: A1 = 3, A2 = 4 and A3 = 5 weeks.
(3) 3 levels of no. of seedlings/hole: B1 = 3, B2 = 4 and B3 = 6.

3. DESIGN:
(i) 3 partly Conf. (ii) (a) 3 blocks/replication; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 27'-2" X 3' 8". (v) 1' along width and 2' along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Germination and yield of grain. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) (a) Purnea, Sabour, Bikramganj, Kanke and Patna. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 2014 lb./ac.
(ii) 183.1 lb./ac.
(iii) Effect of no. of seedlings/hole is highly significant. Other effects and interactions are not 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>
<th>B1</th>
<th>B2</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>1847</td>
<td>1875</td>
<td>1851</td>
<td>1838</td>
<td>1784</td>
<td>2240</td>
<td>1550</td>
</tr>
<tr>
<td>S2</td>
<td>2323</td>
<td>2157</td>
<td>1824</td>
<td>2101</td>
<td>1467</td>
<td>2220</td>
<td>2616</td>
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<tr>
<td>S3</td>
<td>2561</td>
<td>2280</td>
<td>1411</td>
<td>2084</td>
<td>1471</td>
<td>2022</td>
<td>2759</td>
</tr>
<tr>
<td>Mean</td>
<td>2244</td>
<td>2104</td>
<td>1695</td>
<td>2014</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean = 161.0 lb./ac.
S.E. of body of table = 278.9 lb./ac.

Crop :- Paddy (Kharif).
Site :- Botanical Sub-Stn. Kanke.
Ref :- Bh. 52(45).
Type :- 'C'.

Object :- To determine optimum spacing between lines and plants to get high Paddy yield.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Paddy. (c) 40 lb./ac. of N as A/S, 40 lb./ac. of P₂O₅ as Super. (iii) (a) Sandy loam. (b) N.A. (iii) 4.7.1952/7.8.1952. (iv) (a) One summer ploughing followed by two ploughings and planking. (b) Japanese method. (c) 8 yrs./ac. (d) As per treatments. (e) 2 to 3. (v) 20 lb./ac. of N as A/S, 40 lb./ac. of P₂O₅ as Super before sowing in seed bed. (vi) B.K. 36 (late). (vii) Rainfed. (viii) Hoeing and earthing. (ix) 58.20'. (x) 9.12.52.

2. TREATMENTS :
   Row and plant spacings :-
   1. 6"x6".
   2. 9"x9".
   3. 12"x12".

3. DESIGN :
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 61"x7"; 61"x7"x7"; 62"x8" for treatments 1, 2 and 3 resp. (b) 59"x4"x5"-4"; 59"-10"x5"-10"; 60"x4"x6"-4" for treatments 1, 2 and 3 respectively. (v) 10" all round. (vi) Yes.

4. GENERAL :
   (i) Satisfactory. (ii) Nil. (iii) Grain yield and straw weight. (iv) (a) No. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vii) (a) Nil.

5. RESULTS :
   (i) 2121 lb./ac.
   (ii) 159.6 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>2370</td>
</tr>
<tr>
<td>2.</td>
<td>2096</td>
</tr>
<tr>
<td>3.</td>
<td>1896</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>112.9 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Paddy (Kharif).
Ref :- Bh. 52(46).
Site :- Botanical Sub Stn. Kanke.
Type :- 'C'.

Object :- To determine the optimum spacing between lines and plants to get highest yield.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) 40 lb/ac. of N as A/S+40 lb/ac. of P₂O₅ as Super.
(ii) (a) Sandy loam. (b) N.A. (iii) 19.6.52/20.7.52. (iv) (a) One summer ploughing followed by two ploughings and beamings. (b) Japanese method. (c) 8 sm/ac. (d) As per treatments. (e) 2 to 3. (v) 20 lb/ac. of N as A/S+40 lb/ac. of P₂O₅ as Super before sowing in seed bed. (vi) BK. 115 (vii) Rainfed. (viii) Earthing and hoeing done by Japanese hoe. (ix) 62.25'. (x) 15.12.52.

2. TREATMENTS:
Row and plant spacings as:
1. 6'×6'.
2. 9'×9'.
3. 12'×12'.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 61'×7'; 61'—6'×7'—6'; 62'×8' for treatments 1, 2 and 3 respectively. (b) 59'—4'×5'—4'; 59'—10'×5'—10'; 60'—4'×6'—4' for treatments 1, 2 and 3 respectively. (v) 10' all round the plot. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Grain yield and straw weight. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 1557 lb/ac.
(ii) 211.2 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>1609</td>
</tr>
<tr>
<td>2.</td>
<td>1216</td>
</tr>
<tr>
<td>3.</td>
<td>946</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>—105.6 lb/ac.</td>
</tr>
</tbody>
</table>

Crop :- Paddy.
Ref :- Bh. 53(43).
Site :- Botanical Sub-Stn. Kanke.
Type :- 'C'.

Object :- To determine the optimum spacing between lines and plants to get high Paddy yield.

1. BASAL CONDITIONS:
(i) (a) No. (b) Fallow. (c) Nil. (ii) (a) Lateritic soil. (b) N.A. (iii) 24.6.52; 19.7.52. (iv) (a) After 3 ploughings by desi plough, the field was green manured with dhaincha. (b) Transplanting. (c) 10 seers/ac. (d) As per treatments. (e) 2 to 3. (f) 10 C.L./ac. of P.Y.M.+40 lb/ac. of N as A/S+40 lb/ac. of P₂O₅ as Super. (vi) BK. 115 (early). (vii) Unirrigated. (viii) Weeding 3 times. (ix) 55.31'. (x) 20.11.53.

2. TREATMENTS:
Row and plant spacings as:
1. 6'×6'.
2. 9'×9'.
3. 12'×12'.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 61'×7'; 61'—6'×7'—6'; 62'×8' for treatments 1, 2 & 3 respectively. (b) 60'×6'. (v) 3' width between blocks, 1 row round the net plot. (vi) Yes.

4. GENERAL:
(i) Good, no lodging. (ii) Nil. (iii) Yield of grain, and date of flowering. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.
5. RESULTS:
(i) 1956 lb/ac.
(ii) 377.4 lb/ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>S.E./mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2193</td>
</tr>
<tr>
<td>2.</td>
<td>2998</td>
</tr>
<tr>
<td>3.</td>
<td>1576</td>
</tr>
<tr>
<td></td>
<td>188.7 lb/ac.</td>
</tr>
</tbody>
</table>

Crop: Paddy.
Site: Botanical Sub-Stn., Patna.

Object: To study the response to different combinations of age of seedlings, spacing and no. of seedlings/hole.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (d) Clay soil. (e) N.A. (f) 15.7.53. (g) 4 ploughings by desi plough.
(h) N.A. (i) 20 ac. (j) No (k) As per treatments. (l) No. (m) BK-36 (late). (n) Irrigated. (o) Yes. (p) 44.97'. (q) 14.12.53.

2. TREATMENTS:
All combinations of (1), (2) and (3).
1. 3 spacings: $S_1=6'\times6'$, $S_2=6'\times10'$ and $S_3=10'\times10'$.
2. 3 levels of age of seedlings at planting: $A_1=3$, $A_2=4$ and $A_3=5$ weeks.
3. 3 levels of no. of seedlings/hole: $B_1=2$, $B_2=4$ and $B_3=6$.

3. DESIGN:
(i) 3' partially Confd. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 30' by 7'-6'. (v) 1 line around the plot. (vi) Yes.

4. GENERAL:
(i) Good (no lodging). (ii) Nil. (iii) Yield of grain and no. of tillers. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Birkamganj, Sabour, Dumka and Purnea. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 2914 lb/ac.
(ii) 878.9 lb/ac.
(iii) Main effect of spacing alone is significant.
(iv) Av. yield of grain in lb/ac.

<table>
<thead>
<tr>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>Mean</th>
<th>$B_1$</th>
<th>$B_2$</th>
<th>$B_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>3001</td>
<td>2775</td>
<td>2626</td>
<td>2800</td>
<td>3154</td>
<td>2468</td>
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<td>2872</td>
<td>2839</td>
<td>2900</td>
<td>3102</td>
<td>2557</td>
<td>3041</td>
</tr>
<tr>
<td>3041</td>
<td>3081</td>
<td>3005</td>
<td>3042</td>
<td>3100</td>
<td>2952</td>
<td>3065</td>
</tr>
<tr>
<td>Mean</td>
<td>3010</td>
<td>2909</td>
<td>2223</td>
<td>2914</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 209.1 lb/ac.
S.E. of body of table = 358.8 lb/ac.
Crop :- Paddy.

Site :- Botanical Sub-Strn. Patna.

Object :-
To study the response to different combinations of age of seedlings, spacing and no. of seedlings per hole for Paddy.

1. BASAL CONDITIONS :
(i) (a) Paddy-Paira Gram-Green manuring-Paddy. (b) Gram. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 8.6.53 15.6.53 and 22.6.53 for seedlings 3, 4 and 5 weeks old/15.7.53 to 18.7.53. (iv) (a) Hot weather ploughing. (b) Transplanting (c) 20 hrs/acre. (d) and (e) As per treatments. (v) A/S at 20 lb./acre of N+Super at 15 lb./acre of P305. (vi) (B.R.-7) (vii) Unirrigated. (viii) Seedlings grown under raised seed bed; and sowing adjusted to get the proper age of seedlings. After transplanting weeding and interculturating with rotary hoeing. (ix) 57.69°. (x) 14.12.53

2. TREATMENTS :
All combinations of (1), (2) and (3)
1. 3 spacings : S1=6" × 6", S2=6" × 10" and S3=10" × 10".
2. 3 levels of age of seedlings at planting : A1=3, A2=4 and A3=5 weeks.
3. 3 levels of no. of seedlings/hole : B1=2, B2=4 and B3=6.

3. GENERAL :
(i) Good. No lodging. (ii) Tip burn disease ; no control measures taken. (iii) Weight of grain, wt. of straw. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Bikramganj, Ranchi, Sabour, Dunksa and Purnea. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :
(i) 2914 lb./ac.
(ii) 364.6 lb./ac.
(iii) Main effect of no. of seedlings/hole is highly significant.
(v) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>Mean</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>3138</td>
<td>2807</td>
<td>2775</td>
<td>2907</td>
<td>3215</td>
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<td>2694</td>
</tr>
<tr>
<td>S2</td>
<td>2642</td>
<td>2921</td>
<td>3081</td>
<td>2881</td>
<td>3384</td>
<td>2718</td>
<td>2541</td>
</tr>
<tr>
<td>S3</td>
<td>2791</td>
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<td>2857</td>
<td>2920</td>
<td>2914</td>
<td>2914</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>3303</td>
<td>3174</td>
<td>3154</td>
<td>3211</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>2565</td>
<td>2908</td>
<td>2823</td>
<td>2766</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>2702</td>
<td>2678</td>
<td>2920</td>
<td>2767</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 83.9 lb./ac.
S.E. of body of table = 148.8 lb./ac.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 spacings: $S_1 = 6' \times 6'$, $S_2 = 6' \times 10'$, and $S_3 = 10' \times 10'$.
(2) 3 levels of age of seedlings at planting: $A_1 = 3$, $A_2 = 4$ and $A_3 = 5$ weeks.
(3) 3 levels of no. of seedlings/hole: $B_1 = 2$, $B_2 = 4$ and $B_3 = 6$.

3. DESIGN:
(i) 3 partially Conf.
(ii) (a) 3 blocks/replication; 9 plots/block. (b) N.A.
(iii) 2. (iv) (a) 19' x 13'. (b) 18' x 6' x 12'. (c) 18' x 2' x 12' x 2' for different spacings.
(v) Yes—one non experimental row at each end of a plot. At the time of harvest one clump at each end of a block in a replication is treated as non-experimental area. Also 3' path between replications, 2' path between blocks and 1' path between plots. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) Nil. (c) Nil. (v) (a) Sabour, Dumka, Bikramganj and Patna. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 587.7 lb./ac.
(ii) 170.75 lb./ac.
(iii) Main effects of spacing and no. of seedlings/hole alone are highly significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$A_1$</th>
<th>$A_2$</th>
<th>$A_3$</th>
<th>Mean</th>
<th>$B_1$</th>
<th>$B_2$</th>
<th>$B_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>683.3</td>
<td>893.3</td>
<td>716.5</td>
<td>764.4</td>
<td>670.0</td>
<td>765.2</td>
<td>858.0</td>
</tr>
<tr>
<td>$S_2$</td>
<td>491.7</td>
<td>561.3</td>
<td>511.7</td>
<td>521.6</td>
<td>401.5</td>
<td>521.5</td>
<td>641.3</td>
</tr>
<tr>
<td>$S_3$</td>
<td>462.0</td>
<td>462.0</td>
<td>507.0</td>
<td>477.0</td>
<td>381.8</td>
<td>496.8</td>
<td>552.3</td>
</tr>
</tbody>
</table>

- S.E. of any marginal mean = 40.2 lb./ac.
- S.E. of body of table = 69.7 lb./ac.

Crop :- Paddy.
Site :- Rice Res. Stn. Sabour.
Ref :- Bh. 52(17).
Type :: C'.
Object :- To find the best mixtures of two varieties of Paddy as an insurance against failure of Hathia rains.

1. BASAL CONDITIONS:
(i) (a) Paddy—Paired gram—Green manuring—Paddy. (b) Gram. (c) Nil. (d) (a) Clayey loam. (b) N.A.
(ii) 19.6.52/16.7.52. (iv) (a) to (c) N.A. (v) Green manuring after 1st ploughing; after a month the green manured crop is put under soil with the help of Punjabi plough. (vi) 1385 (B) (Early Aman) and Kolawa Aus (BR—1) (Late). (vii) Irrigated. (viii) 2 weedicings at an interval of 3 weeks. (ix) 32.19'. (x) 10.10.52 for Kolawa. 13.11.52 for 1385 (B).

2. TREATMENTS:
1. 1385 (B) (8 lines) + Kolawa (8 lines).
2. 1385 (B) (10 lines) + Kolawa (6 lines).
3. 1385 (B) (12 lines) + Kolawa (4 lines).
4. 1385 (B) (16 lines) + Kolawa (no lines).
5. 1385 (B) (no lines) + Kolawa (16 lines).
3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 17'-3'x30'-9'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Poor (no lodging). (ii) Nil. (iii) Nil. (iv) (a) No. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 653.6 lb./ac.
(ii) 167.9 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>611.9</td>
</tr>
<tr>
<td>2</td>
<td>751.6</td>
</tr>
<tr>
<td>3</td>
<td>822.4</td>
</tr>
<tr>
<td>4</td>
<td>928.7</td>
</tr>
<tr>
<td>5</td>
<td>153.5</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>84.0 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Paddy.  Ref : Bh. 52(18).
Site : Rice Res. Stn. Sabour.  Type : 'C'.

Object: To study the best mixture of two varieties of Paddy as an insurance against failure of Hathia rains.

1. BASAL CONDITIONS:
(i) (a) Paddy—Paiya gram—Green manuring—Paddy. (b) Gram. (c) Nil. (d) Clayey loam. (b) N.A. (iii) 19.6.52/16.7.52. (iv) (a) to (e) N.A. (v) Green manuring after 1st ploughing; after a month the green manure crop is put under soil with the help of Punjabi plough. (vi) BK 36 and Kolawa (BR—1) (Late-Aman). (vii) Irrigated. (viii) 2 weedings at an interval of 3 weeks. (ix) 32.39°. (x) 13.10.52 for Kolawa. 7.12.52 for BK 36.

2. TREATMENTS:

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 11'-3"x30'-9". (v) N.A. (vi) Yes.

4. GENERAL:
(i) Poor (no lodging). (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 680.0 lb./ac.
(ii) 115.8 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>
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<td>775.2</td>
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<tr>
<td>3</td>
<td>891.3</td>
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<tr>
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<tr>
<td>5</td>
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<tr>
<td>S.E./mean</td>
<td>57.9 lb./ac.</td>
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</tbody>
</table>
Crop :- Paddy.  
Site :- Rice Res. Stn. Sabour.  
Object :- To study the response to different combinations of age of seedlings, spacing and no. of seedlings per hole for Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy-Paira gram-Green manuring-Paddy. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 47.51, 27.6.53, 20.6.53 for seedlings 3, 4 and 5 weeks old 124.7.53. (iv) Sunnhemp buried at 6227 lb./ac. on 17.7.53. with the help of Punjabi plough. (b) Transplanting. (c) 20 sr./ac. (d) & (e) As per treatments. (v) A/S at 20 lb./ac. of N— Super at 15 lb./ac. of P_106 (vi) BK 36—BR-7. (vii) Irrigated. (viii) 2 weedings at an interval of 3 weeks. (ix) 39.05'. (x) 20.12.53.

2. TREATMENTS:
   All combinations of (1), (2) and (3).
   (i) 3 spacings :— S_1 = 6" x 6", S_2 = 6" x 10" and S_3 = 10" x 10".
   (ii) 3 levels of age of seedlings at planting :— A_1 = 3, A_2 = 4 and A_3 = 5 weeks.
   (iii) 3 levels of no. of seedlings/hole :— B_1 = 2, B_2 = 4 and B_3 = 6.

3. DESIGN:
   (i) 3• partially Confd. (ii) (a) 3 blocks /replication ; 9 plots/block. (b) N.A. (iii) 2, (iv) (a) 28' x 8'. (b) 28' x 8' (v) No. (vi) Yes.

4. GENERAL:
   (i) Good (no lodging). (ii) Nil. (iii) Yield of grain, yield of straw. (iv) (a) 1953—continued. (b) Not in the first year but subsequently in the same plots. (c) Nil. (v) (a) Bikramganj, Ranchi, Patna, Dumka & Purnea. (b) Nil (vi) & (vii) Nil.

5. RESULTS:
   (i) 2467 lb./ac.
   (ii) 308.3 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.
   
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   S.E. of any marginal mean = 72.7 lb./ac.
   S.E. of body of the table. = 125.9 lb./ac.

Ref :- Bh. 53(33).
Type :- 'MV'.
2. TREATMENTS:

Main-plot treatments:
- 2 varieties: V1=Brk 36 (late) & V2=498-2A (late).

Sub-plot treatments:
- 4 levels of N: N0=0, N1=40, N2=60 & N3=80 lb./ac.

Sub-sub-plot treatments:
- 4 levels of P: P0=0, P1=20, P2=40 & P3=60 lb./ac.

N applied as A/S; P2O5 as Super.
Super broadcast; N applied at planting and one month later.

3. DESIGN:
- (i) Split-split plot. (ii) 2 main-plots/block; 4 sub-plots/main-plot; 4 sub-sub-plots/sub-plot. (b) N.A.
- (iii) 3. (iv) (a) Sub-sub plot 15'×9' (b) 14'×8'. (v) One non-experimental row around the net plot; 2' path between main-plots, 2' path between replications. (vi) Yes.

4. GENERAL:
- (i) N.A. (ii) Leaf burn disease; no control measures taken. (iii) No. of tillers, height, flowering data, ear length and yield of grain and straw. (iv) (a) 1953-54. (b) No. (c) Nil. (v) (a) Sabour, Patna, Kanke, Dumka & Purnea. (b) Nil. (vi) Yes. (vii) Great damage due to floods. (viii) Nil.

5. RESULTS:
- (i) 2634 lb./ac.
- (ii) (a) 1033.4 lb./ac.
- (b) 399.0 lb./ac.
- (c) 268.4 lb./ac.
- (iii) Only main 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. marginal means of V = 210.9 lb./ac.
2. marginal means of N = 77.4 lb./ac.
3. marginal means of P = 115.2 lb./ac.
4. P means at the same level of V = 162.9 lb./ac.
5. V means at the same level of P = 253.8 lb./ac.
6. P means at the same level of N = 176.8 lb./ac.
7. N means at the same level of P = 154.9 lb./ac.
8. N means at the same level of V = 109.5 lb./ac.
9. V means at the same level of N = 231.3 lb./ac.

Crop: Paddy.  
Site: Botanical Sub-Stn. Kanke.  
Object: To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS:
- (i) (a) Paddy-Fallow—Paddy. (b) Paddy. (c) N.A. (ii) (a) Lateritic soil. (b) N.A. (iii) 24.6.53/11th and 12th August, 1953. (iv) (a) After 3 ploughings with deshi plough, the field was green measured.
25

with *Dhaincha*. (b) Transplanting. (c) 10 sm./ac. (d) 6' x 6'. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Weeding 3 times. (a) 55.31'. (a) 14.12.53.

2. TREATMENTS:

Main-plot treatments:

2 varieties: \( V_1 = BK 36 \) and \( V_2 = 498-2A \).

Sub-plot treatments:

4 levels of \( P: P_0 = 0, P_1 = 20, P_2 = 40 \) and \( P_3 = 60 \) lb./ac.

Sub-sub-plot treatments:

4 levels of \( N: N_0 = 0, N_1 = 40, N_2 = 60 \) and \( N_3 = 80 \) lb./ac.

N applied as A/S; \( P_0 D_0 \) as Super.

3. DESIGN:

(i) Split-split plot. (ii) (a) 2 main-plots/block; 4 sub-plots/main-plot; 4 sub-sub-plots/sub-plot. (b) N.A.

(iii) 3. (iv) (a) Sub sub 10' x 10'. (b) 9'-6' x 9'-6'. (v) 3' border all round the plot. (vi) Yes.

4. GENERAL:

(i) Good (no lodging). (ii) Nil. (iii) Yield of grain and straw; data of flowering. (iv) (a) No. (b) No.

(c) No. (v) (a) Sabour, Patna, Dumka, Purnea and Bikramganj. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 3433 lb./ac.

(ii) (a) 653.3 lb./ac.

(b) 413.6 lb./ac.

(c) 343.6 lb./ac.

(iii) Main effect of \( P \) is highly significant; main effect of \( N \) is significant, while others are not significant.

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

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<th>( V_2 )</th>
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<th>( N_0 )</th>
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S.E. of difference of two

1. marginal means of \( V \) = 133.4 lb./ac.
2. marginal means of \( P \) = 119.4 lb./ac.
3. marginal means of \( N \) = 99.2 lb./ac.
4. \( N \) means at the same level of \( V \) = 140.2 lb./ac.
5. \( V \) means at the same level of \( N \) = 180.4 lb./ac.
6. \( N \) means at the same level of \( P \) = 198.4 lb./ac.
7. \( P \) means at the same level of \( N \) = 202.2 lb./ac.
8. \( P \) means at the same level of \( V \) = 168.9 lb./ac.
9. \( V \) means at the same level of \( P \) = 197.9 lb./ac.

Object: To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 17.9.53/25.7.53 and 26.7.53. (iv) (a) 3 ploughings by desi plough. (b) Transplanting. (c) 10 srs/ac. (d) 9”x9”. (a) 3 to 4. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 1.12.53 and 2.12.53.

2. TREATMENTS:
   Main-plot treatments:
   2 varieties: V1 = BK36 (late) and V2 = 498-2A (late).
   Sub-plot treatments:
   4 levels of P: P0 = 0, P1 = 20, P2 = 40 and P3 = 60 lb/ac.
   Sub-sub-plot treatments:
   4 levels of N: N0 = 0, N1 = 40, N2 = 60 and N3 = 80 lb/ac.
   N applied as A/S; P2O5 as Super.
   Manures broadcast and mixed with soil before transplanting.

3. DESIGN:
   (i) Split-split plot. (ii) (a) 2 main-plots/block; 4 sub-plots/main-plot; 4 sub-sub-plots/sub-plot. (b) 58”x85”. (iii) 3. (iv) (a) 12”-10”x8”-6”. (b) 9”-10”x5”-6”. (v) 1” path around the sub-sub-plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Germination, yield of grain. (iv) (a) 1953-1954. (b) No. (c) Nil. (v) (a) Sabour, Patana, Kanke, Bikramganj and Purnea. (b) Nil. (vi) and (vii) Nil

5. RESULTS:
   (i) 5537 lb/ac.
   (ii) (a) 4906.4 lb/ac. (b) 2195.8 lb/ac. (c) 1595.3 lb/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb/ac.

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<th></th>
<th>V1</th>
<th>V2</th>
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S.E. of difference of two
1. marginal means of V = 1001.5 lb/ac.
2. marginal means of P = 635.8 lb/ac.
3. marginal means of N = 460.6 lb/ac.
4. N means at the same level of V = 651.3 lb/ac.
5. V means at the same level of N = 1149.4 lb/ac.
6. N means at the same level of P = 921.1 lb/ac.
7. P means at the same level of N = 1018.9 lb/ac.
8. P means at the same level of V = 856.3 lb/ac.
9. V means at the same level of P = 1267.1 lb/ac.
Crop :- Paddy.
Site :- Botanical Sub-Stn., Patna
Ref :- Bh. 53(92).
Type :- 'MV'.

Object :- To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS :
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 22.7.53. (iv) (a) Four ploughings by
deshi plough. (b) N.A. (c) 7 to 10 sorrs/ac. (d) 9"x9". (e) ± to 3. (v) No. (vi) As per treatments

2. TREATMENTS :
Main-plot treatments :-
2 varieties : V_1 = B.K. 36 (late) and V_2 = 498-2A (late).
Sub-plot treatments :-
4 levels of P : P_0 = 0, P_1 = 20, P_2 = 40 and P_3 = 60 lb./ac.
Sub-sub-plot treatments :-
4 levels of N : N_0 = 0, N_1 = 40, N_2 = 60 and N_3 = 80 lb./ac.
N applied as A/S ; P_205 as Super. Broad casting full dose of P. N applied 1/2 at planting and the other half one month later.

3. DESIGN :
(i) Split-split plot. (ii) (a) 2 main-plots/block : 4 sub-plots/main-plot ; 4 sub-sub-plots/sub-plot. (b) N.A.
(iii) 3. (iv) (a) (main-plot) 34'x51'-4". (sub-plot) 8'-6"x51'-4". (sub-sub-plot) 8'-6"x12'-10".
(b) sub-sub plot 5'-6"x9'-10". (v) 1' border around the net plot. (vi) Yes.

4. GENERAL :
(i) Good (no lodging). (ii) Nil. (iii) Yield of grain, growth, no. of tillers. (iv) (a) 1953-1954. (b) No.
(c) Nil. (v) (a) Bikramganj and Sabour. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
(i) 3834 lb./ac.
(ii) (a) 1020.8 lb./ac.
(b) 675.2 lb./ac.
(c) 660.6 lb./ac.
(iii) The effect of P_205 is significant, the interaction N x P 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 V = 268.4 lb./ac.
2. marginal means of P = 194.8 lb./ac.
3. marginal means of N = 190.6 lb./ac.
4. N means at the same level of V = 269.6 lb./ac.
5. V means at the same level of N = 312.9 lb./ac.
6. N means at the same level of P = 381.3 lb./ac.
7. P means at the same level of N = 383.4 lb./ac.
8. P means at the same level of V = 295.6 lb./ac.
9. V means at the same level of P = 316.8 lb./ac.
Crop: Paddy.
Site: Botanical Sub-Stn., Purnea.
Ref: Bh. 53(99).
Type: 'MV'.

Object: To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy—Fallow—Paddy. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 25, 26.5.63/27th to 31st August, 1953. (iv) (a) 2 deshi ploughings followed by puddling. (b) Transplanting. (c) 20 rns./ac. (d) 10' x 10'. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Nil. (ix) 50.32'. (x) 26th & 27th Dec. 1953.

2. TREATMENTS:
   Main-plot treatments:—
   2 varieties: V1 = BK 36 (late) and V2 = 498-2 A (late).
   Sub-plot treatments:—
   4 levels of N: N0 = 0, N1 = 40, N2 = 60 and N3 = 80 lb./ac.
   Sub-sub-plot treatments:—
   4 levels of P: P0 = 0, P1 = 20, P2 = 40 & P3 = 60 lb./ac.
   N applied as A/S; P06 as Super.
   Manures applied half at planting and half at interculturing.

3. DESIGN:
   (i) Split-split plot. (ii) (a) 2 main-plots/block; 4 sub-plots/main-plot; 4 sub-sub-plots/sub-plot. (b) N.A.
   (iii) 3. (iv) (a) 5'x5' ; 1'x5' ; 11'x12'. (b) Sub-sub-plot 10'-2"x11'-2". (v) One non-experimental row left on both sides of each plot and one clump at each end of each row treated as non-experimental. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) Yield of grain and straw only. (iv) (a) 1953-1954. (b) No. (c) Nil. (v) (a) Sabour, Dumka, Bikramganj and Patna. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 692.9 lb./ac.
   (ii) 365.3 lb./ac.
   (b) 365.5 lb./ac.
   (c) 129.7 lb./ac.
   (iii) Main effects of varieties and N are highly significant. Effect of P06 is not significant. Interaction N x V is significant.
   (iv) Av. yield of grain in lb./ac.

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<td>735.4</td>
<td>747.4</td>
<td>771.4</td>
</tr>
<tr>
<td>N3</td>
<td>615.5</td>
<td>1117.1</td>
<td>866.3</td>
<td>863.3</td>
<td>799.4</td>
<td>903.3</td>
<td>899.3</td>
</tr>
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<td>Mean</td>
<td>514.1</td>
<td>871.8</td>
<td>692.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P0</td>
<td>573.5</td>
<td>843.3</td>
<td>708.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td>435.7</td>
<td>843.3</td>
<td>639.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2</td>
<td>519.6</td>
<td>909.3</td>
<td>714.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3</td>
<td>527.6</td>
<td>891.3</td>
<td>709.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. marginal means of V
2. marginal means of N
3. marginal means of P
4. P means at the same level of V
5. V means at the same level of P
6. P means at the same level of N
7. N means at the same level of P
8. N means at the same level of V
9. V means at the same level of N
Crop: Paddy.  
Ref: Bh. 53(9).  
Site: Rice Res. Stn., Sabour.  
Type: 'MV'.

Object: To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Paddy—Paiga gram—Green manuring—Paddy. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A.  
   (iii) 17.6.53-29.7.53. (iv) (a) Sunnhemp at 1 mel/ac was sown after one ploughing on 22.6.53. It was  
   buried under the soil on 27.7.53 and 5984 lb. of sunnhemp humus was buried with the help of Punjabi  
   plough. (b) Transplanting. (c) —. (d) 6' x 9'. (e) 2 to 3. (f) Nil. (vi) As per treatments. (vii)  
   Irrigated. (viii) 3 weedicings each at an interval of 3 weeks. (ix) 39.05°. (x) 16.12.53.

2. TREATMENTS:
   Main-plot treatments:—
   2 varieties: V1 = BK 36 and V2 = 498-2A. (late)
   Sub-plot treatments:—
   4 levels of P: P0 = 0, P1 = 20, P2 = 40 and P3 = 60 lb./ac.
   Sub-sub-plot treatments:—
   4 levels of N: N0 = 0, N1 = 40, N2 = 60 and N3 = 80 lb./ac.
   N applied as A/S; P205 = Super.

3. DESIGN:
   (i) Split-split plot. (ii) (a) 2 main-plots/replication; 4 sub-plots/main-plot; 4 sub-sub-plots/sub-plot.  
   (b) N.A. (iii) 3. (iv) a) (sub-sub-plot) 14' x 10'. (b) 11' x 7'. (v) 2' path between main plot. 24'  
   path between each block; 1' all round each sub-sub-plot (vi) Yes.

4. GENERAL:
   (i) Good (no lodging). (ii) N.A. (iii) Height; ear bearing tillers, ear length; weight of straw; yield of  
   grain. (iv) (a) 1953—continued. (b) N.A. (c) Nil. (v) (a) Ranchi, Bitramganj and Patna. (b) N.A.  
   (vi) Nil. (vii) Design changed from 1954 with addition of some factors.

5. RESULTS:  
   (i) 2054 lb./ac.  
   (ii) (a) 427.0 lb./ac.  
   (b) 298.0 lb./ac.  
   (c) 57.4 lb./ac.  
   (iii) Only the main effect of N is highly significant. Other effects & interactions are not significant.

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

<table>
<thead>
<tr>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>2074 2124 2124</td>
<td>2227 2275 2080 1915</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td>1956 2135 2046</td>
<td>2068 2334 2133 1650</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2</td>
<td>1950 2151 2051</td>
<td>2104 2180 2098 1821</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3</td>
<td>1874 2113 1993</td>
<td>2127 2163 2033 1650</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Mean 1964 2144 2054

   | N0 | 2110 2154 2132 |
   | N1 | 2171 2304 2228 |
   | N2 | 1989 2183 2046 |
   | N3 | 1585 1933 1757 |

   S.E. of difference of two
   1. marginal means of V = 87.1 lb./ac.
   2. marginal means of P = 86.0 lb./ac.
   3. marginal means of N = 91.6 lb./ac.
   4. N means at the same level of V = 129.6 lb./ac.
   5. V means at the same level of N = 142.1 lb./ac.
   6. N means at the same level of P = 183.3 lb./ac.
   7. P means at the same level of N = 180.3 lb./ac.
   8. P means at the same level of V = 121.2 lb./ac.
   9. V means at the same level of P = 136.7 lb./ac.
Crop :- Paddy (Kharif).
Site :- Botanical Sub-Str. Sepaya.

Object :- To test the Japanese method vs. local method of Paddy cultivation.

1. BASAL CONDITIONS :
   (i) (a) Paddy—Fallow—Paddy. (b) Paddy in previous Kharif & fallow in Rabi. (c) N.A.  
   (ii) (a) Clay loam. (b) N.A. (iii) 3.6.53/10.7.53. (iv) (a) 5 ploughings by Bihar plough. (b) As per treatments.  
   (c) 7 sr/ac. (d) 10" x 10". (e) 3. (v) Nil (vi) Kalamdan local (Medium) (vii) Irrigated. (viii) One hoeing; one weeding; and one earthing.  

2. TREATMENTS :
   1. Control (Local method of cultivation).
   2. Local method of cultivation+5 mds/ac. of Castor cake and one md/ac. of A/S.
   3. Local method of cultivation+manuring at 10 C.L./ac. of F.Y.M. ploughed at the time of transplanting+200 lb/ac. of A/S.
   4. Local method of cultivation+manuring according to Japanese method viz. 10 C.L./ac. of F.Y.M. ploughed in soil at the time of transplanting+100 lb/ac. of A/S & 100 lb/ac. of Super mixed and applied at the time of transplanting+100 lb/ac. of A/S & 100 lb/ac. of Super mixed and applied one month after transplanting.
   5. Manuring same as 4 but with Japanese method of paddy cultivation.

3. DESIGN :
   (i) R.B.D. (ii) (a) 5. (b) 201' x 145'-8". (iii) 5 (iv) (a)42' x 29'-4" (b) 40' x 27'-4". (v) 1' around. (vi) Yes.

4. GENERAL :
   (i) Good (no lodging). (ii) Nil (iii) Grian yield & straw weight. (iv) (a) 1953—1954. (b) Yes. (c) Nil.  
   (v) (a) N.A. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 28:5 lb/ac.
   (ii) 175.9 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>2647</td>
</tr>
<tr>
<td>2.</td>
<td>2658</td>
</tr>
<tr>
<td>3.</td>
<td>2927</td>
</tr>
<tr>
<td>4.</td>
<td>3127</td>
</tr>
<tr>
<td>5.</td>
<td>2945</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>= 78.7 lb/ac.</td>
</tr>
</tbody>
</table>

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

Object :- To study the effect of intensity of irrigation on the yield of Paddy.

1. BASAL CONDITIONS :
   (i) (a) Not followed. (b) N.A. (c) N.A.  
   (ii) (a) Loam. (b) N.A. (iii) 8.7.53. (iv) (a) 5 to 6 deshi ploughings. (b) N.A. (c) 20 sr/ac. (d) 10" x 10". (e) 2 to 3. (v) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 51.60' x N.A.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) 1951-53. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil (vii) Results for 1951 & 1952, N.A.

5. RESULTS:
(i) 1633 lb/ac.
(ii) 163.2 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>1479</td>
</tr>
<tr>
<td>2.</td>
<td>1577</td>
</tr>
<tr>
<td>3.</td>
<td>1687</td>
</tr>
<tr>
<td>4.</td>
<td>1790</td>
</tr>
</tbody>
</table>

S E./mean = 66.6 lb/ac.

Crop: - Paddy (1st. crop) Ref: - Simple trials on cultivators' fields, (T.C.M.) 1953.
Centre: - Pusa (Bihar) Type: - 'M'.

Object: - (i) (b) (ii) To study the effect of different levels and types of N and P.

1. BASAL CONDITIONS:

2. TREATMENTS:
0 = Control.
P = 20 lb/ac. of P2O5 as Super.
N1P = A/S at 20 lb./ac. of N+20 lb./ac. of P2O5 as Super.
N2P = A/S at 40 lb./ac. of N+20 lb./ac. of P2O5 as Super.
N1P = Urea at 20 lb./ac. of N+20 lb./ac. of P2O5 as Super.
N2P = Urea at 40 lb./ac. of N+20 lb./ac. of P2O5 as Super.
All fertilizers applied before planting.

3. DESIGN:
(i) & (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) N.A. (vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb/ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1117</td>
</tr>
<tr>
<td>P</td>
<td>1358</td>
</tr>
<tr>
<td>N1P</td>
<td>1506</td>
</tr>
<tr>
<td>N2P</td>
<td>1758</td>
</tr>
<tr>
<td>N1P</td>
<td>1460</td>
</tr>
<tr>
<td>N2P</td>
<td>1517</td>
</tr>
<tr>
<td>G.M.</td>
<td>1452</td>
</tr>
<tr>
<td>S.E./Mean</td>
<td>36.2 lb/ac.</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>55</td>
</tr>
</tbody>
</table>
Crop :-Paddy (1st. crop). Ref :-Simple trials on cultivators' fields, (T.C.M.) 1953.  
Centre :- Pusa (Bihar).  
Type :- 'M'.

Object :- II To study the effect of N, P & K manures.

1. BASEL CONDITIONS:

2. TREATMENTS:
   0 = Control  
   N = A/S at 20 lb./ac. of N  
   NP = A/S at 23 lb./ac. of N+Super at 20 lb./ac. of P₂O₅  
   N'P = A/N at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅  
   N"P = Urea at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅  
   NPK = A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅+Mur. of Pot. at 20 lb./ac. of K₂O  
   All fertilizers applied before planting.

3. DESIGN:
   (i) & (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL:
   (i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) Nil. (vi) Nil. (vii) Nil.

4. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1747</td>
</tr>
<tr>
<td>N</td>
<td>2112</td>
</tr>
<tr>
<td>NP</td>
<td>2276</td>
</tr>
<tr>
<td>N'P</td>
<td>2565</td>
</tr>
<tr>
<td>N&quot;P</td>
<td>2437</td>
</tr>
<tr>
<td>NPK</td>
<td>2507</td>
</tr>
<tr>
<td>G.M.</td>
<td>2277</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>112.7 lb./ac.</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>19</td>
</tr>
</tbody>
</table>

Crop :-Paddy (1st. crop). Ref :-Simple trials on cultivators' fields, (T.C.M.) 1953.  
Centre :-Pusa (Bihar).  
Type :- 'M'.

Object :- III To study effect of A/S with different sources of P.

1. BASEL CONDITIONS:

2. TREATMENTS:
   0 = Control  
   N = A/S at 20 lb./ac. of N  
   NP = A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅  
   N'P = A/S at 20 lb./ac. of N+Nitro-phos. at 20 lb./ac. of P₂O₅  
   N"P = A/S at 20 lb./ac. of N+Ammo. Phos. at 20 lb./ac. of P₂O₅  
   All fertilizers applied before planting.
3. DESIGN:

(i & ii) Eleven community project centres representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1103</td>
</tr>
<tr>
<td>N</td>
<td>1497</td>
</tr>
<tr>
<td>NP</td>
<td>1585</td>
</tr>
<tr>
<td>NP'</td>
<td>1539</td>
</tr>
<tr>
<td>NP''</td>
<td>1698</td>
</tr>
<tr>
<td>G.M.</td>
<td>1622</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>45.25 lb./ac.</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>41</td>
</tr>
</tbody>
</table>

Crop :-Paddy (1st crop). Ref :-Simple Trials on Cultivators' Fields, (T.C.M.) 1953, Centre :-Rameshwar (Bihar). Type :- 'M'.

Object :-III—to study effect of A/S with different sources of P.

1. BASAL CONDITIONS:


2. TREATMENTS:

O = Control (2 plots/field).
N = A/S at 20 lb./ac. of N.
NP = A/S at 20 lb./ac. of N + Super at 20 lb./ac. of P₂O₅.
NP'' = A/S at 20 lb./ac. of N + Amm. Phos. at 20 lb./ac. of P₂O₅.
All fertilizers applied before planting.

3. DESIGN:

(i & ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1340</td>
</tr>
<tr>
<td>N</td>
<td>1611</td>
</tr>
<tr>
<td>NP</td>
<td>1883</td>
</tr>
<tr>
<td>NP''</td>
<td>1799</td>
</tr>
<tr>
<td>G.M.</td>
<td>1658</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>51.01 lb./ac.</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>15</td>
</tr>
</tbody>
</table>
Crop :- Paddy (1st crop). Ref :- Simple Trials on Cultivators’ Fields (T.C.M.) 1953.
Centre :- Rameshwar (Bihar) Type :- ‘M’.

Object :- (i) (b) (ii) To study the effect of different levels and types of N and P₂O₅.

1. BASAL CONDITIONS :

2. TREATMENTS :
   O = Control.
   P = Super at 20 lb./ac. of P₂O₅.
   N₁P = A/S at 20 lb./ac. of N + 20 lb./ac. of P₂O₅ as super.
   N₂P = A/S at 40 lb./ac. of N + 20 lb./ac. of P₂O₅ as Super.
   N³P = Urea at 20 lb./ac. of N + 20 lb./ac. of P₂O₅ as Super.
   N⁺⁺P = Urea at 40 lb./ac. of N + 20 lb./ac. of P₂O₅ as Super. All fertilizers applied before planting.

3. DESIGN :
   (i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trials. In each selected field an un replicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :
   (i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953—56. (b) No. (c) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1622</td>
</tr>
<tr>
<td>P</td>
<td>1929</td>
</tr>
<tr>
<td>N₁P</td>
<td>2100</td>
</tr>
<tr>
<td>N₂P</td>
<td>2305</td>
</tr>
<tr>
<td>N³P</td>
<td>2095</td>
</tr>
<tr>
<td>N⁺⁺P</td>
<td>2262</td>
</tr>
<tr>
<td>G.M.</td>
<td>2052</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>26.33</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>28</td>
</tr>
</tbody>
</table>

Crop :- Paddy (1st crop). Ref :- Simple Trials on Cultivators’ Fields (T.C.M.) 1953.
Site :- Rameshwar (Bihar) Type :- ‘M’.

Object :- (i) To study the effect of N, P and K manures.

1. BASAL CONDITIONS :

2. TREATMENTS :
   O = Control (2 plots/field).
   N = A/S at 20 lb./ac. of N.
   N⁺⁺ = Urea at 20 lb./ac. of N.
   N⁺⁺⁺ = A/S at 20 lb./ac. of N + 40 lb./ac. of K₂O as Muriate of Potash.
   All fertilizers applied before planting.
3. DESIGN:
(i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953–56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>993</td>
</tr>
<tr>
<td>N</td>
<td>1343</td>
</tr>
<tr>
<td>N'</td>
<td>1363</td>
</tr>
<tr>
<td>N+40K</td>
<td>1553</td>
</tr>
<tr>
<td>G.M.</td>
<td>1313</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>27.15 lb./ac.</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>33</td>
</tr>
</tbody>
</table>

Crop → Paddy (1st crop). Ref → Simple Trials on Cultivators’ Fields (T.C.M.) 1953. Site → Rameshwar (Bihar). Type → ‘M’.

Object → II To study the effect of N, P and K manures

1. BASAL CONDITIONS:

2. TREATMENTS:
O = Control.
N = A/S at 20 lb./ac. of N.
NP = A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P2O5.
N'P = Urea at 20 lb./ac. of N+Super at 20 lb./ac. of P2O5.
NPK = A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P2O5 + Mar. of Pot. at 20 lb./ac. of K2O. All fertilizers applied before planting.

3. DESIGN:
(i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953–56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1699</td>
</tr>
<tr>
<td>N</td>
<td>1962</td>
</tr>
<tr>
<td>NP</td>
<td>2194</td>
</tr>
<tr>
<td>N'P</td>
<td>2167</td>
</tr>
<tr>
<td>NPK</td>
<td>2417</td>
</tr>
<tr>
<td>G.M.</td>
<td>2087</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>33.73 lb./ac.</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>21</td>
</tr>
</tbody>
</table>
Centre : Rameshwar (Bihar). Type : 'M'.

Object :— I (a) (ii) To study the effect of different levels and sources of N.

1. BASAL CONDITIONS:

2. TREATMENTS:
   O = Control (2 plots/field).
   \( N_1 = \text{A/S at } 20 \text{ lb./ac. of N} \)
   \( N_2 = \text{A/S at } 40 \text{ lb./ac. of N} \)
   \( N'_1 = \text{Urea at } 20 \text{ lb./ac. of N} \)
   \( N'_2 = \text{Urea at } 40 \text{ lb./ac. of N} \)
   All fertilizers applied before planting.

3. DESIGN:
   (i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL:
   (i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) Nil. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1029</td>
</tr>
<tr>
<td>( N_1 )</td>
<td>1327</td>
</tr>
<tr>
<td>( N_2 )</td>
<td>1558</td>
</tr>
<tr>
<td>( N'_1 )</td>
<td>1369</td>
</tr>
<tr>
<td>( N'_2 )</td>
<td>1604</td>
</tr>
<tr>
<td>G.M.</td>
<td>1377</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>26.33 lb./ac.</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>36</td>
</tr>
</tbody>
</table>

Centre : Rameshwar (Bihar). Type : 'M'.

Object :— III To study effect of A/S with different sources of \( P_2O_5 \).

1. BASAL CONDITIONS:

2. TREATMENTS:
   O = Control.
   \( N = \text{A/S at } 20 \text{ lb./ac. of N} \)
   \( NP' = \text{A/S at } 20 \text{ lb./ac. of N} + \text{Ammon. Phos. at } 20 \text{ lb./ac. of } P_2O_5 \)
   All fertilizers applied before planting.

3. DESIGN:
   (i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were
selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL:

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>993</td>
</tr>
<tr>
<td>N</td>
<td>1322</td>
</tr>
<tr>
<td>NP</td>
<td>1492</td>
</tr>
<tr>
<td>G.M.</td>
<td>1269</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>35.38 lb./ac.</td>
</tr>
<tr>
<td>No. of expts.</td>
<td>30</td>
</tr>
</tbody>
</table>

Crop :- Wheat.  
Site :- Botanical Sub-Stn. Monghyr.  
Object :- To study the effect of locally available green weeds as source of raw material for making compost.

1. BASAL CONDITIONS:
(i) (a) No. (b) Wheat. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 18.11.53. (iv) (a) G.M. buried with help of Bihar plough; four deshi ploughings. (b) Sown behind the plough. (c) 40 srs./ac. (d) 1' between rows. (e) ---. (v) Nil. (vi) N.P. 52.—(late). (vii) Unirrigated. (viii) Weeding after a month of sowing and another after 3 weeks. (ix) 1.13'. (x) 18.3.54.

2. TREATMENTS:
1. Control (no green matter).
2. Chakora green matter turning under on 27.9.53.
3. Jangli Til
4. Sunnhemp
5. Dhaincha
6. Jute leaves
7. Chakora compost turned under.
8. Jangali Til
9. Mirchaya
10. Kokrandha

3. DESIGN:
(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 5'x5'. (b) 4'x4'. (v) 1' around the plot. (vi) Yes.

4. GENERAL:
(i) Normal (no lodging). (ii) N.A. (iii) Yield of grain. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 298.5 lb./ac.
(ii) 93.2 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>200.3</td>
</tr>
<tr>
<td>2.</td>
<td>146.8</td>
</tr>
<tr>
<td>3.</td>
<td>283.6</td>
</tr>
<tr>
<td>4.</td>
<td>268.3</td>
</tr>
<tr>
<td>5.</td>
<td>320.2</td>
</tr>
<tr>
<td>6.</td>
<td>371.8</td>
</tr>
<tr>
<td>7.</td>
<td>344.1</td>
</tr>
<tr>
<td>8.</td>
<td>318.6</td>
</tr>
<tr>
<td>9.</td>
<td>364.3</td>
</tr>
<tr>
<td>10.</td>
<td>371.2</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>46.6 lb./ac.</td>
</tr>
</tbody>
</table>
Crop : Wheat.

Site : Botanical Sub-Stn. Monghyr.

Object : To study the response to Sunnhemp and Dhaincha applied to Wheat one month after sowing and at budding and flowering stage, in situ and after cutting.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) Wheat and Gram. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 19.11.53. (iv) (a) G.M. buried with the help of Bihar plough, 4 dessi ploughings. (b) Sown behind the plough. (c) 40 yrs./ac. (d) Row to row 1'. (e) —. (vi) Nil. (vii) N.P. 52 (late). (viii) Unirrigated. (vii) Weeding after a month of sowing and another after 3 weeks. (ix) 1.13'. (x) 16.3.54 and 17.3.54.

2. TREATMENTS:
   All combinations of (1), (2) and (3) + a Control.
   (1) 2 sources of G.M. : G1 = Sunnhemp and G2 = Dhaincha.
   (2) 2 methods of application : M1 = grown in situ and M2 = applied after cutting.
   (3) 3 times of application : T1 = one month after sowing; T2 = at budding stage and T3 = at flowering stage.

3. DESIGN:
   (i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 15' x 45'. (b) 13' x 41'. (v) A non-experimental of 2' width along the length, and 1' along the breadth of the plot; 3' path between adjacent plots and 5' path between adjacent blocks. (vi) Yes.

4. GENERAL:
   (i) Normal (no lodging). (ii) N.A. (iii) Germination, stand after one month and yield of grain. (iv) (a) No. (b) Nil. (c) Nil. (v) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 274.2 lb./ac.
   (ii) 124.4 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>G1</th>
<th>G2</th>
<th>Mean</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>245.6</td>
<td>275.8</td>
<td>260.7</td>
<td>311.9</td>
<td>261.4</td>
<td>208.8</td>
</tr>
<tr>
<td>M2</td>
<td>281.1</td>
<td>294.2</td>
<td>287.6</td>
<td>262.7</td>
<td>268.6</td>
<td>331.6</td>
</tr>
<tr>
<td>Mean</td>
<td>263.4</td>
<td>285.0</td>
<td>274.2</td>
<td>267.3</td>
<td>307.3</td>
<td>287.3</td>
</tr>
<tr>
<td>T1</td>
<td>267.3</td>
<td>307.3</td>
<td>287.3</td>
<td>266.0</td>
<td>264.0</td>
<td>265.0</td>
</tr>
<tr>
<td>T2</td>
<td>256.8</td>
<td>283.7</td>
<td>370.2</td>
<td>256.8</td>
<td>283.7</td>
<td>370.2</td>
</tr>
<tr>
<td>S.E. of control mean</td>
<td>62.2 lb./ac.</td>
<td>S.E. of marginal mean of G or M</td>
<td>25.4 lb./ac.</td>
<td>S.E. of marginal mean of T</td>
<td>31.0 lb./ac.</td>
<td>S.E. of body of G X M table</td>
</tr>
</tbody>
</table>
Crop :- Wheat.  
Site :- Central Botanical Sub-Stn., Pusa.  
Object :- To find out the best source of $P_2O_5$ to be combined with Oilcake.

1. **BASAL CONDITIONS**:
   (i) (a) G.M. - Wheat. (b) G.M. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) First week of Nov. 1953. (iv) (a) 3 deskhi ploughings followed by one discing. (b) Sown behind the plough. (c) 40 srs./ac. (d) Row to row. =1'. (e) — (v) Nil. (vi) N.P. 758 (Medium). (vii) Irrigated. (viii) 2 weedings at an interval of 2 months, first weeding after a month of sowing. (ix) 1.07'. (x) First week of April, 1954.

2. **TREATMENTS**:
   1. No manure.
   2. Oilcake at 40 lb./ac. of N.
   3. Oilcake at 40 lb./ac. of N + Rock Phosphate at 80 lb./ac. of $P_2O_5$ broadcast.
   4. Oilcake at 40 lb./ac. of N + Super at 80 lb./ac. of $P_2O_5$ broadcast.
   5. Oilcake at 40 lb./ac. of N + Rock Phosphate at 80 lb./ac. of $P_2O_5$ placed.
   6. Oilcake at 40 lb./ac. of N + Super at 80 lb./ac. of $P_2O_5$ placed.

3. **DESIGN**:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 45' x 21'. (v) 2' border around the experimental field. (vi) Yes.

4. **GENERAL**:
   (i) Fair (no lodging). (ii) Nil. (iii) Yield of grain only. (iv) (a) 1953—continued. (b) Yes. (c) Nil. (v) (a) Delhi. (b) Nil. (vi) and (vii) Nil.

5. **RESULTS**:
   (i) 331.5 lb./ac.
   (ii) 48.39 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>175</td>
</tr>
<tr>
<td>2.</td>
<td>323</td>
</tr>
<tr>
<td>3.</td>
<td>338</td>
</tr>
<tr>
<td>4.</td>
<td>336</td>
</tr>
<tr>
<td>5.</td>
<td>498</td>
</tr>
<tr>
<td>6.</td>
<td>439</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>±24.20 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Wheat.  
Site :- Central Botanical Sub-Stn., Pusa.  
Object :- To find out the best source of $P_2O_5$ to be combined with A/S and F.Y.M.

1. **BASAL CONDITIONS**:
   (i) (a) G.M. - Wheat. (b) G.M. (Sunnhemp). (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) First week of Nov. 1953. (iv) (a) 3 deskhi ploughings followed by one discing. (b) Sown behind the plough. (c) 40 srs./ac. (d) Row to row=1'. (e) — (v) Nil. (vi) N.P. 710 (Medium). (vii) Irrigated. (viii) 2 weedings at an interval of 2 months, first weeding after a month of sowing. (ix) 1.07'. (x) First week of April, 1954.

2. **TREATMENTS**:
   1. No manure.
   2. A/S at 40 lb./ac. of N.
   3. F.Y.M. at 80 lb./ac. of N.
   4. Dicalcium Phosphate at 80 lb./ac. of $P_2O_5$.
   5. Dicalcium Phosphate at 80 lb./ac. of $P_2O_5$+A/S at 40 lb./ac. of N.
   6. Dicalcium Phosphate at 80 lb./ac. of $P_2O_5$+F.Y.M. at 80 lb./ac. of N.
7. Super at 80 lb./ac. of P\textsubscript{2}O\textsubscript{5}
8. Super at 80 lb./ac. of P\textsubscript{2}O\textsubscript{5} + A/S at 40 lb./ac. of N.
9. Super at 80 lb./ac. of P\textsubscript{2}O\textsubscript{5} + F.Y.M. at 80 lb./ac. of N.
10. B.M. at 80 lb./ac. of P\textsubscript{2}O\textsubscript{5}
11. B.M. at 80 lb./ac. of P\textsubscript{2}O\textsubscript{5} + A/S at 40 lb./ac. of N.
12. B.M. at 80 lb./ac. of P\textsubscript{2}O\textsubscript{5} + F.Y.M. at 80 lb./ac. of N.

3. DESIGN:
   (i) R.B.D. (ii) (a) 12, (b) N.A. (iii) 4, (iv) (a) 68' x 18', (b) 66' x 16', (v) 1' alround. (vi) Yes.

4. GENERAL:
   (i) Fair (no lodging). (ii) Nil. (iii) Yield of grain only. (iv) (a) 1952-1954. (b) Yes. (c) Nil. (v) (a) Delhi (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 602.4 lb./ac.
   (ii) 86.3 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>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>277</td>
<td>7.</td>
<td>716</td>
</tr>
<tr>
<td>2.</td>
<td>313</td>
<td>8.</td>
<td>735</td>
</tr>
<tr>
<td>3.</td>
<td>563</td>
<td>9.</td>
<td>926</td>
</tr>
<tr>
<td>4.</td>
<td>670</td>
<td>10.</td>
<td>342</td>
</tr>
<tr>
<td>5.</td>
<td>793</td>
<td>11.</td>
<td>330</td>
</tr>
<tr>
<td>6.</td>
<td>845</td>
<td>12.</td>
<td>699</td>
</tr>
</tbody>
</table>

S.E./mean = 43.2 lb./ac.

Object—To test whether B.M. and Rock Phosphate would be as effective as Super and that their availability could be increased by chemical treatment of the soil.

1. BASAL CONDITIONS:
   (i) (a) Wheat—Maize—Wheat. (b) Maize. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 17.11.53.
   (iv) (a) Spade ploughing. (b) Seed sown in rows, 7 rows in a plot were made. (c) 4 ozs jplot. (d) and (e) N.A. (v) Nil. (vi) N.P. 52—(late). (vii) Irrigated. (viii) One weeding and one interculture. (ix) 1.11'. (x) 29.1.54.

2. TREATMENTS:
   1. Control—no manure.
   2. A/S at 40 lb./ac. of N.
   3. A/S at 40 lb./ac. of N + Super at 40 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
   4. A/S at 40 lb./ac. of N + Rock Phosphate at 40 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
   5. Compost at 40 lb./ac. of N.
   6. Treatment 5 + Super at 40 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
   7. Treatment 5 + Rock Phosphate at 40 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
   8. Treatment 5 + B.M. at 40 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
   9. Treatment 3 + H\textsubscript{2}SO\textsubscript{4}.
   10. Treatment 4 + H\textsubscript{2}SO\textsubscript{4}.
   Time and method of application of manures N.A.

3. DESIGN:
   (i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/400th ac. (square in shape). (v) Yes—2' between adjacent plots. (vi) Yes.

4. GENERAL:
   (i) Good—No lodging. (ii) N.A. (iii) Weight of grain, weight of straw. (iv) (a) 1952-1955. (b) Yes. (c) Nil. (v) (a) No, (b) Nil. (vi) and (vii) Nil.
5. RESULTS:
(i) 966 lb./ac.
(ii) 293.8 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>502</td>
</tr>
<tr>
<td>2.</td>
<td>1113</td>
</tr>
<tr>
<td>3.</td>
<td>1192</td>
</tr>
<tr>
<td>4.</td>
<td>1049</td>
</tr>
<tr>
<td>5.</td>
<td>711</td>
</tr>
<tr>
<td>6.</td>
<td>864</td>
</tr>
<tr>
<td>7.</td>
<td>640</td>
</tr>
<tr>
<td>8.</td>
<td>811</td>
</tr>
<tr>
<td>9.</td>
<td>1367</td>
</tr>
<tr>
<td>10.</td>
<td>1317</td>
</tr>
</tbody>
</table>

S.E./mean = 119.9 lb./ac.

---

Crop: Wheat.
Site: Agri. Chemistry Section, Sabour.
Object: To test the effects of previous kharif crops on soil fertility as shown by the yield of the succeeding crop of Wheat.

1. BASAL CONDITIONS:
(i) (a) Sanai—Wheat—Sanai, (b) Sanai, (c) Nil. (ii) (a) Loam, (b) N.A. (iii) 20.11.53. (iv) (a) Spade ploughing. (b) Sown in line. (c) 4 oz./plot. (d) and (e) N.A. (v) Nil. (vi) N.P. 52 (late). (vii) Irrigated. (viii) One weeding and one interculture. (ix) 2.14'. (x) 4.4.54.

2. TREATMENTS:
Previous crops grown on these plots
1. Kalai.
2. Mung.
5. Maize.
6. Fallow.

3. DESIGN:
(i) R.B.D. (ii) N.A. (iii) 4. (iv) N.A. (v) 1/400th ac. (vi) Yes. 2' between adjacent plots.

4. GENERAL:
(i) Good (no lodging). (ii) N.A. (iii) Yield of grain and straw. (iv) 1951—continued. (b) Yes. (v) (a) No. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 384.1 lb./ac.
(ii) 252.5 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>840.5</td>
</tr>
<tr>
<td>2.</td>
<td>516.6</td>
</tr>
<tr>
<td>3.</td>
<td>362.3</td>
</tr>
<tr>
<td>4.</td>
<td>190.7</td>
</tr>
<tr>
<td>5.</td>
<td>244.5</td>
</tr>
<tr>
<td>6.</td>
<td>149.5</td>
</tr>
</tbody>
</table>

S.E./mean = 131.3 lb./ac.

Object: To study the effect of application of P manure at the time of turning of green manure crop.

1. BASAL CONDITIONS:
   (i) (a) Sanai-Wheat-Sanai, (b) Sanai (Sunnhemp). (c) Nil. (ii) (a) Loam (b) N.A. (iii) 15.11.53. (iv) (a) Spade plo~ghing. (b) N.A. (c) Sown in line. (d) & (e), N.A. (v) Nil. (vi) N.P. 52—late. (vii) Irrigated. (viii) One weeding and one interculture. (ix) 1.11”. (x) 17.3.54.

2. TREATMENTS:
   1. Super at 40 lb./ac. of P₂O₅ at the time of turning Sanai.
   2. Rock Phos. at 40 lb./ac. of P₂O₅ at the time of turning Sanai.
   3. Super at 40 lb./ac. of P₂O₅ at the time of sowing wheat.
   4. Rock Phos. at 40 lb./ac. of P₂O₅ at the time of sowing wheat.
   5. Manured fallow.

3. DESIGN:
   (i) C.R.D. (ii) (a) No block formation. (b) N.A. (iii) 3. (iv) N.A. (b) 1/400th ac. (v) 2’ border between adjacent plots. (vi) Yes.

4. GENERAL:
   (i) Good (no lodging.) (ii) N.A. (iii) Weight of stalk & grain. (iv) (a) 1953—1954. (b) Yes. (c) Nil. (v) (a) No (b) No. (vi) & (vii) Nil.

5. RESULTS:
   (i) 867. lb./ac.
   (ii) 167.9 lb./ac.
   (iii) Treatment differences are significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment | Av. yield.
   1.         | 1018
   2.         | 1052
   3.         | 576
   4.         | 772
   5.         | 918
   S.E./mean  = 96.9 lb./ac.

Crop: Wheat. Site: College Experimental Farm, Sabour. Ref: Bh. 52(20). Type: ‘M’.

Object: To study the effect of green manuring with different crops on Wheat.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) G.M. 18.7.52. Wheat—N.A. (iv) (a) to (c) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 0.87”. (x) Wheat 31.3.1953.

2. TREATMENTS:
   Green manure crops sown before wheat are:
   1. Kalai.
   2. Sanai.
   3. Dhaincha.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 0.29 ac. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Nil. (iii) Yield of grain and yield of bhusa. (iv) (a) No. (b) Nil. (c) No. (v) (a) None. (b) No. (vi) & (vii) Nil.
   (i) 980. lb./ac.
   (ii) 98.77 lb./ac.
   (iii) Treatment differences are not significant.
Crop :- Wheat. Ref :- Bh. 53(36).
Type :- 'C'.

Object.—To find out most economical spacing between plants and rows for higher yield.

1. BASAL CONDITIONS:
   (i) (a) No. (b) Wheat. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.11.53. (iv) (a) Harrowing once, (b) N.A. (c) 40 yrs./ac. (approx). (d) As per treatments. (e) N.A. (v) Compost at 100 md./ac. before sowing
   when preparing field. (vi) N.P. 52 (late). (vii) Irrigated. (viii) Weeding and other agricultural operations harrowing were done once. (ix) 1.11". (x) 3.4.54.

2. TREATMENTS:
   Main-plot treatments :—
   All combinations of (1) and (2)
   (l) 2 methods of planting : (a) on Ridges and (b) Flat.
   (2) 3 levels of row spacing: S_1=9", S_2=12" and S_3=18".
   Sub-plot treatments :—
   3 levels of plant spacing: S'_1=6", S'_2=9" and S'_3=12".

3. DESIGN:
   (i) Split plot design. (ii) (a) 6 main-plots/block, 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 19 1/2"x13 1/4".
   (b) 12'x6'. (v) 1' all round the net plot. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Not observed. (iii) Grain yield. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Nil. (b) Nil
   (vi) and (vii) Nil.

5. RESULTS
   (i) 579.0 lb./ac.
   (ii) (a) 225.2 lb./ac.
   (b) 145.1 lb./ac.
   (iii) Main effect 'ridges vs. flat' alone is significant. Others are not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>Ridges</th>
<th>Flat</th>
<th>Mean</th>
<th>S'_1</th>
<th>S'_2</th>
<th>S'_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>S_1</td>
<td>502.3</td>
<td>813.5</td>
<td>657.9</td>
<td>690.3</td>
<td>661.1</td>
<td>622.2</td>
</tr>
<tr>
<td>S_2</td>
<td>525.0</td>
<td>586.6</td>
<td>555.8</td>
<td>573.6</td>
<td>525.0</td>
<td>568.8</td>
</tr>
<tr>
<td>S_3</td>
<td>518.5</td>
<td>528.3</td>
<td>523.4</td>
<td>602.8</td>
<td>486.1</td>
<td>481.3</td>
</tr>
<tr>
<td>Mean</td>
<td>515.3</td>
<td>642.8</td>
<td>579.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S'_1</td>
<td>583.5</td>
<td>661.1</td>
<td>612.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S'_2</td>
<td>489.4</td>
<td>625.5</td>
<td>557.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S'_3</td>
<td>473.2</td>
<td>641.7</td>
<td>557.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. S.E. of marginal mean of method of planting = 37.5 lb./ac.
2. S.E. of marginal mean of row spacing = 46.0 lb./ac.
3. S.E. of body of 'method x row spacing' table = 55.3 lb./ac.
4. S.E. of difference of two plant spacing means = 41.9 lb./ac.
5. plant spacing means at the same method = 59.5 lb./ac.
6. method means at the same plant spacing = 72.1 lb./ac.
7. plant spacing means at the same row spacing = 72.5 lb./ac.
8. row spacing means at the same plant spacing = 87.9 lb./ac.
Crop : Wheat.
Site : College Experimental Farm, Sabour.
Object : To find out the effect of sources of N suitable for Wheat with different numbers and intensities of irrigation.

1. BASAL CONDITIONS:
   (i) (a) Maize + Kalai—Gram—Mustard—Maize + Kalai. (b) Early maize failed; green manured with sanai
   (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 14.11.53. (iv) (a) Two tractor ploughings with disc and then 6
deshi ploughings. (b) Sown behind the plough. (c) 43 srs./ac. (d) Row to row = 1'. (e) —. (v) Super at 2
md./ac. (vi) NP 52 (late). (vii) Irrigated. As per treatments. (viii) Rouging. (ix) 1.11”. (x) 24.3.54.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of irrigation: 1 = 2, 1 = 3 and 1 = 3 irrigations.
   (2) 3 intensities of irrigation: 1 = 2', 1 = 3' and 1 = 4" per acre.
   (3) 3 applications of N: 1 = 0, 1 = A/3 Sat 40 lb./ac. and 1 = A/3 and A/N mixed at 40 lb./ac.

3. DESIGN:
   (i) 3 partly Confd. (ii) (a) 9 plots/block; 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 1/100th
   ac.; Dimensions N.A. (v) Yes—Details N.A. (vi) Yes.

4. GENERAL:
   (i) Good (no lodging). (ii) Nil. (iii) Weight of grain and straw. (iv) (a) 1953—continued. (b) No. (c) Nil.
   (v) (a) Nil. (b) No. (vi) and (vii) Nil.

5. RESULTS:
   (i) 1244 lb./ac.
   (ii) 329.2 lb./ac.
   (iii) Only main effect of N is highly significant. No other effect is 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>
<tbody>
<tr>
<td>I1</td>
<td>1212</td>
<td>1103</td>
<td>1237</td>
<td>1184</td>
</tr>
<tr>
<td>I2</td>
<td>1124</td>
<td>1313</td>
<td>1299</td>
<td>1245</td>
</tr>
<tr>
<td>I3</td>
<td>1149</td>
<td>1404</td>
<td>1358</td>
<td>1304</td>
</tr>
<tr>
<td>Mean</td>
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<td>1273</td>
<td>1298</td>
<td>1244</td>
</tr>
<tr>
<td>N0</td>
<td>936</td>
<td>1020</td>
<td>1099</td>
<td>1018</td>
</tr>
<tr>
<td>N1</td>
<td>1279</td>
<td>1470</td>
<td>1216</td>
<td>1322</td>
</tr>
<tr>
<td>N1'</td>
<td>1271</td>
<td>1329</td>
<td>1580</td>
<td>1339</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 77.5 lb./ac.
S.E. of body of the tables = 134.4 lb./ac.

Crop : Wheat.
Site : Agri. Chemistry Section, Sabour.
Object : To study the effect of soaking seeds in mixture of chemicals.

1. BASAL CONDITIONS:
   (i) (a) Wheat—Maize—Wheat. (b) Maize. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 25.11.53. (iv) (a)
   Spade ploughing. (b) Sown in line. (c) 4 oz./plot. (d) and (e) N.A. (v) Nil. (vi) N.P. 52 (late). (vii) Irrigated.
   (viii) One weeding and one interculture. (ix) 1.11”. (x) 3.4.54.
2. TREATMENTS:
1. Control.
2. Soaking in water.
4. Soaking in KH$_2$PO$_4$—M/32.
5. Coating with gum.
6. Coating with gum and Castor cake.
7. Coating with gum and A/S.
8. Coating with gum and Super.
For treatment 5, 8 oz. of gum was mixed in water and the volume was made upto 400 cc. One lb. of wheat seed was coated in 100 cc. of gum solution.
For treatment 7, 2 oz. of A/S was added in 100 cc. of gum. Then 1 lb. of wheat seed was uniformly coated.
For treatment 8, 2 oz. of castor cake was coated in 1 lb. of wheat seed.
Seeds were soaked for 24 hours under each treatment.

3 DESIGN:
(i) R.B.D. (ii) (a) 8, (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/40th ac. (v) 2’ border between adjacent plots.
(vi) Yes.

4. GENERAL:
(i) Good. No lodging (ii) N.A. (iii) % of germination, yield of straw and yield of grain. (iv) (a) No. (b) Nil.
(c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 801.2 lb./ac.
(ii) 781.6 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>942.1</td>
</tr>
<tr>
<td>2</td>
<td>781.6</td>
</tr>
<tr>
<td>3</td>
<td>740.7</td>
</tr>
<tr>
<td>4</td>
<td>719.6</td>
</tr>
<tr>
<td>5</td>
<td>716.4</td>
</tr>
<tr>
<td>6</td>
<td>843.3</td>
</tr>
<tr>
<td>7</td>
<td>789.2</td>
</tr>
<tr>
<td>8</td>
<td>856.6</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>67.8 lb./ac.</td>
</tr>
</tbody>
</table>

Crop = Wheat. Ref = Simple Trials on Cultivators' Fields (T.C.M. 1953). Centre = Pusa (Bihar). Type = 'M'.

Object = (i) (b) (ii) To study different levels and types of N and P$_2$O$_5$.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) Grey and brown—Sandy—pH 8.0. (iii) N.A. (iv) N.A. (v) N.A.

2. TREATMENTS:
O = Control.
P$_2$O$_5$ = 20 lb./ac. of P$_2$O$_5$ as Super ;
N$_1$P = A/S at 20 lb./ac. of N+20 lb./ac. of P$_2$O$_5$ as Super.
N$_2$P = A/S at 40 lb./ac. of N+20 lb./ac. of P$_2$O$_5$ as Super.
N$_1$$'$P = Urea at 20 lb./ac. of N+20 lb./ac. of P$_2$O$_5$ as Super.
N$_2$$'$P = Urea at 40 lb./ac. of N+20 lb./ac. of P$_2$O$_5$ as Super.

3. DESIGN:
(i) & (ii) Eleven community project centres, representing the entire wheat growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing wheat for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.
4. GENERAL:
(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil.
(vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1029</td>
</tr>
<tr>
<td>P</td>
<td>1186</td>
</tr>
<tr>
<td>N₂P</td>
<td>1422</td>
</tr>
<tr>
<td>N₂P</td>
<td>1654</td>
</tr>
<tr>
<td>N₂P</td>
<td>1411</td>
</tr>
<tr>
<td>N₂P</td>
<td>1580</td>
</tr>
<tr>
<td>G.M.</td>
<td>1381</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>63.85 lb./ac.</td>
</tr>
<tr>
<td>No. of experiments</td>
<td>33</td>
</tr>
</tbody>
</table>

Crop: - Wheat.  
Ref: - Simple Trials on Cultivator's Fields (T.C.M) 1953.  
Centre: - Pusa (Bihar).  
Type: - 'M'.

Object: - II To study the effect of N, P and K manures.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) Grey and brown—Sandy loam; pH 8.4.  (iii) Nil.  (iv) N.A.  

2. TREATMENTS:
O = Control.
N = A/S at 20 lb./ac. of N.
NP = A/S at 20 lb./ac. of N + Super at 20 lb./ac. of P₂O₅.
N⁺P = A/N at 20 lb./ac. of N + Super at 20 lb./ac. of P₂O₅.
N⁻P⁺ = Urea at 20 lb./ac. of N + Super at 20 lb./ac. of P₂O₅.
NPK = A/S at 20 lb./ac. of N + Super 20 lb./ac. of P₂O₅ + Muriate of Potash at 20 lb./ac. of K₂O.

3. DESIGN:
(i) & (ii) Eleven community project centres, representing the entire wheat growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing wheat for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out.  (iii) N.A.  (iv) Yes.

4. GENERAL:
(i) Normal.  (ii) Nil.  (iii) Yield of grain.  (iv) (a) 1953-56.  (b) No.  (c) N.A.  (v) N.A.  (vi) Nil.  
(vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>1066</td>
</tr>
<tr>
<td>N</td>
<td>1316</td>
</tr>
<tr>
<td>NP</td>
<td>1510</td>
</tr>
<tr>
<td>N⁺P</td>
<td>1330</td>
</tr>
<tr>
<td>N⁻P⁺</td>
<td>1623</td>
</tr>
<tr>
<td>NPK</td>
<td>1470</td>
</tr>
<tr>
<td>G.M.</td>
<td>1386</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>40.32</td>
</tr>
<tr>
<td>No. of experiments</td>
<td>48</td>
</tr>
</tbody>
</table>
Crop :- Wheat.  Ref :- Simple Trials on Cultivator’s Fields (T.C.M.) 1953.
Centre :- Pusa (Bihar).  Type :- ‘M’.

Object :- III To study the effect of A/S with different sources of P₂O₅.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) Grey and brown—Sandy loam ; pH 8.0. (iii) Nil. (iv) N.A. (v) N.A.

2. TREATMENTS :
   O =Control.
   N = A/S at 20 lb./ac. of N.
   NP = A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅.
   NP’ = A/S at 20 lb./ac. of N+Nitrophos. at 20 lb./ac. of P₂O₅.
   NP” = A/S at 20 lb./ac. of N+Ammo. Phos. at 20 lb./ac. of P₂O₅.

3. DESIGN :
   (i) & (ii) Eleven community project centres, representing the entire wheat growing tract of the country were
   selected. From each community project centre, one development block was selected. Villages were selected
   at random from the selected block and a list of cultivators growing wheat for each selected village was
   prepared. From this list, two cultivators were selected at random and one field each belonging to them was
   taken for trial. In each selected field an unreplicated trials was laid out. (iii) N.A. (iv) Yet.

4. GENERAL :
   (j) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953—56. (b) No. (c) N.A. (v) N.A. (vi) Nil.
   (vii) Nil.

5. RESULTS :

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield in lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>926</td>
</tr>
<tr>
<td>N</td>
<td>1112</td>
</tr>
<tr>
<td>NP</td>
<td>1221</td>
</tr>
<tr>
<td>NP’</td>
<td>1287</td>
</tr>
<tr>
<td>NP”</td>
<td>1256</td>
</tr>
<tr>
<td>G.M.</td>
<td>1160</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>27.15 lb./ac.</td>
</tr>
<tr>
<td>No. of experiments</td>
<td>79</td>
</tr>
</tbody>
</table>

Crop :- Maize.  Ref :- Bh. 53(18)
Site :- Agri. Chemistry Section, Sabour.  Type :- ‘M’.

Object :- To study the effect of different doses of castor cake on yield of Maize.

1. BASAL CONDITIONS :
   (i) (a) Maize-Wheat-Maize. (b) Wheat. (c) Mahua cake at 6 lb./plot+A/S at 8 oz/plot+Super 10 oz/plot
   +Potash at 4 oz/plot. (ii) (a) Loam. (b) N.A. (iii) 24.6.53. (iv) (a) Spade ploughing. (b) and (c) N.A.
   (d) Each plot divided into 6 strips and in each strip 13 holes were made. (e) 2 seeds / hole. (v) Nil. (vi)
   N.A. (vii) Unirrigated. (viii) One weeding and three intercultures at an interval of 2 weeks. (ix) 38.61°.
   (x) 24.6.53.

2. TREATMENTS :
   1. Control.
   2. Inorganic manure+Caster cake at 2 lb./plot.
   3. Inorganic manure+Caster cake at 4 lb./plot.
   4. Inorganic manure+Caster cake at 6 lb./plot.
   5. Inorganic manure+Caster cake at 8 lb./plot.
   Inorganic manure consists of A/S at 8 oz/plot+Super at 10 oz/plot+Potash at 40 oz/plot.
3. DESIGN:
(i) C.R.D. (ii) (a) No block formation. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 1/400th ac. (v) 2’ between adjacent plots all round. (vi) Yes.

4. GENERAL:
(i) Good. Lodging on 30.7.53. (ii) Nil. (i) Weight of grain, weight of cobs and weight of stalks. (iv) (a) Nil. (b) N.A. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) In the control plots, cobs were formed, but no grain formation took place, hence the yield of grain in control plots was zero.

5. RESULTS:
(i) 1608 lb./ac.
(ii) 648.5 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>Nil</td>
</tr>
<tr>
<td>2.</td>
<td>849.8</td>
</tr>
<tr>
<td>3.</td>
<td>1757.0</td>
</tr>
<tr>
<td>4.</td>
<td>2739.0</td>
</tr>
<tr>
<td>5.</td>
<td>2696.0</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>±458.6 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Maize.
Site: College Experimental Farm, Sabour.
Object: To study the effect of application of A/S and A/N on the yield of Maize.

Ref: Bh. 52(23).
Type: ‘M’.
Crop :- Maize.  
Site :- Agri. Chemistry Section, Sabour.  
Object :- To study if cheaper phosphates like bone meal, rock phosphate are as good as single super phosphate and whether their availability can be increased by treatments with organic manures and sulphuric acid treatments.

1. BASAL CONDITIONS:
(i) (a) Maize-Wheat-Maize.  
(ii) (a) Loam.  
(iii) 23.6.53 and 24.6.53.  
(iv) (a) Spade ploughing.  
(v) Nil.  
(vi) Jaunpur—(Late).  
(vii) Unirrigated.  
(viii) One weeding and three intercultures.  
(ix) 38.61'.  
(x) 17.9.53.

2. TREATMENTS:
1. A/S at 40 lb./ac. of N.
2. A/S at 40 lb./ac. of N + Super at 40 lb./ac. of P₂O₅.
3. A/S at 40 lb./ac. of N + Rock phos. at 40 lb./ac. of P₂O₅.
4. A/S at 40 lb./ac. of N + Triple Super at 40 lb./ac. of P₂O₅.
5. A/S at 40 lb./ac. of N + B.M. at 40 lb./ac. of P₂O₅.
6. T.C. at 40 lb./ac. of N.
7. T.C. at 40 lb./ac. of N + Super at 40 lb./ac. of P₂O₅.
8. T.C. at 40 lb./ac. of N + Rock phos. at 40 lb./ac. of P₂O₅.
9. T.C. at 40 lb./ac. of N + Triple Super at 40 lb./ac. of P₂O₅.
10. T.C. at 40 lb./ac. of N + B.M. at 40 lb./ac. of P₂O₅.

3. DESIGN:
(i) R.B.D.  
(ii) 10.  
(iii) 6.  
(iv) 1/400th. ac.  
(v) 2' border between adjacent plots.  
(vi) Yes.

4. GENERAL:
(i) Growth medium. No lodging.  
(ii) N.A.  
(iii) Yield of grain.  
(iv) Yes. 1952-1955.  
(v) Yes.  
(vi) Nil.

5. RESULTS:
(i) 423 lb./ac.
(ii) 213.4 lb./ac.
(iii) Treatment effects 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>495</td>
</tr>
<tr>
<td>2</td>
<td>755</td>
</tr>
<tr>
<td>3</td>
<td>593</td>
</tr>
<tr>
<td>4</td>
<td>577</td>
</tr>
<tr>
<td>5</td>
<td>397</td>
</tr>
<tr>
<td>6</td>
<td>285</td>
</tr>
<tr>
<td>7</td>
<td>431</td>
</tr>
<tr>
<td>8</td>
<td>254</td>
</tr>
<tr>
<td>9</td>
<td>334</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=87.1</td>
</tr>
</tbody>
</table>

Crop :- Maize.  
Site :- College Experimental Farm, Sabour.  
Object :- To study the effect of Potash and trace elements on yield of Maize.

1. BASAL CONDITIONS:
(i) (a) Nil.  
(ii) Sandy loam.  
(iii) 25.5.52.  
(iv) (a) to (e) N.A.  
(v) Nil.  
(vi) Local.  
(vii) Unirrigated.  
(viii) Nil.  
(ix) 35.19'.  
(x) 29.9.52.
2. TREATMENTS:
1. No manure.
2. N at 40 lb/ac.

Time and method of application—N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) N.A. (b) 50' x 22'. (v) 2' path between plots. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 1213 lb/ac.
(ii) 160 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>1295</td>
</tr>
<tr>
<td>2.</td>
<td>1145</td>
</tr>
<tr>
<td>3.</td>
<td>1448</td>
</tr>
<tr>
<td>4.</td>
<td>1150</td>
</tr>
<tr>
<td>5.</td>
<td>875</td>
</tr>
<tr>
<td>6.</td>
<td>1220</td>
</tr>
<tr>
<td>7.</td>
<td>1346</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>65.6 lb/ac</td>
</tr>
</tbody>
</table>

Crop—Maize.  
Ref.: Bh. 53(4)  
Site—College Experimental Farm, Sabour.  
Type—'M'.

Object—To find out the effect of trace elements in the manuring of Maize crop.

1. BASAL CONDITIONS:
(i) (a) Maize—Gram—Maize. (b) Gram. (c) Super at 1 md/ac. (ii) (a) Sandy loam. (b) N.A. (iii) 4.75. (iv) (a) One tractor ploughing with mould bow+ one tractor ploughing with Disc bow and then two deshi ploughings. (b) Sown behind the plough. (c) 10 lb/ac. (d) Row to row 2', plant to plant 9". (e)—(v) 40 lb/ac. of N as A/S. 40 lb/ac. of P₂O₅ as Super. +40 lb/ac. of K₂O as Pot. Sul. (vi) Jaunpur (medium). (vii) Unirrigated. (viii) Four times hoeing and weeding and earthing up once. (ix) 31.94°. (x) 23.9.1953.

2. TREATMENTS:
1. Control (no manure).
2. Borax at 20 lb/ac. of Boron.
4. Zn. Sul. at 20 lb/ac. of Zn.
5. Cu. Sul. at 20 lb/ac. of Cu.
6. Ferrous Sul. at 20 lb/ac. of Fe.

Time & method of application—N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 22' x 33'. (v) 4' path from plot to plot. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Weight of stalk and cobs and grain yield. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.
5. RESULTS:

(i) 2555 lb/ac.
(ii) 451.2 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>2481</td>
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<tr>
<td>2.</td>
<td>2457</td>
</tr>
<tr>
<td>3.</td>
<td>2543</td>
</tr>
<tr>
<td>4.</td>
<td>2632</td>
</tr>
<tr>
<td>5.</td>
<td>2740</td>
</tr>
<tr>
<td>6.</td>
<td>2444</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>201.8 lb/ac.</td>
</tr>
</tbody>
</table>

Crop :- Maize.
Site :- Botanical Sub-Stn. Dumka.

Object — To find out the spacing between row and between plants for higher yield of Maize.

1. BASAL CONDITIONS

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 26.6.53 (iv) (a) Ploughing with deshi plough 3 times. (b) & (c) N.A. (d) As per treatments. (e) 2 seeds/hole. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) 30" nearly. (x) 3.10.53.

2. TREATMENTS:

Treatments in one direction :
3 levels of row spacing viz. $R_1 = 18"$, $R_2 = 24"$ and $R_3 = 30"$.

Treatments in an orthogonal direction :
3 levels of plant spacings viz. $S_1 = 9"$, $S_2 = 12"$ and $S_3 = 18"$.

3. DESIGN:

(i) Strip plot. (ii) (a) 3 strips in one direction and 3 orthogonal to it. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 12"×30". (v) 1 row on either side of the plot and 1 plant on either side of the row. 4' border between blocks. (vi) Yes.

4. GENERAL:

(i) Fair ; no lodging. (ii) Nil. (iii) Germination, plant height, ear height, ear length, stand at harvest, yield of grain. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) Monghyr, Pusa, Sabour, Sepaya. (b) Nil. (vi) & (vii). Nil.

5. RESULTS:

(i) 979. lb/ac.
(ii) (a) 468.2 lb/ac for R.
(b) 294.6 lb/ac for S.
(c) 237.4 lb/ac for R×S.

(iii) Main effect of plant to plant spacing is significant. Other effects are not significant.

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

<table>
<thead>
<tr>
<th></th>
<th>$R_1$</th>
<th>$R_2$</th>
<th>$R_3$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>1198</td>
<td>1001</td>
<td>1058</td>
<td>1086</td>
</tr>
<tr>
<td>$S_2$</td>
<td>1211</td>
<td>1033</td>
<td>977</td>
<td>1073</td>
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<td>$S_3$</td>
<td>952</td>
<td>788</td>
<td>591</td>
<td>777</td>
</tr>
<tr>
<td>Mean</td>
<td>1120</td>
<td>941</td>
<td>875</td>
<td>979</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. plant spacing means = 98.2 lb/ac.
2. row spacing means = 156.1 lb/ac.
3. row spacing means at the same plant spacing = 192.0 lb/ac.
4. plant spacing means at the same row spacing = 148.9 lb/ac.
Object: To find out the optimum spacing between hills and number of plants per hill in a cheddar type of sowing.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (iii) (a) Sandy loam. (b) N.A. (iii) 16.6.53. (iv) (a) Ploughing with desi plough 3 times (b) & (c) N.A. (d) & (e) As per treatments. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) 30" nearly. (x) 16.9.53.

2. TREATMENTS:
   Main-plot treatments:---
   2 levels of spacing between hills:— $S_1 = 2'$ and $S_2 = 3'$.
   Sub-plot treatments:---
   3 levels of no. of plants/hill:— $H_1 = 1$, $H_2 = 2$ and $H_3 = 3$.

3. DESIGN:
   (i) Split plot. (ii) (a) 2 main-plots/block, and 3 sub-plots/main-plot. (b) N.A. (ii) 6. (iv) (a) 16'x24' and 18'x24. (b) 12'x24'. (v) One guard row along both sides of length. (vi) Yes.

4. GENERAL:
   (i) Fair. No lodging. (ii) No. (iii) Date of flowering, pest incidence and yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Monghyr, Pusa, Sepaya, Sabour. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 612.5 lb./ac.
   (ii) (a) 369.8 lb./ac.
   (b) 298.3 lb./ac.
   (iii) Main effect of spacing is significant and that of no. of plants/hill is highly significant. Interaction is not significant.
   (iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>$H_1$</th>
<th>$H_2$</th>
<th>$H_3$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>476.4</td>
<td>758.4</td>
<td>1144.0</td>
<td>792.9</td>
</tr>
<tr>
<td>$S_2$</td>
<td>259.3</td>
<td>583.4</td>
<td>453.7</td>
<td>432.1</td>
</tr>
<tr>
<td>Mean</td>
<td>367.8</td>
<td>670.9</td>
<td>798.8</td>
<td>612.5</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. main-plot treatment means = 123.3 lb./ac.
2. sub-plot treatment means = 115.6 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment = 163.5 lb./ac.
4. main-plot treatment means at the same level of sub-plot treatment = 181.7 lb./ac.

Object: To study the effect of time of sowing on Maize yield.

1. BASAL CONDITIONS:
   (i) (a) No. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 8.6.53. (iv) Ploughing with desi plough 3 times. (b) & (c) N.A. (d) Plant to plant—1' ; row to row—2'. (e) 2 seeds/hole. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) Weeding and earthing. (ix) 30" nearly. (x) 16.9.53.
2. TREATMENTS:
   Time of sowing as follows:
   1. Mrigashira.
   2. Ardra.

3. DESIGN:
   (i) R.B.D.
   (ii) (a) 2, (b) N.A.
   (iii) 8, (iv) (a) 15'x10', (b) 15'x8', (v) 1' along length.
   (vi) Yes.

4. GENERAL:
   (i) Poor, No lodging.
   (ii) Nil.
   (iii) Germination, yield of seed, plant height, earheight, earlength, stand at harvest.
   (iv) (a) No.
   (b) No.
   (c) No.
   (d) No.
   (e) (a) Sepaya, Pusa, Sabour.
   (b) Nil.
   (v) (vi) and (vii) Nil.

5. RESULTS:
   (i) 27.71 lb./ac.
   (ii) 13.90 lb./ac.
   (iii) Treatment difference is not significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment  | Av. yield  | S.E./mean
   1.         | 26.25      | 4.84 lb./ac.
   2.         | 29.17      |

---

Crop : Maize.
Site : Botanical Sub-Stn. Dumka.
Object : To study the effect of earthing and topping on yield of Maize crop.

1. BASAL CONDITIONS:
   (i) (a) No.
   (b) Sandy loam.
   (c) N.A.
   (d) Ploughing with Desi plough 3 times, earthing up at the height 4'.
   (e) Topping at a distance of 18' from the top with sharp sickle.
   (f) N.A.
   (g) Plant to plant 1', row to row 2'.
   (h) N.A.
   (i) 6.6.53.
   (j) 30'
   (k) 16.9.53.

2. TREATMENTS:
   Main-plot treatments :
   No. of earthings (2) : E₀ = No earthing and E₁ = 1.
   Sub-plot treatments :
   3 stages of topping : T₁ = Topping soon after basal comes out; T₂ = Topping after pollination and T₃ = no topping.

3. DESIGN:
   (i) Split plot.
   (ii) (a) 2 main-plots/block; 3 sub-plots/main-plot.
   (b) N.A.
   (iii) 6.
   (iv) (a) (main) 15'x10', (b) (sub) 15'x2', (c) 2' on both sides of the main-plot, 3' path between main-plots and 4' path around the block.
   (v) Yes.

4. GENERAL:
   (i) Fair, no lodging.
   (ii) Nil.
   (iii) Plant height, ear height, earlength and yield of grain.
   (iv) (a) No.
   (b) No.
   (c) Nil.
   (d) Sepaya, Pusa, Sabour.
   (e) Nil.
   (vi) and (vii) Nil.

5. RESULTS:
   (i) 447.3 lb./ac.
   (ii) (a) 309.7 lb./ac.
   (b) 339.0 lb./ac.
   (iii) None of the effects is 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>
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<tbody>
<tr>
<td>E₀</td>
<td>591.1</td>
<td>388.9</td>
<td>355.6</td>
<td>448.5</td>
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<tr>
<td>E₁</td>
<td>544.5</td>
<td>497.8</td>
<td>295.6</td>
<td>446.0</td>
</tr>
<tr>
<td>Mean</td>
<td>567.8</td>
<td>443.4</td>
<td>330.6</td>
<td>447.3</td>
</tr>
</tbody>
</table>

S.E. of difference of two.

1. main-plot treatment means = 103.2 lb./ac.
2. sub-plot treatment means = 138.4 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment = 195.7 lb./ac.
4. main-plot treatment means at the same level of sub-plot treatment = 190.3 lb./ac.

Crop :-Maize.
Ref :-Bh. 53(49).
Site :-Botanical Sub.Stn., Dumka.
Type :-'C'.

Object :—To study the effect of the seed taken from the different parts of the cob on yield of Maize crop.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 16.6.53. (iv) (a) Ploughing with desi plough 3 times. (b) to (d) N.A. (e) 2/hole. Finally thinned to one strong seedling/hole. (v) N.A. (vi) Local (vii) Unirrigated. (viii) Weeding. (ix) 30' nearly. (x) 22.9.53.

2. TREATMENTS :
   Planting seed taken from
   1. Apical portion of the cob.
   2. Central portion of the cob.
   3. Basal portion of the cob.
   4. Bulked seeds (control).

3. DESIGN :
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 15'x6'. (b) 15'x6'. (v) Nil. (vi) Yes.

4. GENERAL :
   (i) Fair. No lodging. (ii) Nil. (iii) Height, data on germination and flowering, yield of grain. (iv) (a) No. (b) No. (c) Nil. (v) (a) Monghyr, Pusa, and Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :
   (i) 758 lb./ac.
   (ii) 214.7 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>638</td>
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<tr>
<td>2.</td>
<td>825</td>
</tr>
<tr>
<td>3.</td>
<td>685</td>
</tr>
<tr>
<td>4.</td>
<td>887</td>
</tr>
</tbody>
</table>

S.E./mean = 107.3 lb./ac.
Crop : Maize.
Site : Botanical Sub-Brn., Monghyr.

Object : To find out the optimum spacing between rows and between plants for higher yield of Maize.

BASAL CONDITIONS :
(i) (a) N.A. (b) Gram. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 7.7.53 and 9.7.53. (iv) (a) 3 deshi ploughings. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) A/S at 2.5 m. ac. + Super at 3 mds. 5 seeding. (vi) Jaunpur (late). (vii) Unirrigated. (viii) 3 weedings, 2 by Bihar cultivators, one by Bihar junior, ridging. (ix) 31.04. (x) 29.9.53 and 30.9.53.

TREATMENTS :
Treatments in one direction :
3 levels of plant spacing : P1 = 9", P2 = 12" and P3 = 18".
Treatments in an orthogonal direction :
3 levels of row spacing : R1 = 18", R2 = 24" and R3 = 30".

DESIGN :
(i) Strip plot. (ii) (a) 9. (b) 102" x 42". (iii) 6. (iv) (a) Varies from 13.5" x 33" to 15" x 35". (v) One non experimental row around the sub-plot and 3' path between adjacent blocks. (vi) Yes.

4. GENERAL :
(i) Poor. No lodging. (ii) Attack of termites reported. (iii) Germination percentage ; stand at thinning ; no. of guarded hills ; average plant height at silking time, green weight of cob ; dry weight of cob ; ear length, cob diameter (after shelling) ; no. of kernel rows per ear ; kernels per row ; ear height, yield of dry grain. (iv) Yes. 1953-continued. (b) No. (c) Nil. (v) (a) Dumka, Pusa, Purnea, Sabour and Sepay. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :
(i) 156.4 lb. /ac.
(ii) (a) 138.8 lb. /ac. for P. (b) 126.2 lb. /ac. for R. (c) 83.6 lb. /ac. for P x R.
(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>R1</td>
<td>146.2</td>
<td>158.8</td>
<td>110.9</td>
<td>138.7</td>
</tr>
<tr>
<td>R2</td>
<td>201.7</td>
<td>214.3</td>
<td>90.8</td>
<td>168.9</td>
</tr>
<tr>
<td>R3</td>
<td>233.1</td>
<td>168.9</td>
<td>93.3</td>
<td>161.8</td>
</tr>
<tr>
<td>Mean</td>
<td>190.3</td>
<td>180.7</td>
<td>98.3</td>
<td>156.4</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. plant spacing means = 46.3 lb. /ac.
2. row spacing means = 41.7 lb. /ac.
3. row spacing means at the same plant spacing = 57.4 lb. /ac.
4. plant spacing means at the same row spacing = 60.8 lb. /ac.
2. TREATMENTS:

Main-plot treatments:
- \( H_1 = 8 \) hills each 2' apart and \( H_2 = 6 \) hills each 3' apart.

Sub-plot treatments:
- \( P_1 \) = 1 plant/hill (2 seeds/hole), \( P_2 \) = 2 plants/hill (4 seeds/hole) and \( P_3 \) = 3 plants/hill (6 seeds/hole).

3. DESIGN:

(i) Split plot.
(ii) (a) 2 main-plots/block; 3 sub-plots/main-plot. (b) N.A.
(iii) 6.
(iv) (a) and (b)
For \( H_1 \): 16' X 24'; for \( H_2 \): 18' X 24'.
(v) 4' path between each block.
(vi) Yes.

4. GENERAL:

(i) Poor. No lodging.
(ii) Attack of termites reported.
(iii) Germination percentage; stand at thinning; no. of guarded hills; average plant height at silking time; date of silking; green weight of cob; dry weight of cob; ear length; cob diameter; ear height; yield of grain.
(iv) (a) 1953-1955. (b) No. (c) Nil. (v) (a)
Dumka, Pusa, Purnea, Sabour and Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 148.9 lb./ac.
(ii) (a) 45.8 lb./ac.
(b) 56.3 lb./ac.

(iii) Main-plot and sub-plot treatment effects are significant. Interaction is not significant.
(iv) Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>( H_1 )</th>
<th>( H_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_1 )</td>
<td>115.8</td>
<td>69.5</td>
<td>92.7</td>
</tr>
<tr>
<td>( P_2 )</td>
<td>183.3</td>
<td>134.5</td>
<td>158.8</td>
</tr>
<tr>
<td>( P_3 )</td>
<td>222.2</td>
<td>168.0</td>
<td>195.1</td>
</tr>
<tr>
<td>Mean</td>
<td>173.8</td>
<td>124.0</td>
<td>148.9</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. main-plot treatment means
   15.3 lb./ac.
2. sub-plot treatment means
   25.2 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment
   49.8 lb./ac.
4. main plot treatment means at the same level of sub-plot treatment
   43.5 lb./ac.

Crop : Maize.
Site : Botanical Sub-Stn., Monghyr.
Ref : Bh. 53 (87).
Type 'C'.

Object : To study the effect of the seed taken from different parts of the cob.

1. BASAL CONDITIONS:
   (a) N.A. (b) Rahar and Khesari. (c) Nil. (d) (a) Loam. (b) N.A. (c) 29.6.53.
   (iv) (a) 3 desi ploughings. (b) Dibbling. (c) -. (d) Row to row 2'. Plant to plant 1'. (e) 2, to be thinned
   into one strong seedling. (v) A/S at 2 mds-2 seeds/ac.+Super at 3 mds-5 seeds/ac. (vi)
   Jaunpur (late). (vii) Unirrigated. (viii) 3 seedings; 2 by Bihar cultivators and one by Bihar Junior ridger.
   (ix) 35.74'. (x) 17.9.53.

2. TREATMENTS:

Planting seed taken from:
1. Apical portion of the cob.
2. Central portion of the cob.
3. Basal portion of the cob.
4. Bulked seed (control).

Planting in 4 row plots each row 15' long, distance between rows being 2' and between plants 1'.
3. DESIGN:
(i) R.B.D. (ii) (a) 4, (b) N.A. (iii) 8, (iv) (a) 15' x 8', (b) 15' x 8'. (v) 3' path between plots. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Germination percentage, plant height, date of silking, % of good ears, green weight of cob, dry weight of cob, cob length, cob diameter, yield of grain, (after silking) shelling % of grain to ear, and ear height. (iv) (a) 1953-54. (b) No. (c) Nil. (v) (a) Dumka, Pusa, Purnea, Sabour and Sepaya. (b) Nil. (vi) (x) and (vii) Nil.

5. RESULTS:
(i) 930.9 lb./ac.
(ii) 129.4 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>989.7</td>
</tr>
<tr>
<td>2.</td>
<td>972.7</td>
</tr>
<tr>
<td>3.</td>
<td>825.3</td>
</tr>
<tr>
<td>4.</td>
<td>915.9</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>45.8 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Maize (Kharif)  
Site: Botanical Sub-Stn. Pusa.  
Ref: Bh. 52(58)  
Type: 'C'.

Object: To find optimum spacing between rows and plants for getting higher yield of Maize.

1. BASAL CONDITIONS:
(i) (a) No. (b) Sugarcane. (c) 63 lb./ac. of N as A/S & 75 lb./ac. of P₂O₅ as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 12.6.52. (iv) (a) 3 ploughings (b) Dibbling, (c) 8 ur/ac. (d) As per treatments (e) 2. (v) 20 lb./ac. of N as A/S & 20 lb./ac. of P₂O₅ as Super, broadcast at time of earthing and given in lines at time of sowing. (vi) Jaunpur. (vii) Rainfed. (viii) Weeding, hoeing, earthing and thinning, (ix) 30.0°. (x) 26.9.52.

2. TREATMENTS:
Main-plot treatments:---
3 levels of row spacing:— R₁=24", R₂=30" and R₃=36".
Sub-plot treatments:---
3 levels of plant spacing:— P₁=12", P₂=18" and P₃=24".

3. DESIGN:
(i) Split plot. (ii) (a) 3 main-plots/block, 3 sub-plots/main-plot. (b) 10' x 45'. (iii) 4. (iv) 15' x 35'. (b) 12' x 30'. (v) 1½' border along length; 2½' border along breadth. (vi) Yes.

4. GENERAL:
(i) Fair. (ii) Stem borers and white ants noticed. D.D.T. mixed with pyrochloride sprayed. (iii) Maize yield (with cobs). (iv) No. (b) No. (c) No. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 959.7 lb./ac.
(ii) (a) 274.8 lb./ac.
(b) 157.2 lb./ac.
(iii) Differences due to plant spacings are highly significant; other effects are not significant.
Crop: Maize (Kharif).  
Site: Botanical Sub-Stn. Pusa.  
Type: 'C'.

Object: To find out optimum spacing between rows and plants for getting higher yield of Maize.

1. BASAL CONDITIONS:
   (i) Nil. (b) Sugarcane. (c) 60 lb./ac. of N as + 75 lb./ac. P₂O₅ as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 25.6.53 and 30.6.53. (iv) (a) 3 ploughings. (b) Dibbling. (c) 8 to/ac. (d) As per treatments. (e) 2. (v) 20 lb./ac. of N as A/S to 20 lb./ac. of P₂O₅ as Super. 1/₂ broadcast at time of earthing and 1/₂ spread over lines at the time of sowing. (vi) Local. (vii) No. (viii) Weeding, hoeing, thinning and earthing up. (ix) 36.0°. (x) 11.10.53

2. TREATMENTS:
   Main-plot treatments:—
   3 levels of row spacing:— R₁=18", R₂=24" and R₃=30".
   Sub-plot treatments:—
   3 levels of plant spacing:— P₁=9", P₂=12" and P₃=15".

3. DESIGN:
   (i) Split plot. (ii) (a) 3 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) 14'×35'. (b) 12'×30'. (v) 1' border along length, 2' border along breadth. (vi) Yes.

4. GENERAL:

RESULTS:
   (i) 312.7 lb./ac.
   (ii) (a) 110.4 lb./ac.
   (b) 132.8 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>
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</thead>
<tbody>
<tr>
<td>R₁</td>
<td>378.4</td>
<td>368.1</td>
<td>316.2</td>
<td>354.2</td>
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<tr>
<td>R₂</td>
<td>355.9</td>
<td>329.2</td>
<td>318.8</td>
<td>318.0</td>
</tr>
<tr>
<td>R₃</td>
<td>279.9</td>
<td>227.3</td>
<td>290.3</td>
<td>265.8</td>
</tr>
<tr>
<td>Mean</td>
<td>321.4</td>
<td>308.2</td>
<td>308.4</td>
<td>312.7</td>
</tr>
</tbody>
</table>

S.E. of difference of two
   1. row spacing means
   2. plant spacing means
   3. plant spacing means at the same level of row spacing
   4. row spacing means at the same level of plant spacing.
Crop :- Maize (Kharif).
Site :- Botanical Sub-Stn. Pusa.
Type :- 'C'.

Object :- To find out the optimum spacing between rows for obtaining higher yield of Maize.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Sugarcane. (c) 60 lb/ac. of N as A/S, 75 lb/ac. of P$_2$O$_5$ as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 8.6.52. (iv) (a) 3 ploughings. (b) Dibbling. (c) 8 srs/ac. (d) Rows-as per treatment ; plants-1' apart. (e) 2. (v) 20 lb/ac. of N as A/S + 20 lb/ac. of P$_2$O$_5$ as super spread on lines at the time of sowing and broadcast at the time of earthing. (vi) Local. (vii) Unirrigated. (viii) Weeding, hoeing, earthing and thinning. (ix) 25.7.52. (x) 21.9.52.

2. TREATMENTS :
Distance between rows :-
1. 18'.
2. 24'.
3. 30'.
4. 36'.

3. DESIGN :
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 36'x15'. (v) Nil. (vi) Yes.

4. GENERAL :
(i) Fair. (ii) Stem borers and white ants noticed. Spraying with D.D.T. and pyrochloride. (iii) Maize yield (cob weight). (iv) (a) No. (b) No. (c) Nil. (v) (a) Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :
(i) 455.0 lb/ac.
(ii) 237.8 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>502.3</td>
</tr>
<tr>
<td>2</td>
<td>520.4</td>
</tr>
<tr>
<td>3</td>
<td>356.0</td>
</tr>
<tr>
<td>4</td>
<td>441.4</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>97.1 lb/ac.</td>
</tr>
</tbody>
</table>

Crop :- Maize (Kharif).
Site :- Botanical Sub-Stn. Pusa.
Type :- 'C'.

Object :- To study the relationship between spacing and the number of plants per hill in a checker type of planting.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Sugarcane. (c) 60 lb/ac. of N as A/S, 75 lb/ac. of P$_2$O$_5$ as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 16.6.52. (vi) (a) 3 ploughings. (b) Behind the plough. (c) 8 srs/ac. (d) and (e) As per treatment. (v) 20 lb/ac. of N as A/S + 20 lb/ac. of P$_2$O$_5$ as Super, 1' at the time of sowing and 1' broadcast at the time of earthing (broadcast). (vi) Jaunpur. (vii) Weeding, earthing, thinning and hoeing. (ix) 36.7'. (x) 27.9.52.

2. TREATMENTS :
Main-plot treatments :-
Spacing between hills : H$_1$=2' and H$_2$=3'.
Sub-plot treatments :-
No of plants/hill : P$_1$=1, P$_2$=2 and P$_3$=3.

3. DESIGN :
(i) Split plot. (ii) (a) 2 main plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 18'x24'. (b) 16'x24'. (v) 1' border left along the length. (vi) Yes.

4. GENERAL :
(iii) Maize yield (cob weight). (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) and (vii) Nil.
5. RESULTS:

(i) 743.1 lb./ac.
(ii) (a) 162.9 lb./ac.
(b) 263.3 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>
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<td>H₁</td>
<td>771.0</td>
<td>983.3</td>
<td>715.8</td>
<td>823.4</td>
</tr>
<tr>
<td>H₂</td>
<td>511.4</td>
<td>665.7</td>
<td>809.6</td>
<td>662.9</td>
</tr>
<tr>
<td>Mean</td>
<td>642.2</td>
<td>824.5</td>
<td>762.7</td>
<td>743.1</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. main-plot treatment means = 66.5 lb./ac.
2. sub-plot treatment means  = 131.7 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment = 186.2 lb./ac.
4. main-plot treatments means at the same level of sub-plot treatment = 165.9 lb./ac.

Crop : Maize (Kharif).
Site : Botanical Sub-Stn. Pusa.

Ref : Bh. 52(61).
Type : 'C'.

Object : To study the effect of earthing on yield of Maize.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sugarcane. (c) 60 lb./ac. of N as A/S + 75 lb./ac. of P₂O₅ as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 8.6.52. (iv) (a) 3 ploughings. (b) Behind the plough. (c) 8 yrs./ac. (b) Rows 2' apart. plants-9' apart. (e) 2 to 3. (v) 20 lb./ac. of N as A/S + 20 lb./ac. P₂O₅ as Super. (vi) at time of earthing (broadcast) and 1 at time of sowing, given in lines. (vii) Local. (viii) Rainfed. (ix) Weeding, hoeing and thinning, earthing as per treatment. (ix) (a) 31.7'. (x) 25.9.52.

2. TREATMENTS:

1. Maize plots earthed up.
2. Maize plots not earthed.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) 15' x 16'. (b) 15' x 8'. (v) 4' border left along length. (vi) Yes.

4. GENERAL:

(i) Fair. No lodging. (ii) Attack of stem borers and white ants noticed. Spraying with D.D.T. mixed with Pyrochloride. (iii) Maize yield (with cobs). (iv) (a) No. (b) No. (c) Nil. (v) (a) Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 1291 lb./ac.
(ii) 107.1 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>S.E./Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1417</td>
<td>43.7 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
<td>1164</td>
<td>22.7 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Maize.
Site :- Botanical Sub-Stn. Sepaya.

Object :- To study the effect of earthing and topping on the yield of Maize.

1. BASAL CONDITIONS :
(a) No. (b) Rabar. (c) Nil. (ii) (a) Alkaline. (b) N.A. (iii) 24.6.53. (iv) (a) 3 country ploughings followed by one tractor ploughing. (b) & (c) N.A. (d) Row to row distance 2’. Plant to plant distance 1’. (e) 2. (v) Nil. (vi) Jaunpur (late). (vii) Unirrigated. (viii) Weeding and hoeing. (ix) 65.20°. (x) 27.9.53.

2. TREATMENTS :
Main-plot treatments :-
(A) earthing & (B) No earthing.

Sub-plot treatments :-
T<sub>1</sub>=topping soon after tassel comes out. T<sub>2</sub>=topping after pollination. T<sub>3</sub>=No topping.

Earthing up done, when plant is 4’ high. For topping, about 18” of top portion of the plant is to be removed with the help of sharp sickel.

3. DESIGN :
(i) Split-plot. (ii) (a) 2 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 15’x10’. (v) Two outer rows in each sub-plot treated as non-experimental. (vi) Yes.

4. GENERAL :
(i) N.A. (ii) Nil. (iii) Date of flowering; weight of green cob, plant height, weight of dry cob, ear height, weight of shelled kernel and length of husked ear. (iv) (a) 1952—continued. (b) No. (c) Nil. (v) (a) Dumka, Monghyr, Purnea, Pusa & Sabour. (b) Nil. (vi) Nil. (vii) Yield of two replications could not be recorded due to reasons unknown and hence analysis done with 4 replications. Experiment for 1952 N.A.

5. RESULTS :
(i) 155.4 lb./ac.
(ii) (a) 116.7 lb./ac.
(b) 73.7 lb./ac.

None of the effects and interactions is significant.

Av. yield of maize grain in lb./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>T&lt;sub&gt;3&lt;/sub&gt;</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>130.7</td>
<td>106.4</td>
<td>158.7</td>
<td>131.9</td>
</tr>
<tr>
<td>B</td>
<td>154.0</td>
<td>205.3</td>
<td>177.3</td>
<td>178.9</td>
</tr>
</tbody>
</table>

Mean 142.3 155.9 168.0 155.4

S.E. of difference of two
1. main-plot treatment means = 47.6 lb./ac.
2. sub-plot treatment means = 36.8 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment = 52.1 lb./ac.
4. main-plot treatment means at the same level of sub-plot treatment = 63.9 lb./ac.

---

Crop :- Maize
Site :- Botanical Sub-Stn. Sepaya.

Object :- To study the effect of seed taken from different parts of the cob on the yield of Maize.

1. BASAL CONDITIONS :
(a) No. (b) N.A. (c) N.A. (ii) (a) Alkaline. (b) N.A. (iii) 3.7.53. (iv) (a) 3 country ploughings followed by one tractor ploughing. (b) & (c) N.A. (d) Row to row 2’. Plant to plant 1’. (e) 2. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Weeding, hoeing and earthing. (ix) 54.86°. (x) 9.10.53.
2. TREATMENTS:

- Planting seed taken from
  1. Apical portion of the cob
  2. Central
  3. Basal
  4. Bulk seed (control)

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 15'x6'. (v) Outer 4 rows treated as non-experimental. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) Date of flowering, weight of green cob, plant height, weight of dry cob, ear height, weight of shelled kernel and length of the husked ear. (iv) (a) No. (b) No. (c) No. (v) (a) Dumka, Monghyr, Purnea, Pusa and Sabour. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:

(i) 452.1 lb./ac.
(ii) 202.4 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>513.3</td>
</tr>
<tr>
<td>2.</td>
<td>451.1</td>
</tr>
<tr>
<td>3.</td>
<td>412.2</td>
</tr>
<tr>
<td>4.</td>
<td>431.7</td>
</tr>
<tr>
<td>S.E./mean =</td>
<td>71.5 lb./ac.</td>
</tr>
</tbody>
</table>

Crop : Maize.
Site : Botanical Sub-Stn. Sepaya.

Ref : Bh. 53(95)
Type : 'C'.

Object : To find out the optimum spacing for Maize crop.

1. BASAL CONDITIONS:

(i) (a) No. (b) N.A. (c) N.A. (ii) Alkaline. (b) N.A. (iii) 2.7.53. (iv) (a) 3 country ploughings followed by one tractor ploughing. (b) & (c) N.A. (d) As per treatments. (e) 2. (v) Nil. (vi) Local variety. (vii) Unirrigated. (viii) Weeding, hoeing and earthing. (ix) 54·86". (x) 6.10.53.

2. TREATMENTS:

1. Row to row 18''
2. " 24''
3. " 30''
4. " 36''

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 15'x3'; 15'x4'; 15'x5' and 15'x6'. (v) Outer 2 rows in each sub-plot treated as non-experimental. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) Plant weight, ear height, no. of good ear/plot, length of the husked ear, kernel in a row, weight of green and dry cob; weight of shelled kernel. (iv) (a) No. (b) No. (c) No. (v) (a) Dumka, Monghyr, Purnea, Pusa and Sabour. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:

(i) 936 lb./ac.
(ii) 238.5 lb./ac.
(iii) Treatment differences are not significant.
Crop :-Maize.
Site :-Botanical Sub-Station, Sepaya.
Object :-To study the effect of different dates of sowing on yield of Maize.

1. BASAL CONDITIONS :
   (i) (a) No. (b) Rahar. (c) Nil. (ii) (a) Alkaline. (b) N.A. (iii) As under treatments. (iv) (a) 3 country ploughings followed by one tractor ploughing. (b) and (c) N.A. (iv) Row to row 2'. Plant to plant 1'.
   (e) 2. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Weeding, hoeing and earthing. (ix) 65.20'. (x) N.A.

2. TREATMENTS:
   Dates of sowing as follows :
   Nakshtra    date
   1. Rohini   3.6.53.
   3. Ardra    29.6.53.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) and (b) 15'x8'. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good (no lodging). (ii) Nil. (iii) Dates of taselling and silking, plant and earheight length of husked ear, % of good ear/plot, kernel in a row, weight of green cob and dry cob and weight of shelled kernel. (iv) (a) No. (b) No. (c) No. (v) (a) Dumka, Monghyr, Purnea, Pusa and Sabour. (vi) and (vii) Nil.

5. RESULTS:
   (i) 311.7 lb./ac.
   (ii) 151.1 lb./ac.
   (iii) Treatment differences are highly significant.
   (iv) Av. yield of grain in lb./ac.
   Treatment    Av. yield
   1.           449.2
   2.           364.6
   3.           121.3
   S.E./mean    = 53.5 lb./ac.

Crop :-Maize.
Site :-Agri. Chemistry Section, Sabour.
Object :-To test the effects of soaking seed in chemical solutions.

1. BASAL CONDITIONS :
   (i) (a) Maize—Wheat—Maize. (b) Wheat. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 13.5.53. (iv) (a) Spade ploughing. (b) and (c) N.A. (d) Each plot divided into 6 strips and in each strip, there were 13 holes. (e) 2 (v) Nil. (vi) Jaunpur. (vii) Unirrigated. (viii) One weeding and three intercultural operations were performed.
   (ix) 25.52'. (x) 27.8.53.
2. TREATMENTS:
Seeds soaked in solutions as follows:
1. Control.
2. Water.
3. M/16 KH₂PO₄.
4. M/32 KH₂PO₄.
5. M/16 K₂HPO₄.
6. M/16 KMnO₄.
7. M/32 KMnO₄.
8. M/12 K₂HPO₄.
M indicates normal solution and the remaining are chemicals.

3. DESIGN:
(i) R.B.D. (ii) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/400th ac. (v) 2' border between plots. (vi) Yes.

4. GENERAL:
(i) Not good. (ii) Nil. (iii) No. of cobs, weight of stalks. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) Nil. (vi) Nil. (vii) Crop was destroyed due to heavy rains and hence only the yield of stalks was recorded.

5. RESULTS:
(i) 3715 lb./ac.
(ii) 657.5 lb.ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of stalks in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2700</td>
</tr>
<tr>
<td>2.</td>
<td>3300</td>
</tr>
<tr>
<td>3.</td>
<td>3800</td>
</tr>
<tr>
<td>4.</td>
<td>5050</td>
</tr>
<tr>
<td>5.</td>
<td>3800</td>
</tr>
<tr>
<td>6.</td>
<td>4450</td>
</tr>
<tr>
<td>7.</td>
<td>2900</td>
</tr>
<tr>
<td>8.</td>
<td>3900</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>328.8 lb./ac.</td>
</tr>
</tbody>
</table>

Crop :- Gram.

Ref :- Bh. 52(7).
Type :- 'M'.

Object :- To study the residual effect on Gram with higher potential yield trial on Paddy.

1. BASAL CONDITIONS:
(i) (a) Paddy-Paira Gram-Green manuring-Paddy. (b) Paddy. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 16.10.53. (iv) (a) Gram sown as Paira; when previous crop Paddy was standing. (b) N.A. (c) 1 md/ac. (d) & (e) N.A. (v) Nil. (vi) ST. 4. (vii) Unirrigated. (viii) Nil. (ix) 1.53°. (x) 26.3.54.

2. TREATMENTS:
Main-plot treatments:
- 4 levels of P₂O₅: P₀=0 lb./ac., P₁=20 lb./ac., P₂=40 lb./ac. & P₃=60 lb./ac.
Sub-plot treatments:
- 4 levels of N : N₀=0 lb./ac., N₁=40 lb./ac., N₂=60 lb./ac. & N₃=80 lb./ac.
P₂O₅ as Super and N as A/S applied to the previous crop of paddy.

3. DESIGN:
(i) Split plot. (ii) (a) 4 main plots/block; 4 sub-plots/main plot. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 14''x10''. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Yield of grain. (iv) (a) No. (b) & (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.
5. RESULTS:
(i) 429.2 lb./ac.
(ii) (a) 122.09 lb./ac.
(b) 153.41 lb./ac.
(iii) None of the treatment effects is significant.
(iv) Av. yield of grain in lb./ac.

\[
\begin{array}{c|cccc|c}
\text{Treatment} & N_0 & N_1 & N_2 & N_3 & \text{Mean} \\
\hline
P_0 & 414.9 & 353.3 & 382.4 & 427.8 & 394.6 \\
P_1 & 518.6 & 363.0 & 372.7 & 489.4 & 435.9 \\
P_2 & 392.2 & 395.4 & 356.5 & 489.4 & 403.4 \\
P_3 & 563.9 & 392.2 & 470.0 & 486.2 & 478.1 \\
\hline
\text{Mean} & 472.4 & 375.9 & 395.4 & 473.2 & 429.2 \\
\end{array}
\]

S.E. of difference of two P₂O₅ means = 35.26 lb./ac.
S.E. of difference of two N means = 44.26 lb./ac.
S.E. of difference of two N means at the same level of P₂O₅ = 88.5 lb./ac.
S.E. of difference of two P₂O₅ means at the same level of N = 84.36 lb./ac.

Crop :: Gram.
Site :: College Farm, Sabour.
Ref :: Bb. 52(24).
Type :: 'M'.

Object :: To study the effect of placement of Super with and without Potash on Gram.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 18.10.52 to 20.10.52. (iv) (a) Ploughing. (b) N.A. (c) 35 lb./ac. (d) & (e) N.A. (v) Super at 300 lb./ac. and Pot. sul. at 50 lb./ac. (vi) N.A. (vii) Unirrigated. (viii) Nil. (ix) 1.34. (x) N.A.

2. TREATMENTS:
1. Control—(No manure).
2. Super applied on surface.
3. Super applied in seedling line.
4. Super applied in band.
5. Super applied on surface + Potash on surface.
6. Super applied in seedling line + Potash on surface.
7. Super applied in band + Potash on surface.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 0.01 ac. (v) N.A. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Grain yield and yield of bhusa. (iv) (a) 1952-1953. (b)— (c)— (d) None. (b)— (d) Nil. (vii) In each plot celled strip here, yield was weighed in 4 batches, and 2 batches were taken from one strip.

5. RESULTS:
(i) 1858 lb./ac.
(ii) 608.4 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>1699</td>
</tr>
<tr>
<td>2.</td>
<td>1777</td>
</tr>
<tr>
<td>3.</td>
<td>1992</td>
</tr>
<tr>
<td>4.</td>
<td>1815</td>
</tr>
<tr>
<td>5.</td>
<td>2127</td>
</tr>
<tr>
<td>6.</td>
<td>1616</td>
</tr>
<tr>
<td>7.</td>
<td>1980</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>430.3 lb./ac.</td>
</tr>
</tbody>
</table>
Crop :- Gram.  
Site :- College Farm, Sabour. 

Object :- To find out the effect of placement of Super with and without Potash on Gram.

1. BASAL CONDITIONS:
   (i) (a) Jowar+Meth—Gram—Jowar+Meth. (b) Jowar+Meth. (c) 1 md/ac. of A/S. (ii) (a) Sandy loam. (b)N.A. (iii) 27.10.53. (iv) (a) 3 desk ploughings. (b) Sown behind the plough; method of sowing in strips; (c) 35 sq/ac. (d) Row to row 1'. (v) Nil. (vi) N.A. (vii) Unirrigated. (viii) Weeding. (ix) 1.35'. (x) 14.3.1954.

2. TREATMENTS:
   1. Control (no manure).
   2. Super applied on surface.
   3. Super applied in seeding line.
   4. Super applied in band.
   5. Super applied on surface+ Potash on surface.
   6. Super applied in seeding line+ Potash on surface.
   7. Super applied in band+ Potash on surface.

3. DESIGN:
   (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 207.5'x21' (v) Yes—1' path between adjacent plots. (vi) Yes.

4. GENERAL:
   (i) Medium. (ii) No attack. (iii) Weight of straw and grain. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Nil. (b)— (vi) & (vii) Nil.

5. RESULTS:
   (i) 526.8 lb/ac. 
   (ii) 74.67 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>513.3</td>
</tr>
<tr>
<td>2.</td>
<td>539.8</td>
</tr>
<tr>
<td>3.</td>
<td>527.6</td>
</tr>
<tr>
<td>4.</td>
<td>493.7</td>
</tr>
<tr>
<td>5.</td>
<td>548.1</td>
</tr>
<tr>
<td>6.</td>
<td>495.4</td>
</tr>
<tr>
<td>7.</td>
<td>533.3</td>
</tr>
</tbody>
</table>
| S.E./mean.         | 52.7 lb/ac.

Crop :- Paira crops.  
Site :- Botanical Sub-Stn., Bikramganj. 

Object :- To test the suitability of the following crops as Paira under local conditions.

BASAL CONDITIONS:
(i) (a) Paddy-Paira Gram-Paddy. (b) Paddy. (c) A/S at 40 lb/ac. of N and Single Super at 40 lb/ac. of P2O5. (iii) (a) Clayey loam. (b) N.A. (iii) 8.11.53. (iv) (a) N.A. (b) Broadcast. (c) According to local practices. (d) and (e) N.A. (v) Nil. (vi) Local variety (early). (vii) Nil. (viii) N.A. (ix) 7.31'. (x) 243.54 (Khesari) ; 253.54 (Gram) ; 7.354 (Lentil) ; 6.354 (Pea) ; 10.354 (Linseed).

2. TREATMENTS:
   1. Khesari.
   2. Lentil.
   3. Pea.
   5. Linseed.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) 285'x66' (iii) 2. (iv) (a) and (b) 59'x66'. (v) Nil. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1953-1956. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS:
(i) to (iii) —
(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>575.24</td>
</tr>
<tr>
<td>2.</td>
<td>99.23</td>
</tr>
<tr>
<td>3.</td>
<td>221.47</td>
</tr>
<tr>
<td>4.</td>
<td>431.43</td>
</tr>
<tr>
<td>5.</td>
<td>99.23</td>
</tr>
</tbody>
</table>

Crop :- Potato.
Site :- Agri. Chemistry Section, Sabour.

Ref:- Bh. 53(20).
Type :- 'M'.

Object — To test the effect of trace elements on the yield of Potato.

1. BASAL CONDITIONS:
(i) (a) Potato-Maize-Kalai-Potato. (b) Kalai. (c) As under treatments. (ii) (a) Loan. (b) N.A. (iii) 13.11.53 (iv) (a) Spade ploughing. (b) Complete small potatoes were thrown in the field. (c) N.A. (d) Plant to plant 6' and row to row 30'. (e) N.A. (v) Nil. (vi) DRR-Darjeeling Red—Round—(Late). (vii) Irrigated. (viii) One weeding and one interculture. (ix) 1.11'. (x) 4th to 7th March 1954.

2. TREATMENTS:
1. No manure.
2. 80 lb./ac. of N as A/S+80 lb./ac. of P₂O₅ as Super +80 lb./ac. of K₂O as Muriate of Potash.
3. Treatment (2) + Manganese at 25 lb./ac.
4. Treatment (2) + Manganese at 50 lb./ac.
5. Treatment (2) + Manganese at 75 lb./ac.
Manure applied at the time of sowing.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/400th ac. (square in shape). (v) Yes—2' between adjacent plots. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) N.A. (iii) Yield of tubers. (iv) (a) 1953-1955. (b) Yes. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 15090 lb./ac.
(ii) 2359.3 lb./ac.
(iii) Treatment differences are highly significant.
(vi) Av. yield of tuber in lb./ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>7708</td>
</tr>
<tr>
<td>2.</td>
<td>17199</td>
</tr>
<tr>
<td>3.</td>
<td>17333</td>
</tr>
<tr>
<td>4.</td>
<td>17541</td>
</tr>
<tr>
<td>5.</td>
<td>15674</td>
</tr>
</tbody>
</table>

S.E./mean = 1362.2 lb./ac.
Crop: Sugarcane.
Site: Zonal Centre, Dehri-on-Sone.

Ref: Bh. 51 (38).
Type: 'M'.

Object: To find out the optimum yield potential of N and P2O5 combinations.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3’ apart. (e) —. (v) N.A. (vi) BO. 11. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. No manure.
   2. 40 lb./ac. of N+50 lb./ac. of P2O5.
   3. 80 lb./ac. of N+100 lb./ac. of P2O5.
      N as A/S, P2O5 as Super.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5’ X 24’. (b) 60.5’ X 18’. (v) One row on each side along length. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 13.59 ton/ac.
   (ii) 0.336 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
      Treatment | Av. yield | S.E.(mean)
      1.         | 12.48     | 1.231 ton/ac.
      2.         | 14.01     |
      3.         | 14.24     |

---

Crop: Sugarcane.
Site: Zonal Centre, Dehri-on-Sone.

Ref: Bh. 51 (37).
Type: 'M'.

Object: To find out the optimum dose of N applied singly and in combination with P2O5.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3’ apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. 30 lb./ac. of N.
   2. 30 lb./ac. of N+30 lb./ac. of P2O5.
   3. 60 lb./ac. of N.
   4. 60 lb./ac. of N+30 lb./ac. of P2O5.
   5. 60 lb./ac. of N+60 lb./ac. of P2O5.
   6. Control.
      Source of N is A/S and that of P2O5 is Super.
      Treatments applied at the time of planting, mixed with the soil.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 60.5’ X 24’. (b) 60.5’ X 18’. (v) One row on each side along length. (vi) Yes.
4. GENERAL:

(i) N.A. (ii) Nil. (iii) Sugarcane yield, sucrose%, and no. of mature stalks. (iv) (a), (b) and (c) No. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 18.31 ton/ac.
(ii) 1.296 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>17.26</td>
</tr>
<tr>
<td>2.</td>
<td>18.81</td>
</tr>
<tr>
<td>3.</td>
<td>20.39</td>
</tr>
<tr>
<td>4.</td>
<td>20.56</td>
</tr>
<tr>
<td>5.</td>
<td>20.52</td>
</tr>
<tr>
<td>6.</td>
<td>12.33</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.529 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Zonal Centre, Dehri-on-Sone.
Object :- To find the optimum requirement of N and P₂O₅ alone and in combination.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial (non-calcareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, 3-budded sets/row. (d) Rows 3' apart. (e) (v) Nil. (vi) CO.453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2)
(1) 2 levels of N : N₁ = 40 and N₂ = 80 lb./ac.
(2) 2 levels of P₂O₅ : P₁ = 50 and P₂ = 100 lb./ac.
N as Castor cake and P₂O₅ as Super.
Time and method of application of manures N.A.

3. DESIGN:

(i) 2 x 2 Fact. in R.B.D. (ii) 4. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18' (v) One row on each side along length. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) Nil. (iii) No. of tillers, sucrose %, sugarcane yield. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 19.32 ton/ac.
(ii) 0.97 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₁</td>
<td>16.17</td>
<td>24.52</td>
</tr>
<tr>
<td>P₂</td>
<td>17.92</td>
<td>18.67</td>
</tr>
</tbody>
</table>

Mean = 17.05
S.E. of body of table = 0.49 ton/ac.
S.E. of any marginal mean = 0.34 ton/ac.
Crop: Sugarcane.

Site: Zonal Centre, Dehri-on-Sone

Ref: Bh. 51(56).

Type: 'M'.

Object: To find the optimum requirements of N & P<sub>2</sub>O<sub>5</sub> alone and in combination.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Alluvial, non-calcareous.  (b) N.A.  (iii) N.A.  (iv) (a) 4 ploughings by deshi plough.  (b) Flat method of planting.  (c) 60, 3-budded setts/row.  (d) Rows 3' apart.  (e) .  (v) N.A.  (vi) CO 453.  (vii) N.A.  (viii) Hoeing, weeding and earthing up.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 levels of N: N<sub>1</sub> = 40 and N<sub>2</sub> = 80 lb/ac.
   (2) 2 levels of P<sub>2</sub>O<sub>5</sub>: P<sub>1</sub> = 50 and P<sub>2</sub> = 100 lb/ac.
   N as Castor cake and P<sub>2</sub>O<sub>5</sub> as Super.

3. DESIGN:
   (i) R.B.D. Fact.  (ii) 4.  (b) N.A.  (iii) N.A.  (iv) (a) 60.5'x24'.  (b) 60.5'x18'.  (v) One row on either side along length.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) No. of tillers and mature stalks, sucrose %, and sugarcane yield.  (iv) (a) 1951-1953  (b) No.  (c) Nil.  (iv) (a) N.A.  (b) N.A.  (vi) & (vii) Nil.

5. RESULTS:
   (i) 19.33 ton/ac.
   (ii) 1.94 ton/ac.
   (iii) No effect is significant.
   (iv) Av. yield of sugarcane in ton/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>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P&lt;sub&gt;1&lt;/sub&gt;</td>
<td>16.18</td>
<td>24.52</td>
<td>20.35</td>
</tr>
<tr>
<td>P&lt;sub&gt;2&lt;/sub&gt;</td>
<td>17.92</td>
<td>18.67</td>
<td>18.30</td>
</tr>
<tr>
<td>Mean</td>
<td>17.05</td>
<td>21.60</td>
<td>19.33</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =0.69 ton/ac.
S.E. of body of table =0.97 ton/ac.

Crop: Sugarcane.

Site: Zonal Centre, Dehri-on-Sone

Ref: Bh. 52(75).

Type: 'M'.

Object: To find the optimum requirement of N & P<sub>2</sub>O<sub>5</sub> alone and in combination.

1. BASAL CONDITIONS:
   (i) (a) No.  (b) N.A.  (c) N.A.  (ii) (a) Alluvial, non-calcareous.  (b) N.A.  (iii) N.A.  (iv) (a) 4 ploughings by deshi plough.  (b) Flat method of planting.  (c) 60, 3-budded setts/row.  (d) Rows 3' apart.  (e) .  (v) N.A.  (vi) CO 453.  (vii) N.A.  (viii) Hoeing, weeding and earthing up.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 levels of N: N<sub>1</sub> = 40 and N<sub>2</sub> = 80 lb/ac.
   (2) 2 levels of P<sub>2</sub>O<sub>5</sub>: P<sub>1</sub> = 50 and P<sub>2</sub> = 100 lb/ac.
   N as A/S and P<sub>2</sub>O<sub>5</sub> as Super.
   Manures applied at planting.
3. DESIGN:
(i) 2x2 Fact. in R.B.D. (ii) A. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of tillers and mature stalks, sucrose % and sugarcane yield. (iv) (a) 1951-1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS:
(i) 16.16 ton/ac. (ii) 2.77 ton/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>F₁</td>
<td>15.46</td>
<td>15.40</td>
<td>15.48</td>
</tr>
<tr>
<td>F₂</td>
<td>16.49</td>
<td>17.16</td>
<td>16.83</td>
</tr>
<tr>
<td>Mean</td>
<td>15.98</td>
<td>16.33</td>
<td>16.16</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.98 ton/ac.
S.E. of the body of table = 1.39 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Dehri-on-Sone.

Ref: Bh. 52(88).
Type: 'M'.

Object: To find the optimum requirements of N, P₄O₁₀ and K₂O alone and in combination.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) Alluvial, non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beating. (b) Flat planting. (c) 40, 3-budded setts/row. (d) Rows 3' apart. (e) Nil. (f) CO. 453. (g) Nil. (h) Hoeing, weeding and earthing up. (i) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of N: N₁ = 40 and N₂ = 80 lb./ac.
(2) 2 levels of P₂O₅: P₁ = 50 and P₂ = 100 lb./ac.
(3) 2 levels of K₂O: K₁ = 80 and K₂ = 160 lb./ac.

3. DESIGN:
(i) 2² Fact. in R.B.D. (ii) A. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) No. of mature stalks, sucrose % & sugarcane yield. (iv) (a) 1951-1953. (b) No. (c) Nil. (d) Majhaulia, Motihari and Pachrukhi. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1953 is not traceable.

5. RESULTS:
(i) 15.97 ton/ac. (ii) 2.76 ton/ac. (iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/acre.

<table>
<thead>
<tr>
<th></th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>K₁</th>
<th>K₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁</td>
<td>15.71</td>
<td>16.11</td>
<td>15.91</td>
<td>15.93</td>
<td>15.89</td>
</tr>
<tr>
<td>N₂</td>
<td>15.56</td>
<td>16.48</td>
<td>16.02</td>
<td>16.28</td>
<td>15.76</td>
</tr>
<tr>
<td>Mean</td>
<td>15.64</td>
<td>16.30</td>
<td>15.97</td>
<td>16.10</td>
<td>15.83</td>
</tr>
<tr>
<td>K₁</td>
<td>15.43</td>
<td>16.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K₂</td>
<td>15.84</td>
<td>15.82</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.69 ton/acre.
S.E. of body of table = 0.97 ton/acre.

Crop :- Sugarcane.
Site :- Zonal Centre, Dehri-on-Sone.

Ref :- Bh. 52(88).
Type :- 'M'.

Object :- To find out the optimum dose of N and P₂O₅ for CO. 453 and BO. 11 varieties.

1. BASAL CONDITIONS :
   (i) (a) N.A., (b) N.A. (c) N.A. (d) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by draught plough. (b) Flat method. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (vi) N.A.
   (vii) CO. 453. (viii) N.A. (ix) Hoeing, weeding and earthing up. (x) N.A. (x) N.A.

2. TREATMENTS :
   All combinations of (1) and (2)
   (1) 4 levels of N : N₁ = 0, N₂ = 40, N₃ = 80 and N₄ = 120 lb./ac.
   (2) 4 levels of P₂O₅ : P₁ = 0, P₂ = 50, P₃ = 100 and P₄ = 150 lb./ac.
N as A/S and P₂O₅ as Super, applied before planting sugarcane as a mixture.

3. DESIGN :
   (i) 4 x 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5’ × 24’. (b) 60.5’ × 18’. (v) One row on each side along length. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950, 1951, 1952. (b) No. (c) Nil. (v) (a) Parsa. (b) No. (vi) Nil. (vii) This experiment was to be conducted in split plot with 2 varieties but it was conducted in R.B.D. with CO. 451 variety only. Expts. conducted during the years 1950, 1951 and 1953 are given under Type ‘MV’.

5. RESULTS :
   (i) 8.66 ton/acre.
   (ii) 2.80 ton/acre.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/acre.

<table>
<thead>
<tr>
<th></th>
<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>P₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁</td>
<td>9.37</td>
<td>8.96</td>
<td>7.16</td>
<td>6.10</td>
<td>7.90</td>
</tr>
<tr>
<td>N₂</td>
<td>10.10</td>
<td>9.11</td>
<td>4.41</td>
<td>4.92</td>
<td>7.14</td>
</tr>
<tr>
<td>N₃</td>
<td>15.17</td>
<td>11.61</td>
<td>8.08</td>
<td>7.75</td>
<td>10.65</td>
</tr>
<tr>
<td>N₄</td>
<td>8.78</td>
<td>9.15</td>
<td>12.64</td>
<td>5.14</td>
<td>8.93</td>
</tr>
<tr>
<td>Mean</td>
<td>10.86</td>
<td>9.71</td>
<td>8.07</td>
<td>5.98</td>
<td>8.66</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.70 ton/acre.
S.E. of body of table = 1.40 ton/acre.
Crop :- Sugarcane.  Ref :- Bh. 52(64).
Site :- Zonal Centre, Harinagar.  Type :- 'M'.

Object :- To find out the optimum dose of N and P\(_2\)O\(_5\) for BO.11 variety.

1. BASAL CONDITIONS:

(i) (a) G.M.—Sugarcane—G.M. (b) Sanai G.M. (c) Nil.  (ii) (a) Sandy loam. (b) N.A. (iii) 3.2.52.
(v) (a) One ploughing for turning Sanai, followed by four ploughings. (b) Flat planting. (c) 60, 3- budded setts/row. (d) Rows 3' apart. (e) — (v) 10 C.L./ac. of F.Y.M. (vi) BO. 11  (vii) Unirrigated.
(viii) Nil. (ix) 60.62'. (x) 2.3.53 to 4.3.51.

2. TREATMENTS:

All combinations of (1) and (2):

(1) 4 levels of N :  
\[ N_0 = 0, N_1 = 40, N_2 = 80 \text{ and } N_3 = 120 \text{ lb/ac.} \]

(2) 4 levels of P\(_2\)O\(_5\) :  
\[ P_0 = 0, P_1 = 50, P_2 = 100 \text{ and } P_3 = 150 \text{ lb/ac.} \]

N as Castor cake and P\(_2\)O\(_5\) as Super. Manures mixed, spread over and mixed with soil before planting.

3. DESIGN:

(i) 4 x 4 Fact. in R.B.D.  (ii) (a) 16.  (b) N.A.  (iii) 5  (iv) (a) 60.5' x 24'.  (b) 60.5' x 18'.  (v) One row on each side along lenh.th.  (vi) Yes.

4. GENERAL:

(i) No lodging.  (ii) No attack of pest or disease. (iii) Sucrose %, sugarcane yield and number of mature stalks.  
(iv) (a) 1951—1952.  (b) No.  (c) Nil.  (v) (a) Harinagar, Parsa, Motipur and Dehri-on-Sone.  
(vi) Nil.  (vii) Experiment conducted during 1951 not available.

5. RESULTS:

(i) 8.64 ton/ac.
(ii) 2.79 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<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>9.36</td>
<td>8.95</td>
<td>7.16</td>
<td>6.09</td>
<td>7.89</td>
</tr>
<tr>
<td>N(_1)</td>
<td>9.89</td>
<td>9.10</td>
<td>4.40</td>
<td>4.92</td>
<td>7.10</td>
</tr>
<tr>
<td>N(_2)</td>
<td>15.16</td>
<td>11.60</td>
<td>8.07</td>
<td>7.74</td>
<td>10.64</td>
</tr>
<tr>
<td>N(_3)</td>
<td>8.77</td>
<td>9.14</td>
<td>12.62</td>
<td>5.14</td>
<td>8.92</td>
</tr>
</tbody>
</table>

Mean  
\[ \text{S.E. of any marginal mean} = 0.62 \text{ ton/ac.} \]
\[ \text{S.E. of body of table} = 1.25 \text{ ton/ac.} \]

---

Crop :- Sugarcane.  Ref :- Bh. 49(17).
Site :- Zonal Centre, Harinagar.  Type :- 'M'.

Object :- To compare salvaged A/N with standard manures on Sugarcane yield.

1. BASAL CONDITIONS:

(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (Sanai).  (c) Nil.  (ii) (a) Sandy loam. (b) N.A.  (iii)
3.2.49.  (iv) (a) 4 ploughings.  (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart.
(e) — (v) Nil.  (vi) BO. 11.  (vii) Irrigated. (viii) Nil. (ix) 56.34'.  (x) 3.2.50 to 5.2.50.
2. TREATMENTS:
Different sources to supply 40 lb/ac. of N+50 lb/ac. of P₂O₅.
1. Control (no manure).
2. Castor cake+ Triple Super.
3. Ammo. phos.
4. Salvaged A/N.
Manures mixed, spread over and mixed with soil before planting.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8 (iv) (a) 60.5'x24". (b) 60.5'x18". (v) 3' on either side along length. (vi) Yes

4. GENERAL:
(i) Good. (ii) Nil. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. 
(v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 25.76 ton/ac.
(ii) 2.998 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>22.02</td>
</tr>
<tr>
<td>2.</td>
<td>27.38</td>
</tr>
<tr>
<td>3.</td>
<td>26.48</td>
</tr>
<tr>
<td>4.</td>
<td>27.17</td>
</tr>
<tr>
<td>S.E/mean</td>
<td>1.06</td>
</tr>
</tbody>
</table>

Crop : Sugarcane. 
Site : Zonal Centre, Harinagar. 
Ref :- 49(31).
Type :- 'M'.

Object : To find out the effect of liming in heavy soils.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) No. (iv) (a) 4 ploughings & harrowing. (b) Flat method of planting. (c) 65 md/ac. (d) Rows 3' apart. (e) (v) N.A. (vi) BO. 11 and CO. 453. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. Control (no manure).
2. 40 lb/ac. of N as Castor cake+50 lb/ac. of P₂O₅ as Triple Super.
3. 40 lb/ac. of N as Castor cake+50 lb/ac. of P₂O₅ as Triple Super.+5 md/ac. of Lime.
4. 40 lb/ac. of N as Castor cake+50 lb/ac. of P₂O₅ as Triple Super.+10 md/ac. of Lime.
5. 40 lb/ac. of N as Ammo. phos.+50 lb/ac. of P₂O₅ as Triple Super.+5 md/ac. of Lime.
6. 40 lb/ac. of N as Ammo. phos.+50 lb/ac. of P₂O₅ as Triple Super.+10 md/ac. of Lime.

3. DESIGN:
(i) R.B.D. (ii) (a) 6 plots/block for each variety. (b) N.A. (iii) 4 (iv) (a) 60.5'x24". (b) 60.5'x18". (v) One row on either side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks, and juice 'content. (iv) (a) 1949—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment conducted during the year 1950 not available.

5. RESULTS:
Variety BO. 11
(i) 19.56 ton/ac.
(ii) 3.042 ton/ac.
(iii) Treatment differences are not significant.

Variety CO. 453
(i) 23.92 ton/ac.
(ii) 1.307 ton/ac.
(iii) Treatment differences are not significant.
Crop : Sugarcane.  
Site : Zonal Centre, Harinagar.

Object : To find out the effect of liming in heavy soil.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough  
   (b) Flat planting. (c) 60, 3-budded sets/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.453. (vii)  
   N.A. (viii) Weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :  
   All combinations of (1) & (2)+a control (no manure).
   (1) 2 sources to supply 60 lb./ac. of N + 75 lb./ac. of P2O5 : A=Castorcake+Single Super and  
   B=Ammo-phos.  
   (2) 3 doses of Lime : L0=0, L1=5 and L2=10 md./ac.
   Manures mixed spread over and mixed with the soil before planting.

3. DESIGN :  
   (i) R.B.D. (ii) 7. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' on either side along length  
   (vi) Yes.

4. GENERAL :  
   (i) N.A. (ii) N.A. (iii) Sucrose %, no. of matured stalks and sugarcane yield. (iv) (a) 1949—1953. (b) No.  
   (c) No. (v) (a) Parsa, Majhaulia and Motihari. (b) Nil. (vi) Nil. (vii) Experiments conducted during the  
   years 1952,1953—N.A.

5. RESULTS :  
   (i) 21.25 ton/ac.  
   (ii) 6.737 ton/ac.  
   (iii) None of the effects is significant.  
   (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>BO. 11</th>
<th>CO 453</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>16.90</td>
<td>25.53</td>
</tr>
<tr>
<td>2.</td>
<td>21.49</td>
<td>23.23</td>
</tr>
<tr>
<td>3.</td>
<td>18.62</td>
<td>23.97</td>
</tr>
<tr>
<td>4.</td>
<td>18.64</td>
<td>25.53</td>
</tr>
<tr>
<td>5.</td>
<td>21.21</td>
<td>23.14</td>
</tr>
<tr>
<td>6.</td>
<td>20.48</td>
<td>22.13</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.521</td>
<td>0.654</td>
</tr>
</tbody>
</table>

Control—23.52 ton/ac

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>Mean.</th>
</tr>
</thead>
<tbody>
<tr>
<td>L0</td>
<td>22.00</td>
<td>24.16</td>
<td>23.08</td>
</tr>
<tr>
<td>L1</td>
<td>20.65</td>
<td>17.71</td>
<td>19.18</td>
</tr>
<tr>
<td>L2</td>
<td>21.20</td>
<td>19.52</td>
<td>20.36</td>
</tr>
<tr>
<td>Mean.</td>
<td>21.28</td>
<td>20.46</td>
<td>20.87</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of lime = 1.945 ton/ac.  
S.E. of marginal mean of source = 1.588 ton/ac.  
S.E. of body of the table = 2.751 ton/ac.
Crop: Sugarcane.  
Site: Zonal Centre, Harinagar.

Object: To find out the optimum yield potential of N & P<sub>2</sub>O<sub>5</sub> applied alone and in combinations.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Sugarcane—G.M. (b) Sanai. (c) Nil.   (ii) (a) Sandy loam. (b) N.A. (iii) 1.12.50.  (iv) (a) 4 ploughings by deshi plough. (b) Flat planting. (c) 60 3-budded setts/row. (d) Rows 3' apart. (e)— (v) Sanai as G.M. (vi) BO.11.  (vii) Irrigated. (viii) Weeding and earthing. (ix) 42.75'. (x) 1.1.52 to 2.1.52.

2. TREATMENTS:
   1. No manure (control)
   2. 40 lb./ac. of N + 40 lb./ac. of P<sub>2</sub>O<sub>5</sub>
   3. 80 lb./ac. of N + 80 lb./ac. of P<sub>2</sub>O<sub>5</sub>

N as A/S and P<sub>2</sub>O<sub>5</sub> as Single Super., at the time of planting mixed with soil.

3. DESIGN:
   (i) R.B.D. (ii) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'X24'. (b) 60.5'X18'. (v) 3' on either side of width. (vi) Yes.

4. GENERAL:
   (i) No lodging. (ii) No major incidence of pest and disease noticed. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Majhaulia, Pachrukhi and Dehri-on-Sone. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 23.36 ton/ac.
   (ii) 7.182 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>26.65</td>
</tr>
<tr>
<td>2.</td>
<td>17.00</td>
</tr>
<tr>
<td>3.</td>
<td>26.43</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>5.08 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.  
Site: Zonal Centre, Harinagar.

Object: To find out the optimum yield potential of N and P<sub>2</sub>O<sub>5</sub> applied alone and in combinations.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Sugarcane—G.M. (b) G.M. (c) Nil.   (ii) (a) Sandy loam. (b) N.A. (iii) 20.11.52.  (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)— (v) Nil. (vi) BO.11. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 63.59'. (x) 6.2.54. to 8.2.54.

2. TREATMENTS:
   1. No manure.
   2. 40 lb./ac. of N + 50 lb./ac. of P<sub>2</sub>O<sub>5</sub>
   3. 80 lb./ac. of N + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub>

N as A/N and P<sub>2</sub>O<sub>5</sub> as Super. Time & method of application of treatments N.A.

3. DESIGN:
   (i) R.B.D. (ii) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'X24'. (b) 60.5'X18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL:
   (i) No lodging. (ii) No major incidence of pest and disease noticed. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Parsa, Majhaulia, Motipur and Dehri-on-Sone. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1951 N.A.
5. RESULTS:
(i) 15.48 ton/ac.
(ii) 1.34 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>10.46</td>
</tr>
<tr>
<td>2.</td>
<td>17.62</td>
</tr>
<tr>
<td>3.</td>
<td>18.55</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 1.30 ton/ac</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Site: Zonal Centre, Majhulia.

Object: To find out the response to different combinations of N and P₂O₅.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial-calcareous. (b) N.A. (iii) N.A. (iv) 4 ploughings by deshi plough. (b) Flat method of planting (c) 60, 3-budded sets/row. (d) Rows 3' apart. (e)– (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. 60 lb./ac. of N as A/S + 75 lb./ac. of P₂O₅ as Single Super.
2. 60 lb./ac. of N as Castor cake + 75 lb./ac. of P₂O₅ as Single Super.
3. 45 lb./ac. of N as Castor cake + 15 lb./ac. of N as A/S + 75 lb./ac. of P₂O₅ as Single Super.
4. 30 lb./ac. of N as Castor cake + 30 lb./ac. of N as A/S + 75 lb./ac. of P₂O₅ as Single Super.
5. 15 lb./ac. of N as Castor cake + 45 lb./ac. of N as A/S + 75 lb./ac. of P₂O₅ as Single Super.
6. Control (no manure).

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on both side along length (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of mature stalks and tillers sucrose % and sugarcane yield. (iv) (a) 1959—1953. (b) No. (c) NIL (v) (a) N.A. (b) NIL (vi) NIL (vii) This experiment was to be conducted in split plot with CO. 453 and BO. 11 varieties in main-plot, but it was conducted in R.B.D with only variety CO.-453

5. RESULTS:
(i) 21.97 ton/ac.
(ii) 1.34 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>21.49</td>
</tr>
<tr>
<td>2.</td>
<td>22.99</td>
</tr>
<tr>
<td>3.</td>
<td>22.92</td>
</tr>
<tr>
<td>4.</td>
<td>23.10</td>
</tr>
<tr>
<td>5.</td>
<td>22.32</td>
</tr>
<tr>
<td>6.</td>
<td>18.81</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>= 0.92 ton/ac</td>
</tr>
</tbody>
</table>

Ref:- Bh. 52(89).
Type: 'M'.
Crop: - Sugarcane.
Site: - Zonal Centre, Majhaulia.

Object: - To find out the optimum requirements of N and P\textsubscript{2}O\textsubscript{5} for BL 11 variety.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) -. (v) N.A. (vi) BO. 11. (vii) N.A. (viii) Hoing and weeding: (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2).
   (1) 3 levels of N: N\textsubscript{0}=0, N\textsubscript{1}=20 and N\textsubscript{2}=40 lb./ac.
   (2) 3 levels of P\textsubscript{2}O\textsubscript{5}: P\textsubscript{0}=0, P\textsubscript{1}=25 and P\textsubscript{2}=50 lb./ac.

   Source of N is Castor cake and P\textsubscript{2}O\textsubscript{5} is Triple Super.

3. DESIGN:
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 8. (iv) (a) 60.5'x24'. (b) 60.5'x18', (v) 1 row on either side along length. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and juice content. (iv) (a) 19-09-1952. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment conducted with 2 varieties onwards.

5. RESULTS:
   (i) 16.19 ton/ac.  
   (ii) 0.808 ton/ac.  
   (iii) None of the effects is 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>15.02</td>
<td>14.99</td>
<td>16.24</td>
<td>15.42</td>
</tr>
<tr>
<td>N\textsubscript{1}</td>
<td>16.75</td>
<td>16.75</td>
<td>15.94</td>
<td>16.48</td>
</tr>
<tr>
<td>N\textsubscript{2}</td>
<td>15.72</td>
<td>16.27</td>
<td>18.00</td>
<td>16.66</td>
</tr>
</tbody>
</table>

   Mean  | 15.83 | 16.00 | 16.73 | 16.16   |

   S.E. of any marginal mean =0.165 ton/ac.
   S.E. of body of table =0.286 ton/ac.
3. DESIGN:
(i) 2' Fact in R.B.D. (ii) (a) 8. (b) N.A. (iii) A. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on either side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Tiller and mature stalk counts and sugarcane yield. (iv) (a) 1950-1953. (b) N.A. (c) N.A. (d) Nil. (v) (a) Pusa. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 19.74 ton/ac.
(ii) 2.948 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
<th>K1</th>
<th>K2</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1</td>
<td>19.14</td>
<td>20.59</td>
<td>20.01</td>
<td>20.05</td>
<td>19.97</td>
</tr>
<tr>
<td>N2</td>
<td>19.88</td>
<td>19.07</td>
<td>19.47</td>
<td>18.50</td>
<td>20.45</td>
</tr>
<tr>
<td>Mean</td>
<td>19.51</td>
<td>19.98</td>
<td>19.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K1</td>
<td>19.13</td>
<td>19.39</td>
<td></td>
<td>19.26</td>
<td>20.21</td>
</tr>
<tr>
<td>K2</td>
<td>19.85</td>
<td>20.57</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =0.74 ton/ac.
S.E. of body of table =1.04 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhaulia.
Ref :- Bh. 51(51).
Type :- 'M'.

Object :- To find out the optimum requirement of N, P₂O₅ and K₂O alone and in combinations.

1. BASAL CONDITIONS:
(i) (a) Sugarcane-G.M.-Wheat-G.M-Sugarcane. (b) Sanal. (c) Nil. (ii) (a) Alluvial calcareous soil. (b) N.A. (iii) 25.1.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) - . (v) N.A. (vi) BO. 11. (vi) N.A. (viii) N.A. (ix) 47.05'. (x) 10.1.52 to 12.1.52.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of N : N₁=40 and N₂=80 lb./ac.
(2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac.
(3) 2 levels of K₂O : K₁=50 and K₂=160 lb./ac.
N as Castor cake, P₂O₅ as Super and K₂O as Pot. Sul. Manures spread over plots just before planting, thoroughly and uniformly mixed with soil.

3. DESIGN:
(i) 2' Fact. in R.B.D. (ii) (a) 8. (b) 4. (iii) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' either side of width.
(vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Tiller and mature stalk counts and sugarcane yield. (iv) (a) 1950-53. (b) No.
(e) Nil. (v) (a) Dehri-on-Sone. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 25.43 ton/ac.
(ii) 2.55 ton/ac.
(iii) None of the effects is significant.
Crop : Sugarcane.
Site : Zonal Centre, Majhaulia.

Object : To find out the optimum requirement of N, P₂O₅ and K₂O alone and in combination.

1. BASAL CONDITIONS :
   (i) (a) Sugarcane—G.M.—Wheat—G.M.—Sugar cane. (b) Sanai. (c) Nil. (ii) (a) Alluvial calcareous soil. (b) N.A. (iii) 26.1.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) Castor cake—175 md./ac. (vi) 10. (vii) N.A. (viii) Nil. (ix) 66.66'. (x) 6/7.3.53.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (1) 2 levels of N : N₁=40 and N₂=80 lb./ac. of N.
   (2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac. of P₂O₅.
   (3) 2 levels of K₂O : K₁=80 and K₂=160 lb./ac. of K₂O.
   N as Castor cake, P₂O₅ as Super and K₂O as Pot. Sul.
   Manures spread over plots just before planting, thoroughly and uniformly mixed with soil.

3. DESIGN :
   (i) 2² Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 3' on either side of width. (vi) Yes.

4. GENERAL :
   (i) Average. (ii) Nil. (iii) Mature stalk count, sugarcane yield and sucrose %.

5. RESULTS :
   (i) 24.76 ton/ac.
   (ii) 3.00 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>K₁</th>
<th>K₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁</td>
<td>26.08</td>
<td>23.18</td>
<td>24.63</td>
<td>24.06</td>
<td>25.20</td>
</tr>
<tr>
<td>N₂</td>
<td>25.16</td>
<td>24.61</td>
<td>24.89</td>
<td>25.22</td>
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<tr>
<td>Mean</td>
<td>25.61</td>
<td>23.90</td>
<td>24.76</td>
<td>24.64</td>
<td>24.88</td>
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<td>K₁</td>
<td>26.81</td>
<td>22.47</td>
<td>24.42</td>
<td>25.53</td>
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</tr>
<tr>
<td>K₂</td>
<td>24.42</td>
<td>25.53</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =0.75 ton/ac.
S.E. of body of table =1.06 ton/ac.
Crop : Sugarcane.  
Site : Zonal Centre, Majhaulia.  
Ref : Bh. 53(127).  
Type : 'M'.

Object :- To find out the optimum requirements of N, P, K alone and in combination.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) Nil. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 3 ploughings
       and harrowing. (b) Flat method. (c) 60 md./ac. (d) Rows 3' apart. (e) Nil. (v) N.A. (vi) CO. 453.
   (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (1) 2 levels of N: N1=40 and N2=80 lb./ac.
   (2) 2 levels of P2O5 : P1=50 and P2=100 lb./ac.
   (3) 2 levels of K2O : K1=80 and K2=160 lb./ac.
   N as Castor cake, P2O5 as Super and K2O as Pot. Sul.

3. DESIGN :
   (i) 2' Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5'x24 (b) 60.5'x18'. (v) 1 row on
       each side of breadth. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Canes yield, no. of mature stalks and juice content. (iv) (a) 1950-1953. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) N.A.

5. RESULTS :
   (i) 21.03 ton/ac.  
   (ii) 1.62 ton/ac.  
   (iii) None of the effects is significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P2</th>
<th>Mean</th>
<th>K1</th>
<th>K2</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1</td>
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<td>21.13</td>
<td>21.17</td>
<td>21.79</td>
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<td>21.32</td>
<td>20.48</td>
<td>20.90</td>
<td>21.04</td>
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<tr>
<td>Mean</td>
<td>21.26</td>
<td>20.81</td>
<td></td>
<td>21.03</td>
<td>21.42</td>
</tr>
<tr>
<td>K1</td>
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<td>20.81</td>
<td>21.03</td>
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<td>20.81</td>
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<td>20.80</td>
<td></td>
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<td></td>
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</tbody>
</table>

   S.E. of the body of table =0.57 ton/ac.  
   S.E. of any marginal mean =0.41 ton/ac.

Crop : Sugarcane.  
Site : Zonal Centre, Majhaulia.  
Ref : Bh. 48(24).  
Type : 'M'.

Object.:- To find out the optimum requirement of N and P2O5 alone and in combination for BO.11 variety.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings.
       (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) Nil. (vi) BO. II. (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 : N0=0, N1=20 and N2=40 lb./ac.
   (2) 3 levels of P2O5 : P1=0, P2=25 and P3=50 lb./ac.
   N as A/S and P2O5 as Single Super.
   Manures spread over the field and uniformly mixed with the soil before planting.
3. TREATMENTS:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 8. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 1 outer row on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) Pusa and Parsa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 16.16 ton/ac. 
(ii) 2.282 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>
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<td>15.02</td>
<td>14.97</td>
<td>16.22</td>
<td>15.40</td>
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<tr>
<td>N₁</td>
<td>16.72</td>
<td>16.72</td>
<td>15.92</td>
<td>16.45</td>
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<tr>
<td>N₂</td>
<td>15.69</td>
<td>16.26</td>
<td>17.98</td>
<td>16.64</td>
</tr>
<tr>
<td>Mean</td>
<td>15.81</td>
<td>15.98</td>
<td>16.71</td>
<td>16.16</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =0.466 ton/ac.
S.E. of body of table =0.807 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhaulia.
Type :- 'M'.

Object :-To find out the optimum yield potential of N and P₂O₅ alone and in combination.

1. BASAL CONDITIONS:
(i) Sugarcane-G.M.-Wheat-G.M.-Sugarcane. (b) Sana. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 24.1.52. (iv) (a) 4 ploughings. (b) Flat planting. (e) 60, 3-budded setts/row. (d) Rows 3' apart. (e) --. (v) Castorcake-78 md./ac. Time & method of application of Castorcake N.A. (vi) BO. 11. (vii) N.A. (viii) Nil. (ix) 66.78'. (x) 6/7.3.53.

2. TREATMENTS:
1. Control (no manure).
2. 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
3. 80 lb./ac. of N + 100 lb./ac. of P₂O₅.
N as A/S and P₂O₅ is Single Super. Treatment applied at the time of planting.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on either side of width. (vi) Yes.

4. GENERAL:
(i) Average. (ii) Nil. (iii) No. of tillers and mature stalks and sugarcane yield. (iv) (a) 1949-1952.(b) No. (c) Nil. (v) (a) Pusa, Harinagar and Motihari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 24.37 ton/ac.
(ii) 2.282 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>24.22</td>
</tr>
<tr>
<td>2.</td>
<td>23.12</td>
</tr>
<tr>
<td>3.</td>
<td>25.76</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=1.66 ton/ac.</td>
</tr>
</tbody>
</table>
Crop :- Sugarcane.  
Site :- Zonal Centre, Motihari.

Ref :- Bh. 53(146).  
Type :- 'M'.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A.  
   (ii) (a) Sandy loam. (b) N.A. (iii) N.A.  
   (iv) (a) 4 ploughings by desi plough. (b) Flat method.  
   (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) --. (v) N.A.  
   (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing.  
   (ix) N.A. (x) N.A.

2. TREATMENTS :
   1. 61 lb./ac. of N as A/S + 75 lb./ac. of P2O5 as Single Super.  
   2. 60 lb./ac. of N as Castorcake + 75 lb./ac. of P2O5 as Single Super.  
   3. 45 lb./ac. of N as Castorcake + 15 lb./ac. of N as A/S + 75 lb./ac. of P2O5 as Single Super.  
   4. 30 lb./ac. of N as Castorcake + 30 lb./ac. of N as A/S + 75 lb./ac. of P2O5 as Single Super.  
   5. 15 lb./ac. of N as Castorcake + 45 lb./ac. of N as A/S + 75 lb./ac. of P2O5 as Single Super.  
   6. Control.

3. DESIGN :
   (i) R.B.D.  
   (ii) (a) 6. (b) N.A.  
   (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on each side of width.  
   (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) N.A. (iv) N.A.  
   (v) No. of tillers, no. of mature stalks, sucrose % and sugarcane yield.  
   (vi) (a) 1948-1953. (b) No. (c) Nil.  
   (vii) This experiment was to be conducted in split plot with CO. 453 and BO. 11 varieties. But it was conducted in R.B.D. with CO. 453 variety only.

5. RESULTS :
   (i) 19.93 ton/ac.  
   (ii) 3.47 ton/ac.  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of sugarcane in ton/ac.  
   Treatment       Av. yield  
   1. 20.68  
   2. 19.39  
   3. 20.39  
   4. 19.84  
   5. 21.89  
   6. 17.41  
   S.E./mean = -1.74 ton/ac.

---

Crop :- Sugarcane.  
Site :- Zonal Centre, Motihari.

Ref :- Bh. 49(28).  
Type :- 'M'.

Object :- To find out the optimum dose of N and P2O5.

1. BASAL CONDITIONS :
   (i) (a) Sanai—Sugarcane—Sanai. (b) Sanai. (c) 50 lb./ac. of P2O5 as Single Super.  
   (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting.  
   (c) 60, 3-budded setts/row. (d) Rows 3' apart.  
   (e) --. (v) Sanai. Details N.A.  
   (vi) BO. 11. (vii) N.A. (viii) 3 hoeings and 3 weedings.  
   (ix) 56.35°. (x) N.A.

2. TREATMENTS :
   All combinations of (1) and (2)  
   (1) 4 levels of N : N0=0, N1=40, N2=80 and N3=120 lb./ac.  
   (2) 4 levels of P2O5 : P0=0, P1=50, P2=100 and P3=150 lb./ac.  
   N as Castorcake and P2O5 as Triple Super.  
   Time and method of application of manures N.A.

3. DESIGN :
   (i) 4x4 Fact. in R.B.D.  
   (ii) (a)16. (b) N.A.  
   (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One guard row along each side of length.  
   (vi) Yes.
4. GENERAL:
(i) Fair. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949-50 to 1952. (b) No.
(c) Nil. (v) (a) Harinagar. (b) No. (v) Nil. (vii) Information of the experiment conducted during 1950 not available.

5. RESULTS:
(i) 21.04 ton/ac.
(ii) 0.94 ton/ac.
(iii) Main effects of N and P are significant while interaction N×P is not significant.
(iv) Av. yield of sugar cane in ton/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>20.49</td>
<td>21.10</td>
<td>20.34</td>
<td>21.87</td>
<td>20.95</td>
</tr>
<tr>
<td>N1</td>
<td>18.76</td>
<td>18.41</td>
<td>22.93</td>
<td>19.63</td>
<td>19.94</td>
</tr>
<tr>
<td>N3</td>
<td>23.16</td>
<td>22.54</td>
<td>22.09</td>
<td>23.47</td>
<td>22.07</td>
</tr>
<tr>
<td>Mean</td>
<td>19.76</td>
<td>20.92</td>
<td>21.73</td>
<td>21.74</td>
<td>21.04</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.23 ton/ac.
S.E. of body of the table = 0.47 ton/ac.

Crop : Sugarcane  
Site : Zonal Centre, Motihari.

Ref : Bh. 51(60).  
Type :- 'M'.

Object :- To find the optimum dose of N and P₂O₅ for BO. 11 variety of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Sanai—-Sugarcane—-Sanai. (b) Sanai. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 2.2.51. (iv) (a) One ploughing for burying Sanai, followed by 4 ploughings and beamings. (b) Flat planting. (c) 60,3-budded setts/row. (d) Rows 3' apart. (e) (v) Sanai as G.M. (vi) B.O. 11. (vii) Irrigated. (viii) Hoeing, weeding and earthing up (ix) 42.79". (x) 4/5.1.52.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
(2) 4 levels of P₂O₅ : P₀=0, P₁=50, P₂=100 and P₃=150 lb./ac.
N as Castorcake and P₂O₅ as Single Super.
Time and method of application—N.A.

3. DESIGN:
(i) 4×4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18' (v) Rows of 3' on each side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (i) Nil. (ii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1949-50 to 1952. (b) No. (c) Nil. (v) (a) Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 19.71 ton/ac.
(ii) 0.99 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/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>15.27</td>
<td>19.00</td>
<td>22.09</td>
<td>18.46</td>
<td>17.70</td>
</tr>
<tr>
<td>N₁</td>
<td>18.47</td>
<td>20.53</td>
<td>21.90</td>
<td>20.32</td>
<td>20.55</td>
</tr>
<tr>
<td>N₃</td>
<td>20.31</td>
<td>17.03</td>
<td>21.74</td>
<td>13.63</td>
<td>18.18</td>
</tr>
</tbody>
</table>

Mean 19.46 19.51 21.85 18.01

S.E. of any marginal mean = 0.25 ton/ac.
S.E. of body of table = 0.50 ton/ac.

Crop : Sugarcane.
Site : Zonal Centre, Motihari.

Object :- To find the optimum dose of N and P₂O₅ for BO. 11.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sandy loam. (c) 50 lb./ac. of P₂O₅ as Single Super.
(ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings with Bihar plough. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)--(v) G.M. (Sanad)+100 md./ac. F.Y.M. before planting. (vi) BO. 11. (vii) Irrigated. (viii) 3 times hoeing and weeding. (ix) 50.11°. (x) 16.3.53 to 18.3.53.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
(2) 4 levels of P₂O₅ : P₀=0, P₁=50, P₂=100 and P₃=150 lb./ac.
N as Castorcake and P₂O₅ as Single Super.
Time and method of application of manures N.A.

3. DESIGN:
(i) 4 x 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 1 guard row along length on each side. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) No major pest. (iii) No. of tillers, no. of mature stalks and sugarcane yield. (iv) (a) 1949—1952. (b) No. (c) Nil. (v) (a) Harinagar. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 7.28 ton/ac.
(ii) 4.18 ton/ac.
(iii) Only main effect of N is significant.
(iv) Av. yield of cane in ton/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>5.25</td>
<td>5.25</td>
<td>4.15</td>
<td>5.69</td>
<td>5.09</td>
</tr>
<tr>
<td>N₁</td>
<td>8.70</td>
<td>6.94</td>
<td>7.60</td>
<td>12.51</td>
<td>8.94</td>
</tr>
<tr>
<td>N₃</td>
<td>6.79</td>
<td>6.42</td>
<td>4.48</td>
<td>6.53</td>
<td>6.05</td>
</tr>
<tr>
<td>N₄</td>
<td>6.86</td>
<td>7.82</td>
<td>13.32</td>
<td>8.18</td>
<td>9.05</td>
</tr>
</tbody>
</table>

Mean 6.90 6.61 7.39 8.23 7.28

S.E. of any marginal mean = 1.045 ton/ac.
S.E. of body of table = 2.090 ton/ac.
Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Object :- To find out the optimum requirements of N, P_2O_5 and K_2O.

1. BASAL CONDITIONS:
(i) (a) Sanai-Sugarcane-Sanai. (b) Sonal. (c) 50 lb/ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 1 ploughing for turning up Sanai and 4 ploughings by Bihar plough. (b) Flat planting. (c) 70 md/ac. (d) Rows 3' apart. (e) —. (v) Sanai as G.M. and F.Y.M. (vi) CO. 425. (vii) Irrigated. (viii) 3 hoeings and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of N : N_1 = 40 and N_2 = 80 lb/ac.
(2) 2 levels of P_2O_5 : P_1 = 50 and P_2 = 100 lb/ac.
(3) 2 levels of K_2O : K_1 = 50 and K_2 = 100 lb/ac.
N as Castorcake, P_2O_5 as Single Super and K_2O as Pot. Sul.
Time and method of application of treatment N.A.

3. DESIGN:
(i) 2^2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One guard row on each side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) No. of tillers and mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) N.A. (c) No. (v) (a) Majhaulia, Motipur and Pachrukhi. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 16.39 ton/ac.
(ii) 4.11 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P_1</th>
<th>P_2</th>
<th>Mean</th>
<th>K_1</th>
<th>K_2</th>
</tr>
</thead>
<tbody>
<tr>
<td>N_1</td>
<td>15.43</td>
<td>17.56</td>
<td>16.50</td>
<td>14.66</td>
<td>18.33</td>
</tr>
<tr>
<td>N_2</td>
<td>16.20</td>
<td>16.37</td>
<td>16.28</td>
<td>14.31</td>
<td>18.26</td>
</tr>
<tr>
<td>Mean</td>
<td>15.81</td>
<td>16.91</td>
<td>16.39</td>
<td>14.49</td>
<td>18.29</td>
</tr>
<tr>
<td>K_1</td>
<td>14.99</td>
<td>13.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K_2</td>
<td>16.64</td>
<td>19.94</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.03 ton/ac.
S.E. of body of table = 1.45 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Object :- To find out the response to different combinations of manures.
2. TREATMENTS:
Different sources to supply 40 lb./ac. of N and 50 lb./ac. of P₂O₅:
1. Ammo. phos.
8. Linseedcake+Triple Super.
9. Control (no manure).

DESIGN:
(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on each side along length.
(vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sucrose %, no. of matured stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Parsa, Majhaulia and Harnagar (b) N.A. (vi) and (vii) Nil.

5. RESULTS:
(i) 22.94 ton/acre.
(ii) 1.44 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>1.</td>
<td>21.7</td>
</tr>
<tr>
<td>2.</td>
<td>21.6</td>
</tr>
<tr>
<td>3.</td>
<td>22.1</td>
</tr>
<tr>
<td>4.</td>
<td>24.5</td>
</tr>
<tr>
<td>5.</td>
<td>23.1</td>
</tr>
<tr>
<td>6.</td>
<td>22.6</td>
</tr>
<tr>
<td>7.</td>
<td>23.0</td>
</tr>
<tr>
<td>8.</td>
<td>24.1</td>
</tr>
<tr>
<td>9.</td>
<td>23.0</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.83 ton/acre</td>
</tr>
</tbody>
</table>

Crop :-Sugarcane.
Site :Zonal Centre, Motihari.
Ref :Bh. 48(16).
Type :‘M’.

Object :-To find out the response to different combinations of manures on Sugarcane yield.

1. BASAL CONDITIONS:
(i) (a) Sanai-Sugarcane—Sanai. (b) Sanai. (c) 50 lb./ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) Feb. 1949. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)—. (vi) Nil. (v) BO. 11. (vii) N.A. (viii) Weeding and hoeing done 3 times. (ix) 56.35', (x) N.A.

2. TREATMENTS:
1. A/P to supply 60 lb./ac. of N and 75 lb./ac. of P₂O₅.
2. A/S to supply 60 lb./ac. of N+Triple Super at 75 lb./ac. of P₂O₅.
3. Castorcake+A/P+Triple Super to supply 60 lb./ac. of N and 75 lb./ac. of P₂O₅.
4. Castorcake+Triple Super to supply 60 lb./ac. of N and 75 lb./ac. of P₂O₅.
5. Castor cake+Triple Super to supply 40 lb./ac. of N and 50 lb./ac. of P₂O₅.
6. A/N to supply 60 lb./ac. of N+Triple Super at 75 lb./ac. P₂O₅.
7. Control (no manure).

Time and method of application of treatments N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on each side along length. (vi) Yes.
4. GENERAL:
(i) Fair. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) No. (b) No. (c) Nil. (v) (a) Majhaolin and Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 18.88 ton/ac.
(ii) 1.36 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>18.65</td>
</tr>
<tr>
<td>2.</td>
<td>19.69</td>
</tr>
<tr>
<td>3.</td>
<td>18.18</td>
</tr>
<tr>
<td>4.</td>
<td>18.28</td>
</tr>
<tr>
<td>5.</td>
<td>19.60</td>
</tr>
<tr>
<td>6.</td>
<td>18.91</td>
</tr>
<tr>
<td>7.</td>
<td>18.86</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.93 ton/ac</td>
</tr>
</tbody>
</table>

Crop - Sugarcane.
Site - Zonal Centre, Motihari.

Object - To find out the optimum dose of N and P<sub>2</sub>O<sub>5</sub>.

1. B/SAL CONDITIONS:
(i) (a) G.M.- Sugarcane-G.M. (b) Sanai, (c) P<sub>2</sub>O<sub>5</sub> at 50 lb./ac. as Single Super. (ii) (a) Sandy loam, calcareous soil. (b) N.A. (iii) Feb. 1949. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) - (v) Sanai; other details N.A. (vi) BO. 11. (vii) N.A. (viii) 3 weedings and hoeings worked with bullock driven cultivator. (ix) 56.15'. (x) N.A.

2. TREATMENTS:
1. Ammo. phos. to supply 40 lb./ac. of N and 50 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
2. Ammo. phos. to supply 60 lb./ac. of N and 75 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
3. Castorcake at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
4. Castorcake at 60 lb./ac. of N+Triple Super at 75 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
5. A/S at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
6. A/S at 60 lb./ac. of N+Triple Super at 75 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
7. Control (no manure).
Time and method of application of treatments N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One guard row along length on both sides. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and cane yield. (iv) No. (b) No. (c) Nil. (v) (a) Pachrukhi. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 19.75 ton/ac.
(ii) 2.009 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>
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</tr>
<tr>
<td>2.</td>
<td>19.96</td>
</tr>
<tr>
<td>3.</td>
<td>19.51</td>
</tr>
<tr>
<td>4.</td>
<td>17.65</td>
</tr>
<tr>
<td>5.</td>
<td>20.56</td>
</tr>
<tr>
<td>6.</td>
<td>20.08</td>
</tr>
<tr>
<td>7.</td>
<td>19.44</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.82 ton/ac</td>
</tr>
</tbody>
</table>

Ref : Bh. 49(14).
Type : 'M'.

Object: - To find out the optimum dose of N and P<sub>2</sub>O<sub>5</sub>.
Crop: Sugarcane.  
Site: Zonal Centre, Motihari.  

Object: To compare the effect of salvaged A/N with standard manures on cane yield.

1. BASAL CONDITIONS:
(i) (a) Sanai—Sugarcane. (b) Sanai. (c) 50 lb/ac. of P₂O₅ in the form of Single Super. (ii) (a) Sandy loam calcareous soil. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three—budded setts/row. (d) Rows 3' apart. (e)—(v) Sanai and P.Y.M. Others details N.A. (vi) BO. 11. (vii) N.A. (viii) 3 times weeding and hoeing done. (ix) 56.35". (x) N.A.

2. TREATMENTS:
1. Control (no manure).
2. Castor cake+ Triple Super to supply 40 lb/ac. of N+50 lb/ac. of P₂O₅.
3. A/S + ...
4. Salvaged A/N+ ...

Time and method of application of manures N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) 60"x24" (b) 60.5"x18". (v) One guard row along the length on both sides. (vi) Yes.

4. GENERAL:
(i) Fair. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vii) and (viii) Nil.

5. RESULTS:
(i) 20.93 ton/ac.
(ii) 2.57 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>19.29</td>
</tr>
<tr>
<td>2.</td>
<td>21.29</td>
</tr>
<tr>
<td>3.</td>
<td>20.74</td>
</tr>
<tr>
<td>4.</td>
<td>22.40</td>
</tr>
</tbody>
</table>

S.E./mean = 0.91 ton/ac.

Crop: Sugarcane.  
Site: Zonal Centre, Motihari.  

Object: To find out the suitability and optimum dose of press mud.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sanai. (c) 50 lb/ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) 10.5%. (iv) (a) 4 ploughings by Bihar plough. (b) Flat planting. (c) 60, three—budded setts/row. (d) Rows 3' apart. (e)—(v) Sanai as O.M. and P.Y.M. at 100 md/ac. before planting. (vi) BO. 11. (vii) Supplied. (viii) Hoeing done once. (ix) 40.00". (x) N.A.

2. TREATMENTS:
1. 100 md/ac. of press mud applied 1 month before planting.
2. 150 ...
3. 200 ...
4. 10 md/ac. of Castor cake+21 md/ac. of Single Super at the time of planting.
5. Control.

Time and method of application of manures N.A.

3. DESIGN:
(i) R.B.D. (ii) 5. (b) N.A. (iii) 5. (iv) (a) 60'-6"x24'. (b) 60'-6"x18'. (v) One guard row along the length on both sides. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tiller count, no of mature stalk, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No (v) (a) None. (b) No. (vi) & (vii) Nil.

5. RESULTS:
(i) 23.04 ton/ac.
(ii) 2.963 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>23.25</td>
</tr>
<tr>
<td>2.</td>
<td>22.42</td>
</tr>
<tr>
<td>3.</td>
<td>24.39</td>
</tr>
<tr>
<td>4.</td>
<td>23.71</td>
</tr>
<tr>
<td>5.</td>
<td>21.44</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.325 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Site: Zonal Centre, Motihari.
Ref:- Bh. 52(42)
Type:- 'M'.

Object:-To study the effect of P manuring on green manure crops and on subsequent crop.

1. BASAL CONDITIONS:
(i) (a) G.M.—Sugarcane—G.M. (b) Sanai. (c) 50 lb/ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) 23.2. (iv) (a) 4 ploughings. (b) Flat planting. (c) 70 md/ac. (d) Rows 3' apart. (e)—(v) Sanai as G.M. and F.Y.M. at 100 md/ac. before planting. (vi) BO. 11. (vii) Irrigated. (viii) 3 hoeings and weedings. (ix) 50.01'. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 green manures : G₁=Sanai and G₂=Soyabean.
(2) 6 levels of P₂O₅ : P₀=0, P₁=50, P₄=100, P₃=150, P₄=200, and P₅=250 lb/ac. P₂O₅ as Single Super. Time & method of application of treatments N.A.

3. DESIGN:
(i) 2 x 6 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One guard row along the length in both sides. (vi) Yes.

4. GENERAL:
(i) No lodging. (ii) Nil. (iii) Tiller and mature stalk count, sucrose %, and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) & (vii) Nil.

5. RESULTS:
(i) 19.20 ton/ac.
(ii) 4.65 ton/ac.
(iii) No effect is significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>P₄</th>
<th>P₅</th>
<th>Mean</th>
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<tbody>
<tr>
<td>G₁</td>
<td>20.48</td>
<td>19.40</td>
<td>20.11</td>
<td>18.57</td>
<td>17.76</td>
<td>19.74</td>
<td>19.01</td>
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<tr>
<td>G₂</td>
<td>19.78</td>
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<td>19.60</td>
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<td>18.57</td>
<td>19.38</td>
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</table>

Mean: 20.13 18.06 20.65 19.09 18.09 19.16 19.20

S.E. of marginal mean of G = 0.77 ton/ac.
S.E. of marginal mean of P = 1.34 ton/ac.
S.E. of body of table = 1.50 ton/ac.
Crop: Sugarcane.
Site: Zonal Centre, Motihari.
Object: To find out the optimum yield potential of N and P<sub>2</sub>O<sub>5</sub> combinations.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 4 ploughings by Bihar plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) Sanai as G.M. and 100 md./ac. of F.Y.M. before planting. (vi) BO. 11. (vii) Irrigated. (viii) Hoeing and earthing up. (ix) 50.01" (x) 12.10.53.

2. TREATMENTS:
   1. Control (Nomanure).
   2. 40 lb./ac. of N + 50 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   3. 80 lb./ac. of N + 100 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   4. 100 lb./ac. of N as A/S and P<sub>2</sub>O<sub>5</sub> as Single Super.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A (iii) 2. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One guard row on length on both sides. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 12. 91 ton/ac.
   (ii) 2.247 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment   Av. yield
   1.          12.11
   2.          13.21
   3.          13.40
   S.E./mean   1.589 ton/ac.
5. RESULTS:
(i) 11.00 ton/ac.
(ii) 3.76 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield (ton/ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10.93</td>
</tr>
<tr>
<td>2.</td>
<td>12.64</td>
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<tr>
<td>3.</td>
<td>9.00</td>
</tr>
<tr>
<td>4.</td>
<td>11.30</td>
</tr>
<tr>
<td>5.</td>
<td>11.14</td>
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<tr>
<td>S.E./mean</td>
<td>1.54 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.

Site: Zonal Centre, Motipur.

Object: To find out the optimum dose of N & P₂O₅

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (d) Sandy loam. (e) N.A. (f) (a) 4 ploughings by desi plough
(b) Flat method. (c) 60, three budded setts/row. (d) Row 3' apart. (e) (vi) N.A. (vii) CO.453. (viii) N.A. (ix) Hoing, weeding and earthing up. (x) N.A. (y) N.A.

2. TREATMENTS:
All combinations of (1) & (2)
(1) 4 levels of N: N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
(2) 4 levels of P₂O₅: P₀=0, P₁=50, P₂=150 and P₃=200 lb./ac.
N as A/S and P₂O₅ as Single Super. Applied before transplanting as mixture.

3. DESIGN:
(i) 4x4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) 60.5'×24'. (v) 60.5'×18'. (vi) One row on each side along width. (vii) Yes.

4. GENERAL:
(i) Nil. (ii) N.A. (iii) Tiller count, no of mature stalk, sucrose % and sugarcane yield. (iv) (a) 1951-1952. (b) No. (c) Nil. (d) Harinagar, Motihari and Dehri-On-Sone (e) Nil. (f) Nil. (g) This experiment was to be conducted in split plot with two varieties CO 453-BO. 11 but it was conducted in R.B.D. with CO. 453 variety only. Experiment conducted during 1951 under category “MV”.

5. RESULTS:
(i) 17.08 ton/ac.
(ii) 1.75 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
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<th>P₂</th>
<th>P₃</th>
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<tr>
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<td>15.54</td>
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<td>N₂</td>
<td>16.53</td>
<td>16.46</td>
<td>18.92</td>
<td>19.65</td>
<td>17.89</td>
</tr>
<tr>
<td>N₃</td>
<td>16.68</td>
<td>16.02</td>
<td>19.25</td>
<td>15.94</td>
<td>16.97</td>
</tr>
<tr>
<td>Mean</td>
<td>16.92</td>
<td>15.41</td>
<td>18.53</td>
<td>17.48</td>
<td>17.08</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.44 ton/ac.
S.E. of body of table. = 0.87 ton/ac.
Crop: Sugarcane.
Site: Zonal Centre, Motipur.

Object: To find the optimum dose of Ammo. Phos.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat method. (c) 60 md/ac. (d) Rows 3' apart. (e) — (v) N.A. (vi) Co. 453. (vii) N.A. (viii) Hoeing and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Ammo. Phos. to supply:
   1. 0 lb./ac.
   2. 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
   3. 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
   4. 80 lb./ac. of N + 100 lb./ac. of P₂O₅.
   5. 100 lb./ac. of N + 125 lb./ac. of P₂O₅.

   Time & method of application of treatments N.A.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24' with 8 rows 3' apart. (b) 60.5' x 18' with 6 rows 3' apart. (v) One row on either side along width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Tiller count, no. of mature stalk, sucrose % and sugarcane yield. (iv) (a) 1950-1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (c) Nil. (vi) Experiments conducted during 1950 and 1951 may be seen under category 'MV'.

5. RESULTS:
   (i) 11.04 ton/ac.
   (ii) 1.54 ton/ac.
   (iii) Treatment differences are not significant.
   (iv) Av. yield of cane in ton/ac.
   Treatment                      Av. yield
   1.                              10.92
   2.                              12.63
   3.                              9.05
   4.                              11.18
   5.                              11.44
   S.E./mean 0.63 ton/ac.

---

Crop: Sugarcane.
Site: Zonal Centre, Pachrukhi.

Object: To compare the effect of salvaged A/N with standard manures.

1. BASAL CONDITIONS:
   (i) (a) G.M.-Sugarcane—G.M. (b) G.M. (Sainoi). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 23-2-1949. (iv) (a) 4 ploughings. (b) Line planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) 11. (vii) Irrigated. (viii) Two interculturings. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Control (no manure).
   2. Castorcake at 40 lb./ac. of N + Triple Super at 50 lb./ac. of P₂O₅.
   3. Ammo. Phos. to give 40 lb./ac. of N +50 lb./ac. of P₂O₅.
   4. Salvaged A/N at 40 lb./ac. of N +50 lb./ac. of P₂O₅.

   Treatments applied at the time of planting, mixed with soil.

3. DESIGN:
   (i) R.B.D. (ii) (a) 4. (b) 4/50 acre. (iii) R. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' wide on both sides. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Nil. (iii) Cane yield, sucrose %, counting of mature stalk. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 8.55 ton/ac.
(ii) 2.61 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>7.39</td>
</tr>
<tr>
<td>2.</td>
<td>10.32</td>
</tr>
<tr>
<td>3.</td>
<td>8.21</td>
</tr>
<tr>
<td>4.</td>
<td>8.27</td>
</tr>
</tbody>
</table>

S.E./mean = 0.92 ton/ac.

Crop :- Sugarcane.  
Site :- Pachrukhi (Zonal Centre-Chanki farm).

Object :- To find out the optimum dose of N and P₂O₅ in combination.

1. BASAL CONDITIONS:
(i) (a) G.M.-Sugarcané-G.M. (b) Sanai as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 28-2-1950. (iv) (a) Sanai buried by one disk ploughing; later ploughings by disk ploughing, 2 worked by cultivator, once harrowed and 4 beamings done. (b) Flat planting. (c) 65 md./ac. (d) Rows 3' apart. (e) --. (v) Castor cake at 6 md./ac.+ Single Super at 3 md./ac.+A/S at 1 md./ac. at the time of planting. (vi) BO. 11. (vii) N.A. (viii) Two interculturings. (ix) N.A. (x) N.A.

2. TREATMENTS:
Ammo. Phos. to supply
1. Control (no manure).
2. 40 lb./ac. of N+50 lb./ac. of P₂O₅.
3. 80 lb./ac. of N+100 lb./ac. of P₂O₅.
Treatments applied at the time of planting, mixed with soil.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' wide on both sides along the width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Tiller count, counting of mature stalk and cane yield. (iv) (a) No. (b) No. (c) No. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 11.52 ton/ac.
(ii) 1.935 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>
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<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
<td>11.12</td>
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<td>3.</td>
<td>13.47</td>
</tr>
</tbody>
</table>

S.E./mean = 1.368 ton/ac.
Crop: Sugarcane.
Site: Zonal Centre, Pachrukhi.

Object: To find the optimum requirements of N, P\textsubscript{2}O\textsubscript{5} and K\textsubscript{2}O.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Sandy loam (osakarous).  (b) N.A.  (iii) N.A.  (iv) 4 ploughings by deshi plough.  (b) Flat planting.  (c) 60, three budded setts/row.  (d) Rows 3' apart.  (e) —.  (v) N.A.  
   (vi) CO.453.  (vii) N.A.  (viii) Hoering, weeding and earthing up.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 levels of N: N\textsubscript{1} = 40 and N\textsubscript{2} = 80 lb./ac.
   (2) 2 levels of P\textsubscript{2}O\textsubscript{5}: P\textsubscript{1} = 50 and P\textsubscript{2} = 100 lb./ac.
   (3) 2 levels of K\textsubscript{2}O: K\textsubscript{1} = 80 add K\textsubscript{2} = 160 lb./ac.
   N as A/S, P\textsubscript{2}O\textsubscript{5} as Super and K\textsubscript{2}O as Mur. Pot.

3. DESIGN:
   (i) 2' Fact. in R.B.D.  (ii) (a) S.  (b) N.A.  (iii) 4.  (iv) (a) 60.5'x24' with 8 rows 3' apart.  (b) 60.5'x18' with 6 rows 3' apart.  (v) One row on either side of width.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) No. of tillers and mature stalk, sucrose %, and sugarcane yield.  (iv) (a) 1932-1953.  (b) No.  (c) Nil.  (v) (a) Nil.  (b) Nil.  (vi) and (vii) Nil.

5. RESULTS:
   (i) 11.90 ton/ac.
   (ii) 4.54 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P\textsubscript{1}</th>
<th>P\textsubscript{2}</th>
<th>Mean</th>
<th>K\textsubscript{1}</th>
<th>K\textsubscript{2}</th>
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<td>11.15</td>
<td>10.74</td>
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<tr>
<td>N\textsubscript{2}</td>
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<td>14.64</td>
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<tr>
<td>Mean</td>
<td>12.76</td>
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<td>11.90</td>
<td>10.71</td>
<td>13.10</td>
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<tr>
<td>K\textsubscript{1}</td>
<td>10.08</td>
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</tr>
<tr>
<td>K\textsubscript{2}</td>
<td>15.44</td>
<td>10.74</td>
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</tbody>
</table>

S.E. of any marginal mean =1.13 ton/ac.
S.E. of any mean in the body of the table =1.61 ton/ac.
2. TREATMENTS:
All combinations of (1), (2) and (3).
(1) 2 levels of N: \(N_1 = 40\) and \(N_2 = 80\) lb/ac.
(2) 2 levels of \(P_2\O_5\): \(P_{1L} = 50\) and \(P_{2L} = 100\) lb/ac.
(3) 2 levels of \(K_2\O\): \(K_{1L} = 80\) and \(K_{2L} = 160\) lb/ac.
N as castor cake, \(P_2\O_5\) as Super and \(K_2\O\) as pot. Sul. Treatments applied at the time of planting mixed with soil.

3. DESIGN:
(i) 2^2 Fact in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) \(60.5' \times 24'\). (b) \(60.5' \times 18'\). (v) One row on each side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) No. of mature stalks, sucrose\% and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Harinagar, Dehri-on-Solie and Motihari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 10.68 ton/ac.
(ii) 2.30 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>(P_1)</th>
<th>(P_3)</th>
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<th>(K_1)</th>
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<tr>
<td>Mean</td>
<td>9.94</td>
<td>11.42</td>
<td>10.68</td>
<td>10.62</td>
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<td>(K_1)</td>
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<td>(K_2)</td>
<td>10.72</td>
<td>10.76</td>
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</tbody>
</table>

S.E. of marginal mean =0.57 ton/ac.
S.E. of body of table =0.81 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Parsa.
Ref: Bh. 52 (84).
Type: 'M'.

Object: To find out the response due to different combinations of manures.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (d) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat method. (c) 60, three budded setts/row (d) Rows 3' apart. (e) -. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up (ix) N.A. (x) N.A.

2. TREATMENTS:
1. 60 lb/ac. of N as A/S+75 lb/ac. of \(P_2\O_5\) as Super.
2. 60 lb/ac. of N as Castor cake+75 lb/ac. of \(P_2\O_5\) as Super.
3. 45 lb/ac. of N as Castor cake+15 lb/ac. of N as A/S+75 lb/ac. of \(P_2\O_5\) as Super.
4. 30 lb/ac. of N as Castor cake+30 lb/ac. of N as A/S+75 lb/ac. of \(P_2\O_5\) as Super.
5. 15 lb/ac. of N as Castor cake+45 lb/ac. of N as A/S+75 lb/ac. of \(P_2\O_5\) as Super.
6. Control.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) \(60.5' \times 24'\). (b) \(60.5' \times 18'\). (v) One row on each side of width. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1949-1953. (b) No. (c) No. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) This experiment was to be conducted in split plot with Co. 453 and BO. 11 varieties but it was conducted in R.B.D. with one variety, Co. 453.

5. RESULTS:
(i) 17.31 ton/ac.
(ii) 1.71 ton/ac.
(iii) Treatment differences are 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>17.32</td>
</tr>
<tr>
<td>2.</td>
<td>18.81</td>
</tr>
<tr>
<td>3.</td>
<td>18.04</td>
</tr>
<tr>
<td>4.</td>
<td>17.26</td>
</tr>
<tr>
<td>5.</td>
<td>17.48</td>
</tr>
<tr>
<td>7.</td>
<td>14.47</td>
</tr>
</tbody>
</table>

S.E. of mean = 0.85 ton/ac.

Crop = Sugarcane.
Site = Zonal Centre, Parsa.

Object: To find the optimum requirements of N and P₂O₅.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat Method. (c) 63 ml./ac. (d) Rows 3' apart. (e) → (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
All possible combinations of (1) and (2)
(1) 3 levels of N: N₀ =0, N₁ =20 and N₂ =40 lb./ac.
(2) 3 levels of P₂O₅: P₀ =0, P₁ =25 and P₂ =50 lb./ac.
N as Castor cake and P₂O₅ as Triple Super.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) 9. (b) N.A. (iii) 3. (iv) (a) 60.5' x 24'. (b) 1/40th ac. (v) 1 row on either side along width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, mature stalks and juice content. (iv) (a) 1949-1953. (b) N.A. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Instead of using split plot design for testing both the varieties, only the variety CO.453 was tested in R.B.D.

5. RESULTS:
(i) 13.10 ton/ac.
(ii) 0.330 ton/ac.
(iii) All effects are significant.
(iv) Av. yield of cane 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>12.44</td>
<td>12.81</td>
<td>13.42</td>
<td>12.89</td>
</tr>
<tr>
<td>N₁</td>
<td>13.69</td>
<td>11.87</td>
<td>13.06</td>
<td>12.87</td>
</tr>
<tr>
<td>N₂</td>
<td>13.32</td>
<td>12.65</td>
<td>14.63</td>
<td>13.53</td>
</tr>
<tr>
<td>Mean</td>
<td>13.15</td>
<td>12.44</td>
<td>13.70</td>
<td>13.10</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.110 ton/ac.
S.E. of body of table = 0.190 ton/ac.
Crop: Sugarcane.  
Site: Zonal Centre, Parsa.

Object: To find out the optimum dose of N and P<sub>2</sub>O<sub>5</sub>

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A.
   (ii) (a) Alluvial calcareous. (b) N.A.
   (iii) N.A. (iv) 4 ploughings by deshi plough.
   (v) Flat method. (c) 60, three budded setts/row.
   (d) Rows 3' apart. (e) —. (vii) N.A.
   (viii) Co. 453. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 4 levels of N: N<sub>0</sub>=0, N<sub>1</sub>=40, N<sub>2</sub>=80 and N<sub>3</sub>=120 lb./ac.
   (2) 4 levels of P<sub>2</sub>O<sub>5</sub>: P<sub>0</sub>=0, P<sub>1</sub>=58, P<sub>2</sub>=150 and P<sub>3</sub>=200 lb./ac.
   N as A/S and P<sub>2</sub>O<sub>5</sub> as Super. Applied as mixture at time of transplanting.

3. DESIGN:
   (i) 4x4 Factorial in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on each side along width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949-1953. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) Nil. This experiment was conducted in split plot with CO. 453 & BO 11 varieties in main-plots. But this was conducted in R.B.D. with CO. 453 variety only. Experiments conducted during other years except 19-53 are under category 'MY'.

5. RESULTS:
   (i) 16.74 ton./ac.
   (ii) 1.43 ton./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of cane in ton./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>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>13.84</td>
<td>16.81</td>
<td>17.98</td>
<td>16.11</td>
</tr>
<tr>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>16.59</td>
<td>15.71</td>
<td>17.87</td>
<td>18.72</td>
</tr>
<tr>
<td>N&lt;sub&gt;2&lt;/sub&gt;</td>
<td>16.96</td>
<td>13.21</td>
<td>16.37</td>
<td>18.35</td>
</tr>
<tr>
<td>N&lt;sub&gt;3&lt;/sub&gt;</td>
<td>16.37</td>
<td>18.86</td>
<td>16.07</td>
<td>17.62</td>
</tr>
<tr>
<td>Mean</td>
<td>16.04</td>
<td>16.15</td>
<td>17.07</td>
<td>17.70</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean =0.36 ton./ac.
S.E. of body of table =0.72 ton./ac.
3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on each side along the length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1951-1952. (b) No. (c) Nil. (v) (a) Dehri-on-Sone, Harinagar and Majhaulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 13.24 ton/ac.
(ii) 1.49 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>11.47</td>
</tr>
<tr>
<td>2.</td>
<td>13.40</td>
</tr>
<tr>
<td>3.</td>
<td>14.86</td>
</tr>
</tbody>
</table>

S.E./mean = 1.05 ton./ac.

Crop = Sugarcane.
Ref : Bh. 52(50).
Site : Zonal Centre, Parsa.
Type : 'M'.

Object :- To find out the optimum yield potential of N and P₂O₅ combination.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) Nil. (vi) B.O. 11. (vii) N.A. (viii) Earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
1. No manure.
2. 40 lb./ac. of N+ 50 lb./ac. of P₂O₅.
3. 80 lb./ac. of N+100 lb./ac. of P₂O₅.
N as A/S and P₂O₅ as Single Super. Time and method of application N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5’x24’. (b) 60.5’x18’. (v) 3’ on each side along the length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks, sugarcane yield. (iv) (a) 1951-1952. (b) No. (c) Nil. (v) (a) Motipur, Dehri-on-Sone and Harinagar. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 17.02 ton/ac.
(ii) 1.12 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>16.12</td>
</tr>
<tr>
<td>2.</td>
<td>16.29</td>
</tr>
<tr>
<td>3.</td>
<td>18.61</td>
</tr>
</tbody>
</table>

S.E./mean = 0.79 ton/ac.
Crop: Sugarcane.
Ref: Bh.51 (12).
Type: 'M'.

Object: To find the effect of organic (compost) and inorganic manures in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) No. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 1 to 2.3.51. (iv) (a) N.A. (b) Flat planting. (c) -. (d) & (e) N.A. (v) G.M.—Sanai sown at 23 srs./ac. Sanai buried 3 weeks before planting. (vi) CO. 453 (Med.) (vii) Irrigated. (viii) Hoeing and earthing up. (ix) 30.47'. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2) + a Control (no manure).
(1) 2 sources of N+P2O5: A—Compost+Single Super and B= A/S+Single Super.
(2) 5 doses of N+P2O5: M1=40 lb./ac. of N+50 lb./ac. of P2O5, M2=80 lb./ac. of N+100 lb./ac. of P2O5, M3=120 lb./ac. of N+150 lb./ac. of P2O5, M4=160 lb./ac. of N+200 lb./ac. of P2O5, M5=200 lb./ac. of N+250 lb./ac. of P2O5.

Time & method of application N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Rows of 3' width on each side of length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Cane yield. (iv) (a) 1951-1955. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 20.98 ton/ac.
(ii) 1.60 ton/ac.
(iii) Sources of (N+P2O5) differ significantly. Interaction is significant. No other effect is significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Control=18.89</th>
<th>A</th>
<th>B</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>18.77</td>
<td>21.77</td>
<td>20.27</td>
</tr>
<tr>
<td>M2</td>
<td>21.36</td>
<td>24.10</td>
<td>22.27</td>
</tr>
<tr>
<td>M3</td>
<td>19.54</td>
<td>21.21</td>
<td>20.38</td>
</tr>
<tr>
<td>M4</td>
<td>20.99</td>
<td>24.31</td>
<td>22.65</td>
</tr>
<tr>
<td>M5</td>
<td>17.29</td>
<td>22.50</td>
<td>19.90</td>
</tr>
<tr>
<td>Mean</td>
<td>19.59</td>
<td>22.78</td>
<td>21.19</td>
</tr>
</tbody>
</table>

S.E. of the body of the table = 0.80 ton/ac.
S.E. of the row marginal mean = 0.57 ton/ac.
S.E. of the column marginal mean = 0.36 ton/ac.
2. TREATMENTS:
All combinations of (1) and (2) + a Control (no manure).
(1) 2 sources of \( \text{N}+\text{P}_2\text{O}_5 \): A = Compost + Single Super and B = A/S + Single Super.
(2) 5 doses of \( \text{N}+\text{P}_2\text{O}_5 \): \( M_1 = 40 \) lb./ac. of \( \text{N}+50 \) lb./ac. of \( \text{P}_2\text{O}_5 \), \( M_2 = 80 \) lb./ac. of \( \text{N}+100 \) lb./ac. of \( \text{P}_2\text{O}_5 \), \( M_3 = 120 \) lb./ac. of \( \text{N}+150 \) lb./ac. of \( \text{P}_2\text{O}_5 \), \( M_4 = 160 \) lb./ac. of \( \text{N}+200 \) lb./ac. of \( \text{P}_2\text{O}_5 \), \( M_5 = 200 \) lb./ac. of \( \text{N}+250 \) lb./ac. of \( \text{P}_2\text{O}_5 \).

3. DESIGN:
(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Yes, two rows, one on either side of the plot as non experimental. (vi) Yes.

4. GENERAL:
(i) Good-no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalk and yield of cane. (iv) (a) 1951-1955. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 18.91 ton/ac.
(ii) 4.82 ton/ac.
(iii) Effects due to doses of \( \text{N}+\text{P}_2\text{O}_5 \) and interaction are highly significant.
(iv) Av. yield of cane in ton/ac.
\[
\text{Control = 15.33 ton/ac.}
\]

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>( M_1 )</td>
<td>18.34</td>
<td>17.59</td>
</tr>
<tr>
<td>( M_2 )</td>
<td>19.40</td>
<td>19.23</td>
</tr>
<tr>
<td>( M_3 )</td>
<td>21.22</td>
<td>18.16</td>
</tr>
<tr>
<td>( M_4 )</td>
<td>20.52</td>
<td>21.73</td>
</tr>
<tr>
<td>( M_5 )</td>
<td>15.70</td>
<td>20.84</td>
</tr>
<tr>
<td>Mean</td>
<td>19.04</td>
<td>19.51</td>
</tr>
</tbody>
</table>

S.E. of A or B marginal mean = 1.70 ton/ac.
S.E. of marginal mean of M = 1.08 ton/ac.
S.E. of body of the table = 2.41 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Sub-Stn., Patna.

Ref: Bhr. 53(52).
Type: 'M'.

Object: To find the effect of organic (compost) and inorganic manures in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) Sanai-Sugarcane-Sanai. (b) Sanai (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 15.2.53 to 16.2.53. (iv) (a) Mould board ploughings, then disc harrowing, and then levelling. (b) N.A. (c) 64, 3 budded setts/row. (d) N.A. (e) — (v) Nil. (vi) CO. 453-(Medium). (vii) Irrigated. (viii) Interculture after each irrigation and then horse hoeing. (ix) 61.33'. (x) 30.1.54. 4.2.54, 5.2.54.

2. TREATMENTS:
All combinations of (1) and (2) + a Control (no manure).
(1) 2 sources of \( \text{N}+\text{P}_2\text{O}_5 \): A = Compost + Single Super and B = A/S + Single Super.
(2) 5 doses of \( \text{N}+\text{P}_2\text{O}_5 \): \( M_1 = 40 \) lb./ac. of \( \text{N}+50 \) lb./ac. of \( \text{P}_2\text{O}_5 \), \( M_2 = 80 \) lb./ac. of \( \text{N}+100 \) lb./ac. of \( \text{P}_2\text{O}_5 \), \( M_3 = 120 \) lb./ac. of \( \text{N}+150 \) lb./ac. of \( \text{P}_2\text{O}_5 \), \( M_4 = 160 \) lb./ac. of \( \text{N}+200 \) lb./ac. of \( \text{P}_2\text{O}_5 \), \( M_5 = 200 \) lb./ac. of \( \text{N}+250 \) lb./ac. of \( \text{P}_2\text{O}_5 \).

3. DESIGN:
(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' wide border on both sides along the length. (vi) Yes.
4. **GENERAL:**
   (i) Good—no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalk, borer %, no. of tillers/row and yield at harvest. (iv) (a) 1951-1955. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) and (vii) Nil.

5. **RESULTS:**
   (i) 17.84 ton/ac.
   (ii) 4.82 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of cane in ton/ac.
   Control = 15.98 ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>M₁</td>
<td>17.83</td>
<td>18.57</td>
</tr>
<tr>
<td>M₂</td>
<td>18.36</td>
<td>17.23</td>
</tr>
<tr>
<td>M₃</td>
<td>11.70</td>
<td>19.79</td>
</tr>
<tr>
<td>M₄</td>
<td>19.32</td>
<td>18.42</td>
</tr>
<tr>
<td>M₅</td>
<td>18.56</td>
<td>20.48</td>
</tr>
<tr>
<td>Mean</td>
<td>17.15</td>
<td>18.90</td>
</tr>
</tbody>
</table>

S.E. of the marginal mean of A or B = 1.70 ton/ac.
S.E. of the marginal mean of M = 1.08 ton/ac.
S.E. of body of table = 2.41 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn. Patna.
Ref :- Bh. 51(6)
Type :- 'M'.

Object :- To compare organic and inorganic manures and their different combinations.

1. **BASAL CONDITIONS:**
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 13 to 15.2. (iv) N.A. (v) Nil. (vi) Bo. 11. (vii) Irrigated. (viii) Hoeing and earthing up. (ix) 30.47'. (x) N.A.

2. **TREATMENTS:**
   All the treatments to supply 120 lb./ac. of N+60 lb./ac of P₂O₅.
   1. Control (no manure).
   5. † F.Y.M.+ † A/S+Single Super.
   6. † Castor cake+ † A/S+Single Super.
   7. † F.Y.M.+ † A/S+Single Super.
   8. † Castor cake+ † A/S+Single Super.
   Note :- † F.Y.M. means † of the full dose of F.Y.M. applied in treatment 3 and so on.
   Time and method of application of manures—N.A.

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' width. (vi) Yes.

4. **GENERAL:**
   (i) Satisfactory. (ii) None. (iii) Cane yield. (iv) (a) 1951—continued. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (v) and (vii) Nil.
5. RESULTS:

(i) 12.86 ton/ac.
(ii) 1.32 ton/ac.
(iii) Treatments differ significantly.
(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>11.13</td>
</tr>
<tr>
<td>2.</td>
<td>12.88</td>
</tr>
<tr>
<td>3.</td>
<td>11.38</td>
</tr>
<tr>
<td>4.</td>
<td>13.32</td>
</tr>
<tr>
<td>5.</td>
<td>14.35</td>
</tr>
<tr>
<td>6.</td>
<td>12.71</td>
</tr>
<tr>
<td>7.</td>
<td>13.75</td>
</tr>
<tr>
<td>8.</td>
<td>13.37</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Site: Sugarcane Sub-Stn. Patna.

Object: To find the effect of organic and inorganic manures and their different combinations.

1. BASAL CONDITIONS:

(i) (a) Sanai-Sugarcane-Paddy. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 3.2.52 to 5.2.52. (iv) (a) Mould-board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) 70, 3 budded sets/row. (d) Row to row 3'. (e) —. (v) Nil. (vi) BO. 11 (Early). (vii) Irrigated. (viii) After every irrigation one interculturing. (ix) 34.80°. (x) 11th Mar. '53 to 13th Mar. '53.

2. TREATMENTS:

All the treatments to supply 120 lb./ac. of N + 60 lb./ac. of P$_2$O$_5$.
1. Control (no manure).
3. FYM + Single Super.
5. ¶ FYM + ¶ A/S + Single Super.
7. ¶ FYM + ¶ A/S + Single Super.

Treatments applied at the time of transplanting.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) 60.5' x 192'. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 2 rows one on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL:

(i) Good-no lodging. (ii) Nil. (iii) Germination %, sucrose %. no. of mature stalks and yield at harvest.
(vi) (a) 1951—contd. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 9.86 ton/ac.
(ii) 2.34 ton/ac.
(iii) Treatments do not differ significantly.
(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>8.93</td>
</tr>
<tr>
<td>2.</td>
<td>8.45</td>
</tr>
<tr>
<td>3.</td>
<td>10.06</td>
</tr>
<tr>
<td>4.</td>
<td>10.33</td>
</tr>
<tr>
<td>5.</td>
<td>9.45</td>
</tr>
<tr>
<td>6.</td>
<td>10.09</td>
</tr>
<tr>
<td>7.</td>
<td>10.46</td>
</tr>
<tr>
<td>8.</td>
<td>11.12</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.17</td>
</tr>
</tbody>
</table>

Ref: Bh. 52(11).
Type: 'M'.
Crop: Sugarcane.

Site: Sugarcane Sub-Stn. Patna.

Ref: Bh. 53(88).

Type: ‘M’.

Object: To find the effect of organic and inorganic manures and their different combinations.

1. BASAL CONDITIONS:
   (i) (a) Sanai-Paddy-Sugarcane (b) Paddy. (c) 40 lb/ac. of N + 60 lb/ac. of P \textsubscript{2}O\textsubscript{5}.
   (ii) (a) Clay. (b) N.A. (iii) 5th to 9th March 1953. (iv) (a) Mould-board ploughing followed by disc harrowing and then levelling. (c) 64, 3 budded sets/row. (d) N.A. (e) Nil. (vi) BO. 11. (vii) Irrigated. (viii) After every irrigation, one interculture and then horse-hoeing. (ix) 60.54\textsuperscript{a}. (x) 25.1.54. to 29.1.54.

2. TREATMENTS:
   All the treatments to supply 120 lb/ac. of N + 60 lb/ac. of P \textsubscript{2}O\textsubscript{5}.
   1. Control (no manure).

   Treatments applied at the time of planting.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 2. (iv) (a) 60.5’ x 24’. (b) 60.5’ x 18’. (v) 3’ wide border on both sides along the width. (vi) Yes.

4. GENERAL:
   (i) Good—no lodging. (ii) Nil. (iii) Germination %, no. of mature stalks, borer %, no. of tillers per row and yield at harvest. (iv) (a) 1951—continued. (b) No. (c) Nil. (v) (a) Nowhere. (b) No. (vi) Nil.

(vii) The yield of two replications could not be obtained due to heavy water logging in the field. Hence there were only 2 replications.

5. RESULTS:
   (i) 8.39 ton/ac.
   (ii) 4.18 ton/ac.
   (iii) Treatments do not differ significantly.
   (iv) Av. yield of cane in ton/ac.

   Treatment  Av. yield
   1.            4.07
   2.            12.78
   3.            8.76
   4.            9.07
   5.            10.07
   6.            7.47
   7.            7.12
   8.            7.81
   S.E./mean = 2.09 ton/ac.

---

Crop: Sugarcane.

Site: Sugarcane Sub-Stn. Patna.

Ref: Bh. 51(7).

Type: ‘M’.

Object: To find out the effect of organic matter on the availability of manures in the two soil types at Pusa (calcareous) and Patna (heavy clay).

1. BASAL CONDITIONS:
   (i) (a) None. (b) N.A. (c) N.A. (ii) (a) Heavy clay. (b) N.A. (iii) 15 & 16.2.51. (iv) (a) to (a) N.A. (v) Nil. (vi) BO. 11 (Early). (vii) Irrigated. (viii) Weeding and earthing up. (ix) 30.47\textsuperscript{a}.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 levels of organic matter: O\textsubscript{1} = No manure and O\textsubscript{2} = Organic matter (compost) at 100 lb/ac.
   (2) 2 levels of Manganese: M\textsubscript{1} = No Manganese and M\textsubscript{2} = Manganese at 20 lb/ac.

   Time & method of application of manures: N.A.
3. DESIGN:
(i) 2x2 F... in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 40'x33'. (b) 40'x27'. (v) Rows of 3' width. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Stem borer attack noticed; insecticide was sprayed. (iii) Sugarcane yield, sucrose % and counting of mature stalk. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) Nil. (vii) Experiment during 1952 was dropped due to lack of irrigation.

5. RESULTS:
(i) 14.31 ton/ac.
(ii) 1.776 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>O₁</th>
<th>O₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>M₁</td>
<td>14.30</td>
<td>15.54</td>
<td>14.92</td>
</tr>
<tr>
<td>M₂</td>
<td>14.09</td>
<td>13.32</td>
<td>13.71</td>
</tr>
</tbody>
</table>

S.E. of body of table =0.89 ton/ac.
S.E. of any marginal mean =0.63 ton/ac.

Crop:— Sugarcane.
Site:— Sugarcane Sub-Str. Patna.

Ref:— Bh. 52(9).
Type:— 'M'.

Object:— To find out the response to press-mud application.

1. BASAL CONDITIONS:
(i) (a) Paddy—Sugarcane—Paddy. (b) Paddy. (c) 40 lb/ac. of N+60 lb/ac. of P₂O₅ as A/S and single Super. (ii) (a) Heavy clay. (b) N.A. (iii) 6.3.52 and 7.3.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling (b) N.A. (c) 48, three budded setts/row. (d) Row to row 3' (e)—(v) Nil. (vi) BO. 11—(Early) (vii) Irrigated. (viii) After every irrigation one interculture (ix) 34.40'. (a) 10th Feb, 53 to 13th Feb, 53.

2. TREATMENTS:
1. Control.
2. Sulphitation press mud at 100 md/ac.
4. Carbonation press mud at 100 md/ac.
5. Carbonation press mud at 200 md/ac.
6. Castorcake at 120 lb/ac. of N.
Treatments applied at the time of planting.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 40'x27'. (b) 40'x21'. (v) 2 rows one on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL:
(i) Good—no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks and yield at harvest. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 6.54 ton/ac.
(ii) 1.56 ton/ac.
(iii) Treatment do not differ significantly.
(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>6.84</td>
</tr>
<tr>
<td>2.</td>
<td>5.47</td>
</tr>
<tr>
<td>3.</td>
<td>6.79</td>
</tr>
<tr>
<td>4.</td>
<td>5.96</td>
</tr>
<tr>
<td>5.</td>
<td>5.95</td>
</tr>
<tr>
<td>6.</td>
<td>7.03</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.78 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn. Patna.

Object :- To find out the response to press-mud application.

1. BASAL CONDITIONS:

(i) (a) Sanai-Sugarcane-Sanai. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 24.2.53 and 25.2.53. (iv) (a) Mould board ploughing, then disc harrowing and then levelling. (b) N.A. (c) 42, 3 budded setts/row. (d) Row to row 3'. (e) —. (v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) After every irrigation, one interculture and then horse-hoeing. (ix) 60.83°. (x) 24.1.54.

2. TREATMENTS:

1. Control.
2. Sulphitation press mud at 100 md./ac.
3. Sulphitation press mud at 200 md./ac.
4. Castor cake at 120 md./ac.

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 40' x 27'. (b) 40' x 21'. (v) 3' border on both sides along the length. (vi) Yes.

4. GENERAL:

(i) Good—no lodging. (ii) Slight attack of white-fly. No control measures taken. (iii) Germination%, sucrose%, no. of mature stalk and yield, tiller, borer%. (iv) (a) 1953-1954. (b) No. (c) Nil. (v) (a) No. (b) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 11.40 ton/ac.
(ii) 1.697 ton/ac.
(iii) Treatments differ significantly.
(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>9.81</td>
</tr>
<tr>
<td>2.</td>
<td>10.94</td>
</tr>
<tr>
<td>3.</td>
<td>12.21</td>
</tr>
<tr>
<td>4.</td>
<td>12.63</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.693 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn. Patna.

Object :- To find the effect of Cakes with regard to their manurial values.

1. BASAL CONDITIONS:

(i) (a) Maize-Sugarcane-Maize. (b) Maize. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 8-10.2.49. (iv) N.A. (v) Nil. (vi) BO. 10 (Early). (vii) Irrigated. (viii) Earthing and hoeing. (ix) 69.88°. (x) 5.2.50 to 22.2.50.
2. TREATMENTS:
All combinations of (1) and (2) + a Control (no manure)
(1) 2 levels of N : \( N_1 = 60 \) and \( N_2 = 120 \) lb/ac.
(2) 5 sources of N : Castor cake (C.C.), Linseed cake (L.C.), Mustard cake (M.C.), G.N.C. and A/S.
Time and method of application of manures N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 6. (iv) (a) 21' × 72.5'. (b) 15' × 72.5'. (v) 3' wide border
(vi) Yes.

4. GENERAL:
(i) Poor. (ii) Cane borer removed and insecticide sprayed. (iii) Cane yield. (iv) (a) 1948-1950. (b) No.
(v) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 9.33 ton/ac.
(ii) 2.086 ton/ac.
(iii) Sources and levels of N differ significantly.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Control</th>
<th>( =8.06 ) ton/ac.</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.C.</td>
<td>12.06</td>
<td>11.18</td>
</tr>
<tr>
<td>L.C.</td>
<td>9.46</td>
<td>10.05</td>
</tr>
<tr>
<td>M.C.</td>
<td>9.52</td>
<td>9.02</td>
</tr>
<tr>
<td>G.N.C.</td>
<td>6.42</td>
<td>9.04</td>
</tr>
<tr>
<td>A/S.</td>
<td>7.04</td>
<td>8.00</td>
</tr>
<tr>
<td>Mean</td>
<td>8.90</td>
<td>9.46</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of sources of N = 0.50 ton/ac.
S.E. of marginal mean of levels of N = 0.38 ton/ac.
S.E. of body of table = 0.85 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.
Ref :- Bh. 49 (1).
Type :- 'M'.

Object :- To find out the effect of organic and inorganic manures on Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Paddy—Sugarcane—Paddy. (b) Paddy. (c) N.A. (ii) (a) Clayey. (b) N.A (iii) 19-21.1.49. (iv) N.A. (v) None. (vi) BO. 10 (Mred). (vii) Irrigated. (viii) Weeding, earthing up and hoeing. (ix) 69.88°.
(x) 26.2.50 to 10.3.50.

2. TREATMENTS:
1. Control (No manure).
2. 60 lb./ac. of N as Castor cake and 60 lb./ac. of N as A/S.
3. 120 lb./ac. of N as A/S.
4. 120 lb./ac. of N as Castor cake.
5. 60 lb./ac. of N as Castor cake.
6. 60 lb./ac. of N as A/S.
7. 30 lb./ac. of N as A/S + 30 lb./ac. of N as Castor cake.
Method of application of manures N.A.
Treatments 2, 3, and 4 applied half at planting time, 1/4 in May and the remaining 1/4 in June.
Treatments 5, 6, and 7 applied at planting time.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 7. (iv) (a) 24' × 61'. (b) 18' × 61'. (v) 3' wide rows. (vi) Yes.
4. GENERAL:
(i) Fair. (ii) Borer, white fly, scale insects and removal of deadhearts of borer and spraying of insecticides.
(iii) Cane yield. (iv) (a) 1948–1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 19.04 ton/ac.
(ii) 1.31 ton/ac.
(iii) Treatments differ highly significantly.
(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>17.0</td>
</tr>
<tr>
<td>2.</td>
<td>19.2</td>
</tr>
<tr>
<td>3.</td>
<td>19.7</td>
</tr>
<tr>
<td>4.</td>
<td>23.7</td>
</tr>
<tr>
<td>5.</td>
<td>18.5</td>
</tr>
<tr>
<td>6.</td>
<td>17.8</td>
</tr>
<tr>
<td>7.</td>
<td>20.7</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>6.49 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- Sugarcane, Sub-Strn. Patna.
Object :- To find out the optimum yield potential of N and \( \text{P}_2\text{O}_5 \) combinations.

1. BASAL CONDITIONS:
(i) (a) None. (b) Fallow. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 25.2.50. (iv) N.A. (v) N.A. (vi) BO. 11 (late).
(vii) Irrigated. (viii) Hoeing and earthing up. (ix) 40.02". (x) 4.2.51 to 20.2.51.

2. TREATMENTS:
1. Control (no manure).
2. 40 lb./ac. of N + 50 lb./ac. of \( \text{P}_2\text{O}_5 \).
3. 80 lb./ac. of N + 100 lb./ac. of \( \text{P}_2\text{O}_5 \).
N& \( \text{P}_2\text{O}_5 \) obtained from Castorcake, Ammo. Phos. and double Super.
Time & method of application of manures N.A.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 24′ x 60.5′. (b) 18′ x 60.5′. (v) Rows of 3′ width along length.
(vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) N.A. (iii) Cane yield. (iv) (a) 1948–1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil.
(vi) & (vii) Nil.

5. RESULTS:
(i) 8.44 ton/ac.
(ii) 2.719 ton/ac.
(iii) Treatments do no differ significantly.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>7.05</td>
</tr>
<tr>
<td>2.</td>
<td>9.08</td>
</tr>
<tr>
<td>3.</td>
<td>9.18</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.92 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Sugarcane.  Site: Sugarcane Sub-Stn., Patna.  Ref: Bh. 52(2).  Type: 'M'.

Object: To find out the optimum yield potential of N and P\textsubscript{2}O\textsubscript{5} combinations.

1. BASAL CONDITIONS:
   (i) (a) Soyabean-Sugarcane-Paddy-G. M.  (b) Soyabean (green manured).  (c) Nil.  (ii) (a) Clay loam.  (b) N.A.  (iii) 13.2.52 to 14.2.52.  (iv) (a) Mould board ploughings followed by disc harrowing and then levelling.  (b) N.A.  (c) 70, three budded setts/row.  (d) Row to row 3'.  (e) (v) Nil.  (vi) BO. 11 (Early)  (vii) Irrigated.  (viii) After every irrigation one interculture & then horse hoeing.  (ix) 34.80'.  (x) 3.2.53.

2. TREATMENTS:
   1. Control.
   2. 40 lb./ac. of N + 50 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
   3. 80 lb./ac. of N + 100 lb./ac. of P\textsubscript{2}O\textsubscript{5}.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 60.5' x 72'.  (iii) 4.  (iv) (a) 60.5' x 24'.  (b) 60.5' x 18'.  (v) Yes-2 rows on either side of the plot as non-experimental.  (vi) Yes.

4. GENERAL:
   (i) Good-no lodging.  (ii) Nil.  (iii) Germination %, sucrose %, no. of mature stalks, yield at harvest, borer %, (iv) (a) 1950--1952.  (b) No.  (c) N.A.  (v) (a) N.A.  (b) No.  (vi) & (vii) Nil.

5. RESULTS:
   (i) 18.58 ton/ac.
   (ii) 3.53 ton/ac.
   (iii) Treatments do not differ significantly.
   (iv) Av. yield of cane in ton/ac.
   Treatment  Av. yield
   1.  18.20
   2.  17.45
   3.  20.10
   S.E./mean = 1.77 ton/ac.

---

Crop: Sugarcane.  Site: Sugarcane Sub-Stn., Patna.  Ref: Bh. 53(61).  Type: 'M'.

Object: To study the effects of N, P\textsubscript{2}O\textsubscript{5} and K\textsubscript{2}O applied alone and in combination.

1. BASAL CONDITIONS:
   (i) (a) Sanai—Paddy—Sugarcane—Sanai (for 1953) ; Sanai—Sugarcane—Sanai (later on).  (b) Paddy.  (c) 40 lb./ac. of N + 60 lb./ac. of P\textsubscript{2}O\textsubscript{5}.  (ii) (a) Clay.  (b) N.A.  (iii) 15.1.53 and 17.1.53.  (iv) (a) Mould board ploughing followed by disc harrowing and then levelling.  (b) N.A.  (c) 64, 3 budded setts/row.  (d) N.A.  (e) —.  (v) Nil.  (vi) CO. 622.  (vii) Irrigated.  (viii) Inter culture after each irrigation and then horse hoeing.  (ix) 61-02'.  (x) 24th to 27th January, 1954.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N : N\textsubscript{0} = 0, N\textsubscript{1} = 60 and N\textsubscript{2} = 120 lb./ac.
   (2) 3 levels of P\textsubscript{2}O\textsubscript{5} : P\textsubscript{0} = 0, P\textsubscript{1} = 75 and P\textsubscript{2} = 150 lb./ac.
   (3) 2 levels of K\textsubscript{2}O : K\textsubscript{0} = 0 and K\textsubscript{1} = 80 lb./ac.

Treatments applied at the time of planting.

3. DESIGN:
   (i) 3 x 3 x 2 Fact. Confld.  (ii) (a) 6 plots/block and 3 blocks/replication.  (b) N.A.  (iii) 4.  (iv) (a) 60.5' x 24'.  (b) 60.5' x 18'.  (v) One row of 3' on either side along length.  (vi) Yes.

4. GENERAL:
   (i) Good (no lodging).  (ii) Nil.  (iii) Germination %, sucrose %; no. of tillers per row, no. of mature stalks, borer %, and yield at harvest.  (iv) (a) 1953—continued.  (b) No.  (c) Nil.  (v) (a) N.A.  (b) No.  (vi) and (vii) Nil.
5. RESULTS:

(i) 10.10 ton/ac.
(ii) 2.556 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>P_1</th>
<th>P_1</th>
<th>P_2</th>
<th>Mean</th>
<th>K_0</th>
<th>K_1</th>
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<tbody>
<tr>
<td>N_0</td>
<td>7.95</td>
<td>8.80</td>
<td>9.12</td>
<td>8.62</td>
<td>9.07</td>
<td>8.17</td>
</tr>
<tr>
<td>N_1</td>
<td>11.38</td>
<td>9.90</td>
<td>10.65</td>
<td>10.64</td>
<td>10.76</td>
<td>10.52</td>
</tr>
<tr>
<td>N_2</td>
<td>11.00</td>
<td>10.70</td>
<td>11.44</td>
<td>11.05</td>
<td>11.35</td>
<td>10.74</td>
</tr>
<tr>
<td>Mean</td>
<td>10.11</td>
<td>9.80</td>
<td>10.40</td>
<td>10.10</td>
<td>10.39</td>
<td>9.81</td>
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<tr>
<td>K_0</td>
<td>10.35</td>
<td>10.23</td>
<td>10.59</td>
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<tr>
<td>K_1</td>
<td>9.86</td>
<td>9.36</td>
<td>10.21</td>
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<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N or P = 0.43 ton/ac.
S.E. of marginal mean of K = 0.52 ton/ac.
S.E. of the body of N x P table = 0.90 ton/ac.
S.E. of the body of N x K or P x K table = 0.74 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Object:--To find out suitable time and method of application of Ammo. phos.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Medium light loam. (b) N.A. (iii) 19/20.2.1948. (iv) (a) 4 times ploughed by desi plough followed by beaming. (b) Flat planting. (c) 60, 3 budded sets/row. (d) Rows 2' apart. (e)---.
(v) F.Y.M. at 10 C.L./ac. (vi) BO. 11. (vii) Irrigated. (viii) Hoeing, weeding and earthing done twice. (ix) 48-00". (x) 14th to 20th Feb. 1949.

2. TREATMENTS:

All combinations of (1) and (2)
(1) 3 times of application of Ammo. Phos.: T_1=15 days before planting, T_2=at planting and T_3=30 days after planting.
(2) 3 methods of application: M_1=Broadcast and mixed, M_2=Applied 4' deep below surface and M_3=Applied 8' deep below surface.

Ammo. Phos. applied at 40 lb./ac. of N.

3. GENERAL:

(i) Nil. (ii) Nil. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1948--1954. (b) No. (c) Nil. (v) (a) Nons. (b) --. (vi) and (vii) Nil.

4. RESULTS:

(i) 17.09 ton/ac.
(ii) 1.60 ton/ac.
(iii) None of the effects is significant.
Crop :- Sugarcane.  
Site :- C.S.R.S. Pusa.  
Ref :- Bh. 49(7).  
Type :- 'M'.

Object :- To find out suitable time and method of application of Ammo. Phos.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Heavy loam soil. (b) N.A. (iii) 24th & 25th Jan. 1949.
   (iv) (a) 4 ploughings. (b) Row planting. (c) 64, 3 budded setts/row. (d) N.A. (e) —. (v) Nil.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 times of application of Ammo. Phos.: T1=15 days before planting, T2=At planting and T3=30 days after planting.
   (2) 3 methods of application: M1=Broadcast & mixed, M2=Applied in 4" deep furrow and M3=Applied in 8" deep furrow.
   Time & method of application of Ammo. Phos. N.A. ; Ammo. Phos applied at 40 lb./ac. of N +50 lb./ac. of P2O5.

3. DESIGN:
   (i) 3X3 Fact. in R.B.D. (ii) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'x24', (b) 60.5'x18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) Cane yield, count of mature stalk, sucrose %. (iv) (a) 1948-1954. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 25.40 ton/ac.
   (ii) 0.288 ton/ac.
   (iii) Main effect of T is highly significant, main effect of M is significant and interaction is not significant.
   (iv) Av. yield of cane in ton/ac.

<table>
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<td>25.28</td>
<td>25.16</td>
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S.E. of any marginal mean = 0.068 ton/ac.
S.E. of body of table = 0.117 ton/ac.
Crop: Sugarcane.
Site: C.S.R.S. Pusa.

Object: To find out suitable time and method of application of Ammo. Phos.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 24th Feb. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 9), three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) Earthing, hoeing and weeding. (ix) 38.49'. (x) 1st to 4th March 1951.

2. TREATMENTS:
   All combinations of (1) & (2)
   (1) 3 times of application of Ammo. Phos.: T1 = 15 days before planting, T2 = At planting and T3 = 30 days after planting.
   (2) 3 methods of application: M1 = Broadcast & mixed, M4 = 4' deep in furrow and M3 = 8" deep in furrow.
   Ammo. Phos. applied at 40 lb./ac. of N + 50 lb./ac. of P2O5.

3. DESIGN:
   (i) 3x3 in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 12'. (v) Rows of 6' width along each side of length. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield, sucrose %, counting of mature stalks. (iv) (a) 1948-1954. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 16.50 ton/ac.
   (ii) 1.217 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

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<td>17.21</td>
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<td>T3</td>
<td>17.22</td>
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<td>15.52</td>
<td>16.23</td>
<td>16.50</td>
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S.E. of any marginal mean = 0.351 ton/ac.
S.E. of the body of table = 0.608 ton/ac.

Crop: Sugarcane.
Site: C.S.R.S. Pusa.

Object: To find out suitable time & method of application of Ammo. Phos. on sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 5.3.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) —. (v) 5 md. and 20 seers of compost to the whole experiment. (vi) BO. 11. (vii) Unirrigated. (viii) Weeding & earthing up. (ix) 27.88'. (x) 6.3.52. and 8.3.52.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 times of application of Ammo. Phos.: T1 = 15 days before planting, T2 = At planting and T3 = 30 days after planting.
   (2) 3 methods of application: M1 = Broadcast & mixed, M4 = 4' deep in furrow and M3 = 8" in deep furrow.
   Ammo. Phos. applied at 40 lb./ac. of N + 50 lb./ac. of P2O5.
3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Rows of 3' width on each side of breadth. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Attack of stem borer reported. (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1948-1954. (b) No. (c) No. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 9.98 ton/ac.
(ii) 2.072 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

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<td>10.61</td>
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<tr>
<td>T3</td>
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<td>8.91</td>
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<td>9.62</td>
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<td>9.51</td>
<td>10.05</td>
<td>9.98</td>
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S.E. of any marginal mean = 0.488 ton/ac.
S.E. of the body of the table = 0.846 ton/ac.

Object:—To find out suitable time and method of application of Ammo. Phos.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (i) (a) Clay loam. (b) N.A. (iii) 20th, 21st February 1952.
(iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Rows 3' apart. (c) —.
(v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) hoeing, earthing & weeding. (ix) 47.85° (x) 2nd & 5th January 1953.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 times of application of Ammo. Phos. : T1 = 15 days before planting. T2 = At planting and T3 = 30 days after planting.
(2) 3 methods of application: M1 = Broadcast and mixed. M2 = Applied in 4" deep furrows and M3 = Applied in 8" deep furrows.

Fertilizer Ammo. Phos. applied at 40 lb./ac. of N-50 lb./ac. of P2O5.

3. DESIGN:
(i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Rows of 3' width on each side of breadth. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1948—1954. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) & (vii) Nil.

5. RESULTS:
(i) 3.28 ton/ac.
(ii) 2.82 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<td>12.73</td>
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S.E. of any marginal mean = 0.664 ton/ac.
S.E. of the body of table = 1.151 ton/ac.

Crop :- Sugarcane.
Site :- C. S. R. S. Pusa.
Object :- To find out suitable time and method of application of Ammo. Phos.

1. BASAL CONDITIONS.
(i) (a) Sugarcane-Pulse—Barley—Sanai (G.M.). (b) Sanai (G.M.). (c) Nil. (ii) (a) Sandy clay-loam to loam in texture. (b) Org. N :- medium to low. C/N ratio narrow. Total Phosphate :- medium to high. Available Phosphate :- very low ; soil reaction strongly alkaline. (iii) 10.3.1953. (iv) (a) Harrowing once and moud-board plough, each followed by Rings ; again discing followed by subsoiling. (b) Furrow planting. End to end planting. (c) 64, three budded setts row. (d) Rows 3' apart. (e)—. (v) 11.4.1953. (vi) BO. 11 (Early). (vii) Nil. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid. June. (ix) 45.09°. (x) 4th week of Dec., 1953.

2. TREATMENTS:
All combinations of (1) and (2).
(1) 3 times of application of Ammo. Phos. : T₁=15 days before planting, T₂=At planting and T₃=30 days after planting.
(2) 3 methods of application : M₁=Broadcast and mixed, M₂=Applied in 4' deep furrow and M₃=Applied in 8' deep furrow.
Fertilizer Ammo. Phos. applied at 40 lb./ac. of N+50 lb./ac. of P₂O₅

3. DESIGN :
(i) R.B.D. Fact. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Two rows one on either side of the sub-plot as non-experimental. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Borer incidence noted. Dead hearts removed, during the early period of growth, on controlling termite infection. Aldrine was applied at planting & 3 months after. (iii) Germination %, tillering, height, no. of mature stalks, sucrose % and yield of cane. (iv) (a) 1948—1954. (b) No. (c) Nil. (v) (a) No. (b) NIL. (vi) & (vii) Nil.

5. RESULTS:
(i) 12.45 ton/ac.
(ii) 2.73 ton/ac.
(iii) Only the interaction is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
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<td>12.87</td>
<td>12.21</td>
<td>12.28</td>
<td>12.45</td>
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</table>

S.E. of any marginal mean = 0.64 ton/ac.
S.E. of the body of the table = 1.11 ton/ac.
Object: To find out suitable time of application of organic and inorganic manures.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 24/25.2.1948. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3’ apart. (e) —. (v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) Hoeing, weeding and earthing once. (ix) 45.10". (x) 13/14 14.2.49.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 manures: \( M_1 = \text{Castorcake} \), \( M_2 = A/S \) and \( M_3 = A/S + \text{Castorcake} \).
   (2) 3 times of application: \( T_1 = 15 \) days before planting, \( T_2 = \) At planting and \( T_3 = 30 \) days after planting.

Each manure in (1) to give 100 lb./ac. of N.

3. DESIGN:
   (i) 3 × 3 Fact, in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) 60.5’×24’. (b) 60.5’×18’. (v) One row on each side of width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1948-1952. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 13.19 ton/ac.
   (ii) 1.37 ton/ac.
   (iii) Main effect of T is highly significant. Interaction \( M \times T \) is significant. Main effect of M is not significant.
   (iv) Av. yield of cane in ton/ac.

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<tr>
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<th>( T_3 )</th>
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<td>11.07</td>
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S.E. of any marginal mean = 0.457 ton/ac.
S.E. of body of table = 0.791 ton/ac.
3. **DESIGN:**
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 5. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. **GENERAL:**
   (i) Good. (ii) Nil. (iii) Cane yield, count of mature stalks and sucrose %. (iv) (a) 1948-1952. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. **RESULTS:**
   (i) 24.67 ton/ac. (ii) 1.043 ton/ac. (iii) Main effect of M is highly significant. Main effect of T is significant. Interaction is not significant. (iv) Av. yield of cane in ton/ac.

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S.E. of any marginal mean = 0.269 ton/ac.
S.E. of body of table = 0.466 ton/ac.

Crop :- Sugarcane.  
Site :- C.S.R.S. Pusa.  
Ref :- Bh. 50(19).  
Type :- 'M'.

Object :- To find out suitable time of application of organic and inorganic manures.

1. **BASAL CONDITIONS**:
   (i) Nil. (b) Sunnhemp. (a) Nil. (ii) (a) Light loam. (b) N.A. (iii) 13.2.50. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded sets/row. (d) Between rows 3 ft. (e) ---. (v) G.M. details N.A. (vi) BO. I. (vii) N.A. (viii) Hoening, weeding and earthing up. (ix) 38.57°. (x) 14.2.51 to 6.2.51.

2. **TREATMENTS**:
   All combinations of (1) and (2)
   (1) 3 manures : M₁=G.N.C., M₂=A/S and M₃=A/S+G.N.C.
   (2) 3 times of application : T₁=15 days before planting, T₂=At planting and T₃=30 days after planting. Each manure at (1) to give 100 lb./ac. of N.

3. **DESIGN**:
   (i) 3x3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 1 row of 3' width along length on both sides. (vi) Yes.

4. **GENERAL**:
   (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting of mature stalks. (iv) (a) 1948-1952. (b) No (a) Nil. (a) None. (b) Nil. (v) and (vii) Nil.

5. **RESULTS**:
   (i) 22.75 ton/ac.  
   (ii) 1.502 ton/ac.  
   (iii) Main effects of M and T are significant, while their interaction is not significant.
(iv) Av. yield of cane in ton/ac.

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S.E. of any marginal mean = 0.354 ton/ac.
S.E. of body of table = 0.613 ton/ac.

Crop: Sugarcane.
Site: C.S.R.S. Pusa.

Object: To find out the best time of application of organic and inorganic manures on Sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) Medium loam. (b) N.A. (iii) 24.2.51. (iv) (a) 4 ploughings.
   (b) Row planting. (c) 64, three budded setts/row. (d) Between rows 3'. (e) --. (v) Nil. (vi) BO. 11
   (vii) Irrigated. (viii) Hoeing, weeding & earthing up. (ix) 28.05'. (x) 1st week of March 1952.

2. TREATMENTS:
   All comb nations of (1) and (2)
   (1) 3 manures: M₁ = Mustard cake, M₂ = A/S and M₃ = Mustard cake+A/S.
   (2) 3 times of application: T₁ = 15 days before planting, T₂ = At planting and
   T₃ = 30 days after planting.
   Each manure in (1) to give 100 lb./ac. of N. Method of application of manures N.A.

3. DESIGN:
   (i) 3×3 Fact. in R.B.D. (ii) a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of
   3' on either side of width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1948-1952. (b) No,
   (c) Nil. (v) (a) No. (b) --. (vi) Nil. (vii) Information on experiment conducted during 1952: N.A.

5. RESULTS:
   (i) 23.94 ton/ac.
   (ii) 1.105 ton/ac.
   (iii) Main effect of M is highly significant. No other effect is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<td>22.40</td>
</tr>
<tr>
<td>M₃</td>
<td>24.36</td>
<td>24.51</td>
<td>22.20</td>
<td>24.09</td>
</tr>
<tr>
<td>Mean</td>
<td>23.98</td>
<td>24.40</td>
<td>23.43</td>
<td>23.94</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 0.260 ton/ac.
S.E. of body of table = 0.451 ton/ac.
Crop :- Sugarcane.  
Ref. :- Bh. 51(20).  
Site :- C.S.R.S. Pusa.  
Type :- 'M'.

Object :- To compare organic manures (compost) with inorganic manures (A/S) in combination with Single Super on Sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A.  
   (ii) (a) Medium loam. (b) N.A.  
   (iii) 3.2.51.  
   (iv) (a) 4 ploughings  
   (b) Row planting. (c) 60, three budded setts/row. (d) Between rows 3'. (e) --. (v) Nil.  
   (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 28.19'. (x) 27.3.52.

2. TREATMENTS:
   6. A/S + Single Super to supply 120 lb N/ac. + 150 lb. P2O5/ac.  
   11. Control (no manure).

3. DESIGN:
   (i) B.L.B.D. Parameters are r=5, t=11, k=5, b=11, λ=2.  
   (ii) (a) 5. (b) N.A.  
   (iii) 5.  
   (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL:
   (i) Satisfactory. (ii) N.A.  
   (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1951–1954.  
   (b) No. (c) Nil.  
   (vi) Nil. (vii) Data analysed as R.B.D.

5. RESULTS:
   (i) 14.78 ton/ac.  
   (ii) 4.184 ton/ac.  
   (iii) None of the effects is 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>
<tbody>
<tr>
<td>2.</td>
<td>15.66</td>
<td>8.</td>
<td>12.28</td>
</tr>
<tr>
<td>3.</td>
<td>14.61</td>
<td>9.</td>
<td>15.67</td>
</tr>
<tr>
<td>4.</td>
<td>13.91</td>
<td>10.</td>
<td>15.35</td>
</tr>
<tr>
<td>5.</td>
<td>13.86</td>
<td>11.</td>
<td>16.31</td>
</tr>
<tr>
<td>6.</td>
<td>16.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.871 ton/ac.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Ref. :- Bh. 52(38).  
Site :- C.S.R.S. Pusa.  
Type :- 'M'.

Object :- To compare organic manure (compost) with inorganic manures (A/S) in combination with Single Super.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A.  
   (ii) (a) Clay loam. (b) N.A.  
   (iii) 4.1.1952.  
   (iv) (a) 4 bullock ploughings.  
   (b) Row planting. (c) 60, three budded setts/rows. (d) Between rows 3'. (e) --. (v) Nil.  
   (vi) BO. 11 (early). (vii) Unirrigated. (viii) Hoeing, earthing and weeding. (ix) 47.71'. (x) 2.1.1953.

2. TREATMENTS:
   1. Compost + Single Super to supply 40 lb./ac. of N+50 lb./ac. of P2O5.  
   2. A/S + Single Super to supply 40 lb./ac. of N+50 lb./ac. of P2O5.  
   3. Compost + Single Super to supply 80 lb./ac. of N+100 lb./ac. of P2O5.  
   4. A/S + Single Super to supply 80 lb./ac. of N+100 lb./ac. of P2O5.  
   5. Compost + Single Super to supply 120 lb./ac. of N+150 lb./ac. of P2O5.  
   6. A/S + Single Super to supply 120 lb./ac. of N+150 lb./ac. of P2O5.
7. Compost + Single Super to supply 160 lb./ac of N + 200 lb./ac of P<sub>2</sub>O<sub>5</sub>.
8. A/S + Single Super to supply 160 lb./ac of N + 200 lb./ac of P<sub>2</sub>O<sub>5</sub>.
9. Compost + Single Super to supply 200 lb./ac of N + 250 lb./ac of P<sub>2</sub>O<sub>5</sub>.
10. A/S + Single Super to supply 200 lb./ac of N + 250 lb./ac of P<sub>2</sub>O<sub>5</sub>.
11. Control (no manure).

Time & method of application of manures: N.A.

3. DESIGN:
(i) B.I.B.D. Parameters are \( \lambda = 5, t = 11, b = 11, \lambda = 2 \). (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 60.5° × 24'. (b) 60.5° × 18'. (v) Rows of Y' on either side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Cane yield, sucrose %, and count of mature stalks. (iv) 1951—1954. (b) No. (c) Nil. (v) (a) Zonal Centres, Pachrukhi, Motihari, Majhualia etc. (b) Nil. (vi) Nil. (vii) Data analysed as R.B.D.

5. RESULTS:
(i) 20.35 ton/ac.
(ii) 1.84 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>
<tbody>
<tr>
<td>1.</td>
<td>20.44</td>
<td>7.</td>
<td>22.86</td>
</tr>
<tr>
<td>2.</td>
<td>19.63</td>
<td>8.</td>
<td>17.95</td>
</tr>
<tr>
<td>3.</td>
<td>22.61</td>
<td>9.</td>
<td>18.94</td>
</tr>
<tr>
<td>4.</td>
<td>22.53</td>
<td>10.</td>
<td>22.09</td>
</tr>
<tr>
<td>5.</td>
<td>22.93</td>
<td>11.</td>
<td>15.71</td>
</tr>
<tr>
<td>6.</td>
<td>18.31</td>
<td>S.E./mean</td>
<td>0.823 ton/ac.</td>
</tr>
</tbody>
</table>

Crop : Sugarcane.
Site : C.S.R.S. Pusa.
Ref. : Bh. 53(107).
Type : 'M'.

Object : To compare organic manures (compost) with inorganic manures (A/S) in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) Sugarcane—Pulse—Barley—Sanai (G.M.). (b) Sanai (G.M.). (c) Nil. (ii) (a) Sandy clay loam to loam in texture. (b) Org. C. low, Org. N medium to low, C/N ratio narrow. Total Phosphate medium to high, Available Phosphate very low, Soil reaction strongly alkaline. (iii) 22.2.1953. (iv) (a) Harrowing once and mould-board ploughing each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow planting; end to end planting. (c) 60, three, budded setts/row. (d) 3' apart. (e) —. (v) Nil. (vi) BO. 11. (early). (vii) Nil. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 46.03'. (x) 1st week of Jan. 1954.

2. TREATMENTS:
1. Compost + Single Super to supply 40 lb./ac of N + 50 lb./ac of P<sub>2</sub>O<sub>5</sub>.
2. A/S + Single Super to supply 40 lb./ac of N + 50 lb./ac of P<sub>2</sub>O<sub>5</sub>.
3. Compost + Single Super to supply 80 lb./ac of N + 100 lb./ac of P<sub>2</sub>O<sub>5</sub>.
4. A/S + Single Super to supply 80 lb./ac of N + 110 lb./ac of P<sub>2</sub>O<sub>5</sub>.
5. Compost + Single Super to supply 120 lb./ac of N + 150 lb./ac of P<sub>2</sub>O<sub>5</sub>.
6. A/S + Single Super to supply 120 lb./ac of N + 150 lb./ac of P<sub>2</sub>O<sub>5</sub>.
7. Compost + Single Super to supply 160 lb./ac of N + 200 lb./ac of P<sub>2</sub>O<sub>5</sub>.
8. A/S + Single Super to supply 160 lb./ac of N + 200 lb./ac of P<sub>2</sub>O<sub>5</sub>.
9. Compost + Single Super to supply 200 lb./ac of N + 220 lb./ac of P<sub>2</sub>O<sub>5</sub>.
10. A/S + Single Super to supply 200 lb./ac of N + 220 lb./ac of P<sub>2</sub>O<sub>5</sub>.
11. Control.

Time and method of application of manures N.A.
3. DESIGN:
(i) B.I.B.D. Parameters are $b=t=11$; $A=2$, $k=5=r$. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Borer incidence noted—dead hearts removed during the early period of growth. On controlling termite infection, Alderine was applied at planting and 3 months after. (iii) Germination $\%$, tillering, height, no. of mature stalks, sucrose $\%$ and cane yield. (iv) (a) 1951--1954. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) (vii) Data analysed as R.B.D.

5. RESULTS:
(i) 16.18 ton/ac.
(ii) 2.81 ton/ac.
(iii) Treatments do not differ significantly.
(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>
<tbody>
<tr>
<td>1.</td>
<td>15.92</td>
<td>7.</td>
<td>17.24</td>
</tr>
<tr>
<td>2.</td>
<td>16.31</td>
<td>8.</td>
<td>16.97</td>
</tr>
<tr>
<td>3.</td>
<td>16.64</td>
<td>9.</td>
<td>15.04</td>
</tr>
<tr>
<td>4.</td>
<td>14.54</td>
<td>10.</td>
<td>15.41</td>
</tr>
<tr>
<td>5.</td>
<td>18.90</td>
<td>11.</td>
<td>15.17</td>
</tr>
<tr>
<td>6.</td>
<td>15.85</td>
<td>S.E./mean</td>
<td>1.25 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Site :- C.S.R.S. Pusa.  
Ref :- Bh. 48(4).  
Type :- 'M'.

Object :- To find out the optimum dose of different cakes.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) 21/2.2.1948. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) --. (v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) 2 hoeings, weedings and earthing up. (ix) 46, 50°. (x) 5th/8th Feb. 1949.

2. TREATMENTS:
All combinations of (1) and (2)+a Control.
(1) 2 doses of $N_2P_2O_5$  
$N_1P_1=48$ lb/ac. of $N_2P_2O_5$.  
$N_2P_2=80$ lb/ac. of $N_2P_2O_5$.
(2) 4 sources of $N_2P_2O_5$  
$M_1$ = Mustard cake+ Triple Super.  
$M_2$ = Castor cake+ Triple Super.  
$M_3$ = G.N.C.+ Triple Super.  
$M_4$ = Linseed cake+ Triple Super.

3. DESIGN:
(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) $60.5' \times 24'$. (b) $63.5' \times 18'$. (v) One row of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose $\%$, and sugarcane yield. (iv) (a) 1948--1949. (b) €.o. (c) No. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 18.96 ton ac.
(ii) 4.18 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
<th>M₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁P₁</td>
<td>22.66</td>
<td>23.63</td>
<td>21.29</td>
<td>13.03</td>
<td>20.00</td>
<td></td>
</tr>
<tr>
<td>N₂P₂</td>
<td>19.12</td>
<td>14.68</td>
<td>18.61</td>
<td>22.17</td>
<td>18.64</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>20.59</td>
<td>19.16</td>
<td>19.95</td>
<td>17.60</td>
<td>19.32</td>
<td></td>
</tr>
</tbody>
</table>

1. S.E. of body of table = 2.96 ton/ac.
2. S.E. of marginal mean of doses = 1.47 ton/ac.
3. S.E. of marginal mean of sources = 2.09 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.
Ref :- Bh. 49(9).
Type :- ‘M’.

Object :- To find out the optimum dose of different cakes in combination with triple Super.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 20th Feb. 1949. (iv) (a) 4 ploughings.
(b) Row planting. (c) 64" three budded setts/row. (d) N.A. (e) --. (v) Nil. (vi) BO. 11. (vii) Unirrigated.
(viii) Hoeing, weeding etc. (ix) 63.25' X 24' (x) 63.25' X 18' (xi) 3' on each side of width. (xii) Yes.

2. TREATMENTS:
All combinations of (1) & (2) + a Control (no manure).
(1) 2 doses of N+P₂O₅ : N₁P₁ = 40 lb/ac. of N + 50 lb/ac. of P₂O₅ and
N₂P₂ = 80 lb/ac. of N + 100 lb/ac. of P₂O₅.
(2) 4 sources of N+P₂O₅ : M₁ = Mustard cake+Triple Super.
M₂ = Castor cake+Triple Super.
M₃ = G.N.C.+Triple Super and M₄ = Linseed cake+Triple Super.

3. DESIGN:
(i) R.B.D. (ii) 9. (b) N.A. (iii) 6. (iv) 63.5' X 24' (b) 60.5' X 18' (v) 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Cane yield, mature stalk count and sucrose %. (iv) (a) 1948—1949. (b) Nil. (c) Nil.
(v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
<th>M₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₁P₁</td>
<td>28.37</td>
<td>27.53</td>
<td>26.75</td>
<td>27.13</td>
<td>27.52</td>
<td></td>
</tr>
<tr>
<td>N₂P₂</td>
<td>27.72</td>
<td>28.17</td>
<td>27.28</td>
<td>29.59</td>
<td>28.19</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>28.04</td>
<td>27.85</td>
<td>27.01</td>
<td>28.51</td>
<td>27.85</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of mean in body of table = 0.897 ton/ac.
S.E. of marginal mean of doses = 0.448 ton/ac.
S.E. of marginal mean of sources = 0.634 ton/ac.
Crop :- Sugarcane.  
Site :- C.S.R.S. Pusa.  
Ref :- Bh. 51(23).  
Type :- 'M'.

Object :- To find out the economic value of different cakes on Sugarcane yield.

1. BASAL CONDITIONS :  
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 17th & 18th Feb. 1951. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Nil. (e) — (f) Nil. (vii) BO. 11. (viii) Irrigated. (ix) Hoeing, earthing and weeding. (x) 28.00°. (x) 2nd week of March 1952.

2. TREATMENTS :  
   All combinations of (1) and (2) + a Control (no manure).  
   (1) 2 doses of N: 
   \( N_1 = 40 \) and \( N_2 = 80 \) lb./ac.  
   (2) 4 sources of N: Mustard cake (M.C.), Castor cake (C.C.), G.N.C., and Linseed cake (L.C).

3. DESIGN :  
   (1) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :  
   (i) N.A. (ii) Cane stem borers. (iii) Cane yield, sucrose % and counting of mature stalks. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :  
   (i) 23.76 ton/ac.  
   (ii) 2.459 ton/ac.  
   (iii) Overall treatment differences are highly significant. Further 'control vs. other treatments' is highly significant while all other effects are significant.  
   (iv) Av. yield of sugarcane in ton/ac.  
   Control = 18.64 ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M.C.</th>
<th>C.C.</th>
<th>G.N.C.</th>
<th>L.C.</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( N_1 )</td>
<td>24.11</td>
<td>22.06</td>
<td>23.38</td>
<td>23.56</td>
<td>23.28</td>
</tr>
<tr>
<td>( N_2 )</td>
<td>27.56</td>
<td>22.90</td>
<td>25.29</td>
<td>26.31</td>
<td>25.52</td>
</tr>
<tr>
<td>Mean</td>
<td>25.84</td>
<td>22.48</td>
<td>24.34</td>
<td>24.94</td>
<td>24.40</td>
</tr>
</tbody>
</table>

S.E. of body of table = 1.23 ton/ac.  
S.E. of marginal means of doses = 0.615 ton/ac.  
S.E. of marginal means of sources = 0.869 ton/ac.

---

Crop :- Sugarcane.  
Site :- C.S.R.S. Pusa.  
Ref :- Bh. 48 (3).  
Type :- 'M'.

Object :- To find the suitable method of application of Mustard cake and A/S.

1. BASAL CONDITIONS :  
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) 24/26.2.1948. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (f) Nil. (vii) BO. 11. (viii) Irrigated. (ix) 2 hoeings, weeding and earthing. (x) 47.55°. (x) 8th to 11th Feb. 1949.

2. TREATMENTS :  
   All combinations of (1) and (2)  
   (1) 2 sources of N: A/S and Mustard cake.  
   (2) 5 methods of application:  
   \( M_1 = \) In rows 1" deep (before planting),  
   \( M_2 = \) In rows 4" deep (after germination),  
   \( M_3 = \) In furrows along rows (after germination),  
   \( M_4 = \) Dibbling along rows (after germination).

Each source in (1) to give 40 lb./ac. of...
3. DESIGN:
(i) R.B.D. (Fact.). (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose%, sugarcane yield. (iv) (a) 1948—1949. (b) No. (c) No. (v) (a) None. (b) N.A. (vi) Nil. (vii) Initially replications were laid out only 3 replications considered for analysis, as in replication IV yields of some pots were very low due to unfertile patch of land.

5. RESULTS:
(i) 25.06 ton/ac.
(ii) 3.78 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>M₃</th>
<th>M₄</th>
<th>M₅</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/S</td>
<td>25.48</td>
<td>23.93</td>
<td>.6</td>
<td>22.67</td>
<td>23.7</td>
<td>23.87</td>
</tr>
<tr>
<td>Mustard cake</td>
<td>27.01</td>
<td>25.25</td>
<td>.82</td>
<td>26.63</td>
<td>24.59</td>
<td>26.26</td>
</tr>
<tr>
<td>Mean</td>
<td>26.25</td>
<td>24.59</td>
<td>.41</td>
<td>25.15</td>
<td>4.14</td>
<td>25.06</td>
</tr>
</tbody>
</table>

S.E. of the marginal mean of M = 1.54 ton/ac.
S.E. of the marginal mean of source = 0.97 ton/ac.
S.E. of body of table = 2.18 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.
Type :- 'M'.

Object :- To find the suitable method of application of Mustard cake and A/S.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Heavy loam soil. (b) N.A. (iii) 19th and 20th Jan. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) 40-lb/acre of N as F.Y.M. one month before planting and 6-lb/acre of N afterwards. (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) 66°. (x) 24th and 27th Feb. 1950.

2. TREATMENTS:
All combinations of (1) and (2):
(1) 2 sources of N: A/S and Mustard cake
(2) 5 methods of application:
M₁=In rows 8" deep, M₂=In rows 4" deep, M₃=Broadcast, M₄=In furrows along rows (after germination) and M₅=Dibbling along rows (after germination).

Amount of A/S and Mustard cake applied N.A.

3. DESIGN:
(i) 2x5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Top borers were noticed. (iii) Cane yield, mature stalk count and sucrose %. (iv) (a) 1948—1949. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) Yes and (vii) Nil.

5. RESULTS:
(i) 26.60 ton/ac.
(ii) 25.72 ton/ac.
(iii) None of the effects is significant.
(v) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
<th>M₄</th>
<th>M₅</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/S</td>
<td>27.12</td>
<td>26.88</td>
<td>26.74</td>
<td>26.43</td>
<td>27.48</td>
<td>26.73</td>
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<tr>
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<td>26.80</td>
<td>26.17</td>
<td>26.56</td>
<td>26.61</td>
<td>26.60</td>
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</tbody>
</table>

S.E. of the body of table = 1.286 ton/ac.
S.E. of marginal mean of sources = 0.575 ton/ac.
S.E. of marginal mean of methods of application = 0.909 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.
Object :- To compare the mixture fertilizer with standard manures.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 5/6.4.52. (iv) (a) 4 ploughings. (b) Row planting. (c) 75, three-budded setts/row. (d) 3' between rows. (e) — (v) Nil. (vi) BO. 11 (early) (vii) Unirrigated. (viii) Hoeing, earthing and weeding. (ix) 46.90°. (x) 23.4.53.

2. TREATMENTS:
1. Control (no manure).
2. Mixture at 50 lb./ac. of N.
3. Mixture at 60 lb./ac. of N.
4. Standard dose at 70 lb./ac. of N + 50 lb./ac. of P₂O₅.
5. Standard dose at 90 lb./ac. of N + 75 lb./ac. of P₂O₅.

3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 72.5' X 21'. (b) 72.5' X 15'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) Very poor. (ii) Attack by termites noticed. (iii) Cane yield, sucrose% and count of mature stalks. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 3.730 ton/ac.
(ii) 1.825 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>4.16</td>
</tr>
<tr>
<td>2.</td>
<td>1.81</td>
</tr>
<tr>
<td>3.</td>
<td>4.23</td>
</tr>
<tr>
<td>4.</td>
<td>2.66</td>
</tr>
<tr>
<td>5.</td>
<td>5.77</td>
</tr>
</tbody>
</table>
S.E./mean = 0.745 ton/ac.
Crop: Sugarcane.  
Site: C.S.R.S. Pusa.  
Object: To test the release of available $P_2O_5$ and its uptake by Sugarcane in calcareous soil under conditions of organic manuring.

1. BASAL CONDITIONS:
   (a) Sanai—Sugarcane—Sanai.  
   (b) Sanai.  
   (c) Nil.  
   (ii) (a) Sandy loam to silty loam with normal to deep saline phase (b) $\text{Org. C and Org. N are low and C : N ratio narrow to normal.}$  
   Total $P_2O_5$ is medium to high. Available Phosphate very low. Soil reaction is strongly alkaline.

2. TREATMENTS:
   1. Control (no manure).
   2. 25 lb./ac. of $P_2O_5$ as Single Super.
   3. 50 lb./ac. of $P_2O_5$ as Single Super.
   4. 25 lb./ac. of $P_2O_5$ as Single Super + 400 lb./ac. of Cane trash compost.
   5. 50 lb./ac. of $P_2O_5$ as Single Super + 800 lb./ac. of Cane trash compost.

3. DESIGN:
   (i) R.B.D.  
   (ii) N.A.  
   (iii) N.A.

4. GENERAL:
   (i) N.A.  
   (ii) N.A.  
   (iii) No of tillers and cane yield.  
   (iv) 1951—contd.  
   (v) Nowhere  
   (vi) Yes.

5. RESULTS:
   (a) 17.94 ton/ac.
   (b) 1.69 ton/ac.
   (v) Treatments differ highly significantly.
   (iv) Av. yield of sugarcane in tonnes.
      
      Treatment    Av. yield
      1.         15.89
      2.         17.12
      3.         18.24
      4.         18.29
      5.         20.18
      S.E./mean = 0.65 ton/ac.
3. DESIGN:
(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Yes—one row of non-experimental on either side of the plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of tillers & cane yield. (iv) (a) 1951-1953. (b) Nil. (c) N.A. (d) No. (e) Nil. (f) No. (g) & (h) Nil.

5. RESULTS:
(i) 21.64 ton/ac.
(ii) 1.75 ton/ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>S.E./mean = 0.71 ton/ac.</th>
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<tr>
<td>3.</td>
<td>21.80</td>
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<tr>
<td>4.</td>
<td>21.37</td>
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</tr>
<tr>
<td>5.</td>
<td>22.88</td>
<td></td>
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</tbody>
</table>

Crop:- Sugarcane.
Site:- C.S.R.S. Pusa.
Ref:- Bh. 50(13).
Type: 'M'.

Object:- To find out the effect of N, P₂O₅ and K₂O applied alone and in combinations.

1. BASAL CONDITIONS:
(i) (a) Sanai—Sugarcane—Sanai. (b) Sanai. (c) Nil. (ii) (a) Medium loamy soil. (b) N.A. (iii) 22nd to 25th July 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 90, three budded sets/row. (d) 3' between rows. (e) - . (v) G.M. (Sanai). (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, earthing & weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N : N₀=0, N₁=40 and N₂=80 lb./ac.
(2) 3 levels of P₂O₅ : P₀=0, P₁=50 and P₂=100 lb./ac.
(3) 3 levels of K₂O : K₀=0, K₁=80 and K₂=160 lb./ac.
Time & method of application N.A.

3. DESIGN:
(i) 3rd Fact. Conf'd, with 2nd order interactions partially conf'd. (ii) (a) 3 blocks/replication.9 plots/block (b) N.A. (iii) 4. (iv) (a) 80' x 24'. (b) 80' x 12'. (v) 6' wide rows along each side of breadth. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting of mature stalks. (iv) (a) No. (b) No. (c) Nil. (v) (a) Nil. (b) N.A. (vi) & (vii) Nil.

5. RESULTS:
(i) 21.69 ton/ac.
(ii) 5.57 ton/ac.
(iii) Only main effect of P is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>F₀</th>
<th>P₁</th>
<th>P₂</th>
<th>Mean</th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
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<tr>
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<td>23.03</td>
<td>21.30</td>
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<tr>
<td>N₂</td>
<td>19.19</td>
<td>23.76</td>
<td>22.94</td>
<td>21.97</td>
<td>21.82</td>
<td>20.53</td>
<td>23.56</td>
</tr>
<tr>
<td>Mean</td>
<td>19.77</td>
<td>22.61</td>
<td>22.69</td>
<td>21.69</td>
<td>21.66</td>
<td>21.84</td>
<td>21.58</td>
</tr>
</tbody>
</table>

S.E. any marginal mean = 0.93 ton/ac.
S.E. of body of table = 1.61 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.
Ref :- Bh. S2(34).
Type :- 'M'.

Object :- To find out the increase in the availability of $P_2O_5$ in calcareous soil in depth placement and its effects on the yields of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) None. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 23/24. 2.1952. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 70, three budded setts/row. (d) 3' between rows. (e) — (v) Nil. (vi) BO. 11 (Early). (vii) Rainfed. (viii) Weeding, hoeing and earthing up. (ix) 48.02°. (x) 6/12. 1.1953.

2. TREATMENTS:
   1. No manure.
   2. 75 lb/ac. of $P_2O_5$ as usual.
   3. 125 lb/ac. of $P_2O_5$ as usual.
   4. 75 lb/ac. of $P_2O_5$ applied 8" deep.
   5. 125 lb/ac. of $P_2O_5$ applied 8" deep.
   6. 75 lb/ac. of $P_2O_5$ applied 8" deep with A/S at 300 lb/ac.
   7. 125 lb/ac. of $P_2O_5$ applied 8" deep with A/S at 500 lb/ac.
   8. 75 lb/ac. of $P_2O_5$ as usual with A/S at 300 lb/ac.
   9. 125 lb/ac. of $P_2O_5$ as usual with A/S at 500 lb/ac.

   Time and method of application of manures : N.A.

3. DESIGN:
   (i) R.B.D. (ii) 9. (b) N.A. (iii) 4. (iv) (a) 66'×21'. (b) 66'×15'. (v) Rows of 3' width along breadth on both sides. (vi) Yes.

4. GENERAL:
   (i) Fair. (ii) Nil. (iii) Cane yield, sucrose %, and count of mature stalks. (iv) (a) No. (b) Nil. (c) No. (v) (a) None. (b) N.A. (vi) & (vii) Nil

5. RESULTS:
   (i) 13.83 ton/ac.
   (ii) 3.179 ton/ac.
   (iii) 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>14.04</td>
</tr>
<tr>
<td>2.</td>
<td>15.03</td>
</tr>
<tr>
<td>3.</td>
<td>12.02</td>
</tr>
<tr>
<td>4.</td>
<td>14.51</td>
</tr>
<tr>
<td>5.</td>
<td>14.56</td>
</tr>
<tr>
<td>6.</td>
<td>15.92</td>
</tr>
<tr>
<td>7.</td>
<td>13.81</td>
</tr>
<tr>
<td>8.</td>
<td>11.58</td>
</tr>
<tr>
<td>9.</td>
<td>12.96</td>
</tr>
</tbody>
</table>

S.E./mean = 1.59 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Object :- To find out the increase in the availability of phosphate in calcareous soil in depth placement and the effect on the yield of Sugarcane.

1. BASAL CONDITIONS : 
   (i) (a) Sugarcane—Pulses—Barley—Sanai (G.M.). (b) Sanai (G.M.). (c) Nil. (ii) (a) Sandy clay loam in texture. (b) Org. C low, Org. N Medium to low. C/N Ratio narrow. Total Phosphate medium to high. Available Phosphate very low, soil reaction strongly alkaline. (iii) 24.2.53. (iv) (a) Harrowing once and mould board ploughing each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow planting, end to end planting. (c) 60, three budded setts/row. (d) 3' apart. (e)—(v) Nil. (vi) BO. 11. (Early). (vii) Nil. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 46.03°. (x) First week of Jan., 1954.

2. TREATMENTS :  
   1. No manure.
   2. 75 lb/ac. of P₂O₅ at 4' depth.
   3. 125 lb/ac. of P₂O₅ at 4' depth.
   4. 75 lb/ac. of P₂O₅ at 8' depth.
   5. 125 lb/ac. of P₂O₅ at 8' depth.
   6. 75 lb/ac. of P₂O₅ at 8' depth + 300 lb/ac. of A/S.
   7. 125 lb/ac. of P₂O₅ at 8' depth + 500 lb/ac. of A/S.
   8. 75 lb/ac. of P₂O₅ at 4' depth + 300 lb/ac. of A/S.
   9. 125 lb/ac. of P₂O₅ at 4' depth + 500 lb/ac. of A/S.

3. DESIGN : 
   (i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Two rows, one on either side of the sub-plot as non-experimental. (vi) Yes.

4. GENERAL : 
   (i) Good. (ii) Borer incidence noticed. Dead heart removed. Aldrin was applied at planting. (iii) Germination, tillering, height, no. of mature stalks, sucrose % & sugarcane yield. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) & (vii) Nil.

5. RESULTS : 
   (i) 19.90 ton/ac.
   (ii) 4.98 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>17.02</td>
</tr>
<tr>
<td>2.</td>
<td>18.25</td>
</tr>
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<td>3.</td>
<td>19.85</td>
</tr>
<tr>
<td>4.</td>
<td>21.86</td>
</tr>
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<td>5.</td>
<td>21.40</td>
</tr>
<tr>
<td>6.</td>
<td>20.24</td>
</tr>
<tr>
<td>7.</td>
<td>20.47</td>
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<td>8.</td>
<td>17.02</td>
</tr>
<tr>
<td>9.</td>
<td>23.02</td>
</tr>
</tbody>
</table>

S.E./mean = 2.49 ton/ac.
Crop: Sugarcane.  
Site: C.S.R.S. Pusa.

Object: To find out the optimum dose of N, P₂O₅ & K₂O.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam soil. (b) N.A. (iii) 24th Feb. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded sets/row. (d) 3' between rows. (e) — (vii) Nil.

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 = 25 and P₂ = 50 lb/ac.
(3) 2 levels of K₂O: K₀ = 0, and K₁ = 80 lb/ac.
N as A/S & P₂O₅ as Super. Time and method of application of manures: N.A.

3. DESIGN:
(i) 3 x 3 x 2 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 2. (iv) (a) 60.5' x 24', (b) 60.5' x 18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Cane yield, count of mature stalk and sucrose %. (iv) (a) N.A. (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Majhaulia, Motihari, and Motipur. (b) Nil. (vi) Nil. (vii) Information on experiment conducted during 1948; not traceable.

5. RESULTS:
(i) 23.00 ton/ac.
(ii) 1.042 ton/ac.
(iii) The interaction NP alone 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>
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</tbody>
</table>

S.E. of marginal mean of N or P = 0.301 ton/ac.
S.E. of marginal mean of K = 0.245 ton/ac.
S.E. of body of NP table = 0.521 ton/ac.
S.E. of body of NK or PK table = 0.425 ton/ac.

Crop: Sugarcane.  
Site: C.S.R.S. Pusa.

Object: To study the effect of N, P₂O₅ and K₂O on Sugarcane crop.

1. BASAL CONDITIONS:
(i) (a) Maize-Sugarcane-Maize. (b) Maize. (c) N.A. (ii) (a) Medium loam soil. (b) N.A. (iii) 18th to 22nd Jan. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 90, three budded sets/row. (d) 3' between rows. (e) — (v) Nil. (vi) BO. 11. (early) (vii) Rainfed. (viii) Hoeing, weeding and earthing up. (x) 38.70°. (x) 2nd to 4th Feb. 1951.
2. TREATMENTS:

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

(1) 3 levels of N:
   \( N_0 = 0 \), \( N_1 = 40 \) and \( N_2 = 80 \) lb/ac.

(2) 3 levels of \( P_2O_5 \):
   \( P_0 = 0 \), \( P_1 = 50 \) and \( P_2 = 100 \) lb/ac.

(3) 3 levels of \( K_2O \):
   \( K_0 = 0 \), \( K_1 = 80 \) and \( K_2 = 160 \) lb/ac.

N as A/S, \( P_2O_5 \) as Single Super and \( K_2O \) as Pot-Sul.

3. DESIGN:

(i) 3' Fact. in partially confd. (iii) 9 plots/block; 3 blocks/replication. (b) N.A. (iii) 4. (iv)
(a) 80' x 24'. (b) Rows 3' apart. (v) 6' wide rows on two sides of width. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting (of mature stalks. (iv) (a) N.A. (b) No.
(c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 16.80 ton/ac.
(ii) 1.45 ton/ac.
(iii) Main effect of N is highly significant and main effect of \( P_2O_5 \) is significant, while no other effect is significant.
(iv) Av. yield of cane 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>
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<td>16.62</td>
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<td>16.80</td>
<td>17.03</td>
<td>17.97</td>
<td>15.39</td>
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</table>

S.E. of any marginal mean = 0.24 ton/ac.
S.E. of body of table = 0.42 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre Dehri-on-Sone.

Object: To compare Cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A. (c) N.A. (ii) Alluvial non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 times ploughed by Deshi plough. (b) Flat planting. (c) 63, three budded setts/row. (d) Rows 3' apart. (e)

(v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS:

Main-plot treatments:
- 2 varieties: \( V_1 = \text{BO. 11} \) and \( V_2 = \text{CO. 453} \).
Sub-plot treatments:
- 7 manure mixtures.

Common dose of 60 lb/ac of N+75 lb/ac of \( P_2O_5 \) in all treatments.

- \( M_1 = \text{A/S+Single Super} \).
- \( M_2 = \text{Castor cake+Single Super} \).
- \( M_3 = \text{Mustard cake+Single Super} \).
- \( M_4 = \text{Linseed cake+Single Super} \).
- \( M_5 = \text{Mahua cake+Single Super} \).
- \( M_6 = \text{G.N.C.+Single Super} \).
- \( M_7 = \text{Control (no manure)} \).
3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block, 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) 1952-1953. (b) N.A. (c) Nil. (v) (a) Harinagar, Parsa and Majhaulia. (b) None. (vi) Nil. (vii) Experiment conducted during 1953 not traceable.

5. RESULTS:
(i) 30.14 ton/ac. (ii) (a) 1.133 ton/ac. (b) 3.982 ton/ac. (iii) Main effects of variety and manures are highly significant. Interaction is significant. (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
<th>M7</th>
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<td>30.70</td>
<td>31.56</td>
<td>28.36</td>
<td>22.31</td>
</tr>
</tbody>
</table>

S.E. of difference of two:
1. variety means = 0.303 ton/ac.
2. manure means = 1.991 ton/ac.
3. manure means at the same level of variety = 2.815 ton/ac.
4. variety means at the same level of manure = 2.625 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Dehri-on-Sone.
Ref.- Bh. 51(49).
Type: 'MV'.

Object: To compare effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) Alluvial, (non-calcareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by Deshi plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) — (v) N.A.
(vi) As per treatment. (vii) N.A. (viii) Hoeling, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:—
2 varieties: V1=BO. 11 and V2=CO. 453.
Sub-plot treatments:—
11 doses of manure:
M1 = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P2O5.
M2 = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P2O5.
M3 = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P2O5.
M4 = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P2O5.
M5 = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P2O5.
M6 = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P2O5.
M7 = A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P2O5.
M8 = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P2O5.
M9 = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P2O5.
M10 = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P2O5.
M11 = Control (No manure).

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side along length. (vi) Yes.
4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) No. of mature stalks, sucrose %, and sugarcane yield.  (iv) (a) 1951-1953.  (b) Nil.
   (v) (a) Majhaulia.  (b) Nil.  (vi) and (vii) Nil.

5. RESULTS:
   (i) 17.94 ton/ac.
   (ii) (a) 0.95 ton/ac.
        (b) 1.06 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of cane in ton/ac.

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<th></th>
<th>M_1</th>
<th>M_2</th>
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<td>19.29</td>
<td>18.56</td>
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<td>17.94</td>
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S.E. of difference of two
1. variety means = 0.20 ton/ac.
2. manure means = 0.53 ton/ac.
3. manure means at the same level of variety = 0.75 ton/ac.
4. variety means at the same level of manure = 0.74 ton/ac.

Crop:  Sugarcane.  
Site:  Zonal Centre, Dehri-on-Sone.  
Ref:  Bh. 52(67).  
Type:  'MV'.

Object:  To compare the effect of A/N with that of A/S in combination with single super.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) N.A.  (c) N.A.  (ii) (a) Alluvial non-calcareous.  (b) N.A.  (iii) N.A.  (iv) (a) 4
       ploughings followed by beaming.  (b) Flat planting.  (c) 60, three budded setts/row.(d) Rows 3' apart.
       (e) Nil.  (v) Nil.  (vi) As per treatments.  (vii) N.A.  (viii) Hoeing, weedling and earthing up.  (ix) N.A.
       (x) N.A.

2. TREATMENTS:
   Main-plot treatments:  
   2 Varieties:  V_1 = BO. 11 and V_2 = CO. 453
   Sub-plot treatments:  
   All combinations of (1) & (2): a Control (No manure),
   (1) 2 sources of N : S_1 = A/N and S_2 = A/S.
   (2) 5 levels of N : N_1 = 40, N_2 = 80, N_3 = 120, N_4 = 160 and N_5 = 200 lb/acre.
   Manures applied at the time of planting.

3. DESIGN:
   (i) Split plot.  (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot.  (b) N.A.  (iii) 4.  (iv) (a) 60.5'x24'.  (b)
       60.5'x18'.  (v) One row on each side along length.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) No. of mature stalks, sucrose %, and sugarcane yield.  (iv) (a) 1951-1953.  (b) No.
       (c) Nil.  (v) (a) Majhaulia.  (b) Nil.  (vi) & (vii) Nil.

5. RESULTS:
   (i) 12.54 ton/ac.
   (ii) (a) 9.30 ton/ac.
        (b) 3.47 ton/ac.
   (iii) Only main effect of manure and interaction manure x variety are highly significant.
(iv) Av. yield of cane in ton/ac.

<table>
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<th>S3N1</th>
<th>S4N1</th>
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<td></td>
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</tbody>
</table>

S.E. of difference of two
1. variety means = 1.98 ton/ac.
2. manure means = 1.74 ton/ac.
3. manure means at the same level of variety = 2.46 ton/ac.
4. variety means at the same level of manure = 3.07 ton/ac.

---

Crop: Sugarcane.  
Site: Zonal Centre, Dehri-on-Sone.  
Type: 'MV'.

Object: To compare the effect of A/N with that of A/S in combination with single Super.

1. BASAL CONDITIONS:
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Alluvial, non-calcareous.  (b) N.A.  (iii) N.A.  (iv) (a) 4 ploughings & horrowing.  (b) Flat method of planting.  (c) 65 m/la. or 60, three budded sets/row.  (d) Rows 3’ apart.  (e) Nil.  (v) Nil.  (vi) As per treatments.  (vii) N.A.  (viii) Hoeing and weeding.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
   Main-plot treatments:---
   2 Varieties: V1=CO. 453 and V2=BO. 11.

   Sub-plot treatments:---
   All combinations of (1&2)+a Control (no manure).
   (1) 2 sources of N: S1=A/N and S2=A/S.
   (2) 5 levels of N: N1=40, N2=80, N3=120, N4=160 and N5=200 lb./ac.

3. DESIGN:
   (i) Split Plot.  (ii) (a) 2 main-plots/block : and 11 sub-plots/main-plot.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b)1/40 ac. (dimensions N.A.)  (v) 1 row on either side.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Cane yield, mature stalks and juice content.  (iv) (a) 1951—1953.  (b) N.A.  (c) Nil.  (v) (a) Majhulia  (b) Nil.  (vi) & (vii) Nil.

5. RESULTS:
   (i) 10.73 ton/ac.
   (ii) (a) 2.58 ton/ac.  (b) 3.60 ton/ac.
   (iii) Only the varietal differences and the sub-plot treatment differences are highly significant.
   (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>S1N1</th>
<th>S2N1</th>
<th>S3N1</th>
<th>S4N1</th>
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S.E. of difference of two
1. variety means = 0.55 ton/ac.
2. manure means = 1.80 ton/ac.
3. manure means at the same level of variety = 2.55 ton/ac.
4. variety means at the same level of manure = 2.49 ton/ac.
Crop : Sugarcane.  
Site : Zonal Centre, Dehri-on-Sone.

Object : To find out the optimum dose of Ammo. Phos.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) N.A. (c) N.A.  
(ii) Alluvial non-calcareous. (b) N.A.  
(iii) N.A.  
(iv) (a) 4 ploughings by 
Desi plough. (b) Flat planting. (c) 60, 3 budded sets/row. (d) Rows 3' apart. (e) -. (v) N.A.  
(vi) As per treatments.  
(vii) N.A.  
(viii) Weeding and earthing up.  
(ix) N.A.  
(x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)
(1) 2 varieties; V1=BO. 11 and V2=CO. 453.
(2) 5 levels of manures :
  
  - M0=Control (no manure).
  - M1= 40 lb./ac. of N + 50 lb./ac. of P2O5.
  - M2= 60 lb./ac. of N + 75 lb./ac. of P2O5.
  - M3= 80 lb./ac. of N+100 lb./ac. of P2O5.
  - M4=100 lb./ac. of N+l25 lb./ac. of P2O5.

N and P2O5 as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN :

(i) 2x5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One border row of 3' along length. (vi) Yes.

4. GENERAL :

(i) N.A.  
(ii) N.A.  
(iii) Sucrose %, no. of matured stalks and sugarcane yield.  
(iv) (a) No. (b) No. (c) Nil.  
(v) (a) Parsa, Majhaulia and Harinagar. (b) Nil.  
(vi) (vii) Repeated in 1953 only. Experiment not traceable.

5. RESULTS :

(i) 28.57 ton/ac.
(ii) 1.57 ton/ac.
(iii) Only main effect of manure is highly significant.  
(iv) Av. yield of cane in ton/ac.

<table>
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<tr>
<th></th>
<th>M0</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
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S.E. of marginal mean of variety = 0.29 ton/ac.
S.E. of marginal mean of manure = 0.45 ton/ac.
S.E. of body of table = 0.64 ton/ac.

Crop : Sugarcane.  
Site : Zonal Centre, Harinagar.

Object : To find out the optimum doses of N and P2O5.

1. BASAL CONDITIONS :
(i) (a) G.M. — Sugarcane—G.M. (b) G.M. (Sonai). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 19/23 Feb. 1950. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60 md./ac. (d) Rows 3' apart. (e) -. (v) Castor cake at 78 md./ac. and Single Super at 22 md./ac. before planting and before earthing time. (vi) As per treatments.  
(vii) Irrigated. (viii) Nil.  
(ix) 48.85'. (x) 20.1.51.
2. TREATMENTS:

Main-plot treatments:--
2 varieties: V1=CO. 455 and V2=BO. 11.

Sub-plot treatments:--
All combinations of (I) and (2)
(1) 4 levels of N: N0=0, N1=40, N2=80 and N3=120 lb./ac.
(2) 4 levels of P2O5: P0=0, P1=50, P2=100 and P3=150 lb./ac.
N as Castor cake and P2O5 as Super.
Treatments applied at the time of planting and mixed with soil.

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 16 sub-plots/main plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' on either side along width. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 15.00 ton/ac.
(ii) (a) 4.81 ton/ac.
(b) 8.96 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

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S.E. of difference of two
1. variety marginal means = 0.85 ton/ac.
2. N or P marginal means = 2.24 ton/ac.
3. variety means at the same level of N or P = 2.87 ton/ac.
4. N or P means at the same level of variety = 3.17 ton/ac.
S.E. of body of N x P table = 3.17 ton/ac.

Crop:—Sugarcane.  Ref. :- Bh. 51(53)
Site:—Zonal Centre, Harinagar.  Type:—‘MV’.

Object:—To find out the optimum dose of N and P2O5 alone and in combination.

1. BASAL CONDITIONS:
(i) (a) Sanai—Sugarcane—Sanai.  (b) Sanai.  (c) Nil.  (ii) (a) Sandy loam.  (b) N.A.  (iii) 2.25 ft. (iv) (a) 4 ploughings by Deski plough.  (b) Flat planting.  (c) 60, three budded sets/row.  (d) Rows 3' apart.  (e) —
(v) Sanai and 10 C.L. of FYM./ac.  (vi) As per treatments.  (vii) Irrigated.  (viii) Hoeing, weeding and earthing up.  (ix) 42.79".  (x) 3/4.1.52.
2. TREATMENTS:

Main-plot treatments:
2 varieties: \( V_1 = \text{CO. 453} \) and \( V_2 = \text{BO. 11} \).

Sub-plot treatments:
All combinations of \( (1) \) and \( (2) \)
1. \( 4 \) levels of \( N: N_0 = 0, N_1 = 40, N_2 = 80 \) and \( N_3 = 120 \) lb/ac.
2. \( 4 \) levels of \( P_2O_5: P_0 = 0, P_1 = 50, P_2 = 100 \) and \( P_3 = 150 \) lb/ac.

N as Castor cake and \( P_2O_5 \) as Single Super.

3. DESIGN:

(i) Split plot. (ii) \( (a) 2 \) main-plots/block and \( 16 \) sub-plots/main-plot. (b) N.A. (iii) \( 4 \) levels of \( N \): \( N_0 = 0, N_1 = 40, N_2 = 80 \) and \( N_3 = 120 \) lb/ac. (iv) \( 4 \) levels of \( P_2O_5 \): \( P_0 = 0, P_1 = 50, P_2 = 100 \) and \( P_3 = 150 \) lb/ac. (v) One row on each side along length. (vi) Yes.

4. GENERAL:

(i) Very good. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) \( 1950-1953 \). (b) No. (c) Nil. (d) No. (vi) Experiment conducted during 1952 under type M. Sl. 52 (88).

5. RESULTS:

(i) \( 21.06 \) ton/ac.
(ii) \( 1.16 \) ton/ac. \( = 0.28 \) ton/ac.
(iii) \( 1.41 \) ton/ac. \( = 0.35 \) ton/ac.

Levels of \( P \) differ significantly. Interaction \( VNP \) is significant. No other effect 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>( N_3 )</th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( P_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>18.47</td>
<td>25.26</td>
<td>24.40</td>
<td>21.18</td>
<td>22.33</td>
<td>23.88</td>
<td>21.77</td>
<td>20.96</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>20.34</td>
<td>18.98</td>
<td>19.87</td>
<td>19.99</td>
<td>19.79</td>
<td>24.61</td>
<td>16.20</td>
<td>16.25</td>
</tr>
</tbody>
</table>

S.E. of difference of two

1. \( V \) marginal means \( = 0.28 \) ton/ac.
2. \( N \) marginal means \( = 0.35 \) ton/ac.
3. \( P \) marginal means \( = 0.22 \) ton/ac.
4. \( V \) means at the same level of \( N \) or \( P \) \( = 0.50 \) ton/ac.
5. \( N \) or \( P \) means at the same level of \( V \) \( = 0.71 \) ton/ac.
6. means in the body of \( N \times P \) table \( = 2.71 \) ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Harinagar.

Ref. :- Bh. 53 (135)
Type :- ‘MV’.

Object :- To find out the optimum dose of \( N \) & \( P_2O_5 \) alone and in combination.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) N.A. (c) N.A. (d) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings and harrowings. (b) Flat method. (c) 65 md./ac. (d) Rows 3’ apart. (e) ---. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.
2. TREATMENTS:

Main-plot treatments:
2 varieties: \( V_1 = \text{CO. 453} \) and \( V_2 = \text{B.O. II} \).

Sub-plot treatments:
All combinations of (1) and (2)

1. 4 levels of \( N \): \( N_1 = 0, N_2 = 40, N_3 = 80 \) and \( N_4 = 120 \) lb/ac.
2. 4 levels of \( P_2O_5 \): \( P_0 = 0, P_1 = 50, P_2 = 100 \) and \( P_3 = 150 \) lb/ac.

N as Castor cake and \( P_2O_5 \) as Super.

3. DESIGN:

(i) Split plot. (ii) 2 main-plots/block; 16 sub-plots/main plot. (b) N.A. (iii) 3. (iv) (a) 60.5' x 2'. (b) 60.5' x 1'. (v) 1 row on either side of width. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Cane yield, mature stalks and juice content. (iv) (a) 1950-1953. (b) No. (c) Nil. (v) (a) Parsa. (b) N.A. (vi) Nil. (vii) Experiment conducted during 1952: N.A.

5. RESULTS:

(i) 25.98 ton/ac.
(ii) (a) 4.39 ton/ac.
(b) 3.20 ton/ac.
(iii) No effect is significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( N_3 )</th>
<th>( N_4 )</th>
<th>Mean</th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( P_3 )</th>
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<tr>
<td>( V_1 )</td>
<td>26.66</td>
<td>25.96</td>
<td>26.69</td>
<td>25.90</td>
<td>26.30</td>
<td>25.41</td>
<td>26.60</td>
<td>26.29</td>
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<tr>
<td>( V_2 )</td>
<td>25.90</td>
<td>23.91</td>
<td>27.82</td>
<td>24.98</td>
<td>25.65</td>
<td>26.88</td>
<td>25.68</td>
<td>24.95</td>
</tr>
<tr>
<td>( P_0 )</td>
<td>25.90</td>
<td>25.10</td>
<td>27.30</td>
<td>26.26</td>
<td>25.90</td>
<td>25.10</td>
<td>27.30</td>
<td>26.26</td>
</tr>
<tr>
<td>( P_1 )</td>
<td>29.32</td>
<td>25.16</td>
<td>26.45</td>
<td>26.63</td>
<td>25.16</td>
<td>26.45</td>
<td>26.63</td>
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</tbody>
</table>

S.E. of difference of two
1. variety marginal means = 0.89 ton/ac.
2. \( V \) means at the same level of \( N \) or \( P \) = 1.44 ton/ac.
3. \( N \) or \( P \) means at the same level of \( V \) = 1.31 ton/ac.
4. means in the body of \( N \times P \) table = 1.85 ton/ac.
5. \( N \) or \( P \) marginal means = 0.93 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Harinagar.

Ref: Bh. 50(34). Type: 'MV'.

Object: —To find out the optimum dose of \( A/N \).

1. BASAL CONDITIONS:

(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 22.2.50. (iv) (a) One ploughing for turning up Samal and 4 more ploughings. (b) Flat planting. (c) 60 md./ac.
(d) Rows 3' apart. (e) —. (v) F.Y.M. at 8 C.L./ac. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing once. (ix) 48.85'. (x) 10.1.51 to 12.1.51.

2. TREATMENTS:

Main-plot treatments:—
2 Varieties: \( V_1 = \text{BO. 11} \) and \( V_2 = \text{CO. 453} \).
Sub-plot treatments:

11 levels of N (N as A/N): N₀ = 0, N₁ = 40, N₂ = 80, N₃ = 120, N₄ = 160, N₅ = 200, N₆ = 240, N₇ = 280, N₈ = 320, N₉ = 360 and N₁₀ = 400 lb/.ac.

Manures applied at the time of planting.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Motihari, Parsa and Majhaulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:

(i) 8.23 ton/ac. (ii) (a) 0.47 ton/ac. (b) 2.61 ton/ac. (iii) All the effects are highly significant.

### Table 1: Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>N₄</th>
<th>N₅</th>
<th>N₆</th>
<th>N₇</th>
<th>N₈</th>
<th>N₉</th>
<th>N₁₀</th>
<th>Mean</th>
</tr>
</thead>
</table>

S. E. of difference of two

1. variety means = 0.01 ton/ac.
2. manure means = 1.32 ton/ac.
3. manure means at the same level of variety = 1.84 ton/ac.
4. variety means at the same level of manure = 1.76 ton/ac.

### Table 2: S.E. of difference of two variety means

<p>| | | | | | | | | | | | |</p>
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</thead>
<tbody>
<tr>
<td>Mean</td>
<td>N₀</td>
<td>N₁</td>
<td>N₂</td>
<td>N₃</td>
<td>N₄</td>
<td>N₅</td>
<td>N₆</td>
<td>N₇</td>
<td>N₈</td>
<td>N₉</td>
<td>N₁₀</td>
</tr>
<tr>
<td></td>
<td>42.79%</td>
<td>1.1.52</td>
<td>5.30</td>
<td>2.90</td>
<td>0.90</td>
<td>2.40</td>
<td>2.80</td>
<td>2.40</td>
<td>1.80</td>
<td>2.00</td>
<td>1.60</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.

Site: Zonal Centre, Harinagar.

Ref: Bh. 51(47).

Type: 'MV'.

Object: To find out the optimum dose of A/N.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 22.2.51. (iv) (a) 4 ploughings followed by huming. (b) Flat planting. (c) 50, 3 budded setts/row. (d) Rows 3' apart. (e) —. (v) 8 C.L/ac. of F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing once. (ix) 42.79%. (x) 1.1.52.

2. TREATMENTS:

Main-plot treatments:

- 2 Varieties: V₁ = BO. 11 and V₁ = CO. 453.

Sub-plot treatments:

- 11 levels of N (N as A/N): N₀ = 0, N₁ = 40, N₂ = 80, N₃ = 120, N₄ = 160, N₅ = 200, N₆ = 240, N₇ = 280, N₈ = 320, N₉ = 360 and N₁₀ = 400 lb/ac.

Manures applied at the time of planting.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side along width. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) No attack of major pests or diseases noticed. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Pachrukhi, Motihari and Parsa. (b) Nil. (vi) & (vii) Nil.
5. RESULTS:

(i) 14.76 ton/ac.
(ii) (a) 1.70 ton ac.
(b) 2.99 ton/ac.
(iii) Main effect of manure is significant while main effect of variety and interaction V×N are highly significant.
(iv) Av. yield of sugarcane in ton./ac.

<table>
<thead>
<tr>
<th></th>
<th>(V_1)</th>
<th>(N_1)</th>
<th>(N_2)</th>
<th>(N_3)</th>
<th>(N_4)</th>
<th>(N_5)</th>
<th>(N_6)</th>
<th>(N_7)</th>
<th>(N_8)</th>
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<td>19.70</td>
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<td>8.86</td>
<td>22.72</td>
<td>15.82</td>
</tr>
<tr>
<td>Mean</td>
<td>14.99</td>
<td>15.75</td>
<td>18.38</td>
<td>13.45</td>
<td>18.38</td>
<td>12.38</td>
<td>17.15</td>
<td>14.22</td>
<td>14.76</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of difference of two

1. variety means = 0.36 ton/ac.
2. manure means = 1.69 ton/ac.
3. manure means at the same level of variety = 2.11 ton/ac.
4. variety means at the same level of manure = 2.04 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Harinagar.

Object :- To find out the optimum dose of A/N.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) G.M.-(Sanai). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 22.10.52. (iv) (a) 1 ploughing for turning up Sanai, 4 ploughings for preparation of land. (b) Flat planting. (c) 60 md./ac.
   (d) Rows 3' apart. (e) ____. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding & earthing up. (ix) ____. (x) 1.2.53 to 3.2.53.

2. TREATMENTS:
   Main-plot treatments :-
   2 Varieties : \(V_1=BO. II\) and \(V_2=CO. 453\).
   Sub-plot treatments :-
   __________
   11 levels of N (N as A/N) : \(N_0=0\), \(N_1=40\), \(N_2=80\), \(N_3=120\), \(N_4=160\), \(N_5=200\), \(N_6=240\), \(N_7=280\), \(N_8=320\), \(N_9=360\), and \(N_{10}=400\) lb./ac.

Manures applied at the time of planting.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block, 11 sub-plots/main-plot. (b) N.A. (iii) 4, (iv) (a) 60.5'×24'.
   (b) 60.5'×18'. (v) 1 row on each side of width. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) No major pest or disease noticed. (iii) Number of mature stalks, sucrose % and sugar-cane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Parsa, Motihari, Motipur, Pachrukhi and Dehri-on-Sone, (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 10.40 ton/ac.
   (ii) (a) 7.56 ton/ac.
   (b) 4.79 ton/ac.
   (iii) Only mature effect is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
<th>N5</th>
<th>N6</th>
<th>N7</th>
<th>N8</th>
<th>N9</th>
<th>N10</th>
<th>Mean</th>
</tr>
</thead>
</table>


S.E. of difference of two
1. variety means = 1.61 ton/ac.
2. manure means = 2.40 ton/ac.
3. manure means at the same level of variety = 3.38 ton/ac.
4. variety means at the same level of manure = 3.61 ton/ac.

Crop: - Sugarcane.
Site: - Zonal Centre, Harinagar.
Ref: - Bh. 49(18).
Type: - ’MV’.

Object: - To find out the effect of liming in heavy soils.

1. BASAL CONDITIONS:
   (i) (a) Sanai-Sugarcane-Sanai. (b) Sanai. (c) Nil. (ii) (a) Sandy loam (b) N.A. (iii) 6.2.49. (iv) (a) 4, ploughings. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3’ apart. (e) Nil. (v) N.A. (vi) BQ. 11. (vii) Irrigated. (viii) Nil. (ix) 56.34’. (x) 9.2.50.

2. TREATMENTS:
   1. Control (no manure).
   2. Castor cake+ Triple Super to supply 40 lb./ac. of N+50 lb./ac. of P 2 O 5 .
   3. Treatment (2)+5 md/ac. of lime.
   4. Treatment (2)+10 md/ac. of lime
   5. Ammo. Phos. to supply 40 lb./ac. of N+50 lb./ac. of P 2 O 5 +5 md/ac. of lime
   6. Ammo. Phos. to supply 40 lb./ac. of N+50 lb./ac. of P 2 O 5 +10 md/ac. of lime.

Treatments applied and mixed with soil at the time of planting.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 60.5’×24’. (b) 60.5’×18’. (v) 3’ on either side along width. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Nil. (iii) Counting of mature stalk, sucrose%, and sugarcane yield. (iv) (a) 1949—50. (b) No.
   (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment was originally planned for two varieties but was conducted with only one variety. There was deviation from the original programme.

5. RESULTS:
   (i) 19.54 ton/ac.
   (ii) 3.04 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>
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<tr>
<td>2</td>
<td>21.47</td>
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<td>3</td>
<td>18.61</td>
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<td>18.63</td>
</tr>
<tr>
<td>5</td>
<td>21.19</td>
</tr>
<tr>
<td>6</td>
<td>20.46</td>
</tr>
</tbody>
</table>

S.E./mean = 1.52 ton/ac.
Crop: Sugarcane.
Site: Zonal Centre, Harinagar.

Object: To find out response due to different combinations of manures.

1. BASAL CONDITIONS:
   (i) (a) Sanai-sugarcane-Sanai. (b) Sanai. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) One ploughing for turning up Sanai and 4 ploughings later on. (b) Flat planting. (c) 60 md/ac. (d) Rows 3' apart (e) Nil. (vi) Nil. (vii) Nil. (viii) As per treatments. (ix) Irrigated. (x) Hoeing, weeding and earthing. (ia) 56.34'.

2. TREATMENTS:
   Main-plot treatments:—
   - 2 varieties: V_1 = CO. 453 and V_2 = BO.11.
   Sub-plot treatments:—
   - Sources of 40 lb./ac. of N+50 lb./ac. of P_2O_5:
     - M_1 = Ammo. Phos.
     - M_5 = Mustard cake+ Triple Super.
     - M_7 = Linseed cake+ Triple Super.
     - M_8 = No manure (control).

   Treatments applied and mixed with soil at the time of planting.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block. 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 50.5' x 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL:
   (i) Normal. (iii) Nil. (iii) No. of mature stalk, sucrose% and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 19.44 ton/ac.
   (ii) (a) 1.92 ton/ac.
   (b) 3.37 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac:

<table>
<thead>
<tr>
<th>V_1</th>
<th></th>
<th></th>
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<td>M_2</td>
<td>M_3</td>
<td>M_4</td>
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</tr>
<tr>
<td>11.22</td>
<td>9.81</td>
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<tr>
<td>19.54</td>
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<td>23.48</td>
<td>20.16</td>
<td>23.53</td>
<td>17.10</td>
<td>15.87</td>
<td>10.44</td>
</tr>
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</table>

S.E. of difference of two
   1. variety means ≠ 0.45 ton/ac.
   2. manure means ≠ 1.68 ton/ac.
   3. manure means at the same level of variety ≠ 2.38 ton/ac.
   4. variety means at the same level of manure ≠ 2.59 ton/ac.
Crop :- Sugarcane.
Site :- Zonal Centre, Majhaulia (Lalgarh).

Object :- To compare the effect of A/N with that of A/S.

1. BASAL CONDITIONS:
(i) (a) Sugarcane—G.M.—Wheat—G.M.—Sugarcane. (b) Sanai. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 24.1.50. (iv) (a) 4 ploughings. (b) Flat planting. (c) 70 md./ac. (d) Rows 3' apart. (e)—.
(v) Castor cake at 78 md./ac. + Single Super at 50 md./ac. Time and method of application N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) 40.0°. (x) 21.2.51 to 25.2.51.

2. TREATMENTS:
Main-plot treatments :-
2 Varieties : V₁=BO.11 and V₂=CO.453.
Sub-plot treatments :-
All combinations of (1) and (1)+a Control
(1) 5 levels of N : N₁=40, N₂=80, N₃=120, N₄=160 and N₅=200 lb./ac.
(2) 2 sources of N : S₁=A/N and S₂=A/S
Manures applied at the time of planting.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5’X24’. (b) 60.5’ X 18’. (v) 3’ border on either side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Tiller count, mature stalk count and cane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Parsa and Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 21.15 ton/ac.
(ii) (a) 1.807 ton/ac.
(b) 3.450 ton/ac.
(iii) Main effects of variety and manure are highly significant. Interaction is not significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N₁S₁</th>
<th>N₁S₂</th>
<th>N₂S₁</th>
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</table>

$S.E.$ of difference of two
1. variety means =0.385 ton/ac.
2. manure means =1.725 ton/ac.
3. manure means at the same level of variety =2.439 ton/ac.
4. variety means at the same level of manure =2.357 ton/ac.
2. TREATMENTS:
Main-plot treatments:
- 2 varieties: \( V_1 = B0.11 \) and \( V_2 = CO.453 \).
Sub-plot treatments:
- All combinations of (1) and (2) + a Control (No manure).
  1. 5 levels of \( N: N_1 = 40, N_2 = 80, N_3 = 120, N_4 = 160 \) and \( N_5 = 200 \) lb/ac.
  2. 2 sources of \( N: S_1 = A/N \) and \( S_2 = A/S \).

3. DESIGN:
- (i) Split-plot.
- (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot.
  - (b) N.A.
- (iii) 4 (iv) (a) 60.5' \( \times 24' \)
  - (b) 60.5' \( \times 18' \).
  - (v) 3' border on either side of width.
  - (vi) Yes.

4. GENERAL:
- (i) Normal.
- (ii) Nil.
- (iii) Tiller and mature stalk counted, sucrose \( \% \) and sugarcane yield.
  - (iv) 1950—1952.
  - (b) No.
  - (c) Nil.
  - (v) \( (a) \) Delhi-on-Sone. (b) Nil.
  - (vi) (vii) Nil.

5. RESULTS:
- (i) 27.2 ton/ac.
- (ii) (a) 1, 2 ton/ac.
  - (b) 1.80 ton/ac.
- (iii) Main effect of variety alone is highly significant.
- (iv) Av. yield of sugarcane in ton/ac.
  | \( N_1 S_1 \) | \( N_1 S_3 \) | \( N_2 S_1 \) | \( N_2 S_3 \) | \( N_3 S_1 \) | \( N_3 S_3 \) | \( N_4 S_1 \) | \( N_4 S_3 \) | \( N_5 S_1 \) | \( N_5 S_3 \) | Control | Mean |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| \( V_2 \) | 29.06 | 32.00 | 28.54 | 30.19 | 30.45 | 31.08 | -1.09 | 3.47 | 29.26 | 29.67 | 23.03 | 26.53 |
| Mean | 27.30 | 27.74 | 26.85 | 28.24 | 27.37 | 27.90 | 8.03 | 27.67 | 26.73 | 23.59 | 27.20 |

S.E. of difference of two:
- 1. variety means = 0.24 ton/ac.
- 2. manure means = 0.90 ton/ac.
- 3. manure means at the same level of variety = 1.27 ton/ac.
- 4. variety means at the same level of manure = 1.23 ton/ac.

Crop :- Sugarcane. Site :- Zonal Centre, Majhauliia (Lalgarh). Ref:- Bh. 52 (52). Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S.

1. BASAL CONDITIONS:
- (i) (a) Sugarcane—G.M.—Wheat—G.M. (b) Sanai. (c) Nil.
- (ii) (a) Alluvial calcareous. (b) N.A. (iii) 30/31.5.52. (iv) 4 ploughings. (b) Flat planting. (c) 60, 3—budded setts/row. (d) Rows \( \times 3' \) apart.
- (e) — (v) Castor cake 78 md/ac. Time and method of application N.A. (vi) A's per treatments. (vii) N.A. (viii) Nil. (ix) 67.2'. (x) 20.3.53 to 31.3.53.

2. TREATMENTS:
Main-plot treatments:
- 2 varieties: \( V_1 = B0.11 \) and \( V_2 = BO.10 \).
Sub-plot treatments:
- All combinations of (1) and (2) + a Control (No manure).
  1. 2 sources of \( N: S_1 = A/N \) and \( S_2 = A/S \).
  2. 5 levels of \( N: N_1 = 40, N_2 = 80, N_3 = 120, N_4 = 160 \) and \( N_5 = 200 \) lb/ac.
Treatments applied at the time of planting.

3. DESIGN:
- (i) Split plot.
- (ii) (a) 2 main-plots/block : 11 sub-plots/main-plot.
  - (b) N.A. (iii) 4 (iv) (a) 60.5' \( \times 24' \)
  - (b) 60.5' \( \times 18' \).
  - (v) 3' border on either side of width. (vi) Yes.
4. GENERAL:
(i) Average. (ii) Nil. (iii) Tiller count, mature stalk count and sugarcane yield. (iv) (a) 1950—1951. Nil. (b) Na. (c) No. (v) (a) Parsa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 22.80 ton/ac.
(ii) (a) 5.03 ton/ac. (b) 3.784 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>N6S1</th>
<th>N7S1</th>
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<td>23.81</td>
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<td>22.55</td>
<td>22.94</td>
<td>24.57</td>
<td>22.80</td>
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S.E. of difference of two
(1) variety means = 1.084 ton/ac.
(2) manure means = 1.992 ton/ac.
(3) manure means at the same level of variety = 2.676 ton/ac.
(4) variety means at the same level of manure = 2.771 ton/ac.

Crop:—Sugarcane.
Site:—Zonal Centre, Majhaulia.
Ref:—Bh. 50 (32).
Type:—'MV'.

Object:—To compare the effect of A/N with that of A/S in combination with Single Super

1. BASAL CONDITIONS:
(i) (a) Sugarcane—G.M.—Wheat-Sonai—sugarcane. (b) Sonai. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 24/25.1.50. (iv) (a) 4 ploughings. (b) Flat planting. (c) 70 md./ac. (d) Rows 3' apart. (e)...

2. TREATMENTS:
Main-plot treatments:—
2 varieties: V1=BO. 11 and V2=BO.10.
Sub-plot treatments:—
11 doses of manure:
M1 = A/N at 40 lb./ac. of N+Single Super at 50 lb./ac. of P2O5.
M2 = A/S at 40 lb./ac. of N+Single Super at 50 lb./ac. of P2O5.
M3 = A/N at 80 lb./ac. of N+Single Super at 100 lb./ac. of P2O5.
M4 = A/S at 80 lb./ac. of N+Single Super at 100 lb./ac. of P2O5.
M5 = A/N at 120 lb./ac. of N+Single Super at 150 lb./ac. of P2O5.
M6 = A/S at 120 lb./ac. of N+Single Super at 150 lb./ac. of P2O5.
M7 = A/N at 160 lb./ac. of N+Single Super at 200 lb./ac. of P2O5.
M8 = A/S at 160 lb./ac. of N+Single Super at 200 lb./ac. of P2O5.
M9 = A/N at 200 lb./ac. of N+Single Super at 250 lb./ac. of P2O5.
M10 = A/S at 200 lb./ac. of N+Single Super at 250 lb./ac. of P2O5.
M11 = Control (No manure).

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24', (b) 60.5'×18'. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Tiller and no. of mature stalks counted, sugarcane yield. (iv) (a) 1950—1951. (b) No. (c) Nil. (v) (a) Parsa. (b) Nil. (vi) and (vii) Nil.
5. RESULTS:

(i) 19.30 ton/ac.
(ii) (a) 1.05 ton/ac.
(b) 0.69 ton/ac.
(iii) Only main effect of manure is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
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<td>17.03</td>
<td>19.67</td>
<td>20.43</td>
<td>19.44</td>
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<td>20.96</td>
<td>19.89</td>
<td>17.39</td>
<td>19.30</td>
</tr>
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</table>

S.E. of difference of two
1. variety means = 0.22 ton/ac.
2. manure means = 0.35 ton/ac.
3. manure means at the same level of variety = 0.49 ton/ac.
4. variety means at the same level of manure = 0.51 ton/ac.

Crop :- Sugarcane.
Ref :- Bh. 51(43).
Site :- Zonal Centre, Majhaulia (Lalgarh).
Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) Sugarcane-G.M.-Wheat-G.M.-Sugarcane. (b) Nil. (ii) (a) Alluvial calcareous. (b) N.A.
(iii) 8/9.2.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3’ apart. (e) —. (f) Castor cake at 73 md./ac. (vi) As per treatments. (vii) N.A. (viii) Nil. (ix) 46.87°.
(x) 1.2.52.

2. TREATMENTS:
Main-plot treatments :-
2 varieties : V1 = BO. 11 and V2 = CO. 45.
Sub-plot treatments :-
11 doses of manure :
M1 = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P2O5
M2 = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P2O5
M3 = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P2O5
M4 = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P2O5
M5 = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P2O5
M6 = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P2O5
M7 = A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P2O5
M8 = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P2O5
M9 = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P2O5
M10 = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P2O5
M11 = Control (no manure).

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5°×24°. (b) 60.5° × 18”. (v) 3’ border on either side of width. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Nil. (iii) Count of tiller, mature stalk and sugarcane yield. (iv) (a) 1955—1952. (b) No. (c) Nil. (v) (a) Dehri-On-Sone. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 26.34 ton/ac.
(ii) 1.50 ton/ac.
(iii) 1.55 ton/ac.
(iv) None of the effects is significant.
Crop :- Sugarcane.
Site :- Zonal Centre, Majhuala.

Object :- To find out the optimum dose of Ammo. phos to Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 18.2.50. (iv) (a) 4 ploughings by desi plough. (b) Flat planting. (c) 60. three-budded setts/row. (d) Rows 3' apart. (e) — (v) N.A.
   (vii) As per treatments. (viii) Earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 varieties : Vt=BO. 11, V2=BO. 10 and V3=CO. 513.
   (2) 4 doses of manure :
      M0=Control (No manure).
      M1=20 lb./ac. of N + 25 lb./ac. of P2O5
      M2=40 lb./ac. + 50 lb./ac. of P2O5
      M3=60 lb./ac. + 75 lb./ac. of P2O5
   N and P2O5 as Ammo. phos. Manures applied at the time of planting.

3. DESIGN:
   (i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' border along length. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) Sucrose %. no. of mature stalks and sugarcane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Pachrukhi, Harinagar and Dehri-On-Sone. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 14.68 ton/ac.
   (ii) 2.56 ton/ac.
   (iii) Only main effect of variety is highly significant. Other effects are not significant.
   (iv) Av. yield of sugarcane in ton/ac.

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<th>M2</th>
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<td>14.23</td>
<td>14.31</td>
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</table>

S.E. of marginal mean of variety = 0.52 ton/ac.
S.E. of marginal mean of manure = 0.60 ton/ac.
S.E. of body of table = 1.05 ton/ac.
Crop: Gagecane.
Site: Zonal Centre, Majhaulia.

Object: To find out the optimum dose of Ammo. phos. for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Sugarcane—G.M.—Wheat—G.M.—Sugarcane. (b) Soy. (c) Nil. (ii) (a) Alluvial soil. (b) N.A. (iii) 4.2.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) (v) Can a cake at 78 m(2)ac. Time & method of application N.A. (vi) As per treatments. (vii) N.A. (viii) Nil. (ix) 47.1'. (x) 4/5.3.52.

2. TREATMENTS:
   All combinations of (1) & (2)
   (1) 2 Varieties: V1—BO. 11 and V2—BO. 10.
   (2) 5 levels of manures:
   \[ M_0 = 0 \]
   \[ M_1 = 40 \text{ lb/ac. of N, } + 50 \text{ lb/ac. of P}_2O_5 \]
   \[ M_2 = 60 \]
   \[ M_3 = 80 \]
   \[ M_4 = 100 \]

   N and P2O5 as Ammo. phos. Manures applied at the time of planting.

3. DESIGN:
   (i) 2 x 5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5' x 34'. (b) 60.5' x 18'. (v) 3' borde on either side of width. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Count of tillers & mature stalk and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Parsa and Pachru. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 19.23 ton/ac.
   (ii) 4.137 ton/ac.
   (iii) Main effect of levels of manure is significant, while all other effects are not significant.
   (iv) Av. yield of cane in ton/ac.

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<td>19.29</td>
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S.E. of marginal mean of manure = 1.19 ton/ac.
S.E. of marginal mean of Variety = 0.76 ton/ac.
S.E. of body of table = 1.69 ton/ac.
2. TREATMENTS:
Main plot treatments:--
2 Varieties: V₁ = CO. 453 and V₂ = BO. 11.
Sub-plot treatments:--
All combinations of (1) and (2)
(1) 4 levels of N: N₀ = 0, N₁ = 40, N₂ = 80 and N₃ = 120 lb/ac.
(2) 4 levels of P₂₀₅: P₀ = 0, P₁ = 50, P₂ = 100 and P₃ = 150 lb/ac.
N as Castor cake and P₂₀₅ as Single Super. All treatments applied at planting.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block and 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 4'. (b) 60.5' x 18'. (v) One row on either side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of mature stalks and tillers, sucrose %, and cane yield. (iv) (a) 1949—1952. (b) No. (c) NIL. (v) (a) Parsa, Harinagar, Motipur and Motihari. (b) No. (vi) NIL. (vii) Experiments conducted during 1950 not available.

5. RESULTS:
(i) 21.80 ton/ac.
(ii) (a) 9.98 ton/ac.
(b) 4.29 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>N₂</th>
<th>N₃</th>
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S.E. of difference of two.
1. V marginal means = 1.76 ton/ac.
2. N or P marginal means = 1.07 ton/ac.
3. N or P means at the same level of V = 1.52 ton/ac.
4. V means at the same level of N or P = 2.20 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhaulia.
Ref :- Bh. 52(74).
Type :- 'MV'.

Object :- To find out the optimum dose of N and P₂₀₅ alone and in combinations.

1. BASAL CONDITIONS:
(i) (a) Sugarcane-G.M.-Wheat-G.M.-Sugarcane, (b) Sanai. (c) NIL. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 3/4 of 2.52. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded sets/row. (d) Rows 3' apart. (e) —. (v) Castor cake 78 md/ac (vi) As per treatments. (vii) N.A. (viii) N.A (ix) 65.78'. (x) 10.1.53 to 22.1.53.
2. TREATMENTS:

Main-plot treatments:

2 Varieties: \( V_1 = \text{CO. 45} \) and \( V_2 = \text{BO. 11} \).

Sub-plot treatments:

All combinations of (1) and (2).

(1) 4 levels of \( N \) : \( N_0 = 0 \), \( N_1 = 40 \), \( N_2 = 80 \), and \( N_3 = 120 \) lb/ac.

(2) 4 levels of \( P_0 \) : \( P_0 = 0 \), \( P_1 = 50 \), \( P_2 = 100 \) and \( P_3 = 150 \) lb/ac.

N as Castor cake and \( P_0 \) as Single Super. All treatments applied at planting.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block and 16 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 3 border on either side of width. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) No. of mature stalks, tiller count and sugarcane yield. (iv) (a) 1949-1952. (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Motihari and Motipur. (b) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 24.50 ton/ac.

(ii) (a) 13.64 ton/ac.

(b) 28.38 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>( N_0 )</th>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( N_3 )</th>
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S.E. of difference of two

1. V marginal means = 2.16 ton/ac.

2. N or P marginal means = 6.34 ton/ac.

3. V means at the same level of N or P = 8.07 ton/ac.

4. N or P means at the same level of V = 8.97 ton/ac.

5. means in the body of N x P table = 12.69 ton/ac.

Crop: Sugarcane.

Site: Zonal Centre Majhaulia (Lalgarh).

Ref: Bh. 50(33).

Type: 'MV'.

Object: To compare oil cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS:

(i) (a) Sugarcane-G.M.-Wheat-G.M.-Sugarcane. (b) Sawari. (c) Nil. (ii) (a) Allurial calcareous. (b) N.A. (iii) 6.25 lb. (iv) (a) 4 ploughings. (b) Flat planting. (c) 70 md/ac. (d) Rows 3' apart. (e) — (v) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) 39.17'. (x) 9.251 to 20.251.
2. TREATMENTS:

Main-plot treatments:—
2 Varieties: V₁ = BO. 11 and V₂ = BO. 10.

Sub-plot treatments:—
8 doses of manure:
- M₁ = Ammo. phos at 70 lb/ac. of N + Ammo. phos. at 70 lb/ac. of P₂O₅.
- M₂ = A/N at 70 lb/ac. of N + Single Super at 70 lb/ac. of P₂O₅.
- M₃ = Castor cake at 70 lb/ac. of N + Single Super at 70 lb/ac. of P₂O₅.
- M₄ = Mustard cake at 70 lb/ac. of N + Single Super at 70 lb/ac. of P₂O₅.
- M₅ = Linseed cake at 70 lb/ac. of N + Single Super at 70 lb/ac. of P₂O₅.
- M₆ = Mahua cake at 70 lb/ac. of N + Single Super at 70 lb/ac. of P₂O₅.
- M₇ = G.N.C. at 70 lb/ac. of N + Single Super at 70 lb/ac. of P₂O₅.
- M₈ = Control (No manure).

Manures applied at the time of planting.

3. DESIGN:

(i) Split plot. (ii) (a) 2 main-plots/block and 8 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) No. of tillers and no. of mature stalks, and sugarcane yield. (iv) (a) 1950-1953. (b) Nil. (c) No. (v) (a) Pusa. (b) Nil. (vi) Nil. (vii) Experiment conducted in 1951 not available.

5. RESULTS:

(i) 16.15 ton/ac.
(ii) (a) 0.95 ton/ac. (b) 0.68 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>M₄</th>
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S.E. of difference of two
1. variety marginal means = 0.19 ton/ac.
2. manure marginal means = 0.28 ton/ac.
3. manure means at the same level of variety = 0.39 ton/ac.
4. variety means at the same level of manure = 0.41 ton/ac.

Crop :- Sugarcane. Site :- Zonal Centre, Majhaulia.

Ref :- Bh. 52(76). Type :- ‘MV’.

Object :- To compare oil cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) N.A. (c) N.A. (d) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat method of planting. (c) 65 md./ac. (d) 3 rows 3' apart. (e) —. (v) N.A.

2. TREATMENTS:

Main-plot treatments:—
2 varieties: V₁ = BO. 11 and V₂ = CO. 453.

Sub-plot treatments:—
7 doses of manure:
- M₁ = A/N at 60 lb/ac. of N + Single Super at 75 lb/ac. of P₂O₅.
- M₂ = Castor cake at 60 lb/ac. of N + Single Super at 75 lb/ac. of P₂O₅.
- M₃ = Mustard cake at 60 lb/ac. of N + Single Super at 75 lb/ac. of P₂O₅.
- M₄ = Linseed cake at 60 lb/ac. of N + Single Super at 75 lb/ac. of P₂O₅.
- M₅ = Mahua cake at 60 lb/ac. of N + Single Super at 75 lb/ac. of P₂O₅.
- M₆ = G.N.C. at 60 lb/ac. of N + Single Super at 75 lb/ac. of P₂O₅.
- M₇ = Control (No manure).
3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 1 guard row on each side along the length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Height, tiller count no. of mature stalks and sugarcane yield. (iv) (a) 1950-1953. (b) No. (v) N.A. (vi) N.A. (vii) Treatment M7 was not tried.

5. RESULTS:
(i) 24.43 ton/ac. 
(ii) (a) 5.61 ton/ac. (b) 3.00 ton/ac. 
(iii) No effect is significant. 
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>M2</th>
<th>M3</th>
<th>M4</th>
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S.E. of difference of two
1. variety means = 1.62 ton/ac. 
2. manure means = 1.50 ton/ac. 
3. manure means at the same level of variety = 2.12 ton/ac. 
4. variety means at the same level of manure = 2.53 ton/ac.

Crop :- Sugarcane. 
Site :- Zonal Centre, Majhaulia. 
Ref :- Bh. 53(138). 
Type :- 'MV'.

Object: — To compare Oil cakes in combination with Single Super with the standard manure.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat method of planting. (c) 60; three-budded setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (a) N.A.

2. TREATMENTS:
Main-plot treatments: — 
2 varieties : V1=BO. 11 and V2=CO. 453.
Sub-plot treatments: — 
5 doses of manure. 
M1=A.S.N. at 60 lb./ac. of N+Single Super at 75 lb./ac. of P2O5. 
M2=Castor cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P2O5. 
M3=Mustard cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P2O5. 
M4=Linseed cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P2O5. 
M5=Mahua. cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P2O5.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on either side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tiller no., no of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1953. (b) No. (c) N.A. (d) N.A. (e) N.A. (f) & (vii) N.A.
5. RESULTS:

(i) 16.25 ton/ac.
(ii) (a) 3.63 ton/ac.
    (b) 2.34 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>M3</th>
<th>M4</th>
<th>M5</th>
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S.E. of difference of two
1. variety means = 1.15 ton/ac.
2. manure means = 1.17 ton/ac.
3. manure means at the same level of variety = 1.65 ton/ac.
4. variety means at the same level of manure = 1.87 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Majhaulia.
Ref: Bh. 49(28).
Type: ‘MV’.

Object: To find out the response due to different combinations of manures.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous (b) N.A. (iii) N.A. (iv) 4 ploughings.
   (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3’ apart. (e) —. (v) Nil. (vi) As per treatments.
   (vii) N.A. (viii) Hoeing and weeding in general. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   2 varieties: \( V_1 = \text{CO. 453} \) and \( V_2 = \text{BO. 11} \).
   Sub-plot treatments:
   9 doses of manure:
   \( M_1 = \text{Ammo. Phos. at 40 lb./ac. of N+50 lb./ac. of P}_2\text{O}_5 \).
   \( M_2 = \text{A/S at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P}_2\text{O}_5 \).
   \( M_3 = \text{Castor cake+ Ammo. Phos.+Triple Super at 40 lb./ac. of N+50 lb./ac. of P}_2\text{O}_5 \).
   \( M_4 = \text{Mustard cake+ Ammo. phos.+ Triple Super at 40 lb./ac. of N+50 lb./ac. of P}_2\text{O}_5 \).
   \( M_5 = \text{Mustard cake at 40 lb./ac. of N+Triple Super at 50lb./ac. of P}_2\text{O}_5 \).
   \( M_6 = \text{Linseed cake+ Ammo. phos.+Triple Super at 40 lb./ac. of N+50 lb./ac. of P}_2\text{O}_5 \).
   \( M_7 = \text{Linseed cake at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P}_2\text{O}_5 \).
   \( M_8 = \text{Control (no manure)}. \)

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5’x24’.
   (b) 6’x18’. (v) 1 row on either side of width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1949-1953.
   (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) Nil. (vii) Treatments for experiment conducted during 1950 modified.

5. RESULTS:
   (i) 22.86 ton/ac.
   (ii) (a) 0.77 ton/ac.
        (b) 1.63 ton/ac.
   (iii) Main effect of variety alone is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>M₂</th>
<th>M₃</th>
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S.E. of difference of two
1. variety means = 0.18 ton/ac.
2. manure means = 0.81 ton/ac.
3. manure means at the same level of variety = 1.15 ton/ac.
4. variety means at the same level of manure = 0.11 ton/ac.

Crop: Sugarcane

Site: Zonal Centre, Majhaulia.

Object: To find out the response to different combinations of manures.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (d) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by dhand plough. (b) Flat method of planting. (c) 60, three-budded sets/row. (d) Rows 3' apart. (e) Nil. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:—
2 varieties: V₁ = BO. 11 and V₂ = BO. 10.
Sub-plot treatments:—
Manures to give 60 lb/ac. of N+75 lb/ac. of P₂O₅.
M₁ = Ammo. Phos.
M₅ = Mustard cake+Single Super.
M₇ = Linseed cake+Single Super.
M₁₀ = Control (no manure).
Applied as mixture at planting.

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24' with 8 rows 3' apart. (b) 60.5'x18'. with 6 rows 3' apart. (v) One row on either side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tiller no., no. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1943--1953. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) Experiment conducted in 1951. N.A. Modification of treatments after the year 1950.

5. RESULTS:
(i) 20.11 ton/ac.
(ii) (a) 3.73 ton/ac.
(b) 2.98 ton/ac.
(iii) Main effect of variety is highly significant and the interaction V×M is significant. Manure effect is not significant.
(i) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety means = 2.16 ton/ac.
2. manure means = 0.078 ton/ac.
3. manure means at the same level of variety = 0.91 ton/ac.
4. variety means at the same level of manure = 0.83 ton/ac.

Crop :- Sugarcane.
Site : Zonal Centre, Majhaulia. (Lalgarh).
Ref :- Bh. 52(63)
Type :- 'MV'.
Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :
(i) (a) Sanai-Sugarcane-Sanai. (b) Sanai. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 25.1.52. (iv) (a) One ploughing for turning up sanai and 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) Nil. (v) Sanai and F.Y.M. at 8 C.L./ac. (vi) As per treatments. (vii) N.A. (viii) Hoeding, weeding and earthing up. (ix) 66.90°. (x) 14.3.53 to 18.3.53.

2. TREATMENTS :
Main-plot treatments :
2 varieties :- V₁=BO. 10 and V₂=BO. 11.
Sub-plot treatments :
6 manures :-
- M₁=A/S at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅
- M₂=Castor cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅
- M₃=Castor cake at 45 lb./ac. of N+A/S at 15 lb./ac.+Single Super at 75 lb./ac. of P₂O₅
- M₄=Castor cake at 30 lb./c. of N+A/S at 30 lb./ac.+Single Super at 75 lb./ac. of P₂O₅
- M₅=Castor cake at 15 lb./ac. of N+Castor cake at 45 lb./ac.+Single Super at 75 lb./ac. of P₂O₅
- M₆=Control (no manure).

3. DESIGN :
(i) Split-plot. (ii) (a) 2 main-plots/block, and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 60.5'x24'. (b) 60.5'x18'. (v) One row on each side of width (vi) Yes.

4. GENERAL :
(i) Normal. (iii) Nil. (ii) No. of mature stalk, sucrose %, and sugarcane yield. (iv) (a) 1949—1953. (b) No.
(e) Nil. (v) (a) Paras, Motipur and Motihari. (b) Nil. (vi) & (vii), Nil.

5. RESULTS :
(i) 22.28 ton/ac.
(ii) (a) 0.27 ton/ac.
(b) 1.28 ton/ac.
(iii) Varieties differ highly significantly. No other effect is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></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>V₁</td>
<td>19.89</td>
<td>19.38</td>
<td>22.39</td>
<td>21.65</td>
<td>20.77</td>
<td>20.96</td>
<td>20.84</td>
<td></td>
</tr>
<tr>
<td>V₂</td>
<td>21.47</td>
<td>23.60</td>
<td>23.56</td>
<td>24.15</td>
<td>25.32</td>
<td>24.22</td>
<td>23.72</td>
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<tr>
<td>Mean</td>
<td>20.65</td>
<td>21.49</td>
<td>22.98</td>
<td>22.90</td>
<td>23.05</td>
<td>22.59</td>
<td>22.28</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of differences of two
1. variety means = 0.078 ton/ac.
2. manure means = 0.64 ton/ac.
3. manure means at the same level of variety = 0.91 ton/ac.
4. variety means at the same level of manure = 0.83 ton/ac.
Crop :- Sugarcane.
Site :- Zonal Centre, Majhaulia.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS:
   (i) (a) No. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat method of planting. (c) 60 md/ac. (d) Rows 3' apart. (e) N.A. (vi) As per treatments (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments: -
   2 varieties :- V1 = CO. 453 and V2 = BO. 11.
   Sub-plot treatments: -
   6 manures: -
   M1 = A/S at 60 lb/ac. of N+Single Super at 75 lb/ac. of P2O5
   M2 = Castor cake at 60 lb/ac. of N+Single Super at 75 lb/ac. of P2O5
   M3 = Castor cake at 45 lb/ac. of N+ Single Super at 75 lb/ac. of P2O5
   M4 = Castor cake at 30 lb/ac. of N+ Single Super at 75 lb/ac. of P2O5
   M5 = Castor cake at 15 lb/ac. of N+ Single Super at 75 lb/ac. of P2O5
   M6 = Control (no manure).

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield and no. of mature stalks. (iv) (a) 1949—1953. (b) No. (c) Nil. (v) (a) N.A. (b) No. (vi & (vii) Nil.

5. RESULTS:
   (i) 20.52 ton/ac.
   (ii) 4.01 ton/ac.
   (b) 2.01 ton/ac.
   (iii) Only main effect of manure is significant.
   (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.53</td>
<td>19.16</td>
<td>22.37</td>
<td>19.61</td>
<td>22.57</td>
<td>20.09</td>
<td>20.55</td>
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<td>20.44</td>
<td>20.18</td>
<td>21.13</td>
<td>20.46</td>
<td>21.19</td>
<td>18.54</td>
<td>20.49</td>
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<tr>
<td>Mean</td>
<td>19.98</td>
<td>13.67</td>
<td>21.75</td>
<td>20.03</td>
<td>22.38</td>
<td>19.31</td>
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</tbody>
</table>

S.E. of difference of two
1. variety means = 1.16 ton/ac.
2. manure means = 1.00 ton/ac.
3. manure means at the same level of variety = 1.42 ton/ac.
4. variety means at the same level of manure = 1.74 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Object :- To compare the effect of A/N with that of A/S.

BASAL CONDITIONS:
(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (Sanai). (c) 50 lb/ac. of P2O5 as Single Super. (ii) (a) Sandy loam (b) N.A. (iii) 21.2.50. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) —. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing done thrice. (ix) 40.00'. (x) 12.2.51.
2. TREATMENTS:

Main-plot treatments:
- 2 varieties: \( V_1 = \text{BO. 11} \) and \( V_2 = \text{CO. 453} \)

Sub-plot treatments:
- All combinations of (1) and (2) + a control (no manure)
  - (1) 2 sources of N: \( S_1 = A/S \) and \( S_2 = A/N \)
  - (2) 5 levels of N: \( N_1 = 40 \), \( N_2 = 80 \), \( N_3 = 120 \), \( N_4 = 160 \) and \( N_5 = 200 \text{ lb.} / \text{ac.} \)

3. DESIGN:

- (i) Split plot
- (ii) (a) 2 main-plots/replication; 11 sub-plots/main-plot
- (b) 60.5' x 24'
- (v) One row on each side of width.
- (vi) Yes.

4. GENERAL:

- (i) N.A.
- (ii) N.A.
- (iii) No. of tillers, sucrose\% and sugarcane yield
- (iv) 1950-51, 1951-52
- (b) Nil.
- (v) (a) Parsa, Majhaulia and Motipur
- (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

<table>
<thead>
<tr>
<th>Variety</th>
<th>( S_1 N_1 )</th>
<th>( S_1 N_2 )</th>
<th>( S_2 N_1 )</th>
<th>( S_2 N_2 )</th>
<th>( S_2 N_3 )</th>
<th>( S_2 N_4 )</th>
<th>( S_2 N_5 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>15.77</td>
<td>16.46</td>
<td>14.41</td>
<td>18.57</td>
<td>17.10</td>
<td>15.94</td>
<td>15.36</td>
<td>15.80</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>21.14</td>
<td>24.35</td>
<td>17.84</td>
<td>19.12</td>
<td>21.71</td>
<td>21.03</td>
<td>17.74</td>
<td>18.54</td>
</tr>
<tr>
<td>Mean</td>
<td>18.46</td>
<td>22.09</td>
<td>17.15</td>
<td>16.76</td>
<td>20.14</td>
<td>19.06</td>
<td>16.59</td>
<td>16.95</td>
</tr>
</tbody>
</table>

- S.E. of difference of two:
  - 1. variety means: \( = 1.92 \text{ ton/ac.} \)
  - 2. manure means: \( = 2.03 \text{ ton/ac.} \)
  - 3. manure means at the same level of variety: \( = 2.87 \text{ ton/ac.} \)
  - 4. variety means at the same level of manure: \( = 3.35 \text{ ton/ac.} \)

Crop: Sugarcane.
Site: Zonal Centre, Motihari.
Object: To compare the effect of A/N with that of A/S.

1. BASAL CONDITIONS:

- (i) (a) Sanai—Sugarcane—Sanai. (b) Sanai. (c) Nil.
- (ii) (a) Loam. (b) N.A.
- (iii) 24/25.2.51.
- (iv) (a) One ploughing for turning up Sanai and 4 ploughings later on followed by beaming. (b) Flat planting.
- (c) 6', three-budded setts/row. (d) Rows 3' apart. (e) (v) Sanai and F.Y.M. at 8 CL/af. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing done thrice. (ix) 37.40'. (x) 16.3.52 to 18.3.52.

2. TREATMENTS:

Main-plot treatments:
- 2 varieties: \( V_1 = \text{BO. 11} \) and \( V_2 = \text{CO. 453} \)

Sub-plot treatments:
- All combinations of (1), (2) + a control (no manure)
  - (1) 2 sources of N: \( S_1 = A/S \) and \( S_2 = A/N \)
  - (2) 5 levels of N: \( N_1 = 40 \), \( N_2 = 80 \), \( N_3 = 120 \), \( N_4 = 160 \) and \( N_5 = 200 \text{ lb.} / \text{ac.} \)

3. DESIGN:

- (i) Split plot
- (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot
- (b) N.A.
- (iii) 4.
- (iv) (a) 60.5' x 24'
- (b) 60.5' x 18'.
- (v) One row on each side of width.
- (vi) Yes.
4. GENERAL:
   (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose%, sugarcane yield. (iv) (a) 1950-51, 1951-52. (b) No. (c) Nil. (v) (a) Majhaulia, Parra, and Harinagar. (vi) and (vii) Nil.

5. RESULTS:
   (i) 20.98 ton/ha.
   (ii) (a) 1.08 ton/ha. (b) 1.79 ton/ha.
   (iii) Only main-plot treatments differ highly significantly.
   (iv) Av. yield of cane in ton/ha.

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>S1N1</th>
<th>S1N2</th>
<th>S2N1</th>
<th>S2N2</th>
<th>S3N1</th>
<th>S3N2</th>
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<tr>
<td>V1</td>
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<td>18.38</td>
<td>18.22</td>
<td>17.47</td>
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<td>17.85</td>
<td>27.71</td>
<td>27.11</td>
</tr>
<tr>
<td>V2</td>
<td>24.81</td>
<td>27.58</td>
<td>25.28</td>
<td>22.71</td>
<td>27.53</td>
<td>24.47</td>
<td>23.77</td>
<td>23.53</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. variety means 0.23 ton/ha.
2. manure means 0.89 ton/ha.
3. manure means at the same level of variety 1.27 ton/ha.
4. variety means at the same level of manure 1.23 ton/ha.

Crop :- Sugarcane.  
Ref :- Bh. 52(53).  
Site :- Zonal Centre, Motihari.  
Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S with Single Super.

1. BASAL CONDITIONS:
   (i) (a) G.M.-Sugarcane-G.M. (b) Soma as G.M. (c) 50 lb./ac. of P2O5 as Single Super. (ii) (a) Sandy loam.  
   (b) N.A. (iii) N.A. (iv) (a) Once ploughed to turn up Soma and 4 more ploughings by Bihar plough. (b) Flat planting.  
   (c) 60, three budded setts/row. (d) Rows 3' apart. (e) Nil. (v) Soma as G.M. and F.Y.M.  
   (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings and 3 weedings. (ix) 50.01'. (x) 12/13.3.5.

2. TREATMENTS:
   Main-plot treatments —
   2 varieties :- BO. 11 and V4:=CO. 453.
   Sub-plot-treatments —
   11 doses of manure :
   M1 = A/N at 40 lb./ac. of N+n-Single Super at 80 lb./ac. of P2O5.
   M2 = A/S at 40 lb./ac. of N+n-Single Super at 80 lb./ac. of P2O5.
   M3 = A/N at 80 lb./ac. of N+n-Single Super at 100 lb./ac. of P2O5.
   M4 = A/S at 80 lb./ac. of N+n-Single Super at 100 lb./ac. of P2O5.
   M5 = A/N at 120 lb./ac. of N+n-Single Super at 150 lb./ac. of P2O5.
   M6 = A/S at 120 lb./ac. of N+n-Single Super at 150 lb./ac. of P2O5.
   M7 = A/N at 160 lb./ac. of N+n-Single Super at 200 lb./ac. of P2O5.
   M8 = A/S at 160 lb./ac. of N+n-Single Super at 200 lb./ac. of P2O5.
   M9 = A/N at 200 lb./ac. of N+n-Single Super at 250 lb./ac. of P2O5.
   M10=A/S at 200 lb./ac. of N+n-Single Super at 250 lb./ac. of P2O5.
   M11=Control (no manure).

3. DESIGN:
   (i) (a) Split-plot (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One guard row along the length on both sides.  
   (vii) Yes.

4. GENERAL:
   (i) Normal. (ii) No major pest. (iii) No. of tillers, mature stalk, sucrose% and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Majhaulia, Dehri-on-Sone. (b) Nil. (vi) & (vii) Nil.
RESULTS:
(i) 16.97 ton/ac.
(ii) (a) 10.94 ton/ac.
(b) 3.89 ton/ac.
(iii) Only main effect of manure is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>$M_1$</th>
<th>$M_2$</th>
<th>$M_3$</th>
<th>$M_4$</th>
<th>$M_5$</th>
<th>$M_6$</th>
<th>$M_{10}$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
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<td>16.94</td>
<td>14.46</td>
<td>15.83</td>
<td>15.62</td>
<td>14.87</td>
<td>15.86</td>
<td>15.15</td>
<td>16.90</td>
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<tr>
<td>$V_2$</td>
<td>21.72</td>
<td>16.60</td>
<td>15.33</td>
<td>18.73</td>
<td>17.80</td>
<td>13.49</td>
<td>14.58</td>
<td>23.96</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. variety means = 2.33 ton/ac.
2. manure means = 1.94 ton/ac.
3. manure means at the same level of variety = 2.75 ton/ac.
4. variety means at the same level of manure = 3.51 ton/ac.


Crop: Sugarcane.
Site: Zonal Centre, Motihari.
Ref: Bh. 53(144).
Type: 'MV'.
Object: To compare the effect of A/N and A/S in combination with Super.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) Nil. (d) Sandy loam (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing (b) Flat method. (c) 65 md/ac. (d) rows 3' apart. (e) Nil. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   2 varieties: $V_1$ = BO. 11 and $V_2$ = CO. 453.
   Sub-plot treatments:
   11 doses of manure:
   $M_1$ = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_2$ = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_3$ = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_4$ = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_5$ = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_6$ = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_7$ = A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_8$ = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_9$ = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_{10}$ = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P<sub>2</sub>O<sub>5</sub>.
   $M_{11}$ = Control (no manure).

3. DESIGN:
   (i) Split plot. (ii) (a) 2 main-plots/replication ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/40 ac. (v) 1 row on either side. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Case yield, number of mature stalks, height, and juice content. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Majhaulia, Dehri-on-Sone. (b) Nil. (vii) Nil.

5. RESULTS:
   (i) 12.01 ton/ac.
   (ii) (a) 10.43 ton/ac.
   (b) 2.79 ton/ac.
   (iii) None of the effects is significant.
Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
<th>M7</th>
<th>M8</th>
<th>M9</th>
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<td>11.85</td>
<td>10.86</td>
<td>14.60</td>
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<td>10.80</td>
<td>12.92</td>
<td>11.28</td>
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<td>9.27</td>
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<tr>
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<td>12.08</td>
<td>11.92</td>
<td>11.39</td>
<td>11.06</td>
<td>12.34</td>
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<td>11.99</td>
<td>11.01</td>
<td>12.07</td>
<td>10.30</td>
<td>12.01</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. variety means = 2.22 ton/ac.
2. manure means = 1.39 ton/ac.
3. manure means at the same level of variety = 1.97 ton/ac.
4. variety means at the same level of manure = 2.91 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Motihari.
Object: To find the optimum dose of N and P₂O₅.

1. BASAL CONDITIONS:
   (i) (a) G.M.-Sugarcane-G.M. (b) Sanai. (c) 50 lb/ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) 24.25 to 26.25. (iv) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) G.M. (Sanai) and 100 md/ac. of F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings and earthing. (ix) 40.00'. (x) 2.35 to 6.35.

2. TREATMENTS:
   Main-plot treatments:—
   2 Varieties: — V₁=CO. 453 and V₂=BO. 11.
   Sub-plot treatments:—
   All combinations of (1) & (2)
   (1) 4 levels of N:— N₀=0, N₁=40, N₂=80, and N₃=120 lb/ac.
   (2) 4 levels of P₂O₅:— P₀=0, P₁=50, P₂=100 and P₃=150 lb/ac.
   N as Castor cake and P₂O₅ as Single Super.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block; 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24', (b) 60.5'×18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) No. of tillers, sucrose %, and sugarcane yield. (iv) (a) 1550-57. (b) No. (c) Nil. (v) (a) Parsa and Harinagar. (b) Nil. (vi) (v) Nil.

5. RESULTS:
   (i) 28.35 ton/ac.
   (ii) (a) 6.45 ton/ac.
   (b) 5.69 ton/ac.
   (iii) Main-plot treatments differ highly significantly. Others are not significant.
(iv) Av. yield of cane in ton/ac.

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S.E. of difference of two
2. N or P means = 1.42 ton/ac.
3. N or P means at the same level of V = 2.01 ton/ac.
4. V means at the same level of N or P = 2.08 ton/ac.
S.E. of body of N x P table = 2.01 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Motihari.
Object: To find out the response to different combinations of manures.

1. BASAL CONDITIONS:
(i) (a) Sanai—Sugarcane—Sanai. (b) Sugarcane followed by Sanai (c) 50 lb/ac. of P₂O₅ as Single Super. for Sanai (ii) (a) Alluvial calcareous. (b) N.A. (iii) February planting. (iv) (a) One ploughing for up-turning Sanai followed by 4 more ploughings. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—(v) Sanai as G.M. and 10 C.L.ac. of F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoings, weeding and earthing. (ix) 50.01°. (x) 19.2.1953.

2. TREATMENTS:
Main-plot treatments:
- 2 varieties — V₁ = CO. 453 and V₂ = BO. 11.
Sub-plot treatments:
- Manures:
  1. A/S at 60 lb/ac. of N + Single Super at 75 lb/ac. of P₂O₅
  2. Castor cake at 60 lb/ac. of N + Single Super at 75 lb/ac. of P₂O₅
  3. Castor cake at 45 lb/ac. of N + A/S at 15 lb/ac. of N + Single Super at 75 lb/ac.
  5. Castor cake at 15 lb/ac. of N + A/S at 45 lb/ac. of N + Single Super at 75 lb/ac.
  6. Control (no manure).

3. DESIGN:
(i) Split-plot (ii) (a) 2 main-plots/block; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL:
(i) No lodging. (ii) Nil. (iii) No of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) Parsa, Motipur and Majhaulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 19.45 ton/ac.
(ii) (a) 0.76 ton/ac. (b) 0.76 ton/ac.
(iii) None of the effects is significant.
Object: To compare the effect of Oilcakes in combination with Single Super on the yield of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Saini—Sugarcane—Saini. (b) Saini as green manure. (c) 50 lb./ac. of P\textsubscript{2}O\textsubscript{5} as Single Super.
   (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) One ploughing for turning of Saini, 4 more ploughings by direct plough, (b) Flat planting. (c) 70 cm. (d) Rows 3' apart. (e) —. (v) Saini as G.M. and F.Y.M. (amount N.A.) (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings and 3 weedings.
   (ix) N.A. (x) N.A.

TREATMENTS:
Main-plot treatments:
2 varieties: V\textsubscript{1} = BO. 11 and V\textsubscript{2} = CO. 453.

Sub-plot treatments:
1. A/N + Single Super at 60 lb./ac. of N+75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
2. Castorcake + Single Super at 60 lb./ac. of N+75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
3. Mustardcake + Single Super at 60 lb./ac. of N+75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
4. Linseedcake + Single Super at 60 lb./ac. of N+75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
5. G.N.C. + Single Super at 60 lb./ac. of N+75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
6. Control (no manure).

DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One guard row along the length on both side. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) No. of tillers and mature stalks, sucrose % and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Pachrukhi and Harinagar. (b) Nil. (vi) & (vii) Nil.

RESULTS:
(i) 12.91 ton/ac.
(ii) (a) 7.25 ton/ac.
(b) 3.48 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

### Av. Yield of Cane in ton/ac.

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S.E. of difference of two
1. variety means = 0.22 ton/ac.
2. manure means = 0.37 ton/ac.
3. manure means at the same level of variety = 1.22 ton/ac.
4. variety means at the same level of manure = 1.14 ton/ac.

Crop: Sugarcane.  
Site: Zonal Centre, Motihati.  
Type: 'MV'.  
Ref: Bh. 53(129).
Crop : Sugarcane.  
Site : Zonal Centre, Motihari.  

Object : To find out the optimum dose of A/N.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sanai as G.M. (c) 50 lb/ac. P<sub>2</sub>O<sub>5</sub> as Single super.
   (ii) (a) Alluvial calcareous. (b) —. (iii) 22/32.50. (iv) (a) One ploughing for turning up Sanai and 4 ploughings for preparation of land,
   (b) Flat planting. (c) About 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Sanai as G.M. and F.Y.M. before planting at 10 C.L./ac. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing up. (ix) 40.6" (x) 22.2.51 to 28.2.51.

2. TREATMENTS :
   Main-plot treatments :—
   2 varieties : V<sub>1</sub>=CO. 453 and V<sub>2</sub>=BO. 11.
   Sub-plot treatments :
   11 levels of N as A/N : N<sub>0</sub>=0, N<sub>1</sub>=40, N<sub>2</sub>=80, N<sub>3</sub>=120, N<sub>4</sub>=160, N<sub>5</sub>=200, N<sub>6</sub>=280, N<sub>7</sub>=320, N<sub>8</sub>=350 and N<sub>9</sub>=400 lb/ac.

3. DESIGN :
   (i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 1 row on each side along length. (vi) Yes.

4. GENERAL :

5. RESULTS :
   (i) 16.34 ton/ac.
   (ii) (a) 0.44 ton/ac.
   (b) 0.59 ton/ac.
   (iii) Only main-plot treatments differ significantly.
   (iv) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety means = 0.00 ton/ac.
2. manure means = 0.29 ton/ac.
3. manure means at the same level of variety = 0.42 ton/ac.
4. variety means at the same level of manure = 0.41 ton/ac.

Crop :- Sugarcane.  
Site : Zonal Centre, Motihari.  

Object : To find out the optimum dose of A/N.

1. BASAL CONDITIONS :
   (i) (a) G.M. (Sanai). (b) Sanai as G.M. (c) 50 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Single super. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by dahi plough. (b) Flat planting (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Sanai as G.M. and F.Y.M. (amount N.A.) (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing up. (ix) 37.08'. (x) 14 to 16 March 52.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: V₁ = CO. 453 and V₂ = BO. 11.
(2) 11 levels of N as A/N: N₀ = 0, N₁ = 40, N₂ = 80, N₃ = 120, N₄ = 160, N₅ = 200, N₆ = 240, N₇ = 280, N₈ = 320, N₉ = 360 and N₁₀ = 400 lb./ac.

3. DESIGN:
(i) 2 x 11 Fact. in R.B.D. (ii) (a) 22. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 1 guard row along length on both sides. (vi) Yes.

4. GENERAL:
(i) No lodging. (ii) N.A. (iii) Sucrose%, no. of matured stalks and sugarcane yield. (iv)(a) 1950—51 to 1952—1953. (b) No. (c) Nil. (v) (a) Parsa, Harinagar, and Majbaulia. (c) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 22.46 ton/ac.
(ii) 5.01 ton/ac.
(iii) Variety effect is highly significant while no other effect is significant.
(iv) Av. yield of sugarcane in ton/ac./N ₀ N₁ N₂ N₃ N₄ N₅ N₆ N₇ N₈ N₉ N₁₀ Mean
V₁ 28.89 30.11 27.44 26.60 25.01 26.88 28.63 26.80 25.56 28.33 25.98 27.29
V₂ 18.23 21.36 14.33 19.82 14.98 18.55 18.26 15.31 17.96 18.66 16.27 17.63
Mean 23.57 25.74 20.88 23.21 19.94 22.8 23.43 21.06 21.76 23.49 21.12 22.46

S.E. of marginal mean of manures = 1.77 ton/ac.
S.E. of marginal mean of varieties = 0.6 ton/ac.
S.E. of body of table = 2.51 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.
Object :- To find out the optimum dose of A/N.

1. BASAL CONDITIONS:
(i) (a) G.M.—Sugarcane—G.M. (b) Sanai as G.M. (c) 50 lb./ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) February 1952. (iv) (a) 4 ploughings by deshi ploughs. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Sanai and F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) 3 times hoeings and weedings were done. (ix) 50.0. (x) 7.2.53 to 11.2.53.

2. TREATMENTS:
Main-plot treatments:—
2 varieties: V₁ = CO. 453 and V₂ = BO. 11.

Sub-plot treatments:—
10 levels of N as A/N: N₀ = 0, N₁ = 40, N₂ = 80, N₃ = 120, N₄ = 160, N₅ = 200, N₆ = 240, N₇ = 280, N₈ = 320, and N₁₀ = 360 lb./ac.

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 10 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 1 guard row along the length on both sides. (vi) Yes.

4. GENERAL:
(i) No major pest. (ii) No. of tillers and mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Maihaulia and Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 18.50 ton/ac.
(ii) (a) 5.84 ton/ac.
(b) 4.47 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety means = 1.31 ton/ac.
2. manure means = 2.23 ton/ac.
3. manure means at the same level of variety = 3.16 ton/ac.
4. variety means at the same level of manure = 3.27 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Motihari.
Ref: Bh. 52(86)
Type: 'MV'.

Object: To compare the effect of different OIlcakes in combination with Super.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) NIL. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:—
2 varieties: V₁ = BO. 11 and V₂ = CO. 453.
Sub-plot treatments:—
1. A/Na + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
2. Castor cake + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
3. Mustard cake + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
4. Linseed cake + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
5. G.N.C. + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
6. Mohwa cake + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/replication; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/40th acre. (v) 1 row on either side. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Sugarcane yield, no. of mature stalks and juice content. (iv) (a) 1952-1953. (b) N.A. (c) N.A. (d) (a) N.A. (b) N.A. (c) N.I. (d) N.I.

5. RESULTS:
(i) 12.68 ton/ac.
(ii) (a) 7.38 ton/ac.
(b) 3.49 ton/ac.
(iii) No effect is significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety marginal means = 2.13 ton/ac.
2. manure marginal means = 1.74 ton/ac.
3. manure means at the same level of variety = 2.47 ton/ac.
4. variety means at the same level of manure = 3.10 ton/ac.
Crop :- Sugarcane.
Site :- Zonal Centre, Mothiari.

Ref :- Bh. 53 (45).
Type :- 'MV'.

Object :- To study the response to different combinations of manures on different varieties of Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) 6 ploughings and harrowing.
   (b) Flat method. (c) 65 md. / ac. (d) Rows 3' apart. (e) As per treatments. (vi) Irrigated.
   (vii) Hoeing and weeding. (a) N.A. (x) N.A.

2. TREATMENTS :
   Main-plot treatments :-
   2 varieties : V1= CO. 453 and V2 = BO. 11.
   Sub-plot treatments :-
   1. A/S + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5.
   2. Castorcake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5.
   3. Castorcake + Single Super at 45 lb./ac. of N + 75 lb./ac. of P2O5 + A/S at 15 lb./ac. of N
   4. Castorcake + Single Super at 30 lb./ac. of N + 75 lb./ac. of P2O5 + A/S at 30 lb./ac. of N
   5. Castorcake + Single Super at 15 lb./ac. of N + 75 lb./ac. of P2O5 + A/S at 45 lb./ac. of N
   6. Control (no manure).

3. DESIGN :
   (i) Split plot. (ii) (a) 2 main-plots/sub-replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b)
   1/40th acre. (v) 1 row on either side. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Sugarcane yield, no. of mature stalks and juice content. (iv) (a) 1952—1953. (b) No.
   (c) N.A. (v) (a) N.A. (b) No. (vi) and (vii) Nil.

5. RESULTS :
   (i) 14.52 ton/ac.
   (ii) (a) 1.93 ton/ac.
   (b) 2.46 ton/ac.
   (iii) Variety effect is highly significant. Sub-plot treatments differ significantly.
   (iv) Av. yield of sugarcane in ton/ac.

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<td>16.16</td>
<td>19.32</td>
<td>17.86</td>
<td>18.83</td>
<td>16.18</td>
<td>14.70</td>
<td>17.18</td>
</tr>
<tr>
<td>V2</td>
<td>11.52</td>
<td>12.41</td>
<td>12.46</td>
<td>12.68</td>
<td>12.71</td>
<td>9.33</td>
<td>11.85</td>
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<tr>
<td>Mean</td>
<td>13.84</td>
<td>15.87</td>
<td>15.16</td>
<td>15.76</td>
<td>14.45</td>
<td>13.02</td>
<td>14.52</td>
</tr>
</tbody>
</table>

S.E. of difference of two
   1. variety means = 0.56 ton/ac.
   2. manure means = 1.23 ton/ac.
   3. manure means at the same level of variety = 1.74 ton/ac.
   4. variety means at the same level of manure = 1.66 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motipur.

Ref :- Bh. 50 (28).
Type :- 'MV'.

Object :- To find out the optimum dose of Ammonia for Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by drift plough.
   (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) As per treatments. (vi) N.A. (vii) Earthing and weeding. (a) N.A. (x) N.A.
2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 varieties = V₁ = BO and V₂ = CO: 4.53

(2) 5 levels of manures:

M₀ = Control (no manure).

M₁ = 40 lb./ac of N and 50 lb./ac of P₂O₅.
M₂ = 60 lb./ac of N and 75 lb./ac of P₂O₅.
M₃ = 80 lb./ac of N and 100 lb./ac of P₂O₅.
M₄ = 100 lb./ac of N and 125 lb./ac of P₂O₅.

N and P₂O₅ as Ammo, Phos. Manures applied at the time of planting.

3. DESIGN:

(i) 2 x 5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' on either side along length. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) Sucrose%, no. of mature stalks and sugarcane yield. (iv) (v) 1950—1953. (b) No. (c) Nil. (v) (a) Pachrukhi and Dehri-on-Sone. (b) Nil. (vi) Nil. (vii) Experiment was not conducted during 1952.

5. RESULTS:

(i) 16.72 ton/ac.

(ii) 4.34 ton/ac.

(iii) Main effects of variety and manure are highly significant. Interaction is not 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>
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<td>11.64</td>
<td>15.01</td>
<td>17.08</td>
<td>22.15</td>
<td>17.70</td>
<td>16.72</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of variety = 0.79 ton/ac.

S.E. of marginal mean of manure = 1.25 ton/ac.

S.E. of body of table = 1.77 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motipur.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane

Ref :- Bh. 51 (40).
Type 'MV'.
4. GENERAL:

(i) N.A. (ii) Sucrose%, no. of matured stalks and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Parsa, Majhaulia and Dehri-on-Sone. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 N.A. Experiment conducted during 1953 is under Type 'M'. at Ref. 53 (139).

5. RESULTS:

(i) 20.71 ton/ac.
(ii) 6.13 ton/ac.
(iii) Only interaction is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
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<th>M3</th>
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<td>20.00</td>
<td>14.25</td>
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<td>V2</td>
<td>18.35</td>
<td>19.33</td>
<td>23.06</td>
<td>23.67</td>
<td>21.16</td>
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<tr>
<td>Mean</td>
<td>19.91</td>
<td>22.76</td>
<td>21.53</td>
<td>18.96</td>
<td>20.39</td>
</tr>
</tbody>
</table>

S.E. of marginal means of manure =1.77 ton/ac.
S.E. of marginal means of variety =1.13 ton/ac.
S.E. of body of table =2.50 ton/ac.

Crop : Sugarcane.
Site : Zonal Centre, Motipur.
Ref : Bh. 51 (52). Type :- 'MV'.

Object :- To find out the optimum dose of N and P2O5 for Sugarcane.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) (a) Alluvial (non-calcareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:

Main-plot treatments:
2 varieties: V1 = CO. 453 and V2 = BO. 11.
Sub-plot treatments:
All combinations of (1) and (2)
(1) 4 levels of N : N2 = 0, N1 = 40, N0 = 80, and N2 = 120 lb./ac.
(2) 4 levels of P2O5 : P0 = 0, P1 = 50, P2 = 100 and P3 = 150 lb./ac.
N as Castor cake and P2O5 as Single Super. Manures applied at the time of planting.

3. DESIGN:

(i) Split plot. (ii) (a) 2 main-plots/block; 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24', (b) 60.5' x 18'. (v) One outer row of 3' on each side of width. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) Harinagar, Motihari and Dehri-on-Sone. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 is under category 'M'.

RESULTS:

(i) 21.85 ton/ac.
(ii) 1.02 ton/ac.
(b) 1.13 ton/ac.
(iii) Main effect of N alone is significant.
(iv) Av. yield of sugarcane in ton/ha.

<table>
<thead>
<tr>
<th></th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
<th>Mean</th>
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<th>P1</th>
<th>P2</th>
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<td>21.98</td>
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<tr>
<td>Mean</td>
<td>21.81</td>
<td>20.46</td>
<td>22.73</td>
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<td>21.85</td>
<td>21.61</td>
<td>21.28</td>
<td>22.91</td>
<td>21.60</td>
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</table>

S.E. of difference of two
1. V means = 0.18 ton/ha.
2. N or P means = 0.28 ton/ha.
3. V means at the same level of N or P = 0.39 ton/ha.
4. N or P means at the same level of V = 0.40 ton/ha.

Crop: Sugarcane.
Site: Zonal Centre, Pachrukhi.
Ref: Bh. 49(19).
Type: 'MV'.

Object: To find out the optimum requirements of N and P for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Sugarcane. (b) G.M. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 25/26. 2.1969.
   (iv) (a) 4 ploughings (b) Line sowing. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) — (v) Nil.
   (vi) As per treatments. (vii) Irrigated. (viii) Two intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations (1) and (2)
   (1) 2 varieties:—V1 = CO. 453 and V2 = BO. 11.
   (2) 7 levels of manures:—
   M1 = 40 lb./ac. of N + 50 lb./ac. of P2O5 as Ammon. Phos.
   M2 = 60 lb./ac. of N + 75 lb./ac. of P2O5 as Ammon. Phos.
   M3 = 40 lb./ac. of N + 50 lb./ac. of P2O5 as Castor cake + Triple Super.
   M4 = 60 lb./ac. of N + 75 lb./ac. of P2O5 as Castor cake + Triple Super.
   M5 = 40 lb./ac. of N + 50 lb./ac. of P2O5 as A/S + Triple Super.
   M6 = 60 lb./ac. of N + 75 lb./ac. of P2O5 as A/S + Triple Super.
   M7 = Control (no manure).
   Manures applied at the time of planting.

3. DESIGN:
   (i) 2x7 Fact. in R.B.D. (ii) (a) 14. (b) 14/30th acre. (iii) 4. (iv) (a) 60.5'x24', (b) 60.5'x18'. (v) 3' border
   on either side of width. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Sugarcane yield, no. of mature stalks. (iv) (a) No. (b) No. (c) None. (v) (a)
   Motihari. (b) N.A. (vi) & (vii) Nil.

5. RESULTS:
   (i) 17.22 ton/ha.
   (ii) 2.70 ton/ha.
   (iii) All the effects are highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
<th>M₄</th>
<th>M₅</th>
<th>M₆</th>
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<td>V₂</td>
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<td>14.21</td>
<td>12.66</td>
<td>12.76</td>
<td>10.86</td>
<td>10.60</td>
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<tr>
<td>Mean</td>
<td>16.42</td>
<td>19.76</td>
<td>18.51</td>
<td>17.77</td>
<td>17.47</td>
<td>16.75</td>
<td>12.88</td>
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</table>

S.E. of marginal mean of manure = 0.95 ton/ac.
S.E. of marginal mean of variety = 0.51 ton/ac.
S.E. of body of table = 1.35 ton/ac.

Crop :-Sugarcane.
Site :-Zonal Centre, Pachrukhi.

Object :-To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS:
(i) (a) G.M.—Sugarcane—G.M. (b) Sanai as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 7.3.1949. (iv) (a) 4 ploughings. (b) Line planting. (c) 60, three budded setts/row length-wise. (d) Rows 3' apart. (e) —. (v) Castor cake 6 md./ac. + Single Super 3 md./ac. + A/S 1 md./ac. before planting + A/S 1.5 md./ac. at the time of earthing up. (vi) As per treatments. (vii) Irrigated. (viii) 3 intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 varieties: V₁ = BO. I I, V₂ = CO. 453 and V₃ = 00. 511.
(2) 4 doses of manure:
M₀ = Control (no manure)
M₁ = 20 lb./ac. of N and 25 lb./ac. of P₂O₅
M₂ = 40 lb./ac. of N and 50 lb./ac. of P₂O₅
M₃ = 60 lb./ac. of N and 75 lb./ac. of P₂O₅

N and P₂O₅ as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN:
(i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) 12/30th ac. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' border on each side of width. (vi) Yes.

4. GENERAL:
(i) Fair. (ii) Nil. (iii) Cane yield, no. of mature stalk and sucrose %. (iv) (a) 1949—contd. (b) No. (c) Nil. (v) Parsa, Majhaulia. (b) No. (vi) Nil. (vii) Treatments modified for experiments conducted in 1950 and 1951.

5. RESULTS:
(i) 9.58 ton/ac.
(ii) 3.37 ton/ac.
(iii) Main effect of variety is highly significant while that of manure is significant. Interaction is not 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>
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<tbody>
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<td>V₁</td>
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<td>7.05</td>
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<td>9.75</td>
<td>15.41</td>
<td>14.75</td>
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<td>13.35</td>
</tr>
<tr>
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<td>11.24</td>
<td>6.75</td>
<td>9.30</td>
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<tr>
<td>Mean</td>
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<td>11.24</td>
<td>8.89</td>
<td>10.24</td>
<td>9.58</td>
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</table>

S.E. of marginal mean of variety = 0.69 ton/ac.
S.E. of marginal mean of manure = 0.79 ton/ac.
S.E. of body of table = 1.36 ton/ac.

Ref :-Bh. 49(28).
Type :-'MV'.
Crop :- Sugarcane.
Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 50(22).
Type :-‘MV’.

Object — To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS:
   (1) (a) G.M.—Sugarcane—G.M. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 27/28.2.1950. (iv) (a) Burying Sanai by one disc plough, (later) 2 ploughings. (c) Line planting. (d) N.A. (d) Rows 3’ apart. (e) —. (f) Castor cake 6 md./ac. + Single Super 3 md./ac. + A/S 1 md./ac. at planting time and 1.5 md./ac. of A/S at the time of earthing up. (v) As per treatments. (vi) N.A. (vii) N.A. (viii) 3 intercultures. (ix) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V1 = BO. 11 and V2 = CO. 453.
   (2) 5 levels of manures:
       M0 = Control (no manure).
       M1 = 40 lb./ac. of N and 50 lb./ac. of P2O5.
       M2 = 60 lb./ac. of N and 75 lb./ac. of P2O5.
       M3 = 80 lb./ac. of N and 100 lb./ac. of P2O5.
       M4 = 100 lb./ac. of N and 125 lb./ac. of P2O5.

3. DESIGN:
   (i) 2 x 5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5’ x 24’. (b) 60.5’ x 18’. (v) 3’ border on each side of width. (vi) Yes.

4. GENERAL:
   (i) Fair. (ii) Nil. (iii) Sugarcane yield, no. of tillers and mature stalks. (iv) (a) 1949—contd. (b) No. (c) Nil. (v) (a) Parsa, Mot.hari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 14.37 ton/ac.
   (ii) 2.78 ton/ac.
   (iii) Only main effect of variety is highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<th></th>
<th>M0</th>
<th>M1</th>
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<td>13.13</td>
<td>13.28</td>
<td>17.04</td>
<td>17.21</td>
<td>14.37</td>
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</table>

S.E. of marginal mean of variety = 0.51 ton/ac.
S.E. of marginal mean of manure = 0.80 ton/ac.
S.E. of body of table = 1.13 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 81(29).
Type :-‘MV’.

Object — To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS:
   (1) (a) G.M.—Sugarcane-G.M. (b) Sanai as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 24.2.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 63. three—budded sets/row. (d) Rows 3’ apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 intercultures, weedings etc. (ix) N.A. (x) N.A.
7. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: \( V_1 = BO \) and \( V_2 = CO \).
(2) 5 levels of manures:
\[ \begin{align*}
M_0 & = \text{Control (no manure).} \\
M_1 & = 40 \text{ lb./ac. of N + 50 lb./ac. of } P_2O_5 \\
M_2 & = 60 \text{ lb./ac. of N + 75 lb./ac. of } P_2O_5 \\
M_3 & = 80 \text{ lb./ac. of N + 100 lb./ac. of } P_2O_5 \\
M_4 & = 100 \text{ lb./ac. of N + 125 lb./ac. of } P_2O_5 \\
\end{align*} \]
N and \( P_2O_5 \) as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN:
(i) \( 2 \times 5 \) Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5' \times 24'. (b) 60.5' \times 18'. (x) 3' border on either side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Cane yield. (iv) (a) 1949—contd. (b) No. (c) Nil. (v) (a) Dehri-on-Sone, Majharia and Panchrukhi. (b) No. (vi) Nil. (vii) Experiments conducted during 1952 and 1953 could not be traced.

5. RESULTS:
(i) 11.24 ton/ac.
(ii) 4.19 ton/ac.
(iii) Only main effect of varieties is highly significant.
(iv) Av. yield of cane in ton/ac.
\[\begin{array}{cccccc}
\text{M} & \text{M} & \text{M} & \text{M} & \text{M} & \text{Mean} \\
V_1 & 7.52 & 9.16 & 7.44 & 8.35 & 10.75 & 8.68 \\
V_2 & 13.94 & 12.16 & 13.74 & 13.94 & 15.18 & 13.79 \\
\text{Mean} & & 10.73 & 10.66 & 10.59 & 11.24 \\
\end{array}\]
S.E. of marginal mean of variety \( = 0.76 \) ton/ac.
S.E. of marginal mean of manure \( = 1.21 \) ton/ac.
S.E. of body of table \( = 1.71 \) ton/ac.

Crop: Sugarcane.  
Site: Zonal Centre, Panchrukhi.  
Ref: Bh. 52(51).  
Type: 'MV'.

Object:—To compare the effect of Cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS:
(i) G.M.-Sugarcane-G.M. (b) G.M. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 2.2.1952. (iv) (a) Once ploughed to upturn Sanai and later on ploughed 4 times. (b) Flat planting. (c) 60, three budded sets/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings, 3 weedings and earthings. (ix) 36.1'. (x) 7.2.1953.

2. TREATMENTS:
Main-plot treatments:—
2 varieties: \( V_1 = BO \) and \( V_2 = CO \).
Sub-plot treatments:—
Manures to supply 60 lb./ac. of N + 75 lb./ac. of \( P_2O_5 \)
5. Control (no manure).
Manures applied at the time of planting.

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' \times 24'. (b) 60.5' \times 18'. (v) One row on each side of width. (vi) Yes.
4. **GENERAL**:
   (i) N.A. (ii) N.A. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Harinsagar, Parsa and Majhaulia. (b) Nil. (vi) Nil. (vii) Treatments changed and increased for experiment conducted during 1553.

5. **RESULTS**:
   (i) 15.04 ton/acre.
   (ii) (a) 8.81 ton/acre.
   (b) 4.68 ton/acre.
   (iii) None of the effects is significant.
   (iv) Av. yield of cane in ton/acre.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</tr>
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<tbody>
<tr>
<td>V1</td>
<td>10.91</td>
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<td>11.88</td>
<td>16.92</td>
<td>9.77</td>
<td>12.83</td>
</tr>
<tr>
<td>V2</td>
<td>23.70</td>
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<td>19.04</td>
</tr>
<tr>
<td>Mean</td>
<td>17.31</td>
<td>16.87</td>
<td>17.13</td>
<td>17.01</td>
<td>11.37</td>
<td>15.94</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. variety means = 2.79 ton/acre.
2. manure means = 2.34 ton/acre.
3. manure means at the same level of variety = 3.31 ton/acre.
4. variety means at the same level of manure = 4.96 ton/acre.

Crop :- Sugarcane.

Site :- Zonal Centre, Pachrukhi.

Object :- To compare the effect of Oil cakes in combination with Single Super against standard manures.

1. **BASAL CONDITIONS**:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam (calcareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat method. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. **TREATMENTS**:
   Main-plot treatments :-
   2 varieties: V1=BO, 11 and V2=CO, 453.
   Sub-plot treatments :-
   1. A.S.N + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
   2. Castorcake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
   3. Mustardcake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
   4. Linseedcake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
   5. Mahusake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
   6. G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
   7. Control (no manure).

Manures applied at the time of planting.

3. **DESIGN**:
   (i) Split-plot. (ii) (a) 2 main-plots/blocks ; 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on either side of width. (vi) Yes.

4. **GENERAL**:
   (i) N.A. (ii) N.A. (iii) Tiller count, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1953-1953. (b) No. (c) Nil. (v) (a) Parsa, Majhaulia and Motihari. (b) No. (vi) & (vii) Nil.

5. **RESULTS**:
   (i) 10.78 ton/acre.
   (ii) (a) 3.50 ton/acre.
   (b) 1.86 ton/acre.
   (iii) None of the effects is significant.
Crop: Sugarcane.  
Site: Zonal Centre, Pachrukhi.  

Object: To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Sugarcane—G.M. (b) Jowar as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A.  
   (iii) 27.4.1951. (iv) (a) 4 ploughings. (b) First planting. (c) 60, three budded setts/row. (d) Rows 3' apart.  
   (e) —. (v) Castor cake 6 md./ac. + Single Super 3 md./ac. + A/S 3 md./ac. (vi) As per treatments.  
   (vii) Unirrigated. (viii) 2 intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments: —
   2 varieties: V1 = CO. 453 and V2 = BO. 11.
   Sub-plot treatments: —
   11 levels of N as A/N: N0 = 0, N1 = 40, N2 = 80, N3 = 120, N4 = 160, N5 = 200, N6 = 240, N7 = 280, N8 = 320, N9 = 360 and N10 = 400 lb./ac.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) 22/30 ac. (iii) 4. (iv) (a) 60.5' x 24'.  
   (b) 60.5' x 18'. (v) 3' border on each side of width. (vi) No.

4. GENERAL:
   (i) N.A. (ii) Nil. (iii) Cane yield. (iv) (a) 1951-1955. (b) N.A. (c) Nil. (v) (a) Motihari, Majhaulia and Motipur. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 11.83 ton/ac.
   (ii) 0.32 ton/ac.
   (b) 0.76 ton/ac.
   (iii) Main effect of variety and interaction “variety x manure” are significant. Manure effect is not significant.  
   (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
<th>N5</th>
<th>N6</th>
<th>N7</th>
<th>N8</th>
<th>N9</th>
<th>N10</th>
<th>Mean</th>
</tr>
</thead>
</table>

S.E. of difference of two
1. variety means = 0.07 ton/ac.
2. manure means = 0.38 ton/ac.
3. variety means at the same level of manure = 0.52 ton/ac.
4. manure means at the same level of variety = 0.54 ton/ac.
Crop: Sugarcane.  
Site: Zonal Centre, Pachruki.  
Object: To find the optimum dose of AIN for Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Sandy loam.  (b) N.A.  (iii) N.A.  (iv) 4 ploughings by deshi plough.  (b) Flat method.  (c) 60 md./ac.  (d) Rows 3’ apart.  (e) —.  (iv) N.A.  (vi) As per treatments.  (vii) N.A.  (viii) Hoeing, weeding and earthing.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
Main-plot treatments: 
- 2 varieties: V1 = CO. 453 and V2 = BO. 11.

Sub-plot treatments: 
- All combinations of (1), (2) + a Control (no manure).

3. DESIGN:
(i) Split plot.  (ii) (a) 2 main-plots/replication; 11 sub-plots/main-plot.  (b) N.A.  (iii) 4.  (iv) (a) 60.5’ x 24’.  (b) 60.5’ x 18’.  (v) One row on either side of width.  (vi) Yes.

4. GENERAL:
(i) N.A.  (ii) N.A.  (iii) Tiller no., no. of mature stalks, sucrose % and sugarcane yield.  (iv) (a) 1951–1955.  (b) No.  (c) Nil.  (v) (a) No.  (b) Nil.  (vi) Nil.  (vii) Experiment conducted during 1953 could not be traced.

5. RESULTS:
(i) 12.93 ton/ac.
(ii) (a) 5.14 ton/ac.  (b) 3.10 ton/ac.
(iii) Only main effect of variety is highly significant.

<table>
<thead>
<tr>
<th>N_0</th>
<th>N_1</th>
<th>N_2</th>
<th>N_3</th>
<th>N_4</th>
<th>N_5</th>
<th>N_6</th>
<th>N_7</th>
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<tr>
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<td>19.05</td>
<td>20.16</td>
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<td>15.89</td>
<td>14.33</td>
<td>15.24</td>
<td>17.26</td>
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</tbody>
</table>

S.E. of difference of two:
1. variety means
2. manure means
3. manure means at the same level of variety
4. variety means at the same level of manure

Crop: Sugarcane.  
Site: Zonal Centre, Parsa.  
Object: To compare the effect of A/N with that of A/S on the yield of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Alluvial calcareous.  (b) N.A.  (iii) N.A.  (iv) (a) 4 times ploughed by deshi plough.  (b) Flat planting.  (c) 60, three budded setts/row.  (d) Rows 3’ apart.  (e) —.  (v) N.A.  (vi) As per treatments.  (vii) Unirrigated.  (viii) Hoeing, weeding and earthing.  (ix) N.A.  (x) N.A.

2. TREATMENTS:
Main-plot treatments:
- 2 varieties: V1 = BO. 11 and CO. 453.

Sub-plot treatments: 
- All combinations of (1), (2) + a Control (no manure).

(1) 2 sources of N: S1 = A/N and S2 = A/S.
(2) 5 levels of N: N1 = 40, N2 = 80, N3 = 120, N4 = 160 and N5 = 200 lb./ac.
3. DESIGN:

(i) Split plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on either side of length. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) Nil. (iii) No of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1953. (b) No. (c) Nil. (v) (a) Motipur and Majhaulia. (b) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 18.99 ton/ac.
(ii) (a) 3.63 ton/ac. (b) 1.64 ton/ac.
(iii) Main effect of variety is highly significant, while that of manure and interaction are significant.
(iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>Variety</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
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<th>N6</th>
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<td>14.58</td>
<td>14.30</td>
<td>11.00</td>
</tr>
<tr>
<td>Mean</td>
<td>19.97</td>
<td>17.78</td>
<td>18.61</td>
<td>17.93</td>
<td>18.93</td>
<td>18.54</td>
<td>19.53</td>
<td>17.92</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. variety means = 1.09 ton/ac.
2. manure means = 1.16 ton/ac.
3. manure means at the same level of variety = 1.64 ton/ac.
4. variety means at the same level of manure = 1.91 ton/ac.

Crop: Sugarcane. Site: Zonal Centre, Parsa. Ref: Bh. 51(44). Type: MV.

Objective: To compare the effect of A/N with that of A/S on the yield of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A. (c) N.A. (i) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) - (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:

Main-plot treatments: —
2 varieties: V1=BO. 11 and V2=CO. 453.

Sub-plot treatments: —
All combinations of (1), (2) + a Control (no manure).

(i) 2 sources of N: S1=A/N and S2=A/S.
(ii) 5 levels of N: N1=40, N2=80, N3=120, N4=160 and N5=200 lb/ac.

3. DESIGN:

(i) Split plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) No of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1955-1953. (b) No. (c) Nil. (v) (a) Motihari, Harinagar and Majhaulia. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 not traceable.

5. RESULTS:

(i) 14.98 ton/ac.
(ii) (a) 1.50 ton/ac. (b) 1.72 ton/ac.
(iii) None of the effects is significant.
### Object:
To compare the effect of A/N with that of A/S on the yield of Sugarcane.

#### 1. BASAL CONDITIONS:
- (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Calcareous alluvium. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

#### 2. TREATMENTS:
**Main-plot treatments:**
- 2 varieties: V1 = BO. 111 and V2 = CO. 453.

**Sub-plot treatments:**
- All combinations of (1), (2) + a Control (no manure).
- (1) 2 sources of N: S1 = A/N and S2 = A/S.
- (2) 5 levels of N: N1 = 40, N2 = 80, N3 = 120, N4 = 160 and N5 = 200 lb./ac.

#### 3. DESIGN:
- (i) Split plo. (ii) (a) 2 main-plots/block, 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on either side along length. (vi) Yes.

#### 4. GENERAL:
- (i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose%, and sugarcane yield. (iv) (a) 1950-1953 (b) No. (c) Nil. (v) (a) Dehri-on-Sone. (b) Nil. (vi) & (viii) Nil.

#### 5. RESULTS:
- (i) 7.30 ton/ac.
- (ii) (a) 4.47 ton/ac.
- (b) 1.83 ton/ac.
- (iii) None of the effects is significant.
- (iv) Av. yield of cane in ton/ac.

<table>
<thead>
<tr>
<th>V1</th>
<th>S1N1</th>
<th>S2N1</th>
<th>S1N2</th>
<th>S2N2</th>
<th>S1N3</th>
<th>S2N3</th>
<th>S1N4</th>
<th>S2N4</th>
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<td>15.03</td>
<td>15.63</td>
<td>11.35</td>
<td>15.21</td>
<td></td>
<td>13.43</td>
</tr>
</tbody>
</table>

**S.E. of difference of two**
- 1. variety means = 0.32 ton/ac.
- 2. manure means = 0.86 ton/ac.
- 3. manure means at the same level of variety = 1.22 ton/ac.
- 4. variety means at the same level of manure = 1.21 ton/ac.
Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Object :- To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) N.A. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) --. (v) 8 C.L./ac. of F.Y.M. (vi) As per treatments. (vii) N.A. (viii) Hoeing, earthing and weeding once. (ix) N.A. (x) N.A.

2. TREATMENTS :
Main-plot treatments :-
2 varieties : V1=BO. II and V2=CO. 45. Sub-plot treatments :-
11 levels of N as A/N : N0 =0, N1 =40, N2 =80, N3 =120, N4 =160, N5 =200, N6 =240, N7 =280, N8 =320, N9 =360 and N10 =400 lb/ac.
Manures applied before sowing.

3. DESIGN :
(i) (a) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL :
(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Motihari, Harinagar, Majhaulia, and Pachrulchi. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :
(i) 12.34 ton/ac.
(ii) (a) 2.68 ton/ac.
(iii) None of the effects is significant.
(iv) Av yield of cane in ton/ac.

<table>
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</tr>
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<td>N2</td>
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</tr>
<tr>
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<td>12.18</td>
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<tr>
<td>N4</td>
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</tr>
<tr>
<td>N10</td>
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<td>10.71</td>
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</table>

S.E. of difference of two
1. variety means = 0.57 ton/ac.
2. manure means = 0.61 ton/ac.
3. manure means at the same level of variety = 0.86 ton/ac.
4. variety means at the same level of manure = 0.99 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Object :- To find out the optimum doses of A/N for Sugarcane.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) --. (v) 8 C.L./ac. of F.Y.M. at 9 C.L./ac. (vi) As per treatments. (vii) N.A. (viii) Hoeing, earthing and weeding. (ix) N.A. (x) N.A.
2. TREATMENTS:

Main-plot treatments:
- 2 varieties: \( V_1 = 0 \) and \( V_2 = 453 \).

Sub-plot treatments:
- 11 levels of \( N \) as \( A/N \):
  - \( N_0 = 0 \), \( N_1 = 40 \), \( N_2 = 80 \), \( N_3 = 120 \), \( N_4 = 160 \), \( N_5 = 200 \), \( N_6 = 240 \), \( N_7 = 280 \), \( N_8 = 320 \), \( N_9 = 360 \), and \( N_{10} = 400 \) lb/ac.

3. DESIGN:

(i) Split plot. (ii) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Pachrukhi, Harinagar, Majhaulia, Dehri-on-Sone and Motihari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 16.67 ton/ac.
(ii) (a) 1.37 ton/ac.
(b) 1.82 ton/ac.
 iii) None of the effects is significant.
(iv) Av. yield of cane in ton/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>( N_5 )</th>
<th>( N_6 )</th>
<th>( N_7 )</th>
<th>( N_8 )</th>
<th>( N_9 )</th>
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<td>14.59</td>
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<td>( V_2 )</td>
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<td>15.83</td>
<td>17.56</td>
<td>21.54</td>
<td>16.67</td>
</tr>
</tbody>
</table>

S.E. of difference of two:
1. variety means = 0.29 ton/ac.
2. manure means = 0.91 ton/ac.
3. manure means at the same level of variety = 1.29 ton/ac.
4. variety means at the same level of manure = 1.26 ton/ac.

Crop :: Sugarcane.
Site :: Zonal Centre, Parsa.

Object :: To find out the optimum dose of \( A/N \) for Sugarcane.

Ref :: Bh. 52(71).
Type :: 'MV'.
4. GENERAL:
(i) Good. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Harinagar, Motihari, Motipur, Pachrukhi and Dehri-on-Sone. (b) No. (vi) & (vii) Nil.

5. RESULTS:
(i) 19.34 ton/ac. 
(ii) (a) 9.23 ton/ac. (b) 2.89 ton/ac. 
(iii) Variety effect and interaction variety x manure are highly significant. Manure effect is not significant. 
(iv) Av. yield of cane in ton/ac.

<table>
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Mean 17.63 20.06 18.29 20.20 19.69 16.58 20.38 20.83 18.15 20.64 20.11 19.34

S.E. of difference of two
1. variety means = 1.97 ton/ac.
2. manure means = 1.45 ton/ac.
3. manure means at the same level of variety = 2.04 ton/ac.
4. variety means at the same level of manure = 2.77 ton/ac.

Crop: Sugarcane.  
Site: Zonal Centre, Parsa.  
Ref: Bh. 59(25).  
Type: 'MV'.

Object: To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by desi plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—(v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main plot treatments:—
2 varieties := V1=BO. 11 and V2=CO. 453.
Sub plot treatments:—

|M | A/N at 40 lb/ac. of N+Single Super at 50 lb/ac. of P105 |
| M2 | A/S at 40 lb/ac. of N+Single Super at 50 lb/ac. of P105 |
| M3 | A/N at 80 lb/ac. of N+Single Super at 100 lb/ac. of P105 |
| M4 | A/S at 80 lb/ac. of N+Single Super at 100 lb/ac. of P105 |
| M5 | A/N at 120 lb/ac. of N+Single Super at 150 lb/ac. of P105 |
| M6 | A/S at 120 lb/ac. of N+Single Super at 150 lb/ac. of P105 |
| M7 | A/N at 160 lb/ac. of N+Single Super at 200 lb/ac. of P105 |
| M8 | A/S at 160 lb/ac. of N+Single Super at 200 lb/ac. of P105 |
| M9 = A/S at 200 lb/ac. of N+Single Super at 250 lb/ac. of P105 |
| M10 | Control (no manure).

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) Majhaulia and Dehri-on-Sone. (b) Nil. (vi) & (vii) Nil.
5. RESULTS:
(i) 18.29 ton/ac.
(ii) (a) 6.22 ton/ac.
(b) 4.02 ton/ac.
(iii) Only main effect of variety is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>M₆</th>
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S.E. of difference of two
1. variety means = 1.33 ton/ac.
2. manure means = 2.01 ton/ac.
3. manure means at the same level of variety = 2.64 ton/ac.
4. variety means at the same level of manure = 3.02 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Parsa.
Ref: Bh. 49(22).
Type: 'MV'.

Object: To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deathi plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Reap 2' apart. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 varieties: V₁ = BO. 11, V₂ = CO. 433 and V₃ = CO. 513.
(2) 4 doses of manure:
M₀ = Control (no manure).
M₁ = 20 lb./ac. of N + 25 lb./ac. of P₂O₅.
M₂ = 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
M₃ = 50 lb./ac. of N + 75 lb./ac. of P₂O₅.
N and P₂O₅ as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN:
(i) 3 x 4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949—1950. (b) N.A. (c) Nil. (v) (a) Harinagar, Pachrukbi and Majhaulia. (b) Nil. (vi) Nil. (vii) Experiment in 1950 continued with certain modifications in treatments.

5. RESULTS:
(i) 16.47 ton/ac.
(ii) 2.77 ton/ac.
(iii) Main effect of variety is highly significant while that of manure is not significant. Interaction is significant.
CROP: Sugarcane.

SITE: Zonal Centre, Parsa.

OBJECT: To find the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 1' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: \( V_1 = \text{BO. 11} \) and \( V_2 = \text{CO. 453} \)
   (2) 5 levels of manure:
       - \( M_0 = \text{Control (no manure).} \)
       - \( M_1 = 40 \text{ lb./ac. of } N + 50 \text{ lb./ac. of } P_2O_5 \)
       - \( M_2 = 60 \text{ lb./ac. of } N + 75 \text{ lb./ac. of } P_2O_5 \)
       - \( M_3 = 80 \text{ lb./ac. of } N + 100 \text{ lb./ac. of } P_2O_5 \)
       - \( M_4 = 100 \text{ lb./ac. of } N + 125 \text{ lb./ac. of } P_2O_5 \)

N and \( P_2O_5 \) as Ammo. Phos. Manure applied at the time of planting.

3. DESIGN:
   (i) 2 x 5 Factorial in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949–1950. (b) No. (c) Nil. (v) (a) Harinagar, Pachrukhi and Majhaulia. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 17.85 ton/ac.
   (ii) 3.28 ton/ac.
   (iii) Only main effect of variety is highly significant.
   (iv) Av. yield of cane in ton/ac.

<table>
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<th>( M_0 )</th>
<th>( M_1 )</th>
<th>( M_2 )</th>
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S.E. of marginal mean of variety = 0.57 ton/ac.
S.E. of marginal mean of manure = 0.65 ton/ac.
S.E. of body of table = 1.13 ton/ac.
Crop: Sugarcane.  
Site: Zonal Centre, Parsa.

Object: To find out the optimum dose of N and P\textsubscript{2}O\textsubscript{5}.

1. **BASAL CONDITIONS:**
   (i) (a) N.A.  (b) N.A.  (c) N.A.  (ii) (a) Alluvial calcareous.  (b) N.A.  (iii) N.A.  (iv) (a) 4 ploughings by deshi plough.  (b) Flat planting.  (c) 60, three budded setts/row.  (d) Rows 3' apart.  (e) N.A.  (vi) As per treatments.  (vii) N.A.  (viii) Hoeing, weeding and earthing.  (ix) N.A.  (x) N.A.

2. **TREATMENTS:**
   All combinations of (1) and (2)
   (1) 2 varieties: \( V_1 = CO. 433 \) and \( V_2 = BO.11 \)
   (2) 7 doses of manures:
      - \( M_1 = 40 \text{ lb./ac. of N + 50 lb./ac. of P}_2\text{O}_5 \) as Amm. Phos.
      - \( M_2 = 60 \text{ lb./ac. of N + 75 lb./ac. of P}_2\text{O}_5 \) as Amm. Phos.
      - \( M_3 = 40 \text{ lb./ac. of N + 50 lb./ac. of P}_2\text{O}_5 \) as Castor cake + Triple Super.
      - \( M_4 = 60 \text{ lb./ac. of N + 75 lb./ac. of P}_2\text{O}_5 \) as Castor cake + Triple Super.
      - \( M_5 = 40 \text{ lb./ac. of N + 50 lb./ac. of P}_2\text{O}_5 \) as A/S + Triple Super.
      - \( M_6 = 60 \text{ lb./ac. of N + 75 lb./ac. of P}_2\text{O}_5 \) as A/S + Triple Super.
      - \( M_7 = \text{Control (no manure).} \)

Manures applied at the time of planting.

3. **DESIGN:**
   (i) \( 2 \times 7 \) Fact. in R.B.D.  (ii) (a) 14.  (b) N.A.  (iii) 4.  (iv) (a) 60.5'x24'.  (b) 60.5'x18'.  (v) One row on each side along length.  (vi) Yes.

4. **GENERAL:**
   (i) N.A.  (ii) N.A.  (iii) No. of mature stalks, sucrose % and sugarcane yield.  (iv) (a) No.  (b) No.  (c) No.  (v) (a) None.  (b) No.  (vi) and (vii) Nil.

5. **RESULTS:**
   (i) 22.81 ton/ac.
   (ii) 1.76 ton/ac.
   (iii) Main effect of variety is highly significant while that of manure is not significant. Interaction is significant.
   (iv) Av. yield of cane in ton/ac.

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<th>( M_3 )</th>
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S.E. of marginal mean of variety = 0.33 ton/ac.
S.E. of marginal mean of manure = 0.63 ton/ac.
S.E. of body of table = 0.88 ton/ac.
2. TREATMENTS:

Main-plot treatments:
2 varieties: V1=CO. 453 and V2=BO. 11.

Sub-plot treatments:
All combinations of (1) and (2)
(1) 4 levels of N: \(N_0=0, N_1=40, N_2=80, \text{and } N_3=120 \text{ lb./ac.}\)
(2) 4 levels of \(P_0=0, P_1=50, P_2=100\), and \(P_3=150 \text{ lb./ac.}\)
N as Castor cake and \(P_0\) as Single Super. Matures applied at the time of planting.

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 21'.
(b) 60.5' x 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) N.A. (iv) (a) 1949–1953. (b) Nil. (c) Nil. (d) (v) Yes. (vi) and (vii) Nil.

5. RESULTS:
(i) 17.91 ton/ac.
(ii) (a) 12.11 ton/ac.
(b) 11.69 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

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S.E. of difference of two
2. N or P means =2.92 ton/ac.
3. N or P means at the same level of V =4.13 ton/ac.
4. V means at the same level of N or P =4.37 ton/ac.
S.E. of body of N x P table =4.74 ton/ac.

Crop :-Sugarcane.
Site :-Zonal Centre, Parsa.
Object :-To find out the optimum dose of N and \(P_0\).

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (d) Alluvial calcarous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments.
(vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments:
2 varieties: \(V_1\)=CO. 453 and \(V_2\)=BO. 11.
Sub-plot treatments:
All combinations of (1) and (2)
(1) 4 levels of N: \(N_0=0, N_1=40, N_2=80, \text{and } N_3=120 \text{ lb./ac.}\)
(2) 4 levels of \(P_0=0, P_1=50, P_2=100\), and \(P_3=150 \text{ lb./ac.}\)
N as Castor cake and \(P_0\) as Single Super.

Ref :-Bh. 51(58).
Type :-'MV'.
3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Case yield, no. of mature stalks and juice content. (iv) (a) 1949—1953. (b) Yes. (c) N.A. (v) (a) Motipur and Harmangar. (b) N.A. (vi) and (vii) N.A.

5 RESULTS:
(i) 16.36 ton/ac.
(ii) (a) 5.17 ton/ac.
(ii) 4.23 ton/ac.
(iii) Main effect of variety alone is significant.
(iv) (a) 1949-1953.
(b) Yes. (c) Nil. (v) (a) Motipur and Harinagar. (b) N.A. (vi) and (vii) Nil.

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<th>N₂</th>
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S.E. of difference of two
1. V means = 0.91 ton/ac.
2. N or P means = 1.06 ton/ac.
3. N or P means at the same level of V = 1.50 ton/ac.
4. V means at the same level of N or P = 1.99 ton/ac.
5. S.E. of body of N x P table = 1.70 ton/ac.

Crop :-Sugarcane.  
Site :- Zonal Centre, Parsa.  
Ref :- Bh. 53(142).  
Type :- 'MV'.

Object :- To find out the optimum dose of N and P.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat method. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments —
2 varieties : V₁—CO. 453 and V₂=BO. 11.
Sub-plot treatments —
All combinations of (1) and (2) 
(1) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb/ac.
(2) 4 levels of P₀₂ : P₀=0, P₁=50, P₂=100 and P₃=150 lb/ac.
N as A/S and P₀₂ as Single Super. Manures applied at the time of planting.

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 16 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on either side along length. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tiller count, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) N.A. (vii) Experiment for the year 1949 and 1952 under category 'M'.

5. RESULTS:
(i) 9.63 ton/ac.
(ii) (a) 2.91 ton/ac.
(b) 2.77 ton/ac.
(iii) Only main effect of N is highly significant.
(iv) Av. yield of cane in ton/ac.

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S.E. of difference of two
1. V means
2. N or P means
3. N or P means at the same level of V
4. V means at the same level of N or P
S.E. of body of N x P table

---

Crop: Sugarcane.  Ref: Bk. 50(30).
Site: Zonal Centre, Parsa.  Type: 'MV'.

Object:—To compare the effect of Oil cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) N.A. (i) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by harrowing. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding, and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments —
2 varieties: V1=BO. 11 and V2=CO. 453.
Sub-plot treatments —
1. A/N + Single Super at 60 lb/ac. of N+75 lb/ac. of P2O5.
2. Castor cake + Single Super at 60 lb/ac. of N+75 lb/ac. of P2O5.
3. Mustard cake + Single Super at 60 lb/ac. of N+75 lb/ac. of P2O5.
4. Linseed cake + Single Super at 60 lb/ac. of N+75 lb/ac. of P2O5.
5. G.N.C. + Single Super at 60 lb/ac. of N+75 lb/ac. of P2O5.
6. Mahua cake + Single Super at 60 lb/ac. of N+75 lb/ac. of P2O5.
7. Ammo. Phos. at 60 lb/ac. of N+ at 75 lb/ac. of P2O5.
8. Control (no manure).

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block; 8 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 1 row on each side along length. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1953. (b) No.
(c) Nil. (v) (a) Majhaulia and Motihari. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1951 not traceable.

5. RESULTS:
(i) 15.48 ton/ac.
(ii) (a) 0.53 ton/ac.
(b) 0.97 ton/ac.
(iii) Main effects of variety and manure are highly significant. Interaction is not significant.
(iv) Av. yield of cane in ton/ac.

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S.E. of difference of two
1. variety means =0.11 ton/ac.
2. manure means =0.40 ton/ac.
3. manure means at the same level of variety =0.56 ton/ac.
4. variety means at the same level of manure =0.54 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.
Type :- 'MV'.

Object :- To compare the effect of Oilcakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments :-
2 varieties: V1=BO. 11 and V2=CO. 453.
Sub-plot treatments :-
7 manures:
1. A/N at 60 lb./ac. of N + Single Super at 75 lb./ac. of P2O5.
2. Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5.
3. Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5.
4. Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5.
5. G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5.
6. Mahua cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5.
7. Control (no manure).

Note: Treatments 6 and 7 were subsequently dropped.

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block, 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24' (b) 60.5'x18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tiller count, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Motihari and Majhaulia. (b) N.A. (vi) Nil. (vii) Experiment conducted with 3 treatments only.
5. RESULTS:

(i) 18.29 ton/ac.
(ii) (a) 5.75 ton/ac.
(b) 3.36 ton/ac.
(iii) Only main effect of manure is significant.
(iv) Av. yield of cane in ton/ac.

\[
\begin{array}{cccccc}
1 & 2 & 3 & 4 & 5 & \text{Mean} \\
\hline
V_1 & 18.46 & 21.17 & 21.81 & 18.64 & 17.52 & 19.52 \\
V_2 & 18.83 & 15.75 & 22.13 & 16.85 & 11.75 & 17.06 \\
\hline
\text{Mean} & 18.65 & 18.46 & 21.97 & 17.75 & 14.64 & 18.29 \\
\end{array}
\]

S.E. of difference of two
1. variety means
2. manure means
3. manure means at the same level of variety
4. variety means at the same level of manure

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.
Object :- To compare the effect of Oilcakes in combination with Super against standard manures.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing and beaming. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) --. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
Main-plot treatments :-
2 varieties : V_1 = BO. 11 and V_2 = CO. 453.

Sub-plot treatments :-
7 manures :
1. A.S.N. at 60 lb./ac. of N + Single Super at 75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
2. Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
3. Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
4. Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
5. G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
6. Mahua cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P\textsubscript{2}O\textsubscript{5}.
7. Control (no manure).

3. DESIGN:
(ii) Split-plot. (ii) (a) 2 main-plots/block ; 7 sub-plots/main-plot. (b) [N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and tillers. (iv) (a) 1950—1953. (b) No. (c) No. (v) (a) N.A. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 7.99 ton/ac.
(ii) (a) 6.74 ton/ac.
(b) 1.48 ton/ac.
(iii) None of the effects is significant.
(iv) Avg. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety means = 1.80 ton/ac.
2. manure means = 0.74 ton/ac.
3. manure means at the same level of variety = 1.05 ton/ac.
4. variety means at the same level of manure = 2.05 ton/ac.

---

Crop: Sugarcane.
Site: Zonal Centre, Parsa.

Ref: Bh. 50(45).
Type: 'MV'.

Object: To find out the response to different combinations of manures.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing and beaming. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) — (v) N.A. (vi) Hoeing and weeding. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:
   - 2 varieties: V1 = CO. 453 and V2 = BO. 11.

   Sub-plot treatments:
   - 11 manures:
     - M1 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M2 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M3 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M4 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M5 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M6 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M7 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M8 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M9 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M10 = A.M. Phos. + Super at 60 lb./ac. of N and 75 lb./ac. of P2O5
     - M11 = Control (no manure).

3. DESIGN:
   (i) Split-plot. (ii) 2 main-plots/replication; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and juice content. (b) (a) 1950—1955. (b) No. (c) No. (v) N.A. (b) No. (vii) Nil. (vii) Experiment conducted during 1951 N.A.

5. RESULTS:
   (i) 20.01 ton/ac.
   (ii) (a) 3.960 ton/ac.
   (b) 2.825 ton/ac.
   (iii) Main effect of varieties and interaction of varieties x manures are significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety means
2. manure means
3. manure means at the same level of variety
4. variety means at the same level of manure

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.
Ref :- Bh. 52 (85).
Type :- 'MV'.

Object :- To find out the response due to different combinations of manures.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing each once. (ix) N.A. (x) N.A.

2. TREATMENTS :
   Main-plot treatments :-
   2 varieties: V1 = CO. 453 and V2 = BO. 11
   Sub-plot treatments :-
   6 manures :-
   1. A/S at 60 lb./ac. of N + Single Super at 75 lb./ac. of P2O5
   2. Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5
   3. Castor cake + Single Super at 45 lb./ac. of N + 75 lb./ac. of P2O5 + A/S at 15 lb./ac. of N
   4. Castor cake + Single Super at 30 lb./ac. of N + 75 lb./ac. of P2O5 + A/S at 30 lb./ac. of N
   5. Castor cake + Single Super at 15 lb./ac. of N + 75 lb./ac. of P2O5 + A/S at 45 lb./ac. of N
   6. Control (No manure)

Manures applied at the time of planting.

3. DESIGN :
   (i) Split-plot. (ii) (a) 2 main-plots/block; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5’ x 24’ (b) 60.5’ x 18’. (v) One row on each side along length. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Majhaulia, Motihari and Motipur. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :
   (i) 17.29 ton/ac.
   (ii) (a) 1.08 ton/ac.
   (b) 0.88 ton/ac.
   (iii) Only main effect of manures is significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety means =0.31 ton/ac.
2. manure means =0.44 ton/ac.
3. manure means at the same level of variety =0.62 ton/ac.
4. variety means at the same level of manure =0.64 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Ref :- Bh. 53 (141).
Type :- ‘MV’.

Object :- To find out the response due to different combinations of manures.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by deshi plough. (b) Flat method. (c) 60 md/ac. (d) Rows 3' apart. (e) -. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments :
   2 varieties : V_1=BO. 10 and V_2=BO. 21
   Sub-plot treatments :
   6 manures :
   1. A/S at 60 lb./ac. of N+Single Super at 75 lb./ac. of P_{2}O_{5},
   2. Castor cake + Single Super at 60 lb./ac. of N+75 lb./ac. of P_{2}O_{5},
   3. Castor cake + Single Super at 45 lb./ac. of N+75 lb./ac. of P_{2}O_{5}, +A/S at 15 lb./ac. of N
   4. Castor cake + Single Super at 30 lb./ac. of N+75 lb./ac. of P_{2}O_{5}, +A/S at 30 lb./ac. of N
   5. Castor cake + Single Super at 15 lb./ac. of N+75 lb./ac. of P_{2}O_{5}, +A/S at 45 lb./ac. of N
   6. Control (no manure)

3. DESIGN :
   (i) Split-plot. (ii) (a) 2 main-plots/block ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5’×24’, with 8 rows 3’ apart. (b) 60.5’×18’ with 6 rows 3’ apart. (v) One row on either side along length. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS:
   (i) 10.90 ton/ac.
   (ii) (a) 0.46 ton/ac.
   (b) 2.06 ton/ac.
   (iii) Main effect of variety alone is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety means
2. manure means
3. manure means at the same level of variety
4. variety means at the same level of manure

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.
Ref :- Bh. 50(2).
Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) None. (b) Fallow. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 4 to 6.2.50. (iv) (a) to (e) N.A. (v) No. (vi) As per treatments. (vii) Irrigated. (viii) hoeing and earthing. (ix) 40.02'. (x) 5.2.51 to 20.2.51.

2. TREATMENTS :
   All combinations of (1) & (2)
   (1) 2 varieties :- V₁=BO. 11 & V₂=CO. 453.
   (2) 5 levels of manure:
       M₀=Control (no manure).
       M₁= 40 lb/ac. of N and 50 lb/ac. of P₂O₅
       M₂= 60 lb/ac. of N and 75 lb/ac. of P₂O₅
       M₃= 80 lb/ac. of N and 100 lb/ac. of P₂O₅
       M₄=100 lb/ac. of N and 125 lb/ac. of P₂O₅.

N and P₂O₅ as Ammo. Phos.

3. DESIGN :
   (i) 2 x 5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 24'x60.5'. (b) 18'x60.5'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :
   (i) Partly good and partly bad. (ii) None. (iii) Cane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Pum. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 11.36 ton/ac.
   (ii) 3.12 ton/ac.
   (iii) Main effect of varieties alone is highly 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>M₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>8.29</td>
<td>8.60</td>
<td>8.00</td>
<td>8.56</td>
<td>7.72</td>
<td>8.23</td>
</tr>
<tr>
<td>Mean</td>
<td>11.45</td>
<td>10.86</td>
<td>11.18</td>
<td>12.09</td>
<td>11.24</td>
<td>11.36</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of variety =0.57 ton/ac.
S.E. of marginal mean of manure =0.91 ton/ac.
S.E. of body of table =1.28 ton/ac.
Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 11 to 13.2.51. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding. (ix) 30.47'. (x) N.A.

2. TREATMENTS :
   All combinations of (1) & (2)
   (1) 2 varieties:—$V_1=BO.$ & $V_2=CO.$ 453.
   (2) 5 levels of manure :
      $M_1=$ Control (no manure),
      $M_2=40$ lb./ac. of N and 50 lb./ac. of $P_2O_5$,
      $M_3=60$ lb./ac. of N and 75 lb./ac. of $P_2O_5$,
      $M_4=80$ lb./sc. of N and 100 lb./ac. of $P_2O_5$,
      $M_5=100$ lb./ac. of N and 125 lb./ac. of $P_2O_5$.

3. DESIGN :
   (i) 2x5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' along length. (vi) Yes.

4. GENERAL :
   (i) Satisfactory. (ii) Incidence of cane borer reported. Spray of insecticides. (iii) Cane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 15.05 ton/ac.
   (ii) 2.35 ton/ac.
   (iii) "Variety" and "Manurial doses" effects are highly significant while interaction "Variety x Manurial doses" is not significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>Variety</th>
<th>M0</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_1$</td>
<td>13.29</td>
<td>12.06</td>
<td>14.76</td>
<td>13.59</td>
<td>12.99</td>
<td>13.42</td>
</tr>
<tr>
<td>$V_2$</td>
<td>15.50</td>
<td>19.47</td>
<td>15.44</td>
<td>15.72</td>
<td>17.27</td>
<td>16.68</td>
</tr>
<tr>
<td>Mean</td>
<td>14.40</td>
<td>15.77</td>
<td>15.10</td>
<td>14.85</td>
<td>15.13</td>
<td>15.05</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of variety = 0.53 ton/ac.
S.E. of marginal mean of manure = 0.85 ton/ac.
S.E. of body of table = 1.18 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) Sanai—Sugarcane—Paddy—Sanai. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 4.2.52 to 6.2.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) 70, three hudded setts/row. (d) Row to row 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) After every irrigation one interculture. (ix) 34.80'. (x) 19th Feb. 53 to 15th Feb. 53.
2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 varieties: \( V_1 = \text{BO. 11} \) and \( V_2 = \text{CO. 453} \)
(2) 5 levels of moisture:
\[ M_1 = \text{Control (no manure).} \]
\[ M_2 = 40 \text{ lb./ac. of N and } 50 \text{ lb./ac. of P}_2\text{O}_5. \]
\[ M_3 = 60 \text{ lb./ac. of N and } 75 \text{ lb./ac. of P}_2\text{O}_5. \]
\[ M_4 = 80 \text{ lb./ac. of N and } 100 \text{ lb./ac. of P}_2\text{O}_5. \]
\[ M_5 = 100 \text{ lb./ac. of N and } 125 \text{ lb./ac. of P}_2\text{O}_5. \]

N and P\(_2\)O\(_5\) as Ammo. Phos.

3. DESIGN:

(i) \( 2 \times 5 \) Fact. in R.B.D.

(ii) (a) \( 18 \)

(iii) 4

(iv) (a) \( 60.5' \times 24' \)

(v) \( 60.5' \times 18' \)

(vi) Two rows on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL:

(i) Good. No lodging. (iii) Germination \( \% \), sucrose \( \% \), no. of mature stalks and yield at harvest.

(iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) and (vii) Nil.

RESULTS:

(i) 11.91 ton/ac.

(ii) 3.61 ton/ac.

(iii) Variety effect alone is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>( M_1 )</th>
<th>( M_2 )</th>
<th>( M_3 )</th>
<th>( M_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>7.31</td>
<td>6.07</td>
<td>5.92</td>
<td>6.20</td>
<td>6.56</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>16.33</td>
<td>18.35</td>
<td>17.56</td>
<td>16.83</td>
<td>17.72</td>
</tr>
<tr>
<td>Mean</td>
<td>11.92</td>
<td>12.21</td>
<td>11.74</td>
<td>11.51</td>
<td>12.19</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of manure = 1.28 ton/ac.
S.E. of marginal mean of variety = 0.81 ton/ac.
S.E. of body of table = 1.81 ton/ac.

Crop : Sugarcane.

Site : Sugarcane Sub-Strn., Patna.

Object : To study the response to different combinations of N and P\(_2\)O\(_5\).

1. BASAL CONDITIONS:

(i) (a) Nil (b) N.A. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 22.1.49.

(iv) (a) to (e) N.A. (v) Nil.

2. TREATMENTS:

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

(1) 2 varieties: \( V_1 = \text{CO. 453} \) and \( V_2 = \text{BO. 11} \)
(2) 3 levels of N: \( N_1 = 40, N_2 = 80 \) and \( N_3 = 120 \) lb./ac.
(3) 3 levels of P\(_2\)O\(_5\): \( P_1 = 50, P_2 = 100 \) and \( P_3 = 150 \) lb./ac.
Other details N.A.

3. DESIGN:

(i) \( 2 \times 3 \times 3 \) Fact. in R.B.D.

(ii) (a) 18. (b) N.A. (iii) 4

(iv) (a) \( 21' \times 68' \), (b) \( 15' \times 68' \), (v) 3' wide rows on either side of width. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Borer scale insect. Removal of dead hearts of borers and spraying of malathion was done.

(iii) Sugarcane yield, sucrose \( \% \) and counting of mature stalks. (iv) (a) 1948—1950. (b) Nil. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.
5. RESULTS:

(i) 14.43 ton/ac.
(ii) 2.51 ton/ac.
(iii) Main effect of V is highly significant and interaction ‘V x N x P’ is significant. 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>
<th>P1</th>
<th>P2</th>
<th>P3</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>17.64</td>
<td>17.80</td>
<td>17.79</td>
<td>18.35</td>
<td>17.70</td>
<td>17.31</td>
</tr>
<tr>
<td>V2</td>
<td>9.57</td>
<td>11.04</td>
<td>12.62</td>
<td>11.08</td>
<td>10.62</td>
<td>11.52</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N or P = 0.51 ton/ac.
S.E. of marginal mean of V = 0.42 ton/ac.
S.E. of body of table V x N or V x P = 0.72 ton/ac.
S.E. of body of table N x P = 0.89 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Sub-Stn., Patna.
Ref: Bh. 50(3).
Type: ‘MV’.

Object: To study the response of Sugarcane to different combinations of N and P2O5.

1. BASAL CONDITIONS:
(i) (a) None. (b) Green manuring. (c) No. (ii) (a) Clay. (b) N.A. (iii) 29.1.50 to 2.2.50. (iv) (a) to (e) N.A.
(v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and weeding. (ix) 40.02'. (x) 1.2.51 to 14.3.51.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 varieties: V1 = CO. 453 and V2 = BO. 11.
(2) 3 levels of N: N1 = 40, N2 = 80 and N3 = 120 lb./ac.
(3) 3 levels P2O5: P1 = 50, P2 = 100 and P3 = 150 lb./ac.
N as A/N and P2O5 as Super applied at the time of planting.

3. DESIGN:
(i) 2 x 3 x 3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 4. (iv) (a) 24' x 62.5'. (b) 18' x 62.5'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) None. (iii) Cane yield. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 6.91 ton/ac.
(ii) 2.67 ton/ac.
(iii) Only main effect of variety is highly significant.
(iv) Average yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>N1</th>
<th>N2</th>
<th>N4</th>
<th>Mean</th>
<th>P1</th>
<th>P3</th>
<th>P5</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>8.57</td>
<td>9.80</td>
<td>8.26</td>
<td>8.88</td>
<td>8.64</td>
<td>9.45</td>
<td>8.53</td>
</tr>
<tr>
<td>V2</td>
<td>5.59</td>
<td>4.20</td>
<td>5.06</td>
<td>4.95</td>
<td>5.31</td>
<td>4.63</td>
<td>4.90</td>
</tr>
<tr>
<td>Mean</td>
<td>7.08</td>
<td>7.00</td>
<td>6.66</td>
<td>6.91</td>
<td>6.98</td>
<td>7.04</td>
<td>6.72</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of N or P = 0.54 ton/ac.
S.E. of marginal mean of V = 0.44 ton/ac.
S.E. of body of table V x N or V x P = 0.77 ton/ac.
S.E. of body of table N x P = 0.94 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Sub-Stn., Patna.
Refer: Bh. 50(4).
Type: 'MV'.
Object: To compare A/N with A/S in combination with Single Super.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) G.M. (c) None. (ii) (a) Clay. (b) N.A. (iii) 12 to 16.2.50. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing & earthing. (ix) 40'. (x) 10.2.51 to 24.2.51.

2. TREATMENTS:
   Main-plot treatments:
   2 varieties: V1=BO. 11 and V2=CO. 453.
   Sub-plot treatments:
   11 doses of manure:
   M1 = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P2O5,
   M2 = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P2O5,
   M3 = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P2O5,
   M4 = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P2O5,
   M5 = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P2O5,
   M6 = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P2O5,
   M7 = A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P2O5,
   M8 = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P2O5,
   M9 = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P2O5,
   M10 = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P2O5,
   M11 = Control (No manure).

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 24' x 60.5'. (b) 18' x 60.5'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Cane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) Nil.
   (vii) Data analysed as R.B.D. Fact.

5. RESULTS:
   (i) 7.63 ton/ac.
   (ii) 4.38 ton/ac. See (vi) under GENERAL above.
   (iii) None of the effects is significant.
Crop: Sugarcane.
Site: Sugarcane Sub-Stn., Patna.

Object:—To compare A/N with A/S in combination with Single Super.

1. BASAL CONDITIONS:
   (i) (a) None. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 16 to 19.2.57. (iv) (a) to (e) N.A. (vi) Nil. (vii) Irrigated. (viii) Weeding and earthing. (ix) 30.47'. (x) N.A.

2. TREATMENTS:
   Main-plot treatments:— 2 varieties: V1=BO-11 and V2=CO. 453.
   Sub-plot treatments:—
   11 doses of manure:
   - M1 = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P2O5.
   - M2 = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P2O5.
   - M3 = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P2O5.
   - M4 = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P2O5.
   - M5 = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P2O5.
   - M6 = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P2O5.
   - M7 = A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P2O5.
   - M8 = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P2O5.
   - M9 = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P2O5.
   - M10 = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P2O5.
   - M11 = Control (No manure).

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) Nil. (vii) Data analysed as R.B.D. Fact.

5. RESULTS:
   (i) 19.34 ton/ac.
   (ii) 3.54 ton/ac. See (vii) under GENERAL above.
   (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>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
<th>M7</th>
<th>M8</th>
<th>M9</th>
<th>M10</th>
<th>M11</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>16.23</td>
<td>19.54</td>
<td>16.80</td>
<td>14.81</td>
<td>18.03</td>
<td>16.43</td>
<td>14.54</td>
<td>15.48</td>
<td>16.71</td>
<td>14.74</td>
<td>15.95</td>
<td>15.96</td>
</tr>
<tr>
<td>V2</td>
<td>22.62</td>
<td>22.06</td>
<td>22.73</td>
<td>26.02</td>
<td>18.04</td>
<td>22.98</td>
<td>22.25</td>
<td>23.54</td>
<td>23.05</td>
<td>24.96</td>
<td>21.71</td>
<td>22.73</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of variety = 0.53 ton/ac.
S.E. of marginal mean of manure = 1.26 ton/ac.
S.E. of body of table = 1.77 ton/ac.
Crop: Sugarcane.
Site: Sugarcane Sub-Stn., Patna.

Object: To compare A/N with A/S in combination with Single Super.

1. BASAL CONDITIONS:
   (i) (a) Sonai-Sugarcane-Paddy-Sonai. (b) N/A. (ii) (a) Heavy clay. (b) N/A. (c) 70, three budded setts/row. (d) Row to row distance 3'.
   (e) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) N/A. (c) 70. (d) N/A. (e) Nil. (vi) As per treatments. (vii) Irrigated. (viii) N/A. (ix) 35.42'. (x) 22.2.53 to 26.2.53.

2. TREATMENTS:
   Main-plot treatments:
   2 varieties: V1=BO. 11 and V2=CO. 453.
   Siol-pLOT Treatments:—
   11 doses of manure:

3. DESIGN:
   (i) Split-plot (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' on each side of width (vi) Yes.

4. GENERAL:
   (i) Good. No lodging. (ii) None. (iii) Germination%, borer%, no. of mature stalks and cane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 11.81 ton/ac.
   (ii) 25.75 ton/ac.
   (b) 4.04 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

   \[\begin{array}{cccccccccc}
   V_1 & 7.64 & 12.00 & 7.71 & 8.32 & 7.64 & 11.31 & 7.99 & 8.22 & 13.72 & 6.32 & 11.43 \\
   \end{array}\]

   S.E. of the difference of two
   (1) V marginal means = 5.490 ton/ac.
   (2) M marginal means = 2.022 ton/ac.
   (3) M means at the same level of V = 2.860 ton/ac.
   (4) V means at the same level of M = 6.129 ton/ac.
Crop : Sugarcane.
Site : Sugarcane Sub-Stn., Patna.

Object : To find out the response to different combinations of manures.

BASAL CONDITIONS:
(i) (a) None. (b) Failow. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 5 to 8.2.52. (iv) (a) to (e) N.A. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and earthing. (ix) 30.47'. (x) N.A.

TREATMENTS:
Main-plot treatments :—
2 varieties: V1 = CO.453 and V2 = BO.11.
Sub-plot treatments :—
11 doses of manure :
M1 = Ammo. Phos. + Castor Cake at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M2 = A/S + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M3 = Ammo. Phos. + Castor cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M4 = Castor cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M5 = Ammo. Phos. + Mustard cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M6 = Mustard cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M7 = Ammo. Phos. + Linseed cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M8 = Linseed cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M9 = Ammo. Phos. + Mustard cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M10 = Mustard cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P2O5.
M11 = Control (no manure).

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 53' x 24'. (b) 53' x 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) None. (iii) Sugarcane yield. (iv) (a) 1951-1954. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) Nil. (vii) As layout of the experiment was N.A., it was analysed as R.S.D.

5. RESULTS:
(i) 12.38 ton/ac.
(ii) 3.75 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>M2</th>
<th>M3</th>
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S.E. of marginal mean of variety = 0.57 ton/ac.
S.E. of marginal mean of manure = 1.33 ton/ac.
S.E. of body of table = 1.88 ton/ac.

Crop : Sugarcane.
Site : Sugarcane Sub-Stn., Patna.

Object : To find out the response to different combinations of manures.

1. BASAL CONDITIONS :
(i) (a) Soyabean—Sugarcane—Paddy—Soyabean. (b) Soyabean. (c) Nil. (ii) (a) Heavy clay. (b) N.A. (iii) 13.2.52 to 16.2.52. (iv) (a) Mould board ploughing followed by harrowing and then levelling. (b) N.A. (c) 60, three-budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) After every irrigation one interculture and then horse hoeing. (ix) 35.42'. (x) 23.3.53 to 29.3.53.
2. TREATMENTS:

Main-plot treatments:-
2 Varieties: \( V_1 = \text{CO. 453} \) and \( V_2 = \text{BO. II}. \)

Sub-plot treatments:-
11 doses of manures:
- \( M_1 = \text{Ammo. Pbo. + Castor cake at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_2 = \text{Ammo. Pbo. + Sinale Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_3 = \text{Ammo. Pbo. + Linseed cake + Single Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_4 = \text{Mustard cake + Sinale Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_5 = \text{Ammo. Pbo. + Mustard cake + Single Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_6 = \text{Mustard cake + Sinale Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_7 = \text{Ammo. Pbo. + Castor cake + Single Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_8 = \text{Linseed cake + Single Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_9 = \text{G.N.C. + Linseed cake + Single Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_{10} = \text{G.N.C. + Sinale Super at 120 lb./ac. of N+60 lb./ac. of P}_2\text{O}_5. \)
- \( M_{11} = \text{Control (no manure).} \)

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (sub) (a) 51′ x 24′. (b) 51′ x 15′. (v) 6′ wide channel at the end of each plot. (vi) Yes.

4. GENERAL:
(i) Good (no lodging). (ii) Nil. (iii) Germination %, borer %, no. of mature stalk and sugarcane yield. (iv) (a) 1951-1954. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) \( 12.13 \text{ ton/acre.} \)
(ii) \( 1.25 \text{ ton/acre.} \)
(iii) \( 1.30 \text{ ton/acre.} \)
(iv) Only main effect of variety is significant.

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<th>( M_2 )</th>
<th>( M_3 )</th>
<th>( M_4 )</th>
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S.E. of difference of two
1. variety means = 0.27 ton/acre.
2. manure means = 0.65 ton/acre.
3. manure means at the same level of variety = 0.92 ton/acre.
4. variety means at the same level of manure = 0.91 ton/acre.

Crop :- Sugarcane.
Site :- Sugarcane Sub.-Stn., Patna.
Ref :- Bh. 53(51)
Type :- ‘MV’.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS:
(i) (a) Sanai—Sugarcane—Sanai. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 9 to 14.25.3. (iv) (a) Mould board ploughing, disc harrowing and then levelling. (b) N.A. (c) 56, three budded setts/row (d) N.A. (e)–(v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Interculture after each irrigation, and then horse hoeing. (ix) 63.33′. (x) 13th to 19th February, 1954.
2. TREATMENTS:
Main-plot treatments:
2 varieties: \( V_1 = \text{CO. 453} \) and \( V_2 = \text{BO. 11} \).
Sub-plot treatments:
11 doses of manures:
- \( M_1 = \text{Castor cake + Ammo. Phos. at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_2 = \text{A/S + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_3 = \text{Ammo. Phos. + Castor cake + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_4 = \text{Castor cake + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_5 = \text{Ammo. Phos. + Mustard cake + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_6 = \text{Mustard cake + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_7 = \text{Ammo. Phos. + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_8 = \text{Castor cake + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_9 = \text{Mustard cake + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_10 = \text{Ammo. Phos. + G.N.C. + Single Super at 120 lb./ac. of } N + 60 \text{ lb./ac. of } P_2O_5 \)
- \( M_11 = \text{Control (no manure)} \)

3. DESIGN:
- (i) Split-plot.
- (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A.
- (iii) 4.
- (iv) (a) 53’x24’, (b) 23’x18’. (v) N.A. (vi) Yes.

4. GENERAL:
- (i) Good—No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalk, borer %, yield at harvest and no. of tillers/row. (iv) (a) 1951—1954. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) & (vii) Nil.

5. RESULTS:
- (i) 15.32 ton/ac.
- (ii) (a) 7.18 ton/ac. (b) 4.18 ton/ac.
- (iii) None of the effects is significant.
- (iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>( M_2 )</th>
<th>( M_3 )</th>
<th>( M_4 )</th>
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S.E. of difference of two
1. variety means = 1.53 ton/ac.
2. manure means = 2.09 ton/ac.
3. manure means at the same level of variety = 2.97 ton/ac.
4. variety means at the same level of manure = 3.21 ton/ac.


Object:—To study the effect of P manuring of crop on subsequent crop yield.

1. BASAL CONDITIONS:
- (i) (a) G.M.—Sugarcane-Paddy. (b) G.M. with Sanai and Soyabean. (c) Nil. (ii) (a) Clay. (b) N.A.
- (iii) 22.52. to 79.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling (c) 60, three budded setts/row. (d) row to Row-3’ apart. (e)—(v) Nil. (vi) CO. 622. (vii) Irrigated. (viii) After every irrigation one interculture. (ix) 34.32”. (x) 10th to 12th Dec. 52.

2. TREATMENTS:
All combinations of (1) and (2)
- (1) 2 varieties: \( V_1 = \text{Sanai} \) and \( V_2 = \text{Soyabean} \).
- (2) 6 levels of \( P_2O_5 \): \( P_0 = 0, P_1 = 50, P_2 = 100, P_3 = 150, P_4 = 200 \) and \( P_5 = 250 \) lb./ac, \( P_2O_5 \) as Super applied at the time of planting.
3. DESIGN:
(i) 2 x 6 Fact. in R.B.D. (ii) (a) 12. (b) 3x8'x144'. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Yes-Two rows one on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL:
(i) Good—No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, yield at harvest, borer %. (iv) (a) No. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS:
(i) 7.23 ton/ac.
(ii) 1.78 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of marginal mean of variety = 0.36 ton/ac.
S.E. of marginal mean of manure = 0.63 ton/ac.
S.E. of body of table = 0.89 ton/ac.

Crop :- Sugarcane.
Site :- C.S. R. S., Pusa.

Ref :- Bh. 53 (103).
Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) Sugarcane—pulse—Barley—Sanai (G.M.) (b) Sanai (G.M.) (c) Nil. (ii) (a) Sandy clay loam to loam in texture. (b) N.A. (iii) 24th—25th Feb., 1953. (iv) (a) Harrowing once and mould board plough each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow planting. End to end planting. (c) 60, three budded setts/row. (d) 3' apart. (e) Nil. (f) Nil. (g) As per treatments. (h) Nil. (viii) Formingly intercultural operation after germination till the end of May. Earthing up in mid-June. (ix) 46.03'. (x) 1st week of January, 1954.

2. TREATMENTS:
Main-plot treatments :-
2 varieties : V_1 = BO. 11 and V_2 = CO. 453.

Sub-plot treatments : 11 doses of manure :
- M_1 = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P_2O_5.
- M_2 = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P_2O_5.
- M_3 = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P_2O_5.
- M_4 = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P_2O_5.
- M_5 = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P_2O_5.
- M_6 = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P_2O_5.
- M_7 = A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P_2O_5.
- M_8 = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P_2O_5.
- M_9 = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P_2O_5.
- M_10 = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P_2O_5.
- M_11 = Control (no manure)

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Yes, 2 rows as non experimental one on either side of the sub-plot. (vi) Yes.
4. GENERAL:
(i) Good. (ii) Borer incidence noted. Dead hearts removed in the early period of growth. On controlling termite infection Aldrin was applied at planting and 3 months after. (iii) Germination%, tillering, height, no. of mature stalk, sucrose% in cane and the yield at the time of harvest. (iv) (a) 1950—N.A. (b) No. (c) Nil. (v) (a) Parsa, Motihari, Motipur, Hathua, Pachrukhi, Dehri-on-Sone and Bihta. (vi) and (vii) Nil.

5. RESULTS:
(i) 16.90 ton/ac.
(ii) (a) 12.39 ton/ac.
(b) 4.00 ton/ac.
(iii) No. of mature stalk.
(iv) (a) 1950-1954

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S.E. of the difference of two
1. V marginal means = 2.64 ton/ac.
2. M marginal means = 2.00 ton/ac.
3. M means at the same level of V = 2.83 ton/ac.
4. V means at the same level of M = 3.77 ton/ac.

Crop: Sugarcane. Site: C.S.R.S. Pusa. Ref: Bh. 50 (9). Type: 'MV'.

Object: To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sunnhemp. (c) Nil (d) (a) Light sandy loam soil. (b) N.A. (iii) 21st and 22nd January, 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded sets/row. (d) 3" between rows. (e)—(f) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Earthing and hoeing. (ix) 38.70. (x) 30.1.51 to 22.51.

2. TREATMENTS:
Main-plot treatments:—
2 varieties: V1 = CO. 453 and V2 = BO. 11
Sub-plot treatments:—
11 levels of N as A/N: N0 =0, N1 =40, N2 =80, N3 =120, N4 =160, N5 =200, N6 =240, N7 =280, N8 =320, N9 =360 and N10 =400 lb./ac.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5×24'. (b) 60.5×18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting of germination. (iv) (a) 1950—1954 (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Majhulla, Pachrukhi, Motipur and Narkatiaganj. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 17.52 ton/ac.
(ii) (a) 6.13 ton/ac.
(b) 4.52 ton/ac.
(iii) Main effect of manure alone is significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of difference of two
1. variety means
2. manure means
3. manure means at the same level of variety
4. variety means at the same level of manure

Crop: Sugarcane.
Site: C.S.R.S. Pusa.
Object: To find out the optimum dose of A/N for sugarcane.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 31st Jan. and 1st Feb. 1951. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 5' between rows. (e) — (v) Nil.
(vi) As per treatments. (vii) Rainfed. (viii) Hoeing, earthing and weeding. (ix) 27.77'. (a) 2nd week of Feb. 1952.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: V1 = Co. 453 and V2 = BO. 11.
(2) 11 doses of N as A/N: N0 = 0, N1 = 40, N2 = 80, N3 = 120, N4 = 160, N5 = 200, N6 = 240, N7 = 280, N8 = 320, N9 = 360 and N10 = 400 lb./ac.

3. DESIGN:
(i) 2 x 11 Fact. in R.B.D. (ii) (a) 22. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' wide rows on either side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Cane yield, sucrose% and counting of mature stalk. (iv) (a) 1950—1954. (b) No.
(c) Nil. (v) (a) Pachurkhi, Motihari, Harinagar, and Pansa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 31.97 ton/ac.
(ii) 2.74 ton/ac.
(iii) Only main effect of variety is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

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<th>N10</th>
<th>N11</th>
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<th>N13</th>
<th>N14</th>
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</tr>
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<td>38.00</td>
<td>38.19</td>
<td>38.03</td>
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<tr>
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<tr>
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<td>32.32</td>
<td>31.78</td>
<td>32.18</td>
<td>30.56</td>
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</table>

S.E. of marginal mean of variety: =0.41 ton/ac.
S.E. of marginal mean of manure: =0.97 ton/ac.
S.E. of body of table: =1.37 ton/ac.
Crop :- Sugarcane.
Ref :- Bh. 52(29).

Site :- C.S.R.S., Pusa.
Type :- 'MV'.

Object :— To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 30.1.52. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) - (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, earthing & weeding. (ix) 50.14'. (x) 18.2.53 to 7.3.53.

2. TREATMENTS :
Main-plot treatments :
2 varieties : V1=BO. 11 and V2=CO. 433.
Sub-plot treatments :
11 levels of N (N as A/N) :
N0 =0, N1 =40, N2 =80, N3 =120, N4 =160, N5 =200, N6 =240, N7 =280, N8 =320, N9 =360, N10 =400 lb/ac.

3. DESIGN :
(i) Split-plot. (ii) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' either side of width. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Nil. (iii) Cane yield, sucrose% and mature stalk count. (iv) (a) 1950—1954. (b) No. (c) Nil. (v) (a) Zonal centres Pachrukh, Majhau, Motihari, Motipur, etc. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
(i) 22.71 ton/ac.
(ii) (a) 0.62 ton/ac.
(b) 0.55 ton/ac.
(iii) Main effects of variety and manure are highly significant. Interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

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<tr>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
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<td>20.49</td>
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</table>

S.D. of difference of two
1. variety means =0.13 ton/ac.
2. manure means =0.28 ton/ac.
3. manure means at the same level of variety =0.39 ton/ac.
4. variety means at same level of manure =0.39 ton/ac.

Crop :- Sugarcane.
Ref :- Bh. 53(104).

Site :- C.S.R.S., Pusa.
Type :- 'MV'.

Object :— To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :
(i) (a) Sugarcane-Sesal (G.M)-Wheat-Mung (b) Mung used as green manured after pods are picked up. (c) Nil. (ii) (a) Texture is sandy loam to silt loam with normal to deep saline phase. (b) N.A. (iii) 12.2.1953. (iv) (a) Harrow plough and mould board plough each followed by Hinge. Again diecing followed by sub-soiling. (b) Furrow planting. (c) 64 three budded setts/row. (d) 3' apart rows also kept end to end. (e) Nil. (vi) As per treatments. (vii) Irrigated. (viii) fortnightly intercultural operation after germination till the end of May earthing up in mid. June. (a) 46.33'. (x) 3rd week of February, 1954.
2. TREATMENTS:

Main-plot treatments:—
2 varieties: V₁ = CO. 453 and V₂ = BO. 11.

Sub-plot treatments:
11 levels of N as A/N:— N₀ = 0, N₁ = 40, N₂ = 80, N₃ = 120, N₄ = 160, N₅ = 200, N₆ = 240, N₇ = 280, N₈ = 320, N₉ = 360, N₁₀ = 400 lb./ac.

3. DESIGN:

(i) Split-plot. (ii) 2 main-plots/block; 11 sub-plots/main plot. (b) N.A. (iii) 4. (iv) 60.5' x 24'. (v) Two rows of non experimental, one on either side of the plot. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Borer incidence noted. Dead heart removed during the early period of growth on controlling termite infection. Aldrine was applied at planting and then 3 months after. (iii) Germination%, no. of tillers, height, no. of mature stalk, sucrose% and cane yield. (iv) (a) 1950-1954. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:

(i) 17.78 ton/ac.
(ii) (a) 1.85 ton/ac.
(b) 1.31 ton/ac.
(iii) Only main effect of manure is highly significant.
(iv) Av. yield of sugarcane in ton/ac.


<table>
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<tr>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>N₄</th>
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<td>17.12</td>
<td>19.89</td>
<td>17.82</td>
<td>17.74</td>
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S.E. of difference of two
1. variety means: =0.41 ton/ac.
2. manure means: =0.78 ton/ac.
3. manure means at the same level of variety: =1.07 ton/ac.
4. variety means at the same level of manure: =1.09 ton/ac.

Crop: Sugarcane.  
Site: C.S.R.S. Pusa.  
Object: To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 18th, 19th Feb. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three bussed sets/row. (d) 3' between rows. (e) —.
(v) None. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 38.47.'
(x) 20th March 1951.

2. TREATMENTS:

All combinations of (1) & (2): (1) 2 varieties: V₁ = BO. 11 and V₂ = CO. 453.
(2) 5 levels of manure:

M₀=Control (no manure)  
M₁= 40 lb./ac. of N+ 50 lb./ac. of P₁₀₅  
M₂= 60 lb./ac. of N+ 75 lb./ac. of P₁₀₅  
M₃= 80 lb./ac. of N+ 100 lb./ac. of P₁₀₅  
M₄=100 lb./ac. of N+125 lb./ac. of P₁₀₅  
N and P₁₀₅ as Ammo. Phos.
3. DESIGN:
(i) 2x5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5'x14'. (b) 60.5'x18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, mature stalk count and sucrose %. (iv) (a) 1950-1954. (b) No. (c) Nil. (v) (a) Sepaya, Harinagar, Parsa, Majhaulia and Pachruki. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 23.66 ton/ac. (ii) 3.75 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>M₀</th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
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S.E. of marginal mean of variety = 0.68 ton/ac.
S.E. of marginal mean of manure = 1.53 ton/ac.
S.E. of body of table = 1.08 ton/ac.

Crop: Sugarcane.  
Site: C.S.R.S. Pusa.  
Ref: Bh. 51(18)  
Type: 'MV'.

Object:—To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 21.2.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded sets/row. (d) 3' between rows. (e) —. (v) Nil. (vi) As per treatments. (vii) Rainfed. (viii) Hoeing, weeding and earthing. (ix) 28.01°. (x) 4th and 5th March 1952.

2. TREATMENTS:
All combinations of (1) & (2)
(1) 2 varieties: V₁ = BO. 11 and V₂ = CO. 453.
(2) 5 levels of manure:
M₀ = Control (no manure).
M₁ = 40 lb./ac. of N+ 50 lb./ac. of P₂O₅.
M₂ = 60 lb./ac. of N+ 75 lb./ac. of P₂O₅.
M₃ = 80 lb./ac. of N+100 lb./ac. of P₂O₅.
M₄ = 100 lb./ac. of N+125 lb./ac. of P₂O₅.
N and P₂O₅ as Ammo. Phos.

3. DESIGN:
(i) 2x5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Cane yield, sucrose % and count of mature stalk. (iv) (a) 1950—1954. (b) No. (c) Nil. (v) (a) Zonal centres, Majhaulia. Parsa etc. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 20.35 ton/ac. (ii) 3.89 ton/ac. (iii) Only main effect of variety is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>M₂</th>
<th>M₃</th>
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<td>19.88</td>
<td>20.35</td>
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</table>

S.E. of marginal mean of variety = 0.71 ton/ac.
S.E. of marginal mean of manure = 1.12 ton/ac.
S.E. of body of table = 1.39 ton/ac.

Crop : Sugarcane.
Site : C.S.R.S. Pusa.
Object : To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (iii) (a) Light loam. (b) N.A. (iii) 3.1.1952. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) 3' between row. (e) --. (vi) Nil. (vii) As per treatments. (viii) Unirrigated. (ix) Hoeing, earthing and weeding. (x) 50.14". (xi) 30th March to 30th March 1953.

2. TREATMENTS :
   All combinations of (1) & (2)
   (1) 2 varieties : V₁ = BO. 11 and V₂ = CO. 453.
   (2) 5 levels of manure :
   M₀ = Control (no manure)
   M₁ = 40 lb./ac. of N + 50 lb./ac. of P₂O₅
   M₂ = 60 lb./ac. of N + 75 lb./ac. of P₂O₅
   M₃ = 80 lb./ac. of N + 100 lb./ac. of P₂O₅
   M₄ = 100 lb./ac. of N + 125 lb./ac. of P₂O₅
   N and P₂O₅ as Ammo. Phos.

3. DESIGN :
   (i) 2x5 Fact. in R.B.D. (ii) 10. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalk. (iv) (a) 1950-1954. (b) No. (c) Nil. (v) (a) Pachrukhi, Motihari and Majhaulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 17.88 ton/ac.
   (ii) 2.60 ton/ac.
   (iii) All effects are highly significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
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<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
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<td>18.97</td>
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<td>17.88</td>
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S.E. of marginal mean of variety = 0.47 ton/ac.
S.E. of marginal mean of manure = 0.75 ton/ac.
S.E. of body of table = 1.06 ton/ac.
Crop: Sugarcane.  
Site: C.S.R.S., Pusa.  

Object: To find out the optimum dose of Dino. Phos. for Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Sugarcane-Maize-Barley-Mung. (b) Mung (green matured). (c) Nil.  
   (ii) (a) Sandy loam to silty loam with normal to deep salinity phase. (b) N.A.  
   (iii) 15.2.1953. (iv) (a) Harrowed once and mouldboard ploughing each followed by Hinga, and discing followed by subsoiling. (b) Farrow planting, end to end planting. (c) 63 three-budded setts/row. (d) 3' apart. (e) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May, earthing up in mid-June. (ix) 45.26'. (x) 4th week of Dec. 1953.

2. TREATMENTS:
   Main-plot treatments:—
   2 varieties: $V_1$ = CO. 453 and $V_2$ = BO. 11.
   Sub-plot treatments:—
   5 levels of manure:—
   $M_0$ = Control (no manure).  
   $M_1 = 40$ lb./ac. of $N + 50$ lb./ac. of $P_{2}O_{5}$.  
   $M_2 = 60$ lb./ac. of $N + 75$ lb./ac. of $P_{2}O_{5}$.  
   $M_4 = 80$ lb./ac. of $N + 100$ lb./ac. of $P_{2}O_{5}$.  
   $M_5 = 100$ lb./ac. of $N + 125$ lb./ac. of $P_{2}O_{5}$.  

   N and $P_{2}O_{5}$ as Ammo. Phos.

3. DESIGN:  
   (i) Split plot. (ii) 2 main-plots/block; 5 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Two rows as non-experimental one on either side of the plot. (vi) Yes.

4. GENERAL:  
   (i) Good. (ii) Borer infection noted. Dead heart removed during the early period of growth. For controlling termite infection, Aldrine was applied at planting. (iii) Germination, %, tiller count, height, no. of mature stalk and sugarcane yield. (iv) (a) 1950–1954. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:  
   (i) 20.53 ton/ac.  
   (ii) (a) 3.12 ton/ac.  
   (b) 1.77 ton/ac.  
   (iii) Only manure effect is highly significant. 
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<td>20.31</td>
<td>20.64</td>
<td>21.77</td>
<td>22.54</td>
<td>20.53</td>
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</table>

S.E. of difference of two
1. variety means = 0.81 ton/ac.
2. manure means = 0.72 ton/ac.
3. manure means at the same level of variety = 1.02 ton/ac.
4. variety means at the same level of manure = 1.17 ton/ac.
Crop: Sugarcane.
Site: C.S.R.S., Pusa.

Object: To study the response to different combinations of manures.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) Nil. (ii) (a) Light loan. (b) N.A. (iii) 15th and 16th Feb. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three banded setx/row. (d) Between rows 3'. (e) —. (f) Nil. (v) As per treatments. (vi) Irrigated. (vii) Housing, weeding and earthing. (viii) 38.49'. (ix) 17th March 1951.

2. TREATMENTS:
   Main-plot treatments:
   — 2 varieties: V1 = CO. 453 and V2 =BO. 11.

   Sub-plot treatments:
   —
   M1 = Ammo. Phos. at 60 lb./ac. of N + 75 lb./ac. of P2O5,
   M2 = A/S + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5,
   M3 = Ammo. Phos. + Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5,
   M4 = Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5,
   M5 = Ammo. Phos. + Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5,
   M6 = Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5,
   M7 = Ammo. Phos. + G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5,
   M8 = G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P2O5,
   M9 = Control (no manure).

   3. DESIGN:
   (i) Split plot. (ii) (a) 2 main-plots/block; (b) N.A. (iii) 4, (iv) (a) 60.5'x24', (b) 60.5'x18'. (v) Rows of 3' on both sides of width. (v) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting of mature stalk. (iv) (a) 1950—1952, (b) No. (c) Nil. (v) (a) None. (b) No. (vi) Nil. (vii) Experiment for 1948, 1949 N.A.

5. RESULTS:
   (i) 16.79 ton/ac.
   (ii) 5.27 ton/ac.
   (b) 1.85 ton/ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<tr>
<td>V1</td>
<td>19.52</td>
<td>18.36</td>
<td>16.81</td>
<td>17.19</td>
<td>18.66</td>
<td>17.08</td>
<td>20.04</td>
<td>16.24</td>
<td>17.35</td>
<td>17.32</td>
</tr>
<tr>
<td>V2</td>
<td>19.58</td>
<td>14.79</td>
<td>14.72</td>
<td>15.90</td>
<td>18.04</td>
<td>13.69</td>
<td>16.08</td>
<td>15.45</td>
<td>15.59</td>
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<td>16.57</td>
<td>15.76</td>
<td>16.54</td>
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<td>15.38</td>
<td>18.06</td>
<td>15.84</td>
<td>16.47</td>
<td>16.43</td>
</tr>
</tbody>
</table>

S.E. of difference:
1. variety of means = 1.12 ton/ac.
2. manure means = 0.93 ton/ac.
3. manure means at same level of variety = 1.68 ton/ac.
4. variety means at the same level of manure = 1.32 ton/ac.
Crop: Sugarcane.  
Site: C.S.R.S., Pusa.  
Ref: Bh. 51(16).  
Type: 'MV'.

Object: To find the response to different combinations of manures on Sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Sugarcane.  (c) N.A.  (ii) (a) Medium loam.  (b) N.A.  (iii) 20.2.51.  (iv) (a) 4 ploughings.  (b) Row planting.  (c) 60, three budded setts/row.  (d) Between rows 3'.  (e) —.  (v) Nil.  (vi) As per treatments.  (vii) N.A.  (viii) Hoeing, weeding and earthing.  (ix) 28.02'.  (x) 2nd and 3rd March 1952.

2. TREATMENTS:
   Main-plot treatments:
   2 varieties: 
   V1 = CO. 453 and V2 = BO. 11.
   Sub-plot treatments:
   \[ M_1 = \text{Ammo. Phos. + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_2 = \text{A/S + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_3 = \text{Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_4 = \text{Ammo. Phos. + Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_5 = \text{Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_6 = \text{Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_7 = \text{Ammo. Phos. + Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_8 = \text{Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_9 = \text{Ammo. Phos. + G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_{10} = \text{G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5 \]
   \[ M_{11} = \text{Control (no manure)} \]

3. DESIGN:
   (i) Split-plot.  (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot.  (b) N.A.  (iii) 4.  (iv) (a) 60.5' x 24'.  (b) 60.5' x 18'.  (v) Rows of 3' on either side of width.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Sugarcane yield, sucrose % and counting of mature stalk.  (iv) (a) 1950—1952.  (b) No.  (c) Nil.  (v) (a) No.  (b) No.  (vi) and (vii) Nil.

5. RESULTS:
   (i) 21.11 ton/ac.  
   (ii) (a) 10.02 ton/ac.  
   (b) 2.67 ton/ac.  
   (iii) None of the effects is significant. 
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
<th>M7</th>
<th>M8</th>
<th>M9</th>
<th>M10</th>
<th>M11</th>
<th>Mean</th>
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<tbody>
<tr>
<td>V1</td>
<td>21.90</td>
<td>22.25</td>
<td>23.38</td>
<td>23.33</td>
<td>24.61</td>
<td>21.62</td>
<td>23.00</td>
<td>23.25</td>
<td>22.05</td>
<td>22.12</td>
<td>22.84</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. variety means
2. manure means
3. manure means at the same level of variety
4. variety means at the same level of manure
Crop: Sugarcane.  
Site: C.S.R.S., Pusa.  
Object: To find out the response to different combinations of manures.
Crop :- Sugarcane.  
Site :- C.S.R.S., Pusa.  
Object :- To find the optimum dose of Castor cake and G.N.C. for Sugarcane.

1. BASEL CONDITIONS:
   (i) (a) Sugarcane—Samal—Sugarcane. (b) Samal. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 1st to 3rd Feb. 1948. (iv) (a) One ploughing for burying Samal, 4 ploughings for preparation of land. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Samal only. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 45.90'. (x) 13th Jan. to 1st Feb 1949.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 varieties: V1 = CO. 453, and V2 = BO. 11.
   (2) 2 sources of N: S1 = Castor cake and S2 = G.N.C.
   (3) 4 levels of N: N0 = 0, N1 = 40, N2 = 80 and N3 = 120 lb./ac.

3. DESIGN:
   (i) 2 x 2 x 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row 3' wide on each side. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1948—1953. (b) No. (c) Nil. (v) (a) N.A. (b) No. (vi) and (vii) Nil.

5. RESULTS:
   (i) 15.88 ton/ac.  
   (ii) 2.106 ton/ac.  
   (iii) Variety effect and levels of N effect are highly significant, while no other effect 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>N3</th>
<th>Mean</th>
<th>S1</th>
<th>S3</th>
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<td>18.79</td>
<td>18.20</td>
<td>21.47</td>
<td>18.75</td>
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<tr>
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<td>9.18</td>
<td>15.89</td>
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<td>17.34</td>
<td>15.98</td>
<td>15.88</td>
<td>17.10</td>
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<td>18.69</td>
<td></td>
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</table>

S.E. of the marginal mean of V = 0.45 ton/ac.
S.E. of the marginal mean of N = 0.63 ton/ac.
S.E. of the marginal mean of S = 0.45 ton/ac.
S.E. of body of N x V or N x S table = 0.90 ton/ac.
S.E. of body of V x S table = 0.63 ton/ac.

Crop :- Sugarcane.  
Site :- C.S.R.S., Pusa.  
Object :- To find out the optimum dose of Castor cake and G.N.C. for Sugarcane.

1. BASEL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light Loom. (b) N.A. (iii) 31st Jan. to 2nd Feb. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) Rainfed. (viii) Hoeing, weeding and earthing. (ix) 65.34'. (x) 17th and 18th March 1950.
2. TREATMENTS:

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

(1) 2 varieties: V1 = CO. 453 and V2 = BO. 11.
(2) 2 sources of N: S1 = Castor cake and S2 = G.N.C.
(3) 4 levels of N: N0 = 0, N1 = 40, N2 = 80 and N3 = 120 lb./ac.

3. DESIGN:

(i) 2 x 2 x 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Y' on either side of width. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Cane yield, count of mature stalk and sucrose%. (iv) (a) 1948—1953. (b) N0. (c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 23.16 ton/ha.
(ii) 2.22 ton/ha.
(iii) Main effects of V, N and interaction S x V are highly significant. Other effects are not significant.
(iv) Av. yield of sugarcane in ton/ha.

<table>
<thead>
<tr>
<th></th>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>Mean</th>
<th>S1</th>
<th>S2</th>
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<td>24.70</td>
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S.E. of the marginal mean of S or V: ~0.32 ton/ha.
S.E. of the marginal mean of N: ~0.45 ton/ha.
S.E. of body of N x V or N x S table: ~0.64 ton/ha.
S.E. of body of S x V table: ~0.45 ton/ha.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.
Ref :- Bh. 50(15).
Type :- 'MV'.

Object :- To find the optimum dose of Castor cake and G.N.C. for Sugarcane.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 20th Feb. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded sets/row. (d) between rows 5'. (e) — (f) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding & earthing. (ix) 22nd to 26th Feb. 1951.

2. TREATMENTS:

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

(1) 2 varieties: V1 = CO. 453, and V2 = BO. 11.
(2) 2 sources of N: S1 = Castor Cake and S2 = G.N.C.
(3) 4 levels of N: N0 = 0, N1 = 40, N2 = 80 and N3 = 120 lb./ac.

3. DESIGN:

(i) 2 x 2 x 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' width on 2 sides. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, sucrose %, count of mature stalks. (iv) (a) 1948-1953. (b) No. (c) Nil.
(v) (a) Majhaulia, Parsa and Pachrukhi. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 21.34 ton/ac.
(ii) 1.90 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
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<th></th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
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<th>S₁</th>
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</tr>
<tr>
<td>V₂</td>
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<td>20.01</td>
<td>19.15</td>
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<td>S₂</td>
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<td>24.31</td>
<td>22.57</td>
<td>——</td>
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</table>

S.E. of the marginal mean of S or V = 0.34 ton/ac.
S.E. of marginal mean of N = 0.47 ton/ac.
S.E. of body of tables (N × S or N × V) = 0.67 ton/ac.
S.E. of body of table V × S = 0.47 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.
Ref :- Bh. 51(22).
Type :- 'MV'.

Object :- To find out optimum dose of Castor cake and G.N.C. for Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 23.2.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded sets/row. (d) N.A. (e) — (v) Nil. (vi) As per treatments. (vii) Unirrigated.
(viii) Hoeing, earthing & weeding. (ix) 27.90". (x) 25/26.2.52.

2. TREATMENTS:
All combinations of (1), (2) & (3)
(i) 2 varieties : V₁=CO.453, and V₂=BO. 11.
(ii) 2 sources of N : S₁=Castor cake and S₂=G.N.C.
(iii) 4 levels of N : N₀=0. N₁=40, N₂=80 and N₃=120 lb./ac.

3. DESIGN:
(i) 2 × 2 × 4, Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Two rows of 3' width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalk. (iv) (a) 1948—1953. (b) No. (c) Nil.
(v) (a) Zonal centres, Parsa, Majhaulia, Pachrukhi, etc. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 14.25 ton/ac.
(ii) 3.82 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
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<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
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<th>S₁</th>
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</table>

S.E. of marginal mean of S or V = 0.68 ton/ac.
S.E. of marginal mean of N = 0.95 ton/ac.
S.E. of body of N x S or N x V table = 1.35 ton/ac.
S.E. of body of S x V table = 0.95 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 52(38).
Type :- 'MV'.

Object :- To find out the optimum dose of Castor cake and G.N.C.

1. BASAL CONDITIONS :
   (i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 26.1.52 (iv) (a) 5 bullock ploughings.
   (b) Row planting. (c) 64, three budded setts/row. (d) N.A. (e) Nil. (v) Nil. (vi) As per treatments.

2. TREATMENTS :
   Main-plot treatments :
   2 varieties : V₁ = CO. 453 and V₂ = BO. 11
   Sub-plot treatments :
   All combinations of (1) and (2)
   (1) 4 doses of N : N₀ = 0, N₁ = 40, N₂ = 80 and N₃ = 120 lb./ac.
   (2) 2 sources of N : S₁ = Castor cake and S₂ = G.N.C.

3. DESIGN :
   (i) Split-plot. (ii) (a) 2 main-plots/block : 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 64.5° x 24° (b) 60.5° x 18° (v) Two rows of 3' width. (vi) Yes.

4. GENERAL :
   (i) Fair. (ii) Nil. (iii) Case yield, sucrose % and count of mature stalk. (iv) (a) 1948—1953. (b) No.
   (c) Nil. (v) (a) & (b) Nil. (vi) Nil. (vii) Only the information given under results is available in the printed reports. Data appears to be analysed as Fact. in R.B.D. Plot wise yield data not available.
   (i) 14.65 ton/ac.
   (ii) 2.56 ton/ac.
   (iii) N.A.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
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<th></th>
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<th>N₂</th>
<th>N₃</th>
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<td>15.59</td>
<td>14.11</td>
<td>14.83</td>
<td>14.63</td>
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</tbody>
</table>

S.E. of marginal mean of levels = 0.64 ton/ac.
S.E. of marginal mean of sources = 0.46 ton/ac.
S.E. of body of table = 0.91 ton/ac.
Crop: Sugarcane.  
Site: C.S.R.S., Pusa.  
Object: To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light Loam (b) N.A. (iii) 22nd and 23rd Feb. 1950. (iv) (a) 4 ploughings (b) Row planting. (c) 60, three-budded setts/row. (d) N.A. (e) Nil. (v) As per treatments. (vi) Irrigated. (vii) Hoing, earthing and weeding. (ix) 38.24". (ix) 5th Jan., 1951.

2. TREATMENTS:
Main-plot treatments:
- 2 varieties: V1 = BO II and V2 = CO 453.

Sub-plot treatments:
M1 = A/N at 40 lb/ac. of N+Single Super at 50 lb/ac. of P2O5
M2 = A/S at 40 lb/ac. of N+Single Super at 50 lb/ac. of P2O5
M3 = A/N at 80 lb/ac. of N+Single Super at 100 lb/ac. of P2O5
M4 = A/S at 80 lb/ac. of N+Single Super at 100 lb/ac. of P2O5
M5 = A/N at 120 lb/ac. of N+Single Super at 150 lb/ac. of P2O5
M6 = A/S at 120 lb/ac. of N+Single Super at 150 lb/ac. of P2O5
M7 = A/N at 160 lb/ac. of N+Single Super at 200 lb/ac. of P2O5
M8 = A/S at 160 lb/ac. of N+Single Super at 200 lb/ac. of P2O5
M9 = A/N at 200 lb/ac. of N+Single Super at 250 lb/ac. of P2O5
M10 = A/S at 200 lb/ac. of N+Single Super at 250 lb/ac. of P2O5
M11 = Control (no manure)

3. DESIGN:
- (i) Split plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 60.5'x24' (b) 60.5'x18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
- (i) N.A. (ii) N.A. (iii) Cane yield, sucrose%, count of mature stalk. (iv) (a) 1950–1954. (b) No. (c) Nil. (v) (a) Sepaya, Harinagar, Parsa, Majhaulia, Pachrukhi, etc. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
- (i) 23.68 ton/ac.
- (ii) 10.02 ton/ac.
- (b) 2.51 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>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>21.12</td>
<td>22.01</td>
</tr>
<tr>
<td>M2</td>
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<td>21.15</td>
</tr>
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<td>M3</td>
<td>19.98</td>
<td>22.47</td>
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<td>M4</td>
<td>22.47</td>
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<td>M5</td>
<td>21.09</td>
<td>22.51</td>
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<td>M6</td>
<td>22.87</td>
<td>23.44</td>
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<td>M7</td>
<td>22.64</td>
<td>22.64</td>
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<td>M8</td>
<td>22.22</td>
<td>22.64</td>
</tr>
<tr>
<td>M9</td>
<td>22.07</td>
<td>23.74</td>
</tr>
<tr>
<td>M10</td>
<td>22.60</td>
<td>22.60</td>
</tr>
<tr>
<td>Mean</td>
<td>22.51</td>
<td>23.74</td>
</tr>
</tbody>
</table>

S.E. of the difference of two
- 1. V means = 1.45 ton/ac.
- 3. M means at the same level of V = 2.01 ton/ac.
- 4. V means at the same level of M = 2.01 ton/ac.

Crop: Sugarcane.  
Site: C.S.R.S., Pusa.  
Object: To find out the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam soil (clay). (b) N.A. (iii) 19.2.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three-budded setts/row. (d) N.A. (e) Nil. (f) As per treatments. (g) N.A. (h) Hoing, earthing and weeding. (i) 27.9". (x) 27th and 28th Feb. 1952.
2. TREATMENTS:—

Main-plot treatments:
2 varieties: \( V_1 = \text{BO.} \) and \( V_2 = \text{CO.} \)

Sub-plot treatments:
- \( M_1 = A/N \) at 40 lb./ac. of N + Single Super at 50 lb./ac. of \( P_2O_5 \)
- \( M_2 = A/S \) at 40 lb./ac. of N + Single Super at 50 lb./ac. of \( P_2O_5 \)
- \( M_3 = A/N \) at 80 lb./ac. of N + Single Super at 100 lb./ac. of \( P_2O_5 \)
- \( M_4 = A/S \) at 80 lb./ac. of N + Single Super at 100 lb./ac. of \( P_2O_5 \)
- \( M_5 = A/N \) at 120 lb./ac. of N + Single Super at 150 lb./ac. of \( P_2O_5 \)
- \( M_6 = A/S \) at 120 lb./ac. of N + Single Super at 150 lb./ac. of \( P_2O_5 \)
- \( M_7 = A/N \) at 160 lb./ac. of N + Single Super at 200 lb./ac. of \( P_2O_5 \)
- \( M_8 = A/S \) at 160 lb./ac. of N + Single Super at 200 lb./ac. of \( P_2O_5 \)
- \( M_9 = A/N \) at 160 lb./ac. of N + Single Super at 200 lb./ac. of \( P_2O_5 \)
- \( M_{10} = A/S \) at 200 lb./ac. of N + Single Super at 250 lb./ac. of \( P_2O_5 \)
- \( M_{11} = \text{Control (no manure)} \)

3. DESIGN:
(i) Split plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'x24' (b) 60.5'x18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, sucrose %, and count of mature stalks. (iv) (a) 1950-54. (b) No. (c) Nil. (v) (a) Zonal centres, Pachrukhi, Motihari, Majhaulia etc. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 19.95 ton/ac.
(ii) (a) 2.28 ton/ac.
(b) 1.67 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in tof/ac.

<table>
<thead>
<tr>
<th></th>
<th>( M_1 )</th>
<th>( M_2 )</th>
<th>( M_3 )</th>
<th>( M_4 )</th>
<th>( M_5 )</th>
<th>( M_6 )</th>
<th>( M_8 )</th>
<th>( M_9 )</th>
<th>( M_{10} )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>21.95</td>
<td>21.51</td>
<td>22.43</td>
<td>21.10</td>
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<td>21.43</td>
<td>21.71</td>
<td>22.66</td>
<td>24.21</td>
<td>19.50</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>17.02</td>
<td>18.14</td>
<td>18.62</td>
<td>17.05</td>
<td>16.28</td>
<td>18.46</td>
<td>20.47</td>
<td>17.72</td>
<td>17.58</td>
<td>16.50</td>
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<tr>
<td>Mean</td>
<td>19.48</td>
<td>19.82</td>
<td>20.32</td>
<td>19.08</td>
<td>19.61</td>
<td>19.94</td>
<td>21.59</td>
<td>20.89</td>
<td>18.80</td>
<td>19.95</td>
</tr>
</tbody>
</table>

S.E. of the difference of two

1. \( V \) means = 0.56 ton/ac.
2. \( M \) means = 0.84 ton/ac.
3. \( M \) means at the same level of \( V \) = 1.18 ton/ac.
4. \( V \) means at the same level of \( M \) = 2.23 ton/ac.

Crop :- Sugarcane. Rcf :- Bh. 52(39).
Site :- C.S.R.S., Pusa. Type :- 'MV'.

Object:—To compare the effect of \( A/N \) with that of \( A/S \) in combination with Single Super.

1. BASAL CONDITIONS:
(i) (a) None. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam soil. (b) N.A. (iii) 5th, 6th and 19th Feb. 1952.
(iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) 49.11'. (x) 18th to 20th Jan. 1953.
2. TREATMENTS:

Main-plot treatments:
- 2 varieties: \( V_1 = \text{BO. 11} \) and \( V_2 = \text{CO. 453} \).

Sub-plot treatments:
- \( M_1 = \text{A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P}_2\text{O}_5 \)
- \( M_2 = \text{A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P}_2\text{O}_5 \)
- \( M_3 = \text{A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P}_2\text{O}_5 \)
- \( M_4 = \text{A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P}_2\text{O}_5 \)
- \( M_5 = \text{A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P}_2\text{O}_5 \)
- \( M_6 = \text{A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P}_2\text{O}_5 \)
- \( M_7 = \text{A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P}_2\text{O}_5 \)
- \( M_8 = \text{A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P}_2\text{O}_5 \)
- \( M_9 = \text{A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P}_2\text{O}_5 \)
- \( M_{10} = \text{A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P}_2\text{O}_5 \)
- \( M_{11} = \text{Control (no manure).} \)

3. DESIGN:
   - (i) Split-plot.
   - (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot.
   - (b) N.A.
   - (iii) 4.
   - (iv) (a) 60.5’x24’.
   - (b) 60.5’x18’.
   - (v) Rows of 3’ on either side of width.
   - (vi) Yes.

4. GENERAL:
   - (i) N.A.
   - (ii) Nil.
   - (iii) Sugarcane yield, sucrose % and counting of mature stalks.
   - (iv) (a) 1950—1954.
   - (b) No.
   - (c) Nil.
   - (d) Motihari, Majhaulia and Pachrukhi.
   - (e) Nil.
   - (f) and (vii) Nil.

5. RESULTS:
   - (i) 4.32 ton/ac.
   - (ii) (a) 7.06 ton/ac.
   - (b) 0.18 ton/ac.
   - (iii) Main effect of \( M \) and interaction \( V \times M \) alone are highly significant.
   - (iv) A\(v\) yield of sugarcane in ton/ac.

\[
\begin{array}{cccccccccc}
M_1 & M_2 & M_3 & M_4 & M_5 & M_6 & M_7 & M_8 & M_9 & M_{10} & \text{Mean} \\
V_1 & 3.24 & 2.75 & 3.16 & 2.92 & 3.67 & 3.41 & 3.43 & 4.40 & 4.32 & 4.48 \\
V_2 & 4.77 & 5.00 & 5.25 & 5.21 & 5.43 & 5.25 & 4.96 & 4.94 & 5.36 & 4.97 & 4.81 \\
\text{Mean} & 4.01 & 3.88 & 4.21 & 4.19 & 4.18 & 4.46 & 4.19 & 4.19 & 4.88 & 4.65 & 4.65 \\
\end{array}
\]

S.E. of the difference of two
- 1. \( V \) marginal means = 1.50 ton/ac.
- 2. \( M \) marginal means = 0.09 ton/ac.
- 3. \( M \) means at the same level of \( V \) = 0.13 ton/ac.
- 4. \( V \) means at the same level of \( M \) = 1.51 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn. Patna.
Ref :- Bh. 51(18).
Object :- To find out the optimum number of setts/ac.
Type :- 'C'.

1. BASAL CONDITIONS:
   - (i) (a) Nil. (b) N.A.
   - (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 27 to 28.2.51.
   - (iv) (a) & (b) N.A.
   - (c) As per treatments.
   - (d) & (e) N.A. (v) Common dose of 80 lb./ac. of N as A/N and 60 lb./ac. of P\(_2\text{O}_5\) as Ammo. Phos. given at the time of planting.
   - (vi) CO. 453. (Medium).
   - (vii) Irrigated.
   - (viii) Weeding, hoeing and earthing. (ix) 30.47*.
   - (x) N.A.

2. TREATMENTS:
   - 1. 10,000 setts/ac.
   - 2. 15,000 setts/ac.
   - 3. 20,000 setts/ac.
   - 4. 25,000 setts/ac.
   - 5. 30,000 setts/ac.
   - 6. 35,000 setts/ac.
   - 7. 40,000 setts/ac.
   - 8. 45,000 setts/ac.
   - 9. 50,000 setts/ac.
3. DESIGN:
(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) 60.5’x34’. (b) 60.5’x18’. (v) Rows of 3’ on either side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Cane yield. (iv) (a) 1951—contd. (b) N.A. (c) N.A. (v) (a) None. (b) No. (vi) & (vii) Nil.

5. RESULTS:
(i) 27.23 ton/ac.
(ii) 2.34 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>27.92</td>
</tr>
<tr>
<td>2.</td>
<td>27.80</td>
</tr>
<tr>
<td>3.</td>
<td>23.88</td>
</tr>
<tr>
<td>4.</td>
<td>27.88</td>
</tr>
<tr>
<td>5.</td>
<td>28.13</td>
</tr>
<tr>
<td>6.</td>
<td>31.29</td>
</tr>
<tr>
<td>7.</td>
<td>22.70</td>
</tr>
<tr>
<td>8.</td>
<td>30.14</td>
</tr>
<tr>
<td>9.</td>
<td>25.36</td>
</tr>
</tbody>
</table>

S.E./mean = 1.66 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.
Object :- To find out the optimum number of setts/row.
Ref :- Bh. 52(8).
Type :- ‘C’.

1. BASAL CONDITIONS:
(i) (a) Paddy—Sugarcane—Paddy. (b) Paddy. (c) 40 lb./ac. of N as A/S+60 lb./ac. of P_2O_5 as Single Super. (ii) (a) Heavy clay. (b) N.A. (iii) 18.2.52 to 19.2.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) As per treatments. (d) Row to row 3’ apart. (e) —. (v) 60 lb./ac. of N+60 lb./ac. of P_2O_5 in the form of A/S and Super at planting and 40 lb./ac. of N in the form of A/S at earthing up. (vi) CO. 453.—(Medium). (vii) Irrigated. (viii) After every irrigation one interculture. (ix) 34.80’. (x) 7.2.53 and 11.2.53.

2. TREATMENTS:
1. 10,000 setts/ac. 6. 35,000 setts/ac.
2. 15,000 setts/ac. 7. 40,000 setts/ac.
3. 20,000 setts/ac. 8. 45,000 setts/ac.
4. 25,000 setts/ac. 9. 50,000 setts/ac.
5. 30,000 setts/ac.

3. DESIGN:
(i) R.B.D. (ii) (a) 9. (b) 60.5’x216’. (iii) 2. (iv) (a) 60.5’x34’. (b) 60.5’x18’. (v) One rows on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, cane yield at harvest, and borer %. (iv) (a) 1951—contd. (b) No. (c) N.A. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS:
(i) 12.77 ton/ac.
(ii) 3.69 ton/ac.
(iii) Treatments are not significantly different.
Crop : Sugarcane.
Site : Sugarcane Sub-Stn., Patna.
Ref : Bh. 53(55).
Type :- 'C'.

Object :- To find out the optimum number of setts/ac.

1. BASAL CONDITIONS :
   (i) (a) Sugarcane—Sanai—Sugarcane. (b) Sanai. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 26.2.53 to 27.2.53.
   (iv) (a) Mould board ploughing, then disc harrowing and then levelling. (b) N.A. (c) As per treatments.
   (d) Row to row distance 3'. (e) —. (v) 80 lb./ac. of N and 60 lb./ac. of P₂O₅ as A/S and Super respectively
      at the time of planting. 40 lb./ac. of N as A/S at earthing. (vi) CO. 453 (Medium). (vii) Irrigated. (viii)
      After every irrigation one interculture upto July; and then horse-hoeing. (ix) 60.83". (x) 17.1.54; 18.1.54.

2. TREATMENTS :
   1. 10,000 setts/ac. 6. 35,000 setts/ac.
   2. 15,000 setts/ac. 7. 40,000 setts/ac.
   3. 20,000 setts/ac. 8. 45,000 setts/ac.
   4. 25,000 setts/ac. 9. 50,000 setts/ac.
   5. 30,000 setts/ac.

3. DESIGN :
   (i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Border 3' wide on both sides along
      the length. (vi) Yes.

4. GENERAL :
   (i) Good ; no lodging). (ii) Nil. (iii) Germination %, sucrose %; no. of mature stalks and sugarcane yield at
      harvest. (iv) (a) 1951—contd. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :
   (i) 9.17 ton/ac.
   (ii) 2.30 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>7.32</td>
</tr>
<tr>
<td>2.</td>
<td>8.79</td>
</tr>
<tr>
<td>3.</td>
<td>7.41</td>
</tr>
<tr>
<td>4.</td>
<td>9.81</td>
</tr>
<tr>
<td>5.</td>
<td>11.16</td>
</tr>
<tr>
<td>6.</td>
<td>8.67</td>
</tr>
<tr>
<td>7.</td>
<td>9.68</td>
</tr>
<tr>
<td>8.</td>
<td>9.53</td>
</tr>
<tr>
<td>9.</td>
<td>10.14</td>
</tr>
</tbody>
</table>

S.E./mean = 1.13 ton/ac.

(v) 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>11.70</td>
</tr>
<tr>
<td>2.</td>
<td>11.23</td>
</tr>
<tr>
<td>3.</td>
<td>11.94</td>
</tr>
<tr>
<td>4.</td>
<td>13.74</td>
</tr>
<tr>
<td>5.</td>
<td>12.89</td>
</tr>
<tr>
<td>6.</td>
<td>13.39</td>
</tr>
<tr>
<td>7.</td>
<td>16.09</td>
</tr>
<tr>
<td>8.</td>
<td>12.80</td>
</tr>
<tr>
<td>9.</td>
<td>11.19</td>
</tr>
</tbody>
</table>

S.E./mean = 2.61 ton/ac.
Crop: Sugarcane.
Site: Sugarcane Sub-Stn., Patna.

Object: To find out the optimum number of setts/ac. to be planted.

1. BASAL CONDITIONS:
   (i) (a) Sanai-Sugarcane—Paddy—Sanai. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 16.12.53 to 19.12.53. (iv) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) N.A. (c) As per treatments. (d) N.A. (e) —. (v) 80 lb./ac. of N as A/S and 60 lb./ac. of P2O5 as Super. (vi) CO. 453. (vii) Irrigated. (viii) After every irrigation, one interculture. (ix) 37.02°. (x) 6.1.55 to 13.1.55.

2. TREATMENTS:
   1. 10,000 setts/ac. 6. 35,000 setts/ac.
   2. 15,000 setts/ac. 7. 40,000 setts/ac.
   3. 20,000 setts/ac. 8. 45,000 setts/ac.
   4. 25,000 setts/ac. 9. 50,000 setts/ac.
   5. 30,000 setts/ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Border 3' wide on both sides along length. (vi) Yes.

4. GENERAL:
   (i) Good; no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks; sugarcane yield at harvest and borers %. (iv) (a) 1953—contd. (b) N/A. (c) Nil. (v) (a) Nil. (b) No. (vi) and (vii) Nil.

5. RESULTS:
   (i) 27.84 ton/ac.
   (ii) 4.47 ton/ac.
   (iii) Treatments are not significantly different.
   (iv) Av. yield of sugarcane in ton/ac.
   Treatment | Av. yield | S.E./mean
   1          | 27.24     | 2.23 ton/ac.
   2          | 27.55     |
   3          | 26.05     |
   4          | 27.25     |
   5          | 27.76     |
   6          | 29.47     |
   7          | 28.92     |
   8          | 26.55     |
   9          | 29.73     |

Crop: Sugarcane.
Site: Sugarcane Sub-Stn. Patna.

Object: To study the economics of stubble harvesting.

1. BASAL CONDITIONS:
   (i) (a) Sanai-Sugarcane—Sanai. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 11.1.53 ; 12.1.53. (iv) (a) Mould board ploughing, disc harrowing and then levelling. (b) N.A. (c) 32, three-budded setts/row. (d) Row to row Y. (e) —. (v) 80 lb./ac. of N + 60 lb./ac. of P2O5 at the time of planting and 40 lb./ac. of N at earthing. N as A/S and P2O5 as Super. (vi) CO. 453 (Medium). (vii) Irrigated. (viii) After every irrigation one interculture and horse hosing. (ix) 61.32°. (x) As per treatments.

2. TREATMENTS:
   Main-plot treatments:—

   Sub-plot treatments:—
   2 systems of harvesting : S1 = Flat and S2 = Stubble.
3. DESIGN:
(i) Split plot. (ii) (a) 3 main-plots/block; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 30'x18'. (v) N.A. (vi) Yes

4. GENERAL:
(i) Fair; no lodging. (ii) Borer incidence noted. (iii) Germination %, no. of mature stalks and cane yield at harvest. (iv) (a) 1953-1955. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 9.55 ton/ac.
(ii) (a) 3.904 ton/ac. (b) 4.496 ton/ac.
(iii) Only the effect of T is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
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<td>6.00</td>
<td>6.88</td>
<td>9.03</td>
</tr>
<tr>
<td>S₂</td>
<td>16.40</td>
<td>7.02</td>
<td>6.79</td>
<td>10.05</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. T marginal means = 1.952 ton/ac.
2. S marginal means = 0.611 ton/ac.
3. S means at a level of T = 1.059 ton/ac.
4. T means at a level of S = 2.090 ton/ac.

---

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn. Patna.
Object :- To study the economics of stubble harvesting.

Ref :- Bh. 53(63).
Type :- 'C'.

1. BASAL CONDITIONS:
(i) (a) Sanai-Sugarcane Paddy-Sanai. (b) Sanai. (c) Nil. (d) (a) Clay. (b) N.A. (c) 25.12.53. (d) N.A. (e) 32, three budded sets/row. (f) N.A. (g) --. (h) 80 lb/ac. of N as A/S+60 lb/ac. of P₂O₅ on the date of planting. (i) CO. 419. (j) Irrigated. (k) After every irrigation, one interculture. (l) 37.19°. (m) As per treatments.

2. TREATMENTS:
Main-plot treatments :-
Sub-plot treatments :-
2 systems of harvesting : S₁=Flat and S₂=Stubble.

3. DESIGN:
(i) Split plot. (ii) (a) 4 main-plots/block; 2 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 30'x18'. (b) 30'x18'. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good—no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, cane yield at harvest and borer %. (iv) (a) 1953-1955. (b) No. (c) Nil. (d) (a) N.A. (b) Nil. (e) Nil. (f) The experiment was laid out with 4 replications. The yield of one replication could not be recorded due to some unavoidable circumstances. Hence the experiment was analysed with 3 replications.

5. RESULTS:
(i) 16.82 ton/ac.
(ii) (a) 2.80 ton/ac. (b) 5.84 ton/ac.
(iii) Only the effect of T is highly 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>S1</td>
<td>18.73</td>
<td>15.93</td>
<td>12.48</td>
<td>20.81</td>
<td>16.99</td>
</tr>
<tr>
<td>S2</td>
<td>21.24</td>
<td>16.29</td>
<td>11.43</td>
<td>17.64</td>
<td>16.65</td>
</tr>
<tr>
<td>Mean</td>
<td>19.98</td>
<td>16.11</td>
<td>11.96</td>
<td>19.73</td>
<td>16.82</td>
</tr>
</tbody>
</table>

S.E. of difference of two
1. T marginal means = 1.625 ton/ac.
2. S marginal means = 2.385 ton/ac.
3. T means at a level of T = 4.769 ton/ac.
4. T means at a level of S = 3.744 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.
Ref :- Bh. 53(112).
Type :- 'C'.

Object :- To study the selection of types of setts and to evaluate a relationship between top, middle and bottom sets of canes with respect to growth and yield.

1. BASAL CONDITIONS :
   (i) (a) Sanai-Sugarcane-Sanai. (b) Sanai. (c) Nil. (ii) (a) Sandy clay loam to loam in texture. (b) Org. C low, Org. N medium to low, C/N ratio narrow. Total phosphate : medium to high, available phosphate very low. Soil reaction strongly alkaline. (iii) 3.1.1953. (iv) (a) Harrow once and mould board ploughing each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow planting, end to end planting. (c) 3 budded setts/row. (d) 3' apart. (e)-. (v) No manuring. (vi) SO. 11 (Early). (vii) Unirrigated (viii) Fortightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 44.90'. (x) 4th week of Dec. 1953.

2. TREATMENTS :
   1. Tt 6. Mb
   2. Tm 7. Bt
   3. Tb 8. Bm
   4. Mt 9. Bb
   5. Mm
   Where t,m,b are top, middle and bottom setts of canes raised from top, middle and bottom setts in 1952-53

3. DESIGN :
   (i) R.B.D. (ii) 9. (b) N.A. (iii) 4. (iv) (a) 1/60 th ac. (b) 1/60th ac. (v) N.A. (vi) Yen.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Sugarcane yield only. (iv) (a) 1952-1953. (b) No. (c) N.A. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 12.60 ton/ac.
   (ii) 0.98 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>
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<tr>
<td>2</td>
<td>12.89</td>
</tr>
<tr>
<td>3</td>
<td>13.11</td>
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<tr>
<td>4</td>
<td>12.92</td>
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<td>5</td>
<td>11.93</td>
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<td>6</td>
<td>11.79</td>
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<tr>
<td>7</td>
<td>13.69</td>
</tr>
<tr>
<td>8</td>
<td>11.96</td>
</tr>
<tr>
<td>9</td>
<td>12.53</td>
</tr>
</tbody>
</table>

S.E./mean = 0.49 ton/ac.
Crop :- Sugarcane.
Site :- Zonal Centre, Dehri-on-Sone.

Object :- To find out the best time of planting Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial (non-calcareous) (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings by desi plough. (b) Flat planting. (c) 60 three budded setts/row. (d) Rows 3' apart. (e) - (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :
   All combinations of (1) and (2).
   (1) 3 varieties :- \( V_1 = CO. 453, V_2 = BO. 11 \) and \( V_3 = BO. 10 \)
   (2) 6 dates of planting : \( T_1 = \text{mid-October}, \quad T_2 = \text{mid-November}, \quad T_3 = \text{mid-December}, \quad T_4 = \text{mid-January}, \quad T_5 = \text{mid-February} \) and \( T_6 = \text{mid-March} \).

3. DESIGN :
   (i) 6x3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 3' on either side along length. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Majhaulia, Harinagar and Parsa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 17.45 ton/ac.
   (ii) 4.84 ton/ac.
   (iii) Main effect of \( T \) is highly significant. Main effect of \( V \) and interaction \( T \times V \) are 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>( T_5 )</th>
<th>( T_6 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>28.22</td>
<td>24.22</td>
<td>20.23</td>
<td>16.39</td>
<td>12.99</td>
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<td>18.56</td>
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<td>( V_2 )</td>
<td>25.58</td>
<td>24.38</td>
<td>18.79</td>
<td>15.15</td>
<td>11.76</td>
<td>8.09</td>
<td>16.52</td>
</tr>
<tr>
<td>( V_3 )</td>
<td>26.03</td>
<td>22.24</td>
<td>19.12</td>
<td>15.26</td>
<td>12.20</td>
<td>8.82</td>
<td>17.28</td>
</tr>
<tr>
<td>Mean</td>
<td>26.08</td>
<td>22.61</td>
<td>19.38</td>
<td>15.60</td>
<td>12.32</td>
<td>8.74</td>
<td>17.45</td>
</tr>
</tbody>
</table>

S.E. of \( V \) marginal mean = 0.807 ton/ac.
S.E. of \( T \) marginal mean = 1.141 ton/ac.
S.E. of body of table = 1.976 ton/ac.
3. DESIGN:
(i) 6 x 3 Fact. in R.B.D. (ii) 18. (b) N.A. (iii) & (iv) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and cane yield. (iv) (a) 1950—1953. (b) N.A. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Raw data N.A. In the annual report of the Institute, it is mentioned that due to abnormal yields in different plots the statistical analysis was not under taken.

5. RESULTS:
(i) 12.33 ton/ac.
(ii) N.A.
(iii) N.A.
(iv) (a) 1950-1953. (b) No. (c) No.
(v) (a) N.A. (b) N.A. (vi) Nil. (vii) N.A.

Crop :- Sugarcane.
Site :- Zonal Centre, Dehri-on-Sone.
Object :- To find out the best time of planting Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) Alluvial (non-calcareous) (b) N.A. (iii) As per treatments. (iv) (a) Four ploughings by desi plough. (b) Flat method. (c) 60 m²/ac. (d) Rows 3' apart. (e)—(v). N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1) & (2)
(1) 3 varieties —— V1 = CO 453, V2 = CO 622 and V3 = CO 632.
(2) 6 dates of planting —— T1 = mid-October, T2 = mid-November, T3 = mid-December, T4 = mid-January, T5 = mid-February, and T6 = mid-March.

3. DESIGN:
(i) 6 x 3 Fact. in R.B.D. (ii) 18. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24' (b) 60.5' x 18'(v) One row on either side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tiller no, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953.

5. RESULTS:
(i) 17.42 ton/ac.
(ii) 1.54 ton/ac.
(iii) Main effect of V and interactions T X V are significant. Main effect of T is highly significant.

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>26.65</td>
<td>26.41</td>
<td>16.73</td>
<td>18.77</td>
</tr>
<tr>
<td>V2</td>
<td>11.28</td>
<td>13.44</td>
<td>10.44</td>
<td>8.10</td>
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<tr>
<td>V3</td>
<td>8.07</td>
<td>4.48</td>
<td>4.83</td>
<td>4.52</td>
</tr>
<tr>
<td>Mean</td>
<td>14.69</td>
<td>14.78</td>
<td>10.68</td>
<td>10.46</td>
</tr>
</tbody>
</table>

S.E. of V marginal mean = 0.26 ton/ac.
S.E. of T marginal mean = 0.36 ton/ac.
S.E. of body of table = 0.63 ton/ac.
Crop: Sugarcane.  
Site: Zonal Centre, Dehri-on-Sone.  
Ref: Bh. 52(73).  
Type: 'CV'.

Object: To find the best time of planting Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial (non-calcareous). (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded sets/row. (d) Rows 3' apart. (e) —. (v) 120 lb./ac. of N as A/S + 60 lb./ac. of P2O5 as Single Super before planting. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Main-plot treatments: —
   3 varieties: \( V_1 = 453; \ V_2 = 622 \) and \( V_3 = 32 \).
   Sub-plot treatments: —
   6 times of planting: \( T_1 = \) mid-October; \( T_2 = \) mid-November; \( T_3 = \) mid-December; \( T_4 = \) mid-January; \( T_5 = \) mid-February and \( T_6 = \) mid-March.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/block; 6 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) No. of tillers, sugarcane yield and sucrose %. (iv) (a) 1959—1913. (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Majhuala and Motihari. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1953 not traceable.

5. RESULTS:
   (i) 19.31 ton/ac.  
   (ii) (a) 1.80 ton/ac.  
   (b) 0.53 ton/ac.  
   (iii) All the main effects and interaction are highly significant.  
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<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>
</thead>
<tbody>
<tr>
<td>( V_2 )</td>
<td>19.08</td>
<td>19.39</td>
<td>17.26</td>
<td>17.81</td>
<td>15.34</td>
<td>13.47</td>
</tr>
<tr>
<td>( V_3 )</td>
<td>22.50</td>
<td>22.40</td>
<td>18.65</td>
<td>19.21</td>
<td>16.82</td>
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<tr>
<td>Mean</td>
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<td>22.59</td>
<td>19.67</td>
<td>19.44</td>
<td>17.11</td>
<td>14.27</td>
</tr>
</tbody>
</table>

S.E. of difference of two:
1. V marginal means = 0.42 ton/ac.
2. T marginal means = 0.18 ton/ac.
3. T means at the same level of V = 0.31 ton/ac.
4. V means at the same level of T = 0.16 ton/ac.

Crop: Sugarcane.  
Site: Zonal Centre-Chanki Farm, Pachrukhi.  
Ref: Bh. 50(24).  
Type: 'CV'.

Object: To find out the best time of planting Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) G.M.-Sugarcane-G.M. (b) Sanai for G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) One disc plough for burning Sanai, one disc plough and one harrow later on. (b) Line planting. (c) N.A. (d) Rows 3' apart. (e) —. (v) Castorcake at 6 md./ac. + Super at 3 md./ac. + A/S at 1 md./ac. before planting and A/S at 1.5 md./ac. at the time of earthing up. (vi) As per treatments. (vii) Unirrigated. (viii) 2 intercultures. (ix) N.A. (x) N.A.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 varieties: \( V_1 = \text{CO. 453} \); \( V_2 = \text{BO. 10} \) and \( V_3 = \text{BO. 11} \).
(2) 6 times of planting: \( T_1 = \text{mid-October} \); \( T_2 = \text{mid-November} \); \( T_3 = \text{mid-December} \);
\( T_4 = \text{mid-January} \); \( T_5 = \text{mid-February} \) and \( T_6 = \text{mid-March} \).

3. DESIGN:
(i) 6 x 3 Fact. in R.B.D. (ii) (a) 18. (b) 18/30 ac. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 3' wide row on both sides along the length. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Cane yield and counting of mature stalks. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 14.41 ton/ac.
(ii) 1.38 ton/ac.
(iii) Main effect of \( V \) alone is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<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>( V_1 )</td>
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<td>20.72</td>
<td>20.79</td>
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<td>15.34</td>
<td>19.00</td>
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<td>13.03</td>
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<td>10.94</td>
<td>12.49</td>
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<td>11.75</td>
</tr>
<tr>
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<td>15.40</td>
<td>14.20</td>
<td>14.54</td>
<td>13.78</td>
<td>15.16</td>
</tr>
</tbody>
</table>

S.E. of \( V \) marginal mean = 0.23 ton/ac.
S.E. of \( T \) marginal mean = 0.31 ton/ac.
S.E. of body of table = 0.56 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.
Ref :- Bh. 50 (48).
Type :- ‘CV’.

Object :- To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings by desi plough. (b) Flat method. (c) 60, three budded setts/row. (d) Rows 3' apart (e) --- (v) N.A. (vi) As per treatments. (vii) N.A. (VIII) Horiing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 3 varieties: \( V_1 = \text{CO. 453} \); \( V_2 = \text{BO. 10} \) and \( V_3 = \text{BO. 11} \).
(2) 6 dates of planting: \( T_1 = \text{mid-October, 1950} \); \( T_2 = \text{mid-November, 1950} \); \( T_3 = \text{mid-December, 1950} \);
\( T_4 = \text{mid-January, 1951} \); \( T_5 = \text{mid-February, 1951} \) and \( T_6 = \text{mid-March 1951} \).

3. DESIGN:
(i) 6 x 3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 5. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Tiller no., no of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) Nil. (vii) Raw data of this exp. could not be traced and the table of mean yields was taken down from the annual report of the Sugarcane Research Station Pusa. The S.E./plot is not available. Also the yield of \( T_6 \) is not available.
5. RESULTS:

(i) 17.90 ton/ac.
(ii) N.A.
(iii) N.A.
(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>T(_5)</th>
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</tr>
</thead>
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<tr>
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<td>23.58</td>
<td>24.13</td>
<td>23.40</td>
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</tr>
<tr>
<td>V(_2)</td>
<td>17.82</td>
<td>16.42</td>
<td>16.09</td>
<td>20.20</td>
<td>17.23</td>
<td>17.55</td>
</tr>
<tr>
<td>V(_3)</td>
<td>12.20</td>
<td>14.47</td>
<td>14.25</td>
<td>10.17</td>
<td>7.46</td>
<td>11.71</td>
</tr>
<tr>
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<td>19.96</td>
<td>18.16</td>
<td>18.16</td>
<td>17.92</td>
<td>15.39</td>
<td>17.90</td>
</tr>
</tbody>
</table>

S.E.s: N.A.
Note: Please see item number (vii) under 'General'.

Crop: Sugarcane.
Site: Zonal Centre, Pasa.

Object: To find out the best time of planting of Sugarcane.

4. BASAL CONDITIONS:

(i) (a) N.A. (b) N.A. (c) N.A. (d) Alluvial calcarceous. (e) N.A.
(ii) As per treatments.
(iv) (a) 4 ploughings and harrowing. (b) Flat method. (c) 65 mld./ac. (d) Rows 3' apart. (e)—. (v) N.A.
(vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

5. TREATMENTS:

All combinations of (i) and (2)
(1) 3 varieties: V\(_1\)=CO. 413; V\(_2\)=CO. 622 and V\(_3\)=BO. 11.
(2) 6 dates of planting: T\(_1\)=mid-October; T\(_2\)=mid-November; T\(_3\)=mid-December; T\(_4\)=mid-January; T\(_5\)=mid-February and T\(_6\)=mid-March.

3. DESIGN:

(i) 6x3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks, and juice content. (iv) (a) 1950—1953. (b) N.A. (c) N.A. (v) N.A. (vi) Nil. (vii) Experiment conducted during the year 1952 not available.

5. RESULTS:

(i) 10.64 ton/ac.
(ii) 3.419 ton/ac.
(iii) All the effects are highly 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>T(_5)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V(_1)</td>
<td>29.24</td>
<td>19.97</td>
<td>18.98</td>
<td>20.62</td>
<td>12.60</td>
<td>14.65</td>
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<tr>
<td>V(_2)</td>
<td>9.88</td>
<td>8.49</td>
<td>8.57</td>
<td>7.46</td>
<td>7.54</td>
<td>8.05</td>
</tr>
<tr>
<td>V(_3)</td>
<td>12.20</td>
<td>11.83</td>
<td>7.27</td>
<td>10.32</td>
<td>8.19</td>
<td>9.22</td>
</tr>
<tr>
<td>Mean</td>
<td>14.11</td>
<td>13.26</td>
<td>8.87</td>
<td>12.60</td>
<td>9.48</td>
<td>10.64</td>
</tr>
</tbody>
</table>

1. S.E. of T multiple mean = \(\pm 0.578\) ton/ac.
2. S.E. of T multiple mean = \(\pm 0.836\) ton/ac.
3. S.E. of body of table = \(\pm 1.596\) ton/ac.
Crop :- Sugarcane.
Site :- Zonal Centre, Patna.

Object :- To find the best time of planting of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (d) Alluvial siliceous. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings followed by burning. (b) Flat planting. (c) 60, three bunted sets/row. (d) Rows 3' apart. (e) - (v) A/S at 40 lb/ac of N and 10 C.L/ac of F.Y.M. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (a) N.A.

2. TREATMENTS:
Main-plot treatments :
- 3 varieties :- V1 = CO. 453, V2 = BO. 10 and V3 = BO. 11.
Sub-plot treatments :
- 7 times of planting :- T1 = mid-September, T2 = mid-October, T3 = mid-November, T4 = mid-December, T5 = mid-January, T6 = mid-February and T7 = mid-March.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/block : 7 sub-plots/main-plot, (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL:
(i) Pair. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950 - 1953. (b) No. (c) Nil. (v) (a) Harinagar, Majhauli, Motihari, Motipur and Dehri-on-Sone. (b) No. (vi) & (vii) Nil.

5. RESULTS:
(i) 19.71 ton/ac.
(ii) (a) 5.20 ton/ac.
(b) 2.68 ton/ac.
(iii) Main effect of V is significant ; main effect of T is highly significant. Interaction V x T is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.73</td>
<td>24.34</td>
<td>25.07</td>
<td>19.97</td>
<td>17.92</td>
<td>19.33</td>
<td>16.97</td>
<td>21.05</td>
</tr>
<tr>
<td>20.55</td>
<td>19.20</td>
<td>19.33</td>
<td>15.72</td>
<td>16.70</td>
<td>15.04</td>
<td>14.34</td>
<td>17.27</td>
</tr>
<tr>
<td>Mean</td>
<td>22.67</td>
<td>22.69</td>
<td>21.40</td>
<td>18.42</td>
<td>18.40</td>
<td>17.84</td>
<td>16.94</td>
</tr>
</tbody>
</table>

S.E. of difference of two
2. T marginal means = 0.89 ton/ac.
3. T means at the same level of V = 1.55 ton/ac.
4. V means at the same level of T = 1.83 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.

Object :- To find out the best frequency of earthing operation.

1. BASAL CONDITIONS:
(i) (a) None. (b) Fallow. (c) No. (ii) (a) Clay. (b) N.A. (iii) 22 to 23.25. (iv) (a) to (e) N.A. (v) 80 lb/ac. of N as A/S and 60 lb/ac. of P2O5 as Single Super. Time & method of application : N.A. (vi) As per treatments. (vii) Irrigated. (viii) Earthing as per treatments and hooping (vii) 30.47" (a) N.A.
2. TREATMENTS:
All combinations of (1) & (2)
(1) 2 varieties: \(V_1=\text{CO. 622}\) and \(V_2=\text{CO. 453}\) (late).
(2) No. of earthings: \(E_0=\text{No earthing}\), \(E_1=\text{1 earthing}\), \(E_2=\text{2 earthings}\) and \(E_3=\text{3 earthings}\).

3. DESIGN:
(i) \(4 \times 2\) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) (iv) (a) 60.5'x21'. (b) 60.5'x15'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) None. (iii) Case yield. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 20.06 ton/ac.
(ii) 3.183 ton/ac.
(iii) Effect of varieties alone is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>(E_0)</th>
<th>(E_1)</th>
<th>(E_2)</th>
<th>(E_3)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V_1)</td>
<td>17.85</td>
<td>17.47</td>
<td>17.33</td>
<td>19.38</td>
<td>18.01</td>
</tr>
<tr>
<td>(V_2)</td>
<td>23.04</td>
<td>20.89</td>
<td>22.59</td>
<td>21.92</td>
<td>22.11</td>
</tr>
<tr>
<td>Mean</td>
<td>20.45</td>
<td>19.18</td>
<td>19.96</td>
<td>20.65</td>
<td>20.06</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of \(V\)
=0.796 ton/ac.
S.E. of marginal mean of \(E\)
=1.125 ton/ac.
S.E. of body of table
=1.591 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.
Ref :- Bh. 52(3).
Type :- 'CV'.

Object — To find out the best frequency of earthing operation.

1. BASAL CONDITIONS:
(i) (a) Sunnhemp—Sugarcane—Paddy. (b) Sunnhemp. (c) Nil. (ii) (a) Heavy clay. (b) N.A. (iii) 28.1.52 to 29.1.52. (iv) (a) Mouldboard ploughings followed by disc harrowing and then levelling. (b) N.A. (c) 64, three budded setts/row. (d) Size of row 3'. (e) 80 lb/ac. of \(\text{P}_2\text{O}_5\) in the form of A/S and Super at the time of planting+40 lb./ac. of \(\text{N}\) as A/S at earthing. (vi) As per treatments. (vii) Irrigated. (viii) After every irrigation one interculture and then horse hoeing. (ix) 34.51'. (x) 12th to 15th Jan. 53, 21.1.53 and 24.1.53.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: \(V_1=\text{CO. 622}\) and \(V_2=\text{CO. 453}\).
(2) No. of earthings: \(E_0=\text{No earthing}\), \(E_1=\text{1 earthing}\), \(E_2=\text{2 earthings}\) and \(E_3=\text{3 earthings}\).

3. DESIGN:
(i) \(4 \times 2\) Fact. in R.B.D. (ii) (a) 8. (b) 60.5'x168'. (iii) 4. (iv) (a) 60.5'x21'. (b) 60.5'x15'. (v) Two rows, one on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Germination %; sucrose %; no. of mature stalks, sugarcane yield at harvest and borer %. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS:
(i) 12.95 ton/ac.
(ii) 2.331 ton/ac.
(iii) Only variety effect is highly 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>T5</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>13.09</td>
<td>15.53</td>
<td>12.71</td>
<td>15.27</td>
<td>14.10</td>
<td></td>
</tr>
<tr>
<td>V2</td>
<td>20.93</td>
<td>23.33</td>
<td>22.09</td>
<td>20.81</td>
<td>21.79</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>17.01</td>
<td>19.33</td>
<td>17.40</td>
<td>18.04</td>
<td>17.93</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of marginal mean of V = 0.63 ton/ac.
S.E. of marginal mean of E = 0.89 ton/ac.
S.E. of body of table = 1.27 ton/ac.

Crop : Sugarcane.
Site : Sugarcane Sub-Stn., Patna.
Ref : Bh. 49(5).
Type : 'CV'.

Object :—To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :
(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) As per treatments. (iv) (a) to (e) N.A.
(v) 87 md./ac. of Castor cake + 4.65 md./ac. of Triple Super. Time and method of application of manures : N.A. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing. (ix) 69.88°. (x) 18.1.51 to 8.3.51.

2. TREATMENTS :
All combinations of (1) and (2)
(1) 3 varieties : V1 = CO. 453 (late), V2 = CO. 622 (early) and V3 = BO. 11 (early).
(2) 5 dates of planting : T1 = 23.11.49, T2 = 23.12.49, T3 = 17.1.50, T4 = 18.2.50 and T5 = 16.3.50.

3. DESIGN :
(i) 5 x 3 Fact. in R.B.D. (ii) (a) 15. (b) N.A. (iii) 6. (iv) (a) 30’ x 48’. (b) 2’ x 48’. (v) Rows of 3’ on either side of width. (vi) Yes.

4. GENERAL :
(i) Ordinary. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :
(i) 9.11 ton/ac.
(ii) 1.51 ton/ac.
(iii) V and T effects are highly significant, while interaction is not 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>T5</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>15.78</td>
<td>15.74</td>
<td>14.30</td>
<td>8.41</td>
<td>10.95</td>
<td>13.04</td>
</tr>
<tr>
<td>V2</td>
<td>12.70</td>
<td>10.29</td>
<td>10.08</td>
<td>4.27</td>
<td>4.79</td>
<td>8.43</td>
</tr>
<tr>
<td>V3</td>
<td>7.53</td>
<td>6.43</td>
<td>7.08</td>
<td>3.91</td>
<td>4.38</td>
<td>5.87</td>
</tr>
<tr>
<td>Mean</td>
<td>12.00</td>
<td>10.82</td>
<td>10.49</td>
<td>5.53</td>
<td>6.71</td>
<td>9.11</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of V = 0.28 ton/ac.
S.E. of marginal mean of T = 0.36 ton/ac.
S.E. of body of table = 0.62 ton/ac.
Crop : Sugarcane.  
Site : Sugarcane Sub-Stn., Patna.  
Type : 'CV'.

Object : To find out the response to flat and trenching methods of planting.

1. BASAL CONDITIONS :
   (i) (a) Sugarcane-Paddy-Sugarcane. (b) Paddy. (c) 40 lb./ac. of N+60 lb./ac. of P2O5. (ii) (a) Clay. (b) N.A. (iii) 21.1.53. (iv) (a) Mould board ploughing, disc harrowing and then levelling. (b) As per treatments. (c) 64 three budded setts/row. (d) & (e) N.A. (v) 60 lb./ac. of N and 60 lb./ac. P2O5 as A/S and Super respectively. (vi) As per treatments. (vii) Irrigated. (viii) After every irrigation one interculture and then horse-hoeing. (ix) 61.02'. (x) 25.1.54 to 27.1.54.

2. TREATMENTS :
   All combinations of (1) & (2)
   (1) 2 varieties : V1=CO. 453 and V2=BO. 11.
   (2) 2 systems of planting : (a) Flat and (b) Trenching.

3. DESIGN :
   (i) 2X2 Fact. in R.B.D. (ii) 4. (iii) 4. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) One row on each side along the length. (vi) Yes.

4. GENERAL :
   (i) Good; no lodging. (ii) Nil. (iii) Germination %, seedling %, no. of_marketable_buds, box %, no. of tillers/row and cane yield at harvest. (iv)(a) 1953-1955. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 8.27 ton/ha.  
   (ii) 4.228 ton/ha.  
   (iii) None of the effects is significant.  
   (iv) Av. yield of sugarcane in ton/ha.

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat</td>
<td>9.46</td>
<td>10.64</td>
<td>10.05</td>
</tr>
<tr>
<td>Trenching</td>
<td>6.89</td>
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<td>6.48</td>
</tr>
<tr>
<td>Mean</td>
<td>8.18</td>
<td>8.36</td>
<td>8.27</td>
</tr>
</tbody>
</table>

S.E. of any marginal mean = 1.495 ton/ha. 
S.E. of body of table = 2.114 ton/ha.

Crop : Sugarcane.  
Site : C.S.R.S. Pusa.  
Type : 'CV'.

Object : To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings. 
   (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) - (v) G.N.C. 20 mds/ac. and Triple Super 3 mds. 30 mds/ac. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. 
   (ix) N.A. (x) N.A.

2. TREATMENTS :
   All combinations of (1) & (2)
   (1) 2 varieties : V1=CO. 453 and V2=BO. 11.
   (2) 5 times of planting : T1=11.11.49; T2=11.12.48; T3=11.11.49; T4=18.2.49 and T5=11.3.49.

3. DESIGN :
   (i) 3x2 Fact. in R.B.D. (ii) 10. (b) N.A. (iii) 8. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Rows of 3' on each side of width. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) Nil. (iii) Cane yield, mature stalk count, and sucrose %. (iv) (a) 1949-1954. (b) N.A. (c)Nil.
(v) (a) Harinagar, Parsa, Majhauila, Pachrukhi, Narkatiaganj and Motipur. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 26.40 ton/ac.
(ii) 2.192 ton/ac.
(iii) V and T effects are highly significant, while their interaction is not 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>T5</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
<td>V1</td>
<td>30.97</td>
<td>30.51</td>
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</tr>
<tr>
<td>V2</td>
<td>25.24</td>
<td>25.41</td>
<td>22.34</td>
<td>23.63</td>
<td>22.61</td>
<td>23.85</td>
</tr>
</tbody>
</table>

Mean: 28.10 27.96 25.23 27.07 23.60 26.40

S.E. of marginal mean of V = 0.347 ton/ac.
S.E. of marginal mean of T = 0.490 ton/ac.
S.E. of body of table = 0.775 ton/ac.

Crop: Sugarcane.
Site: C.S.R.S. Pusa.

Object: To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sunnhemp. (c) Nil. (ii) (a) Light loamy soil. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Row planting. (c) 36, three budded setts/row. (d) 3' between rows. (e) G.M., G.N.C. 24 md. to whole experiment and Ammo. Phos. at 4. mds. 32 srs. for whole experiment. Time and method of application N.A. (vi) As per treatments. (vii) (a) Hoeing and earthing. (viii) Nitrog. and Phos. at 41.49'. (x) 23.2.51 to 28.2.51.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: V1 = CO. 453 and V2 = BO. 11.
(2) 6 times of planting: T1 = Oct., '49; T2 = Nov., '49; T3 = Dec., '49; T4 = Jan., '50; T5 = Feb., '50; and T6 = March, '50.

3. DESIGN:
(i) 6 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, counting of mature stalks and sucrose %. (iv) (a) 1949-1954. (b) N.A. (c) Nil. (v) (a) Harinagar, Parsa, Majhauila, Pachrukhi, Narkatiaganj and Motipur. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 19.13 ton/ac.
(ii) 2.480 ton/ac.
(iii) V and T effect are highly significant, while their interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
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<th>T5</th>
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<td>19.10</td>
<td>15.81</td>
<td>22.29</td>
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<tr>
<td>V2</td>
<td>18.25</td>
<td>17.25</td>
<td>18.15</td>
<td>16.92</td>
<td>14.45</td>
<td>10.80</td>
<td>15.97</td>
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</tbody>
</table>

S.E. of marginal mean of V = 0.413 ton/ac.
S.E. of marginal mean of T = 0.716 ton/ac.
S.E. of body of table = 1.012 ton/ac.

Crop: Sugarcane.
Site: C.S.R.S. Pusa.
Ref: Bh. 51 (25).
Type: 'CV'.

Object: To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Row to row—3'. (e) —. (v) A/S 2 mds. to the whole experiment. Time and method of application of A/S: N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
   All possible combinations of (1) and (2)
   (1) 2 varieties: V1 = CO. 453 and V2 = BO. 11.
   (2) 6 times of planting: T1 = mid-Oct., '50; T2 = mid-Nov., '50; T3 = mid-Dec., '50; T4 = mid-Jan., '51; T5 = mid-Feb., '51 and T6 = mid-march, '51:

3. DESIGN:
   (i) 6x2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) 3' rows on each side of width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and mature stalk count. (iv) (a) 1949—1954. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS:
   (i) 34.39 ton.ac.
   (ii) 2.734 ton.ac.
   (iii) V and T effects are highly significant, while their interaction is not 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>T5</th>
<th>T6</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>41.57</td>
<td>41.59</td>
<td>40.64</td>
<td>37.68</td>
<td>34.78</td>
<td>31.11</td>
<td>37.88</td>
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<tr>
<td>V2</td>
<td>29.55</td>
<td>28.59</td>
<td>28.02</td>
<td>28.37</td>
<td>25.94</td>
<td>23.89</td>
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</tr>
<tr>
<td>Mean</td>
<td>35.56</td>
<td>35.05</td>
<td>34.83</td>
<td>33.02</td>
<td>30.36</td>
<td>27.50</td>
<td>34.39</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of V = 0.456 ton/ac.
S.E. of marginal mean of T = 0.789 ton/ac.
S.E. of body of table = 1.116 ton/ac.
Crop: Sugarcane.  
Site: C.S.R.S. Pusa.  
Ref: Bh. 52 (38).  
Type: ‘CV’.

Object: To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Row to row 3'. (e) —. (v) G.N.C. at 24 md/ac.; Super at 8 md/ac. Time and method of application of manures: N.A. (vi) As per treatments. (vii) Rainfed. (viii) Hoeing, earthing and weeding. (ix) Varies from 46.89’ to 48.80’. (x) 3.51 to 14.52.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: \( V_1 = \text{CO.} \) and \( V_2 = \text{BO.} \) 11.
   (2) 6 times of planting: \( T_1 = \text{Oct., 1951; } T_2 = \text{Nov., 1951; } T_3 = \text{Dec., 1951; } T_4 = \text{Jan., 1952; } T_5 = \text{Feb., 1952 and } T_6 = \text{March, 1952.} \)

3. DESIGN:
   (i) 6 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 12. (iv) (a) 60.5’ x 24’. (b) 60.5’ x 18’. (v) Rows of 3’ on each side of width. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Nil. (iii) Cane yield, sucrose % and mature stalk count. (iv) (a) 1949-1954. (b) No. (c) Nil. (v) (a) Patna and Zonal centres at Motihari, Motipur, Pachrukhi, and Majhauta. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 21.77 ton/ac.
   (ii) 4.779 ton/ac.
   (iii) V and T effects are highly significant, while their interaction is not 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>( T_5 )</th>
<th>( T_6 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>32.52</td>
<td>27.93</td>
<td>23.86</td>
<td>23.78</td>
<td>22.02</td>
<td>22.31</td>
<td>25.41</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>20.40</td>
<td>21.40</td>
<td>18.31</td>
<td>17.94</td>
<td>17.18</td>
<td>13.51</td>
<td>18.12</td>
</tr>
<tr>
<td>Mean</td>
<td>26.46</td>
<td>24.67</td>
<td>21.09</td>
<td>20.86</td>
<td>19.60</td>
<td>17.91</td>
<td>21.77</td>
</tr>
</tbody>
</table>

S.E. of the marginal mean of V = 0.797 ton/ac.
S.E. of the marginal mean of T = 1.379 ton/ac.
S.E. of body of table = 1.951 ton/ac.

Crop: Sugarcane.  
Site: C.S.R.S. Pusa.  
Ref: Bh. 53 (109).  
Type: ‘CV’.

Object: To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Sugarcane—Sesam (G.M.)—Wheat—Mung (G.M.). (b) Mung (G.M.). (c) Nil. (ii) (a) Texture is sandy loam to silty loam with normal to deep saline phase. (b) Org. C and Org. N are low and C/N ratio is narrow to normal. Total P2O5 is medium to high. Available phosphate very low. Soil reaction is strongly alkaline. (iii) As per treatments. (iv) (a) Harrow once and mould board ploughing each followed by Harva. Again discing followed by sub-planting (b) Furrow planting, end to end planting. (c) N.A. (d) 3’ apart. (e) —. (v) 12 md./ac. of G.N.C.+7 md. 8 ur./ac. of Super+5 md./ac. of Castor cake+3 md./ac. of Super. (vi) As per treatments. (vii) Irrigated. (viii) Fortnightly intercultural operation after germination till the end of May. Earthing up in Mid-June. (ix) 49.31’. (x) 1st week of January, 1954.
2. TREATMENTS:

All combinations of (1) and (2)
(1) 2 varieties: \( V_1 = \text{BO. 11 (early)} \) and \( V_2 = \text{BO. 14 (early)} \).
(2) 6 times of planting: \( T_1 = 20\text{th Oct., 1952} \); \( T_2 = 20\text{th Nov., 1952} \); \( T_3 = 20\text{th Dec., 1952} \); \( T_4 = 20\text{th Jan., 1953} \); \( T_5 = 20\text{th Feb., 1953} \) and \( T_6 = 20\text{th March, 1953} \).

3. DESIGN:

(i) 6x2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Two rows, one on either side of the sub-plot as non experimental. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Borer incidence noted. Dead heart removed. During the early period of growth, on controlling termite infection Aldrine was applied at planting and the other dose 3 months after. (iii) Germination % tillering, weight, no. of mature stalks, sucrose % and yield. (iv) (a) 1952-1954. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 22.79 ton/ac.
(ii) 2.69 ton/ac.
(iii) V and T effects are highly significant, while interaction VxT is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>V</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>23.68</td>
<td>27.77</td>
<td>20.60</td>
<td>22.06</td>
<td>21.65</td>
<td>17.04</td>
<td>21.67</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>25.20</td>
<td>27.18</td>
<td>26.22</td>
<td>25.68</td>
<td>24.21</td>
<td>15.02</td>
<td>23.92</td>
</tr>
<tr>
<td>Mean</td>
<td>24.54</td>
<td>25.48</td>
<td>23.56</td>
<td>24.32</td>
<td>22.83</td>
<td>16.03</td>
<td>22.79</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of V = 0.45 ton/ac.
S.E. of marginal mean of T = 0.78 ton/ac.
S.E. of body of table = 1.10 ton/ac.

Crop := Sugarcane. Ref := Bb. 49(11).
Site := C.S.R.S. Pusa. Type := 'CV'.

Object := To find out the optimum spacing and no. of setts/ac. for different varieties of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 17th and 18th Jan. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) As per treatments. (d) As per treatments. (e) as per treatments. (f) G.N.C. 20 md. to the whole experiment. Time and method of application of manures N.A. (vi) As per treatments. (vi) Rainfed. (viii) Hoeing, weeding and earthing. (ix) 65.70'. (x) 26th and 28th Feb. 1950.

2. TREATMENTS:

All combinations of (1) and (2)
(1) 2 varieties: \( V_1 = \text{CO. 453} \) and \( V_2 = \text{BO. 11} \).
(2) No. of setts planted/ac. :
   A. 15,000 (Normal single setts eye to eye).
   B. 30,000 (Normal double setts eye to eye).
   C. 17,000 (1' apart single setts eye to eye).
   D. 15,000 (1' apart double setts eye to eye).
   E. 16,000 (2' apart single setts-eye to eye).
   F. 16,000 (2' apart double setts-eye to eye).
   G. 68,000 (3' apart triple setts-eye to eye).

3. DESIGN:

(i) 7x2 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 5' reap of 3' on either side of width. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) Nil. (iii) Sugarcane yield, count of mature stalks and sucrose %, (iv) (a) No. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 22.84 ton/ac.
(ii) 2.634 ton/ac.
(iii) Effects of variety and number of setts/row are highly significant, while interaction is not significant. (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>25.36</td>
<td>29.43</td>
<td>22.18</td>
<td>24.28</td>
<td>20.51</td>
<td>24.04</td>
<td>25.44</td>
</tr>
<tr>
<td>V2</td>
<td>21.80</td>
<td>24.24</td>
<td>21.30</td>
<td>24.27</td>
<td>13.61</td>
<td>20.72</td>
<td>22.35</td>
</tr>
<tr>
<td>Mean</td>
<td>23.58</td>
<td>26.84</td>
<td>21.74</td>
<td>24.53</td>
<td>17.06</td>
<td>22.38</td>
<td>23.75</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of variety = 0.498 ton/ac.
S.E. of marginal mean of setts = 0.953 ton/ac.
S.E. of body of table = 1.317 ton/ac.

Crop: - Sugarcane.
Site: - C.S.R.S. Pusa.
Ref: - B.D. 90(39).
Type: - 'CV'.

Object: — To find out the optimum number of setts/ac. to get maximum yield.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sunnhemp. (c) Nil. (ii) (a) Loamy soil. (b) N.A. (iii) 30th and 25th Jan. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) As per treatments. (v) 3' between rows. (vi) —. (vii) G.M.; G.N.C. at 1 seer and 12 chh./row. (net plot has 6 rows). Time and method of application of manures N.A. (viii) As per treatments. (ix) Irrigated. (x) Hoeing, earthing and weeding. (xi) 36.69°. (xii) 9th and 10th March, 1951.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 varieties: V1=CO 453 and V2=BO 11.
(2) No. of setts/ac.planted.
A. 10,000 (42, three; budded setts/row).
B. 15,000 (control 64, three; budded setts/row).
C. 20,000 (85, three; budded setts/row).
D. 25,000 (106, three; budded setts/row).
E. 30,000 (128, three; budded setts/row).
F. 35,000 (148, three; budded setts/row).
G. 40,000 (170, three; budded setts/row).

3. DESIGN:
(i) 7 x 2 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Sugarcane yield, sucrose % and counting of mature stalk. (iv) (a) 1950—1951. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 21.42 ton/ac.
(ii) 1.377 ton/ac.
(iii) Effects of variety and number of setts/ac. are highly significant, while interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>19.26</td>
<td>22.95</td>
<td>23.09</td>
<td>22.14</td>
<td>22.24</td>
<td>23.86</td>
<td>21.91</td>
<td>22.21</td>
</tr>
<tr>
<td>V2</td>
<td>17.18</td>
<td>19.38</td>
<td>22.28</td>
<td>21.67</td>
<td>21.64</td>
<td>22.02</td>
<td>20.82</td>
<td>20.63</td>
</tr>
<tr>
<td>Mean</td>
<td>18.22</td>
<td>21.17</td>
<td>22.69</td>
<td>21.60</td>
<td>21.94</td>
<td>22.94</td>
<td>21.36</td>
<td>21.42</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of varieties = 0.260 ton/ac.
S.E. of marginal mean of setts = 0.487 ton/ac.
S.E. of body of table = 0.689 ton/ac.

Crop: Sugarcane.

Ref: Bh. 51(19).

Site: C.S.R.S. Pusa.

Type: 'CV'.

Object: To find out the optimum number of setts/ac. to obtain maximum yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 28th & 29th January 1951.
   (iv) (a) 4 ploughings. (b) Row planting. (c) As per treatments. (d) 3 between rows. (e) —.
   (v) 60 lb/ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing. (ix) 27.66%.
   (x) 4th week of Feb. 1952.

2. TREATMENTS:
   All combinations of (1) & (2)
   (1) 2 varieties: V1=CO. 453 and V2=BO. 11.
   (2) No. of setts planted/ac:
      A. 10,000 (42, three budded setts/row).
      B. 15,000 (64, three budded setts/row).
      C. 20,000 (85, three budded setts/row).
      D. 25,000 (106, three budded setts/row).
      E. 30,000 (128, three budded setts/row).
      F. 35,000 (148, three budded setts/row).
      G. 40,000 (170, three budded setts/row).

3. DESIGN:
   (i) 7x2 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and mature stalks counting. (iv) (a) 1950-1951. (b) No.
      (c) Nil. (v) (a) None. (b) Nil. (v) & (vii) Nil.

5. RESULTS:
   (i) 27.21 ton/ac.
   (ii) 2.831 ton/ac.
   (iii) Effects of Variety and Number of setts/row are highly significant. Interaction is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>27.01</td>
<td>28.55</td>
<td>31.60</td>
<td>30.42</td>
<td>30.61</td>
<td>33.21</td>
<td>35.19</td>
<td>30.94</td>
</tr>
<tr>
<td>V2</td>
<td>21.32</td>
<td>20.48</td>
<td>27.89</td>
<td>21.73</td>
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<td>25.07</td>
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<tr>
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<td>24.32</td>
<td>29.75</td>
<td>26.08</td>
<td>27.01</td>
<td>29.14</td>
<td>29.80</td>
<td>27.21</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of variety = 0.618 ton/ac.
S.E. of marginal mean of setts = 1.156 ton/ac.
S.E. body of the table = 1.635 ton/ac.
Crop: Sugarcane.  
Site: C.S.R.S. Pusa.  
Refer: Bh. 53(148).  
Type: 'CV'.

Object: To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS:
   (i) Sugarcane—Maize—Barley—Sanai (G.M.) (b) Sanai, (G.M.) (c) Nil. (ii) (a) Formally sandy loam in texture with normal to deep phase character. (b) Org C is low, Org. N medium to low and having a variable C/N. Total phosphate is usually low and available phosphate extremely low. Soil reaction varies from alkaline to extremely alkaline. (iii) As per treatments. (iv) (a) Harrow, plough & mould board ploughing each followed by Hingga. (b) Furrow planting. (c) N.A. (d) 3' between rows. (e) N.A. (v) 60 lb. of N as A/S + 75 lb. of P₂O₅ as Super applied by sub-soiling. (vi) As per treatments. (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 47.94'. (x) 3rd week of Feb. 1955.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V₁=BO. 11 and V₂=BO. 14.

3. DESIGN:
   (i) 5 x 2 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5'x24'. (b) 60.5'x18'. (v) Two rows, one on either side along length (vi) Yes.

4. GENERAL:
   (i) Good. Earlier plants were badly damaged by termites and no significant yield differences accrued out of the time of planting factor. (ii) Borer incidence noted. Dead hearts removed during the early period of the growth. For controlling termite infection, Aldrine was applied at planting and the other dose 3 months after. (iii) Germination, tillering, height, no. of mature stalk, sucrose % in cane and cane yield. (iv) (a) 1948-1954. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 22.737 ton/ac.
   (ii) 5.497 ton/ac.
   (iii) The effect of V alone is highly 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>T₅</th>
<th>Mean</th>
</tr>
</thead>
</table>

Mean 20.607 24.500 23.802 22.370 22.296 22.737

S.E. of marginal mean of V =0.709 ton/ac.
S.E. of marginal mean of T =1.128 ton/ac.
S.E. of body of table =1.587 ton/ac.

Crop: Sugarcane.  
Site: Sugarcane Sub-Stn. Patna.  
Refer: Bh. 52(4).  
Type: 'CMV'.

Object: To compare the different doses of N and P on different varieties with different depths of planting.

1. BASAL CONDITIONS:
   (i) Sanai—Sugarcane—Paddy—Sanai (b) Sanai. (c) Nil. (ii) (a) Heavy clay. (b) N.A. (iii) 30.1.52 to 2.2.52. (iv) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) As per treatments. (c) 64, three budded sets/row. (d) N.A. (e) — (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing & weeding. (ix) 35.42'. (x) 9.1.53 to 21.1.53.
2. TREATMENTS:
All combinations of (1), (2), (3) and (4)
(1) 2 varieties: \( V_1 = \text{CO.} \ 453 \) and \( V_2 = \text{BO.} \ 11. \)
(2) 2 levels of N as Castor cake: \( N_1 = 40 \) and \( N_2 = 80 \) lb./ac.
(3) 2 levels of \( P_2O_5 \) as Single Super: \( P_1 = 50 \) and \( P_2 = 100 \) lb./ac.
(4) 2 depths of planting: \( D_1 = 6' \) deep and \( D_2 = 12' \) deep.

3. DESIGN:
(i) 2nd Fack. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on either side of the width. (vi) Yes.

4. GENERAL:
(i) Good; no lodging. (ii) Nil. (iii) Cane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 14.1 ton/ac.
(ii) 3.348 ton/ac.
(iii) Variety effect is highly significant. Interaction \( V \times P \times D \) is also significant.
(iv) Table of mean and differential response in ton/ac.

<table>
<thead>
<tr>
<th>Mean response</th>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( D_1 )</th>
<th>( D_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>-5.85</td>
<td>-</td>
<td>-4.7</td>
<td>-6.1</td>
<td>-5.6</td>
<td>-6.4</td>
</tr>
<tr>
<td>N</td>
<td>-0.60</td>
<td>-1.8</td>
<td>+0.6</td>
<td>-</td>
<td>-0.9</td>
<td>-0.3</td>
</tr>
<tr>
<td>P</td>
<td>-0.10</td>
<td>-0.4</td>
<td>+0.2</td>
<td>-0.4</td>
<td>+0.2</td>
<td>-</td>
</tr>
<tr>
<td>D</td>
<td>+0.10</td>
<td>-0.4</td>
<td>+0.6</td>
<td>+0.5</td>
<td>-0.3</td>
<td>+1.6</td>
</tr>
<tr>
<td>S.E.</td>
<td>0.837 ton/ac.</td>
<td>1.184 ton/ac.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop: Sugarcane.  
Site: Sugarcane Sub-Stn., Patna.  
Type: 'CMV'.  
Ref: Bh. 51(4).

Object: To compare the application of different doses of N and P on different varieties planted at different depths.

2. TREATMENTS:
All combinations of (1), (2), (3) and (4)
(1) 2 varieties: \( V_1 = \text{CO.} \ 453 \) and \( V_2 = \text{BO.} \ 11. \)
(2) 2 levels of N as Castor cake: \( N_1 = 40 \) and \( N_2 = 80 \) lb./ac.
(3) 2 levels of \( P_2O_5 \) as Triple Super: \( P_1 = 50 \) and \( P_2 = 100 \) lb./ac.
(4) 2 depths of planting: \( D_1 = 6' \) deep and \( D_2 = 12' \) deep.

3. DESIGN:
(i) 2nd Fack. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on either side of the width. (vi) Yes.

4. GENERAL:
(i) Satisfactory. (ii) Nil. (iii) Cane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Pusa. (b) No. (vi) Nil. (vii) Experiment conducted in 1950 not traceable.
5. RESULTS:
(i) 13.78 ton/ac.
(ii) 2.91 ton/ac.
(iii) Only variety effect is highly significant.
(iv) Table of mean and differential response in ton/ac.

<table>
<thead>
<tr>
<th>Mean response</th>
<th>V1</th>
<th>V2</th>
<th>N1</th>
<th>N2</th>
<th>P1</th>
<th>P2</th>
<th>D1</th>
<th>D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>4.97</td>
<td></td>
<td>-5.40</td>
<td>-4.84</td>
<td>-6.19</td>
<td>-5.75</td>
<td>-4.40</td>
<td>-5.54</td>
</tr>
<tr>
<td>N</td>
<td>0.42</td>
<td>-0.99</td>
<td>-0.29</td>
<td>-5.55</td>
<td>-0.29</td>
<td>-1.07</td>
<td>+0.22</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>+0.39</td>
<td>-0.83</td>
<td>+1.61</td>
<td>+0.26</td>
<td>+0.52</td>
<td>-0.66</td>
<td>+1.44</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>-0.68</td>
<td>-0.11</td>
<td>-1.23</td>
<td>-1.33</td>
<td>-0.04</td>
<td>-1.73</td>
<td>+0.37</td>
<td></td>
</tr>
<tr>
<td>S.E.</td>
<td>0.727 ton/ac.</td>
<td>1.028 ton/ac.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Object :- To study the influence of irrigation and varieties on growth, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :
(i) (a) Sandy-Sugarcane-Sandal. (b) Sand. (c) Nil. (iii) Sandy loam to silty loam. (b) N.A. (iii) 25.25 & 26.53. (iv) (a) Harrow once and mould board ploughing each followed by Hogs. Again discing followed by sub-soiling. (b) Furrow planting, end to end planting. (c) N.A. (d) 3' apart. (e) - (v) 40 lb/ac. of N+50 lb/ac. of P2O5 as Castor cake and Single Super respectively. (vi) As per treatment. (vii) Irrigation. (viii) Formightly irrigation operations after germination till the end of May. Earthing up in mid-June. (ix) N.A. (a) First week of January, 1954.

2. TREATMENTS :
Main-plot treatments :-
2 varieties : V1=BO. 11(early) and V2=CO. 453(early).

Sub-plot treatments :-
4 irrigations : I0=No irrigation, I1=irrigation every week, I2=irrigation every 14 days and I3=irrigation every 21 days.

3. DESIGN :
(i) Split plot. (ii) (a) 2 main-plots/block x 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 17'. (a) Two rows of non-experimental, one on either side of the plot. (vi) Yes.

4. GENERAL :
(i) N.A. (ii) N.A. (iii) Cane yield. (iv) (a) No. (b) & (c) Nil. (v) (a) Nil. (b) No. (vi) & (vii) Nil.

5. RESULTS :
(i) 24.38 ton/ac.
(ii) (a) 3.97 ton/ac.
(b) 1.28 ton/ac.
(iii) Irrigation effect is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>I₀</th>
<th>I₁</th>
<th>I₂</th>
<th>I₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>24.30</td>
<td>25.80</td>
<td>24.99</td>
<td>25.72</td>
<td>25.20</td>
</tr>
<tr>
<td>V₂</td>
<td>21.15</td>
<td>23.78</td>
<td>22.97</td>
<td>26.30</td>
<td>23.55</td>
</tr>
<tr>
<td>Mean</td>
<td>22.73</td>
<td>24.79</td>
<td>23.98</td>
<td>26.01</td>
<td>24.38</td>
</tr>
</tbody>
</table>

S.E. of difference of two

V marginal means = 1.29 ton/ac.
I marginal means = 0.64 ton/ac.
I means at the same level of V = 0.90 ton/ac.
V means at the same level of I = 1.61 ton/ac.

Crop: Sugarcane.

Site: Sugarcane Sub-Str. Patna.

Ref: Bh.49 (4).

Type: ‘IMV.

Object: To find out the best combination of N and irrigation on the yield of two different varieties of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Sanai-Sugarcane-Sanai. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 29th to 31st Jan. 1949
   (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding, earthing and hoeing. (ix) 69.88”.
   (x) 13.2.50. to 28.2.50.

2. TREATMENTS:
   All combinations of (1) & (2)
   (1) 2 varieties: V₁ = CO. 453(late) and V₂ = BO. 11(early).
   (2) 2 levels of N: N₁ = 40 lb/ac. and N₂ = 80 lb/ac. of N.
   (3) 3 intervals of irrigation: I₁ at interval of 15 days, I₂ at interval of 21 days and I₃ at interval of 30 days.

3. DESIGN:
   (i) 3x2x2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 21’x62.5’. (b) 15’x62.5’. (v) 3’ on each side of width. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Borer, white fly, scale insect, removal of dead hearts and borer & spraying of insecticides.
   (i) Yield of cane. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
   (i) 14.58 ton/ac.
   (ii) 2.16 ton/ac.
   (iii) Effect of V and interaction V x N x I are highly significant. Interaction N x I is significant, while no other effect is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th></th>
<th>I₀</th>
<th>I₁</th>
<th>I₂</th>
<th>I₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>18.71</td>
<td>17.72</td>
<td>19.45</td>
<td>18.63</td>
<td>18.49</td>
</tr>
<tr>
<td>V₂</td>
<td>10.38</td>
<td>11.12</td>
<td>10.12</td>
<td>10.54</td>
<td>10.33</td>
</tr>
<tr>
<td>N₁</td>
<td>14.76</td>
<td>13.26</td>
<td>15.06</td>
<td>14.36</td>
<td></td>
</tr>
<tr>
<td>N₂</td>
<td>14.34</td>
<td>15.29</td>
<td>14.50</td>
<td>14.81</td>
<td></td>
</tr>
</tbody>
</table>

S.E. of the marginal mean of V or N = 0.36 ton/ac.
S.E. of the marginal mean of I = 0.44 ton/ac.
S.E. of body of table 1x(V or N) = 0.62 ton/ac.
S.E. of body of table VxN = 0.51 ton/ac.
Crop :- Sugarcane.  
Site :- Sugarcane Sub-Stn., Patna.  
Ref :- Bh. 50 (1).  
Type :- 'IMV'.

Object :- To find out the best combination of N and irrigation on the yield of two different varieties.

1. BASAL CONDITIONS:
   (i) (a) Paddy—sugarcane—paddy. (b) Paddy. (c) N.A. (ii) (a) Clay (b) N.A. (iii) 20—26.1.50. (iv) (a) to (c) N.A. (v) None. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing. (ix) 40.02". (x) 3.2.51 to 8.3.51.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 2 varieties: V1=CO. 453 (late) and V2=BO. 11 (early).
   (2) 2 levels of N: N1=40 lb./ac. and N2=80 lb./ac. of N.
   (3) 3 intervals of irrigation: I1=at interval of 15 days; I2=at interval of 21 days; and I3=at interval of 30 days.

3. DESIGN:
   (i) 2x2x3 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 21'x72.5'. (b) 15'x72.5' (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
   (i) Average. (ii) Non. (iii) Cane yield. (iv) (a) Yes, 1949—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 7.09 ton/ac. (ii) 1.20 ton/ac. (iii) Varieties effect is highly significant. No other effect is significant.
   (iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>I1</th>
<th>I2</th>
<th>I3</th>
<th>Mean</th>
<th>N1</th>
<th>N2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>10.16</td>
<td>11.31</td>
<td>10.19</td>
<td>10.52</td>
<td>10.58</td>
</tr>
<tr>
<td>V2</td>
<td>4.00</td>
<td>3.18</td>
<td>3.81</td>
<td>3.66</td>
<td>3.56</td>
</tr>
<tr>
<td>Mean</td>
<td>7.08</td>
<td>7.24</td>
<td>6.95</td>
<td>7.09</td>
<td>7.07</td>
</tr>
<tr>
<td>N1</td>
<td>7.28</td>
<td>7.27</td>
<td>6.66</td>
<td>7.07</td>
<td></td>
</tr>
<tr>
<td>N2</td>
<td>6.88</td>
<td>7.21</td>
<td>7.24</td>
<td>7.11</td>
<td></td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Site :- Zonal Centre, Motihari.  
Ref :- Bh. 49 (30).  
Type :- 'CIM'.

Object :- To find out the optimum spacing in combination with N and irrigation.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sanai. (c) 50 lb./ac. of P2O5 as Single Super. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 8/9.10.1949. (iv) (a) One ploughing for burying Sanai, followed by 4 ploughings and beamng. (b) Flat planting. (c) 34, three budded setts/row. (d) Rows 3' 50 part as per treatment. (e)—. (v) Sanai as G.M.+F.Y.M. at 10 C.L./ac. (vi) CO, 453. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 56 35" (x) 10th to 12th March 1950.
2. TREATMENTS:

Main-plot treatments:
3 irrigations: \( I_1 = 2 \) irrigations each after 21 days; \( I_2 = 4 \) irrigations each after 14 days and \( I_3 = 6 \) irrigations each after 21 days.

Sub-plot treatments:
All combinations of \( (1) \) and \( (2) \):
1. 3 spacings: \( S_1 = 3' \), \( S_2 = 4' \) and \( S_3 = 5' \).
2. 3 levels of N as Castor cake: \( N_1 = 80 \) lb./ac.; \( N_2 = 120 \) lb./ac. and \( N_3 = 160 \) lb./ac.

Sub-plot treatments:
3 irrigations: \( I_1 = 2 \) irrigations each after 21 days; \( I_2 = 4 \) irrigations each after 14 days and \( I_3 = 6 \) irrigations each after 21 days.

3. DESIGN:
(i) Split plot (ii) 3 main-plots/black 9; sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 44' x 40'. (b) 44' x 40'. (v) Nil. (vi) Yes.

4. GENERAL:
(vi) (i) N.A. (ii) Nil. (iii) No. of mature stalks, source%, and sugarcane yield. (iv) (a) No. (b) Nil. (c) N.A. (d) None. (e) No. (f) and (vii) Nil.

5. RESULTS:
(i) 39.51 ton/ac.
(ii) (a) 2.84 ton/ac.
(iii) None of the effects is significant.
(iv) Average yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( N_3 )</th>
<th>Mean</th>
<th>( I_1 )</th>
<th>( I_2 )</th>
<th>( I_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.15</td>
<td>39.28</td>
<td>45.20</td>
<td>42.21</td>
<td>43.74</td>
<td>41.18</td>
<td>71.72</td>
</tr>
<tr>
<td>36.23</td>
<td>38.80</td>
<td>45.32</td>
<td>40.12</td>
<td>43.19</td>
<td>39.47</td>
<td>37.70</td>
</tr>
<tr>
<td>38.43</td>
<td>36.30</td>
<td>33.85</td>
<td>36.19</td>
<td>40.20</td>
<td>33.18</td>
<td>35.29</td>
</tr>
</tbody>
</table>

S.E. of the marginal mean of S or N = 0.52 ton/ac.
S.E. of body of table \( S \times N \) = 0.90 ton/ac.
S.E. of the difference of two \( I \) means = 0.95 ton/ac.
S.E. of the difference of two \( S \) or \( N \) means at the same level of \( I \) = 1.27 ton/ac.
S.E. of the difference of two \( I \) means at the same level of \( S \) or \( N \) = 1.404 ton/ac.

Crop: Sugarcane.
Site: Zonal Centre, Harinagar.
Ref.: Bh. 59(36)
Type: 'CIM'.

Object: To find out the optimum dose of N in combination with irrigation and spacing on the yield of Sugarcane.
3. DESIGN:
(i) Split plot. (ii) 3 main-plots/block; 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) 24' x 32' for S1; 24' x 76' for S2 and 24' x 90' for S3. (v) Two rows on either side of breadth. (vi) Yes.

4. GENERAL:
(i) Average. (ii) Nil. (iii) No. of mature stalks, sucrose % and cane yield. (iv) 1950-51, repeated in 1952. (b) No. (c) Nil. (v) None. (b) No. (vi) Nil. (vii) Experiment planned with irrigation as one factor of main-plot treatments but irrigation could not be given at all. Experiment conducted during 1952 not traceable.

5. RESULTS:
(i) 15.32 ton/ac.
(ii) (a) 1.32 ton/ac.
(b) 1.37 ton/ac.
(iii) None of the effects is 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>S1</td>
<td>16.93</td>
<td>18.97</td>
<td>17.79</td>
<td>17.90</td>
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<td>S2</td>
<td>13.90</td>
<td>14.02</td>
<td>17.88</td>
<td>15.27</td>
</tr>
<tr>
<td>S3</td>
<td>14.13</td>
<td>14.47</td>
<td>9.76</td>
<td>12.79</td>
</tr>
</tbody>
</table>

S.E. of difference of two
S means =0.44 ton/ac.
N means =0.66 ton/ac.
N means at the same level of S =0.79 ton/ac.
S means at the same level of N =0.78 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.
Object :- To study the effect of manures, irrigation and spacing.

Ref :- Bh. 51(1).
Type :- 'CIM'.

1. BASAL CONDITIONS :
(i) Nil. (a) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 18 to 20.25. (iv) (a) to (c). (v) Nil. (vi) BO. 11 (late).
(vii) Irrigated. (viii) Earthing. (ix) 30.47". (x) N.A.

2. TREATMENTS :
Main-plot treatments :
3 irrigations : I1=irrigation after every 10 days, I2=irrigation after every 20 days and I3=irrigation after every 30 days.
Sub-plot treatments :
All combinations of (1) and (2).
(1) 3 spacings : S1=3', S2=4' and S3=5'.
(2) 3 levels of N as A/S : N0=0 lb., N1=60 lb. and N2=120 lb./ac.

3. DESIGN :
(i) Split plot. (ii) (a) 3 main-plots/block; 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) 24' x 32', (b) 60' x 24'. (v) Two rows on either side of length. (vi) Yes.

4. GENERAL :
(i) Satisfactory. (ii) None. (iii) Cane yield. (iv) 1951-1953. (b) No. (c) Nil. (v) (a) None. (b) No.
(vi) and (vii) Nil.

5. RESULTS :
(i) 11.44 ton/ac.
(ii) (a) 3.791 ton/ac.
(b) 2.256 ton/ac.
(iii) Main effects of I, N and S 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>I₁</th>
<th>I₂</th>
<th>I₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>9.81</td>
<td>13.01</td>
<td>10.82</td>
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<td>11.10</td>
<td>10.39</td>
<td>8.26</td>
<td>13.18</td>
<td>9.74</td>
</tr>
<tr>
<td>Mean</td>
<td>9.56</td>
<td>12.96</td>
<td>11.81</td>
<td>11.44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I₁</td>
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<td>11.04</td>
<td>10.09</td>
<td>9.60</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>I₂</td>
<td>10.83</td>
<td>15.87</td>
<td>14.77</td>
<td>13.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I₃</td>
<td>10.19</td>
<td>11.97</td>
<td>10.56</td>
<td>10.91</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.E. of the marginal mean of S or N = 0.53 ton/ac.
S.E. of body of table S×N = 0.92 ton/ac.
S.E. of difference of two
I marginal means = 1.264 ton/ac.
S or N means at the same level of I = 1.30 ton/ac.
I means at the same level of S or N = 1.94 ton/ac.

---

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn. Patna.
Ref :- Bh. 52(5).
Type :- 'CIM'.

Object :— To study the effect of manures, irrigation and spacing.

1. BASAL CONDITIONS :
   (i) (a) Sanai-Sugarcane-Paddy-Sanai. (b) Sanai. (c) Nil. (ii) (a) Heavy clay. (b) N.A. (iii) 21.1.52 to 23.1.52.
   (iv) (a) Mould board ploughing, followed by disc harrowing and then levelling. (b) N.A. (e) 28 three budded
   sets/row. (d) N.A. (e) Nil. (vi) BO. 11 (early). (vii) Irrigated. (viii) After every irrigation one
   interculture. (ix) 3.5.42". (x) 22.2.53 to 25.2.53.

2. TREATMENTS :
   Main-plot treatments :-
   3 Irrigations : I₁=irrigation after every 10 days, I₂=irrigation after every 20 days and I₃=irrigation
   after every 30 days.
   Sub-plot treatments :-
   All combinations of (1) and (2).
   (1) 3 spacings : S₁=3', S₂=4' and S₃=5'.
   (2) 3 levels of N as A/S : N₀=0 lb, N₁=60 lb and N₂=120 lb/ac.

3. DESIGN :
   (i) Split-plot. (ii) (a) 3 main-plots/block ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) For different
   spacings 66'×24', 68'×24', 70'×24', (b) 60'×24'. (v) N.A. (vi) Yes.

4. CENSUS :
   (i) Good, no lodge. (ii) Nil. (iii) Germination %, borer%, no. of mature stalks and cane yield at harvest
   (iv) (a) Yes. 1951–53. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 11.92 ton/ac.
   (ii) (a) 3.534 ton/ac.
   (b) 2.354 ton/ac.
   (iii) Spacing effect is highly significant. I and N effects and interactions N×I and N×S are significant.
Av. yield of sugarcane in ton/ac.

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<th>N₂</th>
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S.E. of marginal mean of S or N = 0.55 ton/ac.
S.E. of body of table S × N = 0.96 ton/ac.
S.E. of difference of two
  1. marginal means = 1.18 ton/ac.
  2. means at the same level of S or N = 1.36 ton/ac.
  3. S or N means at the same level of I = 1.62 ton/ac.

Crop: Sugarcane.
Site: Sugarcane Res. Sub-Strn., Patna.
Ref: Bh. 53(53).
Type: ‘CIM’.

Object: To study the effect of manures, irrigation and spacing.

1. BASAL CONDITIONS:
   (i) (a) Sugar-Sanai-Paddy. (b) Paddy. (c) 40 lb/ac. of N+50 lb/ac. of P₂O₅. (ii) (a) Clay. (b) Nil. (iii) 10.1.53 to 14.1.53. (iv) (a) Mould board ploughing, followed by disc harrowing and then levelling (c) 28, three-beded sets/row. As per treatments. (e)—(v) Nil. (vi) BO. 11 (Early). (vii) irrigated. (viii) After every irrigation one interculture and then horse hoeing. (ix) 61.02′. (x) 17.1.54.

2. TREATMENTS:
   Main-plot treatments:
   3 Irrigations: I₁ = irrigation after every 10 days, I₂ = irrigation after every 20 days and I₃ = irrigation after every 30 days.
   Sub-plot treatments:
   All combinations of (1) & (2)
   (i) 3 spacings: S₁ = 3′, S₂ = 4′ and S₃ = 5′.
   (2) 3 levels of N as A/S: N₀ = 0, N₁ = 60 and N₂ = 120 lb/ac.

3. DESIGN:
   (i) Split plot
   (a) 3 main-plots/block ; 9 sub-plots/main-plot
   (b) N.A.
   (iii) 2. (iv) (a) 66′ × 24′, 70′ × 24′ for 3′, 4′, 5′ spacing respectively (b) 60′ × 24′.
   (v) One row on each side of length (vii) Nil.

4. GENERAL:
   (i) Good-no lodging. (ii) Nil. (iii) Germination%, sucrose%, no. of mature stalks, yield at harvest, no. of tillers per row and borer % (iv) (a) 1951—1953. (b) N.A.
   (v) (c) Nil. (v) (a) & (b) N.A. (v) & (vii) Nil.

5. RESULTS:
   (i) 4.92 ton/ac.
   (ii) (a) 0.187 ton/ac.
   (b) 1.553 ton/ac.
   (ii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

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S.E. of marginal mean of S or N = 0.366 ton/ac.
S.E. of body of table S×N = 0.634 ton/ac.
S.E. of difference of of two I marginal means = 0.062 ton/ac.
S or N means at the same level of I = 0.897 ton/ac.
I means at the same level of S or N = 0.735 ton/ac.

Crop : Sugarcane.
Site : Sugarcane Sub-Stn., Patna.
Ref : Bh. 53(54).
Type : 'CIM'.

Object : To study the differential response to time of planting and irrigation in combination with manure.

1. BASAL CONDITIONS :
   (i) (a) Sanai—Sugarcane—Sanai. (b) Sanai. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) February, 1953.
   (iv) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) N.A. (c) 64, three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) CO. 453 (Medium). (vii) Irrigated. (viii) Inter-culture after each irrigation and then horse-hoeing. (ix) 60.83°. (x) 13.1.54 to 16.1.54 and 20.1.54 to 23.1.54.

2. TREATMENTS :
   Treatments in one direction :
   3 irrigations : I₁=10 days, I₂=20 days and I₃=30 days.
   Treatments in orthogonal direction :
   3 levels of N : N₀=0, N₁=60 and N₂=120 lb./ac.
   Details of application of N not available.

3. DESIGN :
   (i) Strip-plot. (ii) (a) 3 strips in on direction, 3 strips in an orthogonal direction. (b) N.A. (iii) 4. (iv)
   (a) 60.5′x24′. (b) 60.5′x18′. (v) 3′ wide on each side of length. (vi) Yes.

4. GENERAL :
   (i) Good. No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, yield at harvest, borer % and no. of tillers per row. (iv) (a) 1953-1954. (b) No. (c) Nil. (v) (a) N.A. (b) N.A.
   (vi) Nil. (vii) Results taken as available in the records.

5. RESULTS :
   (i) 16.34 ton/ac.
   (ii) (I) 6.886 ton/ac.
   (T) 6.524 ton/ac.
   (I×T) 3.509 ton/ac.
   (iii) Manures alone are significantly different.
Object:—To find out the optimum doses of N in combination with irrigation and spacing on sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) None. (b) Sundhemp. (c) Nil. (ii) (a) Light sandy loam soil. (b) N.A. (iii) 1st and 2nd Feb., 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) As per treatments, (e) —. (v) G.M. other details N.A. (vi) CO. 453. (vii) Irrigated. (viii) Earthing and hoeing. (ix) 38.63". (x) 6.3.1951.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 row spacings: \( S_1 = 3' \), \( S_2 = 4' \) and \( S_3 = 5' \).
   (2) 3 levels of N as \( A/S: N_2 = 80, N_3 = 120 \) and \( N_4 = 160 \) lb./ac.
   (3) 3 irrigations: \( I_1 = 2 \) irrigations each after 21 days, \( I_2 = 4 \) irrigations each after 14 days and \( I_3 = 6 \) irrigations each after 7 days.

3. DESIGN:
   (i) 3\(^{rd}\) Fact. Confd. (ii) (a) 3 blocks/repetition, 9 plots block. (b) N.A. (iii) 2. (iv) (a) For \( S_1 = 1/27.5 \) ac., for \( S_2 = 1/26.7 \) ac. and for \( S_3 = 1/25.9 \) ac. (b) 1/30th ac. (v) Yes, 1/4 wide. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Cane yield, sucrose \%, and count of mature stalks. (iv) (a) 1948-1954. (b) Yes. (c) No. (v) (a) Harinagar, Parsa, Majhaulia, Fakhrkhali and Narkatanganj. (b) Nil. (vi) Nil. (vii) Row data etc. for experiments conducted during 1948 and 1949 N.A.

5. RESULTS:
   (i) 22.72 ton/ac.
   (ii) 0.51 ton/ac.
   (iii) \( N \times S \times I \), \( N \times I \) and \( N \times S \times I \) are highly significant while effects due to spacing and irrigation are not significant.
(p) Av. yield of sugarcane in ton/acre.

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S.E. of any marginal mean = 0.12 ton/acre.
S.E. of body of table = 0.21 ton/acre.

Crop: Sugarcane.
Site: C.S.R.S. Pusa.

Ref.: Bh. 51(24).
Type: 'CIM'.

Object: To find out the optimum dose of N in combination with irrigation and spacing on sugarcane yield.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 3rd to 6th Feb. 1951. (iv) (a) 4 ploughings. (b) Row planting. (c) 28, three-budded setts/row. (d) As per treatments. (e) Nil. (vi) CO. 453. (vii) Irrigated. (viii) Weeding and earthing. (ix) 27.60°. (x) 3rd week of Jan. 1952.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 row spacings: S₁ =3', S₂ =4' and S₃ =5'.
   (2) 3 levels of N as A/S: N₁ =30, N₂ =120 and N₃ =160 lb./acre.
   (3) 3 Irrigations: I₁ =2 irrigations each after 21 days, I₂ =4 irrigations each after 14 days, and I₃ =6 irrigations each after 7 days.

3. DESIGN:
   (i) 3³ Factorial Conf. (ii) (a) 3 blocks/replication; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 66' x 24' for S₁, 66' x 24' for S₂, and 70' x 24' for S₃. (b) 60' x 24' (v) One row on either side of length (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) N.A. (iii) Sugarcane yield, sucrose % and counting of mature stalks. (iv) (a) 1948-1954. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS:
   (i) 38.14 ton/acre.
   (ii) 3.60 ton/acre.
   (iii) Main effects of N and S are highly significant. Interaction N x I is highly significant. Interaction N x S is significant while 2nd order interactions are not significant.
Object:—To find out the optimum dose of N in combination with irrigation and spacing on sugarcane yield.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 22.1.1952. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 28, three-budded setts/row. (d) Row to row 3'. (e) —. (v) N.A. (vi) CO. 413 (late). (vii) Irrigated. (viii) Hoeing, earthing and weeding. (ix) 47.7. (x) 1.53 to 6.1.53.

2. TREATMENTS:
Main-plot treatments:
3 irrigations: $I_1$=2 irrigations at 21 days interval, $I_2$=4 irrigations at 14 days interval and $I_3$=6 irrigations at 7 days interval.

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of N: $N_1$=80, $N_2$=120 and $N_3$=160 lb/ac.
(7) 3 spacings: $S_1$=3', $S_2$=4' and $S_3$=—.

3. DESIGN:
(i) Split plot. (ii) (a) 3 main-plots/block ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 66'x24' for $S_1$, 68'x24' for $S_2$ and 70'x24' for $S_3$. (b) 60'x24' (v) One row on either side of length. (vi) Yes.

4. GENERAL:
(i) Good. (ii) No. (iii) Sugarcane yield, sucrose%, and no. of mature stalks. (iv) (a) 1948—1954. (b) No. (c) Nil. (d) (a) and (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 17.82 ton/ac.
(ii) (a) 3.237 ton/ac.
(b) 4.716 ton/ac.
(iii) None of the effects is significant.
### (iv) Av. yield of Sugarcane in ton/ac.

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S.E. of the marginal mean of S or N = 1.11 ton/ac.
S.E. of body of table S x N = 1.93 ton/ac.
S.E. of difference of two
(1) I means = 1.079 ton/ac.
(2) S or N means at the same level of I = 2.723 ton/ac.
(3) I means at the same level of S or N = 2.471 ton/ac.

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**Crop**: Sugarcane.

**Site**: C.S.R.S. Pusa.

**Ref**: Bh. 53(110).

**Type**: 'CIM'.

**Object**: To find out the optimum dose of N in combination with irrigation and spacing on yield of sugarcane.

**1. BASAL CONDITIONS**:

(i) (a) Sugarcane-Sanai (G.M.)-Wheat-Mung (G.M.).
(b) *Mung* (G.M.).
(c) Nil.

(ii) (a) Sandy loam to silty loam.
(b) N.A.

(iii) 5.2.1953.

(iv) (a) Harrow once and mould board ploughing each followed by Hinga. Again discing followed by subsoiling.
(b) End to end planting.
(c) 28, three-budded sets/row.
(d) 3' apart.
(e) (vii) Nil.
(vi) CO 453 (Mid-season).
(vii) Irrigated.
(viii) Fortnightly intercultural operations after germination till the end of May, earthing up in mid-June.
(ix) 46.33".
(x) 2nd week of February, 1954.

**2. TREATMENTS**:

**Main-plot treatments**:

- 3 Irrigations: I₁ = 2 irrigations each after 21 days, I₂ = 4 irrigations each after 14 days and I₃ = 6 irrigations each after 21 days.

**Sub-plot treatments**:

- All combinations of (1) & (2)
  - (1) 3 spacings: S₁ = 3', S₂ = 4' and S₃ = 5'.
  - (2) 3 levels of N as A/S: N₁ = 80, N₂ = 120 and N₃ = 160 lb./ac.

**3. DESIGN**:

(i) Split plot.
(ii) (a) 3 main-plots/block; 9 sub-plots/main-plot.
(iii) (a) 2.
(iv) (a) For S₁: 65' x 24', for S₂: 68' x 24', for S₃: 70' x 24'.
(b) 60' x 24' (v) Yes.—Two rows of non-experimental one on either side of the sub-plot.
(vi) Yes.

**4. GENERAL**:

(i) Good.
(ii) Borer incidence noted. Dead hearts removed. During the early period of growth, on controlling termite infection Aldrine was applied at planting & the other 3 months after.
(iii) Germination %, no of tillers, height, no. of mature stalks, sucrose % and sugarcane yield.
(iv) (a) 1948—1954
(b) No.
(c) Nil.
(v) (a) & (b) Nil.
(vi) & (vii) Nil.

**5. RESULTS**:

(i) 20.89 ton/ac.
(ii) (a) 3.89 ton/ac.
(b) 2.66 ton/ac.
(iii) None of the effects is significant.
Crop: Sugarcane.  
Site: Zonal Centre, Parsa.

Object: To find out the efficiency of soaking setts in different solutions before planting.

1. BASAL CONDITIONS:
(i) (a) N.A. (b) N.A. (c) Nil. (d) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (v) N.A. (vi) 453. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:
Planting setts:
1. Soaked for 24 hrs. in 15% molasses.
2. Soaked for 24 hrs. in 5% A/S solution.
3. Soaked for 24 hrs. in 5% A/N solution.
4. Soaked for 24 hrs. in standard solution of lime.
5. Soaked for 24 hrs. in water.
6. Top setts not more than 3 from a suitable cane.
7. Control (no soaking).

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and juice content. (iv) (a) 1930—1952. (b) N.A. (c) N.A. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS:
(i) 18.73 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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<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19.84</td>
</tr>
<tr>
<td>2</td>
<td>17.30</td>
</tr>
<tr>
<td>3</td>
<td>20.31</td>
</tr>
<tr>
<td>4</td>
<td>17.89</td>
</tr>
<tr>
<td>5</td>
<td>19.50</td>
</tr>
<tr>
<td>6</td>
<td>18.14</td>
</tr>
<tr>
<td>7</td>
<td>19.21</td>
</tr>
</tbody>
</table>

S.E./mean = 1.143 ton/ac.
Crop: Sugarcane.
Site: Zonal Centre, Pachrukhi (Chanki farm).
Object: To find out the efficiency of soaking setts in molasses.

1. BASAL CONDITIONS:
   (i) (a) G.M.-Sugarcane-G.M. (b) G.M. (c) Nil. (d) Sandy loam. (ii) (a) Ploughing by disc ploughing, 2 times worked by cultivator, one harrowing and 4 beamings. (b) Flat planting. (c) 65 md./ac. (d) Rows 3’ apart. (e) (v) 60 lb./ac. of N as G.N.C. + 75 lb./ac. of P2O5 as Triple Super, before planting. (vi) BO. II and CO. 453. (vii) Irrigated. (viii) 3 intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS:
   1. Setts soaked in 25% molasses solution such that they floated over the surface of solution.
   2. Setts soaked in 15% molasses solution such that they sink down.
   3. Top setts to be planted. Only two setts to be selected from each cane.
   4. Setts as in Treatment. 'Y' soaked in 25% molasses solution.
   5. Control (no soaking).

3. DESIGN:
   (i) R.B.D. (ii) 5. (b) 5/30 ac. (iii) 4 for each variety. (iv) (a) 60.5’x24’. (b) 60.5’x18’. (v) one row each both sides of width. (vi) Yes.

4. GENERAL:
   (i) Not good. (ii) N.A. (iii) Tiller counted. No. of mature stalks and cane yield. (iv) (a) 1951-1952. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 not traceable.

5. RESULTS:

<table>
<thead>
<tr>
<th>Variety</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>BO. 11</td>
<td>1.</td>
<td>4.10</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>6.15</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>6.72</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>4.13</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>6.51</td>
</tr>
<tr>
<td></td>
<td>S.E./mean</td>
<td>-0.54 ton/ac.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variety</th>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO. 453</td>
<td>1.</td>
<td>8.00</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>8.00</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>7.30</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>7.30</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>9.42</td>
</tr>
<tr>
<td></td>
<td>S.E./mean</td>
<td>-0.64 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Site: Zonal Centre, Parsa.
Object: To find out the efficiency of soaking setts in different solutions before planting.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (d) Alluvium calcareous. (b) N.A. (ii) N.A. (iii) N.A. (iv) (a) 4 times ploughed. (b) Flat planting. (c) 64, three—budded setts/row. (d) Rows 3’ apart. (e) —. (v) N.A. (vi) BO. II. (vii) N.A. (viii) Weeding, hoeing and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:
   Planting setts:
   1. Soaked for 24 hrs. in 20% molasses.
   2. Soaked for 24 hrs. in 20% A/S.
   3. Soaked for 24 hrs. in 20% A/N.
   4. Soaked for 24 hrs. in water.
   5. Top setts, not more than 2 from a cane.
   6. Control.
3. DESIGN:
(i) R.B.D. (ii) 6. (b) N.A. (iii) 6. (iv) (a) 60.5'×24' (b) 60.5'×18' (v) One row on each side along length. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) Nil. (v) (a) Pachrukhli, Majhaulia and Mothahri. (b) Nil. (vi) Nil. (vii) Experiment conducted in 1952 could not be traced.

5. RESULTS:
(i) 6.36 ton/ac.
(ii) 2.813 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>6.36</td>
</tr>
<tr>
<td>2.</td>
<td>6.78</td>
</tr>
<tr>
<td>3.</td>
<td>6.09</td>
</tr>
<tr>
<td>4.</td>
<td>6.54</td>
</tr>
<tr>
<td>5.</td>
<td>5.41</td>
</tr>
<tr>
<td>6.</td>
<td>6.36</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.149 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.  
Site: Central Sugarcane Sub-Stn., Patna.  
Type: 'D'.  
Object: To find out the efficacy of soaking setts in different solutions before planting.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) N.A. (c) Clay. (b) N.A. (iii) 10 to 11.25. (iv) (a) to (e) N.A. (v) Common dose of 80 lb/ac. N as A/Sand 60 lb/ac. of P₂O₅ as Ammon. Phos. Time and method of application N.A. (vi) BO. 11 (early). (vii) Irrigated. (viii) Weeding and earthing. (ix) 30.47". (x) N.A.

2. TREATMENTS:
Planting setts: 
1. Soaked for 24 hrs. in 25% molasses. 
2. Soaked for 24 hrs. in 15% molasses. 
3. Top setts soaked for 24 hrs. in 25% molasses. 
4. Planting only top setts. 
5. Control (normal planting).

3. DESIGN:
(i) R.B.D. (ii) 5. (b) N.A. (iii) 4. (iv) (a) 63.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) None. (iii) Case yield and no. of mature stalks. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) N.A. (vii) The largest no. of matured stalks and highest yield were recorded in treatment 4 in which only top setts were sown. 

5. RESULTS:
(i) 17.05 ton/ac.
(ii) 1.48 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>15.64</td>
</tr>
<tr>
<td>2.</td>
<td>17.80</td>
</tr>
<tr>
<td>3.</td>
<td>16.29</td>
</tr>
<tr>
<td>4.</td>
<td>18.16</td>
</tr>
<tr>
<td>5.</td>
<td>17.35</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>0.74 ton/ac.</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane.  
Site :- C.S.R.S., Pusa.  
Type :- 'D'.

Object :- To find out the efficacy of different chemicals for the control of sugarcane borer.

1. BASAL CONDITIONS:
   (i) (a) Sanai—Sugarcane—Sanai. (b) Sanai. (c) Nil.  (ii) (a) Texture sandy loam to silty loam with normal to deep saline phase. (b) Org. C and Org. N are low and C/N ratio narrow to normal. Total P$_{2}O_{5}$ is medium to high. Available phosphate very low. Soil reaction is strongly alkaline.  (iii) 25.5.53 and 2.4.53. (iv) (a) Harrow once and mould board ploughing each followed by Hinga. Again discing followed by subsoiling. (b) Furrow planting, end to end planting. (c) 75, three-budded setts/row. (d) Rows 3' apart. (e)—. (vi) Nil. (vii) BO. 11 (early). (viii) Irrigated. (ix) Fortnightly intercultural operations after germination till the end of May; earthing up in mid-June. (ix) 45.86°. (x) 3rd week of January, 1954.

2. TREATMENTS:
   1. Posferno 0.1% of the compound (sprayed).
   2. BHC 0.5%, BHC Albolinum 2 at 8 oz. per 100 gallons (sprayed).
   4. DDT 0.5%, DDT Albolinum 2 at 8 oz. per 100 gallons (sprayed).
   5. Endrin Hort. 1% (sprayed).
   6. Ryania 6 lb/ac. (100%) (dusted).
   7. Toxaphene 1.0% cl-camphene Albolinum 2 at 8 oz. per 103 gallons (sprayed).
   8. Dieldrin 1.0% of compound (sprayed).
   9. Control.

3. DESIGN:
   (i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 72'x30'. (b) 66'x24'. (v) Two rows of non-experimental on one either side of the sub-plot, also 3' cut from each end of the row. (vi) Yes.

4. GENERAL:
   (i) Poor. (ii) N.A. (iii) Germination %, Borer incidence, borer egg mass studied, yield, no. of milliable sugarcane and juice analysis. (iv) (a) 1950—N.A. (b) No. (c) Nil. (v) (a) No where. (b)N.A.. (vi) & (vii) Nil.

5. RESULTS:
   (i) 16.86 ton/ac.
   (ii) 3.90 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>16.22</td>
</tr>
<tr>
<td>2.</td>
<td>13.79</td>
</tr>
<tr>
<td>3.</td>
<td>15.77</td>
</tr>
<tr>
<td>4.</td>
<td>19.90</td>
</tr>
<tr>
<td>5.</td>
<td>23.36</td>
</tr>
<tr>
<td>6.</td>
<td>15.98</td>
</tr>
<tr>
<td>7.</td>
<td>17.03</td>
</tr>
<tr>
<td>8.</td>
<td>15.38</td>
</tr>
<tr>
<td>9.</td>
<td>15.79</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.95 ton/ac.</td>
</tr>
</tbody>
</table>
Crop : Sugarcane.  
Site : C.S.R.S., Pusa.  
Object : To study the effect of different formulations of insecticides in controlling the activities of termites in sugarcane field.

1. BASAL CONDITIONS:  
(i) (a) Nil. (b) Suraeae. (c) Well rotted compost at 200 md./ac.+ Super at 5 md./ac.+ A/S at 3 md./ac.  
(ii) (a) Sandy clay loam to loam in texture. (b) Org. C. low; Org. P. medium to low; C/N ratio narrow. Available phosphate—medium to high. Available potassium strongly alkaline.  
(iii) 14.2.1953.  
(iv) (a) Harrow once and mould board ploughing each followed by Harrow. Again discing followed by subsoiling. (b) Furrow planting and to end planting. (c) 6, 3-budded sets/row. (d) 3' apart. (e) —. (v) 5 md./ac. of G N.C.+2 md./ac. of Super. Time and method of application N.A. (vi) CO. 453 (late). (vii) Irrigated. (viii) fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 45.60’. (x) 4th week of Dec. 1953.

2. TREATMENTS:  
1. Setts soaked for 24 hours before planting in a mixture : 2 ozs. lead arsenate+2 ozs. lime+20 lb. water.  
2. Irrigation of setts after planting with 0.5% Aldrin at 10.75 gallon/ac.  
3. Irrigation of setts after planting with 1.0% Aldrin at 107.5 gallon/ac.  
4. Application of 5% B.H.C. (gammaxene BO. 25) in furrows before planting at 50 lb./ac.  
5. Application of 5% B.H.C. (gammaxene BO. 25) in furrows before planting at 150 lb./ac.  
6. Irrigation of setts after planting with 5.0% experimental compound at 107.5 gallon/ac.  
7. Irrigation of setts after planting with 2.5% experimental compound at 107.5 gallon/ac.  
8. Irrigation of setts after planting with 1.0% Dieldrin at 107.5 gallon/ac.  
9. Irrigation of setts after planting with 0.5% Dieldrin at 107.5 gallon/ac.  
10. Control.

3. DESIGN:  
(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 6’x6’. (b) 6’x6’. (v) Nil. (vi) Yes.

4. GENERAL:  
(i) N.A. (ii) See treatments. (iii) Germination, no. of mature stalks and sugarcane yield at the time of harvest. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) No where. (b) No. (vi) and (vii) Nil.

5. RESULTS:  
(i) 14.50 ton/ac.  
(ii) 9.30 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>13.67</td>
</tr>
<tr>
<td>2.</td>
<td>18.44</td>
</tr>
<tr>
<td>3.</td>
<td>13.14</td>
</tr>
<tr>
<td>4.</td>
<td>4.93</td>
</tr>
<tr>
<td>5.</td>
<td>12.41</td>
</tr>
<tr>
<td>6.</td>
<td>16.78</td>
</tr>
<tr>
<td>7.</td>
<td>18.33</td>
</tr>
<tr>
<td>8.</td>
<td>19.16</td>
</tr>
<tr>
<td>9.</td>
<td>4.52</td>
</tr>
<tr>
<td>10.</td>
<td>3.61</td>
</tr>
</tbody>
</table>

S.E./mean = 4.65 ton/ac.
Object: To find out the efficacy of different formulations of insecticides in controlling the activities of termites in standing crop of Sugarcane in fields.

1. BASAL CONDITIONS:
   (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam; soil texture is mainly loam, southern portion is heavier, sand pocket occurs to the south eastern part of the plot. (b) Org. C. and Org. N. are medium to low, ratio C/N narrow. Total phosphates are high but availability poor. Soil reaction is highly alkaline. (iii) N.A. (iv) (a) Harrow once and mould board plough each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow, end to end planting. (c) N.A. (d) 3' apart. (e) —. (v) Nil. (vi) BO. 28 (late). (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 89.62°. (x) Dec. 54.

2. TREATMENTS:
   1. Application of 5% B.H.C. (Gammaxene DO 25) at 108 lb./ac.
   2. Irrigation of plots with 5% B.H.C. (Gammaxene P 520) at 3 gallons/100 yds. i.e. 200 gallons/ac.
   3. Irrigation of plots with Dieldrin 6 lb./ac. in 200 gallons water applied.
   4. Irrigation of plots with Aldrin 14.4 lb./ac. in 200 gallons water applied.
   5. Irrigation of plots with 25% Toxaphene (W.P.) at 21.6 lb./ac.
   6. Control.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 24' x 15'. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Moderate. (ii) N.A. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) No. (b) No. (v) and (vii) Nil.

5. RESULTS:
   (i) 3.81 ton/ac.
   (ii) 2.48 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>3.44</td>
</tr>
<tr>
<td>2.</td>
<td>3.66</td>
</tr>
<tr>
<td>3.</td>
<td>6.88</td>
</tr>
<tr>
<td>4.</td>
<td>6.25</td>
</tr>
<tr>
<td>5.</td>
<td>1.76</td>
</tr>
<tr>
<td>6.</td>
<td>0.88</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>1.01 ton/ac.</td>
</tr>
</tbody>
</table>

Crop: Sugarcane.
Site: Zonal Centre, Pachruki.

Object: To find out the efficacy of soaking setts in different solutions before planting.

1. BASAL CONDITIONS:
   (i) (a) G.M.—Sugarcane—G.M. (b) Sanai as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) One ploughing by disc plough, twice worked by cultivator, one harrowing and 4 beamings done. (b) Flat planting. (c) 64, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Caster cake 6 md./ac. + Super at 3 md./ac. A/S at 1 md./ac. at planting time and again 1.5 mds at time of earthing up. (vi) As per treatments. (vii) N.A. (viii) Two intercultures. (ix) N.A. (x) N.A.
2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 varieties: \( V_1 = \text{CO. 453} \) and \( V_2 = \text{BO. 11} \).

(2) 7 chemical treatments for setts before planting:

- \( T_1 = \text{Soaking setts for 24 hrs. in 15} \% \text{ molasses}. \)
- \( T_2 = \text{Soaking setts for 24 hrs. in 10} \% \text{ A/S}. \)
- \( T_3 = \text{Soaking setts for 24 hrs. in 5} \% \text{ Ammonium carbonate}. \)
- \( T_4 = \text{Soaking setts for 24 hrs. in saturated solution of lime}. \)
- \( T_5 = \text{Top setts selected, not more than 3 from a suitable cane}. \)
- \( T_7 = \text{Control (no soaking)}. \)

3. DESIGN:

(i) 2 x 7 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) No. of tillers counted, no. of mature stalks counted and cane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Para and Motihari. (b) No. (vi) & (vii) Nil.

5. RESULTS:

(i) 14.01 ton/ac. (ii) 2.82 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>( T_5 )</th>
<th>( T_7 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>18.48</td>
<td>15.82</td>
<td>16.88</td>
<td>16.07</td>
<td>17.27</td>
<td>15.93</td>
<td>16.31</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>11.97</td>
<td>14.23</td>
<td>9.78</td>
<td>10.05</td>
<td>11.53</td>
<td>12.94</td>
<td>9.39</td>
</tr>
</tbody>
</table>

S.E. of marginal mean of \( T \) = 0.81 ton/ac.
S.E. of marginal mean of \( V \) = 0.44 ton/ac.
S.E. of body of table = 1.15 ton/ac.

Crop: Sugarcane.  
Site: Zonal Centre, Pachrukhi.  
Ref: Bh. 51(39).  
Type: 'DV'.

Object: To find the efficacy of soaking setts in different solutions before planting.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by draft plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (f) N.A. (g) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 varieties: \( V_1 = \text{BO. 11} \) and \( V_2 = \text{CO. 453} \).

(2) 6 chemical treatments for setts before planting:

- \( T_1 = \text{Soaking setts for 24 hrs. in 20} \% \text{ molasses}. \)
- \( T_2 = \text{Soaking setts for 24 hrs. in 10} \% \text{ A/S}. \)
- \( T_3 = \text{Soaking setts for 24 hrs. in 5} \% \text{ Ammonium carbonate}. \)
- \( T_4 = \text{Soaking setts for 24 hrs. in saturated solution of lime}. \)
- \( T_5 = \text{Top setts selected, not more than 2 from a suitable cane}. \)
- \( T_7 = \text{Control (no soaking)}. \)
3. DESIGN:
(i) 6 x 2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Parsa and Majhaulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 6.49 ton/ac.
(ii) 1.981 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
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<tr>
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S.E. of marginal mean of T = 0.572 ton/ac.
S.E. of marginal mean of V = 0.330 ton/ac.
S.E. of body of table = 0.009 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Harinagar.
Object :- To find out the effect of pre-soaking of setts with lime.

1. BASAL CONDITIONS:
(i) (a) Sanai-sugarcane. Sanai. (b) Sanai as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 1.2.49. (iv) (a) 4 ploughings by deshi plough. (b) Flat planting. (c) 60, three budded setts/row. (d) 3' apart. (e) (vi) Sanai. G.M. as castor cake at 78 md/ac. Single Super at 22 mds/ac. (vi) As per treatments. (vii) Irrigated. (ix) 56.34'. (x) 2.2.50.

2. TREATMENTS:
All combinations of (1) & (2)
(1) 3 varieties :- V1 = BO.II, V2 = CO. 513 & V3 = CO. 453.
(2) 3 chemical treatments :-
T1 = Soaked for 48 hrs in saturated solution of lime.
T2 = Soaked for 48 hrs in water.
T3 = Control.

3. DESIGN:
(i) 3 x 3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5' x 24' (b) 60.5' x 18'. (v) 3' on either side along length. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Sucrose %, no. of matured stalks and sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) (a) None. (b) N.A. (vi) & (vii) Nil.

5. RESULTS:
(i) 19.04 ton/ac.
(ii) 6.01 ton/ac.
(iii) Effect of V and interactions V x T are highly significant. Effect of T is not significant.
Crop : - Groundnut.
Site : - Botanical Sub-Stn Dumka.

Object : - To find out the best dose of N, P\textsubscript{1}O\textsubscript{1} and K\textsubscript{1}O while applied alone and in combinations.

1. BASAL CONDITIONS :
   (i) Nil. (b) N.A. (c) N.A. (iii) (a) Sandy-loam. (b) N.A. (iii) 30.7.53. (iv) (a) Ploughing by dahi plough. (b) Dibbling with the help of khurji on rows. (c) N.A. (d) Row to row 1'. (e) 2 seeds/hole. subsequently thinned to one strong seedling/hole. (v) Nil. (vi) Local-(early). (vii) Unirrigated. (viii) N.A. (ix) 32.01'. (x) 31.12.53 to 20.1.54.

2. TREATMENTS :
   All combinations of (1), (2) & (3)
   (1) 3 levels of N : N\textsubscript{0} = 0, N\textsubscript{1} = 15 & N\textsubscript{2} = 30 lb./ac.
   (2) 3 levels of P\textsubscript{1}O\textsubscript{1} : P\textsubscript{0} = 0, P\textsubscript{1} = 30 & P\textsubscript{2} = 60 lb./ac.
   (3) 3 levels of K\textsubscript{1}O : K\textsubscript{0} = 0, K\textsubscript{1} = 30 & K\textsubscript{2} = 60 lb./ac.
   N as A/S, P\textsubscript{1}O\textsubscript{1} as Super and K\textsubscript{1}O as Pot. Sul. spread over plot and mixed with soil before sowing.

3. DESIGN :
   (i) 3' Partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 4. (iv) 12' x 26' (8 rows) (b) 9' x 24' (6 rows) (v) Yes. One row on either side of the plot and 1' on the length side. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) N.A. (iii) Germination % ; date of flowering, seed yield and shelling% (iv) (a) 1952 continued (b) No. (c) Nil. (v) (a) Kanke and Purnea. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 1169 lb./ac.
   (ii) 339.3 lb./ac.
   (iii) None of the effects is significant.
   (iv) Av. yield of groundnut in lb./ac.

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<th></th>
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S.E. of any marginal mean -56.6 lb./ac.
S.E. of body of table -97.9 lb./ac.
Crop :- Groundnut. Site :- Botanical Sub-Stn. Purnea. Ref :- Bh. 53(27). Type :- 'M'.

Object :- To find out the most advantageous schedule of N, P_2O_5 and K_2O for getting the highest yield.

1. BASAL CONDITIONS :
   (i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) No. (iii) 14th to 17th August, 1953. (iv) (a) One Bihar Jr. ploughing followed by two or three desi ploughings. (b) Dibbling. (c) N.A. (d) Plant to plant distance 1' and row to row distance 1'. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Weeding only. (ix) 17.35'. (x) 3.3.54 to 22.3.54.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (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.
   (3) 3 levels of K_2O : K_0 =0, K_1 =30 and K_2 =60 lb./ac.
   N as A/S, P_2O_5 as Single Super and K_2O as mixture of Potash broadcast after sowing.

3. DESIGN :
   (i) 3' Fact. Partially Confd. (ii) (a) 3 blocks/replication; 9 plots/block. (iii) 4. (iv) (a) 12' x 26'. (b) 9' x 24'. (v) Yes. One row on each side of the plot and one plant at each end of a row as non-experimental. (vi) Yes.

4. GENERAL :
   (i) N.A. (ii) Nil. (ii) Germination study, date of 1st flowering and yield of the dry groundnut with the shell. (iv) (a) Yes. 1953 continued. (b) No. (c) Nil. (v) (a) Dumka and Ranchi. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :
   (i) 1024 lb./ac.
   (ii) 217.7 lb./ac.
   (iii) Only N effect is highly significant.
   (iv) Av. yield of groundnut in lb./ac.

<table>
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<th>P_0</th>
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<th>P_2</th>
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S.E. of any marginal mean = 39.9 lb./ac.
S.E. of body of table = 65.6 lb./ac.

Crop :- Groundnut. Site :- Oil Seed Section, Sabour. Ref :- Bh. 53(27). Type :- 'M'.

Object :- To find out the most advantageous manurial schedule for getting the highest yield.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy-loam or Red-laterite. (b) No. (iii) 30.7.53. (iv) (a) Earthing. (b) and (c) N.A. (d) Distance between holes 1'. (e) 1 seed per hole. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) 3 weeding at a fortnightly interval; ridging once after a month of sowing. (ix) 32.38'. (x) 15.12.53.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N: \( N_0 = 0, N_1 = 15 \) and \( N_2 = 30 \) lb./ac.
(2) 3 levels of \( P_2O_5 \): \( P_1 = 0, P_2 = 30 \) and \( P_3 = 60 \) lb./ac.
(3) 3 levels of \( K_2O \): \( K_0 = 0, K_1 = 30 \) and \( K_2 = 60 \) lb./ac.
N as A/S, \( P_2O_5 \) as Single Super and \( K_2O \) as Pot. Sul.

3. DESIGN:
(i) 3' Fact. Partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 4. (iv) (a) 5'×20'.
(b) 3'×18' (v) 1' ring round net plot. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) 1 Tikka disease—no control measures except to remove some badly affected plants.
(iii) Yield of groundnut. (iv) (a) Yes. 1953 (continued) (b) No. (c) Nil. (v) (a) Purnea and Dumka. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 2553 lb./ac.
(ii) 717.7 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of groundnut in lb./ac.

<table>
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<tr>
<th>( N_0 )</th>
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<th>( P_2 )</th>
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Mean 2536 2464 2660 2553 2570 2662 2426

S.E. of any marginal mean =19.6 lb./ac.
S.E. of body of table =207.2 lb./ac.

Crop :-Groundnut.       Ref :-Bh. 53(37).
Site :-Botanical Sub-Stn., Purnea.        Type :-‘C’.

Object :-To find out the best spacing between rows and plants on the yield of Groundnut.

1. BASAL CONDITIONS:
(i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 5th and 7th Sept. 1953. (iv) (a)
One Bihar Junior ploughing followed by 2 to 3 dozen ploughings. (b) Dibbling. (c) —. (d) As per treatments.
(e) 2 seeds to be subsequently thinned to 1 strong seedling. (v) Nil. (vi) Local—N.A. (vii) Unirrigated. (viii) Weeding. (ix) 9.52'. (x) 22.3.54 to 8.4.54.

2. TREATMENTS:
Main-plot treatments :-
All combinations of (1) and (2)
(1) 2 methods of sowing: \( A_1 \) = Ridges and \( A_2 \) = Flat.
(2) 3 spacings between rows \( S_1 = 1' \), \( S_2 = 2' \) and \( S_3 = 3' \).
Sub-plot treatments :-
3 spacings between plants: \( S_1 = 9' \), \( S_2 = 12' \) and \( S_3 = 15' \).

3. DESIGN:
(i) Split plot. (ii) (a) 6 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) sub-plot 12'×30'.
(b) Main-plot 18'×36'; sub-plot 12'×18'. (v) Yes. One non-experimental row on each side of the main-plot and 1' at each end of it. (vi) Yes.
4. GENERAL:
(i) N.A. (ii) Nil. (iii) Germination, date of flowering and yield of groundnut with the shell and shelling %.
(iv) (a) 1953—1954. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Some pests affected by rats. Ridging should not have been in the way as it was done. Experiment to be repeated in 1954.

5. RESULTS:
(i) 641.4 lb./ac.
(ii) 196.6 lb./ac.
(iii) Only the effect of Methods of sowing is significant.
(iv) Av. yield of groundnut in lb./ac.

<table>
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<th>S&lt;sub&gt;2&lt;/sub&gt;</th>
<th>S&lt;sub&gt;3&lt;/sub&gt;</th>
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S.E. of marginal mean of A = 94.6 lb./ac.
S.E. of marginal mean of S = 118.2 lb./ac.
S.E. of body of table A X S = 167.1 lb./ac.
S.E. of the difference of two
1. S' means
2. S means at the same level of of A
3. A means at the same level of S
4. S' means at the same level of A
5. A means at the same level of S'

Crop : Sesamum.
Site : Botanical Sub-Stn., Dumka.
Ref : Bh. 53(46).
Type : 'M'.
Object : To find out the most advantageous manurial schedule for getting the highest yield.

1. BASAL CONDITIONS:
(i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 26.8.53 and 30.8.53. (iv) (a) 2 ploughings by deshi plough. (b) Sown in line behind the plough. (c) 3 lb./ac. (d) Each plot consists of 5 rows 2' apart. (e) —(v) Nil. (vi) Local (early). (vii) Unirrigated. (viii) 24.59'. (x) 26.1.54.

2. TREATMENTS:
All possible combinations of (1), (2) and (3)
(1) 2 levels of A/S: N<sub>0</sub>=0 and N<sub>1</sub>=2 lb. - 134 oz./plot.
(2) 2 levels of Single Super: P<sub>0</sub>=0 and P<sub>1</sub>=3 lb. - 2 oz./plot.
(3) 2 levels of Muriate of Potash: K<sub>0</sub>=0 and K<sub>1</sub>=1 lb. - 2 oz./plot.
Treatments spread over plot and mixed with soil before sowing.

3. DESIGN:
(i) 2<sup>5</sup> Fact. in R.B.D. (ii) 8. (b) N.A. (iii) 4. (iv) (a) 10' x 62'. (b) 6' x 60'. (v) One non-experimental row along width and 1' on the other two ends of the plot. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Nil. (iii) Germination, date of flowering, height of plant, no. and size of capsules for 10 random plants per block and sesameum yield/plot. (iv) (a) 1953—1954. (b) No. (c) Nil. (v) Labour and Purnes. (vi) Nil. (vii) Reasons for low yield N.A.
5. RESULTS:
(i) 9.52 lb./ac.
(ii) 2.805 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of sesameum in lb./ac. See (vii) under general.

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S.E. of any marginal mean = 0.70 lb./ac.
S.E. of body of table = 0.99 lb./ac.

Crop = Sesamum.
Site = Botanical Sub-Strn., Purnea.
Type := 'M'.

Object := To find out the most advantageous manurial schedule for getting the highest yield.

1. BASAL CONDITIONS:
(i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 8.8.53 and 9.8.53. (iv) (a) One Bihar Junior ploughing followed by two to three deshi ploughings. (b) Sowing on rains, behind the plough. (c) 3 lb./ac. (d) Row to row distance 2'. (e) —. (v) Nil. (vii) Unirrigated. (viii) Weeding. (ix) 16.81'. (x) 10th to 12th Dec. 1953.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 2 levels of A/S: N₀ =0 and N₁ =2.845 lb./plot.
(2) 2 levels of Double Super: P₀ =0, and P₁ =1.422 lb./plot.
(3) 2 levels of Muriate of Potash: K₀ =0 and K₁ =1.138 lb./plot.
Fertilizers broadcast at the time of sowing.

3. DESIGN:
(i) R.B.D. Fact. (ii) (a) 8. (b) 62'x80'. (iii) 4. (iv) (a) 10'x62'. (b) 8'x60' (v) Yes Each plot of 5 rows 2' apart. One non-experimental row along the breadth of the plot and 1' on either end of each row. (vi) Yes.

4. GENERAL:
(i) N.A. (ii) Slight attack of hairy caterpillers in all plots. Sanitary methods were adopted and the attack was checked. (iii) Germination, date of flowering, height, no. of branches and no. of capsules of 10 plants of a plot at random and yield of grain per plot. (iv) (a) Yes, 1953-1954. (b) No. (c) Nil. (v) (a) Dumka & Sabour. (b) Nil. (vi) Nil. (vii) By outward appearance, it was noted that there was some specific concentration of manures in the field.

5. RESULTS:
(i) 596.9 lb./ac.
(ii) 9.183 lb./ac.
(iii) Interaction N x K is significant and the three factor interaction NPK is highly significant while no other effect is significant.
(iv) Av. yield of sesamum in lb./ac.

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<tr>
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<tr>
<td>N₁</td>
<td>587.1</td>
<td>592.0</td>
<td>589.6</td>
<td>483.7</td>
<td>693.4</td>
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<td>589.6</td>
<td>556.9</td>
<td>518.7</td>
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<td>463.0</td>
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<tr>
<td>K₁</td>
<td>617.5</td>
<td>572.6</td>
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</table>

S.E. of any marginal mean = 27.0 lb./ac.
S.E. of body of table = 38.2 lb./ac.

Crop : Sesamum.
Site : Oil Seed Section, Sabour.
Ref : Bh. 53(28).
Type : 'M'.

Object : To find out the most advantageous manurial schedule for getting the highest yield.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Maize (summer). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 7.8.53 ; resowing on 11.8.53. (iv) (a) N.A. (b) On rains behind the plough. (c) 3 lb./ac. (d) N.A. (e) →. (v) Nil.
   (vi) Local. (vii) Unirrigated. (viii) 3 weeding each after two weeks. (ix) 22.27. (x) 23.11.53.

2. TREATMENTS :
   All combinations of (1), (2) and (3)
   (1) 2 levels of N : N₀ =0 and N₁ =40 lb./ac.
   (2) 2 levels of P₀ : P₀ =0 and P₁ =40 lb./ac.
   (3) 2 levels of K₀ : K₀ =0 and K₁ =40 lb./ac.
   N as A/S, P₀ as Single Super while K₀ as Muriate of Potash.

3. DESIGN :
   (i) 2² Fact. in R.B.D. (ii) (a) B. (b) N.A. (iii) 4. (iv) (a) 10'×62'. (b) 10'×62'. (v) Nil. (vi) Yes.

4. GENERAL :
   (i) Good. No lodging. (ii) Phyllody → No control measures were taken. (iii) Height, no. of branches and capsules, yield of stalk, yield of Sesamum. (iv) (a) 1953-continued. (b) No. (c) Nil. (v) (a) Dumka and Purnea. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :
   (i) 141.5 lb./ac.
   (ii) 30.73 lb./ac.
   (iii) No effect is significant.
   (iv) Av. yield of sesamum in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>Mean</th>
<th>K₀</th>
<th>K₁</th>
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<tr>
<td>N₀</td>
<td>136.5</td>
<td>138.5</td>
<td>137.5</td>
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<tr>
<td>K₀</td>
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<tr>
<td>K₁</td>
<td>146.5</td>
<td>139.0</td>
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<td></td>
</tr>
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</table>

S.E. of any marginal mean = 7.68 lb./ac.
S.E. of body of table = 10.86 lb./ac.
Crop: Castor.  
Site: Botanical Sub-Station, Dumka.  
Ref: Bh. 53 (45).  
Type: ‘M’.

Object: — To find out the most advantageous schedule for getting the highest yield.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) N.A.  (c) N.A.  (ii) (a) Sandy loam.  (b) N.A.  (iii) 6.8.53.  (iv) (a) 3 ploughings by deshi plough and one tractor ploughing.  (b) Dibbling.  (c) —.  (d) Plant distance 1’. Three rows in each net plot at a distance of 2’.  (e) 2.  (f) Nil.  (vi) Local (early).  (vii) Unirrigated.  (viii) N.A.  (ix) 10.05’.  (x) 28.2.54.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N: N_0 = 0, N_1 = 80 and N_2 = 100 lb./ac.
   (2) 3 levels of P_2O_5: P_0 = 0, P_1 = 40 and P_2 = 60 lb./ac.
   (3) 3 levels of K_2O: K_0 = 0, K_1 = 40 and K_2 = 50 lb./ac.

   N as Single Super and K_2O as Muriate of Potash, broadcast at the time of sowing.

3. DESIGN:
   (i) 3 Partially Confd.  (ii) (a) 3 blocks (replication, 9 plots/block).  (b) N.A.  (iii) 6’ x 18’.  (b) 6’ x 15’ (v) One non-experimental row around the net-plot.  (vi) Yes.

4. GENERAL:
   (i) N.A.  (ii) N.A.  (iii) Germination, stand at thinning, yield of the seed, date of flowering.  (iv) (a) 1953—continued.  (b) No.  (c) Nil.  (v) (a) Sabour and Purnea.  (b) Nil.  (vi) and (vii) Nil.

5. RESULTS:
   (i) 135.7 lb./ac.
   (ii) 76.66 lb./ac.
   (iii) N effect is significant. P_2O_5 effect is highly significant.
   (iv) Av. yield of castor seed in lb./ac.

<table>
<thead>
<tr>
<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>
</tr>
</thead>
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<tr>
<td>N_0</td>
<td>33.7</td>
<td>142.6</td>
<td>155.6</td>
<td>110.6</td>
<td>114.1</td>
<td>127.0</td>
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<td>N_1</td>
<td>62.7</td>
<td>163.9</td>
<td>234.1</td>
<td>160.7</td>
<td>160.7</td>
<td>145.2</td>
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<tr>
<td>N_2</td>
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<td>147.8</td>
<td>207.4</td>
<td>135.7</td>
<td>121.9</td>
<td>153.0</td>
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<tr>
<td>Mean</td>
<td>49.3</td>
<td>152.1</td>
<td>205.7</td>
<td>135.7</td>
<td>132.2</td>
<td>141.7</td>
</tr>
</tbody>
</table>

   S.E. of any marginal mean = 12.81 lb./ac.
   S.E. of the body of table = 22.18 lb./ac.

Crop: Castor.  
Site: Botanical Sub-Station, Purnea.  
Ref: Bh. 53 (39).  
Type: ‘M’.

Object: — To find out the most advantageous schedule for getting the highest yield.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) N.A.  (c) N.A.  (ii) (a) Sandy loam.  (b) N.A.  (iii) 10th and 11th August, 1957.  (iv) (a) One Bihar jr. ploughing followed by two to three deshi ploughings.  (b) Dibbling (c) —.  (d) Row to row distance 2’; plant to plant distance 1’.  (e) 2 seeds per hole to be subsequently thinned to one strong seedling per hole.  (f) Nil.  (v) Local.  (vi) Unirrigated.  (vii) Wooding.  (ix) 17.35’.  (x) 4 to 26th of April, 1954.
2. TREATMENTS:

All combinations of (1), (2) and (3)
(1) 3 levels of N: $N_0=0$, $N_1=80$ and $N_2=100$ lb./ac.
(2) 3 levels of $P_2O_5$: $P_0=0$, $P_1=40$ and $P_2=60$ lb./ac.
(3) 3 levels of $K_2O$: $K_0=0$, $K_1=40$ and $K_2=50$ lb./ac.
$N$ as A/S, $P_2O_5$ as Single Super and $K_2O$ as Muriate of Potash, broadcast at the time of sowing.

3. DESIGN:

(i) Partially Conf. Confounding W and Y components in either of 2 replications. (ii) 3 blocks/replication, 9 plots/block
(b) $5'\times 18'$. (iii) 3. (iv) (a) $6'\times 18'$. (b) $6'\times 18'$. (v) One non-experimental row on each side of a block and also one plant at each end of a series in a block. No border kept for the net plot. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) Germination, stand at thinning and seed yield. (iv) (a) 1933—continued. (b) No. (c) Nil. (v) (a) Sabour and Dumka. (b) Nil. (vi) Nil. (vii) Replication IV is discarded, because in most of the cases yield figure is nil.

5. RESULTS:

(i) 369.0 lb./ac.
(ii) 174.63 lb./ac.
(iii) Main effect of N is highly significant, main effect of K is significant and that of $P_2O_5$ is not significant.
No other effect is significant.

(iv) Ave. yield of castor seed in lb./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>
</tr>
</thead>
<tbody>
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<td>205.0</td>
<td>231.9</td>
<td>200.5</td>
<td>178.1</td>
<td>184.9</td>
<td>218.6</td>
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<tr>
<td>$N_1$</td>
<td>463.8</td>
<td>383.2</td>
<td>564.7</td>
<td>470.6</td>
<td>340.6</td>
<td>625.2</td>
<td>436.9</td>
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<tr>
<td>$N_2$</td>
<td>406.7</td>
<td>389.9</td>
<td>510.9</td>
<td>433.8</td>
<td>396.6</td>
<td>417.6</td>
<td>393.2</td>
</tr>
<tr>
<td>Mean</td>
<td>345.1</td>
<td>326.0</td>
<td>435.8</td>
<td>369.0</td>
<td>308.1</td>
<td>442.5</td>
<td>356.3</td>
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<tr>
<td>$K_0$</td>
<td>279.0</td>
<td>191.6</td>
<td>453.7</td>
<td>308.1</td>
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</tr>
<tr>
<td>$K_1$</td>
<td>467.2</td>
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<td>442.5</td>
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<tr>
<td>$K_2$</td>
<td>289.1</td>
<td>369.7</td>
<td>410.1</td>
<td>356.3</td>
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<td></td>
</tr>
</tbody>
</table>

S.E. of any marginal mean
S.E. of body of table

Crop :- Castor (Kharif).
Site :- Oil Seed Section, Sabour.
Object :- To find the most advantageous manurial schedule of N, $P_2O_5$ and $K_2O$ for getting highest yield of Castor.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 15.7.33. (iv) (a) 3 ploughings. (b) Dibbling by khurfi. (c) 16 to 20 lb./ac. (d) Rows-2', plants-1'. (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Two hoeings and weeding. (ix) 28.40'. (x) 4.3.54.

2. TREATMENTS:

All combinations of (1), (2) and (3)
(1) 3 levels of N: $N_0=0$, $N_1=80$ and $N_2=100$ lb./ac.
(2) 3 levels of $P_2O_5$: $P_0=0$, $P_1=40$ and $P_2=60$ lb./ac.
(3) 3 levels of $K_2O$: $K_0=0$, $K_1=40$ and $K_2=50$ lb./ac.
$N$ as A/S, $P_2O_5$ as Single Super and $K_2O$ as Muriate of Potash.
3. DESIGN:
   (i) 3 blocks/replication; 9 plots/each. (b) N.A. (iii) 4. (iv) (a) 18' x 6'.
   (b) 15' x 6'. (v) One line of plants all round. (vi) Yes.

4. GENERAL:
   (i) Fair. (ii) Nil. (iii) Dates of germination and flowering. Disease incidence and yield per plot. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Funea and Dumbka. (b) None. (vi) & (vii) Nil.

5. RESULTS:
   (i) 871.8 lb./ac.
   (ii) 79.15 lb./ac.
   (iii) N effect is highly significant while no other effect is significant.
   (iv) Av. yield of castor in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₃</th>
<th>Mean</th>
<th>K₀</th>
<th>K₁</th>
<th>K₃</th>
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<tbody>
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<td>N₀</td>
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<td>619.6</td>
<td>709.2</td>
<td>664.0</td>
<td>655.8</td>
<td>665.6</td>
<td>670.6</td>
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<tr>
<td>N₁</td>
<td>841.7</td>
<td>1030.1</td>
<td>984.9</td>
<td>952.2</td>
<td>946.2</td>
<td>959.4</td>
<td>951.2</td>
</tr>
<tr>
<td>N₂</td>
<td>1020.3</td>
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<td>938.8</td>
<td>999.2</td>
<td>1056.7</td>
<td>951.2</td>
<td>989.8</td>
</tr>
<tr>
<td>Mean</td>
<td>841.7</td>
<td>896.0</td>
<td>877.6</td>
<td>871.8</td>
<td>886.2</td>
<td>858.7</td>
<td>870.5</td>
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<tr>
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<td>862.3</td>
<td>924.0</td>
<td>886.2</td>
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<td></td>
<td></td>
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<td>K₁</td>
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<td>859.8</td>
<td>858.7</td>
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</tr>
<tr>
<td>K₃</td>
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<td>928.1</td>
<td>849.1</td>
<td>870.5</td>
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</tbody>
</table>

S.E. of any marginal mean = 13.2 lb./ac.
S.E. of body of table = 22.8 lb./ac.

Crop :— Kalai.
Site :— Agri. Chemistry Section, Sabour.

Ref. :— Bh. 53(22).
Type :— ‘M’.

Object :— To test the effect of Manganese at different levels on Kalai yield.

1. BASAL CONDITIONS:
   (i) (a) Potato-Maize-Kalai-Potato. (b) Maize. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 15.7.53. (iv) (a) Spade ploughing. (b) N.A. (c) 2 oz./plot. (d) & (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) One weeding and one interculture. (ix) 32.38". (x) 1.10.53.

2. TREATMENTS:
   1. No manure.
   2. Super at 40 lb./ac. of P₂O₅ + Mur. of Pot at 40 lb./ac. of K₂O.
   3. Treatment 2 + Manganese at 50 lb./ac.
   4. Treatment 2 + Manganese at 100 lb./ac.
   5. Treatment 2 + Manganese at 150 lb./ac.

3. DESIGN:
   (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/400 sq. (c) 1' x 1' (square in shape) (v) Yes—2' border between adjacent plots. (vi) Yes.

4. GENERAL:
   (i) Good. No lodging. (ii) Attack of caterpillar. (iii) Weight of plants. (iv) (a) 1953—1955. (b) Yes. (c) Nil. (v) (a) Nowhere. (b) No. (vi) Nil. (vii) The crop was used as fodder, the weight of plants was noted while the weight of grain was not taken.

5. RESULTS:
   (i) 41720 lb./ac.
   (ii) 2288 lb./ac.
   (iii) Treatment effects are highly significant.
Av. yield of *Kala* fodder 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>26400</td>
<td>-1321 lb./ac.</td>
</tr>
<tr>
<td>2.</td>
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</tr>
<tr>
<td>3.</td>
<td>51600</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>51800</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>49600</td>
<td></td>
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</tbody>
</table>

Crop :- : Chowmoether.
Site :- : College Farm: Sabour.

Object :- To find out the variation in yield between the irrigated and unirrigated plots.

1. BASAL CONDITIONS :
   (i) (a) None. (b) Paddy. (c) N.A. (ii) (a) Clayey loam. (b) N.A. (iii) 15.11.52. (iv) (a) to (d) Sowing on flat surface; making shallow ridges with hand hole at 2½' apart from row to row and nearly 1½' apart from plant to plant. (e) N.A. (v) F.Y.M. applied. Details N.A. (vi) N.A. (vii) As per treatments (viii) Weeding by hand. (a) 9.77'; (b) 3.53 to 9.3.53.

2. TREATMENTS :
   (1) Irrigation when needed,
   (2) Unirrigated.

3. DESIGN:
   (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 7.5'x25' (v) 5' path between block in which two rows of non-experimental chowmoether was sown. (vi) Yes.

4. GENERAL:
   (i) N.A. (ii) None. (iii) Vegetable crop yield. (iv) (a) No. (b) & (c) Nil. (v) (a) None. (b) No. (vi) & (vii) Nil.

5. RESULTS:
   (i) 1067.5 lb./ac.
   (ii) 1322.4 lb./ac.
   (iii) Treatments are not significantly different.
   (iv) Av. yield of vegetable in lb./ac.
      Treatment | Av. yield |
      1.        | 11314     |
      2.        | 10399     |
      S.E./mean = 540.0 lb./ac.

Note : The d.f. for error are only 5.

---

Crop :- Peas and Oats.
Site :- College Farm, Sabour.

Object :- To find the best treatment combination of seeds for Peas and Oats.

1. BASAL CONDITIONS :
   (i) (a) Jowar-Gram or Maize-Wheat. (b) Jowar and *Kala* (c) 1 md./ac. of A.S. (ii) (a) Sandy loam. (b) N.A. (iii) 3.11.53. (iv) (a) One tractor ploughing with mould board and one tractor ploughing with Disc and 2 *desh* ploughings. (b) Sown behind the plough. (c) As per treatments. (d) Distance between the furrows 1'. (e) (v) N.A. (vi) N.A. (vii) Irrigated. (vii) Nil. (f) 1.11'. (g) 26.3.54 & 27.3.54.

2. TREATMENTS :
   1. Oats only
   2. Oats+Peas in ratio 2 : 1
   3. Oats+Peas in ratio 1 : 1
   4. Oats+Peas in ratio 1 : 2
   5. Peas only

Seedrate of Oats is 50 srs/ac. and that of Peas is 35 srs/ac.
3. DESIGN:
(i) L.Sq. (ii) 5. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 46' x 30'. (v) Path between adjacent plots 2', irrigational channel 3' width. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) No attack. (iii) Yield of grain and straw of peas + oats. (iv) (a) 1953—contd. (b) No. (a) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS:
(i) 761 lb./ac.
(ii) 231.7 lb./ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of peas + oats. 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>725</td>
</tr>
<tr>
<td>3.</td>
<td>862</td>
</tr>
<tr>
<td>4.</td>
<td>868</td>
</tr>
<tr>
<td>5.</td>
<td>293</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>103.7 lb./ac.</td>
</tr>
</tbody>
</table>

Crop: Wheat and Gram. Ref: Bh. 53(1).
Site: College Farm. Sabor.
Type: 'X'.

Object: To find the best combination of percentage of mixed cropping of Wheat and Gram.

1. BASAL CONDITIONS:
(i) (a) Maize & Kalal; Wheat and Gram. (b) Maize and Kalal. (c) 1 md/ac. of A/S and 1 md/ac. of Single Super.
(ii) (a) Sandy loam. (b) N.A. (iii) 10.1.53. (iv) (a) Tractor ploughing with mould board plough once and with disc twice [then followed by 5 deshi ploughings. (b) Sown behind the plough. (c) As per treatments.
(d) Row to row 1'. (e) N.A. (f) N.A. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) 1.11'. (x) 29.3.54.

2. TREATMENTS:
1. Wheat only
2. Wheat + Gram in ratio 2:1
3. Wheat + Gram in ratio 1:1
4. Wheat + Gram in ratio 1:2
5. Gram only

Seed rate of wheat is 50 srs/ac. and that of gram is 35 srs/ac.

3. DESIGN:
(i) L.Sq. (ii) 5. (b) N.A. (iii) 5. (iv) (a) & (b) 38' x 22'. (v) Path around each plot—2'. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) N.A. (iii) Yield of grain and straw of wheat + gram. (iv) (a) 1953—contd. (b) No.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>584</td>
</tr>
<tr>
<td>2.</td>
<td>1172</td>
</tr>
<tr>
<td>3.</td>
<td>1216</td>
</tr>
<tr>
<td>4.</td>
<td>1255</td>
</tr>
<tr>
<td>5.</td>
<td>1393</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>82.4 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Gram and Wheat.  
Site: College farm, Sabour.  
Object: To study the effect of N and P\textsubscript{2}O\textsubscript{5} on the mixed crop of Gram and Wheat.

1. **BASAL CONDITIONS:**
   - (i) (a) None. (b) Paddy. (c) 60 lb./ac. of A/S. (ii) (a) Sandy loam. (b) N.A. (iii) 13.12.52. (iv) (a) N.A. (v) A/S at 6 lb./plot and Super 5 lb./plot. (vi) N.A. (vii) Unirrigated. (viii) Weeding by Kharif. (ix) 2.21'. (x) 12.4.53.

2. **TREATMENTS:**
   - 1. Control (no manure).
   - 3. N at 40 lb./ac.
   - 3. P\textsubscript{2}O\textsubscript{5} at 40 lb./ac.
   - 4. N at 50 lb./ac.

3. **DESIGN:**
   - (i) L.Sq. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 30'x13' (v) N.A. (vi) Yes.

4. **GENERAL:**
   - (i) N.A. (ii) N.A. (iii) Grain yield and yield of bhassa. (iv) (a) No. (b) and (c) Nil. (v) (a) and (b) Nil. (vi) and (vii) Nil.

5. **RESULTS:**
   - (i) 484.5 lb./ac.
   - (ii) 27.8 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>436.8</td>
<td>13.91</td>
</tr>
<tr>
<td>2.</td>
<td>548.5</td>
<td>13.91</td>
</tr>
<tr>
<td>3.</td>
<td>600.8</td>
<td>13.91</td>
</tr>
<tr>
<td>4.</td>
<td>352.0</td>
<td>13.91</td>
</tr>
</tbody>
</table>

---

Crop: Maize and Rahar.  
Site: Botanical Sub-Station, Monghyr.  
Object: To find out the spacing and the composition of rows of crop or crops alternated with that of Maize in a mixed crop of Maize and Rahar for the maximum yield.

1. **BASAL CONDITIONS:**
   - (i) (a) N.A. (b) Wheat. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 24.6.53. (iv) (a) 3 deshi ploughings. (b) Sown behind the plough. (c) N.A. (d) Plant to plant 1'. (e) —. (f) Nil. (g) Main=Banupur-(late). Rahar=BR-60-(late). (vii) Unirrigated. (viii) Weeding, ridging and intercultivating. (ix) For Maize—32.74'. For Rahar—36.75'. (x) 16.9.53 (Maize), 23.1.54 (Rahar).

2. **TREATMENTS:**
   - Main-plot treatments:—
   - 1. MR—M—MR—M—MR.
   - 2. R—R—R—R—R.
   - Sub-plot treatments:—
   - 3 spacing between rows: S\textsubscript{1}=1', S\textsubscript{2}=2' and S\textsubscript{3}=2'.
   - M means Maize row; R means Rahar row while MR means Maize and Rahar row.

3. **DESIGN:**
   - (i) Split plot. (ii) (a) 2 main-plots/block; 3 sub-plots/main-plot. (ii) 34'x32'. (iii) 6. (iv) (a) 15'x7', 15'x10', 15'x12'; for 1', 2' and 3' spacing. (b) 15'x6', 15'x8' and 15'x10' for 1', 2' and 2' spacings. (v) Five rows planted in each plot. Each row 15' long, outer two rows are to be discarded. Yield would be calculated on the central two rows of maize and one row of Rahar or mixture of Rahar and Maize. Two outer rows in each sub-plot treated as non-experimental. (vi) Yes.
4 GENERAL:
(i) Average. No lodging. (ii) Nil. (iii) Germination %, stand at thinning, average height, date of silking; weight of cob (green and dry), ear length, cob diameter, shelling %, and yield of grain. (iv) (a) No. (b) and (c) Nil. (v) (a) Dumka, Pyam, Sagar, Sabour and Sepeya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
(i) 680.0 lb./ac.
(ii) (a) 198.87 lb./ac.
(b) 276.48 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of mixed crop in lb./ac.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>650.5</td>
<td>590.0</td>
<td>620.3</td>
</tr>
<tr>
<td>$S_2$</td>
<td>616.7</td>
<td>752.7</td>
<td>684.7</td>
</tr>
<tr>
<td>$S_3$</td>
<td>496.2</td>
<td>541.7</td>
<td>518.9</td>
</tr>
</tbody>
</table>

S.E. of difference of two:
1. main-plot treatment means = 66.29 lb./ac.
2. sub-plot treatment means = 112.87 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment = 159.63 lb./ac.
4. main-plot treatment means at the same level of sub-plot treatment = 146.22 lb./ac.

Crop: Maize and Rahar.
Site: Botanical Sub-Stn, Sepaya.
Object: To find out spacing and composition of row of the crop of crops alternated with that of Maize in a mixed crop of Maize and Rahar for the maximum yield.

1. BASAL CONDITIONS:
(i) (a) No. (b) Rahar. (c) Nil. (ii) (a) Alkaline. (b) N.A. (iii) 25.6.53. (iv) (a) Three country ploughings followed by one tractor ploughing. (b) and (c) N.A. (d) plant to plant. (e) 2 Kernels. (v) Nil. (vi) Local variety—N.A. (vii) Unirrigated. (vii) Weeding and hoeing. Earthing in Maize only. (ix) 65.20”. (x) 9.10.53.

2. TREATMENTS:
Main-plot treatments:
- 3 levels of row spacing: $S_1=18'$, $S_2=24'$ and $S_3=30'$.
- Sub-plot treatments:

3. DESIGN:
- (i) Split plot. (ii) (a) 3 main-plots/block; 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 15' x 6'; 15' x 8'; 15' x 10'; (b) 15' x 44'; 15' x 6'; 15' x 74'; as per spacings in main-plot. (v) 5 rows each 15' long planted keeping 5' distance between plants. Outer 2 rows were discarded. Yield recorded on the basis of two central rows of Maize and one row of Rahar or mixture of Rahar and Maize. Two outer rows in each sub-plot treated as non-experimental. (vi) Yes.

4. GENERAL:
(i) Good. No lodging. (ii) Nil. (iii) Date of flowering, weight of green cob, plant height, weight of dry cob, weight of shelled kernel, no. of good ear per plot and length of husked ear. (iv) (a) No. (b) Nil. (c) No. (v) (a) Dumka, Mongly, -Purna, Parsa and Sabour. (b) Nil. (vi) and (vii) Nil.

Ref: Bh. 53 (96).
Type: 'CX'.
5. RESULTS:

(i) 963.7 lb./ac.
(ii) (a) 414.3 lb./ac.
(b) 193.2 lb./ac.
(iii) Only the interaction 'row spacing x row composition' is significant.
(iv) Av. yield of maize grain in lb./ac.

<table>
<thead>
<tr>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>1037.2</td>
<td>798.7</td>
<td>920.7</td>
</tr>
<tr>
<td>R2</td>
<td>1092.5</td>
<td>1120.2</td>
<td>813.2</td>
</tr>
<tr>
<td>Mean</td>
<td>1064.8</td>
<td>959.4</td>
<td>866.9</td>
</tr>
</tbody>
</table>

1. row spacing means = 169.1 lb./ac.
2. row composition means = 64.4 lb./ac.
3. composition means at the same level of spacing = 111.5 lb./ac.
4. spacing means at the same level of composition = 186.6 lb./ac.

Crop :- Gram and Pea.
Site :- Botanical Sub-Station, Bikramganj.
Ref :- Bh. 53 (40).
Type :- 'DX'.

Object — To study the effect of inoculation of seeds on different legume crops.

1. BASAL CONDITIONS:
   (i) (a) Paddy—Legume—Paddy. (b) Paddy. (c) A/S at 40 lb./ac. of N + 40 lb./ac. of P₂O₅ as Single Super.
   (ii) (a) Sandy loam. (b) N.A. (iii) 3.12.53. (iv) (a) 2 deshi ploughings (b) Sown behind the plough. (c) 60 lb./ac. for both. (d) N.A. (e)—. (v) No. (vi) Gram—Sa, Pea—Local. (vii) No. (viii) No.
   (ix) 1.31'.
   (x) 13, 15.4.54.

2. TREATMENTS:
   1. Gram seed to be inoculated with culture obtained from gram root nodule and sown.
   2. Soil to be inoculated with culture obtained from Gram root nodule and Gram seed to be sown.
   3. Gram sown without inoculation.
   4. Pea seed to be inoculated with culture obtained from Pea root nodule and sown.
   5. Soil to be inoculated with culture obtained from Pea root nodule and Pea seeds to be sown.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) and (b) 13' x 40' (v) Nil; 2' path around the net plot.
   (vi) Yes.

4. GENERAL:
   (i) Poor. No lodging. (ii) Nil. (iii) Growth, date of flowering, no. of nodules and yield of grain. (iv) (a) 1953—1956. (b) Yes. (c) Nil. (v) (a) Pusa, Sepaya, Parma, Dumka, Monghyr, Patna and Sabour. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 488.9 lb./ac.
   (ii) 129.2 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>680.6</td>
</tr>
<tr>
<td>2.</td>
<td>715.1</td>
</tr>
<tr>
<td>3.</td>
<td>585.9</td>
</tr>
<tr>
<td>4.</td>
<td>372.6</td>
</tr>
<tr>
<td>5.</td>
<td>318.8</td>
</tr>
<tr>
<td>6.</td>
<td>260.6</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>-57.8 lb./ac.</td>
</tr>
</tbody>
</table>
Crop: Gram and Pea.

Site: Botanical Sub-Stn., Montaag.

Ref: Bh. 53 (67).

Type: 'DX'.

Object: To study the effect of Nodular bacterial inoculation on Gram and Pea crops.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 21.11.53. (iv) (a) 3 ploughing. (b) Sown behind the plough. (c) 40 seeds/ac. for Gram and 30 seeds/ac. for Pea. (d) 1' apart. (e) Nil. (vi) Pea—BR—2; Gram—BR—77. (vii) Unirrigated. (viii) Weeding after a month of sowing and another after 3 weeks. (ix) 1.13'. (x) Treatments 4, 5, 6 on 27.2.54 and 1, 2, 3 on 17.3.54.

2. TREATMENTS:
   1. Gram seed to be inoculated with culture obtained from gram root nodule and sown.
   2. Soil to be inoculated with culture obtained from gram root nodule and gram seed to be sown.
   4. Pea seed to be inoculated with culture obtained from pea root nodule and sown.
   5. Soil to be inoculated with culture obtained from pea root nodule and pea seeds to be sown.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) and (b) 22' x 25'. (v) Yes—2' path around the sub-plots. (vi) Nil.

4. GENERAL:
   (i) Average. No lodging. (ii) N.A. (iii) Growth and condition, total no. of nodules in 5 random plots, size of nodules and seed yield. (iv) (a) 1953—continued. (b) Nil. (v) (a) All Botanical Sub-stations. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:
   (i) 242.2 lb./ac.
   (ii) 82.05 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>388.1</td>
</tr>
<tr>
<td>2.</td>
<td>120.8</td>
</tr>
<tr>
<td>3.</td>
<td>372.2</td>
</tr>
<tr>
<td>4.</td>
<td>139.6</td>
</tr>
<tr>
<td>5.</td>
<td>121.8</td>
</tr>
<tr>
<td>6.</td>
<td>110.9</td>
</tr>
<tr>
<td>S.E./mean</td>
<td>=36.6 lb./ac.</td>
</tr>
</tbody>
</table>
RESULTS OF BIHAR MANURIAL TRIALS ON CULTIVATORS’ FIELDS (1948-53).

General information common to all the following trials is given here under. The results of the experiments with crop, year, and treatments are given on the following pages.

Object 1. To determine the responses of various crops to different fertilizers under cultivators’ conditions.
2. To study the variation in responses over different soil types.

Basal Conditions:
General cultivation practices, soil types and analytical results, available district-wise, have been furnished below.

1. General Cultivation Practices.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Time of sowing</th>
<th>Preparatory cultivation</th>
<th>Cultural Method of sowing</th>
<th>Practice Spacing</th>
<th>Seed rate</th>
<th>Intercultural operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>June-July</td>
<td>2 ploughings</td>
<td>(1) Japanese method &amp; (2) Broadcasting</td>
<td>10&quot;x10&quot;</td>
<td>8 yrs/ac for Japanese methods and 25 to 30 yrs/ac for broadcasting</td>
<td>2 interculterings with Japanese weeder.</td>
</tr>
<tr>
<td>Wheat</td>
<td>November</td>
<td>4 to 6 ploughings</td>
<td>Behind the plough</td>
<td>Bet. rows 10&quot;</td>
<td>40 yrs/ac</td>
<td>Nil</td>
</tr>
<tr>
<td>Barley</td>
<td>Nov.-Dec.</td>
<td>2 to 3 ploughings</td>
<td>Behind the plough</td>
<td>Bet. rows 10&quot;</td>
<td>40 yrs/ac</td>
<td>Nil</td>
</tr>
<tr>
<td>Maize</td>
<td>June</td>
<td>4 to 5 ploughings</td>
<td>Behind the plough</td>
<td>Bet. rows 2' or 2½</td>
<td>8 yrs/ac</td>
<td>Horse-hoe, earthing up one month after sowing.</td>
</tr>
<tr>
<td>Gram</td>
<td>October</td>
<td>2 to 3 ploughings</td>
<td>Behind the plough and broadcasting (Paira)</td>
<td>Bet. rows 10&quot;</td>
<td>30 yrs/ac</td>
<td>Once hand-hoe</td>
</tr>
<tr>
<td>Rahar</td>
<td>June</td>
<td>3 to 4 ploughings</td>
<td>Behind the plough</td>
<td>Bet. rows 3'; Bet. Plants 1' to 1½'</td>
<td>5 to 6 yrs/ac</td>
<td>Once horse-hoe &amp; earthing up</td>
</tr>
</tbody>
</table>

Information provided by the Agronomy Section, Sabour, Bihar.

2. Soil types and analytical results (district-wise).

Champaran: Loamy soils. Extreme deficiency of P₂O₅, more marked in sub-soil. Presence of large quantities of CaCO₃. Total potash fairly high. Nitrogen figures are varying. pH values are on the alkaline side.

Saran: Sandy loam soil, pH values are on the alkaline side; available phosphoric acid is low. Available potash is fairly good.

Muzaffarpur: Sandy loam soils. Generally deficient in available P₂O₅ and K₂O, particularly in sub-soil.

Darbhanga: Calcareous soils: Low values of available P₂O₅ and potash. Large percentage of CaCO₃. Nitrogen figures vary as usual but not high.

Bhagalpur: Small percentage of CaCO₃. Contains phosphoric acid appreciably. High values of available potash. pH values are just neutral.

Purnea: Sufficient phosphoric acid but deficient in potash. Nitrogen is high. pH varies between 8.0 to 8.5.
Shahabad: Loamy soil. Available potash and phosphoric acid are fairly good. pH value below 7.0. Nitrogen is moderately high. Small amount of CaCO₃.

Patna: Total potash is quite high. Small percentage of CaCO₃. Nitrogen content is moderately high.

Monghyr: Loam to clay loam. Content of available potash is good. Available phosphoric acid is low. Nitrogen is not at par with good soils.

Gaya: Sandy on eastern part. pH varies from 5.0 to 8.8.

Palamau: pH is on the acidic side between 5.0 to 6.0. Both available potash and phosphoric acid low.

Hazaribagh: Soils have acidic reaction and pH varies between 5.0 to 6.8. Available potash is fairly high.

S. Parganas: Low contents of available phosphoric acid, potash and Nitrogen. pH values vary between 4.5 to 6.6. CaCO₃ content is also low.

Ranchi: Wide differences in chemical composition of soils and from different samples available potash is quite appreciable. Phosphoric acid is low. Nitrogen figures are fairly high. pH varies between 5.0 and 6.5.

Manbhum: Soils lack both available potash and phosphoric acid. Nitrogen content is also not high. pH varies between 5.0 and 6.4.

Singhbhum: Both available potash and phosphoric acid are low. On an average there is good content of N₄ and high content of CaO. pH values on the acid side varying between 4.7 and 6.0.

Saharsa: N.A.

DESIGN:

In each sub division of each district, two or three revenue thanas were selected. Under each thana three villages were selected at random and in each village two fields were selected at random. In each fields plots of size 1/10th acre or 1/20th acre were marked according to the extent of the field to hold six plots of this size (or 4 or 7 according to the number of treatments depending on the crop, year and type of the experiment under consideration).

RESULTS:

Two-way tables of average yield of treatments in pound per acre are provided district wise for each crop according to the type of the experiment. Standard errors are also provided against each district as per availability. The total number of experiments conducted in each district is given. Tables have been presented separately for acidic and non-acidic soils wherever such information is available.

TREATMENTS:
1. Control (No manure).
2. 30 lb./ac. of P₂O₅ as Super.
3. 40 lb./ac. of P₂O₅ as Super.
4. 40 lb./ac. of P₂O₅ as B.M.

RESULTS:
Av. yield of grain in lb./ac.

(A) Non-Acidic Soils

<table>
<thead>
<tr>
<th>District</th>
<th>No. of Expts.</th>
<th>Treatments</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patna</td>
<td>32</td>
<td>1499 1900 2227 2278</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N.A.</td>
</tr>
<tr>
<td>Bhagalpur</td>
<td>8</td>
<td>915 1111 1419 1883</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monghyr</td>
<td>7</td>
<td>1175 1095 1270 1328</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gaya</td>
<td>17</td>
<td>1176 1394 1583 1800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shahabad</td>
<td>8</td>
<td>1779 1924 2345 2212</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Saran</td>
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<td></td>
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<tr>
<td>Champaran</td>
<td>8</td>
<td>1111 1450 1532 1870</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Munaffpur</td>
<td>8</td>
<td>1152 1348 1554 1769</td>
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<td></td>
</tr>
<tr>
<td>Darbhanga</td>
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<td>987 1399 1666 2016</td>
<td></td>
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</tbody>
</table>

(B) Acidic Soils

<table>
<thead>
<tr>
<th>District</th>
<th>No. of Expts.</th>
<th>Treatments</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. Pargana</td>
<td>6</td>
<td>1358 1495 1865 1851</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N.A.</td>
</tr>
<tr>
<td>Ranchi</td>
<td>14</td>
<td>1317 1563 1646 1593</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


TREATMENTS:
1. Control (No manure).
2. 20 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S.
5. 30 lb./ac. of N and 37.5 lb./ac. of P₂O₅ as Ammon. Phos.
6. 15 lb./ac. of N and 19 lb./ac. of P₂O₅ as Ammon. Phos. + 15 lb./ac. of N and 6 lb./ac. of P₂O₅ as Castor cake.

RESULTS:
Av. yield of grain in lb./ac.

(A) Non-Acidic Soils

<table>
<thead>
<tr>
<th>District</th>
<th>No. of Expts.</th>
<th>Treatments</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patna</td>
<td>36</td>
<td>1385 1678 1664 1783 2025 2172</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>334.1</td>
</tr>
<tr>
<td>Gaya</td>
<td>46</td>
<td>1094 1542 1554 1617 1748 1675</td>
<td></td>
<td></td>
<td></td>
<td></td>
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(8) Acidic Soils

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Crop: Paddy.  
Year: 1950 (Kharif).

TREATMENTS:
1. Control (no manure)
2. 40 lb./ac. of N as A/S.
3. 40 lb./ac. of N as A/S+40 lb./ac. of P₂O₅ as B.M.
4. 40 lb./ac. of N as A/S+40 lb./ac. of P₂O₅ as Super.
5. 20 lb./ac. of N as A/S+20 lb./ac. of P₂O₅ as Castor Cake.
6. 20 lb./ac. of N as A/S+20 lb./ac. of P₂O₅ as Castor Cake+40 lb./ac. of P₂O₅ as Super.
7. 20 lb./ac. of N as A/S+20 lb./ac. of N as Compost.
* (This treatment is omitted in the results as full data is N.A.)

RESULTS:
Av. yield in of grain lb./ac.
Crop :- Paddy.  
Year :- 1951 (Kharif).

**TREATMENTS**:
1. Control (No manure).
2. 40 lb./ac. of N as A/S.
3. 60 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ as Super.
5. 60 lb./ac. of N as A/S + 60 lb./ac. of P₂O₅ as Super.
6. 40 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ as Super + 20 lb./ac. of N as Compost.

**RESULTS**:
Av. yield of grain in lb./ac.

### (A) Non-Acidic Soils

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### (B) Acidic Soils

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(L) 10 lb./ac. Lime in acidic soils.
Crop: Paddy.  

Year: 1952 (Kharif)

TREATMENTS:
1. Control.
2. 30 lb./ac. of N as A/S + 20 lb./ac. of \( \text{P}_2\text{O}_5 \) as Super.
3. 40 lb./ac. of N as A/S + 20 lb./ac. of \( \text{P}_2\text{O}_5 \) as Super.
4. 40 lb./ac. of N as A/S + 40 lb./ac. of \( \text{P}_2\text{O}_5 \) as Super.
5. 40 lb./ac. of N as A/S + 40 lb./ac. of \( \text{P}_2\text{O}_5 \) as Super + 40 lb./ac. of \( \text{K}_2\text{O} \) as Pot. Sulf.
6. 47 lb./ac. of N as (A/S + Compost) + 50 lb./ac. of \( \text{P}_2\text{O}_5 \) as B.M.

RESULTS:
Av. yield of grain in lb./ac.

(A) Non-Acidic Soils

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(B) Acidic Soils

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L: 16 lb/ac. Lime in acidic soils.
Crop: Paddy.  
Year: 1953 (Kharif).

### I Type

**TREATMENTS:**
1. Control (No manure).
2. 25 lb/ac. of N as A/S.
3. 50 lb/ac. of N as A/S.
4. 25 lb/ac. of N as A/S+20 lb/ac. of P₂O₅ as Super.
5. 25 lb/ac. of N as A/S+40 lb/ac. of P₂O₅ as Super.
6. 25 lb/ac. of N as A/S+20 lb/ac. of P₂O₅ as Super +20 lb/ac. of K₂O as Pot. Sul.

**RESULTS:**
Average yield of grain in lb/ac.

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### II Type

**TREATMENTS:**
1. Control (No manure).
2. 25 lb/ac. of N as A/S.
3. 50 lb/ac. of N as A/S.
4. 25 lb/ac. of N as A/S+20 lb/ac. of P₂O₅ as Super.
5. 25 lb/ac. of N as A/S+40 lb/ac. of P₂O₅ as Super.
6. 25 lb/ac. of N as A/S+20 lb/ac. of K₂O as Pot. Sul.
## RESULTS:

### Av. yield of grain in lb/ac.

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<th>District</th>
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<th>Treatments</th>
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<th>(2)</th>
<th>(3)</th>
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**Crop:** Paddy (Kharij).  
**Year:** 1953.

## TREATMENTS:

1. Control (no manure).
2. 25 lb/ac. of N as A/S.
3. 50 lb/ac. of N as A/S.
4. 50 lb/ac. of N as A/S + 20 lb/ac. of P₂O₅ as Super.
5. 50 lb/ac. of N as A/S + 40 lb/ac. of P₂O₅ as Super.
6. 50 lb/ac. of N as A/S + 50 lb/ac. of P₂O₅ as Super + 40 lb/ac. of K₂O as Pot. Sul.

## RESULTS:

### Av. yield of grain in lb/ac.

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(Contd.)
Crop: Paddy.  
Year: 1953.

TREATMENTS:
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 50 lb./ac. of N as A/S + 20 lb./ac. of P_2O_5 as Super.
5. 50 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as Super.
6. 50 lb./ac. of N as A/S + 40 lb./ac. of K_2O as Pot. Sulf.

RESULTS:
Av. yield of grain in lb./ac.

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TREATMENTS:
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S + 20 lb./ac. of P₂O₅ as Super.
4. 25 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ as R.M.
5. 25 lb./ac. of N as A/S + 20 lb./ac. of P₂O₅ + 20 lb./ac. of K₂O as Pot. Sul.
6. 25 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ + 40 lb./ac. of K₂O as Pot. Sul.

RESULTS:
Av. yield of grain in lb./ac.

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Crop :- Paddy (Kharif).
V Type.

TREATMENTS:
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S + 20 lb./ac. of P₂O₅ as Super.
4. 25 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ as R.M.
5. 25 lb./ac. of N as A/S + 20 lb./ac. of K₂O as Pot. Sul.
6. 25 lb./ac. of N as A/S + 40 lb./ac. of K₂O as Pot. Sul.

Crop :- Paddy (Kharif).
VI Type.

TREATMENTS:
1. Control (no manure).
2. 20 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S + 20 lb./ac. of P₂O₅ as Super.
4. 25 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ as R.M.
5. 25 lb./ac. of N as A/S + 20 lb./ac. of K₂O as Pot. Sul.
6. 25 lb./ac. of N as A/S + 40 lb./ac. of K₂O as Pot. Sul.
RESULTS:
Av. yield of grain in lb/acre.

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Crop: Wheat (Rabi).

Year: 1948.

TREATMENTS:
1. Control (no manure).
2. 10 lb/ac. of N as A/S.
3. 20 lb/ac. of N as A/S.
4. 30 lb/ac. of N as A/S.

RESULTS:
Av. yield of grain in lb/acre.

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### B. Adde Beils

<table>
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<th>Treatments</th>
<th>S.E.</th>
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### RESULTS:

**Crop:** Wheat (Rahi).  **Year:** 1949.

**TREATMENTS:**
1. Control (no manure).
2. 20 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S.
5. 30 lb./ac. of N and 37.5 lb./ac. of P as A/P.
6. 15 lb./ac. of N and 19 lb./ac. of P as A/P+15 lb./ac. of N and 6 lb./ac. of P as Castor cake.

**RESULTS:**

Av. yield of grain in lb./ac.

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<th>S.B.</th>
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### Crop := Wheat (Rahi).  **Year := 1950.**

**TREATMENTS:**
1. Control (no manure).
2. 40 lb./ac. of N as A/S.
3. 40 lb./ac. of N as A/S+40 lb./ac. of P as B.M.
4. 40 lb./ac. of N as A/S+40 lb./ac. of P as Super.
5. 20 lb./ac. of N as A/S+20 lb./ac. of N and 8 lb./ac. of P as Castor cake.
6. 20 lb./ac. of N as A/S+20 lb./ac. of N and 8 lb./ac. of P as Castor cake+40 lb./ac. of P as Super.
7. **20 lb./ac. of N as A/S+20 lb./ac. of N as compost.**

*Treatment (7) not given under results as full data is N.A.*
RESULTS:

Av. yield of grain in lb./ac.

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Crop: Wheat (Rabi).  
Year: 1951.

TREATMENTS:
1. Control (no manure).
2. 40 lb./ac. of N as A.S.
3. 60 lb./ac. of N as A/S.
4. 40 lb./ac. of N + 40 lb./ac. of P2O5 as Super.
5. 60 lb./ac. of N + 60 lb./ac. of P2O5 as Super.
6. 60 lb./ac. of N + 40 lb./ac. of P2O5 as Super + 20 lb./ac. of N as compost.

RESULTS:

Av. yield of grain in lb./ac.

(A) Non acidic soils

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### (B) Acidic Soils

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### RESULTS:

Av. yield of grain in lb./ac.

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### (B) Acidic Soils

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Crop :- Wheat  
I Type. 
Year :- 1953 (Rabi).

TREATMENTS : 
1. Control (no manure) 
2. 25 lb./ac. of N as A/S. 
3. 50 lb./ac. of N as A/S. 
4. 25 lb./ac. of N as A/S+20 lb./ac. of P2O5 as Super. 
5. 25 lb./ac. of N as A/S+40 lb./ac. of P2O5 as Super. 
6. 25 lb./ac. of N as A/S+40 lb./ac. of K2O as Pot. Sui.

RESULTS : 
Av. yield of grain in lb./ac.

<table>
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<th>District</th>
<th>No. of Expts.</th>
<th>Treatment</th>
<th>S.E.</th>
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Crop :- Wheat.  
II Type. 
Year :- 1953 (Rabi).

TREATMENTS : 
1. Control (no manure) 
2. 25 lb./ac. of N as A/S. 
3. 50 lb./ac. of N as A/S. 
4. 25 lb./ac. of N as A/S+20 lb./ac. of P2O5 as Super. 
5. 25 lb./ac. of N as A/S+40 lb./ac. of P2O5 as Super. 
6. 25 lb./ac. of N as A/S+40 lb./ac. of K2O as Pot. Sui.

RESULTS : 
Av. yield of grain in lb./ac.

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<th>District</th>
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Crop: Wheat.

Year: 1953 (Rabi).

TREATMENTS:
1. Control (no manure)
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 50 lb./ac. of N as A/S+20 lb./ac. of P2O5 as Super.
5. 50 lb./ac. of N as A/S+40 lb./ac. of P2O5 as Super.
6. 50 lb./ac. of N as A/S+40 lb./ac. of P2O5 as Super+40 lb./ac. of K2O as Pot. Sul.

RESULTS:
Av. yield of grain in lb./ac.
Crop = Wheat. Year = 1953. (Rabi).

IV Type.

TREATMENTS:
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 50 lb./ac. of N as A/S+20 lb./ac. of P2O5 as Super.
5. 50 lb./ac. of N as A/S+40 lb./ac. of P2O5 as Super.
6. 50 lb./ac. of N as A/S+40 lb./ac. of K2O as Pot. Sul.

RESULTS:
Av. yield of grain in lb./ac.

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<th>District</th>
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<th>Treatment</th>
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Crop = Wheat. Year 1953 (Rabi)

V Type.

TREATMENTS:
1. Control (no manure)
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S+20 lb./ac. of P2O5 as Super.
4. 25 lb./ac. of N as A/S+40 lb./ac. of P2O5 as B.M.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P2O5 as B.M.+20 lb./ac. of K2O as Pot. Sul.
6. 25 lb./ac. of N as A/S+40 lb./ac. of P2O5 as B.M.+40 lb./ac. of K2O as Pot. Sul.

RESULTS:
Av. yield of grain in lb./ac.

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Contd.
### Crop: Wheat

#### Year: 1953 (Rabi)

#### Treatment

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#### Results

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Note: S.E. stands for Standard Error.
Crop: Barley.  
Year: 1948 (Rabi)

TREATMENTS:
1. Control (no manure)
2. 10 lb./ac. of N as A/S.
3. 20 lb./ac. of N as A/S.
4. 30 lb./ac. of N as A/S.

RESULTS:
Av. yield of grain in lb./ac.

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Crop: Maize.  
Year: 1950 (Kharif)

TREATMENTS:
1. Control (no manure).
2. 40 lb./ac. of N as A/S.
3. 40 lb./ac. of N as A/S+40 lb./ac. of P2O5 as B.M.
4. 20 lb./ac. of N as A/S+40 lb./ac. of P2O5 as B.M.
5. 20 lb./ac. of N as A/S+40 lb./ac. of P2O5 as soil-cake.
6. 20 lb./ac. of N as A/S+40 lb./ac. of P2O5 as soil-cake+20 lb./ac. of N as Compost.

RESULTS:
Av. yield of grain in lb./ac.

<table>
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<tr>
<th>District</th>
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| Crop :• Maize.    |              |           |       |       |       |      |
|                   | Year : 1961. |            |       |       |       |      |
|                   | (Kharif)     |            |       |       |       |      |

**TREATMENTS:**
1. Control (no manure).
2. 40 lb./ac. of N as A/S.
3. 60 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S + +40 lb./ac. of P₂O₅ as Super.
5. 60 lb./ac. of N as A/S + +40 lb./ac. of P₂O₅ as Super.
6. 40 lb./ac. of N as A/S + +40 lb./ac. of P₂O₅ as Super + 10 lb./ac. of P as compost.

**RESULTS:**
Av. yield of grain in lb./ac.

(A) Non acidic Soils

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<tr>
<th>District</th>
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(B) Acidic Soils

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</table>

L : 10 lbs. lime/ac. for acidic soils.
Crop :- Maize.  

**TREATMENTS :**
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S.
4. 25 lb./ac. of N as A/S + 25 lb./ac. of P as Super.
5. 25 lb./ac. of N as A/S + 40 lb./ac. of P as Super.
6. 25 lb./ac. of N as A/S + 20 lb./ac. of P as Super + 20 lb./ac. of K as Pot. Sul.

**RESULTS :**
Av. yield of grain in lb./ac.

<table>
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<tr>
<th>District</th>
<th>No. of Expts</th>
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<th>Treatment 3</th>
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</table>

Crop :- Maize.  

**TREATMENTS :**
1. Control (no manure).
2. 20 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S.
5. 30 lb./ac. of N as A/S + 37.5 lb./ac. of P as A/P.
6. 15 lb./ac. of N and 19 lb./ac. of P as A/P + 15 lb./ac. of N and 6 lb./ac. of P as Castor cake.
### RESULTS:

**Av. yield of grain in lb./ac.**

#### (A) Non-Acidic Soils

<table>
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#### (B) Acidic Soils

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L : 10 lb. lime/ac. for acidic soils.

### Crop :- Gram.

**Year :- 1948. (Rabi)**

### TREATMENTS:

1. Control (no manure).
2. 30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.
3. 40 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.
4. 40 lb./ac. of P<sub>2</sub>O<sub>5</sub> as B.M.

### RESULTS:

**Av. yield of grain in lb./ac.**

<table>
<thead>
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<th>District</th>
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<th>Treatment</th>
<th>S.E.</th>
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</table>
Crop: Gram. Year: (Rabi).

TREATMENTS:
1. Control (no manure).
2. 20 lb./ac. of P<sub>1</sub>O<sub>6</sub> as Super.
3. 20 lb./ac. of P<sub>1</sub>O<sub>6</sub> as Super.
4. 40 lb./ac. of P<sub>1</sub>O<sub>6</sub> as Super.

RESULTS:
Av. yield of grain in lb./ac.

<table>
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## Results:

### Average Yield of Grain in lb/ac.

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### Crop: Gram.  
Year: 1945 (Rab)

### Treatments:

1. Control (no manure).
2. 40 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super.
3. 20 lb/ac. of N as A/S. + 40 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super
4. 20 lb/ac. of N as A/S. + 40 lb/ac. of P<sub>2</sub>O<sub>5</sub> as B.M.

(*10 lb/ac. of lime given in addition to P<sub>2</sub>O<sub>5</sub> in acidic soils.)

### Results:

#### Average Yield of Grain in lb/ac. (A) Non-Acidic Soils

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**B. Acidic Soils.**

**Crop:** Gram.  
**Year:** 1953 (Kharif).  
**I Type.**

**TREATMENTS:**
1. Control (no manure).
2. 20 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super.
3. 40 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super.
4. 25 lb/ac. of N as A/S + 20 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super.
5. 25 lb/ac. of N as A/S + 40 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super.
6. 25 lb/ac. of N as A/S + 20 lb/ac. of P<sub>2</sub>O<sub>5</sub> as Super + 40 lb/ac. of K<sub>2</sub>O as Pot. Sul.

**RESULTS:**
Av. yield of grain, in lb/ac.

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Crop :- Gram.
11 Type.

TREATMENTS:
1. Control (no manure).
2. 5 lb./ac. of N as A/S + 20 lb./ac. of P₂O₅ as Super.
3. 20 lb./ac. of P₂O₅ as B.M.
4. 10 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ as Super.
5. 40 lb./ac. of P₂O₅ as B.M.
6. 20 lb./ac. of P₂O₅ as Super + 40 lb./ac. of K₂O as Sulphate of Potash.

RESULTS:
Av. yield of grain in lb./ac.

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Crop :- Maruwa.

TREATMENTS:
1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 25 lb./ac. of N as A/S + 20 lb./ac. of P₂O₅ as Super.
5. 25 lb./ac. of N as A/S + 40 lb./ac. of P₂O₅ as Super.
6. 25 lb./ac. of N as A/S + 20 lb./ac. of P₂O₅ as Super + 20 lb./ac. of K₂O as Pot. Sul.

RESULTS:
Av. yield in lb./ac.

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Crop :- Rahar.  

TREATMENTS:
1. Control (no manure).
2. 30 lb./ac. of \( P_2O_5 \) as Super.
3. 40 lb./ac. of \( P_2O_5 \) as Super.
4. 40 lb./ac. of \( P_2O_5 \) as B.M.

RESULTS:
Av. yield of grain in lb./ac.

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<td>792</td>
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</tbody>
</table>

Crop :- Rahar.  

TREATMENTS:
1. Control (no manure).
2. 40 lb./ac. of \( P_2O_5 \) as Super.
3. 20 lb./ac. of \( P_2O_5 \) as Super.
4. 20 lb./ac. of \( P_2O_5 \) as Super+40 lb./ac. of \( P_2O_5 \) as B.M.

RESULTS:
Av. yield in lb./ac.

<table>
<thead>
<tr>
<th>District</th>
<th>No. of Expts</th>
<th>Treatment (1)</th>
<th>Treatment (2)</th>
<th>Treatment (3)</th>
<th>Treatment (4)</th>
<th>S.E.</th>
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</table>
Crop :- Rahar.  

I Type

TREATMENTS:
1. Control (no manure).
2. 20 lb./ac. of P₂O₅ as Super.
3. 40 lb./ac. of P₂O₅ as Super.
4. 25 lb./ac. of N as A/S+20 lb./ac. of P₂O₅ as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P₂O₅ as Super.
6. 25 lb./ac. of N as A/S+20 lb./ac. of P₂O₅ as Super+40 lb./ac. of K₂O as Pot.Sul.

RESULTS:
Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>District</th>
<th>No. of Expts.</th>
<th>Treatment</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
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<td>686</td>
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</tbody>
</table>

Crop :- Rahar.  

II Type.

TREATMENTS:
1. Control (no manure).
2. 1 lb./ac. of N as A/S+20 lb./ac. of P₂O₅ as Super.
3. 20 lb./ac. of P₂O₅ as B.M.
4. 10 lb./ac. of N as A/S+40 lb./ac. of P₂O₅ as Super.
5. 40 lb./ac. of P₂O₅ as B.M.
6. 20 lb./ac. of P₂O₅ as Super+40 lb./ac. of K₂O as Muriate of Potash.

RESULTS:
Av. yield of grain in lb./ac.

<table>
<thead>
<tr>
<th>District</th>
<th>No. of Expts.</th>
<th>Treatment</th>
<th>(1)</th>
<th>(2)</th>
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