NATIONAL INDEX

OF

AGRICULTURAL

FIELD

EXPERIMENTS

VOL. 2 PART 3

NORTH EASTERN REGION

(ASSAM, MANIPUR, NAGALAND AND TRIPURA)

1960—65

Published by
INSTITUTE OF AGRICULTURAL RESEARCH STATISTICS
(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)
NEW DELHI-110012
The I. C. A. R. has adopted the 'Co-ordinated approach' to crop improvement as its strategy in agricultural research. This approach is based on the principle of giving high priority to problem solving research and for the purpose an intimate knowledge of research in progress and trends of results is very essential. To give impetus to this approach, I. C. A. R. started a scheme for collecting data of all field experiments conducted in the country. It was aimed at compilation of agronomic experiments in the country, with a view to indicate the gaps in the knowledge and to avoid duplication. The scheme entitled 'National Index of Field Experiments' is running under the Institute of Agricultural Research Statistics which has rendered a very valuable service by preparing compendia of agricultural field experiments conducted in the country. Two series of the compendia containing results of about 7,200 and 12,000 experiments conducted during the periods 1948-53 and 1954-59 respectively have already been published by the Institute. The present is the third series of compendia and is expected to contain the results of about 18,000 experiments conducted during the period 1960-65.

The number and the types of experiments have been increasing at a fast rate. Further, many of the experiments were being repeated over a number of years. The conclusions drawn from such experiments should take into account the seasonal variations. For this purpose, it was necessary to carry out consolidated analysis of results over years. Thus the task of compilation, analysis and interpretation of results of experiments being covered in the third series became more formidable compared to those covered in the earlier two series.

The preparation of this compendium has been possible by the whole-hearted co-operation of State Departments of Agriculture, Agricultural Universities and Central Research Institutes who ungrudgingly made the results of their experimental research available. My thanks are due to various officers of these institutions for participating in this work.

I hope that the present series will be followed by periodical publications of similar compendia for later years in order that the availability of results of scientific experiments in agriculture in India may be maintained up-to-date in a consolidated form.

B. K. SONI

Deputy Director General (AS)
Indian Council of Agricultural Research

NEW DELHI,
PREFACE

The present set of volumes forms Part III in the series of compendia of Agricultural Field Experiments being published under the project of National Index of Field Experiments. Volumes comprising in Parts I and II of the series pertaining to the periods 1948-53 and 1954-59 were published in 1962 and 1965 and contained the results of about 7,200 and 12,000 experiments respectively. The present volumes include results of experiments conducted during the period 1960-65. During the last one decade there has been an enormous increase in agricultural research and experimentation so much so that, for the period 1960-65 to which the present volumes refer, results of about 18,000 experiments are available.

Like the earlier two series, the compendium for Part III is divided into 15 volumes, one each for (1) Andhra Pradesh, (2) North Eastern Region (Assam, Manipur, Nagaland, Meghalaya, Tripura, Arunachal Pradesh and Mizoram), (3) Bihar, (4) Gujarat, (5) Kerala, (6) Madhya Pradesh, (7) Maharashtra, (8) Mysore, (9) Orissa, (10) North Western Region (Punjab, Haryana, Jammu & Kashmir and Himachal Pradesh), (11) Rajasthan, (12) Tamil Nadu, (13) Uttar Pradesh, (14) West Bengal and (15) All Central Institutes. A departure has, however, been made in the presentation of the material contained in each volume. Whereas the results of individual experiments were presented in the volumes of previous series, the present series contains results of pooled statistical analysis of experiments that were conducted for two or more years and concluded during the period 1960-65, In respect of those experiments conducted only for one year, and also those conducted for more than one year but were continuing beyond 1965, the results of individual experiments have been presented.

The work under the scheme was carried out at the Institute of Agricultural Research Statistics. Collection of data from different research stations, their scrutiny and preliminary analysis were carried out in successive periods under the charges of Shri T.P. Abraham, Assistant Statistical Adviser, now Joint Director, Central Statistical Organisation; Dr. B.N. Tyagi, Senior Statistician, now Joint Director of Agriculture (Statistics), Uttar Pradesh and Shri M.G. Sardana, Senior Statistician, now Officer-on-Special Duty, Central Statistical Organisation. Shri O.P. Kathuria, Junior Statistician, now Statistician in Indian Agricultural Research Institute was also associated.

Preparation of material for inclusion in the third series of compendia volumes and their printing was carried out under the guidance of Shri K.S. Krishnan, Senior Statistician, Shri R.K. Khosla and Shri P.N. Soni, Junior Statisticians, were responsible for the actual working of the scheme till October 1973 and thereafter respectively.

The collection of data of experiments from various research stations was done by the regional staff of the Institute placed in different States. They deserve to be congratulated for the hard work they have put in. The tabulation of the large volume of data involved was facilitated by the assistance rendered by the staff of the computer centre located at the Institute. Shri R.P. Rao, M.P. Saksena, S.L. Garg, R.K. Jain, G.V.S.R. Krishna, Kuldip Singh and S.S. Kutaula, statistical staff of the Institute, deserve mention for the careful and painstaking work in the analysis of data, combination of results of similar experiments and proof reading of the compendia volumes.

Thanks are due to the State Departments of Agriculture, the Central Institutes and the Agricultural Universities who made the data of the experiments conducted under their jurisdiction readily available to the staff of the Institute. The I. A. R. S. acknowledges with thanks their willing co-operation without which the consolidation of the results would not have been possible. The Institute is also thankful to various officers in the State Departments of Agriculture and Agricultural Universities who worked as Regional Supervisors for the project from
time to time and provided guidance to the regional staff working in the scheme. The list of the names of the regional supervisors and regional staff of the project is given on the following pages.

D. SINGH
Director
Institute of Agricultural Research Statistics
(I. C. A. R.)

NEW DELHI,
January 1, 1974
### Regional Supervisors and Regional Staff of the National Index of Field Experiments

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Region &amp; Headquarters</th>
<th>Statistical staff from the Institute of Agricultural Research Statistics</th>
<th>Regional Supervisor</th>
</tr>
</thead>
</table>
| 1       | Andhra Pradesh (Hyderabad) | 1. Shri C. H. Rao  
 2. Shri G. V. S. R. Krishna  
 3. Shri P. R. Yeri | 1. Shri P. Govinda Rao,  
 Head of the Agri. Res. Instt.  
 2. Shri S. Vittal Rao,  
 H. Q. Dy. Director (Research) |
| 2       | Assam (Shillong) | 1. Shri A. Sinha  
 2. Shri K. D. Saha | 1. Shri U. C. Borah,  
 Research Officer (Stat.) |
| 3       | Bihar (Sabour) | 1. Shri R. K. Jain  
 2. Shri S. M. G. Saran | 1. Shri G. P. Singh,  
 Statistician |
| 4       | Gujarat (Ahmedabad) | 1. Shri S. P. Doshi | 1. Dr. D. K. Desai,  
 Dy. Director of Agriculture (Stat.)  
 2. Shri J. B. Trivedi,  
 I/C. Dy. Director (Stat.)  
 3. Shri R. L. Shah,  
 Dy. Director of Agriculture (Stat.) |
| 5       | Kerala (Trivandrum) | — | 1. Shri N. George John,  
 Research Officer  
 2. Shri G. Rama Chandran Nair, Research Officer  
 3. Shri K. George,  
 Research Officer |
| 6       | Madhya Pradesh (Bhopal) | 1. Shri Rama Rao Patil  
 2. Shri S. S. Kutaula | 1. Shri A. G. Khare,  
 Dy. Director of Agriculture (Stat.)  
 2. Shri V. G. Sharma,  
 Sr. Statistician  
 3. Shri G. C. Shaligram,  
 Dy. Statistician  
 3. Shri D. T. Sawant,  
 Asstt. Statistician |
| 7       | Maharashtra (Poona) | 1. Shri P. R. Yeri  
 2. Shri B. Ramakrishnan | 1. Dr. N. P. Patil,  
 Director of Research  
 2. Shri B. Mishra,  
 Dy. Director of Agri. (Hq.)  
 3. Shri A. Mishra,  
 Chief Statistician |
| 8       | Mysore (Bangalore) | 1. Shri K. A. Balakrishnan  
 2. Shri P. T. N. Nambiar | 1. Dr. N. P. Patil,  
 Director of Research  
 2. Shri B. Mishra,  
 Dy. Director of Agri. (Hq.)  
 3. Shri A. Mishra,  
 Chief Statistician |
| 9       | Orissa (Bhubaneswar) | 1. Shri Rama Rao Patil | 1. Dr. N. P. Patil,  
 Director of Research  
 2. Shri B. Mishra,  
 Dy. Director of Agri. (Hq.)  
 3. Shri A. Mishra,  
 Chief Statistician |
10. **Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir (Ludhiana)**  
   1. Shri B. L. Kaistha  
   2. Shri U. N. Dixit  
   3. Shri D. L. Manocha  
   4. Shri M. S. Batra  
   5. Shri D. P. Singh  

11. **Rajasthan (Jaipur)**  
   1. Shri N. K. Ohri  
   2. Shri C. H. Rao  

12. **Tamil Nadu (Coimbatore)**  
   1. Shri P. Narayanan  
   2. Shri M. V. George  

13. **Uttar Pradesh (Lucknow)**  
   1. Shri S. N. Bajpai  
   2. Shri M. P. Saksena  
   3. Shri G. N. Bahuguna  
   4. Shri O. P. Sharma  
   5. Shri R. Sharma  
   6. Shri C. B. Tiwari  
   7. Shri R. S. Singh  
   8. Shri A. C. Srivastava  

14. **West Bengal (Calcutta)**  
   1. Shri A. K. Mukherjee  
   2. Shri A. Sinha  

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1. Shri P. S. Sahota, Director of Crop Insurance  
2. Shri Darshan Singh, Asstt. Statistician  
3. Shri M. S. Pannu, Statistician, Department of Agriculture  
4. Dr. D. Raghavarao, Prof. & Head, Dept. of Maths. & Stat., P A.U., Ludhiana  
1. Shri H. C. Kothari, Dy. Director (Statistics), Department of Agriculture  
1. Shri K. R. Nagaraja Rao, Secretary, Research Council  
2. Dr. K. Ramakrishnan, Associate Dean  
3. Dr. D. Daniel Sunderaraj, Principal  
1. Dr. K. Kishen, Jt. Director of Agriculture (Statistics)  
2. Shri K. P. Avasthy, Officer-on-Special Duty  
1. Shri S. N. Mukherjee, Dy. Director of Agriculture (Statistics)
ABBREVIATIONS COMMON TO EXPERIMENTS ON ANNUAL AND PERENNIAL CROPS AND EXPERIMENTS ON CULTIVATOR'S FIELDS GIVEN IN EXPERIMENTAL DATA

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 is given in brackets.

Abbreviations adopted for States are as follows:

<table>
<thead>
<tr>
<th>No</th>
<th>State</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A.P.</td>
<td>Andhra Pradesh</td>
</tr>
<tr>
<td>2</td>
<td>As.</td>
<td>Assam</td>
</tr>
<tr>
<td>3</td>
<td>Bh.</td>
<td>Bihar</td>
</tr>
<tr>
<td>4</td>
<td>Gj.</td>
<td>Gujarat</td>
</tr>
<tr>
<td>5</td>
<td>H.P.</td>
<td>Himachal Pradesh</td>
</tr>
<tr>
<td>6</td>
<td>Hr.</td>
<td>Haryana</td>
</tr>
<tr>
<td>7</td>
<td>J.K.</td>
<td>Jammu &amp; Kashmir</td>
</tr>
<tr>
<td>8</td>
<td>K.</td>
<td>Kerala</td>
</tr>
<tr>
<td>9</td>
<td>M.P.</td>
<td>Madhya Pradesh</td>
</tr>
<tr>
<td>10</td>
<td>Mh.</td>
<td>Maharashtra</td>
</tr>
<tr>
<td>11</td>
<td>Mn.</td>
<td>Manipur</td>
</tr>
<tr>
<td>12</td>
<td>Ms.</td>
<td>Mysore</td>
</tr>
<tr>
<td>13</td>
<td>N.L.</td>
<td>Nagaland</td>
</tr>
<tr>
<td>14</td>
<td>Or.</td>
<td>Orissa</td>
</tr>
<tr>
<td>15</td>
<td>Pb.</td>
<td>Punjab</td>
</tr>
<tr>
<td>16</td>
<td>Rj.</td>
<td>Rajasthan</td>
</tr>
<tr>
<td>17</td>
<td>T.N.</td>
<td>Tamil Nadu</td>
</tr>
<tr>
<td>18</td>
<td>Tr.</td>
<td>Tripura</td>
</tr>
<tr>
<td>19</td>
<td>U.P.</td>
<td>Uttar Pradesh</td>
</tr>
<tr>
<td>20</td>
<td>W.B.</td>
<td>West Bengal</td>
</tr>
</tbody>
</table>

For the experiments conducted under the schemes sponsored by the Indian Council of Agricultural Research, like the All India Co-ordinated Agronomic Experiments (Model Agronomic Experiments and Simple Fertilizer Trials) scheme, no serial numbers have been given at the source as the data of these experiments were collected at the headquarters (New Delhi). In such cases, the abbreviation MAE or SFT is given in the bracket against the year in which the experiment is conducted.

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

For Central Institutes, the corresponding standard abbreviations have been adopted as given below:

<table>
<thead>
<tr>
<th>Institute Name</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Arid Zone Research Institute</td>
<td>C. A. Z. R. I.</td>
</tr>
<tr>
<td>Central Plantation Crops Research Institute</td>
<td>C. P. C. R. I.</td>
</tr>
<tr>
<td>Central Potato Research Institute</td>
<td>C. P. R. I.</td>
</tr>
<tr>
<td>Central Rice Research Institute</td>
<td>C. R. R. I.</td>
</tr>
<tr>
<td>Central Soil Salinity Research Institute</td>
<td>C. S. S. R. I.</td>
</tr>
<tr>
<td>Central Tuber Crops Research Institute</td>
<td>C. T. C. R. I.</td>
</tr>
<tr>
<td>Central Tobacco Research Institute</td>
<td>C. T. R. I.</td>
</tr>
<tr>
<td>Cotton Technological Research Laboratory</td>
<td>C. T. R. L.</td>
</tr>
<tr>
<td>Indian Agricultural Research Institute</td>
<td>I. A. R. I.</td>
</tr>
<tr>
<td>Indian Grassland &amp; Fodder Research Institute</td>
<td>I. G. F. R. I.</td>
</tr>
<tr>
<td>Institute of Horticultural Research</td>
<td>I. H. R.</td>
</tr>
<tr>
<td>Indian Institute of Sugarcane Research</td>
<td>I. I. S. R.</td>
</tr>
<tr>
<td>Indian Lac Research Institute</td>
<td>I. L. R. I.</td>
</tr>
<tr>
<td>Jute Agricultural Research Institute</td>
<td>J. A. R. I.</td>
</tr>
<tr>
<td>Jute Technological Research Laboratory</td>
<td>J. T. R. L.</td>
</tr>
<tr>
<td>Sugarcane Breeding Institute</td>
<td>S. B. I.</td>
</tr>
</tbody>
</table>

In case of the experiments conducted on cultivator's fields, whether under an Indian Council of Agricultural Research scheme or by the State Government, the abbreviation (c. f.) is given along with the site or centre as, for example, Cuttack (c. f.).
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. In factorial experiments, the treatments will be abbreviated as, for example. Cultural-cum-Manurial as CM.

Object:—A statement of the objective of the experiment is given indicating the main crop and the type of the experiment.

Results:—Information under this heading should be read against the following items:
(i) General mean. (ii) S. E. per plot. (iii) Results of test of significance. (iv) Summary table(s), with critical differences for individual effect means which are significant.

Other abbreviations used in the Experimental Data

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kg</td>
<td>Kilogram(s)</td>
</tr>
<tr>
<td>Kg/ha.</td>
<td>Kilogram(s) per hectare</td>
</tr>
<tr>
<td>N</td>
<td>Nitrogen</td>
</tr>
<tr>
<td>P</td>
<td>Phosphate</td>
</tr>
<tr>
<td>K</td>
<td>Potash</td>
</tr>
<tr>
<td>Nitro. Phos.</td>
<td>Nitrogen Phosphate</td>
</tr>
<tr>
<td>Ammo. Phos.</td>
<td>Ammonium Phosphate</td>
</tr>
<tr>
<td>A/S</td>
<td>Ammonium Sulphate</td>
</tr>
<tr>
<td>A/S/N</td>
<td>Ammonium Sulphate</td>
</tr>
<tr>
<td>C/A/N</td>
<td>Calcium Ammonium Nitrate</td>
</tr>
<tr>
<td>A/N</td>
<td>Ammonium Nitrate</td>
</tr>
<tr>
<td>A/C</td>
<td>Ammonium Chloride</td>
</tr>
<tr>
<td>C/N</td>
<td>Chilean Nitrate</td>
</tr>
<tr>
<td>Mur. Pot.</td>
<td>Muriate of Potash</td>
</tr>
<tr>
<td>Pot. Sul.</td>
<td>Potassium Sulphate</td>
</tr>
<tr>
<td>Super.</td>
<td>Super Phosphate</td>
</tr>
<tr>
<td>Dical. Phos.</td>
<td>Dicalcium Phosphate</td>
</tr>
<tr>
<td>Zn. Sul.</td>
<td>Zinc Sulphate</td>
</tr>
<tr>
<td>Cu. Sul.</td>
<td>Copper Sulphate</td>
</tr>
<tr>
<td>Mg. Sul.</td>
<td>Magnesium Sulphate</td>
</tr>
<tr>
<td>Mn. Sul.</td>
<td>Manganese Sulphate</td>
</tr>
<tr>
<td>Ammo. Molybdate</td>
<td>Ammonium Molybdate</td>
</tr>
<tr>
<td>B.</td>
<td>Boron</td>
</tr>
<tr>
<td>Fe. Sul.</td>
<td>Ferrous Sulphate</td>
</tr>
<tr>
<td>F. M.</td>
<td>Fish Manure</td>
</tr>
<tr>
<td>G. N. C.</td>
<td>Groundnut Cake</td>
</tr>
<tr>
<td>M. C.</td>
<td>Municipal Compost</td>
</tr>
<tr>
<td>T. C.</td>
<td>Town Compost</td>
</tr>
<tr>
<td>G. M.</td>
<td>Green Manure</td>
</tr>
<tr>
<td>G. L. M.</td>
<td>Green Leaf Manure</td>
</tr>
<tr>
<td>F. Y. M.</td>
<td>Farm Yard Manure</td>
</tr>
<tr>
<td>C. M.</td>
<td>Cattle Manure</td>
</tr>
</tbody>
</table>

The information regarding the particulars of research stations may be obtained under the respective items as given below:

PARTICULARS OF RESEARCH STATIONS

A. General Information:
(i) District and the nearest railway station with Latitude, Longitude and Altitude, if available. General topography of the experimental area. (ii) Type of tract it represents. (iii) Year of establishment. (iv) Cropping pattern. (v) Programme of research.

B. Normal Rainfall:
Average fortnightly rainfall, specifying the period on which the figures are based.

C. Irrigation and Drainage facilities:
(i) (a) Whether available; if so, since when (b) Type of facilities available. (ii) Whether there is a proper drainage system.

D. Soil type and Soil analysis:
(i) Broad soil type with depth, colour and structure etc. (ii) Chemical analysis. (iii) Mechanical analysis.

E. No. of Experiments:
No. of experiments conducted on different crops that have been included in the compendium.

Information under the following heads is to be read against the respective items under experimental data as given on next page.
A. For experiments on annual crops:

(i) Crop rotation followed, if any. (b) Previous crop. (c) Manuring of previous crop (State amount and kind). (ii) Soil type. (iii) Date of sowing/planting. (iv) Cultural practices: (a) Preparatory cultivation. (b) Method of sowing. (c) Seed rate. (d) Spacing. (e) No. of seedlings per hole. (f) Basal manuring given to the whole experiment with time and method of application. (g) Variety (indicate also early, medium or late). (h) Irrigated or un-irrigated. (i) Important post-sowing/planting cultural operations such as weeding, etc. (j) Rainfall during crop season. (k) Date of harvest.

B. For experiments on perennial crops:

(i) Previous history of the experimental area (Give manuring and other operations). (ii) Soil type. (iii) Method of propagation of plants. (iv) Variety. (v) Date and method of sowing/planting (including spacing). (vi) Age of seedlings at the time of planting. (vii) Basal manuring given to the whole experimental area. (viii) Important cultural operations during the experimental year. (ix) Inter-cropping, if any. (x) Irrigated or un-irrigated (If irrigated, give the source, number, interval and intensity of irrigation). (xi) Rainfall during the experimental year. (xii) Date(s) of harvest.

C. For experiments on cultivator’s fields:

(i) Crop rotation followed, if any. (b) Previous crop. (c) Manuring of previous crop (State amount and kind). (ii) Soil type and soil analysis, if available. (iii) Basal manuring (Give 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) Date of sowing/planting. (vii) Irrigated or un-irrigated. (viii) Important post-sowing/planting cultural operations such as weeding, etc. (ix) Rainfall during crop season. (x) Date of harvest.

DESIGN

A. For experiments on annual crops:

(i) Abbreviations for designs: C. R. D.—Completely Randomised Design; R. B. D.—Randomised Block Design; L. Sq.—Latin Square; Fact.—Factorial; Confd.—Confounded; other designs and modifications of the above to be indicated in full. (indicate confounded effects, if any). (ii) (a) No. of plots per block (in a split-plot experiment, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (b) Block dimensions. (iii) No. of replications. (iv) (a) Gross plot-size. (b) Net plot-size. (v) Border or guard rows kept. (vi) Whether treatments are randomised (independently in each block).

B. For experiments on perennial crops:

(i) Abbreviations for designs: C. R. D.—Completely Randomised Design; R. B. D.—Randomised Block Design; L. Sq.—Latin Square; Fact.—Factorial; Confd.—Confounded; other designs and modifications of the above to be indicated in full. (indicate confounded effects, if any) (ii) (a) No. of plots per block (in split-plot experiments, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (b) Block dimensions. (iii) No. of replications. (iv) (a) Net plot-size. (b) No. of trees per plot (In case of experiments on grasses give plot-size). (v) Border or guard rows kept. (vi) Whether treatments are randomised (independently in each block).

C. For experiments on cultivator’s fields:

(i) Design with No. of plots/block and No. of replications (In split-plot experiments, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (ii) Method of selection of sites with number and distribution of experiments. (iii) (a) Gross plot-size. (b) Net plot-size. (iv) Whether treatments are randomised (independently in each block).
GENERAL INFORMATION

A. For experiments on annual crops:

(i) General crop condition during growth (if lodged, state date of lodging). (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) (a) If the experiment has continued for more than one year indicate year of commencement and year of termination. (b) Whether treatments assigned to the same plots every year. (c) Reference to combined analysis, if any. (v) Other centres, if any, where the same experiment has been conducted with reference numbers. (vi) Abnormal occurrences such as heavy rains, frost, storm, drought, etc. (vii) Any other important information.

B. For experiments on perennial crops:

(i) General crop condition during growth. (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) If the experiment has continued for more than one year, indicate year of commencement and year of termination (Give reference of previous years, if any). (v) Other centres, if any, where the same experiment has been conducted with reference numbers. (vi) Reference to combined analysis, if any. (vii) Abnormal occurrences such as heavy rains, frost, storm, drought, etc. (viii) Any other important information.

C. For experiments on cultivator’s fields:

(i) General crop condition during growth. (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) In case of repetition in successive years. (a) Year of commencement and termination. (b) Whether treatments assigned to the same plots every year. (c) Reference to combined analysis, if any. (v) In case of repetition at other places, give names with references, if any. (vi) Abnormal occurrences such as heavy rains, drought, etc. (viii) Any other important information.
<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Crop</th>
<th>Botanical Name</th>
<th>Assamese</th>
<th>Bengali</th>
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<th>Tamil</th>
<th>Malayalam</th>
<th>Kannada</th>
<th>Marathi</th>
<th>Gujarati</th>
<th>Hindi</th>
<th>Punjabi</th>
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<td>Oryza sativa L.</td>
<td>Dhan</td>
<td>Dhan</td>
<td>Dhano</td>
<td>Vadiu</td>
<td>Nel</td>
<td>Nelu</td>
<td>Bhatta</td>
<td>Bhat</td>
<td>Dangar</td>
<td>Dhan</td>
<td>Chaul, Dhan</td>
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<tr>
<td>2</td>
<td>Maize</td>
<td>Zea mays L.</td>
<td>Gom dhan</td>
<td>Bhutta</td>
<td>Macea</td>
<td>Makka-</td>
<td>Makka-</td>
<td>Koddalu</td>
<td>Thavarai</td>
<td>Thuvaram</td>
<td>Payaru</td>
<td>Musukina</td>
<td>Jola</td>
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<td>Arhar</td>
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<td>Arahar</td>
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<td>Harad</td>
<td>Kadddulu</td>
<td>Thavarai</td>
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<td>Tuver</td>
<td>Arhar, Harhar</td>
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<td>Minumulu</td>
<td>Uzhundu</td>
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<td>Pachai-payaru</td>
<td>Cuppayaru</td>
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<td>Bangala-</td>
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<td>Ultapi</td>
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<td>Alu gedee</td>
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<td>Akh</td>
<td>Cheruku</td>
<td>Karumbu</td>
<td>Karimbu</td>
<td>Kabbu</td>
<td>Oos</td>
<td>Sherdi</td>
<td>Ganna; Kamad; Naishakar</td>
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<td>Merapat</td>
<td>Shada pai; Tosh paI</td>
<td>Jhota</td>
<td>Janumii</td>
<td>Chanapai</td>
<td>Chanambu</td>
<td>Senabu</td>
<td>Joot</td>
<td>Moti</td>
<td>Jute</td>
<td>Patsan</td>
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<tr>
<td>9</td>
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<td>Rai</td>
<td>Sarisha</td>
<td>Rai</td>
<td>Avalu</td>
<td>Kadugu</td>
<td>Kaduku</td>
<td>Kampa</td>
<td>sasive</td>
<td>Mohri</td>
<td>Rai</td>
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<td>Cheena</td>
<td>Badam</td>
<td>China-</td>
<td>badam</td>
<td>Nelathangi</td>
<td>Nilakadalai</td>
<td>Kadaile</td>
<td>kayi</td>
<td>Bhuimug</td>
<td>Bhoising; Magafal</td>
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<td>Sesamum orientale L.</td>
<td>Til</td>
<td>Til</td>
<td>Rasi</td>
<td>Nuvvulu</td>
<td>Ellu</td>
<td>Ellu</td>
<td>Yellu</td>
<td>Til, Tili</td>
<td>Sopari</td>
<td>Supari</td>
<td>Supari, Sopari</td>
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<td>Areca catechu L.</td>
<td>Tamol</td>
<td>Supari</td>
<td>Gua</td>
<td>Peka</td>
<td>Kamahu</td>
<td>Pakku</td>
<td>Kavungu</td>
<td>Adiie</td>
<td>Supari</td>
<td>Sopari</td>
<td>Supari</td>
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<td>Narikel</td>
<td>Nadia</td>
<td>Kobbera</td>
<td>Thanai</td>
<td>Thanai</td>
<td>Thengu</td>
<td>Thenga</td>
<td>kayi</td>
<td>Narak</td>
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<td>Matikathal</td>
<td>Anarash</td>
<td>Saphuri, Sapbrd, Panasa</td>
<td>Anasa</td>
<td>Anasai</td>
<td>palam</td>
<td>Kaitha</td>
<td>chakka</td>
<td>Ananas</td>
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<td>(v)</td>
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<td>LIST OF ABBREVIATIONS</td>
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<td>(xxi)</td>
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### EXPERIMENTAL DATA

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NORTH EASTERN REGION

(Salient features of experimentation)

The general information regarding the agro-climatic regions, extent of irrigation, normal cropping pattern, etc., of North Eastern region (consisting of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura) is available in the Assam volumes of the first and second series of the National Index of Agricultural Field Experiments already published for the periods 1948-53 and 1954-59 respectively.

This volume includes the results of 234 experiments conducted during the period 1960-65, as against 231 experiments for the period 1954-59 and 95 for the period 1948-53. Besides, results of experiments conducted under the All India Co-ordinated Agronomic Experiments Scheme of I.C.A.R. are also included in the present compendium. The consolidated results of experiments conducted for more than one year and concluded during the period 1960-65, numbering 147 and forming 59 groups have been presented with crop-wise and type-wise distribution in Table 1 below:

Table 1

Number of groups of experiments concluded during the period 1960-65 (crop-wise and type-wise)

<table>
<thead>
<tr>
<th>Crop</th>
<th>Type</th>
<th>M</th>
<th>MV</th>
<th>C</th>
<th>CV</th>
<th>CM</th>
<th>CMV</th>
<th>Total</th>
</tr>
</thead>
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<td></td>
<td>10(24)</td>
<td>3(9)</td>
<td>4(10)</td>
<td>2(4)</td>
<td>2(4)</td>
<td>2(6)</td>
<td>23(57)</td>
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<tr>
<td>Matikalai</td>
<td></td>
<td>1(3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1(3)</td>
</tr>
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<td>Mung</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1(2)</td>
</tr>
<tr>
<td>Sugarcane</td>
<td></td>
<td>2(5)</td>
<td></td>
<td>1(3)</td>
<td></td>
<td></td>
<td></td>
<td>3(8)</td>
</tr>
<tr>
<td>Jute</td>
<td></td>
<td></td>
<td></td>
<td>3(6)</td>
<td></td>
<td>1(2)</td>
<td></td>
<td>4(8)</td>
</tr>
<tr>
<td>Mustard</td>
<td></td>
<td>2(4)</td>
<td></td>
<td>1(2)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Areca nut</td>
<td></td>
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<td>7(14)</td>
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<td>2(8)</td>
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<td></td>
<td></td>
<td>2(8)</td>
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<tr>
<td>Pineapple</td>
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<td>4(14)</td>
<td></td>
<td>1(2)</td>
<td></td>
<td></td>
<td>1(2)</td>
<td>6(18)</td>
</tr>
<tr>
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<td>4(10)</td>
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<td>7(18)</td>
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<td>1(2)</td>
<td></td>
<td></td>
<td></td>
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<td>TOTAL</td>
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<td>25(65)</td>
<td>6(15)</td>
<td>19(47)</td>
<td>3(6)</td>
<td>3(6)</td>
<td>3(8)</td>
<td>59(147)</td>
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N.B.: Figures in brackets indicate total number of experiments in the group.
The results of experiments conducted for only one year during the period under the report numbering 75, and also those of the experiments which are continued beyond 1965 numbering 12 and forming 6 groups, have been presented. The distribution of all the experiments, according to crop and type of treatments, is furnished in Table 2 below:

**Table 2**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Type</th>
<th>M</th>
<th>MV</th>
<th>C</th>
<th>CV</th>
<th>CM</th>
<th>CMV</th>
<th>D</th>
<th>Total</th>
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<td>36</td>
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<td>15</td>
<td>5</td>
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<td>11</td>
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<td>—</td>
<td>—</td>
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<td>4</td>
</tr>
<tr>
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<td>Arhar</td>
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<td>2</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Matikalai</td>
<td>4</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Mung</td>
<td>3</td>
<td>—</td>
<td>1</td>
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<td>—</td>
<td>—</td>
<td>—</td>
<td>4</td>
</tr>
<tr>
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<td>Potato</td>
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<td>7</td>
<td>9</td>
<td>15</td>
<td>2</td>
<td>234</td>
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</table>

**Assam**

The principal crop of the State is Paddy, Jute. Rapeseed and Mustard and pulses are the other important crops, but these occupy relatively small areas. The salient features of experimentation on different crops are given below:

**Paddy**: Paddy covered 1904* thousand hectares i.e. 68.5% of the total cropped area. 92 experiments were reported on Paddy crop and all of them were conducted under rainfed conditions. Of these, 57 experiments forming 23 groups were concluded during the period.

under report. Khonorullo (12 experiments), S-406 (b)/93-1 (7 experiments), U S.-1 (6 experiments), Sc. 412-56-Swarna sail (5 experiments), M-142 Koimurali (4 experiments) and S-126 Laodumra (4 experiments) were the varieties mainly used in the experiments not having varieties as a factor. The net-plot size varied from 4 square metres to 92 square metres. 44, 37, 8, 2 and 1 experiments were conducted in Randomised Block Design, Split-plot Design, Confounded Designs, Latin Square Design and Strip-plot Design respectively. For most of the experiments in Randomised Block and Split-plot Designs, the replications ranged between 2 to 6. Only 1 experiment in Randomised Block and 3 in Split-plot Design had 10 to 12 replications. Six of the Confounded Design experiments had 2 replications while one each had 1 and 4 replications. The only Strip-plot experiment had 3 replications. In the purely manurial experiments or experiments having manures as one of the factors, the levels of N, P and K varied between 0 to 100, 0 to 67 and 0 to 67 Kg/ha, respectively. Levels of lime, sources of N and P, time and method of applications of N, green manures, micro-nutrients and foliar spray of Urea were some of the other factors tried. Dates of sowing, seed-rates, spacings, methods of cultivation, sowing and transplanting, number of seedlings per hole and methods and duration of storing seedlings were some of the cultural treatments tried.

**Sugarcane :** Sugarcane covered 0.9 thousand hectares i.e. 1.1% of the total cropped area. 18 experiments, all conducted under rainfed conditions and with variety Co-419, were reported on this crop. Of these, 8 experiments forming 3 groups were concluded during the period under report. In all the experiments, 100 square metres was taken as the net-plot area. 13 experiments were conducted in Split-plot Design and the remaining were in Randomised Block Design. Three to four replications were adopted in experiments under both the designs. In the manurial experiments, the levels of N, P and K varied between 0 to 269, 0 to 134 and 0 to 67 Kg/ha, respectively. Levels of lime, sources of N and green manures were the other factors tried. In the cultural experiments, methods of harvesting and dates of harvesting were the factors tried.

**Jute :** Jute covered 131.8 thousand hectares i.e. 4.7% of the total cropped area. 15 experiments, all conducted under rainfed conditions were reported on this crop. Of these, 8 experiments forming 4 groups were concluded during the period under report. In 4 experiments, not having varieties as a factor, varieties JRC-212 and JRO-632 were used. The net-plot area varied from 18 square metres to 41 square metres. 11, 3 and 1 experiments were conducted in Split-plot Design, Randomised Block Design and Confounded Design respectively. 2 and 4 replications were used in the case of 3 and 8 experiments laid out in Split-plot Design, while 3 and 6 replications were used for 1 and 2 experiments in Randomised Block Design. The Confounded experiment had 2 replications. In the manurial experiments, levels of N, P and K varied between 0 to 224, 0 to 112 and 0 to 112 Kg/ha, respectively. Levels of lime, sources of N and foliar application of urea were the other factors tried. Row-spacings, plant-spacings and sowing dates were the cultural treatments tried.

**Pulses :** Pulses covered 84.9 thousand hectares i.e. 3.0% of the total cropped area. 4 experiments each on Mung and Matikalai and 2 on Arhar, all conducted under rainfed conditions, were reported. Levels of N tried on experiments on Mung and Matikalai ranged between 0 and 22 Kgfha., while those of P and K varied from 0 to 67 Kg/ha. Dates of sowing and spacings were the factors tried in cultural experiments.

**Mustard :** Rapeseed and Mustard covered 122.9 thousand hectares i.e. 4.4% of the total cropped area. 7 experiments, 2 of which conducted under irrigated conditions, were reported on this crop. In all the experiments variety M-27 was used. The net-plot area varied from 13 square metres to 42 square metres. All the experiments were laid out in Randomised Block Design and had 3 or 4 replications. In the manurial experiments, the levels of N and P ranged between 0 and 67 Kg/ha, while that of K between 0 and 34 Kg/ha. Dates of sowing, seed rates and weeding with spacings were the factors tried in cultural experiments.
Miscellaneous crops:—Besides the above crops, experiments on Maize, Potato, Sesamum, Arecanut, Coconut and Pineapple crops were also conducted.

Manipur

Paddy:—Paddy covered 91** thousand hectares i.e. 94% of the total cropped area. Only 3 experiments conducted under rainfed conditions were reported. Phouren and Moirangphon. medium varieties of Paddy, were used for experimentation. All the three experiments were of manurial type and conducted in Randomised Block Design with 4 replications. The net-plot area varied from 13.5 to 31.5 square metres.

Nagaland

1 experiment each on Paddy and Maize and 2 on Potato crops were reported from Nagaland. All the experiments were conducted under rainfed conditions. Randomised Block Design with 3 or 4 replications were adopted for these experiments. Different sowing dates formed the treatments tried on experiments on these three crops.

Tripura

Paddy:—Paddy covered 242.8 *** thousand hectares i.e. 75.2% of the total cropped area. 23 experiments were reported on this crop. 18 experiments forming 7 groups were concluded during the period under reference. 5 experiments were conducted under irrigated conditions and the remaining under rainfed conditions. Lati Sail, Kali Boro and Dharial varieties were used in 13, 5 and 3 experiments respectively in which varieties were not a factor. The net-plot area varied from 6.3 sq. metres to 30.3 sq. metres. Except 3 experiments, which were conducted in Split-plot Design, all the others were conducted in Randomised Block Design. 3 to 5 replications were used in both the designs. In the manurial experiments, the levels of N and P ranged between 0 and 89.7 and 0 and 44.8 Kg/ha. Methods of application of N, forms of P and levels of lime were the other factors tried. In the cultural experiments, the factors tried were methods of sowing, dates of planting and age of seedlings.

Jute:—Jute covered 9.7** thousand hectares i.e. 3.0% of the total cropped area. 7 experiments, all conducted under rainfed conditions, were reported. 5 experiments forming 2 groups were concluded during the period under report. D-154 and JRC-212 were the varieties used in the experiments which did not involve varieties as a factor. The net-plot area varied from 3.2 square metres to 18.9 square metres. All the experiments were conducted with 4 replications in Randomised Block Design. Besides the levels of lime, levels of N, P and K varying between 0 to 89, 0 to 45 and 0 to 45 Kg/ha. in different combinations were used in the manurial experiments. Dates of sowing were tried in the cultural experiments.

Groundnut:—4 experiments conducted under rainfed conditions with local variety were reported. 2 experiments each with Split-plot, Design and Confounded Design were conducted. 3 and 4 replications were used in experiments conducted with Split-plot Design and Confounded Design respectively. In the manurial experiments, the levels of N, P and K varied between 0 to 22.4, 0 to 44.8 and 0 to 44.8 Kg/ha. respectively. In the cultural experiments, dates of sowing and spacing were the factors tried.

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**Figures for 1963-64, taken from the Directorate of Economics & Statistics, New Delhi.

PARTICULARS OF RESEARCH STATIONS AND SOIL ANALYSIS

1. Agricultural Chemistry Research Station, Borbheta.

A. General Information:
   (i) In Sibsagar district, 4 km. from Jorhat R.S. with Lat.-26°N/Long.-94°3' E. The topography of the experimental area is high but flat land. (ii) It represents plain tract. (iii) Established in 1946. (iv) Paddy, Matikalai and vegetable crops. (v) Mostly agronomical, varietal and manurial experiments are conducted.

B. Normal Rainfall:
   Details: N.A.

C. Irrigation and Drainage facilities:
   (i) No irrigational facilities are available. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis:
   (i) Broad soil type: Sandy loam of old alluvial type. (ii) Chemical analysis: For soil of 0—23 cm. depth : N=0.066% ; available P$_2$O$_5$ — 0.037% ; available K$_2$O — 0.012% ; pH (water extract) — 5.5 ; pH(KNO$_3$) — 5.2 ; acidity p.p.m. — 39.2. (iii) Mechanical analysis: N.A.

E. No. of Experiments:
   Paddy—1 ; Total=1.

2. Barpeta Seed Farm, Barpeta.

A. General Information:
   (i) In Kamrup district, Borpeta Road is nearest R.S. with Lat.-26°7'N/Long.-94°E. The topography of the experimental area is flat. (ii) It represents plain tract. (iii) Year of establishment to (v) Programme of research : Information N.A.

B. Normal Rainfall and C. Irrigation and Drainage facilities:
   Information: N.A.

D. Soil type and Soil analysis:
   (i) Soil type: Sandy loam. (ii) Chemical analysis and (iii) Mechanical analysis: Information N.A.

E. No. of Experiments:
   Matikalai—3 ; Total=3.

3. Sugarcane Research Station, Buralikson.

A. General Information:
   (i) In Sibsagar district, Barua Bamungsoo is the nearest R.S. with Lat.-26°7'N/Long.-94°E. The topography of the experimental area is high but flat land. (ii) It represents plain tract. (iii) Established in 1957. (iv) Sugarcane—Sugarcane (ratoon)—Fallow is the main cropping pattern. (v) Mostly agronomical, varietal and manurial experiments are conducted.

B. Normal Rainfall:
   Details: N.A.

C. Irrigation and Drainage facilities:
   (i) Yes, by tanks. (ii) Yes, proper drainage system exists.
D. Soil type and Soil analysis:

(i) Broad soil type: Sandy loam of old alluvial type. (ii) Chemical analysis: for soil of 0—23 cm. depth: N-0.096%; available P₂O₅—0.002%; available K₂O-0.0078%; pH (water extract)—4.6; pH (KNO₃)—4.2; Acidity p.p.m.—1304.8 (iii) Mechanical analysis: for soil of 0—23 cm. depth: Coarse sand—3.7%; Fine sand—29.0%; Silt—15.4%; Clay—2.6%; Moisture—4.0%; Loss on ignition—4.0%.

E. No. of Experiments:

Sugarcane—18; Total=18.

4. Agricultural College Farm, Jorhat.

A. General Information:

(i) to (iii) Same as for Agricultural Chemistry Research Station, Borbheta. (iv) Paddy, Jute, Potato, etc. (v) Mostly Agronomical, varietal and manurial experiments are conducted.

B. Normal Rainfall:

Details—N.A.

C. Irrigation and Drainage facilities:

(i) Yes, by tanks. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis:

(i) Broad soil type: Sandy loam of old alluvial type.

(ii) Chemical analysis (%):

<table>
<thead>
<tr>
<th>Depth</th>
<th>N</th>
<th>Available P₂O₅</th>
<th>Available K₂O</th>
<th>pH (Water extract)</th>
<th>Acidity p.p.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0—23 cm.</td>
<td>0.096</td>
<td>0.002</td>
<td>0.0078</td>
<td>4.6</td>
<td>1304.8</td>
</tr>
<tr>
<td>23-45 cm.</td>
<td>0.040</td>
<td>0.001</td>
<td>0.0069</td>
<td>4.6</td>
<td>1864.8</td>
</tr>
</tbody>
</table>

(iii) Mechanical analysis (%):

<table>
<thead>
<tr>
<th>Depth</th>
<th>Coarse sand</th>
<th>Fine sand</th>
<th>Silt</th>
<th>Clay</th>
<th>Moisture</th>
<th>Loss on ignition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-23 cm.</td>
<td>3.7</td>
<td>29.0</td>
<td>23.7</td>
<td>15.4</td>
<td>2.6</td>
<td>4.0</td>
</tr>
<tr>
<td>23-45 cm.</td>
<td>3.0</td>
<td>19.0</td>
<td>28.2</td>
<td>20.0</td>
<td>2.8</td>
<td>3.0</td>
</tr>
</tbody>
</table>

E. No. of Experiments:

Paddy—5 and Potato—1; Total=6.

5. Regional Coconut Research Station, Kazakhichi.

A. General Information:

(i) In Gauhati sub-division of Kamrup district, 20 km. from Gauhati R.S. with Lat.-26°06’ N, Long. 91°35’ E, Alt.-49.4 m. above mean sea level. The topography of the experimental area is plain. (ii) New alluvial cultivated acid soil tract. (iii) Established in 1957. (iv) Perennial crops. (v) Research work is done mainly on Coconut.

B. Normal Rainfall:

3.1 15.8 62.2 153.2 271.2 305.4 283.8 294.1 188.5 36.0 9.0 4.9 1629.2

(Av. rainfall in cm.; based of the data for the period 1960—65).

C. Irrigation and Drainage facilities:

(i) Yes, water is pumped from a hilly stream running along the side of the research station. (ii) Drainage system is not up to the standard. During the rainy season, the drains remain stagnant with water and the entire surrounding area sub-merge.
D. Soil type and Soil analysis:

(i) Broad soil type—Silty clay; Depth—a soil profile was dug up to 1.83 m. depth. At this depth, the soil was found very hard; Colour—Mainly brown but in deeper region, dark red soil in patches interspersed the brown soil; Structure—No definite division of the profile into stratum observed. The upper soil has loose structure than the lower soil. At 1.83 m. depth, the soil is very compact and less impervious to water.

(ii) Chemical analysis:

<table>
<thead>
<tr>
<th>Constituent analysed</th>
<th>Surface layer</th>
<th>30 cm. below surface layer</th>
<th>61 cm. below surface layer</th>
<th>91 cm. below surface layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen %</td>
<td>0.133</td>
<td>0.095</td>
<td>0.081</td>
<td>0.063</td>
</tr>
<tr>
<td>Available P₂O₅ %</td>
<td>0.005</td>
<td>0.01</td>
<td>0.001</td>
<td>0.009</td>
</tr>
<tr>
<td>Available K₂O %</td>
<td>0.024</td>
<td>0.023</td>
<td>0.014</td>
<td>0.008</td>
</tr>
<tr>
<td>pH. (Water extract)</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>pH. (KN₀₃ extract)</td>
<td>4.8</td>
<td>4.4</td>
<td>4.4</td>
<td>4.6</td>
</tr>
<tr>
<td>Acidity p.p.m.</td>
<td>89.6</td>
<td>151.2</td>
<td>397.6</td>
<td>319.2</td>
</tr>
</tbody>
</table>

(iii) Mechanical analysis:

| Coarse sand %        | 11.2          | 10.0                      | 9.2                       | 8.5                       |
| Fine sand %          | 20.5          | 15.6                      | 15.8                      | 15.9                      |
| Silt %               | 24.0          | 44.0                      | 34.0                      | 29.0                      |
| Clay %               | 38.0          | 26.0                      | 44.0                      | 41.0                      |
| Moisture %           | 1.8           | 2.0                       | 2.6                       | 3.6                       |
| Loss on Ignition     | 4.8           | 4.6                       | 5.0                       | 5.8                       |

E. No. of Experiments:

Coconut—8; Total=8.

6. Regional Areca Nut Research Station, Kahikuchi.

A. General Information:

(i) In Azara (Borjar) taluka of Kamrup district, 12 km. from Jalukbari R.S. with Lat.-26°06' N/Long-91°78' E/Alt.-48 m. High land with natural vegetation surrounded by low lying areas for paddy cultivation. (iii) South bank of the Brahmaputra. (iii) Established in 1959. (iv) Perennial crops. (v) Agronomical, botanical and pathological programme of research on plantation crops such as Areca Nut, Coconut, Cashew and Cocoa.

B. Normal Rainfall:

Same as for Regional Coconut Research Station, Kahikuchi.

C. Irrigation and Drainage facilities:

(i) (a) and (b): Available from 1960, depends on the availability of water in the near by channel. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis:

(i) Broad soil type: Depth—23 cm. ; Colour—Yellowish brown; Structure—New alluvial with lower strata laterite. pH.=4.4 to 4.8.

(ii) Chemical analysis and (iii) Mechanical analysis: Same as for Regional Coconut Research Station, Kahikuchi.

E. No. of Experiments:

Areca Nut—15; Total=15.
7. Regional Fruit Research Station, Kahikuchi.

A. General Information:

(i) In Kamrup district, Gauhati is the nearest R.S. with Lat.-26°11' N/Long.-91°47' E/Alt.-47.7 m. above m. s.l. The general topography of the experimental area is flat. (ii) It represents Alluvial tract. (iii) Established in 1956. (iv) Pineapple and Banana. (v) Research on various aspects of the cultivation of Pineapple and Banana.

B. Normal Rainfall:

Same as for Regional Coconut Research Station, Kahikuchi.

C. Irrigation and Drainage facilities:

(i) (a) Yes, since 1956. (b) Channel irrigation. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis:

(i) Broad soil type—Loamy. (ii) Chemical analysis and (iii) Mechanical analysis: Same as for Regional Coconut Research Station, Kahikuchi.

E. No. of Experiments:

Pineapple—20; Total—20.

8. Rice Experimental Station, Karimganj.

A. General Information:

(i) In North Karimganj taluka of Cachar district, 8 km. from Karimganj Junction with Lat.-24°50' N/Long.-92°20' E/Alt.-16 m. The topography of the experimental area is flat. (ii) Alluvial tract of Cachar. (iii) Established in 1913. (iv) Aus Paddy—Sali Paddy is the main cropping pattern. (v) Research on Paddy crop.

B. Normal Rainfall:

```
Jan.  Feb.  March  April  May  June
1  2  1  2  1  2  1  2  1  2
0.0 0.5 3.2 1.3 5.0 7.2 13.0 12.5 21.5 19.8 49.3 37.6
1  2  1  2  1  2  1  2  1  2
26.8 36.5 23.3 26.8 22.5 16.0 10.4 0.8 2.7 0.1 0.1 344.6
```
(Av. fortnightly rainfall in cm.; based on the data for the period 1960-65)

C. Irrigation and Drainage facilities:

(i) Irrigation facilities are not available. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis:

(i) Broad soil type: Depth—Medium; Colour—Light; Structure—Crumby. (ii) Chemical analysis: pH—5.3 (Acidic); N—0.1 Kg/ha.; P<sub>2</sub>O<sub>5</sub>—3.9 Kg/ha.; K<sub>2</sub>O—1.0 Kg/ha. (iii) Mechanical analysis: N.A.

E. No. of Experiments:

Paddy—29; Total—29.

A. General Information:
(i) In Raha taluka of Nowgong district, 2 km. from Raha R.S. with Lat.-26.21° N/ Long.-29.45°E. In general, the farm land is plain with a few pockets of low lying areas where water accumulates in rainy season. (ii) Assam valley tract. (iii) Established in 1956. (iv) The main crop of pulse is rotated with Jute crop in the off-season but in the case of Arhar only this crop is raised (v) Botanical, agronomical and pathological programme of research on pulses and oilseeds.

B. Normal Rainfall:

<table>
<thead>
<tr>
<th></th>
<th>Jan.</th>
<th>Feb.</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>0.2</td>
<td>1.8</td>
<td>2.6</td>
<td>10.4</td>
<td>13.4</td>
<td>24.5</td>
</tr>
<tr>
<td></td>
<td>27.2</td>
<td>11.1</td>
<td>5.9</td>
<td>2.6</td>
<td>0.3</td>
<td>0.1</td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100.1</td>
</tr>
</tbody>
</table>

(Av. rainfall in cm.; based on the data for the period 1962—65).

C. Irrigation and Drainage facilities:
(i) & (b): Irrigation facilities are available but not availed of. (ii) Natural drainage.

D. Soil type and Soil analysis:
(i) Broad soil type-Deep old alluvial soil; Colour-Dark brown. (ii) Chemical analysis & (iii) Mechanical analysis: N.A.

E. No. of Experiments:
Arhar—2, Matikalai—1, Mung—4, Mustard—7 and Sesamum—1 ; Total=15.

10 Jute Research Station, Shillongoni.

A. General Information:
(i) In Nowgong district, 5·8 km. away from the Haibargong, Nowgong R.S. with Lat.-26°21', N/Long.-92°42' E/Alt.-60·7 m. above m.s.l. The topography of the experimental area is low and mid land; slopes towards the North; impeded drainage and high ground water level. (ii) Old alluvial plain tract. (iii) Established in 1937 under the Indian Central Jute Committee. Taken over by Government of Assam in 1962. (iv) Jute (main crop) followed by Paddy, Mustard, Wheat and pulses. (v) Agronomic experiments on Jute.

B. Normal Rainfall:

<table>
<thead>
<tr>
<th></th>
<th>Jan.</th>
<th>Feb.</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.3</td>
<td>1.6</td>
<td>6.1</td>
<td>10.7</td>
<td>24.0</td>
<td>33.0</td>
</tr>
<tr>
<td></td>
<td>34.1</td>
<td>25.4</td>
<td>23.7</td>
<td>5.0</td>
<td>2.2</td>
<td>11.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
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<td></td>
<td></td>
<td>178.5</td>
</tr>
</tbody>
</table>

(Av. rainfall in cm.; based on the data for the period 1965-70)

C. Irrigation and Drainage facilities:
(i) No irrigation facilities are available. (ii) Yes, proper drainage system exists.
D. **Soil type and Soil analysis:**

(i) Broad soil type: Alluvial; Depth: Top soil up to 23 cm.; Structure: Sandy loam.

(ii) Chemical analysis: Organic carbon—0.91 to 1.53%, pH—5.8 to 6.3, Ox. Ca—8 to 13 m.e.%, C x K₂O—0.2 to 0.6 m.e.%, C.E.C.—15 to 16 m.c., Av. P₂O₅—30 to 60 Kg/ha.

(iii) Mechanical analysis: N.A.

E. **No. of Experiments**:

Jute—4; Total=4.

11. **Jute Research Station, Sorbhog.**

A. **General Information**:

(i) In Kamrup district, Sorbhog is the nearest R.S. The general topography of the experimental area is flat. (ii) It represents plain tract. (iii) Year of establishment—N.A. This station functioned at Sorbhog upto 1964 and has been shifted to Shillongani. (iv) Jute, Mesta, etc. (v) Mostly agronomical and varietal experiments are conducted.

B. **Normal Rainfall** and C. **Irrigation and Drainage facilities**:

- Details: N.A.

D. **Soil type and Soil analysis**:

(i) Broad soil type: Sandy loam. (ii) Chemical analysis and (iii) Mechanical analysis: N.A.

E. **No. of Experiments**:

Jute—11; Total=11.

12. **Rice Research Station, (M.A.E. Centre), Titabar.**

A. **General Information**:

(i) In Titabar taluka of Sibsagar district, 5 km. from Titabar R.S. with Lat.—25° 35'N/Long.—94° 10'E/Alt.99.4 m. The general topography of the experimental area is fairly levelled with slight gradient to facilitate drainage of superfluous water. (ii) It represents typical rice growing tract of plains of upper Assam. (iii) Established in 1923. (iv) Ahu Paddy followed by Sali Paddy. (v) All India Co-ordinated trials, research on Rice breeding and varietal improvement, agronomical and entomological experiments on Paddy.

B. **Normal Rainfall**:

<table>
<thead>
<tr>
<th>Jan.</th>
<th>Feb.</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>0.5</td>
<td>0.4</td>
<td>2.0</td>
<td>0.7</td>
<td>2.0</td>
<td>3.4</td>
</tr>
<tr>
<td>8.1</td>
<td>6.1</td>
<td>12.0</td>
<td>14.2</td>
<td>13.1</td>
<td>17.4</td>
</tr>
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</table>

<table>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>16.7</td>
<td>17.4</td>
<td>15.2</td>
<td>21.3</td>
<td>11.3</td>
<td>8.2</td>
<td>5.4</td>
</tr>
</tbody>
</table>

(Av. fortnightly rainfall in cm.; based on the data for the period 1960-65)

C. **Irrigation and Drainage Facilities**:

(i) (a) and (b) Irrigation facilities were available prior to 1960. (ii) Yes, proper drainage system exists.
NAGALAND

1. Agricultural Research Farm, Yisemyong, Mokokchung.
   A. General Information:
      (i) In Mokokchung district, nearest Rly. Station—Amguri. It is situated at high altitude and in cold area. (ii) It represents hilly tract. (iii) Established in 1964. (iv) Paddy, Maize, etc. (v) Agronomical and varietal experiments on Paddy, Maize and Potato.

2. TRIPURA
   1. Research-Cum-Démonstration Farm, Arundhutinagar.
      A. General Information:
         (i) In Agartala district, nearest Rly. Station—Dharmanagar. The topography of the experimental area is flat. (ii) It represents plain tract. (iii) N.A. (iv) Paddy, Jute, Wheat, Groundnut; etc. (v) Agronomical, entomological and pathological experiments.

      B. Normal Rainfall:
         Details : N.A.

      C. Irrigation and Drainage facilities:
         (i) (a) N.A. (b) By tanks. (ii) Yes, there is a proper drainage system.

      D. Soil type and Soil analysis:
         (i) Broad soil types: Sandy and clay loam. (ii) Chemical analysis and (iii) Mechanical analysis: N.A.

      E. No. of Experiments:
         Paddy—21, Potato—2, Jute—5 and Groundnut—4; Total=32.

2. Seed Multiplication Farm, Gukulnagar, Udaipur.
   A. General Information to D, Soil type and Soil analysis:
      Details: N.A.

   E. No. of Experiments:
      Paddy—2 and Jute 2; Total=4.
D. Soil type and Soil analysis:
Details: N.A.

E. No. of Experiments:
Paddy—36; Total=36.

13. Experimental and Research Station, Upper Shillong.

A. General Information:
(i) In Shillong taluka of United Khasi and Jaintia Hills Distt., 114 km. from Gauhati R.S. with Lat.-25·6°N/Long.-91·8°E/Alt.-1966 m. The experimental farm is situated on a terrace of a big hillock surrounded by small hills. The approximate height is about 1900 m. and Shillong peak to the east is 1966 m. (ii) Terrace on the top of a hillock round. (iii) Established in 1952. (iv) Maize, Paddy, Potato, Soyabean, Wheat, Matikalai, French beans. (v) Manurial, varietal, mixed cropping and genetical experiments on Maize (hybrid, composite and local) and Paddy.

B. Normal Rainfall:
Details: N.A.

C. Irrigation and Drainage facilities:
(i) Nil. (ii) No proper drainage system exists.

D. Soil type and Soil analysis:
(i) Broad soil types: Loam and lateritic, Colour-Red; Structure—loamy. (ii) Chemical analysis: N—0·338 to 0·553% ; P₂O₅—Available ; K₂O—Poor. (iii) Mechanical analysis: N.A.

E. No. of Experiments:
Paddy—21, Maize—4; Total=25.

MANIPUR

1 Rice Research Station, Wangbal.

A. General Information:
(i) In Manipur Central district, nearest Rly. Station, Dimapur with Lat.-24·6°N/Long.-94°E/Alt.-783 m. The general topography of the experimental area is flat land. (ii) It represents alluvial tract. (iii) Established in 1961. (iv) Paddy followed by Paddy. (v) Mostly agronomical and varietal experiments on Paddy.

B. Normal Rainfall:
Details: N.A.

C. Irrigation and Drainage facilities:
(i) (a) N.A. (b) Facilities are available. (iii) Yes, there is a proper drainage system.

D. Soil type and Soil analysis:
(i) Broad soil type: Alluvial and clay loam; Depth—Very deep; Colour—Dark brown; Structure—Prismatic medium. (ii) Chemical analysis: pH—5·5. (iii) Mechanical analysis: N.A.

E. No. of Experiments:
Paddy—3; Total=3.
EXPERIMENTAL DATA
Object:—To study the effect of N, P and K singly and in combinations in acid soil region on *Ahu* paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) Old alluvial; sandy loam and acidic. (iii) 8. 9.4.65. (a) 3 to 4 ploughings followed by laddering. (b) Broadcasting. (c) 69 Kg/ha. (d) and (e) —. (v) Nil. (vi) Rangadoria. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 2. 6.7.65.

2. TREATMENTS:
   All combinations of (1), (2) and (3):—
   (1) 3 levels of N as A/S: N<sub>0</sub>=0, N<sub>1</sub>=33.6 and N<sub>2</sub>=67.2 Kg/ha. of N.
   (2) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super: P<sub>0</sub>=0, P<sub>1</sub>=33.6 and P<sub>2</sub>=67.2 Kg/ha. P<sub>2</sub>O<sub>5</sub>.
   (3) 3 levels of K<sub>2</sub>O as Mur. Pot: K<sub>0</sub>=0, K<sub>1</sub>=33.6 and K<sub>2</sub>=67.2 Kg/ha. of K<sub>2</sub>O.
   Method of application: Applied before sowing.

3. DESIGN:
   (i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 1/197.7 ha. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1965—67. (b) Yes. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5 RESULTS:
   (i) 323.6 Kg/ha. (ii) 68.4 Kg/ha. (iii) Main effect of N is highly significant and main effect of K is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>P&lt;sub&gt;0&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;0&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
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<td>263.6</td>
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<td>197.7</td>
<td>247.1</td>
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<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
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<td>336.1</td>
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<td>250.4</td>
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<td>N&lt;sub&gt;2&lt;/sub&gt;</td>
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<td>408.5</td>
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<td>395.4</td>
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<td>Mean</td>
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<td>335.0</td>
<td>291.0</td>
<td>327.3</td>
<td>352.5</td>
<td>323.6</td>
</tr>
</tbody>
</table>

C.D. for N marginal means=46.8 Kg/ha.
C.D. for K marginal means=46.8 Kg/ha.
1. BASAL CONDITIONS:
   (i) (a) Nil, (b) Sali paddy, (c) N.A. (ii) Sandy loam, (iii) 22.7.63. (iv) (a) Ploughing followed by harrowing and laddering, (b) Transplanting, (c) N.A. (d) 23 cm. x 23 cm. (e) 3. (v) 92.2 Q/ha. of cowdung + 22.4 Kg/ha. of P₂O₅ as Super. (vi) Proshibhog. (vii) Unirrigated. (viii) One weeding. (ix) 144.6 cm. (x) 9.12.63

2. TREATMENTS:
   **Main-plot treatments:**
   All combinations of (1) and (2)
   (1) 2 levels of N: N₀ = 0 and N₁ = 44.8 Kg/ha.
   (2) 2 sources of N: S₁ = A/S and S₂ = Urea.

   **Sub-plot treatments:**
   5 times of application of N:
   T₁ = Full dose of N at planting, T₂ = Full dose of N at tillering, T₃ = ½ dose of N at planting and ½ dose of N at tillering, T₄ = ¾ dose of N at planting and ¾ dose of N at tillering and pre-flowering and T₅ = ¾ dose of N at planting, ¾ dose of N at tillering and ¾ dose of N at pre-flowering.

3. DESIGN:
   (i) Split-plot with main-plot treatments in L. Sq. (ii) (a) 4 main-plots/row and 4 rows for the exp. and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 6.3 m. x 3.6 m. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Grass hopper and stem borer; spraying of 40% Guesarol. (iii) Yield of grain. (iv) (a) No (b) and (c) —. (v) No. (vi) and (vii) Nil.

5. RESULTS:
   (i) 3069 Kg/ha. (ii) (a) 680.0 Kg/ha. (b) 532.0 Kg/ha. (iii) Main effects of N, S and T are significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>S₁</th>
<th>S₂</th>
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<td>2764</td>
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<tr>
<td>S₁</td>
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<td>3108</td>
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<td>3735</td>
<td>3988</td>
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</tbody>
</table>

C.D. for N or S marginal means = 372.1 Kg/ha.
C.D. for T marginal means = 378.6 Kg/ha.

**Crop:** Paddy (Kharif).  
**Site:** Rice Exptl. Stn., Karimganj.  
**Object:** To study the effect of different manures on the yield of Aus Paddy.

**Ref:** As. 60(5) and 61(12).  
**Type:** 'M'.
2. TREATMENTS:
3 manurial treatments: T₀ = Control, T₁ = 92.2 Q/ha. of cowdung + 11.2 Kg/ha. of P₂O₅ as Super, and T₂ = 33.6 Kg/ha. of N as A/S + 11.2 Kg/ha. of P₂O₅ as Super.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) 15.2 m. × 9.8 m. (iii) 4. (iv) (a) and (b) 9.8 m. × 4.8 m. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958—61 [Experiment modified in 1960]. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) Nil. (vii) Expt. modified in 1960. Error variances are homogeneous and Treatments × years interaction is present.

5. RESULTS:
Pooled results
(ii) 3021 Kg/ha. (ii) 466.4 Kg/ha. (based on 2 d.f. made up of Treatments × years interaction) (i) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>Av. yield</th>
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<td>T₀</td>
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<td>3049</td>
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Individual results

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<tr>
<th>Years</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
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<td>1960</td>
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<td>3167</td>
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<td>2972</td>
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<td>1961</td>
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<tr>
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<td>3049</td>
<td>3059</td>
<td>N.S.</td>
<td>3021</td>
<td>466.4</td>
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Crop : Paddy (Kharif)
Site : Rice Expt. Stn., Karimganj.
Type : 'M'

Object :—To compare the different doses of fertilizers applied to long duration Sali Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) As per treatments. (ii) Clayey loam (acidic). (iii) 30.6.60/3.8.60/15.7.61/25.8.61. (iv) (a) Ploughing, ladderig and puddling. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 3. (v) 22.4 Kg/ha. of N as cowdung applied before final preparation of plots. (vi) 5.22 (late). (vii) Unirrigated. (viii) One weeding. (ix) 240 cm.; 158.6 cm. (x) 30.11.60; 5 and 6.12.61.

2. TREATMENTS:
4 manurial treatments: T₀ = Control, T₁ = 22.4 Kg/ha. of N as A/S + 33.6 Kg/ha. of P₂O₅ as Super. + 16.8 Kg/ha. of K₂O as Mur. Pot. T₂ = 22.4 Kg/ha. of N as A/S + 22.4 Kg/ha. of P₂O₅ as Super. + 11.2 Kg/ha. of K₂O as Mur. Pot.; T₃ = 22.4 Kg/ha. of N as A/S + 11.2 Kg/ha. of P₂O₅ as Super. + 5.6 Kg/ha. of K₂O as Mur. Pot.

Treatments applied just before transplanting.

3. DESIGN:
(i) L. Sq. (ii) (a) 4. (b) 20.1 m. × 9.9 m. (iii) 4. (iv) (a) 9.9 m. × 4.3 m. (b) 9.5 m. × 4.1 m. (v) One row on either side and 75 cm. at each. (vi) Yes.

4. GENERAL:
(i) Good; Lodging occurred one week before harvest. (ii) Slight attack of pest in 1960. Attack of Rice-Bug in 1961. Gammaxene dusted. (iii) Grain yield. (iv) (a) 1959—61. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) Nil. (vii) Expt. for 1959 was not available. Error variances are heterogeneous and Treatments × years interaction is present.
5 RESULTS:

Pooled results

(i) 3879 Kg/ha. (ii) 346.4 Kg/ha. (based on 3 d.f. made up of Treatments x years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
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</thead>
<tbody>
<tr>
<td>Av. yield</td>
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<td>3787</td>
<td>3782</td>
<td>4106</td>
</tr>
</tbody>
</table>

Individual results

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>Significance</th>
<th>G.M.</th>
<th>S.E./plot</th>
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<tr>
<td>1960</td>
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<td>3930</td>
<td>4491</td>
<td>*</td>
<td>4159</td>
<td>93.3</td>
</tr>
<tr>
<td>1961</td>
<td>3641</td>
<td>3405</td>
<td>3634</td>
<td>3720</td>
<td>*</td>
<td>3600</td>
<td>123.6</td>
</tr>
</tbody>
</table>

Pooled | 3843 | 3787 | 3782 | 4106 | N.S.         | 3879 | 346.4     |

Crop :- Paddy (Kharif).

Site :- Rice Exptl. Stn., Karimganj.

Ref :- 63(17) and 64(14).

Type :- 'M'.

Object :- To study the effect of green manuring with and without Super. on the yield of Sair Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. for 1963 and 'as per treatments' for 1964. (ii) Clayey loam (acidic). (iii) 20, 21.8.63; 12, 14.8.64. (iv) (a) Ploughing, laddering, and puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) Nil. (vi) Sc. 412-125 (late). (vii) Unirrigated. (viii) 2 weedings. (ix) 161.8 cm. for 1963 and 148.3 cm. for 1964. (x) 31.12.63 and 1.1.64; 18, 19.12.64.

2. TREATMENTS :

3 manurial treatments : T₀ = Control, T₁ = 89.6 Kg/ha. of N as Dhaincha (S. acoeleata) and T₂ = T₁ + 250.9 Kg/ha. of Super.

Super applied at the time of sowing Dhaincha in the last week of April/first week of May.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) 9.8 m. x 6.1 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of army worms which were controlled by spraying Guesarol 550 in 1963 nil in 1964 (iii) Yield of grain. (iv) (a) 1963-64. (b) Yes. (c) Results of combined analysis are given under 5 Results. (v) No. (vi) Nil. (vii) Error variances are homogeneous and Treatments x years interaction is absent.

5. RESULTS:

Pooled results

(i) 4326 Kg/ha. (ii) 201.9 Kg/ha. (based on 14 d.f. made up of Treatments x years interaction and pooled error). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>4353</td>
<td>4249</td>
<td>4376</td>
</tr>
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</table>
Individual results

Av. yield of grain in Kg/ha

<table>
<thead>
<tr>
<th>Years</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>4016</td>
<td>4046</td>
<td>3984</td>
<td>N.S.</td>
<td>4015</td>
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<tr>
<td>1964</td>
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<td>N.S.</td>
<td>4636</td>
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</tr>
<tr>
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<td>4249</td>
<td>4376</td>
<td>N.S.</td>
<td>4326</td>
<td>201'9</td>
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Crop :- Paddy (Kharij).

Site :- Rice Res. Stn., Titabar.

Object :- To study the effect of different green manures on the yield of Salī paddy.

1. BASAL CONDITIONS:
   - (i) (a) Nil. (b) As per treatments. (c) N.A. (ii) Heavy clayey loam. (iii) 1.8.60; 7.8.61. (iv) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm × 23 cm. (e) 3-4. (v) N.A. (vi) Sc. 406 (b)/93-1 (Early). (vii) Unirrigated. (viii) 2-4 weedings by Japanese weeder. (ix) N.A. (x) 4.12.60; 11.12.61.

2. TREATMENTS:
   - 4 green manures: G₀=Nil (control), G₁=Dhaincha, G₂=Sesbania Speciosa and G₃=Crotolaria Browni.
   - In 1960 green manures were sown on 6.4.60 and ploughed down on 1.7.60. In 1960 green manures were sown on 29.3.61 and ploughed down on 3.7.61.

3. DESIGN:
   - (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) and (b) 20'1 m. × 4'6 m. (v) Nil. (vi) Yes.

4. GENERAL:
   - (i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1959-61. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) Nil. (vii) Expt. for 1959 was not available. Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS:

Pooled Results

(j) 2778 Kg/ha. (ii) 121'7 Kg/ha. (based on 15 d.f. made up of pooled error and Treatments × years interaction). (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>G₀</th>
<th>G₁</th>
<th>G₂</th>
<th>G₃</th>
<th>Av. yield</th>
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<td>2723</td>
<td>2863</td>
<td>2970</td>
<td></td>
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C.D. = 149'7 Kg/ha.

Individual Results

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>G₀</th>
<th>G₁</th>
<th>G₂</th>
<th>G₃</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
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<td>3255</td>
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<td>3008</td>
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<tr>
<td>Pooled</td>
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<td>2863</td>
<td>2970</td>
<td>**</td>
<td>2778</td>
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Crop: Paddy (Kharif).
Site: Rice Res. Stn., Titabar.

Object: To study the effect of organic and inorganic manures with and without trace elements on the yield of Sali Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Ahu paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 5.7.62; 10.9.62. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) Nil. (vi) S 126 Laodumra. (vii) Unirrigated. (viii) 3-4 weedings by Japanese weeder. (ix) 94.3 cm. (x) 2, 4.1.63.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N as A S : \( N_0 = 0, N_1 = 33.6 \) and \( N_2 = 50.4 \) Kg/ha.
(2) 3 levels of \( \text{P}_2 \text{O}_5 \) as Super : \( \text{P}_0 = 0, \text{P}_1 = 33.6 \) and \( \text{P}_2 = 50.4 \) Kg/ha.
(3) 3 levels of \( \text{K}_2 \text{O} \) as Mur. Pot. : \( \text{K}_0 = 0, \text{K}_1 = 33.6 \) and \( \text{K}_2 = 50.4 \) Kg/ha.

3. DESIGN:
(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) 2.7 m. x 9.6 m. (b) 2.3 m. x 9.1 m. (v) 23 cm. left around the net plot. (vi) Yes.

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

5. RESULTS:
(i) 3894 Kg/ha. (ii) 3349 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( K_0 )</th>
<th>( K_1 )</th>
<th>( K_2 )</th>
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<td></td>
</tr>
<tr>
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</table>

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

Object: To study the effect of organic and inorganic manures with and without trace elements on the yield of Sali Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Ahu paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 16.8.60; 16.8.61; 9.8.62. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) Nil. (vi) S 126 Laodumra. (vii) Unirrigated. (viii) 2-4 weedings by Japanese weeder. (ix) N.A.; N.A.; 94.3 cm. (x) 8.2.60; 29.12.61; 27.12.62.
2. TREATMENTS:

Main-plot treatments:
2 levels of manuring: $C_0 =$Nil. and $C_1 = 138.3$ Q/ha. of cowdung + $112\ K_g/\h_a.$ of $N$ as $A/S + 112\ K_g/\h_a.$ of $P_2O_5$ as Super.

Sub-plot treatments:
All combinations of (1) , (2) and (3).
(1) 2 levels of Zinc : $Z_0 = 0$ and $Z_1 = 11.2$ Kg/ha. of Zn.
(2) 2 levels of Manganese: $M_0 = 0$ and $M_1 = 11.2$ Kg/ha. of Mn.
(3) 2 levels of Iron: $F_0 = 0$ and $F_1 = 11.2$ Kg/ha. of Fe

Forms of Zn, Mn and Fe and method of application—N.A.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 4'6 m. x 4'6 m. for $60$ and $61$; 4'1 m. x 4'1 m. for $62$. (v) 11'5 cm. discarded around the net plot in $60$ and $61$; 23 cm. discarded around the net plot in $62$. (vi) Yes.

4. GENERAL:
(i) Normal; N.A. for others. (ii) N.A. (iii) Yield of grain. (iv) (a) 1960-62. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) Main-plot error variances are homogeneous. Sub-plot error heterogeneous. The results of individual years are presented under 5-Results.

5. RESULTS:

<table>
<thead>
<tr>
<th>$Z_0$</th>
<th>$Z_1$</th>
<th>$M_0$</th>
<th>$M_1$</th>
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<td>3138</td>
<td>3104</td>
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<tr>
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<td>2918</td>
<td>2882</td>
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<table>
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<tr>
<td>2965</td>
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</table>

C.D. for C marginal means=115.8 Kg/ha.
C.D. for M marginal means=56.1 Kg/ha.

<table>
<thead>
<tr>
<th>$C_0$</th>
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<th>$F_0$</th>
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<tr>
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<td>1702</td>
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<table>
<thead>
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<tbody>
<tr>
<td>1601</td>
<td>1608</td>
<td>1518</td>
</tr>
<tr>
<td>1647</td>
<td>1758</td>
<td>1692</td>
</tr>
<tr>
<td>$M_0$</td>
<td>$M_1$</td>
<td></td>
</tr>
<tr>
<td>1557</td>
<td>1653</td>
<td></td>
</tr>
<tr>
<td>1691</td>
<td>1713</td>
<td></td>
</tr>
</tbody>
</table>

C.D. for C marginal means=163.8 Kg/ha.
(i) 3924 Kg/ha.  (ii) 44.2 Kg/ha.  (iii) 225.3 Kg/ha. (iii) Main effect of C is highly significant. Main effect of M and interaction Z x F are significant.

<table>
<thead>
<tr>
<th></th>
<th>Ze</th>
<th>Z1</th>
<th>Me</th>
<th>M1</th>
<th>Fe</th>
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<tr>
<td>C2</td>
<td>4284</td>
<td>4287</td>
<td>4320</td>
<td>4251</td>
<td>4250</td>
<td>4231</td>
<td>4285</td>
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<tr>
<td>Mean</td>
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<td>3890</td>
<td>3859</td>
<td>3865</td>
<td>3915</td>
<td>3934</td>
<td>3924</td>
</tr>
</tbody>
</table>

C.D. for C marginal means=74.9 Kg/ha.
C.D. for M marginal means=113.7 Kg/ha.
C.D. for means in the Z x F table=160.8 Kg/ha.

Crop :- Paddy (Kharij).

Site :- Rice Res. Stn., Titabar.

Ref :- As. 63(5) & 64(7).

Type :- 'M'.

Object :-To study the effect of application of Nitrogen and Phosphate directly and through green manure crop preceding the paddy crop on the yield of Safi paddy.

1. BASAL CONDITIONS:

(i) (a) Nil.  (b) Alw paddy.  (c) Nil.  (ii) Heavy clayey loam.  (iii) August, 63; August, 64.  (iv) (a) 3-4 ploughings.  (b) Transplanting.  (c) N.A.  (d) 23 cm x 23 cm.  (e) 3-4.  (v) and (vi) N.A.  (vii) Unirrigated.  (viii) 3-4 hand weedicngs.  (ix) N.A.; 95.8 cm.  (x) December, 63; December, 64.

2. TREATMENTS:

8 manurial treatments: T0=Control (No manure), T1=44.8 Kg/ha. of N applied at paddy planting, T2=Dhaicha G.M.+44.8 Kg/ha. of N applied at paddy planting, T3=44.8 Kg/ha. of N applied to Dhaicha G.M., T4=Dhaicha G.M.+44.8 Kg/ha. of P105 at paddy planting, T5=44.8 Kg/ha. of P105 applied to Dhaicha G.M., T6=44.8 Kg/ha. of P105 applied at paddy planting and T7=44.8 Kg/ha. each of N and P105 applied at paddy planting.

N and P105 applied as A/S and Super respectively. Dhaicha ploughed down after 8 weeks of growth and 45 days before paddy planting.

3. DESIGN:

(i) R.B.D.  (ii) (a) 8.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 1/98.8 ha. for 63 and 1/249.7 ha. for 64.  (v) N.A.  (vi) Yes.

4. GENERAL:

(i) Good for 63 and normal for 64.  (ii) N.A.  (iii) Yield of grain.  (iv) (a) 1963-64.  (b) No.  (c) Results of combined as well as individual analysis are given under 5. Results.  (v) No.  (vi) N.A.  (vii) Error variances are heterogeneous and Treatments x years interaction is present.

5. RESULTS:

Pooled results

(i) 5451 Kg/ha.  (ii) 1336.1 Kg/ha. (based on 7 d.f. made up of Treatments x years interaction).  (iii) Treatment differences are not significant.  (iv) Av. yield of grain in Kg/ha.
Crop: Paddy (Kharif).
Site: Rice Res. Stn., Titabar.
Ref: As. 64(9).
Type: 'M'.

Object: To study the efficiency of foliar application of Urea against the customary soil application on the yield of Sali Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Akhu paddy. (c) N.A. (ii) Heavy clayey loam. (iii) August, 1964. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 3 to 4. (v) N.A. (vi) Gajep Sali. (vii) Unirrigated. (viii) 2 weedings. (ix) 95.8 cm. (x) December, 1964.

2. TREATMENTS:
   8 manurial treatments: T₀ = Control, T₁ = 11.2 Kg/ha. of N as A/S applied before transplanting, T₂ = 22.4 Kg/ha. of N as A/S applied before transplanting, T₃ = 11.2 Kg/ha. of N as Urea applied before transplanting, T₄ = 22.4 Kg/ha. of N as Urea applied before transplanting, and T₅ = 22.4 Kg/ha. of N as Urea dose applied at tillering and dose applied at pre-flowering stage, T₆ = 22.4 Kg/ha. of N as A/S applied in two equal doses as in T₀.

Concentration of spray: 2%.

3. DESIGN:
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9.0 m. x 4.4 m. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 4169 Kg/ha. (ii) 4117 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
<th>T₇</th>
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<tbody>
<tr>
<td>Av. yield</td>
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<td>5458</td>
<td>4920</td>
<td>5296</td>
<td>5458</td>
<td>5068</td>
<td>5897</td>
<td>5532</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Rice Res. Stn., Titabar.
Ref: As. 65(24).
Type: 'M'.

Object: To study the effect of foliar application of Urea on the yield of Sali Paddy.
1. BASAL CONDITIONS:
   (i) (a) Nil. (b) *Atu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 26.7.65. (iv) (a) 3-4 ploughings.
   (b) Transplanting. (c) N.A. (d) 25 cm. x 25 cm. (e) 3-4. (v) 33.6 Kg/ha. of P₂O₅ as Super. (vi) Gazep *sali*. (vii) Unirrigated. (viii) 2-3 weedings. (ix) N.A. (x) 24.12.65.

2. TREATMENTS:
   Main-plot treatments:
   2 levels of N: N₁ = 16.8 and N₂ = 33.6 Kg/ha.

   Sub-plot treatments:
   6 methods of N application:
   M₀ = Control (no manure), M₁ = Urea as soil application, M₂ = A/S as soil application, M₃ = Urea as foliar application, M₄ = A/S as soil application and foliar application, and M₅ = A/S as soil application and Urea as foliar application.
   Dates of Urea spray: 16.8.65 and 18.9.65.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main plots/replication and 6 sub-plots/main plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1.487.7 ha. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-67. (b) No. (c) Nil. (v) N.A. (vi) Raw data--not available, results supplied by the Stn. have been presented.

5. RESULTS:
   (i) 2194 Kg/ha. (ii) (a) 109.0 Kg/ha. (b) 207.8 Kg/ha. (iii) Main effect of M is highly significant and main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>M₀</th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
<th>M₄</th>
<th>M₅</th>
<th>Mean</th>
</tr>
</thead>
</table>
   N₁  | 1642| 2162| 2211| 2357| 2048| 2194    | 2102    |
   N₂  | 1723| 2194| 2666| 2373| 2568| 2194    | 2286    |
   Mean| 1682| 2178| 2438| 2365| 2308| 2194    | 2194    |

   C.D. for N marginal means = 156.3 Kg/ha.
   C.D. for M marginal means = 250.3 Kg/ha.

---

**Crop:** Paddy (*Khelif*).

**Site:** Rice. Res. Stn., Titabar.

**Ref:** As. 65(19).

**Type:** ‘M’.

Object: To study the effect of N, P and K on the yield of Sali Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) *Atu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 2.7.65/12.8.65. (iv) (a) 3-4 ploughings.
   (b) Transplanting. (c) N.A. (d) 25 cm. x 25 cm. (e) 3-4. (v) N.A. (vi) Prosadbhog (vii) Unirrigated. (viii) 2-3 weedings. (ix) N.A. (x) 7.12.65.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N as A/S: N₀ = 0, N₁ = 33.6 and N₂ = 67.2 Kg/ha.
   (2) 3 levels of P₂O₅ as Super: P₀ = 0, P₁ = 33.6 and P₂ = 67.2 Kg/ha.
   (3) 3 levels of K₂O as Mur. Pot.: K₀ = 0, K₁ = 16.8 and K₂ = 33.6 Kg/ha.
   Method and time of application: A/S applied in two equal doses, one at transplanting and the other at tillering. Super and Mur. Pot. applied before transplanting.
3. DESIGN:
(i) 3° fact. confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) N.A. (b) 1/282·8 ha. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 2273 Kg/ha. (ii) 226·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>K₀</th>
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<td>2828</td>
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</table>

Crop :- Paddy (Khafir)

Object :- To study the effect of N and P combination on the yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 1 to 5.7.60. (iv) (a) Ploughing followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 3. (v) N.A. (vi) Khonorullo. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 17.11.60.

2. TREATMENTS:
7 manural treatments : T₀=Control, T₁=112 Kg/ha. of A/S, T₂=T₁+70 Kg/ha. of Super, T₃=224 Kg/ha. of A/S, T₄=T₃+140 Kg/ha. of Super, T₅=336 Kg/ha. of A/S and T₆=T₅+210 Kg/ha. of Super.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 5·0 m. × 2·5 m. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1960—62. (b) No. (c) — (v) No. (vi) N.A. (vii) Results of 61 and 62 were not available at the Res. Stn.

5. RESULTS:
(i) 2944 Kg/ha. (ii) 702·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
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<tr>
<td>Av. yield</td>
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<td>2957</td>
<td>2778</td>
<td>2509</td>
<td>2867</td>
<td>3226</td>
<td>3494</td>
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</table>
Crop :- Paddy (Kharif).


Ref :- As. 60(9).

Type :- 'M'.

Object :- To study the effect of N and P combinations on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A.  (ii) Sandy loam. (iii) 5 to 8.7.60.  (iv) (a) Ploughing followed by ladder­
   ing. (b) Transplanting. (c) N.A.  (d) 23 cm. × 23 cm.  (e) 3.  (v) N.A.  (vi) Dullo.  (vii) Unirrigated.
   (viii) 2 weedings.  (ix) N.A.  (x) 28.11.6C.

2. TREATMENTS:
   7 manurial treatments: T₁ = Control, T₁ = 112 Kg/ha. of A/S, T₁ = T₁ + 70 Kg/ha. of Super, T₁ = 224 Kg/ha.
   of A/S, T₁ = T₁ + 140 Kg/ha. of Super, T₁ = 336 Kg/ha. of A/S and T₁ = T₁ + 210 Kg/ha. of Super.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 7.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 5'0 m. × 2'5 m.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) Normal.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1960–62.  (b) No.  (c) – (v) No.  (vii) N.A.  (vii)
   Results of 61 and 62 were not available at the Res. Stn.

5. RESULTS:
   (i) 1581 Kg/ha.  (ii) 512·1 Kg/ha.  (iii) Treatment differences are not significant.  (iv) Av. yield of grain in
   Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
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<tbody>
<tr>
<td>Av. yield</td>
<td>1467</td>
<td>1792</td>
<td>1590</td>
<td>1669</td>
<td>1456</td>
<td>1613</td>
<td>1478</td>
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Crop :- Paddy (Kharif).


Ref :- As. 61(16) and 62(14).

Type :- 'M'.

Object :- To study the effect of different sources of P at different levels on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) As per treatments in 62 and N.A. in 61.  (ii) Sandy loam.  (iii) During July.
   (iv) (a) Ploughing followed by ladder­
   ing. (b) Transplanting. (c) N.A.  (d) 23 cm. × 23 cm.  (e) 3.  (v) N.A.  (vi) Khonorullo.  (vii) Unirrigated.  (viii) 1 weed­ing.  (ix) N.A.  (x) During November.

2. TREATMENTS:
   5 manurial treatments: T₁ = Control (2 plots), T₁ = 210·0 Kg/ha. of Super, T₁ = 168·0 Kg/ha. of Bone Meal, T₁ = 420·0 Kg/ha. of Super and T₁ = 336·0 Kg/ha. of Bone Meal.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 6.  (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 5'0 m. × 2'5 m.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) Normal.  (ii) N.A.  (iii) Yield of grain.  (iv) (a) 1961–63.  (b) Yes.  (c) Nil.  (v) No.  (vi) N.A.  (vii)
   Results of 1963 were not available. Error variances are heterogeneous and Treatments × years interaction
   is absent. Results of individual years are presented under 5.  Results.

5. RESULTS:
   61(16)
   (i) 2386 Kg/ha.  (ii) 881·2 Kg/ha.  (iii) Treatment differences are significant.  (iv) Av. yield of grain in
   Kg/ha.
Crop : Paddy (Kharif).

Object : To study the relative efficiency of different forms of Phosphate with or without Nitrogen.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 4.6.62; 8.6.63 and 5.6.64. (iv) (a) Ploughing followed by laddering. (ii) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) 184.5 Q/ha. of Cow dung. (vi) Khonorullo. (vii) Unirrigated. (viii) 2 weeding. (ix) N.A. (x) 24.10.62; 30.10.63 and 25.10.54.

2. TREATMENTS:
   6 manurial treatments : T₁ = Control, T₂ = 44.8 Kg/ha. of N as A/S, T₃ = 33.6 Kg/ha. of P₂O₅ as Bone Meal, T₄ = 33.6 Kg/ha. of P₂O₅ as Super and T₅ = T₁ + T₂ and T₆ = T₁ + T₃.

3. DESIGN:
   (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 3'7 m. x 3'1 m. (b) 3'1 m. x 2'4 m. (v) 30'5 cm. discarded around. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1962—64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Error variances are heterogeneous and Treatments x years interaction is absent. Results of individual years are presented under 5. Results.

5. RESULTS:

62(15)
   (i) 3720 Kg/ha. (ii) 30'9 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.
   Treatment  T₁  T₂  T₃  T₄  T₅  T₆
   Av. yield  2664 3310 4036 3924 4350 4036
   C.D. = 556.5 Kg/ha.

63(20)
   (i) 4480 Kg/ha. (ii) 70'9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.
   Treatment  T₁  T₂  T₃  T₄  T₅  T₆
   Av. yield  3368 4678 4431 4557 5351 4498
Crop: Paddy ('Kharif').

Object: To study the relative efficiency of different forms of Phosphate with or without Nitrogen.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 20.4.63; 16.4.64; 15.4.65. (iv) (a) Hoeing and pulverizing. (b) Dibbling 9 to 10 grains per hill. (c) N.A. (d) 15 cm. x 15 cm. (e) N.A. (v) 184.5 Q ha. as Cowdung. (vi) 1963 and 1964. (vii) Unirrigated. (viii) 2 weedicings. (ix) N.A. (x) 8.11.63; 7.11.64; 5.11.65.

2. TREATMENTS:
5 manurai treatments: T_0 = Control, T_1 = 44.8 Kg/ha. of N as A/S, T_2 = 33.6 Kg/ha of P_2O_5 as B.M., T_3 = 33.6 Kg/ha. of P_2O_5 as Super., T_4 = T_1 + T_3 and T_5 = T_2 + T_3.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 3·1 m. x 3·7 m (b) 2·4 m. x 3·1 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:
(i) Poor in 63 and 64. Good in 65. (ii) N.A. (iii) Grain yield. (iv) (a) 1963–65. (b) No. c) Results of combined as well as individual expts. are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments x years interaction is present.

5. RESULTS:
Pooled results:
(i) 1298 Kg/ha. (ii) 774·4 Kg/ha (based on 10 d.f. made up of Treatments x years interaction).
(iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_0</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
<th>T_4</th>
<th>T_5</th>
</tr>
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<tbody>
<tr>
<td>Av. yield</td>
<td>1009</td>
<td>1379</td>
<td>1397</td>
<td>929</td>
<td>1538</td>
<td>1535</td>
</tr>
</tbody>
</table>

Individual results
Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>T_0</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
<th>T_4</th>
<th>T_5</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./p'nt</th>
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<tbody>
<tr>
<td>1963</td>
<td>413</td>
<td>534</td>
<td>511</td>
<td>354</td>
<td>440</td>
<td>282</td>
<td>N.S.</td>
<td>422</td>
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<tr>
<td>1964</td>
<td>1202</td>
<td>1722</td>
<td>937</td>
<td>632</td>
<td>1256</td>
<td>2036</td>
<td>*</td>
<td>1298</td>
<td>376·5</td>
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<tr>
<td>1965</td>
<td>1412</td>
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<td>2743</td>
<td>1802</td>
<td>2917</td>
<td>2286</td>
<td>*</td>
<td>2174</td>
<td>546·6</td>
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<tr>
<td>Pooled</td>
<td>1009</td>
<td>1379</td>
<td>1397</td>
<td>929</td>
<td>1538</td>
<td>1535</td>
<td>N.S.</td>
<td>1298</td>
<td>774·4</td>
</tr>
</tbody>
</table>
Crop : Paddy (Kharif)  
Ref : As. 63(22), 64(20) and 65(27).  
Type : 'M'  

Object : To study the effect of combinations of N, P and K on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A.  (ii) Sandy loam.  (iii) 10.6.63; 5.6.64; 7.6.65.  (iv) (a) Ploughing followed by laddering.  (b) Transplanting.  (c) N.A.  (d) 23 cm. x 23 cm.  (e) 4 (v) 184.5 Q/ha. of Cowdung  
   (vi) Khonoru/lo in 1963 and 64; U.S.-1 in 65.  (vii) Unirrigated.  (viii) 2 weedings.  (ix) N.A.  (x) 30.10.63; 29.10.64; and 26.10.65.

2. TREATMENTS:
   4 manurial treatments: T₀=Control, T₁=44.8 Kg/ha of N as A/S+33.6 Kg/ha of P₂O₅ as Bone Meal+33.6 Kg/ha of K₂O as Mur. Pot., T₂=33.6 Kg/ha of N as A/S+22.4 Kg/ha of P₂O₅ as Bone Meal+22.4 Kg/ha of K₂O as Mur. Pot. and T₃=22.4 Kg/ha of N as A/S+11.2 Kg/ha of P₂O₅ as Bone Meal+11.2 Kg/ha of K₂O as Mur. Pot.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 4.  (b) N.A.  (iii) 5.  (iv) (a) 3.1 m. x 3.7 m.  (b) 2.4 m. x 3.1 m.  (v) 30 cm. discarded around.

4. GENERAL:
   (i) Normal.  (ii) N.A.  (iii) Grain yield.  (iv) (a) 1963-65.  (b) No.  (c) Results of combined analysis are given under 5—Results.  (v) No.  (vi) N.A.  (vii) Error variances are homogeneous and Treatments x years interaction is absent.

5. RESULTS:
   Pooling results:
   (i) 2798 Kg/ha.  (ii) 581.1 Kg/ha. (based on 42 d.f. made up of pooled error and Treatments x years interaction) (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.
   Treatment T₀ T₁ T₂ T₃ T₄  
   Av. yield 2260 3160 3196 2567  
   C.D. = 428.8 Kg/ha.

Individual results:
   Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E. plot</th>
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<tr>
<td>1963</td>
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<td>3810</td>
<td>3340</td>
<td>3019</td>
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<td>3207</td>
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<td>1964</td>
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<tr>
<td>1965</td>
<td>1640</td>
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<td>2044</td>
<td>1855</td>
<td>N.S.</td>
<td>1956</td>
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<td>Pooled</td>
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<td>3160</td>
<td>3196</td>
<td>2577*</td>
<td></td>
<td>2798</td>
<td>581.6</td>
</tr>
</tbody>
</table>

Crop : Paddy (Kharif).  
Ref : As. 64(22).  
Type : 'M'.  

Object : To study the effect of different combinations of N, P and K on the yield of Paddy.
1. **BASAL CONDITIONS:**
   (i) Nil. (b) Paddy (c) N.A. (ii) Sandy loam. (iii) Middle of June. (iv) (a) Ploughing, laddering, puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) 44'8 Kg/ha. of P2O5 as Super +33'6 Kg/ha. of K2O as Mur. Pot. (vi) Unirrigated. (vii) 2 weedings. (ix) N.A. (x) 1st. week of November.

2. **TREATMENTS:**
   4 manurial treatments: T1=Control, T2=44'8 Kg/ha. of N as AS +33'6 Kg/ha. of P2O5 as Super + 22'4 Kg/ha. of K2O as Mur. Pot., T3=67'2 Kg/ha. of N as AS + 50'4 Kg/ha. of P2O5 as Super + 33'6 Kg/ha. of K2O as Mur. Pot., T4=89'6 Kg/ha. of N as AS + 67'2 Kg ha. of P2O5 as Super + 44'8 Kg/ha. of K2O as Mur. Pot.

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 10. (iv) (a) 3'7 m. x 3'1 m. (b) 3'1 m. x 2'4 m. (v) 30 cm. discarded around. (vi) Yes.

4. **GENERAL:**
   (i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-66. (b) Nil. (c) 4. (v) No. (vi) N.A. (vii) The expt. was not conducted in 1965.

5. **RESULTS:**
   (i) 3545 Kg/ha. (ii) 512'8 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha. of Paddy.

C.D. =706'5 Kg/ha.

---

**Crop:** Paddy (*Kharif*).

**Site:** Exptl. Res. Stn., Upper Shillong.

**Ref:** As. 65(30).

**Type:** 'M'.

Object:— To study the effect of split-doses of Nitrogen on the yield of Paddy.
Crop: Paddy (Kharif).

Site: Exptl. and Res. Stn., Upper Shillong.

Object: To study the effect of different levels of lime and time of application of lime on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) May/June. (iv) (a) Ploughing followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm × 23 cm. (e) 4. (v) 44.8 Kg/ha of N as A/S + 33.6 Kg/ha of P2O5 as Super + 33.6 Kg/ha of K2O as Mar. Pot. (vi) U.S. I. (medium). (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 1st week of November.

2. TREATMENTS:
   Main-plot treatments: 3 times of application of lime: T1 = 2 months before transplanting, T2 = 1 month before transplanting and T3 = At the time of transplanting.
   Sub-plot treatments: 5 levels of lime: L0 = 0, L1 = 2240, L2 = 2800, L3 = 3360 and L4 = 3920 Kg/ha.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 5 sub-plots/mini-plot. (b) N.A. (iii) 3. (iv) (a) 3.1 m × 3.7 m. (b) 2.4 m × 3.1 m. (v) 30 cm discarded around. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 471 Kg/ha. (ii) (a) 287.2 Kg/ha. (b) 379.3 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>L0</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>Mean</th>
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<tbody>
<tr>
<td>T1</td>
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<td>237</td>
<td>276</td>
<td>352</td>
<td>655</td>
<td>415</td>
</tr>
<tr>
<td>T2</td>
<td>529</td>
<td>276</td>
<td>201</td>
<td>353</td>
<td>351</td>
<td>342</td>
</tr>
<tr>
<td>T3</td>
<td>857</td>
<td>478</td>
<td>353</td>
<td>781</td>
<td>805</td>
<td>655</td>
</tr>
<tr>
<td>Mean</td>
<td>647</td>
<td>330</td>
<td>277</td>
<td>495</td>
<td>604</td>
<td>471</td>
</tr>
</tbody>
</table>
2. TREATMENTS:
T₁: Control, T₂: Nursery bed not manured but seedlings were dipped in 2% NPK solution, T₃=22.4 Kg ha of N as Urea +1:2 Kg ha of P₂O₅ as Super, T₄=33.6 Kg/ha of N as Urea +33.6 Kg/ha of P₂O₅ as Super. +2 Kg ha of K₂O as Mur. Pot. and T₅=44.8 Kg/ha of N as Urea +33.6 Kg/ha of P₂O₅ as Super. +22.4 Kg ha of K₂O as Mur. Pot.

3. DESIGN:
(i) RBD (ii) a: 5 (b) N.A. (iii) 4. (iv) (a) 4 x 3 m x 4.9 m. (b) 3.7 m x 4.3 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) (a) and (b) N.A. (iii) Grain yield. (iv) (a) 1967-66. (b) Yes. (c) Nil. (v) No. (vi) N.A. (v') Nil.

5. RESULTS:
(i) 1270 Kg ha. (ii) 220.2 Kg ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg ha

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
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</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>101</td>
<td>122</td>
<td>1274</td>
<td>1364</td>
<td>1383</td>
</tr>
</tbody>
</table>

Crop: Paddy (Klarif).
Site: M.A.E. Centre, Tinsukia.
Object — Type IV: To study the effect of P applied to legume crops and of N to the succeeding Paddy crop.

1. BASAL CONDITIONS:
(i) (a) 1 alley. (b) Nil. (c) N.A. (ii) Brahmaputra alluvium. (iii) 9 to 12.3.60. (iv) (a) 5 ploughings. (b) Broadcasting. (c) 69 Kg/ha. (d) and (e) N.A. (v) Nil. (vi) Baga (140 to 150 days duration). (vii) N.A. (viii) 3 weedicings. (ix) N.A. (x) 5 to 11.8.60.

2. TREATMENTS:
Main-plot treatments:
All combinations of (1) and (2) + a control (Fallow)
(1) 2 leguminous crops: L₁=Matikala and L₂=Pea.
(2) 3 levels of P₂O₅ as Super: P₀₀=0, P₁=44.8 and P₂=89.7 Kg/ha.
Sub-plot treatments:
3 levels of N as A S applied to paddy crop: N₀₀=0, N₁=16.8 and N₂=33.8 Kg ha.

3. DESIGN:
(i) Split-plot. (ii) 7 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 10.1 m x 5.0 m. (b) 9.5 m x 4.4 m. (v) 31 cm. discarded around. (vi) Yes.

4. GENERAL:
(i) and (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1957-60. (b) No. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS:
(i) 575 Kg ha. (ii) (a) 253.6 Kg/ha. (b) 205.3 Kg/ha. (iii) Main effect of N and interaction L x P are highly significant. (iv) Av. yield of grain in Kg/ha.
Control = 602 Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
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<td>381</td>
<td>846</td>
<td>231</td>
<td>544</td>
<td>968</td>
<td>581</td>
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<tr>
<td>L₂</td>
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<td>701</td>
<td>532</td>
<td>430</td>
<td>520</td>
<td>728</td>
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<td>481</td>
<td>541</td>
<td>689</td>
<td>331</td>
<td>532</td>
<td>848</td>
<td>570</td>
</tr>
</tbody>
</table>

C.D. for N marginal means = 213.8 Kg/ha.
C.D. for body of L x P table = 262.7 Kg/ha.

Crop: Paddy (Kharif).

Site: M.A.E. Farm, Titabar.

Object: Type II: To study the effect of N, P, K and bulky manure on the yield of Sali Paddy.

1. BASAL CONDITIONS:
   (b) Transplanting.  (c) N.A.  (d) 25 cm. x 25 cm.  (e) 3 to 4.  (v) Nil.  (vi) Prosadbhog.  (vii) Unirrigated.

2. TREATMENTS:
   (1) All combinations of (1), (2), (3) and (4).
      (1) 3 levels of N as A/S: N₀ = 0, N₁ = 33.6 and N₂ = 67.2 Kg/ha.
      (2) 3 levels of P₀ as Super: P₀ = 0, P₁ = 33.6 and P₂ = 67.2 Kg/ha.
      (3) 3 levels of K₀ as Mur. Pot.: K₀ = 0, K₁ = 33.6 and K₂ = 67.2 Kg/ha.
      (4) 2 levels of F.Y.M.: F₀ = 0, and F₁ = 5600 Kg/ha.

3. DESIGN:
   (i) 3 x 2 confd.  (ii) 9 plots/block, 3 blocks for each of F₀ and F₁.  (b) N.A.  (iii) 1.  (iv) (a) 10.1 m. x 5.1 m.
   (b) 9.5 m. x 4.4 m.  (v) 31 cm. alround.  (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A.  (iii) Yield of grain.  (iv) (a) 1951-54.  (b) Yes.  (c) Nil.  (v) and (vi) N.A.  (vii) Nil.

5. RESULTS:

1961
   (i) 2582 Kg/ha.  (ii) 359.7 Kg/ha.  (iii) None of the effects is significant.  (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>Sig</th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
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</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>2445</td>
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<td>2606</td>
<td>N.S.</td>
<td>2540</td>
<td>2564</td>
<td>2643</td>
<td>N.S.</td>
</tr>
<tr>
<td>F₀</td>
<td>2666</td>
<td>2564</td>
<td>2516</td>
<td>N.S.</td>
<td>2494</td>
<td>2670</td>
<td>N.S.</td>
<td></td>
</tr>
</tbody>
</table>

1962
   (i) 2462 Kg/ha.  (ii) 898.3 Kg/ha.  (iii) None of the effects is significant.  (iii) Av. yield of grain in Kg/ha.
Treatment: $N_e \quad N_t \quad N_3 \quad N_4 \quad \text{Sig} \quad P_1 \quad P_2 \quad \text{Sig}$

Av. yield

<table>
<thead>
<tr>
<th>2593</th>
<th>2543</th>
<th>2248</th>
<th>N.S.</th>
<th>2107</th>
<th>2699</th>
<th>2579</th>
<th>N.S.</th>
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</thead>
</table>

C.D. for N marginal means = 208.6

1963

(i) 2411 Kg ha. (ii) 303 > Kg ha. (ii) Main effect of N is significant. (iv) Av. yield of grain kg ha.

Treatment: $N_e \quad N_t \quad N_3 \quad N_4 \quad \text{Sig} \quad P_1 \quad P_2 \quad \text{Sig}$

Av. yield

<table>
<thead>
<tr>
<th>2489</th>
<th>2491</th>
<th>2252</th>
<th>*</th>
<th>2436</th>
<th>2368</th>
<th>2428</th>
<th>N.S.</th>
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</table>

C.D. for N marginal means = 208.6

1964

(i) 2656 Kg ha. (ii) 257 > Kg Ka. (ii) None of the effects is significant. (iv) Av. yield of grain kg ha.

Treatment: $N_e \quad N_t \quad N_3 \quad N_4 \quad \text{Sig} \quad P_1 \quad P_2 \quad \text{Sig}$

Av. yield

<table>
<thead>
<tr>
<th>2602</th>
<th>2721</th>
<th>2645</th>
<th>N.S.</th>
<th>2617</th>
<th>2691</th>
<th>2660</th>
<th>N.S.</th>
</tr>
</thead>
</table>

Crop: Paddy (Kharif). Ref: As. 62, 63, 64 and 65(MAE).

Site: MAE Centre, Titabar. Type: 'M'.

Object: To determine the method of placement of fertilizer on the yield of Sali Paddy.

1. BASAL CONDITIONS:

(i) N.A. (iv) Heavy clay loam. (iii) 31.8.1962; 21.7.1963; 6.9.1964. (iv) (a) Ploughing, laddering and puddling etc. (b) Transplanting. (c) N.A. (d) 25 cm. x 25 cm. (e) 3 to 4. (v) 33.6 Kg ha. of P_{2}O_{5} as Super. (vi) Prasadbhog. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 20 to 23.12.62.

2. TREATMENTS:

All combinations of (1) and (2) with a control

(1) 3 levels of N as AJS: $N_1=33.6$, $N_2=50.8$ and $N_3=67.2$ Kg/ha.

(2) 4 methods of placement of fertilizer: $M_1$ = Broadcast just before last puddling and incorporated into soil, $M_2$ = Broadcast at planting, $M_3$ = Broadcast half at planting and half about a month after planting and $M_4$ = Application in the form of pellets about 3 weeks after planting.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 10.1 m. x 5.0 m. (b) 9.5 m. x 4.4 m. (v) 31 cm. discarded around. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1962—contd. (b) N.A. (c) Nil. (v) and (vi) N.A. (v) Nil.

5. RESULTS:

1962

(i) 1030 Kg ha. (ii) 250.0 Kg ha. (iii) None of the effects is significant. (iv) Av. yield of grain kg ha.
1963

(i) 2433 Kg/ha.  (ii) 326.3 Kg/ha.  (iii) None of the effects is significant.  (iv) Av. yield of grain in Kg/ha.

Control = 1244 Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
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</table>

1964

(i) 4119 Kg/ha.  (ii) 399.2 Kg/ha.  (iii) None of the effects is significant.  (iv) Av. yield of grain Kg/ha.

Control = 2545 Kg/ha.

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1965

(i) 2650 Kg/ha.  (ii) N.A.  (iii) Main effect of N alone is significant.  (iv) Av. yield of grain in Kg/ha.

Control = 3844 Kg/ha.

<table>
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Crop : Paddy (Kharif).

Site : MAE Centre, Titabar.

Ref : As. 61 and 62 (MAE).

Object : Type IX :- To compare Nitrophates by ODDA and PEC processes at different levels and different methods of application on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil.  (b) and (c) N.A.  (ii) Heavy clayey loam.  (iii) 25 to 30.8.1961 ; 16 to 19.7.1962.  (iv) (a) 3 to 4 ploughings.  (b) Transplanting.  (c) N.A.  (d) 25 cm. x 25 cm.  (e) 3 to 4.  (v) N.A.  (vi) Prawasbhog.  (vii) Unirrigated.  (viii) and (ix) N.A.  (x) 15, 16, 18 and 20.12.1961; 4 to 12.12.1962.
2. TREATMENTS:

All combinations of (1), (2), (3) and 4 extra treatments
(1) 3 types of fertilizers: \( P_1 = \text{Super}, P_2 = \text{ODDA} (20-20-0) \) and \( P_3 = \text{PEC} (16-14-0) \).
(2) 3 levels of Phosphates: \( L_1 = 13.4 \text{ Kg/ha. of N}, L_2 = 26.9 \text{ Kg/ha. of N}, L_3 = 53.8 \text{ Kg/ha. of N} \).
(3) 3 methods of application: \( M_1 = \text{Broadcasting}, M_2 = 6.3 \text{ cm. below seed and M_3 = Band placement} \).

3. DESIGN:

(i) 3’ conf.d. + 4 extra treatments (ii) 10 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 10’1 m. x 5’0 m. (b) 9’4 m. x 4’4 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-62. (b) and (c) N.A. (v) Nil. (vi) and (vii) N.A.

5 RESULTS:

1961

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<th>( P_2 )</th>
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1962

<table>
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<th>( P_3 )</th>
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<th>( L_2 )</th>
<th>( L_3 )</th>
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Crop: Paddy (\textit{Kharif}).
Site: M.A.E. Centre, Titabar.
Object: To study the effect of various levels of N, P and green manures on the yield of Paddy.

1. BASAL CONDITIONS:

(i) and (i) N.A. (ii) 16 to 19.8.62. (iv) and (v) N.A. (vi) \textit{Prosidhobhg} (100 to 120 days). (vii) t.
(ix) N.A. (x) 13 to 19.12.62.

2. TREATMENTS:

All combinations of (1), (2) and (3) + one additional (NPK) treatment in each block.
(1) 3 levels of N as A/S: \( N_0 = 0, N_1 = 16.8 \) and \( N_2 = 33.6 \text{ Kg/ha} \).
(2) 3 levels of \( P_1 \) as Super: \( P_0 = 0, P_1 = 33.6 \) and \( P_2 = 67.2 \text{ Kg/ha} \).
(3) 3 levels of green manuring (Sann): \( G_0 = 0, G_1 = \text{Sann} \) with \( 33.6 \text{ Kg/ha. of } P_0 \) and \( G_2 = \text{Sann} \) with \( 67.2 \text{ Kg/ha. of } P_0 \).

3. DESIGN:

(i) 3’ conf.d. + one extra treatment in each block. (ii) 10 plots/block, 3 blocks/replication. (b) N.A. (i)
(iv) (a) 14’0 m. x 7’2 m. (b) 12’8 m. x 6’3 m. (v) 61 cm. x 46 cm (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) No. (b) and (c) Nil. (v) N.A. (vi) and (vii) Nil.
5. RESULTS:

(i) 2922 Kg/ha. (ii) 434·7 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Extra treatment = 2924 Kg/ha.

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<th>G₂</th>
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</table>

C.D. for N marginal means = 297·3 Kg/ha.

Crop :- Paddy (Kharif).

Site :- M.A.E. Centre, Titabar.

Ref :- As. 63, 64 and 65(MAE).

Type :- 'M'.

Object :- Type X₁ :- To study the effect of different micronutrients with different methods of application.

1. BASAL CONDITIONS:

(i) N.A. (ii) Old alluvium. (iii) 5.9.63 ; 13.9.64 ; N.A. (iv) and (v) N.A. (vi) Prosadbhog (155 days). (vii) Unirrigated. (viii) and (ix) N.A. (x) 13.12.63 ; 20.12.64 ; N.A.

2. TREATMENTS:

All combinations of (1) and (2) + 3 extra treatments

(1) 2 methods of application : M₁ = Soil application and M₂ = Foliar application.

(2) 6 micro-nutrients : S₁ = Mn as Mn. Sul. at 56 Kg/ha., S₂ = Zn as Zn. Sul. at 28 Kg/ha., S₃ = Cu as Cu. Sul. at 28 Kg/ha., S₄ = Boron as Borax at 16·8 Kg/ha., S₅ = Molybdinum as Sodium Molybdate at 1·1 Kg/ha., and S₆ = Mixture of all above micro-nutrients.

Extra treatments : T₀ = Control, T₁ = NPK alone to soil and T₂ = Spartan at 370 Kg/ha. to soil.

Note :-NPK = 33·6 Kg/ha. of N as A/S+33·6 Kg/ha. of P₂O₅ as Super+33·6 Kg/ha. of K₂O as Mur. Pot. applied to all treatments except control.

3. DESIGN:

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a) 10·1 m. x 5·02 m. (b) 9·5 m. x 4·4 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963 — contd. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS:

1963

(i) 3412 Kg/ha. (ii) 576·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain Kg/ha.
Crop: Paddy (Kharif)  

Ref: As. 64 and 65 (M.A.E.)

Site: M.A.E. Centre, Titabar.  

Type: ‘M’

Object: — Type XII: — To determine the response of the methods of fertilizers application on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Alluvium. (iii) 19.8.64; N.A. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) 25 cm. x 25 cm. (e) 3 to 4. (v) 184.5 Q/ha. of Cowdung. (vi) P\textsubscript{2}O\textsubscript{5} (vii) Unirrigated. (viii) Weedings 3 to 4 times. (ix) 95.8 cm; N.A. for 65. (x) 3—14.12.64; N.A. for 65.

2. TREATMENTS:

Main-plot Treatments:

4 manurial treatments: \(M_1 = 44.8\) Kg/ha. of N as A/S, \(M_2 = 22.4\) Kg/ha. of P\textsubscript{2}O\textsubscript{5} as Super, \(M_3 = M_1 + M_2\) and \(M_5 = 44.8\) Kg/ha. of N as A/S + 22.4 Kg/ha. of P\textsubscript{2}O\textsubscript{5} as Super + 22.4 Kg/ha. of K\textsubscript{2}O as Mur. Pot.
Sub-plot treatments:
8 times and methods of application of manures: $T_0$=Control, $T_1$=Water spray, $T_2$=Full dose to soil application at planting, $T_3$=$\frac{1}{2}$ dose to soil at planting, $T_4$=$\frac{1}{2}$ dose by foliar application, $T_5$=$\frac{1}{4}$ dose by foliar application, $T_6$=$\frac{1}{4}$ dose to soil and $T_7$=$\frac{1}{4}$ dose to soil by foliar application.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/replication, 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:
(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—65. (b) N.A. (c) Nil. (v) Fallangani. (vi) N.A. (vii) Nil.

5. RESULTS:
1964
(i) 3384 Kg/ha. (ii) (a) 474.1 Kg/ha. (b) 407.7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

$$T_0=3319 \text{ and } T_1=3167 \text{ Kg/ha.}$$

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1965
(i) 3302 Kg/ha. (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

$$T_0=3487 \text{ and } T_1=2545 \text{ Kg/ha.}$$

<table>
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Crop: Paddy (Salih)

Site: (District) Cachar, Goalpara, Kamrup, Lakhimpur and Sibsagar (c.f.)

Object: Type A: To study the response of paddy to levels of N, P and K applied individually and in combination.

1. BASAL CONDITIONS:
   (i) (a) to (c) N.A., (ii) Hilly for Cachar and Sibsagar and alluvial for others, (iii) to (x) N.A.

2. TREATMENTS:

   - 8 manural treatment:
     - O = Control (no manure).
     - N = 22.4 Kg/ha of N as A/S.
     - P = 22.4 Kg/ha of P₂O₅ as Super.
     - K = 22.4 Kg/ha of K₂O as Muri. Pot.
     - NP = 22.4 Kg/ha of N as A/S + 22.4 Kg/ha of P₂O₅ as Super.
     - NK = 22.4 Kg/ha of N as A/S + 22.4 Kg/ha of K₂O as Muri. Pot.
     - PK = 22.4 Kg/ha of P₂O₅ as Super + 22.4 Kg/ha of K₂O as Muri. Pot.
     - NPK = 22.4 Kg/ha of N as A/S + 22.4 Kg/ha of P₂O₅ as Super + 22.4 Kg/ha of K₂O as Muri. Pot.

3. DESIGN:

   (i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on kharif cereal, 8 on rabi cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on Type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of 0.1 acre per trial per village. (iii) (a) 1.33 ha. (b) 1.1977 ha. (iv) Yes.

4. GENERAL:

   (i) to (iii) N.A., (iv) (a) 1961 for all, (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS:

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<th>No. of trials</th>
<th>Control yield in Kg/ha.</th>
<th>N</th>
<th>P</th>
<th>K</th>
<th>S.E.</th>
<th>NP</th>
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<td>32 0</td>
<td>90</td>
<td>30</td>
<td>50</td>
<td>130</td>
<td>39</td>
</tr>
<tr>
<td>Lakhimpur</td>
<td>8</td>
<td>2640</td>
<td>260</td>
<td>390</td>
<td>120</td>
<td>104 0</td>
<td>90</td>
<td>150</td>
<td>120</td>
<td>30</td>
<td>110</td>
</tr>
<tr>
<td>Sibsagar</td>
<td>15</td>
<td>2600</td>
<td>260</td>
<td>240</td>
<td>170</td>
<td>42 0</td>
<td>70</td>
<td>-60</td>
<td>-30</td>
<td>80</td>
<td>33</td>
</tr>
</tbody>
</table>

Crop: Paddy (Afu)

Site: (District) Cachar, Darrang, Goalpara, Kamrup, Lakhimpur and Sibsagar (c.f.)

Object: Type B: To study the response of Paddy to levels of N, P and K applied individually and in combination.

1. BASAL CONDITIONS:
   (i) N.A., (ii) Hilly for Cachar and Sibsagar Alluvial for others, (iii) to (x) N.A.

2. TREATMENTS: and 3. DESIGN:

   Same as in exp. Type A on Paddy (Salih) as above.
4. GENERAL:

(i) to (iii) N.A.  (iv) (a) 1961—only.  (b) and (c) Nil.  (v) to (vii) N.A.

5. RESULTS:

Av. response in Kg/ha.

<table>
<thead>
<tr>
<th>District</th>
<th>No. of Trials</th>
<th>Control Yield in Kg/ha.</th>
<th>N</th>
<th>P</th>
<th>K</th>
<th>S.E.</th>
<th>NP</th>
<th>NK</th>
<th>PK</th>
<th>NPK</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cachar</td>
<td>14</td>
<td>2880</td>
<td>220</td>
<td>250</td>
<td>190</td>
<td>37.0</td>
<td>40</td>
<td>20</td>
<td>110</td>
<td>—10</td>
<td>36.0</td>
</tr>
<tr>
<td>Darrang</td>
<td>4</td>
<td>880</td>
<td>240</td>
<td>520</td>
<td>150</td>
<td>25.0</td>
<td>—190</td>
<td>—120</td>
<td>110</td>
<td>350</td>
<td>48.0</td>
</tr>
<tr>
<td>Goalpara</td>
<td>7</td>
<td>3020</td>
<td>130</td>
<td>10</td>
<td>30</td>
<td>14.0</td>
<td>—20</td>
<td>30</td>
<td>—30</td>
<td>—20</td>
<td>13.0</td>
</tr>
<tr>
<td>Kamrup</td>
<td>9</td>
<td>2210</td>
<td>310</td>
<td>260</td>
<td>180</td>
<td>66.0</td>
<td>—10</td>
<td>0</td>
<td>10</td>
<td>10</td>
<td>28.0</td>
</tr>
<tr>
<td>Lakhimpur</td>
<td>7</td>
<td>1570</td>
<td>180</td>
<td>150</td>
<td>110</td>
<td>53.0</td>
<td>40</td>
<td>20</td>
<td>20</td>
<td>10</td>
<td>31.0</td>
</tr>
<tr>
<td>Sibsagar</td>
<td>9</td>
<td>1000</td>
<td>150</td>
<td>170</td>
<td>50</td>
<td>91.0</td>
<td>—70</td>
<td>—20</td>
<td>30</td>
<td>20</td>
<td>48.0</td>
</tr>
</tbody>
</table>

Crop: Paddy (Alfa).

Site: Darrang, Goalpara, Kamrup, Lakhimpur, Nowgong and Sibsagar (c.f.).

Object: Type A1: To study the response curves of important cereals, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) N.A. (ii) Alluvial. (iii) to (vi) Nil. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS:

8 manurial treatments:

- O = Control (no manure).
- N1 = 35 Kg/ha of N.
- N2 = 70 Kg/ha of N.
- P1 = 35 Kg/ha of P2O5.
- N1P1 = 35 Kg/ha of N + 35 Kg/ha of P2O5.
- N2P1 = 70 Kg/ha of N + 35 Kg/ha of P2O5.
- N2P2 = 70 Kg/ha of N + 70 Kg/ha of P2O5.
- N2P2K1 = 70 Kg/ha of N + 70 Kg/ha of P2O5 + 35 Kg/ha of K2O.

Nitrogen applied as A/S; P2O5 as Super and K2O as Mur. of Pot.

3. DESIGN:

(i and ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50-100 villages. In each block, 36 experiments are conducted in a year of which 11 are of type A1, 11 of type A2, 11 of type A3 and 3 are of type C. The eleven experiments under type A1, A2 and A3 are distributed as 3 on a Kharif cereal, 3 on a rabi cereal, 3 on a cash crop and 2 on oil seed. All the three type-C experiments are conducted on a legume crop. For the purpose of conducting the A1, A2 and A3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A1, A2 and A3 are laid out. For conducting the three type-C trials three villages are randomly selected in each block.

(iii) (a) 1/100 ha.  (b) 1/200 ha.  (iv) Yes.

4. GENERAL:

(i) to (iii) N.A. (iv) (a) 1963 to 1965 (1964 N.A.) for Darrang and Lakhimpur, 63 to 64 for Goalpara and 63 to 66 (65 N.A.) for Kamrup, 63 to 65 for others.  (b) and (c) Nil.  (v) to (vii) N.A.
5 RESULTS:

Darrang
63 S.F.T.)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₁P₂</th>
<th>N₂P₂</th>
<th>N₁P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>88</td>
<td>55</td>
<td>61</td>
<td>163</td>
<td>122</td>
<td>159</td>
<td>226</td>
<td>396</td>
<td></td>
</tr>
<tr>
<td>Control yield</td>
<td>1418 Kg/ha.</td>
<td>No. of trials</td>
<td>6.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

65 S.F.T.)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₁P₂</th>
<th>N₂P₂</th>
<th>N₁P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>126</td>
<td>172</td>
<td>130</td>
<td>182</td>
<td>251</td>
<td>280</td>
<td>375</td>
<td>407</td>
<td></td>
</tr>
<tr>
<td>Control yield</td>
<td>891 Kg/ha.</td>
<td>No. of trials</td>
<td>7.</td>
<td></td>
<td></td>
<td></td>
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</table>

Goalpara
63(S.F.T.)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₁P₂</th>
<th>N₂P₂</th>
<th>N₁P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>58</td>
<td>-44</td>
<td>-9</td>
<td>36</td>
<td>69</td>
<td>147</td>
<td>188</td>
<td>619</td>
<td></td>
</tr>
<tr>
<td>Control yield</td>
<td>2017 Kg/ha.</td>
<td>No. of trials</td>
<td>6.</td>
<td></td>
<td></td>
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</tbody>
</table>

64 S.F.T.)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₁P₂</th>
<th>N₂P₂</th>
<th>N₁P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>23</td>
<td>93</td>
<td>103</td>
<td>118</td>
<td>35</td>
<td>38</td>
<td>99</td>
<td>447</td>
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<tr>
<td>Control yield</td>
<td>782 Kg/ha.</td>
<td>No. of trials</td>
<td>3.</td>
<td></td>
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Kamrup
63 S.F.T.)
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<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₁P₂</th>
<th>N₂P₂</th>
<th>N₁P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>334</td>
<td>477</td>
<td>243</td>
<td>788</td>
<td>641</td>
<td>686</td>
<td>933</td>
<td>1014</td>
<td></td>
</tr>
<tr>
<td>Control yield</td>
<td>2094 Kg/ha.</td>
<td>No. of trials</td>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

64 S.F.T.)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₁P₂</th>
<th>N₂P₂</th>
<th>N₁P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>267</td>
<td>409</td>
<td>163</td>
<td>516</td>
<td>553</td>
<td>550</td>
<td>755</td>
<td>963</td>
<td></td>
</tr>
<tr>
<td>Control yield</td>
<td>1456 Kg/ha.</td>
<td>No. of trials</td>
<td>9.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Lakhimpur
63 S.F.T.)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₁P₂</th>
<th>N₂P₂</th>
<th>N₁P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>105</td>
<td>283</td>
<td>149</td>
<td>266</td>
<td>367</td>
<td>464</td>
<td>557</td>
<td>710</td>
<td></td>
</tr>
<tr>
<td>Control yield</td>
<td>1848 Kg/ha.</td>
<td>No. of trials</td>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

65 S.F.T.)
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₁P₂</th>
<th>N₂P₂</th>
<th>N₁P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>152</td>
<td>213</td>
<td>117</td>
<td>210</td>
<td>435</td>
<td>498</td>
<td>725</td>
<td>1502</td>
<td></td>
</tr>
<tr>
<td>Control yield</td>
<td>1108 Kg/ha.</td>
<td>No. of trials</td>
<td>7.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Nowgong

63 (S.F.T.)
Treatment | N1 | N2 | P1 | N1P1 | N2P1 | N1P2 | N2P2 | N1P2K1 | S.E.
---|---|---|---|---|---|---|---|---|---
Av. response of grain in Kg/ha. | 132 | 214 | 107 | 323 | 372 | 495 | 702 | 23.0 |
Control yield = 1927 Kg/ha.; No. of trials = 9.

64 (S.F.T.)
Treatment | N1 | N2 | P1 | N1P1 | N2P1 | N1P2 | N2P2 | N1P2K1 | S.E.
---|---|---|---|---|---|---|---|---|---
Av. response of grain in Kg/ha. | 111 | 242 | 51 | 326 | 486 | 590 | 721 | 85.8 |
Control yield = 1289 Kg/ha.; No. of trials = 4.

65 (S.F.T.)
Treatment | N1 | N2 | P1 | N1P1 | N2P1 | N1P2 | N2P2 | N1P2K1 | S.E.
---|---|---|---|---|---|---|---|---|---
Av. response of grain in Kg/ha. | 73 | 77 | 52 | 169 | 236 | 281 | 477 | 61.3 |
Control yield = 1103 Kg/ha.; No. of trials = 9.

Sibsagar

63 (S.F.T.)
Treatment | N1 | N2 | P1 | N1P1 | N2P1 | N1P2 | N2P2 | N1P2K1 | S.E.
---|---|---|---|---|---|---|---|---|---
Av. response of grain in Kg/ha. | 167 | 186 | 232 | 245 | 345 | 382 | 664 | 83.1 |
Control yield = 1532 Kg/ha.; No. of trials = 7.

64 (S.F.T.)
Treatment | N1 | N2 | P1 | N1P1 | N2P1 | N1P2 | N2P2 | N1P2K1 | S.E.
---|---|---|---|---|---|---|---|---|---
Av. response of grain in Kg/ha. | 222 | 78 | 133 | 432 | 437 | 622 | 682 | 178.3 |
Control yield = 1055 Kg/ha.; No. of trials = 7.

65 (S.F.T.)
Treatment | N1 | N2 | P1 | N1P1 | N2P1 | N1P2 | N2P2 | N1P2K1 | S.E.
---|---|---|---|---|---|---|---|---|---
Av. response of grain in Kg/ha. | 264 | 355 | 354 | 320 | 434 | 592 | 752 | 78.2 |
Control yield = 1356 Kg/ha.; No. of trials = 9.

Crop: - Paddy (Sail).

Ref: - As. 63, 64 (S.F.T.) for Goalpara, Kamrup and Lakhimpur; 63, 64, 65 (S.F.T.) for Nowgong, Sibsagar and Darrang.

Site: - (District): Goalpara, Lakhimpur, Type: - 'M'.
Nowgong, Kamrup, Sibsagar and Darrang (c.f.).

Object: - Type A1: To study the response curves of important cereal, oilseeds and cash crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:
   (i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.
2. **TREATMENTS** and 3. **DESIGN**:

Same as in expt. type A1 on Paddy (4ku) on page 27.

4. **GENERAL**:

(i) to (iii) N.A.  
(iv) (a) 1963–64 for Goalpara and Lakhimpur, 1961 to 65 (65 N.A.) for Kamrup, 1963 to 1965 for others.  
(b) N.A.  
(c) Nil.  
(v) to (vii) N.A.

5. **RESULTS**:

**Goalpara**

63(S.F.T.)  
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>138</td>
<td>208</td>
<td>131</td>
<td>233</td>
<td>243</td>
<td>339</td>
<td>362</td>
<td>27.4</td>
<td></td>
</tr>
<tr>
<td>Control yield=2445 Kg/ha.; No. of trials=9.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

64(S.F.T.)  
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>-60</td>
<td>43</td>
<td>-9</td>
<td>-11</td>
<td>-46</td>
<td>73</td>
<td>26</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>Control yield=2220 Kg/ha.; No. of trials=8.</td>
<td></td>
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</tr>
</tbody>
</table>

**Lakhimpur**

63(S.F.T.)  
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>92</td>
<td>102</td>
<td>46</td>
<td>108</td>
<td>253</td>
<td>319</td>
<td>411</td>
<td>62.6</td>
<td></td>
</tr>
<tr>
<td>Control yield=1591 Kg/ha.; No. of trials=6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>135</td>
<td>296</td>
<td>566</td>
<td>466</td>
<td>637</td>
<td>611</td>
<td>794</td>
<td>153.7</td>
<td></td>
</tr>
<tr>
<td>Control yield=2180 Kg/ha.; No. of trials=7.</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Nowgoong**

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>189</td>
<td>165</td>
<td>141</td>
<td>367</td>
<td>517</td>
<td>560</td>
<td>745</td>
<td>71.3</td>
<td></td>
</tr>
<tr>
<td>Control yield=2055 Kg/ha.; No. of trials=11.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>97</td>
<td>157</td>
<td>68</td>
<td>205</td>
<td>255</td>
<td>308</td>
<td>407</td>
<td>36.3</td>
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</tr>
<tr>
<td>Control yield=1998 Kg/ha.; No. of trials=15.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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</table>

65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>126</td>
<td>218</td>
<td>112</td>
<td>281</td>
<td>403</td>
<td>491</td>
<td>555</td>
<td>28.1</td>
<td></td>
</tr>
<tr>
<td>Control yield=1762 Kg/ha.; No. of trials=11.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</table>
### Kamrup

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<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>535</td>
<td>497</td>
<td>252</td>
<td>502</td>
<td>605</td>
<td>596</td>
<td>757</td>
<td>104.9</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 1838 Kg/ha.; No. of trials = 9.

### Sibsagar

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>264</td>
<td>382</td>
<td>246</td>
<td>626</td>
<td>565</td>
<td>581</td>
<td>697</td>
<td>106.2</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 1266 Kg/ha.; No. of trials = 9.

### Darrang

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>161</td>
<td>255</td>
<td>236</td>
<td>181</td>
<td>177</td>
<td>267</td>
<td>412</td>
<td>52.6</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 2211 Kg/ha.; No. of trials = 13.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>125</td>
<td>225</td>
<td>159</td>
<td>289</td>
<td>324</td>
<td>331</td>
<td>639</td>
<td>78.5</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 1535 Kg/ha.; No. of trials = 11.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;</th>
<th>P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>249</td>
<td>209</td>
<td>448</td>
<td>507</td>
<td>727</td>
<td>855</td>
<td>976</td>
<td>292.7</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 1855 Kg/ha.; No. of trials = 7.
Crop :- Paddy (Ahu).

Ref :- As. 63, 64 (S.F.T.) for Kamrup and Goalpara; 63, 64, 65 (S.F.T.) for Lakhimpur, Nowgong and Sibsagar; 63, 65 (S.F.T.) for Darrang.

Site :- (District): Kamrup, Lakhimpur, Type :- 'M'.

Nowgong, Sibsagar, Darrang and Goalpara (c-f).

Object :- Type A1: To study the response curve of important cereal, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:
(i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS:
5 manurial treatments:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P1K1</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>110</td>
<td>147</td>
<td>115</td>
<td>153</td>
<td>157</td>
<td>376</td>
<td>346</td>
</tr>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>1548</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 1548 Kg/ha.; No. of trials = 7.

63 S.F.T.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N1P2K1</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>138</td>
<td>120</td>
<td>25</td>
<td>127</td>
<td>191</td>
<td>315</td>
<td>448</td>
</tr>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>1455</td>
<td>5</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Control yield = 1455 Kg/ha.; No. of trials = 5.

5. RESULTS:

Darrang

63 S.F.T.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P1K1</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>35</td>
<td>-3</td>
<td>26</td>
<td>129</td>
<td>57</td>
<td>132</td>
<td>9</td>
</tr>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>1928</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 1928 Kg/ha.; No. of trials = 6.

64 S.F.T.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P1K1</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>49</td>
<td>-6</td>
<td>-61</td>
<td>-19</td>
<td>-62</td>
<td>-13</td>
<td>-27</td>
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<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>845</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Control yield = 845 Kg/ha.; No. of trials = 3.
<table>
<thead>
<tr>
<th>Location</th>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;4&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamrup</td>
<td>63(S.F.T.)</td>
<td>579</td>
<td>348</td>
<td>240</td>
<td>579</td>
<td>571</td>
<td>859</td>
<td>690</td>
<td>111.0</td>
</tr>
<tr>
<td>Lakhimpur</td>
<td>63(S.F.T.)</td>
<td>274</td>
<td>349</td>
<td>317</td>
<td>497</td>
<td>479</td>
<td>570</td>
<td>633</td>
<td>92.0</td>
</tr>
<tr>
<td>Neworgon</td>
<td>63(S.F.T.)</td>
<td>48</td>
<td>224</td>
<td>276</td>
<td>510</td>
<td>275</td>
<td>576</td>
<td>828</td>
<td>175.0</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>64(S.F.T.)</td>
<td>252</td>
<td>200</td>
<td>254</td>
<td>390</td>
<td>449</td>
<td>548</td>
<td>610</td>
<td>67.0</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>65(S.F.T.)</td>
<td>97</td>
<td>66</td>
<td>171</td>
<td>270</td>
<td>289</td>
<td>361</td>
<td>514</td>
<td>34.1</td>
</tr>
</tbody>
</table>

Control yield=2004 Kg/ha.; No. of trials=6.

Control yield=1632 Kg/ha.; No. of trials=8.

Control yield=1926 Kg/ha.; No. of trials=5.

Control yield=1136 Kg/ha.; No. of trials=3.

Control yield=1225 Kg/ha.; No. of trials=7.

Control yield=1773 Kg/ha.; No. of trials=9.

Control yield=1279 Kg/ha.; No. of trials=4.

Control yield=1018 Kg/ha.; No. of trials=10.
Sibsagar

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>P₁</th>
<th>P₂</th>
<th>N₁P₁</th>
<th>N₁P₂</th>
<th>N₂P₁</th>
<th>N₂P₂</th>
<th>N₃P₁K₂</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>255</td>
<td>195</td>
<td>345</td>
<td>317</td>
<td>398</td>
<td>556</td>
<td>833</td>
<td>74.8</td>
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</tr>
</tbody>
</table>

Control yield = 1365 Kg/ha.; No. of trials = 6.

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>P₁</th>
<th>P₂</th>
<th>N₁P₁</th>
<th>N₁P₂</th>
<th>N₂P₁</th>
<th>N₂P₂</th>
<th>N₃P₁K₂</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>72</td>
<td>273</td>
<td>426</td>
<td>313</td>
<td>146</td>
<td>578</td>
<td>458</td>
<td>231.0</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 1306 Kg/ha.; No. of trials = 6.

65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>P₁</th>
<th>P₂</th>
<th>N₁P₁</th>
<th>N₁P₂</th>
<th>N₂P₁</th>
<th>N₂P₂</th>
<th>N₃P₁K₂</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>115</td>
<td>152</td>
<td>240</td>
<td>295</td>
<td>274</td>
<td>418</td>
<td>737</td>
<td>64.9</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 1300 Kg/ha.; No. of trials = 9.

Crop: Paddy (Salī).

Ref: As. 63, 64(S.F.T.) for Lakhimpur, Goalpara and Kamrup; 63, 64, 65 (S.F.T.) for Nowgong, Sibsagar and Darrang.

Site: (District): Goalpara, Lakhimpur, Nowgong, Kamrup, Sibsagar and Darrang (c.f.).

Type: ‘M’.

Object: Type A₂: To study the response curves of important cereals, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASEL CONDITIONS:
   (i) N.A.  (ii) Alluvial.  (iii) to (vi) N.A.  (vii) Unirrigated.  (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN:
   Same as the expt. type A₂ on Paddy (Ahu) on page 32.

4. GENERAL:
   (i) to (iii) N.A.  (iv) (a) 1963 to 66 (65 N.A.) for Kamrup; 1963 to 64 for Lakhimpur and Goalpara and 1961 to 65 for others.  (b) N.A.  (c) Nil.  (v) to (vii) N.A.

5. RESULTS:

Goalpara

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>P₁</th>
<th>P₂</th>
<th>N₁P₁</th>
<th>N₁P₂</th>
<th>N₂P₁</th>
<th>N₂P₂</th>
<th>N₃P₁K₂</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>114</td>
<td>68</td>
<td>52</td>
<td>147</td>
<td>185</td>
<td>239</td>
<td>295</td>
<td>31.7</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 2677 Kg/ha.; No. of trials = 6.
<table>
<thead>
<tr>
<th>Location</th>
<th>Year</th>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>S.E.</th>
<th>Control yield</th>
<th>No. of trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakhimpur</td>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>33</td>
<td>10</td>
<td>25</td>
<td>108</td>
<td>68</td>
<td>94</td>
<td>200</td>
<td>59.7</td>
<td>2019 Kg/ha.</td>
<td>10</td>
</tr>
<tr>
<td>Nowgong</td>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>182</td>
<td>223</td>
<td>172</td>
<td>238</td>
<td>501</td>
<td>365</td>
<td>663</td>
<td>159.8</td>
<td>2218 Kg/ha.</td>
<td>7</td>
</tr>
<tr>
<td>Kamrup</td>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>159</td>
<td>76</td>
<td>110</td>
<td>347</td>
<td>391</td>
<td>469</td>
<td>636</td>
<td>36.3</td>
<td>2184 Kg/ha.</td>
<td>11</td>
</tr>
<tr>
<td>Kurupur</td>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>139</td>
<td>82</td>
<td>158</td>
<td>300</td>
<td>338</td>
<td>500</td>
<td>628</td>
<td>48.9</td>
<td>2151 Kg/ha.</td>
<td>14</td>
</tr>
<tr>
<td>Hingpur</td>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>187</td>
<td>179</td>
<td>265</td>
<td>323</td>
<td>470</td>
<td>605</td>
<td>721</td>
<td>37.4</td>
<td>1742 Kg/ha.</td>
<td>11</td>
</tr>
<tr>
<td>Dhupil</td>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>568</td>
<td>328</td>
<td>303</td>
<td>547</td>
<td>612</td>
<td>735</td>
<td>821</td>
<td>78.3</td>
<td>1933 Kg/ha.</td>
<td>9</td>
</tr>
<tr>
<td>Madhupur</td>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;</td>
<td>264</td>
<td>382</td>
<td>146</td>
<td>626</td>
<td>565</td>
<td>581</td>
<td>697</td>
<td>106.2</td>
<td>1266 Kg/ha.</td>
<td>9</td>
</tr>
</tbody>
</table>
Sibsagar

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>237</td>
<td>203</td>
<td>196</td>
<td>301</td>
<td>433</td>
<td>444</td>
<td>557</td>
<td>64-3</td>
</tr>
</tbody>
</table>

Control yield=2200 Kg/ha.; No. of trials=14.

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>383</td>
<td>330</td>
<td>564</td>
<td>627</td>
<td>692</td>
<td>746</td>
<td>856</td>
<td>109-1</td>
</tr>
</tbody>
</table>

Control yield=2025 Kg/ha.; No. of trials=18.

65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>229</td>
<td>279</td>
<td>269</td>
<td>270</td>
<td>319</td>
<td>507</td>
<td>597</td>
<td>142-1</td>
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</tbody>
</table>

Control yield=2097 Kg/ha.; No. of trials=17.

Darrang

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>441</td>
<td>142</td>
<td>273</td>
<td>452</td>
<td>559</td>
<td>322</td>
<td>412</td>
<td>196-7</td>
</tr>
</tbody>
</table>

Control yield=1369 Kg/ha.; No. of trials=6.

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>114</td>
<td>74</td>
<td>242</td>
<td>284</td>
<td>354</td>
<td>386</td>
<td>754</td>
<td>113-6</td>
</tr>
</tbody>
</table>

Control yield=2097 Kg/ha.; No. of trials=7.

65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>48</td>
<td>-3</td>
<td>-156</td>
<td>91</td>
<td>123</td>
<td>220</td>
<td>318</td>
<td>170-7</td>
</tr>
</tbody>
</table>

Control yield=1628 Kg/ha.; No. of trials=6.

Crop :- Paddy (Ahu). Ref :- As. 63, 64(S.F.T.) for Kamrup and Goalpara; 63, 64, 65(S.F.T.) for Nowgong and Sibsagar and 63, 65(S.F.T.) for Darrang and Lakhimpur.

Site :- (District) : Darrang, Goalpara, Type :- ‘M’.
Kamrup, Lakhimpur, Nowgong, Sibsagar (c.f).

Object :- Type A2 : To study the response curves of important cereal, oilseeds and cash crops to Potash applied singly and in combination with other nutrients.
1. BASAL CONDITIONS:
   (i) (a) to (c) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS:
   8 manural treatments:
   \[ \frac{1}{2} \text{O} = \text{Control (no manure)}\]
   \[ N_1 = 35 \text{ Kg/ha. of N} \]
   \[ K_1 = 35 \text{ Kg/ha. of K}_2O \]
   \[ K_2 = 70 \text{ Kg/ha. of K}_2O \]
   \[ N_1K_1 = 35 \text{ Kg/ha. of N} + 35 \text{ Kg/ha. of K}_2O \]
   \[ N_1K_2 = 35 \text{ Kg/ha. of N} + 70 \text{ Kg/ha. of K}_2O \]
   \[ N_2K_2 = 70 \text{ Kg/ha. of N} + 70 \text{ Kg/ha. of K}_2O \]
   \[ N_1P_1K_1 = 35 \text{ Kg/ha. of N} + 35 \text{ Kg/ha. of P}_2O_5 + 35 \text{ Kg/ha. of K}_2O \]

   N applied as A/S, P as Super and K as Mur. Pot.

3. DESIGN:
   (i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50-100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A1, 11 of type A2, 11 of type A3 and 3 are of type C. The eleven experiments under type A1, A2 and A3 are distributed as 3 on a kharif cereal, 3 on a rabi cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on a legume crop. For the purpose of conducting the A1, A2 and A3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A1, A2 and A3 are laid out. For conducting the three type C trials three villages are randomly selected in each block. (iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL:
   (i) to (iii) N.A. (iv) (a) 1963 to 64 for Goalpara and Kamrup, 1963 and 65 for Lakhimpur and Darrang, and 1963 to 65 for others. (b) N.A. (c) —. (v) to (vii) N.A.

5. RESULTS:
   Darrang
   63(S.F.T.)
   Treatment | \( N_1 \) | \( K_1 \) | \( K_2 \) | \( N_1K_1 \) | \( N_1K_2 \) | \( N_2K_2 \) | \( N_1P_1K_1 \) | S.E.
   Av. response of grain in Kg/ha. | -66 | -88 | -21 | -5 | 16 | 72 | 50 | 39.7
   Control yield = 1438 Kg/ha.; No. of trials = 5.

   65(S.F.T.)
   Treatment | \( N_1 \) | \( K_1 \) | \( K_2 \) | \( N_1K_1 \) | \( N_1K_2 \) | \( N_2K_2 \) | \( N_1P_1K_1 \) | S.E.
   Av. response of grain in Kg/ha. | 20 | 37 | 60 | 27 | 140 | 237 | 25 | 177.3
   Control yield = 1150 Kg/ha.; No. of trials = 3.

   Goalpara
   63(S.F.T.)
   Treatment | \( N_1 \) | \( K_1 \) | \( K_2 \) | \( N_1K_1 \) | \( N_1K_2 \) | \( N_2K_2 \) | \( N_1P_1K_1 \) | S.E.
   Av. response of grain in Kg/ha. | 134 | 138 | 21 | 194 | 172 | 257 | 230 | 43.1
   Control yield = 2083 Kg/ha.; No. of trials = 6.

   64(S.F.T.)
   Treatment | \( N_1 \) | \( K_1 \) | \( K_2 \) | \( N_1K_1 \) | \( N_1K_2 \) | \( N_2K_2 \) | \( N_1P_1K_1 \) | S.E.
   Av. response of grain in Kg/ha. | -42 | 40 | -91 | -24 | -39 | 9 | 7 | 38.8
   Control yield = 818 Kg/ha.; No. of trials = 3.
Kamrup
63(S.F.T.)
Treatment
Av. response of grain in Kg/ha.
N<sub>1</sub>  K<sub>1</sub>  K<sub>2</sub>  N<sub>1</sub>K<sub>1</sub>  N<sub>1</sub>K<sub>2</sub>  N<sub>2</sub>K<sub>2</sub>  N<sub>1</sub>P<sub>1</sub>K<sub>1</sub>  S.E.
787  990  397  968  664  696  1443  202.2

Control yield=1970 Kg/ha.; No. of trials=6.

64(S.F.T.)
Treatment
Av. response of grain in Kg/ha.
N<sub>1</sub>  K<sub>1</sub>  K<sub>2</sub>  N<sub>1</sub>K<sub>1</sub>  N<sub>1</sub>K<sub>2</sub>  N<sub>2</sub>K<sub>2</sub>  N<sub>1</sub>P<sub>1</sub>K<sub>1</sub>  S.E.
531  263  291  647  573  644  713  107.3

Control yield=1501 Kg/ha.; No. of trials=10.

Lakhimpur
63(S.F.T.)
Treatment
Av. response of grain in Kg/ha.
N<sub>1</sub>  K<sub>1</sub>  K<sub>2</sub>  N<sub>1</sub>K<sub>1</sub>  N<sub>1</sub>K<sub>2</sub>  N<sub>2</sub>K<sub>2</sub>  N<sub>1</sub>P<sub>1</sub>K<sub>1</sub>  S.E.
63  32  112  497  113  566  500  126.4

Control yield=1957 Kg/ha.; No. of trials=4.

65(S.F.T.)
Treatment
Av. response of grain in Kg/ha.
N<sub>1</sub>  K<sub>1</sub>  K<sub>2</sub>  N<sub>1</sub>K<sub>1</sub>  N<sub>1</sub>K<sub>2</sub>  N<sub>2</sub>K<sub>2</sub>  N<sub>1</sub>P<sub>1</sub>K<sub>1</sub>  S.E.
20  43  83  203  133  286  291  49.2

Control yield=429 Kg/ha.; No. of trials=6.

Nowgong
63(S.F.T.)
Treatment
Av. response of grain in Kg/ha.
N<sub>1</sub>  K<sub>1</sub>  K<sub>2</sub>  N<sub>1</sub>K<sub>1</sub>  N<sub>1</sub>K<sub>2</sub>  N<sub>2</sub>K<sub>2</sub>  N<sub>1</sub>P<sub>1</sub>K<sub>1</sub>  S.E.
68  91  136  290  313  515  572  33.4

Control yield=1895 Kg/ha.; No. of trials=9.

64(S.F.T.)
Treatment
Av. response of grain in Kg/ha.
N<sub>1</sub>  K<sub>1</sub>  K<sub>2</sub>  N<sub>1</sub>K<sub>1</sub>  N<sub>1</sub>K<sub>2</sub>  N<sub>2</sub>K<sub>2</sub>  N<sub>1</sub>P<sub>1</sub>K<sub>1</sub>  S.E.
91  35  285  422  573  647  672  25.5

Control yield=1297 Kg/ha.; No. of trials=3.

65(S.F.T.)
Treatment
Av. response of grain in Kg/ha.
N<sub>1</sub>  K<sub>1</sub>  K<sub>2</sub>  N<sub>1</sub>K<sub>1</sub>  N<sub>1</sub>K<sub>2</sub>  N<sub>2</sub>K<sub>2</sub>  N<sub>1</sub>P<sub>1</sub>K<sub>1</sub>  S.E.
94  97  111  172  241  410  429  39.3

Control yield=1010 Kg/ha.; No. of trials=12.

Sibsagar
63(S.F.T.)
Treatment
Av. response of grain in Kg/ha.
N<sub>1</sub>  K<sub>1</sub>  K<sub>2</sub>  N<sub>1</sub>K<sub>1</sub>  N<sub>1</sub>K<sub>2</sub>  N<sub>2</sub>K<sub>2</sub>  N<sub>1</sub>P<sub>1</sub>K<sub>1</sub>  S.E.
96  -22  82  87  413  447  660  83.5

Control yield=1344 Kg/ha.; No. of trials=7.
**Crop:** Paddy (*Sali*).

Ref: As. 63, 64 (*S.F.T.*) for Lakhimpur, Goalpara and Kamrup and 63, 64, 65 (*S.F.T.*) for Nowgong, Sibsagar and Darrang.

**Site:** (District): Nowgong, Sibsagar, Kamrup, Lakhimpur, Darrang and Goalpara

(type: 'M').

Object:— Type A3: To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. **BASAL CONDITIONS:**
   (i) (a) to (c) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. **TREATMENTS and 3. DESIGN:**
   Same as the experiment type A4 on paddy (*Ahu*) on page 36.

4. **GENERAL:**
   (i) to (iii) N.A. (iv) (a) 1963 to 1966 [65-N.A.] for Kamrup; 1963 to 1964 for Lakhimpur and Goalpara and 1963-65 for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. **RESULTS:**

**Nowgong**

**63 (S.F.T.)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>K1</th>
<th>K2</th>
<th>N1K1</th>
<th>N1K2</th>
<th>N1P1K1</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>76</td>
<td>86</td>
<td>101</td>
<td>269</td>
<td>322</td>
<td>386</td>
<td>504</td>
</tr>
</tbody>
</table>

Control yield=2128 Kg/ha.; No. of trials=11.

**64 (S.F.T.)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>K1</th>
<th>K2</th>
<th>N1K1</th>
<th>N1K2</th>
<th>N1P1K1</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>128</td>
<td>18</td>
<td>81</td>
<td>170</td>
<td>212</td>
<td>252</td>
<td>321</td>
</tr>
</tbody>
</table>

Control yield=2400 Kg/ha.; No. of trials=13.
### Sibsagar

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₀</th>
<th>K₁</th>
<th>K₂</th>
<th>N₀K₁</th>
<th>N₀K₂</th>
<th>N₀P₁K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>363</td>
<td>294</td>
<td>328</td>
<td>422</td>
<td>436</td>
<td>538</td>
<td>821</td>
</tr>
</tbody>
</table>

Control yield = 1945 Kg/ha.; No. of trials = 13.

### Kamrup

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₀</th>
<th>K₁</th>
<th>K₂</th>
<th>N₀K₁</th>
<th>N₀K₂</th>
<th>N₀P₁K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>606</td>
<td>317</td>
<td>336</td>
<td>600</td>
<td>516</td>
<td>638</td>
<td>704</td>
</tr>
</tbody>
</table>

Control yield = 1905 Kg/ha.; No. of trials = 9.

### Lakhimpur

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₀</th>
<th>K₁</th>
<th>K₂</th>
<th>N₀K₁</th>
<th>N₀K₂</th>
<th>N₀P₁K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>196</td>
<td>270</td>
<td>210</td>
<td>275</td>
<td>415</td>
<td>597</td>
<td>107.6</td>
</tr>
</tbody>
</table>

Control yield = 1449 Kg/ha.; No. of trials = 5.

### Other Locations

<table>
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<tr>
<th>Treatment</th>
<th>N₀</th>
<th>K₁</th>
<th>K₂</th>
<th>N₀K₁</th>
<th>N₀K₂</th>
<th>N₀P₁K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>153</td>
<td>92</td>
<td>208</td>
<td>155</td>
<td>237</td>
<td>380</td>
<td>429</td>
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</table>

Control yield = 1570 Kg/ha.; No. of trials = 6.
Darrang

<table>
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<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>158</td>
<td>144</td>
<td>105</td>
<td>171</td>
<td>123</td>
<td>193</td>
<td>315</td>
</tr>
</tbody>
</table>

Control yield = 1100 Kg/ha.; No. of trials = 6.

64 (S.F.T.)

<table>
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<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>192</td>
<td>264</td>
<td>204</td>
<td>297</td>
<td>163</td>
<td>67</td>
<td>218</td>
</tr>
</tbody>
</table>

Control yield = 1441 Kg/ha.; No. of trials = 7.

65 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>95</td>
<td>65</td>
<td>109</td>
<td>97</td>
<td>85</td>
<td>152</td>
<td>192</td>
</tr>
</tbody>
</table>

Control yield = 1050 Kg/ha.; No. of trials = 3.

Goal para

63 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>157</td>
<td>90</td>
<td>99</td>
<td>177</td>
<td>183</td>
<td>230</td>
<td>223</td>
</tr>
</tbody>
</table>

Control yield = 2571 Kg/ha.; No. of trials = 9.

64 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of grain in Kg/ha.</td>
<td>-13</td>
<td>-2</td>
<td>28</td>
<td>44</td>
<td>90</td>
<td>57</td>
<td>98</td>
</tr>
</tbody>
</table>

Control yield = 2003 Kg/ha.; No. of trials = 6.

Crop: Paddy (Sali).

Site: (District): Cachar, Kamrup, Lakhimpur and Sibsagar (c.f).

Ref: As. 61 (S.F.T).

Type: 'M'.

Object:—Type B: To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

1. BASAL CONDITIONS:
   (i) N.A. (ii) Hilly for Cachar and Sibsagar and Alluvial for others. (iii) to (a) N.A.

2. TREATMENTS:
   7 manural treatments:
   O = Control (no manure)
   N<sub>1</sub> = 22.4 Kg/ha. of N as A/S.
   N<sub>2</sub> = 44.8 Kg/ha. of N as A/S.
   N<sub>1</sub>' = 22.4 Kg/ha. of N as Urea.
   N<sub>2</sub>' = 44.8 Kg/ha. of N as Urea.
   N<sub>1</sub>" = 22.4 Kg/ha. of N as A/S/N.
   N<sub>2</sub>" = 44.8 Kg/ha. of N as A/S/N.
3. DESIGN:
(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on Kharif cereal, 8 on rohi cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the four zones at the rate of one experiment per village. (iii) (a) 1,988 ha. (b) 1/1977 ha. (iv) Yes.

4. GENERAL:
(i) to (iii) N.A. (iv) (a) 1961 only for all the places. (b) and (c)—(v) to (vii) N.A.

5. RESULTS:
\[
\text{Av. yield of grain in Kg/ha.}
\]

<table>
<thead>
<tr>
<th>District</th>
<th>No. of trials</th>
<th>O</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>N₄</th>
<th>N₅</th>
<th>N₆</th>
<th>N₇</th>
<th>G.M.</th>
<th>S.E./mean</th>
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<tbody>
<tr>
<td>Cachar</td>
<td>11</td>
<td>3070</td>
<td>3350</td>
<td>3670</td>
<td>3740</td>
<td>3960</td>
<td>3630</td>
<td>3530</td>
<td>3330</td>
<td>3647</td>
<td>45.3</td>
</tr>
<tr>
<td>Kamrup</td>
<td>9</td>
<td>2190</td>
<td>2570</td>
<td>2950</td>
<td>2890</td>
<td>3140</td>
<td>2610</td>
<td>2590</td>
<td>2520</td>
<td>2770</td>
<td>64.3</td>
</tr>
<tr>
<td>Lakhimpur</td>
<td>6</td>
<td>1840</td>
<td>2120</td>
<td>2450</td>
<td>2580</td>
<td>2  5</td>
<td>2700</td>
<td>2520</td>
<td>2403</td>
<td>9.9</td>
<td></td>
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<tr>
<td>Sibsagar</td>
<td>10</td>
<td>2220</td>
<td>2580</td>
<td>2800</td>
<td>2600</td>
<td>2780</td>
<td>2710</td>
<td>2610</td>
<td>2614</td>
<td>55.2</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Paddy (Ahu).
Site: (District): Cachar, Darrang, Goalpara, Kamrup and Lakhimpur (c.f).
Object:—Type B: To investigate the relative efficiency of different nitrogeneous fertilizers at different doses.

1. BASAL CONDITIONS:
(i) N.A. (ii) Hilly for Cachar and Alluvial for others. (iii) to (x) N.A.

2. TREATMENTS: and 3. DESIGN:
Same as the expt. Type B on Paddy (Sali) on page 41.

4. GENERAL:
(i) to (iii) N.A. (iv) (a) 1961—only for all the places. (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS:
\[
\text{Av. yield of grain in Kg/ha.}
\]

<table>
<thead>
<tr>
<th>District</th>
<th>No. of trials</th>
<th>O</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>N₄</th>
<th>N₅</th>
<th>N₆</th>
<th>N₇</th>
<th>G.M.</th>
<th>S.E./mean</th>
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<tr>
<td>Cachar</td>
<td>8</td>
<td>2520</td>
<td>2730</td>
<td>2950</td>
<td>2980</td>
<td>3120</td>
<td>2860</td>
<td>2990</td>
<td>2879</td>
<td>46.7</td>
<td></td>
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<tr>
<td>Darrang</td>
<td>4</td>
<td>802</td>
<td>1390</td>
<td>1490</td>
<td>1310</td>
<td>1400</td>
<td>1310</td>
<td>1420</td>
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<td>Goalpara</td>
<td>2</td>
<td>1470</td>
<td>1510</td>
<td>1570</td>
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<td>1700</td>
<td>1660</td>
<td>1760</td>
<td>1587</td>
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<tr>
<td>Kamrup</td>
<td>10</td>
<td>2190</td>
<td>2470</td>
<td>2710</td>
<td>2590</td>
<td>2820</td>
<td>2730</td>
<td>2520</td>
<td>2576</td>
<td>31.8</td>
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<tr>
<td>Lakhimpur</td>
<td>6</td>
<td>1530</td>
<td>1830</td>
<td>1980</td>
<td>1800</td>
<td>1940</td>
<td>1860</td>
<td>1850</td>
<td>1827</td>
<td>55.9</td>
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</table>
Crop:- Paddy (Kharif)  
Site:- Rice Exptl. Stn., Karimganj.

Object:- To study the direct and residual effect of lime on the yield of different varieties of Sail Paddy.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Paddy. (c) N.A.; As per treatments for others. (ii) Clayey loam (acidic) (iii) 25-28.8.62; 9-13.8.63; 19.8.64. (iv) (a) Ploughings, laddering, puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weadings. (ix) 141'-8 cm.; 256'-1 cm.; 148'-3 cm. (x) 11.12.62 and 24-28.12.62; 18/12.63; 29/12.63 and 7/8.1.64; 3/4.12.64.

2. TREATMENTS:
   Main-plot treatments :
   2 levels of slaked lime : Lₒ=0 and L₁=560 Kg/ha.

   Sub-plot treatments :
   3 long duration varieties : V₁=S.22 (Lati Sail), V₂=Sc. 412-56 (Swarna Sail), and V₃=Sc. 1177-6 (Handique Sail).

   Lime applied on 20.7.62. In subsequent years lime was not applied.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main plots/replication and 3 sub-plots/main plot. (b) N.A. (iii) 12. (iv) (a) and (b) 10·1 m. x 6·6 m. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. Crop lodged just before harvest in 64. (ii) Attack of Hispa which was not fully controlled in 62; Attack of army worms—Controlled by Guesarol 550 in 63; Attack of grass hopper during early stage of growth controlled by Guesarol 550 in 64. (iii) Yields of grain. (iv) (a) 1962-64. (b) Yes. (c) Nil. (v) No. (vi) Rainfall not well distributed in 62; Nil for others. (vii) Nil.

5. RESULTS:
   Results of direct application of lime—Expt. No. 62(13).
   (i) 3384 Kg/ha. (ii) (a) 382·1 Kg/ha. (b) 323·1 Kg/ha. (iii) Main effect of V is highly significant and L is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td>Lₒ</td>
<td>3152</td>
<td>3042</td>
<td>3516</td>
<td>3237</td>
</tr>
<tr>
<td>L₁</td>
<td>3496</td>
<td>3239</td>
<td>3860</td>
<td>3532</td>
</tr>
<tr>
<td>Mean</td>
<td>3324</td>
<td>3140</td>
<td>3688</td>
<td>3384</td>
</tr>
</tbody>
</table>

C.D. for L marginal means=198·2 Kg/ha.
C.D. for V marginal means=188·4 Kg/ha.

Results of Residual effect of lime (1st year)—Expt. No. 63(15)
(i) 3706 Kg/ha. (ii) (a) 399·5 Kg/ha. (b) 660·0 Kg/ha. (iii) Only the main effect of V is highly significant, (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>Mean</th>
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<tbody>
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<td>Lₒ</td>
<td>4035</td>
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<tr>
<td>L₁</td>
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<td>3630</td>
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<tr>
<td>Mean</td>
<td>4007</td>
<td>3442</td>
<td>3669</td>
<td>3706</td>
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</tbody>
</table>

C.D. for V marginal means=384·3 Kg/ha.
Results of Residual effect of lime (2nd year)—Expt. No. 64(12)

(i) 3542 Kg/ha. (ii) 258'1 Kg/ha. (b) 380'6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>Mean</th>
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<tr>
<td>L₂</td>
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<tr>
<td>Mean</td>
<td>3573</td>
<td>3470</td>
<td>3584</td>
<td>3542</td>
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</tbody>
</table>

_Crop :- Paddy (Kharif) Ref :- As. 61(15), 62(12) and 63(14)_

_Site :- Rice Exptl. Stn., Karimganj. Type :- 'MV'._

Object :- To study the effect of different doses of N, P and K on four varieties of _sail_ Paddy (late type).

1. **BASAL CONDITIONS** :
   (i) (a) Nil. (b) Sall paddy. (c) N.A.: As per treatments for others. (ii) Clayey loam (acidic) (iii) 30.8 61 to 2.9.61; 6-10.8.62; 29.7.63 to 4.8.63 (iv) (a) Ploughings, laddering, harrowing, puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) 92.2 Q ha. of Cowdung. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) 158.6 cm.; 232.1 cm.; 256.1 cm. (x) 16/17.12.61 and 29 30.12.61; 9/10.12.62, 21/22.12.62 and 28—30.12.62 and 15/16 12.63 and 9.11.64

2. **TREATMENTS** :
   **Main-plot treatments** :
   4 levels of fertilizers : F₁=O, F₂=33.6 Kg/ha. of N as A/S +22.4 Kg/ha. of P₂O₅ as Super. +22.4 Kg ha. of K₂O as Mur. Pot., F₃=44.8 Kg/ha. of N as A/S + 33.6 Kg/ha. of P₂O₅ as Super. + 33.6 Kg/ha. of K₂O as Mur. Pot. and F₄=56'0 Kg/ha. of N as A/S + 44.8 Kg/ha. of P₂O₅ as Super. + 44.8 Kg/ha. of K₂O as Mur. Pot.

   _Sub-plot treatments_ :
   4 varieties : V₁=S.22 (Late Sail), V₂=Sc. 1177—6 (Handique Sail), V₃=Sc. 412—56 (Swarana Sail) and V₄=Sc. 412—125.

3. **DESIGN** :
   (i) Split-plot (ii) (a) 4 main plots/replication and 4 sub-plots/main plot. (b) N.A. (iii) 6. (iv) (a) and (b) 9'9 m x 1'6 m. (v) Nil. (vi) Yes.

4. **GENERAL** :
   (i) Good in 61; not satisfactory in 62 and good in 63 though lodging occurred. (ii) N.A. for 61; Severe attack of Hipsa, which was not fully controlled in 62. Attack of army worms—Gusarol 550 sprayed in 63. (iii) Yield of grain. (iv) (a) 1961—63. (b) Yes. (c) Nil. (v) No. (vi) Rainfall not well distributed in 63. Nil for others. (vii) Sub-plot error variances are heterogeneous. The results of individual experiments are presented under 5—Results.

5. **RESULTS** :

   **61(15)**
   (i) 4635 Kg/ha. (ii) 1392.1 Kg/ha. (b) 349.1 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.
Crop: Paddy (Kharif).
Ref: As. 60(7), 61(14) and 62(11).
Site: Rice Exptl. Stn., Karimganj. Type 'MV'.
Object: To study the effect of different green manures on the late varieties of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clayey loam (acidic). (iii) 28.6.60/26 to 28.7.60; 3.7.61/8 to 11.8.61; 4.7.62/2 to 5.8.62. (iv) (a) Ploughing, laddering, etc. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding; 2 weedings for others. (ix) 240 cm.; 159 cm.; 142 cm. (x) 2.12.60; 2 and 4.12.61; 5 to 7 and 15 to 17.12.62.

2. TREATMENTS:
Main-plot treatments:
4 green manure crops: G1 = Sesbania Spectosa, G2 = Sesbania Acalata, G3 = Crotolaria Striata and G4 = Crotolaria Brownia.
Sub-plot treatments:
3 varieties: V₁ = S. 22 (late Sait), V₂ = Sc. 412—56 (Swarna Sait) and V₃ = Sc. 1177—32.
Green crops were sown during March.

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots/repetition and 3 sub-plots/main-plot. (b) 20'1 m × 9'9 m. (iii) 6. (iv) (a) and (b) 9'9 m × 14 m. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. Crop lodged 7 — 10 days before maturity in 1961. (ii) Very slight incidence in 60 and 61. Severe attack of Hrips in 62. (iii) Yld of grain. (iv) (a) 1960—62. (b) Yes. (c) Nil. (v) No. (vi) Rainfall was not wet. distributed and drought occurred in certain stages of crop growth in 62. (vii) Growth of green manures was not satisfactory in 60 and 61. G₃ and G₄ were very poor in 60. Main-plot and sub-plot variances are heterogeneous. The results of individual experiments are presented under 5. Results.

5. RESULTS:
60(7):
(i) 4210 Kg/ha. (ii) (a) 2290 Kg/ha. (b) 2126 Kg/ha. (iii) Main effect of G is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>G₁</th>
<th>G₂</th>
<th>G₃</th>
<th>G₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
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<td>4180</td>
<td>4266</td>
<td>4390</td>
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Mean 4179 4108 4347 4207 4210
C.D. for G marginal means = 162.7 Kg/ha.

61(14):
(i) 4311 Kg/ha. (ii) (a) 6110 Kg/ha. (b) 7411 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
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Mean 4472 4105 4381 4287 4311
C.D. for V marginal means = 434.0 Kg/ha.

62(11):
(i) 4044 Kg/ha. (ii) (a) 4407 Kg/ha. (b) 5642 Kg/ha. (iii) Main effect of V is highly significant and main effect of G is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
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Mean 3940 4337 3968 3931 4044
C.D. for G marginal means = 313.0 Kg/ha.
C.D. for V marginal means = 329.2 Kg/ha.
Crop: Paddy (Kharif).  
Site: Rice Res. Stn., Titabar.  

Object: To study the effect of time of application of Nitrogen on the yield of long duration Sali Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Ahu Paddy. (c) N.A.
   (ii) Heavy clayey loam. (iii) 17.7.65. (iv) (a) 3 to 4 ploughings.
   (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 3 to 4.
   (v) 44.8 Kg/ha of P₂O₅ as Super + 22.4 Kg/ha of K₂O as Mur. Pot.
   (vi) As per treatments. (vii) Unirrigated. (viii) 2 to 3 weedings. (ix) N.A.  

2. TREATMENTS:
   Main-plot treatments:
   4 times of application of 33.6 Kg/ha of N as A/S: T₁=At the time of transplanting, T₂=20 days after transplanting, T₃=40 days after transplanting and T₄=60 days after transplanting.

   Sub-plot treatments:
   3 varieties: V₁=Sc. 412/125, V₂=Prosadbhog and V₃=Hati Sali.

3. DESIGN:
   (i) Split-plot with main-plot treatments in L. Sq.  
   (ii) (a) 4 main-plots/row and 4 rows for the exp. and 3 sub-plots/main-plot.  
   (b) N.A.  
   (iii) 4. (iv) (a) N.A. (b) 2.5 m x 4.1 m. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) = (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:
   (i) 2893 Kg/ha.  
   (ii) (a) 527.3 Kg/ha. (b) 781.2 Kg/ha.  
   (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
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<td>3027</td>
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<td>2897</td>
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C.D. for V marginal means=570.0 Kg/ha.

---

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

Object: To study the effect of different levels of A/S and Super on the yield of three promising Sali varieties of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Ahu Paddy. (c) N.A.  
   (ii) Heavy clayey loam. (iii) 12.8.65. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 3 to 4. (v) 184.4 Q/ha. of Cowdung. (vi) As per treatments. (vii) Unirrigated. (viii) 2 to 3 weedings. (ix) N.A. (x) 20.12.65.
2. TREATMENTS

All combinations of (1), (2) and (3)
(1) 3 varieties : \( V_1 = \text{Sc. 412/}25 \) (Monohar Saali), \( V_2 = T=141 \) and \( V_3 = \text{Zuiho}\times\text{Hari Salt} \).
(2) 3 levels of \( N \) as \( A \times N : N_0 = 0, N_1 = 22.4 \) and \( N_2 = 44.8 \) Kg/ha.
(3) 3 levels of \( P_2O_5 \) as Super : \( P_0 = 0, P_1 = 22.4 \) and \( P_2 = 44.8 \) Kg/ha.

3. DESIGN :

(i) 3\(^{rd}\) partially confd. (iii) (a) 3 blocks/replication and 9 plots/block. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 5.6 m. \(-\) 5.8 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 3334 Kg/ha. (ii) 160.3 Kg/ha. (iii) Main effects of \( V, N \) and \( P \) and interactions \( V \times N, V \times P, N \times P \) and \( V \times N \times P \) are all highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>( V_1 )</th>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( P_0 )</th>
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<th>( P_2 )</th>
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<td>( V_2 )</td>
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<td>3089</td>
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Mean 3103 3423 3476

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<td>( P_2 )</td>
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</table>

C.D. for \( V, N \) or \( P \) marginal means =110.8 Kg/ha.
C.D. for means in the body of any table=191.9 Kg/ha.

Crop :- Paddy (Kharif).
Site :- Rice Res. Sta., Titabar.

Object :- To study the effect of single and split doses of Nitrogen on the yield of short duration \( \text{Sali} \) Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Ahu Paddy. (c) N.A. (ii) Heavy chyey loam. (iii) 27.8.65. (iv) (a) 3 to 4 plantings. (b) Transplanting. (c) N.A. (d) 23 cm. \times \) 23 cm. (e) 3 to 4. (v) 22.4 Kg/ha. of \( P_2O_5 \) as Super+22.4 Kg/ha. of \( K_2O \) as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 28 to 30.11.65.

2. TREATMENTS :

Main-plot treatments :

4 methods of application of 33.6 Kg/ha. of \( N \) as A/S : \( M_1 = \text{Whole quantity at the time of planting}, M_2 = \text{Half at planting and other half one month after planting}, M_3 = \text{Half at planting and other half one week before flowering and } M_4 = \text{One third at planting, one-third one month after planting, one-third one week before flowering.}

Sub-plot treatments :

3 varieties : \( V_1 = \text{C.H.}-63, V_2 = \text{Patnai 23} \times \text{R. 132 and } V_3 = \text{Norin 6} \times \text{Geb. 24.}

Ref :- As. 65(18).
Type :- 'MV'.
3. DESIGN:

(i) Split-plot with main-plot treatments in L sq. (ii) (a) 4 main-plots/row and 4 rows for the expt. and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 4/4 m x 2.7 m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Poor. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c)—(v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 1833 Kg/ha. (ii) (a) 381.3 Kg/ha. (b) 322.6 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
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<th>M₃</th>
<th>M₄</th>
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<td>2435</td>
<td>2123</td>
<td>1956</td>
<td>2138</td>
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<tr>
<td>Mean</td>
<td>1672</td>
<td>2005</td>
<td>1915</td>
<td>1741</td>
<td>1833</td>
</tr>
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</table>

C.D. for V marginal means=2354 Kg/ha.

Crop: Paddy (Khafir).
Site: Rice Res. Stn., Titabar.

Object: To study the effect of N, P and K at different levels on the yield of different varieties of Sali Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Aahu Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 28.8.65. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 15 cm x 15 cm. (e) 3. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2-3 weedicings. (ix) N.A. (x) 29.11.65.

2. TREATMENTS:

Main-plot treatments:
4 levels of fertilizers: F₀=Nil, F₁=33.6 Kg/ha of N as A/S+16/8 Kg/ha of P₂O₅ as Super+16/8 Kg/ha of K₂O as Mur. Pot., F₂=2×F₁ and F₃=3×F₁.

Sub-plot treatments:
3 varieties: V₁=Taichung (Native) 1, V₂=Taichung 65 and V₃=Prosadbhog.

3. DESIGN:

(i) Split-plot with main-plot treatments in L Sq. (ii) (a) 4 main-plots/row and 4 rows for the expt. and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 2.0 m x 4.4 m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c)—(v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 2635 Kg/ha. (ii) (a) 193.2 Kg/ha. (b) 715.9 Kg/ha. (iii) Main effect of V is significant. (iv) Av. yield of train in Kg/ha.
Crop : Paddy (Kharif).
Site : Rice Res. Stn., Titabar.

Object : To study the maximum yield potentiality of Ahu paddy varieties under optimum cultural conditions.

1. BASAL CONDITIONS:
   (i) Nil.
   (b) Sali Paddy.
   (c) N.A.
   (ii) Heavy clayey loam.
   (iii) 12.5.65.
   (iv) (a) 3-4 ploughings.
   (b) Transplanting.
   (c) N.A.
   (d) 15 cm. × 15 cm.
   (e) 4.
   (f) N.A.
   (g) As per treatments.
   (h) Unirrigated.
   (vii) One sowing. (viii) N.A. (x) 12–14.8.65.

2. TREATMENTS:
   Main-plot treatments:
   4 levels of N as A/S: N₀ = 0, N₁ = 22.4, N₂ = 44.8 and N₃ = 67.2 Kg/ha.

   Sub-plot treatments:
   6 varieties: V₁ = AS. 48-Dubainchenga, V₄ = CH. 63, V₅ = AC. 400/18-5, V₆ = AC. 400/9-6, T₁ = AC. 450 (b)/11-39 and V₈ = AC. 455/1-188-20.

3. DESIGN:
   (i) Split-plot.
   (ii) (a) 4 main-plots/rep. and 6 sub-plots/main-plot.
   (b) 25'6 m. × 27'4 m.
   (iii) 3.
   (iv) (a) 6'4 m. × 4'6 m.
   (b) 6'1 m. × 4'3 m.
   (v) 15 cm. discarded around.
   (vi) Yes.

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

5. RESULTS:
   (i) 1842 Kg/ha.
   (ii) (a) 231'1 Kg/ha.
   (b) 350'6 Kg/ha.
   (iii) Main effect of V is significant.
   (iv) Av. yield of grain in Kg/ha.

\[
\begin{array}{c|cccc|c}
V₁ & V₂ & V₃ & V₄ & V₅ & Mean \\
\hline
N₀ & 1818 & 1844 & 1639 & 1127 & 1767 & 1707 \\
N₁ & 1882 & 1997 & 2049 & 1383 & 1767 & 1597 \\
N₂ & 1997 & 1895 & 2125 & 1306 & 2023 & 1920 \\
N₃ & 1818 & 1844 & 1946 & 1280 & 1908 & 1842 \\
\hline
Mean & 1879 & 1895 & 1940 & 1274 & 1866 & 1842 \\
\end{array}
\]

C.D. for V marginal means = 289.3 Kg/ha.
Crop :- Paddy (Kharif).
Site :- Rice Res. Stn., Titabar.
Object :- To study the effect of single and split doses of Nitrogen on the yield of long duration Sali Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Ahu Paddy.  (c) N.A. (ii) Heavy clayey loam.  (iii) 21.7.65.  (iv) (a) 3-4 ploughings.  (b) Transplanting.  (c) N.A. (d) 23 cm. x 23 cm.  (e) 3-4. (v) 44·3 Kg/ha. of P₂O₅ as Super+16·8 Kg/ha. of K₂O as Mur. Pot.  (vi) As per treatments.  (vii) Unirrigated.  (viii) 2-3 weedings. (ix) N.A. (x) V₁ on 10.12.65, V₂ on 4.12.65 and V₃ on 29.12.65.

2. TREATMENTS:
   Main-plot treatments:
   4 methods of application of 33·6 Kg/ha of N as A/S:
   M₁ = Whole quantity at the time of planting
   M₂ = Half at planting and other half one month after planting
   M₃ = Half at planting and other half one month before flowering
   M₄ = One-third at planting + One-third one month after planting + One-third one month before flowering.

   Sub-plot treatments:
   3 varieties: V₁ = Sc. 412/125, V₂ = Prosadbhog and V₃ = Andrew Safi.

3. DESIGN:
   (i) Split-plot with main-plot treatments in L. Sq.  (ii) (a) 4 main-plots/row and 4 rows for the exp. and 3 sub-plots/main-plot. (b) N.A. (iii) 4.  (iv) (a) N.A. (b) 4·4 m. x 2·7 m.  (v) N.A.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) N.A. (iii) Grain yield.  (iv) (a) No.  (b) and (c) --.  (v) No.  (vi) N.A.  (vii) Nil.

5. RESULTS:
   (i) 3084 Kg/ha.  (ii) (a) 424·2 Kg/ha.  (b) 514·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>M₁</th>
<th>M₂</th>
<th>M₃</th>
<th>M₄</th>
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<td>2881</td>
<td>3234</td>
<td>3084</td>
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</table>

Crop :- Paddy (Kharif).
Site :- Rice Res. Stn., Titabar.
Object :- To study the yield of Japonica varieties under different levels of nitrogen with a local Ahu paddy variety as standard.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Paddy.  (c) N.A. (ii) (a) Heavy clayey loam.  (iii) April, 1962.  (iv) (a) 3-4 ploughings.  (b) Transplanting.  (c) N.A. (d) 23 cm. x 23 cm.  (e) 3-4. (v) 50·3 Kg/ha. of P₂O₅ as Super.  (vi) As per treatments.  (vii) Unirrigated.  (viii) 1 weeding. (ix) 109·5 cm.  (x) July, 1962.
2. TREATMENTS:

Main-plot treatments:
2 levels of N as A/S: \( N_1 = 44.8 \) and \( N_2 = 67.2 \) Kg/ha.

Sub-plot treatments:
7 varieties: \( V_1 = \text{Norin-1}, V_2 = \text{Norin-6}, V_3 = \text{Norin-17}, V_4 = \text{Gimbozu}, V_5 = \text{Rikku-132}, V_6 = \text{Taichung-65} \) and \( V_7 = \text{Rangadoria (Local)} \).

Method of application: A/S applied as top dressing.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/rep. and 7 sub-plots/main-plot. (b) 60.4 m \( \times \) 12.8 m. (iii) 3. (iv) (a) 4.8 m \( \times \) 1.4 m. (b) 4.3 m \( \times \) 0.9 m. (v) 23. cm. discarded around. (vi) Yes.

4. GENERAL:

(i) Normal. (ii, N.A. (ii.) Yield of grain. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) N:

5. RESULTS:

(i) 2466 Kg/ha. (ii) (a) 1017.4 Kg/ha. (b) 902.1 Kg/ha. (iii) None of the effects is significant. (iv) ‘Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>( V_3 )</th>
<th>( V_4 )</th>
<th>( V_5 )</th>
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Crop: Paddy \( (\text{Kharif}) \)  
Site: Rice Res. Stn., Titabar.

Object: To study the yield of japonica varieties under different levels of nitrogen with a local Sali paddy variety as standard.

1. BASAL CONDITIONS:

(i) (a) Nil  (b) Paddy. (c) N.A. (ii) (a) Heavy clayey loam. (iii) 31.8.61. (iv) (a) 3—4 Ploughings. (b) Transplanting. (c) N.A. (d) 23 cm \( \times \) 23 cm. 3 — 4 (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 1 Weeding. (ix) N.A. (x) December, 1961.

2. TREATMENTS:

Main-plot treatments:
\( V_1 = \text{Norin-1}, V_2 = \text{Norin-17}, V_3 = \text{Norin-18}, V_4 = B.M.-5 \) and \( V_5 = \text{Laodumra (Local)} \).

Sub-plot treatments:
4 levels of N as A/S: \( N_1 = 22.4, N_2 = 44.8, N_3 = 67.2 \) and \( N_4 = 89.6 \) Kg/ha.

3. DESIGN:

(i) Split-plot. (ii) (a) 5 main-plots/rep. and 4 sub-plots/main-plot. (b) 19.2 m \( \times \) 39.3 m. (iii) 4. (iv) (a) N.A. (b) 4.6 m \( \times \) 1.6 m. (v) N.A. (vi) Yes.

4. GENERAL:

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

5. RESULTS:

(i) 1854 Kg/ha. (ii) (a) 943.2 Kg/ha. (b) 508.9 Kg/ha. (iii) Main effect of V is highly significant (i·) ‘Av. yield of grain in Kg/ha.
Crop: Paddy (Kharif)  
Site: Rice Exptl. Stn., Karimganj.

Object: To compare different spacings for long duration SAIL paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Paddy.  (c) N.A.; 'As per treatments'  
   (ii) Clayey loam (acidic)  
   (iii) 28.7.63; 25.8.64.  
   (iv) (a) Ploughing, laddering, puddling, etc.  
   (b) Transplanting.  (c) N.A.  
   (d) 'As per treatments'.  
   (e) 4.  
   (v) 92·2 Q/ha. of Cowdung as basal; 22·4 Kg/ha. of N as A/S+20·2 Kg/ha. of P₂O₅ as Super. at puddling;  
   22·4 Kg/ha. of N as A/S+20·2 Kg/ha. of P₂O₅ as Super. applied one week after planting;  
   11·2 Kg/ha. of N as A/S+10·1 Kg/ha. of P₂O₅ as Super. before flowering.  
   (vi) Sc. 412-56—Swarna Saii (late)  
   (vii) Unirrigated.  
   (viii) 2 weedings.  
   (ix) 256·1 cm.; 148·3 cm.  
   (x) 1st week of Dec., 1963; 16/17.12.64.

2. TREATMENTS:
   3 spacings: S₁ = 23 cm. x 23 cm.; S₂ = 30 cm. x 23 cm. and S₃ = 30 cm. x 15 cm.

3. DESIGN:
   (i) R.B.D.  
   (ii) (a) 3.  (b) 14·63 M x 9·14 M.  
   (iii) 4.  
   (iv) (a) and (b) 9·14 M x 4·57 M.  
   (v) Nil  
   (vi) Yes.

4. GENERAL:
   (i) Good.  
   (ii) Negligible.  
   (iii) Grain yield.  
   (iv) 1963—64.  
   (b) Yes.  
   (c) Results of combined analysis are given under 5. Results.  
   (v) No.  
   (vi) Nil.  
   (vii) Error variances are homogenous and Treatments x years interaction is absent.

5. RESULTS:
   Pooled results:
   (i) 2771 Kg/ha.  
   (ii) 313·2 Kg/ha. (based on 14 d.f. made up of pooled error and Treatments x years interaction)  
   (iii) Treatment differences are not significant.  
   (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
<th>Av. yield</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2860</td>
<td>2775</td>
<td>2678</td>
<td></td>
</tr>
</tbody>
</table>

Individual Results:
Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
<th>Significance</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>2721</td>
<td>2785</td>
<td>2689</td>
<td>N.S.</td>
<td>2732</td>
<td>209·5</td>
</tr>
<tr>
<td>1964</td>
<td>2998</td>
<td>2765</td>
<td>2667</td>
<td>N.S.</td>
<td>2810</td>
<td>406·7</td>
</tr>
<tr>
<td>Pooled</td>
<td>2860</td>
<td>2775</td>
<td>2678</td>
<td>N.S.</td>
<td>2771</td>
<td>313·2</td>
</tr>
</tbody>
</table>

C.D. for V marginal means = 726.6 Kg/ha.
Object: — To compare the effect of different methods of cultivation on the yield of Sali Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clayey loam (acidic) (iii) Middle Sept. 1960; 8 to 12.9.62. (iv) (a) Ploughing, laddering, puddling etc. (b) Transplanting. (c) N.A. (d) 7.6 cm. x 7.6 cm. for T1, 15.2 cm. x 15.2 cm. for T2 and 22.9 cm. x 22.9 cm. for T3. (e) 4—8 for T1, 3—5 for T2, and 4—5 for T3. (v) N.A. (vi) Sc. 412-56—Swarna Sali (Late) (vii) Unirrigated. (viii) 1 weedng. (ix) 240·3 cm.; 158·6 cm.; 232·1 cm. (x) Middle of Dec., 1960; 14/15.12.61; 14/15.12.62.

2. TREATMENTS:


3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 5·03 M x 5·03 M. (v) N.A. (vi) Yes.

4. GENERAL:

(ii) Normal. (ii) N.A. (iii) Grain yield (iv) (a) 1960—62. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) Titabar. (vi) N.A. (vii) Error variances are heterogeneous and Treatments x years interaction is present.

5. RESULTS:

Pooled Results:

(i) 2698 Kg ha. (ii) 973·1 Kg ha. (based on 4 d. f. made up of Treatments x years interaction) (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
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</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>3035</td>
<td>2616</td>
<td>2442</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Years</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>3697</td>
<td>3316</td>
<td>2371</td>
<td>**</td>
<td>3128</td>
<td>360</td>
</tr>
<tr>
<td>1961</td>
<td>3223</td>
<td>2686</td>
<td>2744</td>
<td>N.S.</td>
<td>2884</td>
<td>509·6</td>
</tr>
<tr>
<td>1962</td>
<td>2184</td>
<td>1845</td>
<td>2211</td>
<td>N.S.</td>
<td>2080</td>
<td>527·1</td>
</tr>
<tr>
<td>Pooled</td>
<td>3035</td>
<td>2616</td>
<td>2442</td>
<td>N.S.</td>
<td>2698</td>
<td>973·1</td>
</tr>
</tbody>
</table>

Crop :- Paddy (Kharif).  
Site :- Rice Res. Stn., Titabar.  
Object: — To study the effect of different spacings on the yield of Sali Paddy and to know the optimum spacing for plants for getting the maximum grain yield.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) 4 ha paddy. (c) N.A. (ii) Heavy clayey loam. (iii) August, 64. (iv) (a) 3 to 4 ploughings. (b) Transplanting (c) N.A. (d) As per treatments. (e) 3 to 4. (v) 184·5 Q/ha. of Cowdung. (vi) N.A. (vii) Unirrigated. (viii) Hand weeding. (ix) 95·8 cm. (x) December, 64.

2. TREATMENTS:

4 spacings: S1—23 cm. x 23 cm., S2—30 cm. x 23 cm. S3—30 cm. x 15 cm. and S4—30 cm. x 30 cm.
4. GENERAL:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9'0 m. x 4'5 m. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 4408 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
<th>S₄</th>
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<tbody>
<tr>
<td>Av. yield</td>
<td>4357</td>
<td>4799</td>
<td>4282</td>
<td>4195</td>
</tr>
</tbody>
</table>

Crop :- Paddy *(Kharif)*.

Site :- Rice Res. Stn., Titabar.

Type :- 'C'.

Ref :- As. 63(4).

Object :- To study the effect of different spacings on the yield of *Sali* Paddy and to know the optimum spacing for plants for getting maximum grain yield.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) August, 1963. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 3 to 4. (v) 184'5 Q/ha. of Cowdung. (vi) N.A. (vii) Unirrigated. (viii) 2 hand weedings. (ix) N.A. (x) December, 1963.

2. TREATMENTS:
3 spacings: S₁ = 23 cm. x 23 cm., S₂ = 30 cm. x 23 cm. and S₃ = 30 cm. x 15 cm.

3. DESIGN:
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4; (iv) (a) N.A. (b) 1/24 ha. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
(i) 3424 Kg/ha. (ii) 192'7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>3376</td>
<td>3364</td>
<td>3532</td>
</tr>
</tbody>
</table>

Crop :- Paddy *(Kharif)*.

Site :- Rice Res. Stn., Titabar.

Ref :- As. 63(3).

Type :- 'C'.

Object :- To see the advantage of transplanting over broadcasting on the yield of *Ahu* Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) *Sali* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 8'/9.5, 63 for M₁ and 31.5, 63 for M₂. (iv) (a) 3-4 ploughings. (b) As per treatments. (c) 91 Kg/ha. for M₁. (d) 15 cm. x 15 cm. for M₂. (e) 3 to 4. for M₃ (f) 184'5 Q/ha. of Cowdung. (vi) As. 86 *Rangadoria*. (vii) Unirrigated. (viii) 3-4 hand weedings. (ix) N.A. (x) 19.8, 63.
2. TREATMENTS

2 methods of sowing: M₁ = Broadcasting and M₂ = Transplanting.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9·5 m. x 9·5 m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) to (c) No. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 2387 Kg/ha. (ii) 1478 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>M₁</th>
<th>M₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>2274</td>
<td>2500</td>
</tr>
</tbody>
</table>

**Crop:** Paddy (Kharif). **Ref:** As. 61(5), 62(4) and 63(7).

**Site:** Rice Res. Stn., Titabar. **Type:** 'C'.

Object — To compare the effect of Japanese and Thakersy methods of cultivation on the yield of Sali Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Maize paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 24.8.61 ; 16.8.62 ; 24.8.63. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) and (e) As per treatments. (v) N.A. (vi) Sc. 406 (b) 93-1 (early). (vii) Unirrigated. (viii) As per treatments. (ix) N.A.; 94·3 cm.; N.A. (x) 20.12.61 ; 27.12.62 ; 2.12.63.

2. TREATMENTS:

2 methods of cultivation: M₁ = Thakersy method—thin sowing of seedlings, planting 1 seedling/hole with 15 cm. x 15 cm. spacing, cutting the plants and leaving 15 cm. from the ground one month after planting, 184·5 Q/ha. of Cowdung applied and planting and weeding done one month after planting and M₂ = Japanese method—Japanese method of sowing seedlings, planting 4 seedlings/hole with 23 cm. x 23 cm. spacing, manure applied as in Japanese method, interculturing, manuring and weeding done one month after planting.

Details of manuring: N.A.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) 6·1 m. x 9·1 m. (b) 5·9 m. x 9·0 m. (v) 7·8 cm. left around the net plot. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-63. (b) Yes. (c) Results of combined analysis are given under 5-Results. (v) No. (vi) Nil. (vii) Error variances are homogeneous and Treatments x years interaction is absent.

5. RESULTS:

Pooled results

(i) 2783 Kg/ha. (ii) 152·0 Kg/ha. (based on 8 d.f. made up of pooled error and Treatments x years interaction. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>M₁</th>
<th>M₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>2855</td>
<td>2711</td>
</tr>
</tbody>
</table>
Individual results
Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>M1</th>
<th>M2</th>
<th>Significance</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>2746</td>
<td>2464</td>
<td>*</td>
<td>2605</td>
<td>34'8</td>
</tr>
<tr>
<td>1962</td>
<td>3667</td>
<td>3579</td>
<td>N.S.</td>
<td>3623</td>
<td>215'2</td>
</tr>
<tr>
<td>1963</td>
<td>2152</td>
<td>2089</td>
<td>N.S.</td>
<td>2121</td>
<td>152'8</td>
</tr>
<tr>
<td>Pooled</td>
<td>2855</td>
<td>2711</td>
<td>N.S.</td>
<td>2783</td>
<td>152'0</td>
</tr>
</tbody>
</table>

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

Object : To compare the effect of different methods of cultivation on the yield of Sali paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Ahu paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 25.7.60; 5 to 7.7.61. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) and (e) As per treatments. (v) N.A.; 184.5 Q/ha. of Cow-dung. (vi) Sc. 406 (b)/93-1 (early). (vii) Unirrigated. (viii) 2 to 4 weedings by Japanese weeder. (ix) N.A. (x) 29.11.60; 30.11.61 to 2.12.61.

2. TREATMENTS:
3 methods of cultivation: M1 = Chinese method—15 cm. x 15 cm. spacing and 2 seedlings/hole, M2 = Japanese method—25 cm. x 25 cm. spacing and 4 seedlings/hole and M3 = Country method—23 cm. x 23 cm. spacing and 3 to 4 seedlings/hole.

3. DESIGN:
   (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 9'1 m. x 9'1 m. (b) 8'9 m. x 8'9 m. (v) 11 cm. discarded around the net plot. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1959—61. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) Karimganj. (vi) Nil. (vii) Experiment for 1959 has also been considered for pooling the results. Error variances are homogeneous and Treatments x years interaction is present.

5. RESULTS:
Pooled results
(i) 2882 Kg/ha. (ii) 683'3 Kg/ha. (based on 4 d.f. made up of Treatments x years interaction. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>2758</td>
<td>3013</td>
<td>2876</td>
</tr>
</tbody>
</table>

Individual results
Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>Significance</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
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<tbody>
<tr>
<td>1960</td>
<td>2561</td>
<td>2656</td>
<td>2430</td>
<td>N.S.</td>
<td>2549</td>
<td>317'8</td>
</tr>
<tr>
<td>1961</td>
<td>2558</td>
<td>2387</td>
<td>2625</td>
<td>N.S.</td>
<td>2523</td>
<td>470'8</td>
</tr>
<tr>
<td>Pooled</td>
<td>2758</td>
<td>3013</td>
<td>2876</td>
<td>N.S.</td>
<td>2882</td>
<td>683'3</td>
</tr>
</tbody>
</table>
Crop: Paddy (Kharif).

Object: To study the effect of different numbers of seedling with different spacings on the yield of Paddy.

1. BASAL CONDITIONS:
   (i) (a) N: 1 lb P. (b) C: N.A. (c) Sandy loam. (ii) 12.6.64; 15.6.65. (iv) (a) Ploughing followed by ladderin:. (c) N.A. (d) and (e) As per treatments. (v) 92.2 Q/ha. of Cowdung + 4'S Kg/ha. of N as A S – 33.6 Kg/ha. of P_2O_5 as Super + 33.6 Kg/ha. of K_2O as Mur. Pot. (vi) Khonorui. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 13 and 14.11.64; 20.11.65.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 3 numbers of seedlings/hole: R_1 = 2, R_2 = 3 and R_3 = 4 seedlings/hole.
   (2) 5 spacings: S_1 = 10 cm. x 10 cm., S_2 = 15 cm. x 15 cm., S_3 = 20 cm. x 20 cm., S_4 = 25 cm. x 25 cm. and S_5 = 30 cm. x 30 cm.

3. DESIGN:
   (i) 5 x 3 Factor. in R.B.D. (ii) (c) 15. (b) N.A. (iii) 3. (iv) (a) 3'1 m. x 3'4 m. (b) 2'7 m. x 3'1 m. (v) 15 cm. discarded around. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964—67. (b) No. (c) Results *of combined as well as individual results are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments x years interaction is absent.

3. RESULTS:
   Pooled results
   (i) 2473 Kg/ha. (ii) 741'4 Kg/ha. (based on 70 d.f. made up of pooled error and Treatments x years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>S_1</th>
<th>S_2</th>
<th>S_3</th>
<th>S_4</th>
<th>S_5</th>
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<td>2351</td>
<td>2441</td>
<td>2391</td>
<td>2103</td>
<td>2379</td>
</tr>
<tr>
<td>R_2</td>
<td>2576</td>
<td>2425</td>
<td>2782</td>
<td>2265</td>
<td>2471</td>
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<td>2597</td>
<td>2626</td>
<td>2757</td>
<td>2560</td>
<td>2140</td>
<td>2536</td>
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</table>

Mean 2594 2467 2660 2406 2238 2473

Individual results
Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>S_1</th>
<th>S_2</th>
<th>S_3</th>
<th>S_4</th>
<th>S_5</th>
<th>Sig.</th>
<th>R_1</th>
<th>R_2</th>
<th>R_3</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./lot</th>
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<td>2891</td>
<td>2691</td>
<td>2652</td>
<td>2372</td>
<td>2609</td>
<td>N.S.</td>
<td>2549</td>
<td>2647</td>
<td>2734</td>
<td>N.S.</td>
<td>2643</td>
<td>850 4</td>
</tr>
<tr>
<td>1965</td>
<td>2294</td>
<td>2244</td>
<td>2667</td>
<td>2439</td>
<td>1867</td>
<td>N.S.</td>
<td>2208</td>
<td>2361</td>
<td>2338</td>
<td>N.S.</td>
<td>2302</td>
<td>667 6</td>
</tr>
<tr>
<td>Pooled</td>
<td>2594</td>
<td>2467</td>
<td>2660</td>
<td>2406</td>
<td>2238</td>
<td>N.S.</td>
<td>2379</td>
<td>2504</td>
<td>2536</td>
<td>N.S.</td>
<td>2473</td>
<td>741 1</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).
Site: Agri. College, Jorhat.

Object: To study the effect of storing uprooted seedlings for different durations on the growth and yield of two varieties of Sali Paddy.

Ref: As. 64(35). Type: 'CV'.

Ref: As. 64(23) and 65(29). Type: 'C'.
1. BASAL CONDITIONS:
   (i) (a) Nil. (b) G.M. crop. (c) Nil. (ii) Sandy loam. (iii) 5, 8, 11 and 14.8.64. (iv) (a) 4 ploughings followed by laddering. (b) Transplanting. (c) N.A. (d) 25 cm. x 25 cm. (e) 4. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding. (ix) 158.2 cm. (x) 1st week of December, 64.

2. TREATMENTS:
   Main-plot treatments:
   2 varieties: V1=Satiya Sali and V2=Prosadbhog.

   Sub-plot treatments:
   2 methods of storing seedlings: S1=In water and S2=In mud.

   Sub-sub-plot treatments:
   4 durations of storage of seedlings: D0=0, D1=3, D2=6 and D3=9 days.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/replication, 2 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) N.A. (iii) 4. (iv) (a) 0.1983 ha. (b) 3.2 m. x 7.1 m. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c)-(v) No. (vi) N.A. (vii) Nil.

5. RESULTS:
   (i) 2837 Kg/ha. (ii) (a) 276.6 Kg/ha. (b) 832.5 Kg/ha. (c) 674.4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>V1</th>
<th>V2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0</td>
<td>2779</td>
<td>2762</td>
</tr>
<tr>
<td>D1</td>
<td>2929</td>
<td>2926</td>
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<tr>
<td>D2</td>
<td>2804</td>
<td>2699</td>
</tr>
<tr>
<td>D3</td>
<td>2927</td>
<td>2746</td>
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<tr>
<td>S1</td>
<td>2869</td>
<td>2587</td>
</tr>
<tr>
<td>S2</td>
<td>2739</td>
<td>2751</td>
</tr>
<tr>
<td>Mean</td>
<td>2800</td>
<td>2747</td>
</tr>
</tbody>
</table>

   Crop :- Paddy (Kharif).
   Site :- Rice Res. Stn., Titabar.
   Object :- To study the effect of double transplanting on the yield of three varieties of Sali Paddy transplanted by different methods.

   Ref :- As. 63(6) and 64(5).
   Type :- ‘CV’.
Sub-sub-plot treatments:
3 methods of planting: M_1 = Local method of planting (triangular), M_2 = Line planting without using Japanese paddy weeder, and M_3 = Line planting with the use of Japanese paddy weeder.

3. DESIGN:
(i) Split-plot. (a) 3 main-plots rep., 3 sub-plots/main-plot and 3 sub-sub-plots/sub-plot. (b) N.A. (iii)
(ii) 24^\circ 00 for 63; (a) and (b) 9.0 m. x 4.5 m. for 64; (v) N.A. (vi) Yes.

4. GENERAL:
(i) Poor; Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963—64. (b) Yes. (c) Nil. (v) No. (vi) N.A.
(vii) Main-plot and sub-plot error variances are homogeneous. Sub-sub-plot error variances are heterogeneous. The results of individual years are given under 5. Results.

5. RESULTS:
63(6)
(i) 878 Kg/ha. (ii) (a) 963 Kg/ha. (b) 1729 Kg/ha. (c) 1112 Kg/ha. (iii) Main effect of D is highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>D_1</th>
<th>D_2</th>
<th>D_3</th>
<th>M_1</th>
<th>M_2</th>
<th>M_3</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td>V_1</td>
<td>881</td>
<td>733</td>
<td>1083</td>
<td>898</td>
<td>980</td>
<td>819</td>
</tr>
<tr>
<td>V_2</td>
<td>1161</td>
<td>453</td>
<td>1004</td>
<td>823</td>
<td>939</td>
<td>856</td>
</tr>
<tr>
<td>V_3</td>
<td>922</td>
<td>642</td>
<td>1025</td>
<td>844</td>
<td>856</td>
<td>889</td>
</tr>
<tr>
<td>Mean</td>
<td>988</td>
<td>609</td>
<td>1038</td>
<td>855</td>
<td>925</td>
<td>855</td>
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<td>M_1</td>
<td>943</td>
<td>609</td>
<td>1013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M_2</td>
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<td>634</td>
<td>1087</td>
<td></td>
<td></td>
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<tr>
<td>M_3</td>
<td>967</td>
<td>585</td>
<td>1012</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

C.D. for D marginal means = 141.0 Kg/ha.

64(5)
(i) 4551 Kg/ha. (ii) (a) 5139 Kg/ha. (b) 3483 Kg/ha. (c) 6345 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>D_1</th>
<th>D_2</th>
<th>D_3</th>
<th>M_1</th>
<th>M_2</th>
<th>M_3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_1</td>
<td>4461</td>
<td>4016</td>
<td>4828</td>
<td>4414</td>
<td>4403</td>
<td>4578</td>
</tr>
<tr>
<td>V_2</td>
<td>4661</td>
<td>4622</td>
<td>4798</td>
<td>4644</td>
<td>4677</td>
<td>4760</td>
</tr>
<tr>
<td>V_3</td>
<td>4678</td>
<td>4198</td>
<td>4602</td>
<td>4465</td>
<td>4511</td>
<td>4502</td>
</tr>
<tr>
<td>Mean</td>
<td>4600</td>
<td>4309</td>
<td>4743</td>
<td>4508</td>
<td>4530</td>
<td>4614</td>
</tr>
<tr>
<td>M_1</td>
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<td>4097</td>
<td>5065</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>M_2</td>
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<td>4469</td>
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</tr>
<tr>
<td>M_3</td>
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<td>4360</td>
<td>4694</td>
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</tr>
</tbody>
</table>
Crop : Paddy (Kharif).
Ref : As. 64(21) and 65(28).
Type :’CV’.

Object : To study the effect of different methods of sowing on the yield of three varieties of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 16.4.64 ; 12.4.65. (iv) (a) Hoeing and pulverizing. (b) As per treatments. (c) N.A. (d) 15 cm. x 15 cm. (e) N.A. (v) 368.9 Q/ha. of Cowdung + 44.8 Kg/ha. of N as A/S + 33.6 Kg/ha. of P₂O₅ as Super. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 7.11.64 ; 6.11.65.

2. TREATMENTS:
All combinations of (1) and (2)
(1) 2 methods of sowing: M₁=Dibbling and M₂=Line sowing.
(2) 3 varieties: V₁=Khonorello, V₂=Tangla and V₃=Abor. A.

3 DESIGN:
(i) 2 x 3 Fact. in R.B.D. (ii) (a) 6., (b) 9'1 m. x 6'1 m. (iii) 3. (iv) (a) and (b) 3'1 m. x 3'1 m. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964–65. (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments x years interaction is absent.

5. RESULTS:
Pooled results.
(i) 1554 Kg/ha. (ii) 355.0 Kg/ha. (based on 25 d.f. made up of pooled error and Treatments x years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
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<td>M₁</td>
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<td>1574</td>
<td>1661</td>
<td>1604</td>
</tr>
<tr>
<td>M₂</td>
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<tr>
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<td>1587</td>
<td>1483</td>
<td>1593</td>
<td>1554</td>
</tr>
</tbody>
</table>

Individual results.

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>M₁</th>
<th>M₂</th>
<th>Sig.</th>
<th>V₁</th>
<th>V₂</th>
<th>V₃</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>1533</td>
<td>1406</td>
<td>N.S.</td>
<td>1649</td>
<td>1297</td>
<td>1464</td>
<td>N.S.</td>
<td>1470</td>
<td>387.1</td>
</tr>
<tr>
<td>1965</td>
<td>1675</td>
<td>1603</td>
<td>N.S.</td>
<td>1525</td>
<td>1669</td>
<td>1722</td>
<td>N.S.</td>
<td>1639</td>
<td>279.9</td>
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<tr>
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<td>1504</td>
<td>N.S.</td>
<td>1587</td>
<td>1483</td>
<td>1593</td>
<td>N.S.</td>
<td>1554</td>
<td>3550</td>
</tr>
</tbody>
</table>

Crop : Paddy (Kharif).
Site : Agri. College, Jorhat.
Ref : As. 63(39).
Type :’CM’.

Object : To study the effect of dates of planting, different spacings and levels of N on the growth and yield of Sali Paddy.
1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Potato. (c) N.A. (ii) Sandy loamy. (iii) As per treatments. (iv) (a) 2 ploughings. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 3. (v) 138.3 Q/ha. of Cowdung +22.4 Kg/ha. of P2O5 as Super. (vi) Hati Sali. (vii) Unirrigated. (viii) Nil. (ix) 180.2 cm. (x) 16, 17.12.63.

2. TREATMENTS:
   Main-plot treatments:
   2 dates of planting: \( D_1 = 16.7.63 \) and \( D_2 = 16.8.63 \).
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 levels of N as A.S: \( N_0 = 0, N_1 = 33.6 \) and \( N_2 = 67.2 \) Kg/ha.
   (2) 3 spacings: \( S_1 = 15 \text{ cm} \times 15 \text{ cm} \), \( S_2 = 23 \text{ cm} \times 23 \text{ cm} \) and \( S_3 = 30 \text{ cm} \times 30 \text{ cm} \).

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots, replication and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 0.1902 ha. (b) 0.1578 ha. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Copper fungicide sprayed twice in the month of September, 1963. (iii) Grain yield. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:
   (i) 2579 Kg/ha. (ii) (a) 490.7 Kg/ha. (b) 269.3 Kg/ha. (iii) Main effect of S and interactions D\( \times \)S and D\( \times \)S\( \times \)N are highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>( N_0 )</th>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
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<td>2693</td>
<td>2315</td>
<td>2312</td>
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<td>( D_2 )</td>
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<td>2476</td>
<td>2613</td>
<td>2702</td>
<td>2421</td>
<td>2579</td>
</tr>
</tbody>
</table>

C.D. for S marginal means: \( = 182.9 \) Kg/ha.
C.D. for S means at the same level of D: \( = 258.7 \) Kg/ha.
C.D. for D means at the same level of S: \( = 609.1 \) Kg/ha.

---

**Crop**: Paddy (Kharij).

**Type**: 'CM'.

Object:—To ascertain the best cultural practices as regards dates of sowing, seed rates and levels of fertilizers for short duration and Aus Paddy, sown as broadcast.

---

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (d) As per treatments. (ii) Clayey loam (acidic). (iii) As per treatments. (iv) (a) Ploughings, laddering, and puddling, etc. (b) Broadcast. (c) As per treatments. (d) and (e) —. (v) Nil. (vi) M. 142—Koimura (early). (vii) Unirrigated. (viii) 1 weeding. (ix) 276.9 cm., N.A. (x) 1.7.64, 31.7.64 and 29.8.64; 13.7.65, 9.8.65 and 3.9.65.
2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 dates of sowing: $D_1$=Early, $D_2$=Normal and $D_3$=Late sowing.
(2) 3 seed rates: $R_1=67.2$, $R_2=89.6$ and $R_3=112.0$ Kg/ha.
(3) 3 levels of fertilizers: $F_1=44.8$ Kg/ha. of $N+22.4$ Kg/ha. of $P_2O_5+22.4$ Kg/ha. of $K_2O$, $F_2=67.2$ Kg/ha. of $N+33.6$ Kg/ha. of $P_2O_5+33.6$ Kg/ha. of $K_2O$ and $F_3=2F_1$.
Form of fertilizers: N as A/S, $P_2O_5$ as Super, and $K_2O$ as Mur. Pot.

3. DESIGN:
(i) 3's confd. (ii) (a) 9 plots/block and 3 blocks/rep. (b) N.A. (iii) 2. (iv) (a) and (b) 3'8 m.$\times$3'1 m. (v) Nil. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Negligible; N.A. (iii) Grain yield. (iv) (a) 1964-65. (b) Yes. (c) Results of individual as well as combined analysis are presented under 5. Results. (v) No. (vi) Nil. (vii) Error variances are homogeneous and Treatments $\times$ years interaction is absent.

5. RESULTS:
Pooled results.
(i) 1855 Kg/ha. (ii) 327.3 Kg/ha. (based on 62 d.f. made up of pooled error and Treatments $\times$ years interaction). (iii) Only the main effect of D is highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>$F_1$</th>
<th>$F_2$</th>
<th>$F_3$</th>
<th>$R_1$</th>
<th>$R_2$</th>
<th>$R_3$</th>
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<tr>
<td>$D_2$</td>
<td>1848</td>
<td>1812</td>
<td>1882</td>
<td>1855</td>
<td>1880</td>
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<td>$D_3$</td>
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<td>1796</td>
<td>1889</td>
<td>1761</td>
<td>1929</td>
<td>1875</td>
<td>1855</td>
</tr>
</tbody>
</table>

C.D. for D marginal means=154.3 Kg/ha.

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>$F_1$</th>
<th>$F_2$</th>
<th>$F_3$</th>
<th>Sig.</th>
<th>$D_1$</th>
<th>$D_2$</th>
<th>$D_3$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>2095</td>
<td>2051</td>
<td>2082</td>
<td>N.S.</td>
<td>2141</td>
<td>2168</td>
<td>1929</td>
<td>N.S.</td>
</tr>
<tr>
<td>1965</td>
<td>1665</td>
<td>1531</td>
<td>1697</td>
<td>N.S.</td>
<td>1926</td>
<td>1527</td>
<td>1440</td>
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<tr>
<td>Pooled</td>
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<td>1796</td>
<td>1889</td>
<td>N.S.</td>
<td>2033</td>
<td>1847</td>
<td>1684</td>
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<table>
<thead>
<tr>
<th>Years</th>
<th>$R_1$</th>
<th>$R_2$</th>
<th>$R_3$</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
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<tr>
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<td>1959</td>
<td>2177</td>
<td>2102</td>
<td>N.S.</td>
<td>2079</td>
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<td>289.1</td>
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<td>1929</td>
<td>1873</td>
<td>N.S.</td>
<td>1855</td>
<td>327.3</td>
</tr>
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</table>
Crop :- Paddy (Arid).

Site :- Rice Res. Sta., Titabar.

Object :- To study the effect of dates of planting, spacings and level of N, P and K on the yield of Sali Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Ahu Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) As per treatments. (iv) (a) 3-4 ploughings. (b) Transplanting of 30 days old seedlings. (c) N.A. (d) As per treatments. (e) 2-3. (v) N.A. (vi) Se.-121, 125. (vii) Unirrigated. (viii) 2-3 weedings. (ix) N.A. (x) 22, 23.12.65.

2. TREATMENTS:

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

(1) 3 dates of planting : D_1 = 14.7.65, D_2 = 3.8.65 and D_3 = 24.8.65.
(2) 3 spacings : S_1 = 23 cm. x 23 cm., S_2 = 30 cm. x 30 cm. and S_3 = 38 cm. x 38 cm.
(3) 3 levels of manuring : M_1 = N.A., M_2 = 22.4 Kg/ha as Super, M_3 = 2 × M_1.

Method of application : ½ N, P_2O_5 and K_2O applied before transplanting and ½ N applied after transplanting.

3. DESIGN:

(i) 3\(^{rd}\) partially confld. (ii) 9 plots block and 3 blocks/rep. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 4.3 m. x 8.8 m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Normal (ii) N.A. (iii) Grain yield. (iv) (a) and (b) N.A. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 2920 Kg/ha. (ii) 40.3 Kg/ha. (iii) Main effect of M and interaction D × M are significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>M_4</th>
<th>M_5</th>
<th>M_7</th>
<th>S_1</th>
<th>S_2</th>
<th>S_3</th>
<th>Mean</th>
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<tbody>
<tr>
<td>D_1</td>
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<td>3186</td>
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<td>2990</td>
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<tr>
<td>D_3</td>
<td>2308</td>
<td>2990</td>
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<td>2830</td>
<td>2713</td>
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<td>Mean</td>
<td>2647</td>
<td>2953</td>
<td>3160</td>
<td>2962</td>
<td>2925</td>
<td>2872</td>
<td>2920</td>
</tr>
</tbody>
</table>

C.D. for M marginal means = 278.8 Kg/ha.
C.D. for means in D × M table = 462.9 Kg/ha.

---

Crop :- Paddy (Arid).

Site :- Rice Res. Sta., Titabar.

Object :- To study the effect of different levels of A/S and different spacings on the yield of Boro Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 1st week of February, 1965. (iv) (c) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 2. (v) 33.6 Kg/ha. of P_2O_5 as Super. (vi) Topd.-re. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 3rd week of May, 1965.
2. TREATMENTS:

Treatments in one direction:

- 4 levels of N as A/S: \( N_0 = 0 \), \( N_1 = 22.4 \), \( N_2 = 44.8 \) and \( N_3 = 67.2 \) Kg/ha.

Treatments in orthogonal direction:

- 3 spacings: \( S_1 = 15 \) cm \( \times \) \( 15 \) cm, \( S_2 = 23 \) cm \( \times \) \( 23 \) cm, and \( S_3 = 30 \) cm \( \times \) \( 30 \) cm.

3. DESIGN:

(i) Strip-plot. (ii) (a) 12 plots/replication. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/246.9 ha. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Poor. (ii) N.A. (iii) Yield of grain. (iv) (a) No. (b) and (c) = (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 542 Kg/ha. (ii) (a) 185.2 Kg/ha. (for N). (b) 111.1 Kg/ha. (for S). (c) 108.6 Kg/ha. (for \( N \times S \)). (iii) Main effect of S is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>( N_0 )</th>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( N_3 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( S_1 )</td>
<td>494</td>
<td>691</td>
<td>642</td>
<td>815</td>
</tr>
<tr>
<td>( S_2 )</td>
<td>329</td>
<td>461</td>
<td>576</td>
<td>658</td>
</tr>
<tr>
<td>( S_3 )</td>
<td>362</td>
<td>379</td>
<td>527</td>
<td>576</td>
</tr>
<tr>
<td>Mean</td>
<td>395</td>
<td>510</td>
<td>582</td>
<td>683</td>
</tr>
</tbody>
</table>

C.D. for S marginal means = 125.9 Kg/ha.

---

Crop :- Paddy (Kharif).

Ref :- As. 63(2) and 64(4).

Site :- Rice Res. Stn., Titabar.

Type :- 'CM'.

Object :- To study the effect of methods of sowing and time of application of Nitrogen on the yield of \( \text{Ahu Paddy} \).

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sali paddy. (c) N.A. (ii) Heavy clayey loam. (iii) Middle of March, 63; Middle of March, 64. (iv) (a) 3-4 ploughings. (b) As per treatments. (c) 91 Kg/ha. for broadcasting; N.A. for line sowing. (d) Rows 15 cm. apart for the line sowing (e) Nil. (f) Nil. (vi) Ranggahoria. (vii) Unirrigated. (viii) 3-4 hand weedicings. (ix) N.A. for 63; 81.7 cm. for 64. (x) July, 1963; July, 1964.

2. TREATMENTS:

Main-plot treatments:

- 2 methods of sowing: \( M_1 = \text{Line sowing and } M_2 = \text{Broadcasting} \).

Sub-plot treatments:

- 4 times of application of N as A/S: \( T_1 = \text{Control, } T_2 = 44.8 \) Kg/ha. of N applied 4 days before sowing, \( T_3 = 44.8 \) Kg/ha. of N dose applied 4 days before sowing and 1/2 dose applied 20 days after sowing, \( T_4 = 44.8 \) Kg/ha. of N dose applied 4 days before, 1/2 dose applied 20 days after sowing and 1/2 dose applied 35 days after sowing.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main plots/replication and 4 sub-plots/main plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 91 m. \( \times \) 49 m. for 63 and 1/249.7 ha. for 64. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Poor. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963-64. (b) Yes. (c) Nil. (v) No. (vi) N.A. (vii) Main-plot error variances are homogeneous. Sub-plot error variances are heterogeneous. The results of individual experiments are given under 5 Results.
5. RESULTS:

63(2)

(i) 1956 Kg/ha. (ii) (a) 331·1 Kg/ha. (b) 304·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>Tₕ</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mₛ</td>
<td>2146</td>
<td>1897</td>
<td>2027</td>
<td>1857</td>
<td>1982</td>
</tr>
<tr>
<td>Mₛ</td>
<td>1830</td>
<td>1620</td>
<td>2127</td>
<td>2146</td>
<td>1931</td>
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<tr>
<td>Mean</td>
<td>1988</td>
<td>1758</td>
<td>2076</td>
<td>2002</td>
<td>1956</td>
</tr>
</tbody>
</table>

64(4)

(i) 2047 Kg/ha. (ii) (a) 89·9 Kg/ha. (b) 147·9 Kg/ha. (iii) Main effect of T is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>Tₕ</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td>Mₛ</td>
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<td>2197</td>
<td>2072</td>
<td>2014</td>
</tr>
<tr>
<td>Mₛ</td>
<td>2046</td>
<td>1930</td>
<td>2197</td>
<td>2147</td>
<td>2080</td>
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<td>Mean</td>
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<td>1968</td>
<td>2197</td>
<td>2110</td>
<td>2047</td>
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</table>

C.D. for T marginal means = 186·9 Kg/ha.

Crop: Paddy (Kharif).  Ref: As. 61, 62, 63, 64, 65(M.A.E.).

Site: M.A.E. Centre, Titabar.  Type: ‘CM’.

Object:—Type VII: To study the effect of different dates of sowing, spacings, number seedlings per hole along with different levels of N and P on the yield of Paddy.

1. BASAL CONDITIONS:

   (i) (a) N.A. (ii) Old alluvium. (iii) As per treatments.  (iv) (a) and (b) N.A.  (c) to (e) As per treatments.  (v) N.A.  (vi) Proasabhog  (vii) L irrigated.  (viii) to (x) N.A.

2. TREATMENTS:

   Main-plot treatments:

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

   (1) 3 dates of sowing: D₁ = 15 days before normal, D₂ = Normal and D₃ = 15 days after normal.

   (2) 3 spacings: S₁ = 20·3 cm. x 20·3 cm., S₂ = 25·4 cm. x 25·4 cm. and S₃ = 30·5 cm. x 30·5 cm.

   (3) 3 numbers of seedlings per hole: R₁ = 1, R₂ = 2 and R₃ = 3.

Sub-plot treatments:

All combinations of (1) and (2)

(1) 2 levels of N as A/S: N₀ = 0 and N₁ = 44·8 Kg/ha.

(2) 2 levels of P₀ as Super: P₀ = 0 and P₁ = 44·8 Kg/ha.

3. DESIGN:

   (i) Split-plot confd.  (ii) (a) 3 blocks/replication, 9 main-plots/block and 4 sub-plots/main-plot.  (iii) 1

(iv) (a) 10·1 m. x 5·0 m.  (b) 9·5 m. x 4·4 m.  (v) 30 cm. on all sides.  (vi) Yes.

4. GENERAL:

   (i) Satisfactory.  (ii) N.A.  (iii) Yield of grain.  (iv) (a) 1961-cond  (b) Yes.  (c) Nil.  (v) and (vi) N.A.  (vii) Nil.
5. RESULTS:

1961

(i) 2408 Kg/ha. (ii) (a) 377·2 Kg/ha. (b) 392·0 Kg/ha. (iii) Main effects of N and P are significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( \bar{D}_1 )</th>
<th>( \bar{D}_2 )</th>
<th>( \bar{D}_4 )</th>
<th>Mean yield</th>
<th>( S_1 )</th>
<th>( S_2 )</th>
</tr>
</thead>
<tbody>
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<td>2404</td>
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<td>2432</td>
<td>2404</td>
<td>2388</td>
<td>N.S.</td>
<td>N.S.</td>
</tr>
<tr>
<td></td>
<td>2268</td>
<td>2548</td>
<td>*</td>
<td>2305</td>
<td>2511</td>
<td>*</td>
</tr>
</tbody>
</table>

C.D. for N or P marginal means = 184 Kg/ha.

1962

(i) 2745 Kg/ha. (ii) (a) 799·1 Kg/ha. (b) 615·6 Kg/ha. (iii) Main effect of P alone is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( \bar{D}_1 )</th>
<th>( \bar{D}_2 )</th>
<th>( \bar{D}_4 )</th>
<th>Mean yield</th>
<th>( S_1 )</th>
<th>( S_2 )</th>
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<td>N.S.</td>
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<tr>
<td></td>
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<td>2839</td>
<td>*</td>
<td>2596</td>
<td>2893</td>
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</tbody>
</table>

C.D. for P marginal means = 240·6 Kg/ha.

1963

(i) 2479 Kg/ha. (ii) (a) 621·5 Kg/ha. (b) 475·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( \bar{D}_1 )</th>
<th>( \bar{D}_2 )</th>
<th>( \bar{D}_4 )</th>
<th>Mean yield</th>
<th>( S_1 )</th>
<th>( S_2 )</th>
</tr>
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<td></td>
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<tr>
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<td>N.S.</td>
<td>N.S.</td>
</tr>
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<td>2449</td>
<td>N.S.</td>
<td>2517</td>
<td>2441</td>
<td>N.S.</td>
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</tbody>
</table>

1964

(i) 3988 Kg/ha. (ii) (a) 250·8 Kg/ha. (b) 376·8 Kg/ha. (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( \bar{D}_1 )</th>
<th>( \bar{D}_2 )</th>
<th>( \bar{D}_4 )</th>
<th>Mean yield</th>
<th>( S_1 )</th>
<th>( S_2 )</th>
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</tbody>
</table>

C.D. for N or P marginal means = 176 Kg/ha.

1965

(i) 2775 Kg/ha. (ii) (a) and (b) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.
Crop: Paddy (Kharif).
Site: Agri. College, Jorhat.

Object: To study the effect of varieties, levels of nitrogen and planting densities on the growth and yield of Sali Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Dhaincha. (c) Nil. (ii) Sandy loam. (iii) 21.7.65. (iv) (a) 2 ploughings followed by
   laddering. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 4.52.2 Q/ha. of cowdung +33.6 Kg/ha.
   of P_2O_5 as Super+33.6 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated.
   (viii) One weeding. (ix) 142.6 cm (x) 14, 15.12.65.

2. TREATMENTS:
   Main-plot treatments:
   3 varieties: V_1 =SC-412/125, V_2 =Prosudbhog and V_3 =SC-406(b)/93-1.
   Sub-plot treatments:
   All combinations of (1) and (2)
   (1) 3 spacings: S_1 =15 cm. x 15 cm., S_2 =23 cm. x 23 cm. and S_3 =30 cm. x 30 cm.
   (2) 3 levels of N as A/S: N_1 =0, N_2 =33.6 and N_3 =67.2 Kg/ha.

3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and
   (b) 0.7354 ha. (v) Nil. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) Gueterol 550 sprayed to control Hispa, Stem borer, etc. (iii) Grain yield. (iv) (a) No.
   (b) and (c) = (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:
   (i) 4018 Kg/ha. (ii) 822-4 Kg/ha. (b) 382-9 Kg/ha. (iii) Main effects of N and S are highly significant.
   Main effect of V and interaction V x N are significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>S_1</th>
<th>S_2</th>
<th>S_3</th>
<th>N_1</th>
<th>N_2</th>
<th>N_3</th>
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<td>5005</td>
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<tr>
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<td>3616</td>
<td>3764</td>
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</tr>
<tr>
<td>Mean</td>
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</tr>
<tr>
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</tr>
<tr>
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</tbody>
</table>
Crop: Paddy (Kharif).
Site: Agri. College, Jorhat.

Object: To study the response of three Sali Paddy varieties to two sources of nitrogenous fertilizers and three different planting rates of seedlings.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Dhaincha. (c) Nil. (ii) Sandy loam. (iii) 26.7.65. (iv) 3 ploughings followed by ladder ing. (b) Transplanting. (c) —. (d) 23 cm x 23 cm. (e) As per treatments. (v) 92 Q/ha of F.Y.M. + 22.4 Kg/ha of P₂O₅ as Superphosphate and 22.4 Kg/ha of K₂O as Muriate of Potash. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) 142.6 cm. (x) 14/15/12.65 and 22.12.65.

2. TREATMENTS:
Main-plot treatments:

Sub-plot treatments:
All combinations of (1) and (2).
(1) 2 sources of N at 33.6 Kg/ha. S₁ = A/Sand S₂ = Urea.
(2) 3 seedling rates: R₁ = 2, R₂ = 4 and R₃ = 6 seedlings per hole.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/replcation and 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 1/588.2 ha. (b) 1/430.9 ha. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) Guesarol-550 sprayed during August, 1965 as a preventive against paddy case worm and stem-borer. (iii) Grain yield. (iv) (b) No. (b) and (c) —. (v) (a) Yes. (vi) N.A. (vii) Nil.

5. RESULTS:
(i) 3980 Kg/ha. (ii) (a) 5143 Kg/ha. (b) 6352 Kg/ha. (iii) None of the effects is significant. (iv) Av.

<table>
<thead>
<tr>
<th></th>
<th>R₁</th>
<th>R₂</th>
<th>R₃</th>
<th>S₁</th>
<th>S₂</th>
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<td>4170</td>
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</tbody>
</table>
Crop : Paddy (Kharif).
Ref : As. 63(19), 64(16) and 65(11).
Site : Rice Exptl. Stn., Karimganj.
Type : 'CMV'.

Object : To study the effect of different dates of planting under normal and heavy doses of manuring on the yield of different varieties of Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil.  (b) Paddy.  (c) N.A. for 63 and as per treatments for others.  (ii) Clayey loam (acidic).  (iii) As per treatments.  (iv) (a) Ploughing, laddering, and puddling etc.  (b) Transplanting.  (c) N.A.  (d) 23 cm.
   (e) 4.  (v) N.A.  (vi) As per treatments.  (vii) Unirrigated.  (viii) 2 weedings.  (ix) 16·8 cm; 148·3 cm; N.A.  (x) Dec., 63; Dec., 64; Dec., 65.

2. TREATMENTS:
   Main-plot treatments:
   All combinations of (1) and (2).
   (1) 3 dates of planting:  \( D_1 = \) Early planting, \( D_2 = \) Normal planting and \( D_3 = \) Late planting.
   (2) 2 levels of manuring:  \( F_1 = 44·8 \) Kg/ha. of N + 22·4 Kg/ha. of P + 11·2 Kg/ha. of K and \( F_2 = 89·6 \) Kg/ha. of N + 67·2 Kg/ha. of P + 44·8 Kg/ha. of K.

   Sub-plot treatments:
   6 varieties:  \( V_1 = Z x H_1 - 113, V_2 = Z x H_1 - 443, V_3 = Z x H_2 - 379, V_4 = Z x H_2 - 381, V_5 = Z x H_3 - 166 \) and \( V_6 = \) Sc. 1177-6 (Handique Sail).

   Note 1:  \( V_1 \) to \( V_6 \) are Indica \( \times \) Japanica hybrids and \( V_6 \) is a Indica variety.

   Note 2:  Dates of planting:  \( D_1 = 5.8.63, 21.8.63 \) and \( 14.8.65, D_2 = 24.7.64, 23.8.64 \) and \( 15.7.65, D_3 = 15.9.65 \).

3. DESIGN:
   (i) Split-plot.  (ii) 6 main-plots/replication and 6 sub-plots/main-plot.  (b) N.A.  (iii) 3·4 m. \( \times \) 2·5 m.  (iv) (a) and (b) 3·4 m. \( \times \) 2·5 m.  (v) Nil.  (vi) Yes.

4. GENERAL:
   (i) Good.  (ii) Negligible.  (iii) Grain yield.  (iv) (a) 1963-65.  (b) Yes.  (c) Nil.  (v) No.  (vi) Nil.
   (vii) As the dates of sowing are different in various years, individual results are presented under 5. Results.

5. RESULTS:
   63(19)
   (i) 2697 Kg/ha.  (ii) (a) 1287·4 Kg/ha.  (b) 521·9 Kg/ha.  (iii) Main effect of \( V \) is highly significant and \( V \times D \) interaction is significant.  (iv) Av. yield of grain in Kg/ha.

\[
\begin{array}{cccccccc}
V_1 & V_2 & V_3 & V_4 & V_5 & V_6 & F_1 & F_2 & \text{Mean} \\
D_1 & 3068 & 3100 & 3093 & 2587 & 1788 & 3156 & 3039 & 2538 & 2799 \\
D_2 & 3083 & 2886 & 2765 & 2504 & 1633 & 2908 & 2699 & 2560 & 2630 \\
D_3 & 2819 & 2616 & 2672 & 2714 & 2617 & 2539 & 2977 & 2348 & 2663 \\
\text{Mean} & 2990 & 2868 & 2843 & 2602 & 2012 & 2867 & 2905 & 2489 & 2697 \\
F_1 & 3319 & 3048 & 3032 & 2784 & 2175 & 3075 & 2419 & 1850 & 2660 \\
F_2 & 2660 & 2687 & 2655 & 2419 & 1850 & 2660 & & & \\
\end{array}
\]

C.D. for \( V \) marginal means = 299·8 Kg/ha.
C.D. for \( V \) means at the same level of \( D \) = 519·2 Kg/ha.
C.D. for \( D \) means at the same level of \( V \) = 732·8 Kg/ha.

64(16)
(i) 3601 Kg/ha.  (ii) (a) 1036·3 Kg/ha.  (b) 494·0 Kg/ha.  (iii) Main effect of \( V \) is highly significant and interaction \( V \times D \) is significant.  (iv) Av. yield of grain in Kg/ha.
Crop :- Paddy (Kharif).
Ref :- As. 63(18), 64(15) and 65(10).
Site :- Rice Exptl. Sta., Karimganj.
Type :- ‘CMV’.

Object :- To study the effect of dates of planting and different doses of manures on the yield of two medium duration hybrid varieties of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Paddy. (c) N.A. ; As per treatments. (ii) Clayey loam (acidic). (iii) As per treatments. (iv) (a) Ploughing, lading, puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 4. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) 256.1 cm.; 148.3 cm.; N.A. (x) 1st week of Dec., 1963 ; 29.11.64 to 3.12.64 ; 30.11.65 and 3, 8.12.65.

2. TREATMENTS:
Main-plot treatments:
2 varieties : \( V_1 = Z \times H/1 = 443 \) and \( V_2 = Z \times H/1 = 381 \).

Sub-plot treatments:
4 dates of planting : \( D_1 = 15\text{th July,} \ D_2 = 30\text{th July,} \ D_3 = 15\text{th August and} \ D_4 = 30\text{th August.} \)
Sub-sub-plot treatments:

3 doses of manure:\n\[ M = 44.8 \text{ Kg/ha. of } N = 22.4 \text{ Kg/ha. of } P_{2}O_{5} + 22.4 \text{ Kg/ha. of } K_{2}O, M_{1} = 67.2 \text{ Kg/ha. of } N = 33.6 \text{ Kg/ha. of } P_{2}O_{5} + 33.6 \text{ Kg/ha. of } K_{2}O \text{ and } M_{2} = 89.6 \text{ Kg/ha. of } N = 44.8 \text{ Kg/ha. of } P_{2}O_{5} + 44.8 \text{ Kg/ha. } K_{2}O. \]

N as A S, P_{2}O_{5} as Super and K_{2}O as Mur. Pot.

Sowing in the seed bed was done 30 days before each date of planting. Nitrogen was applied in split doses, half dose during the final preparation of the field and the remaining half during the active stage of tillering.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication, 4 sub-plots, main-plot and 3 sub-sub-plots/sub-plot. (b) N.A. (iii) 3. (iv) (a) 4’8 m. × 1’5 m. (a) 4’6 m. × 1’2 m. for 1963 and 4’8 m. × 1’5 m. for others. (v) 11’4 cm. discarded around the plot in 1963; Nil for others. (vi) Yes.

4 GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1963-65. (b) Yes. (c) Nil. (v) No. (vi) Nil. (vii) Main-plot and sub-sub-plot error variances are homogeneous and sub-plot error variances are heterogeneous. Results of individual years are presented under 5-Results.

5. RESULTS

63(18)

(i) 3562 Kg/ha.  (ii) (a) 215·3 Kg/ha. (b) 735·5 Kg/ha. (c) 394·7 Kg/ha. (iii) V × D × M interaction is highly significant and main effect of V is significant. (iv) Av. yield of grain in Kg/ha.

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C.D. for V marginal means=218·4 Kg/ha.

64(15)

(i) 3902 Kg/ha.  (ii) (a) 353·7 Kg/ha. (b) 556·3 Kg/ha. (c) 468·3 Kg/ha. (iii) Only the main effect of D is significant. (iv) Av. yield of grain in Kg/ha.

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C.D. for D marginal means=404·0 Kg/ha.

65(10)

(i) 2741 Kg/ha.  (ii) (a) 431·0 Kg/ha. (b) 217·3 Kg/ha. (c) 353·7 Kg/ha (iii) Only the main effect of D is significant. (iv) Av. yield of grain in Kg/ha.
Crop: Paddy (Kharif).
Site: Rice Exptl. Stn., Karimganj.

Object: To study the effect of methods of planting and different fertilizer doses on the yield of different varieties of Aus Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clayey loam (acidic). (iii) M1 and M2 on 20.5.65 and M3 on 10, 11.6.65. (iv) (a) Ploughing, laddering, puddling, etc. (b) As per treatments. (c) N.A. (d) 23 cm. x 23 cm. for M2 and 15 cm. between rows for M1. (e) 1 for M2. (f) Nil. (g) As per treatments. (h) Unirrigated. (i) One weeding. (ix) N.A. (x) 22 to 25.8.65.

2. TREATMENTS:
   All combinations of (1), (2) and (3).
   (1) 3 varieties: V1 = C. 203–3 (Chengri), V2 = M. 142 (Koilmurali) and V3 = Dular.
   (2) 3 methods of planting: M1 = Line sowing, M2 = Transplanting and M3 = Broadcasting.
   (3) 3 doses of fertilizer: F1 = 44.8 Kg/ha. of N + 22.4 Kg/ha. of P₂O₅ + 10.2 Kg/ha. of K₂O, F2 = 67.2 Kg/ha. of N + 33.6 Kg/ha. of P₂O₅ + 33.6 Kg/ha. of K₂O and F3 = 2 x F1.

Form of fertilizers: N as N/S, P₂O₅ as Super and K₂O as Mur. Pot. Method of application of fertilizers: 1/2 N, P₂O₅ and K₂O applied as basal dressing, and 1/2 N as top dressing.

3. DESIGN:
   3 x confd. (i) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (ii) 2. (iv) (a) N.A. (b) 6'4 m. x 6'1 m. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) -. (v) No. (vi) N.A. (vii) As the supply of V₃ was very limited, the spacing for transplanting was increased to 23 cm. x 23 cm. instead of the usual 15 cm. x 15 cm.

5. RESULTS:
   (i) 1838 Kg/ha. (ii) 270.4 Kg/ha. (iii) Main effect of V and interaction V X F are significant. (iv) Av. yield of grain in Kg/ha.
Crop: Paddy (Kharif)  
Site: Rice Res. Stn., Titabar.

Object: To study the effect of different methods of planting and different levels of fertilizers on the yield of different varieties of Aku Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 1.5.65. (iv) (a) 3—4 ploughings. (b) As per treatments. (c) 30 Kg/ha. for M₂, 25 Kg/ha. for M₁ and 5 Kg/ha. for M₁. (d) 15 cm. x 15 cm. for M₂. Rows 15 cm. apart for M₁. (e) 3—4 for Transplanting. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) One weeding. (ix) N.A. (x) 2, 12 and 16.7.65.

2. TREATMENTS:

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

(1) 3 varieties: V₁=C.H. 63, V₂=Dular and V₃=Rangadoria.
(2) 3 methods of planting: M₁=Line sowing. M₂=Broadcasting and M₃=Transplanting.
(3) 3 levels of fertilizers: F₁=44.8 Kg/ha. of N+22.4 Kg/ha. of P₂O₅+22.4 Kg/ha. of K₂O, F₂=67.2 Kg/ha. of N+33.6 Kg/ha. of P₂O₅+33.6 Kg/ha. of K₂O and F₃=2 x F₁.


Time of application: N before sowing.

3. DESIGN:

(i) 3° confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 40 m. x 1.5 m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) — (v) No (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 2784 Kg/ha. (ii) 3266.7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.
Crop :- Paddy (Kharif)
Site :- Rice Res. Stn., Titabar

Object :- To study the effect of A/S at different levels on the yield of different varieties of Sali Paddy planted on different dates.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Ahu Paddy. (c) N.A.  (ii) Heavy clayey loam. (iii) As per treatments. (iv) (a) 3—4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 3 to 4. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 3—4 weedings. (ix) 121½ cm. (x) December, 1964.

2. TREATMENTS:
   All combinations of (1), (2) and (3):
   (1) 3 levels of N as A/S : N₀ =0, N₁ =22.4 and N₂ =44.8 Kg/ha.
   (2) 3 dates of planting : D₁ =2 weeks before Normal date of planting i.e. on 10.7.64. D₂ =Normal date of planting i.e. on 25.7.64. and D₃ =3 weeks after normal date of planting i.e. on 18.8.64.
   (3) 3 varieties : V₁ =Local Gazep, V₂ =Improved Prosadbhog and V₃ =Improved Ahom Sali.

3. DESIGN:
   (i) 3 Partially confd. (ii) (a) 9 plots/burst and 3 block/replication. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9.0 m. x 4.5 m. (v) N.A. (vi) Yes.

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

5. RESULTS:
   (i) 4280 Kg/ha. (ii) 447.1 Kg/ha. (iii) Main effects of V and D are highly significant. (iv) Av. yield of grain in Kg/ha.

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

Ref :- As. 64(6)
Type :- 'CMV'.

Object :- To study the effect of A/S at different levels on the yield of different varieties of Sali Paddy planted on different dates.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Ahu Paddy. (c) N.A.  (ii) Heavy clayey loam. (iii) As per treatments. (iv) (a) 3—4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm. x 23 cm. (e) 3 to 4. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 3—4 weedings. (ix) 121½ cm. (x) December, 1964.

2. TREATMENTS:
   All combinations of (1), (2) and (3):
   (1) 3 levels of N as A/S : N₀ =0, N₁ =22.4 and N₂ =44.8 Kg/ha.
   (2) 3 dates of planting : D₁ =2 weeks before Normal date of planting i.e. on 10.7.64. D₂ =Normal date of planting i.e. on 25.7.64. and D₃ =3 weeks after normal date of planting i.e. on 18.8.64.
   (3) 3 varieties : V₁ =Local Gazep, V₂ =Improved Prosadbhog and V₃ =Improved Ahom Sali.

3. DESIGN:
   (i) 3 Partially confd. (ii) (a) 9 plots/burst and 3 block/replication. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9.0 m. x 4.5 m. (v) N.A. (vi) Yes.

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

5. RESULTS:
   (i) 4280 Kg/ha. (ii) 447.1 Kg/ha. (iii) Main effects of V and D are highly significant. (iv) Av. yield of grain in Kg/ha.

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C.D. for V or D marginal means=208.3 Kg/ha.
Crop : Paddy (Kharif)
Site : Rice Res. Stn., Titabar.
Object : To study the effect of methods of planting and weedicides on the yield of Sali Paddy.

1. BASAL CONDITIONS :
   (a) Nil. (b) Ahu Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 5.8.65. (iv) (a) 3 – 4 ploughings.
   (b) As per treatments. (c) N.A. (d) Rows 25 cm. apart for M1 and 25 cm. × 25 cm. for M2. (v) 33.6 Kg/ha. of N as AS+22.4 Kg/ha. of P2O5 as Super. and 16.8 Kg/ha. of K2O as Mur. Pot. (vi) Prosadshog. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 2,12.65.

2 TREATMENTS :
Main-plot treatments:
   2 methods of planting : M1 – Direct sowing in lines and M2 – Transplanting
Sub-plot treatments:
   6 weedicides : W4 = Control, W1 = 9.9 litres/ha. of Stam. F – 34, W3 = 1.4 Kg ha. of 2,4 – D, W5 = W3, W6 = 37.1 Kg ha. of TOK granular and W2 = W4 + W5.

3 DESIGN
   (i) Split-plot (ii) 2 main-plots replication and 6 sub-plots : main-plot. (b) 20.0 m. × 21.0 m. (iii) 3
   (i) (a) 10.0 m. × 3.5 m. (b) 9.50 m. × 3.0 m. (v) 0.3 m. discarded around. (vi) Yes.

4. GENERAL :

5. RESULTS :
   (i) 2836 Kg/ha. (ii) (a) 498.5 Kg/ha. (b) 595.6 Kg/ha. (iii) None of the effects is significant. (iv) Av.
   yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>W4</th>
<th>W1</th>
<th>W3</th>
<th>W4</th>
<th>W5</th>
<th>W6</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>3130</td>
<td>3204</td>
<td>2074</td>
<td>2381</td>
<td>2842</td>
<td>2842</td>
<td>2746</td>
</tr>
<tr>
<td>M2</td>
<td>2448</td>
<td>2976</td>
<td>2362</td>
<td>3322</td>
<td>3630</td>
<td>2822</td>
<td>2927</td>
</tr>
<tr>
<td>Mean</td>
<td>2789</td>
<td>3090</td>
<td>2218</td>
<td>2851</td>
<td>3236</td>
<td>2832</td>
<td>2836</td>
</tr>
</tbody>
</table>

Crop : Maize (Kharif)
Object : To study the effect of different doses of Nitrogen on the yield of Maize.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 22.4.64. (iv) (a) Ploughing followed by ladder ing.
   (b) Lime sowing. (c) N.A. (d) Rows 76 cm. apart and plants 30 cm. apart. (e) – . (vi) 184.5 Q/ha. of Cow dung. (vi) Local white. (vii) Unirrigated. (viii) Hand weeding. (ix) N.A. (x) 7.10.64.

2. TREATMENTS :
   4 levels of N as A S : N4 = 0, N1 = 44.8, N2 = 67.2 and N3 = 89.6 Kg/ha.

3 DESIGN
   (i) latin sq. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 12.5 m. × 15.5 m. (b) 12.2 m. × 15.2 m. (v) 15 cm.
   discarded around. (vi) Yes.

4. GENERAL :
   (i) Normal. (ii) Nil. (iii) Yield of maize. (iv) (a) 1963 – 64. (b) No. (c) Nil. (v) No. (vi) Nil. (vii) Data of 1963 were not available.
5. RESULTS:

(i) 942 Kg/ha. (ii) 59.2 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₀</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>N₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>834</td>
<td>982</td>
<td>924</td>
<td>1027</td>
<td></td>
</tr>
<tr>
<td>C.D. = 102.4 Kg/ha.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Crop:** Maize (Kharif).

**Site:** Exptl. Res. Stn., Upper Shillong.

**Object:** To study the effect of different doses of fertilizers on the yield of Maize.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Maize. (c) 184.5 Q/ha. of F.Y.M. (ii) Sandy loam. (iii) 9.4.64. (iv) (a) Ploughing followed by laddering. (b) Line sowing. (c) N.A. (d) Rows 76 cm. apart and plants 30 cm. apart. (e) — (vi) 184.5 Q/ha. of Cowdung. (vii) Ganga—101. (viii) Unirrigated. (ix) Hand weeding. (x) 20.10.64.

2. TREATMENTS:

4 manurial treatments:

- **T₀** = Control
- **T₁** = 89.6 Kg/ha. of N + 44.8 Kg/ha. of P₂O₅ + 44.8 Kg/ha. of K₂O
- **T₂** = 112 Kg/ha. of N + 67.2 Kg/ha. of P₂O₅ + 67.2 Kg/ha. of K₂O and T₂ = 134.4 Kg/ha. of N + 89.6 Kg/ha. of P₂O₅ + 89.6 Kg/ha. of K₂O.

N as A/S, P₂O₅ as Super and K₂O as Mur. Pot.

3. DESIGN:

(i) Latin Sq. (ii) 4. (iii) 4. (iv) (a) 15.5 m. x 15.5 m. (b) 15.2 m. x 15.2 m. (v) 15 cm. discarded around. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Yield of maize. (iv) (a) 1963-64. (b) No. (c) Nil. (v) No. (vi) Nil. (vii) Data of 1963 were not available.

5. RESULTS:

(i) 1211 Kg/ha. (ii) 45.2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>578</td>
<td>1523</td>
<td>1175</td>
<td>1567</td>
</tr>
<tr>
<td>C.D. = 78.2 Kg/ha.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Crop:** Maize (Kharif).

**Site:** Exptl. Res. Stn., Upper Shillong.

**Object:** To study the effect of different doses of Nitrogen on the yield of different varieties of Maize.

1. BASAL CONDITIONS:

(i) (a) to (c) Nil. (ii) Sandy loam. (iii) 10.4.65. (iv) (a) Ploughing followed by laddering. (b) Line sowing. (c) N.A. (d) Rows 76 cm. apart and plants 30 cm. apart. (e) — (vi) 185.5 Q/ha. of Cowdung + 67.2 Kg/ha. of P₂O₅ as Super + 44.8 Kg/ha. of K₂O as Mur. Pot. (vii) Unirrigated. (viii) Hand weeding. (ix) N.A. (x) 15.10.65.
2. TREATMENTS:

All combinations of (1) and (2):
(1) 2 varieties: \( V_1 = \text{Ganga-101} \) and \( V_2 = \text{Local white} \).
(2) 4 levels of \( N \) as \( A_S \): \( N_0 = 0, N_1 = 44.8, N_2 = 89.6 \) and \( N_3 = 134.4 \) Kg/ha.

3. DESIGN:

(i) 4x2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 4.9 m x 3.3 m. (b) 4.6 m x 3.1 m. (v) 15 cm. discarded around. (vi) Yes.

4. GENERAL:


5. RESULTS:

(i) 293.0 Kg/ha. (ii) 645.0 Kg/ha. (iii) Main effects of \( N \) and \( V \) are highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>( N_0 )</th>
<th>( N_1 )</th>
<th>( N_2 )</th>
<th>( N_3 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 )</td>
<td>2033</td>
<td>2631</td>
<td>2751</td>
<td>2512</td>
</tr>
<tr>
<td>( V_2 )</td>
<td>1674</td>
<td>4066</td>
<td>4066</td>
<td>3708</td>
</tr>
<tr>
<td>Mean</td>
<td>1854</td>
<td>3349</td>
<td>3409</td>
<td>3110</td>
</tr>
</tbody>
</table>

C.D. for \( N \) marginal means = 798.7 Kg/ha.
C.D. for \( V \) marginal means = 564.8 Kg/ha.

Ref.: As. 65(34). Type: 'CMV'.

Object: To study the effect of different fertiliser doses with different spacing on the yield of two varieties of Maize.

1. BASAL CONDITIONS:

(i) (a) to (c) Nil. (ii) Sandy loam. (iii) 9.4.65. (iv) (a) Ploughing followed by laddering. (b) Line sowing. (c) N.A. (d) 75 cm. between rows and 30 cm. between plants. (e) . . (v) 92.2 Q/ha. of Cowdung. (vi) As per treatments. (vii) Unirrigated (viii) Hand weeding. (ix) N.A. (x) 15.10.65.

2. TREATMENTS:

Main-plot treatments:
2 varieties: \( V_1 = \text{Ganga} \) and \( V_2 = \text{Local white} \).

Sub-plot treatments:
All combinations of (1) and (2)
3 fertiliser levels: \( F_1 = 89.6 \) Kg/ha. of \( N \) as \( A_S \) + 67.2 Kg/ha. of \( P_2O_5 \) as Super+44.8 Kg/ha. of \( K_2O \) as Mur. Pot., \( F_2 = 112.0 \) Kg/ha. of \( N \) as \( A_S \) + 89.6 Kg/ha. of \( P_2O_5 \) as Super+56.0 Kg/ha. of \( K_2O \) as Mur. Pot. and \( F_3 = 134.4 \) Kg/ha. of \( N \) as \( A_S \) + 89.6 Kg/ha. of \( P_2O_5 \) as Super+67.2 Kg/ha. of \( K_2O \) as Mur. Pot.
(2) 4 spacings: \( S_1 = 30 \) cm. x 61 cm., \( S_2 = 30 \) cm. x 76 cm., \( S_3 = 30 \) cm. x 91 cm. and \( S_4 = 30 \) cm. x 107 cm.

3. DESIGN:

(i) Split-plot. (i) (a) 2 main-plots/replcation and 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 4.9 m x 3.4 m. (b) 4.6 m x 3.1 m. (v) 15 cm. discarded around. (vi) Yes.
4. GENERAL:

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965—66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 2085 Kg/ha. (ii) (a) 214.7 Kg/ha. (b) 313.5 Kg/ha. (iii) Only the main effect of S is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>1948</td>
<td>2160</td>
<td>1989</td>
<td>1980</td>
<td>2172</td>
<td>2124</td>
<td>1854</td>
<td>2032</td>
</tr>
<tr>
<td>V2</td>
<td>2189</td>
<td>2006</td>
<td>2217</td>
<td>1994</td>
<td>2282</td>
<td>2276</td>
<td>1998</td>
<td>2138</td>
</tr>
<tr>
<td>Mean</td>
<td>2068</td>
<td>2083</td>
<td>2103</td>
<td>1987</td>
<td>2227</td>
<td>2200</td>
<td>1926</td>
<td>2085</td>
</tr>
</tbody>
</table>

C.D. for S marginal means = 210.9 Kg/ha.

---

**Crop**: Arhar (Kharif)

**Site**: Pulse and Oilseeds Res. Stn., Roha.

**Ref**: As. 64(2).

**Type**: 'C'.

Object:—To study the effect of different dates of sowing and spacings on the yield of Arhar.

1. BASAL CONDITIONS:

(i) Nil. (ii) N.A. (iii) As per treatments. (iv) (a) 3—4 ploughings. (b) As per treatments. (c) 14.8 Kg/ha in S0. (d) As per treatments. (e) 1. (v) 185 Q/ha. of Cowdung. (vi) T—1. (vi) Unirrigated. (vii) 3 hand weedings and hoeings. (ix) and (x) N.A.

2. TREATMENTS:

**Main-plot treatments**:

4 dates of sowing: 31st May, T2 =15th June, T3 =30th June and T4 =15th July.

**Sub-plot treatments**:

4 spacings: S0 =Broadcasting, S1 =61 cm. x 61 cm., S2 =91 cm. x 61 cm. and S3 =91 cm. x 91 cm.

3. DESIGN:

(i) Split-plot. (ii) 4 main-plots/replication and 4 sub-plots/main-plot. (b) 73.2 m. x 73.2 m. (iii) 4. (iv) (a) 4.6 m. x 4.6 m. (b) 4.6 m. x 3.7 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—65. (b) No. (c) —. (v) No. (vi) Nil. (vii) Expt. modified in 1965.

5. RESULTS:

(i) 1150 Kg/ha. (ii) (a) 408.4 Kg/ha. (b) 107.0 Kg/ha. (iii) Main effects of T and S are significant. (iv) Av. yield of grain in Kg/ha.
Crop :- Arhar (*Kharif*).
Site :- Pulse and Oilseeds Res. Stn., Roha.
Object :- To study the effect of different dates of sowing and different spacings on the yield of Arhar.

1. **BASAL CONDITIONS**:
   - (i) N.I. (ii) N.A. (iii) As per treatments. (iv) (a) 5—6 ploughings. (b) As per treatments. (c) N.A (d) As per treatments. (e) 4-5 seeds. (v) 184.5 Q/ha. of Cowdung. (vi) T-1. (vii) Unirrigated. (viii) Only hand weeding, hoeing and earthing up. (ix) and (x) N.A.

2. **TREATMENTS**:
   - **Main-plot treatments**:
     - 4 dates of sowing: \( T_1 = 15th \) June, \( T_2 = 30th \) June, \( T_3 = 15th \) July and \( T_4 = 30th \) July.
   - **Sub-plot treatments**:
     - 4 spacings: \( S_1 = \) Broadcasting, \( S_2 = 80 \) cm. \( \times 80 \) cm., \( S_3 = 100 \) cm. \( \times 80 \) cm. and \( S_4 = 100 \) cm. \( \times 100 \) cm.

3. **DESIGN**:
   - (i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 5 m. \( \times 4 \) m. (v) Two rows on either side. (vi) Yes.

4. **GENERAL**:
   - (i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—65. (b) No. (c) —. (v) No. (vi) Nil. (vii) Expt. conducted in modified form in 1964.

5. **RESULTS**:
   - (i) 280 Kg/ha. (ii) (a) 19.9 Kg/ha. (b) 16.2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

### Table 1: Yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>( S_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( T_1 )</td>
<td>275</td>
<td>279</td>
<td>293</td>
<td>272</td>
<td>280</td>
</tr>
<tr>
<td>( T_2 )</td>
<td>284</td>
<td>272</td>
<td>279</td>
<td>290</td>
<td>281</td>
</tr>
<tr>
<td>( T_3 )</td>
<td>286</td>
<td>276</td>
<td>244</td>
<td>264</td>
<td>268</td>
</tr>
<tr>
<td>( T_4 )</td>
<td>294</td>
<td>294</td>
<td>285</td>
<td>284</td>
<td>289</td>
</tr>
<tr>
<td>Mean</td>
<td>285</td>
<td>280</td>
<td>275</td>
<td>278</td>
<td>280</td>
</tr>
</tbody>
</table>

C.D. for \( S \) marginal means=76·8 Kg/ha.
C.D. for \( T \) marginal means=526·4 Kg/ha.

---

Ref :- As. 65(3).
Type :- ‘C’.
Crop: Matikalai (Rabi).
Site: Pulse and Oilseed Res. Stn., Roha.
Object: To study the effect of different doses of N, P and K in combination on the yield of Matikalai.

1. BASAL CONDITIONS:
   (i) Nil.
   (ii) N.A.
   (iii) 22.10.65.
   (iv) (a) 3-4 ploughings.
   (b) Broadcasting.
   (c) 13 Kg/ha.
   (d) and (e) —.
   (v) N.A.
   (vi) MK—18.
   (vii) Unirrigated.
   (viii) Hand weeding.
   (ix) N.A.
   (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 levels of N as A/S: N₀ = 0 and N₁ = 22.4 K/ha. of N.
   (2) 2 levels of P₂O₅ as Super: P₀ = 0 and P₁ = 22.4 Kg/ha. P₂O₅.

3. DESIGN:
   (i) Fact. in R.B.D.
   (ii) (a) 4.
   (b) N.A.
   (iv) (a) N.A.
   (b) 31 m. x 31 m.
   (v) N.A.
   (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A.
   (iii) Yield of grain.
   (iv) (a) 1960—62.
   (b) N.A.
   (c) Results of combined analysis are given under 5. Results.
   (v) No.
   (vi) N.A.
   (vii) Error variances are heterogeneous and Treatments x years interaction is present.

5. RESULTS:
   Pooled results
   (i) 801 Kg/ha.
   (ii) 270.8 Kg/ha. (based on 6 d.f. made up of Treatments x years interaction).
   (iii) None of the effects is significant.
   (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>N₀</th>
<th>N₁</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>878</td>
<td>818</td>
</tr>
<tr>
<td>P₁</td>
<td>752</td>
<td>775</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years</th>
<th>N₀</th>
<th>N₁</th>
<th>Sig.</th>
<th>P₀</th>
<th>P₁</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./(plot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>652</td>
<td>828</td>
<td>N.S.</td>
<td>852</td>
<td>629</td>
<td>N.S.</td>
<td>740</td>
<td>145.1</td>
</tr>
<tr>
<td>1961</td>
<td>902</td>
<td>720</td>
<td>N.S.</td>
<td>860</td>
<td>762</td>
<td>N.S.</td>
<td>811</td>
<td>419.1</td>
</tr>
<tr>
<td>1962</td>
<td>916</td>
<td>829</td>
<td>N.S.</td>
<td>828</td>
<td>916</td>
<td>N.S.</td>
<td>872</td>
<td>89.6</td>
</tr>
<tr>
<td>Pooled</td>
<td>815</td>
<td>788</td>
<td>N.S.</td>
<td>848</td>
<td>755</td>
<td>N.S.</td>
<td>801</td>
<td>270.8</td>
</tr>
</tbody>
</table>
2. TREATMENTS:
All combinations of (1) and (2) with a control (no fertilizer)
(1) 3 levels of N as A; S: \( N_0 = 0 \), \( N_1 = 11 \) and \( N_2 = 22.4 \) Kg/ha.
(2) 3 levels of P and K: \( L_1 = 22.4 \) Kg/ha, of \( P_2 O_5 \); \( 22.4 \) Kg/ha, of \( K_2 O \), \( L_2 = L_1 \) and \( L_3 = L_1 \), \( P_2 O_5 \) as Super and \( K_2 O \) as Mur. Pot.

3. DESIGN:
(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 8 m. \times 5 m. (v) N.A. (vi) Yes.

4. GENERAL:
(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-65. (b) N. (c) Nil. (v) No. (vi) Nil. (vii) Data before 1964 not available.

5. RESULTS:
(i) 368 Kg/ha. (ii) 241 Kg/ha. (iii) Main effect of L is significant. (iv) Av. yield of grain in Kg/ha.

| \( L_1 \) | \( L_2 \) | \( L_3 \) | Mean \\ 
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>332</td>
<td>408</td>
<td>384</td>
<td>350</td>
</tr>
<tr>
<td>336</td>
<td>384</td>
<td>393</td>
<td>379</td>
</tr>
<tr>
<td>310</td>
<td>364</td>
<td>414</td>
<td>369</td>
</tr>
</tbody>
</table>

C.D. for L marginal means = 16.5 Kg/ha.

---

**Crop:** Mung (*Rabi*).

**Site:** Pulse and Oilseed Res. Stn., Roha.

**Ref:** As. 62(1).

**Type:** ‘M’.

**Object:** To study the effect of different doses of A; S and Super on the yield of Mung.

1. BASAL CONDITIONS:
(i) Nil. (ii) N.A. (iii) 30.9.62. (iv) (a) 3-4 ploughings. (b) Broadcasting. (c) 11.2 Kg/ha. (d) and (e) - (v) N.A. (vi) M2 = -51. (vii) Irrigated. (viii) Hand weeding. (ix) and (x) N.A.

2. TREATMENTS:
All combinations of (1) and (2); 
(1) 2 levels of N as A; S: \( N_0 = 0 \) and \( N_1 = 22.4 \) Kg/ha.
(2) 2 levels of \( P_2 O_5 \) as Super: \( P_0 = 0 \) and \( P_1 = 22.4 \) Kg/ha. A; S and Super applied as basal dressing before sowing.

3. DESIGN:
(i) Fact. in R.B.D. (ii) (a) 4. (b) 14.6 m. \times 14.6 m. (iii) 3. (iv) (a) 3.7 m. \times 3.7 m. (b) 3.1 m. \times 3.1 m. (v) 30 cm. (vi) Discarded around. (vii) Yes.

4. GENERAL:

5. RESULTS:
(i) 933 Kg/ha. (ii) 120.8 Kg/ha. (iii) Main effect of P and interaction N \times P are significant. (iv) Av. yield of grain in Kg/ha.
Crop: Mung (Rabi).

Ref: As. 64(1) and 65(1).

Site: Pulse and Oilseed Res. Stn., Roha.

Type: ‘M’.

Object: To study the effect of different combinations of P and K on yield of Mung.

1. BASEAL CONDITIONS:
   (i) Nil. (ii) N.A. (iii) N.A., 21.10.65. (iv) (a) 3-5 ploughings. (b) Broadcast. (c) 11.2 Kg/ha.
   (d) and (e) —. (v) N.A. (vi) Mg.—51. (vii) Unirrigated. (viii) N.A., 1 weeding. (ix) and (x) N.A.

2. TREATMENTS:
   All combinations of (1) and (2) with control
   (1) 3 levels of P2O5 as Super: P1=22.4, P2=44.8 and P3=67.2 Kg/ha.
   (2) 3 levels of K2O as Mus. Pot.: K1=22.4, K2=44.8 and K3=67.2 Kg/ha.

3. DESIGN:
   (i) Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 4·6· m × 3·7 for 64; 5·0 m × 5·0 m.
   for 65. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-65. (b) No. (c) Results of combined analysis are
   given under 5. Results. (v) No. (vi) Nil. (vii) Error variances are heterogeneous and Treatments x years
   interaction is present.

5. RESULTS:
   Pooled results
   (i) 494 Kg/ha. (ii) 65·5 Kg/ha. (based on 9 d.f. made up of Treatments x years interaction). (iii) Main
   effect of P and control vs. others are highly significant and interaction P x K is significant. (iv) Av.
   yield of grain in Kg/ha.

Control=434· Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>391</td>
<td>454</td>
<td>458</td>
<td>434</td>
</tr>
<tr>
<td>P2</td>
<td>570</td>
<td>523</td>
<td>512</td>
<td>535</td>
</tr>
<tr>
<td>P3</td>
<td>588</td>
<td>520</td>
<td>489</td>
<td>532</td>
</tr>
</tbody>
</table>

Mean 516 499 486 500

C.D. for P marginal means = 34.9 Kg/ha.
C.D. for the body of the table = 60.4 Kg/ha.
C.D. for control mean vs. mean of other treatments = 45.1 Kg/ha.
Individual results

<table>
<thead>
<tr>
<th>Years</th>
<th>P_1</th>
<th>P_2</th>
<th>P_3</th>
<th>Sig.</th>
<th>K_1</th>
<th>K_2</th>
<th>K_3</th>
<th>Sig.</th>
<th>Control</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E.</th>
<th>t ot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>208</td>
<td>315</td>
<td>290</td>
<td>**</td>
<td>302</td>
<td>260</td>
<td>250</td>
<td>N.S.</td>
<td>181</td>
<td>**</td>
<td>262</td>
<td>18.7</td>
<td></td>
</tr>
<tr>
<td>1965</td>
<td>661</td>
<td>755</td>
<td>775</td>
<td>**</td>
<td>730</td>
<td>737</td>
<td>723</td>
<td>N.S.</td>
<td>685</td>
<td>*</td>
<td>726</td>
<td>27.6</td>
<td></td>
</tr>
<tr>
<td>Pooled</td>
<td>434</td>
<td>535</td>
<td>532</td>
<td>**</td>
<td>516</td>
<td>499</td>
<td>486</td>
<td>N.S.</td>
<td>434</td>
<td>**</td>
<td>494</td>
<td>65.4</td>
<td></td>
</tr>
</tbody>
</table>

Crop: Mung (Rabi).  
Ref: - As 63(1).

Site: Pulse and Oilseed Res. Stn., Roha.

Type: - C.

Object: - To study the effect of different spacings taking broadcasting as standard on the yield of Mung.

1. **BASAL CONDITIONS**
   (i) Nil.  
   (ii) and (iii) N.A.  
   (iv) (a) Ploughing 4—5 times. (b) As per treatments (c) 16-8 Kg/ha.  
   (d) As per treatments. (e) 4. (vi) 1815 Q ha. of Cow dung. (vi) M_g.—51.  
   (viii) Unirrigated. (vii) Weeding. (ix) and (x) N.A

2. **TREATMENTS:**
   4 plant to plant spacings: T_1 = Broadcasting, T_2 = Line sowing with plants 15 cm. apart, T_3 = Line sowing with plants 20 cm. apart and T_4 = Line sowing with plants 25 cm. apart.

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3'1 m. x 3.1 m. (v) N.A. (vi) Yes.

4. **GENERAL:**
   (i) and (iii) N.A. (ii) Yield of grain. (iv) (a) 1963—Only. (b) and (c) —(v) No. (vi) and (vii) Nil.

5. **RESULTS:**
   (i) 212 Kg/ha. (ii) 24'3 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

   Treatments | T_1 | T_2 | T_3 | T_4
   ---|-----|-----|-----|-----
   Av. yield | 267 | 255 | 194 | 130 |

   C.D. = 38.9 Kg/ha.

Crop: Potato (Rabi).  
Ref: - As. 63(40).

Site: Agri. College, Jorhat.

Type: - ‘CMV’.

Object: - To study the effect of dates of planting and levels of N on the growth and yield of different varieties of Potato.

1. **BASAL CONDITIONS**:
   (i) (a) Nil.  
   (b) Distacha.  
   (c) Nil.  
   (ii) Sandy loam. (iii) As per treatments. (iv) (a) Ploughing followed by harrowing and ladder. (b) Planted in furrows. (c) N.A. (d) Rows 61 cm. apart. (e) 1 muber.  
   (v) 10 Kg. of F.Y.M. per furrow. (vi) As per treatments. (vii) Unirrigated. (viii) 2 earthing. (ix) 13'7 cm. (x) 24, 25.1.64.
2. TREATMENTS:

Main-plot treatments:
2 varieties: $V_1 = \text{Kufrif red}$ and $V_2 = \text{Up-to-date}$.

Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of N as A/S: $N_0 = 0$, $N_1 = 67.2$ (2) $N_2 = 134.4$ Kg/ha.
(2) 3 dates of planting: $D_1 = 15.10.63$, $D_2 = 30.10.63$ and $D_3 = 14.11.63$.

3. DESIGN:

(i) Split-plot. (ii) 2 main-plots/rep. and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 9'0 m. x 3'6 m. (b) 9'0 m. x 3'6 m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Yield of potato tuber. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 7242 Kg/ha. (ii) (a) 929.3 Kg/ha. (b) 1402.2 Kg/ha. (iii) Main effects of D and N and interaction $V \times D$ are highly significant. Main effect of V and interaction $D \times N$ are significant. (iv) Av. yield of tubers in Kg/ha.

<table>
<thead>
<tr>
<th>$D_1$</th>
<th>$D_2$</th>
<th>$D_3$</th>
<th>$V_1$</th>
<th>$V_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>7252</td>
<td>7727</td>
<td>3841</td>
<td>5315</td>
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<td>$N_1$</td>
<td>9790</td>
<td>10950</td>
<td>3321</td>
<td>6910</td>
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<td>$N_2$</td>
<td>9493</td>
<td>9293</td>
<td>3522</td>
<td>6633</td>
</tr>
<tr>
<td>Mean</td>
<td>8845</td>
<td>9320</td>
<td>3561</td>
<td>6286</td>
</tr>
</tbody>
</table>

C.D. for $V$ marginal means = 1539 Kg/ha.
C.D. for $D$ or $N$ marginal means = 953 Kg/ha.
C.D. for $D$ means at the same level of $V$ = 1347 Kg/ha.
C.D. for $V$ means at the same level of $D$ = 1031 Kg/ha.
C.D. for means of $D \times N$ table = 1650 Kg/ha.

Crop: Sugarcane.

Ref: As. 59(62), 61(8) 62(9) and 63(9).

Site: Sugarcane Res. Stn., Buralikson.

Type: 'M'.

Object: To study the effect of different levels of P with different sources of N under limed and unlimed conditions.

1. BASAL CONDITIONS:

(i) (a) Nil in 1961; Sugarcane—Ratoon—Fallow for others. (b) ‘Fallow. (c) Nil. (ii) Sandy loam. (iii) 31.3.61 to 6.4.61, 24.4.62 to 2.5.62, 4.4.63 to 6.4.63. (iv) (a) 1 ploughing followed by 2 harrowings. (b) Planted in 23 cm. deep trenches. (c) N.A. (d) Rows 1.2 m. apart. (e) —. (v) N.A. (vi) Co.—419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) 2'0 cm.; N.A.; 2'2 cm. (x) 20.4.62 to 23.4.62; 15.4.63 to 23.4.63; 13.3.64 to 19.3.64.

2. TREATMENTS:

Main-plot treatments:
2 levels of slackened lime $L_0 = 0$ and $L_1 = 11.1$ Q/ha.
Sub-plot treatments:

A² combination of (1) and (2)

(1) 2 sources of N at 179·2 Kg ha⁻¹ of N: S₁ = F.Y.M. and S₂ = A₁S.

(2) 3 levels of P₂₀₄: Super-Phosphate, P₁ = 67·2 Kg/ha and P₂ = 134·4 Kg/ha.

Time of application:

Lime was applied on 23.2.61; 10.4.62; 3.3.63.

F.Y.M. was applied from 16.3.61 to 25.3.61; 27.4.62 to 2.5.62; 15.3.63 to 18.3.63.

S₁ was applied from 23.6.61 to 25.6.61; 3.7.62 to 7.3.63.

Super-Phosphate was applied from 16.3.61 to 25.3.61; 20.4.62 to 25.4.62; 4.4.63.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots, rep. and 6 sub-plots, main-plot: (b) 29·9 m. x 58·5 m. (iii) 4. (iv) (a) 14·9 m. x 9·8 m. (b) 13·7 m. x 7·3 m. (v) One row on either side and 61 em. at each end. (vi) Yes.

4. GENERAL:

(i) Fac. (ii) N.A. (ii) Yield of sugarcane. (iv) (a) 1959-63. (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. Results for 1960 were not available. The results for 1959 have been taken into consideration for pooling the results. (vii) Main-plot and sub-plot error variances are homogeneous and main and sub-plot Treatments x years interaction is absent.

5. RESULTS:

Pooled results

(i) 397·4 Q/ha. (ii) (a) 128·5 Q/ha. (based on 15 d.f. made up of pooled error and Treatments x years interaction). (b) 191·9 Q/ha. (based on 144 d.f. made up of pooled error and Treatments x years interaction).

(iii) Only the main effect of S is highly significant. (iv) Av. yield of cane in Q/ha.

<table>
<thead>
<tr>
<th></th>
<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>S₁</th>
<th>S₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₁</td>
<td>325·2</td>
<td>421·9</td>
<td>402·9</td>
<td>439·6</td>
<td>327·1</td>
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<tr>
<td>L₂</td>
<td>382·0</td>
<td>439·7</td>
<td>412·8</td>
<td>464·8</td>
<td>358·2</td>
<td>411·5</td>
</tr>
<tr>
<td>Mean</td>
<td>353·6</td>
<td>430·8</td>
<td>407·9</td>
<td>452·2</td>
<td>342·6</td>
<td>397·4</td>
</tr>
<tr>
<td>S₁</td>
<td>422·6</td>
<td>461·8</td>
<td>472·2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S₂</td>
<td>284·6</td>
<td>398·8</td>
<td>343·5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C.D. for S marginal means = 53·2 Q/ha.

Individual results

<table>
<thead>
<tr>
<th>Years</th>
<th>L₁</th>
<th>L₂</th>
<th>Sig.</th>
<th>P₁</th>
<th>P₂</th>
<th>P₃</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>313·7</td>
<td>376·5</td>
<td>*</td>
<td>281·7</td>
<td>362·6</td>
<td>391·0</td>
<td>N.S.</td>
</tr>
<tr>
<td>1962</td>
<td>555·7</td>
<td>608·7</td>
<td>N.A.</td>
<td>533·9</td>
<td>643·2</td>
<td>569·5</td>
<td>N.A.</td>
</tr>
<tr>
<td>1963</td>
<td>306·8</td>
<td>267·4</td>
<td>N.S.</td>
<td>238·4</td>
<td>312·1</td>
<td>310·8</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

Pooled 383·3 411·5 N.S. 353·6 430·8 407·9 N.S.

<table>
<thead>
<tr>
<th>Years</th>
<th>S₁</th>
<th>S₂</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E., plot (a)</th>
<th>(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>467·2</td>
<td>223·0</td>
<td>N.S.</td>
<td>345·1</td>
<td>23·2</td>
<td>69·1</td>
</tr>
<tr>
<td>1962</td>
<td>682·0</td>
<td>482·4</td>
<td>N.A.</td>
<td>582·2</td>
<td>85·8</td>
<td>107·0</td>
</tr>
<tr>
<td>1963</td>
<td>271·4</td>
<td>3q2·8</td>
<td>N.S.</td>
<td>287·2</td>
<td>75·0</td>
<td>104·4</td>
</tr>
</tbody>
</table>

Pooled 452·2 342·6 ** 397·4 128·5 191·9 N.S.
Object:—To study the residual effect of different levels of P with different sources of ‘N’ under ‘limed’ and unlimed conditions applied to plant cane in the previous year.

1. BASAL CONDITIONS:

(i) (a) Sugarcane—Ratoon. (b) Plant cane. (c) As per treatments. (ii) Sandy loam. (iii) Plant cane harvested on 15, 24.4.63. (iv) (a) Burning of trash and ridge breaking. (b) and (c) N.A. (d) Rows 1·2 m apart. (e)—. (v) 44·8 Kg/ha. of N as castor cake applied at the time of first earthing. (vi) CO.—419 (late). (vii) Unirrigated. (viii) 2 weedings and earthing. (ix) 218·8 cm. (x) 3, 10.3.64.

2. TREATMENTS:

The following treatments were applied to previous plant cane crop.

Main-plot treatments:

2 levels of slaked lime: L₀ = 0 and L₁ = 11·1 Q/ha.

Sub-plot treatments:

All combinations of (1) and (2)

(1) 2 sources of N at 179·2 Kg/ha. of N: S₁ = F.Y.M and S₂ = A/S.

(2) 3 levels of P as Super: P₀ = 0, P₁ = 67·2 and P₂ = 134·4 Kg/ha.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/rep. and 6 sub-plots/main-plot. (b) 29·9 m. x 58·5 m. (iii) 4. (iv) (a) 14·9 m. x 9·8 m. (b) 13·7 m. x 7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) N.A. (iii) Yield of cane. (iv) (a) 1963-64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Results for 1964—N.A.

5. RESULTS:

(i) 259·6 Q/ha. (ii) (a) 57·6 Q/ha. (b) 66·1 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>S₁</th>
<th>S₂</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td>L₀</td>
<td>210·8</td>
<td>280·0</td>
<td>255·7</td>
<td>257·3</td>
<td>241·7</td>
<td>249·5</td>
</tr>
<tr>
<td>L₁</td>
<td>292·8</td>
<td>250·6</td>
<td>265·5</td>
<td>316·9</td>
<td>222·3</td>
<td>269·6</td>
</tr>
<tr>
<td>Mean</td>
<td>251·8</td>
<td>266·3</td>
<td>260·6</td>
<td>287·1</td>
<td>232·0</td>
<td>259·6</td>
</tr>
</tbody>
</table>

Crop :- Sugarcane (1st ratoon).

Ref :- As. 63(11).

Site :- Sugarcane Res. Stn., Buralikson.

Type :- ‘M’.

Object:—To study the residual effect of different levels of P with different sources of ‘N’ under ‘limed’ and unlimed conditions applied to plant cane in the previous year.

1. BASAL CONDITIONS:

(i) (a) Sugarcane—Ratoon—Fallow. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 20—722.4.64 and 9—30.4.65. (iv) (a) One ploughing followed by two harrowings. (b) Planted in 23 cm. deep trenches. (c) N.A. (d) Rows 1·2 m apart. (e)—. (f) N.A. (g) CO.—419 (late). (h) Unirrigated. (i) 2 weedings and 2 earthings. (ix) N.A. (x) 25·3.65 to 18.4.65 and March, 1966.
2. TREATMENTS

Main-plot treatments:
- 2 levels of slaked lime: L₀ and L₁ - 11·1 Q/ha.

Sub-plot treatments:
- All combinations of (1) and (2) - One control
  (1) 3 levels of N: N₁ = 89·6, N₂ = 179·2, and N₃ = 268·8 Kg/ha.
  (2) 5 sources of S: S₁ = Cow dung, S₂ = Castor cake, S₃ = A/S, S₄ = A/S/N and S₅ = Urea.
- Time of application: Organic manures were applied before planting. Inorganic manures were applied in two equal doses one before planting and the other at first earthing.

Note: Requisite quantities of Superphosphate and Mur. Pot. were applied to bring the nutrient contents of the treatments to the same level.

3. DESIGN:

(i) Split-plot. (ii) 2 main-plots, rep. and 16 sub-plots/main-plot. (b) 29·9 m. x 156·1 m. (iii) 3. (iv) (2) 14·9 m. x 9·8 m (b) 13·7 m. x 7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) N.A. (iii) Yield of cane. (iv) (a) 1964--66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Complete results or plot-wise data were not available at the Res. Stn. for 65(5).

5. RESULTS:

64(33)

(i) 348·8 Q/ha. (ii) (a) 186·2 Q/ha. (b) 91·3 Q/ha. (iii) Main effects of N and S and control vs., others are all highly significant. (iv) Av. yield of cane in Q/ha.

\[ L₀ N₀ = 23·7 \text{ Q/ha. and } L₁ N₁ = 18·2 \text{ Q/ha.} \]

<table>
<thead>
<tr>
<th></th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
<th>S₄</th>
<th>S₅</th>
<th>N₁</th>
<th>N₂</th>
<th>N₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₀</td>
<td>190·4</td>
<td>373·6</td>
<td>433·8</td>
<td>383·8</td>
<td>384·9</td>
<td>215·8</td>
<td>372·6</td>
<td>471·5</td>
<td>353·3</td>
</tr>
<tr>
<td>L₁</td>
<td>193·6</td>
<td>382·8</td>
<td>483·7</td>
<td>467·6</td>
<td>412·5</td>
<td>209·0</td>
<td>412·5</td>
<td>542·7</td>
<td>388·1</td>
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<tr>
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<tr>
<td>N₁</td>
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<td>243·6</td>
<td>225·4</td>
<td>242·7</td>
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<td>437·1</td>
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<td>524·1</td>
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</table>

C.D. for N marginal means = 47·1 Q/ha.
C.D. for S marginal means = 60·8 Q/ha.
C.D. for control vs. others = 77·0 Q/ha.

65(5)

(i) 414·1 Q/ha. (ii) (a) and (b) N.A. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

\[ L₀ N₀ = 164·5 \text{ Q/ha. and } L₁ N₁ = 154·4 \text{ Q/ha.} \]

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<th></th>
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<th>S₃</th>
<th>S₄</th>
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Crop: Sugarcane (1st ratoon).

Site: Sugarcane Res. Stn., Buralikson.

Object: To study the residual effect of different sources of N (organic and inorganic) under limed and unlimed condition applied to the plant cane in the previous year.

1. BASAL CONDITIONS:

(i) [a] Sugarcane—Ratoon. (b) Plant cane. (ii) Sandy loam. (iii) Plant cane was harvested from 25.3.65 to 18.4.65. (iv) (a) Burning of trash and ridge breaking. (b) and (c) . . . . . . (d) Rows 1'2 m. apart. (e) . . . . . . (v) . . . . . . (vi) Co. . . . . . . (vii) . . . . . . (viii) 2 weedings and earthings. (ix) N.A. (x) March, 1966.

2. TREATMENTS:

Main-plot treatments:
2 levels of slaked lime: \( L_0 = 0 \) and \( L_1 = 11.1 \) Q/ha.

Sub-plot treatments:
All combinations of (1) and (2) + a control (N_A).

\( N_1 = 89.6 \) and \( N_2 = 179.4 \) and \( N_3 = 269.0 \) Kg N/ha.

2 sources of N: \( S_1 = \) Cowdung, \( S_2 = \) Castor cake, \( S_3 = \) A/S, \( S_4 = \) A/S/N and \( S_5 = \) Urea.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication and 16 sub-plots/main-plot. (b) 29.9 m. x 156.1 m. (iii) 3. (iv) (a) 14.9 m. x 9.8 m., (b) 13.7 m. x 7.3 m. (v) Row on either side and 30 cm. at each end. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) N.A. (iii) Yield of Sugarcane. (iv) (a) 1965-66. (b) No. (c) Yes. (v) No. (vi) N.A. (vii) . . . . . .

5. RESULTS:

(i) 169.6 Q/ha. (ii) (a) N.A. (b) 78.6 Q/ha. (iii) Main effect of N and control vs. others are highly significant. (iv) Av. yield of cane in Q/ha.

\[ L_0 N_3 = 46.7 \text{ Q/ha. and } L_1 N_3 = 36.3 \text{ Q/ha.} \]

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<td>( L_1 )</td>
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<table>
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<td>141.5</td>
<td>184.0</td>
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<td>178.1</td>
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C.D. for N marginal means = 40.6 Q/ha.

C.D. for control vs. others = 75.9 Q/ha.

Crop: Sugarcane.

Site: Sugarcane Res. Stn., Buralikson.

Object: To study the effect of different levels of N, P and K on the yield and quality of Sugarcane.

Ref: As. 65(6).

Type: 'M'.
1. BASAL CONDITIONS:
   (i) Sugar cane—Rain-on—Fallow. (ii) Fallow. (c) Nil. (iii) 12—15.5.64 and 30.3.65 to 7.4.65. (iv) (a) 1 ploughing followed by 2 harrowings. (b) Planted in 23 cm. deep trenches. (c) N.A. (d) Rows 1.2 m. apart. (e)— (f) 44.8 Kgf/ha. of N as Caster Cake applied before planting. (vi) Co. — 419 (late). (vii) Unirrigated. (viii) 2 weeding's and 2 earthings. (ix) N.A. (x) 6—24.3.65 and March, 1966.

2. TREATMENTS:
   All combinations of (1), (2) and (3)
   (1) 3 levels of N as A/5: N0 = 0, N1 = 89.6, and N2 = 179.2 Kgf/ha.
   (2) 3 levels of P301 as Super: P0 = 0, P1 = 67.2, and P2 = 134.4 Kgf/ha.
   (3) 3 levels of K2O as Mur. Pot.: K0 = 0, K1 = 67.2, and K2 = 134.4 Kgf/ha.

   Time of application: In 1964 fertilizers applied before planting. Information N.A. (or 11.65).

3. DESIGN:
   (i) Fact. in R.B.D. (ii) (a) 27. (b) 44.8 m. (c) 87.8 m. (iii) 3. (iv) (a) 14.9 m. x 9.9 m. (b) 13.7 m. x 7.3 m.
   (v) One row on either side at 61 cm. at each end. (vi) Yes.

4. GENERAL:
   (i) Fair. (ii) N.A. (iii) Yield of cane. (iv) (a) 1964—66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As the experiment is continued beyond 1965, results of individual years are given under 5. Results.

5. RESULTS:

   (i) 128.4 Q/ha. (ii) 62.5 Q/ha. (iii) Main effects of N, P and K are highly significant. (iv) Av. yield of cane in Q/ha.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>K0</th>
<th>K1</th>
<th>K2</th>
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<td>N2</td>
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<td>97.9</td>
<td>215.3</td>
<td>217.5</td>
<td>176.9</td>
</tr>
<tr>
<td>Mean</td>
<td>81.2</td>
<td>133.6</td>
<td>170.3</td>
<td>79.1</td>
<td>141.2</td>
<td>164.8</td>
<td>128.4</td>
</tr>
<tr>
<td>K0</td>
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<td>71.6</td>
<td>116.9</td>
<td>79.1</td>
<td>141.2</td>
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<td>K1</td>
<td>74.3</td>
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<td>204.1</td>
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<tr>
<td>K2</td>
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<td>97.9</td>
<td>215.3</td>
<td>217.5</td>
<td>176.9</td>
</tr>
</tbody>
</table>

   C.D. for N or K marginal means=34.2 Q/ha.

   (i) 441.7 Q/ha. (ii) 35.5 Q/ha. (iii) All the main effects and interactions are highly significant. (iv) Av. yield of cane in Q/ha.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>K0</th>
<th>K1</th>
<th>K2</th>
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<td>596.7</td>
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<td>586.5</td>
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<td>509.0</td>
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<td>385.8</td>
<td>447.4</td>
<td>491.8</td>
<td>441.7</td>
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</table>

   C.D. for all the marginal means =19.4 Q/ha.

   C.D. for means in the body of any table=33.7 Q/ha.
Crop: Sugarcane (1st ratoon).

Site: Sugarcane Res. Stn., Baralikson.

Object: To study the residual effect of different levels of N, P and K applied to plant cane in the previous year.

1. BASAL CONDITIONS:
   (i) (a) Sugarcane-Ratoon—Fallow. (b) Plant cane. (c) As per treatments +4+8 Kg/ha. of N as Castor Cake. (ii) Sandy loam. (iii) Plant cane harvested from 6.3.65 to 24.3.65. (iv) (a) Burning of trash and ridge breaking. (b) and (c) —. (d) Rows 1·2 m. apart. (e) —. (v) N.A. (vi) Co. 419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) N.A. (x) March, 1966.

2. TREATMENTS:
   All combinations of (1), (2) and (3).
   (1) 3 levels of N as A/S: N 0 =0, N 1 =89·6 and N 2 =179·2 Kg/ha.
   (2) 3 levels of P 1 0 as Super: P 0 0 =0, P 1 0 =67·2 and P 2 0 =134·4 Kg/ha.
   (3) 3 levels of K 1 0 as Mur. Pot.: K 0 0 =0, K 1 0 =67·2 and K 2 0 =134·4 Kg/ha.

3. DESIGN:
   (i) Fact. in R.B.D. (ii) (a) 27, (b) 44·8 m. x 87·8 m. (iii) 3: (iv) (a) 14·9 m. x 9·8 m. (b) 13·7 m. x 7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL:
   (i) Fair. (iii) Yield of Sugarcane (iv) 1955-66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:
   (i) 182·8 Q/ha. (ii) 58·7 Q/ha. (iii) Main effect of K is significant. (iv) Av. yield of cane in Q/ha.

<table>
<thead>
<tr>
<th></th>
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<th>P2</th>
<th>K0</th>
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<td>220·9</td>
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<td>177·7</td>
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C.D. for K marginal means=32·1 Q/ha.

Crop: Sugarcane (1st ratoon).

Site: Sugarcane Res. Stn., Baralikson.

Object: To study the effect of application of Molasses on the yield of cane.

1. BASAL CONDITIONS:
   (i) (a) Sugarcane-Ratoon. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) Plant cane harvested on 4, 5, 5, 62; 24, 25, 4.63. (iv) Burning of trash and 1 ploughing. (b) and (c) —. (d) 1·2 m. between rows. (e) N.A. (v) 179·2 Kg/ha. of N as A/S in two equal doses in 1962 and 200 Kg/ha. of N is two equal doses in 1963. (vi) Co. 419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) N.A. (x) 218·8 cm. (x) 24·4.63 and 23·4.63, 11·3.64 and 12 ·3.64.
2. TREATMENTS:

T<sub>1</sub>—Cane setts planted after soaking overnight in a 35% solution of Molasses neutralised with lime. T<sub>2</sub>—Cane setts planted after soaking overnight in water and crop irrigated with water flowing over a pit filled with Molasses, the Molasses being stirred gently when the water passes over it. T<sub>3</sub>—Cane setts planted after soaking overnight in water and sprayed once a month from July to December with 20% Molasses solution. T<sub>4</sub>—Cane setts planted after soaking overnight in a 35% solution of Molasses neutralised with lime, irrigated as in T<sub>1</sub> and sprayed as in T<sub>2</sub>. T<sub>5</sub>—Control: Cane setts soaked overnight in water and the crop was sprayed with water once a month from July to December and irrigated with plain water.

3. DESIGN:

(i) R.B.D. (ii) 5. (b) 14°9 m. x 48°8 m. (iii) 4. (iv) (a) 14°9 m. x 9°8 m. (b) 13°7 m. x 7°3 m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) Negligible. (iii) Yield of Sugarcane. (iv) (a) 1962-63. (b) No. (c) Results of combined as well as individual analysis are given under 5.-Results. (v) No. (vi) N.A. (vii) Error variances are homogenous and treatments x years interaction is absent.

5. RESULTS:

Pooled results

(i) 310°9 Q/ha (ii) 104 1 Q/ha. (based on 28 d.f made up of pooled error and Treatments x years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of cane in Q/ha.

<table>
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<th>T&lt;sub&gt;2&lt;/sub&gt;</th>
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<th>T&lt;sub&gt;4&lt;/sub&gt;</th>
<th>T&lt;sub&gt;5&lt;/sub&gt;</th>
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<td>374°2</td>
<td>292°6</td>
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Individual results

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<th>T&lt;sub&gt;2&lt;/sub&gt;</th>
<th>T&lt;sub&gt;3&lt;/sub&gt;</th>
<th>T&lt;sub&gt;4&lt;/sub&gt;</th>
<th>T&lt;sub&gt;5&lt;/sub&gt;</th>
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<th>G.M.</th>
<th>S.E./plot</th>
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<td>354°4</td>
<td>433°4</td>
<td>373°4</td>
<td>N.S.</td>
<td>349°8</td>
<td>87°3</td>
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<td>N.S.</td>
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Crop: Sugarcane. Site: Sugarcane Res. Stn., Buralikson. Object: To study the response of different levels of Nitrogen with and without Green Manure under limed and unlimed conditions.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 12 to 25 3.65. (iv) One ploughing followed by two harrowings. (b) Planted in 23 cm. deep trenches. (c) N.A. (d) Rows 1·2 m. apart (e) -. (v) N.A. (vi) Co. 419 (late). (vii) Unirrigated. (viii) 2 weedings and earthings. (ix) N.A. (x) March, 1966.

2. TREATMENTS:

Main-plot treatments:

2 levels of green manure: G<sub>0</sub>=Nil and G<sub>1</sub>=Sanathemp green manure.

Sub-plot treatments:

All combinations (1) and (2)

(1) 2 levels of slaked lime: L<sub>0</sub>=0 and L<sub>1</sub>=11°1 Q/ha.

(2) 4 levels of N as A/S: N<sub>0</sub>=0, N<sub>1</sub>=67°2, N<sub>2</sub>=134°4 and N<sub>3</sub>=201°6 Kg/ha.
3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/replication and 8 sub-plots/main-plot. (b) 29·9 m. x 78·0 m. (iii) 4. (iv) (a) 14·9 m. x 9·8 m. (b) 13·7 m. x 7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL:
(i) Fair. (ii) N.A. (iii) Yield of Sugarcane. (iv) (a) 1965-contd. (b) No. (o) —. (v) No. (vi) N.A. (vii) Raw data not available at Res. Stn.

5. RESULTS:
(i) 428·2 Q/ha. (ii) (a) 119·1 Q/ha. (b) N.A. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

<table>
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<tr>
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Crop :- Sugarcane.
Site :- Sugarcane Res. Stn., Buralikson.

Object :- To study the effect of different organic and inorganic sources of N under limed and unlimed condition.

1. BASAL CONDITIONS :
(i) (a) Sugarcane-Ratoon. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 4 to 7.5.63. (iv) (a) One ploughing followed by two harrowings. (b) Planted in trenches 23 cm. deep. (c) N.A. (d) 122 cm. between rows. (e) N.A. (f) Nil. (vi) Co-419 (late). (vii) Unirrigated. (viii) 2 weeding and 2 earthings. (ix) 218·8 cm. (x) 6.4.64 to 30.4.64.

2. TREATMENTS:
Main-plot treatments:
2 levels of slaked lime : L0=0, and L1=9·2 Q/ha.
Sub-plot treatments:
All combinations of (1) and (2)
(1) 3 levels of N: N1=89·7, N2=179·3 and N4=269·0 Kg/ha.
(2) 5 sources of N: S1=A/S, S2=Urea, S3=A/S/N, S,=Castor cake and S5=F.Y.M.
Dates of liming: 2 and 3.3.63.
Dates of manuring: F.Y.M. was applied from 23 to 29.3.63 ; Castor cake was applied on 22.3.63 ; Urea was applied on 30.4.63 ; A/S was applied on 1.5.63 and A/S/N was applied on 3.5.63. The requisite quantities of Super and Mur. Pot. were applied from 3 to 6.4.64 and from 3 to 4.4.63 respectively to bring the nutrient content of all plots to the same level.

3. DESIGN:
(i) Split-plot: (ii) (a) 2 main-plots/replication and 15 sub-plots/main-plot. (b) 29·9 m. x 146·3 m. (iii) 3. (iv) (a) 14·9 m. x 9·8 m. (b) 13·7 m. x 7·3 m. (v) 60 cm. x 121 cm. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) N.A. (iii) Yield of cane. (iv) (a) Nil. (b) No. (c) Nil. (v) No. (vi) N.A. (vii)
5. RESULTS:
(i) 109'5 Q ha. (ii) (a) 21'3 Q ha. (b) 57'6 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q ha.

RESULTS:

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>S5</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L4</td>
<td>116'0</td>
<td>133'2</td>
<td>155'2</td>
<td>74'4</td>
<td>70'3</td>
<td>71'8</td>
<td>101'4</td>
<td>136'2</td>
<td>109'8</td>
</tr>
<tr>
<td>L1</td>
<td>88'6</td>
<td>180'1</td>
<td>121'6</td>
<td>82'9</td>
<td>72'9</td>
<td>73'4</td>
<td>115'4</td>
<td>138'7</td>
<td>119'2</td>
</tr>
<tr>
<td>Mean</td>
<td>102'3</td>
<td>156'6</td>
<td>138'4</td>
<td>78'6</td>
<td>71'6</td>
<td>72'6</td>
<td>108'4</td>
<td>147'4</td>
<td>129'5</td>
</tr>
</tbody>
</table>

N1  59'1  92'6  89'4  72'1  50'0
N2  71'7  174'0 141'9  83'2  71'0
N3  176'0  203'3 183'8  80'4  93'7

Crop :- Sugarcane.
Site :- (District) : Cachar and Sihsagar (c.f).
Object :- Type A - To study the response of Sugarcane to levels of N, P and K applied individually and in combination.

1. BASAL CONDITIONS:
(i) to (c) N.A. (ii) Hilly. (iii) to (x) N.A.

2. TREATMENTS:
O = Control (no manure).
N = 67'2 Kg/ha. of N.
P = 44'8 Kg/ha. of P2O5.
K = 44'8 Kg/ha. of K2O.
NP = 67'2 Kg/ha. of N + 44'8 Kg/ha. of P2O5.
NK = 67'2 Kg/ha. of N + 44'8 Kg/ha. of K2O.
PK = 44'8 Kg/ha. of P2O5 + 44'8 Kg/ha. of K2O.
PK = 67'2 Kg/ha. of N + 44'8 Kg/ha. of P2O5 + 44'8 Kg/ha. of K2O.
N applied as A.S, P2O5 as Super and K2O Mur. Pot.

3. DESIGN:
(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle/thana in the zone and the thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on kharif cereal, 8 on a rabi cereal, 8 on cast. crop, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of Phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1'98'8 ha. (b) 1 197'7 ha. (iv) Yes.

4. GENERAL:
(i) to (iii) N.A. (iv) (a) 1961 only for both places. (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS:

<table>
<thead>
<tr>
<th>District</th>
<th>No of trials</th>
<th>Control in Q/ha.</th>
<th>N</th>
<th>P</th>
<th>K</th>
<th>S.E.</th>
<th>NP</th>
<th>NPK</th>
<th>PK</th>
<th>NPK</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cachar</td>
<td>6</td>
<td>484'5</td>
<td>59'6</td>
<td>60'2</td>
<td>56'5</td>
<td>15'1</td>
<td>-0'2</td>
<td>-3'9</td>
<td>18'2</td>
<td>-4'1</td>
<td>10'4</td>
</tr>
<tr>
<td>Sihsagar</td>
<td>12</td>
<td>461'1</td>
<td>102'9</td>
<td>63'2</td>
<td>53'3</td>
<td>24'0</td>
<td>38'3</td>
<td>-2'8</td>
<td>15'2</td>
<td>12'7</td>
<td>18'1</td>
</tr>
</tbody>
</table>
Crop : Sugarcane (Annual).

Site : (District) : Cachar, Lakhipur and Sibsagar, (c.f.).

Ref : As. 61(S.F.T). Type : 'M'.

Object : Type B : To investigate the relative efficiency of different nitrogeneous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial for Lakhipur ; Hilly for others. (iii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

- O = Control (no manure).
- N₁ = 67.2 Kg/ha. of N as A/S.
- N₂ = 134.4 Kg/ha. of N as A/S.
- N₁' = 67.2 Kg/ha. of N as Urea.
- N₂' = 134.4 Kg/ha. of N as Urea.
- N₁'' = 67.2 Kg/ha. of N as A/S/N.
- N₂'' = 134.4 Kg/ha. of N as A/S/N.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on Kharif cereal, 8 on a raì bi cereal; 8 on cash crop, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of Phosphate application are studied on Type C trials in two out of the four zones in each district every year. The experiment are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98.8 ha. (b) 1/197.7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only for all the places. (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Av. yield of Sugarcane in Q/ha.

<table>
<thead>
<tr>
<th>District</th>
<th>No. of trials</th>
<th>O</th>
<th>N₁</th>
<th>N₂</th>
<th>N₁'</th>
<th>N₂'</th>
<th>N₁''</th>
<th>N₂''</th>
<th>G.M.</th>
<th>S.E./Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cachar</td>
<td>6</td>
<td>461.1</td>
<td>542.6</td>
<td>548.4</td>
<td>527.5</td>
<td>570.2</td>
<td>572.4</td>
<td>628.7</td>
<td>550.1</td>
<td>20.9</td>
</tr>
<tr>
<td>Lakhipur</td>
<td>3</td>
<td>472.2</td>
<td>541.1</td>
<td>639.5</td>
<td>578.0</td>
<td>639.5</td>
<td>553.4</td>
<td>602.6</td>
<td>575.2</td>
<td>27.6</td>
</tr>
<tr>
<td>Sibsagar</td>
<td>9</td>
<td>423.8</td>
<td>468.1</td>
<td>519.9</td>
<td>490.7</td>
<td>520.6</td>
<td>493.1</td>
<td>474.4</td>
<td>484.4</td>
<td>13.5</td>
</tr>
</tbody>
</table>

Crop : Sugarcane.

Ref : As. 63, 64, 65(S.F.T.) for Sibsagar 63, 64(S.F.T.) for Lakhipur and 63, 65 (S.F.T.) for Darrang.

Site : (District) Lakhipur, Sibsagar and Darrang (c.f.).

Type : 'M'.

Object : Type A₁ : To study the response curves of important cereal, oilseed and cash crops to Nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial for all. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.
2. TREATMENTS:

8 manurai treatments:

- $N_0 = \text{Control (no manure)}$.
- $N_1 = 70$ kg ha. of N.
- $N_2 = 140$ kg ha. of N.
- $P_1 = 70$ kg ha. of $P_2O_5$.
- $N_1P_1 = 70$ kg ha. of N + 70 kg ha. of $P_2O_5$.
- $N_2P_2 = 140$ kg ha. of N + 70 kg ha. of $P_2O_5$.
- $N_2P_1 = 140$ kg ha. of N + 140 kg ha. of $P_2O_5$.
- $N_1P_1K_1 = 140$ kg ha. of N + 140 kg ha. of $P_2O_5$ + 70 kg ha. $K_2O$.

N applied as $A/S$, $P_2O_5$ as Super and $K_2O$ as Mur. Pot.

3. DESIGN:

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern, etc. In each zone one block is selected at random. A block normally consists of a group of 50 - 100 villages. In each block 36 experiments are conducted in a year of which 11 are of type $A_1$, 11 of type $A_2$, and 3 are of type $C$. The eleven experiments under type $A_1$, $A_2$ and $A_3$ are distributed as 3 on a Kharif cereal, 3 on a rabi cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on a legume crop. For the purpose of conducting the $A_1$, $A_2$, and $A_3$ experiments 11 villages are randomly selected in each block and in each village 3 experiments each of type $A_1$, $A_2$ and $A_3$ are laid out. For conducting the three type C trials three villages are randomly selected in each block. (iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL:

(i) to (vii) N.A. (viii) 1963 to 65 for Lakhimpur, 1963 to 65 for Sibsagar and 1963 to 65 (64 N.A.) for Larrang. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS:

Lakhimpur

63, S.F.T.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_1P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_2$</th>
<th>$N_2P_2$</th>
<th>$N_1P_1K_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>3686</td>
<td>1838</td>
<td>5525</td>
<td>7373</td>
<td>9211</td>
<td>11060</td>
<td>11060</td>
<td>3535</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 22140 Kg/ha.; No. of trials = 2.

64 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_1P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_2$</th>
<th>$N_2P_2$</th>
<th>$N_1P_1K_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>27803</td>
<td>7314</td>
<td>5589</td>
<td>21206</td>
<td>12508</td>
<td>9014</td>
<td>32725</td>
<td>2868</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 44240 Kg/ha.; No. of trials = 3.

Sibsagar

63 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_1P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_2$</th>
<th>$N_2P_2$</th>
<th>$N_1P_1K_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>2971</td>
<td>5551</td>
<td>165</td>
<td>1451</td>
<td>3140</td>
<td>6183</td>
<td>7497</td>
<td>1804</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 29635 Kg/ha.; No. of trials = 10.

64 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_1P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_2$</th>
<th>$N_2P_2$</th>
<th>$N_1P_1K_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>4061</td>
<td>5521</td>
<td>937</td>
<td>5963</td>
<td>8203</td>
<td>9189</td>
<td>13694</td>
<td>2547</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 38837 Kg/ha.; No. of trials = 9.

65 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_1P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_2$</th>
<th>$N_2P_2$</th>
<th>$N_1P_1K_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>2633</td>
<td>3366</td>
<td>2400</td>
<td>9066</td>
<td>9100</td>
<td>25033</td>
<td>25233</td>
<td>398</td>
<td></td>
</tr>
</tbody>
</table>

Control yield = 25499 Kg/ha.; No. of trials = 4.
Object: —Type A2: To study the response curve of important cereals, oil seeds and cash crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) N.A.   (ii) Alluvial for all.   (iii) to (vi) N.A.   (vii) Unirrigated.   (viii) to (x) N.A.

2. TREATMENTS:

8 manurial treatments:

O =Control (no manure).

N1 = 70 Kg/ha. of N.
P1 = 70 Kg/ha. of P2O5.
P2 = 140 Kg/ha. of P2O5.
N1P1 = 70 Kg/ha. of N+ 70 Kg/ha. of P2O5.
N1P2 = 70 Kg/ha. of N+ 140 Kg/ha. of P2O5.
N1P3 = 140 Kg/ha. of N+ 140 Kg/ha. of P2O5.
N1P2K2 = 140 Kg/ha. of N+ 140 Kg/ha. of P2O5+ 140 Kg/ha. of K2O.
N applied as A/S, P2O5 as Super and K2O as Mur. Pot.

3. DESIGN:

Same as the experiment Type A1 on Sugarcane on page 95.

4. GENERAL:

(i) to (iii) N.A.  (iv) (a) 1963 to 1965 for Sibsagar: 63 to 64 for others.  (b) and (c) Nil.  (v) to (vii) Nil.

5. RESULTS:

Lakhimpur

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>N2</th>
<th>P1</th>
<th>N1P1</th>
<th>N2P1</th>
<th>N1P2</th>
<th>N2P2</th>
<th>N1P2K1</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>1765</td>
<td>1581</td>
<td>1087</td>
<td>2111</td>
<td>2388</td>
<td>5647</td>
<td>8711</td>
<td>7905</td>
<td></td>
</tr>
</tbody>
</table>

Control yield=19840 Kg/ha.; No. of trials=6.

65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>N2</th>
<th>P1</th>
<th>N1P1</th>
<th>N2P1</th>
<th>N2P2</th>
<th>N1P2K1</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>1666</td>
<td>1566</td>
<td>1800</td>
<td>3966</td>
<td>4533</td>
<td>7566</td>
<td>10033</td>
<td>10217</td>
</tr>
</tbody>
</table>

Control yield=70066 Kg/ha.; No. of trials=5.

Crop: —Sugarcane.

Ref: — As. 63, 64(S.F.T.) for Lakhimpur and Darrang and 63, 64, 65(S.F.T.) for Sibsagar.

Site:—(District): Lakhimpur, Sibsagar and Darrang (c.f.).

Type: —‘M’.
**Crop:** Sugarcane (*Annual*).  
*Ref:* As. 63, 65, (S.F.T.) for Darrang, 63, 64,65(S.F.T.) for Sibsagar and 63,64 (S.F.T.) for Lakhimpur.

**Site:** (District): Lakhimpur, Sibsagar and Darrang (c.f.).  
*Type:* 'M'.

Object:—Type A4: To study the response curves of important cereals, oilseeds and cash crops to Potash applied singly and in combination with other nutrients.

1. **BASAL CONDITIONS:**

   (i) N.A.  (ii) Alluvial for all.  (iii) to (vi) N.A.  (vii) Unirrigated.  (viii) to (x) N.A.

### Table: Treatment and Av. response of Cane in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;3&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;4&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sibsagar</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63(S.F.T.)</td>
<td>5075</td>
<td>474</td>
<td>4581</td>
<td>4264</td>
<td>6049</td>
<td>3805</td>
<td>15023</td>
<td>57890</td>
</tr>
<tr>
<td>Control yield = 47294 Kg/ha.; No. of trials = 3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64(S.F.T.)</td>
<td>5178</td>
<td>2022</td>
<td>5293</td>
<td>4848</td>
<td>4764</td>
<td>6481</td>
<td>10332</td>
<td>12255</td>
</tr>
<tr>
<td>Control yield = 28034 Kg/ha.; No. of trials = 10.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65(S.F.T.)</td>
<td>4608</td>
<td>1331</td>
<td>2148</td>
<td>5653</td>
<td>6068</td>
<td>9787</td>
<td>10013</td>
<td>12515</td>
</tr>
<tr>
<td>Control yield = 41416 Kg/ha.; No. of trials = 8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Darrang</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63(S.F.T.)</td>
<td>8050</td>
<td>850</td>
<td>3050</td>
<td>8050</td>
<td>8700</td>
<td>8750</td>
<td>7200</td>
<td>2994</td>
</tr>
<tr>
<td>Control yield = 21750 Kg/ha.; No. of trials = 3.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>64(S.F.T.)</td>
<td>2172</td>
<td>2589</td>
<td>3209</td>
<td>2360</td>
<td>3426</td>
<td>4663</td>
<td>8254</td>
<td>15924</td>
</tr>
<tr>
<td>Control yield = 15997 Kg/ha.; No. of trials = 5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65(S.F.T.)</td>
<td>2333</td>
<td>3266</td>
<td>3933</td>
<td>5666</td>
<td>5233</td>
<td>8933</td>
<td>8766</td>
<td>12048</td>
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<tr>
<td>Control yield = 57733 Kg/ha.; No. of trials = 6.</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. TREATMENTS:

8 manurai treatments:

1. O = Control (no manure)

\( N_1 = 70 \text{ Kg/ha. of N} \)

\( K_1 = 70 \text{ Kg/ha. of K}_2O \)

\( J = 140 \text{ Kg/ha. of K}_2O \)

\( N_1K_1 = 70 \text{ Kg/ha. of N} + 70 \text{ Kg/ha. of K}_2O \)

\( N_1K_2 = 70 \text{ Kg/ha. of N} + 140 \text{ Kg/ha. of K}_2O \)

\( N_1K_3 = 140 \text{ Kg/ha. of N} + 140 \text{ Kg/ha. of K}_2O \)

\( N_1P_1K_1 = 70 \text{ Kg/ha. of N} + 70 \text{ Kg/ha. of } P_2O_5 + 70 \text{ Kg/ha. of K}_2O \)

N applied as A/S, \( P_2O_5 \) as Super and \( K_2O \) as Mur. Pot.

3. DESIGN:

Same as the expt. Type A, on Sugarcane on page 95.

4. GENERAL:

(i) to (iii) N.A. (iv) (a) 1963 to 65 (64 N.A.) for Darrang, 1963 to 64 for Lakhimpur, 1963 to 65 for Sibsagar. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS:

Lakhimpur

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( N_1 )</th>
<th>( K_1 )</th>
<th>( K_2 )</th>
<th>( N_1K_1 )</th>
<th>( N_1K_2 )</th>
<th>( N_1P_1K_1 )</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>3686</td>
<td>7373</td>
<td>00</td>
<td>3686</td>
<td>7383</td>
<td>7383</td>
<td>9221</td>
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</table>

Control yield = 55330 Kg/ha.; No. of trials = 2.

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( N_1 )</th>
<th>( K_1 )</th>
<th>( K_2 )</th>
<th>( N_1K_1 )</th>
<th>( N_1K_2 )</th>
<th>( N_1P_1K_1 )</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>20173</td>
<td>15865</td>
<td>2243</td>
<td>14796</td>
<td>5386</td>
<td>2243</td>
<td>19718</td>
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</tbody>
</table>

Control yield = 35869 Kg/ha.; No. of trials = 2.

Sibsagar

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( N_1 )</th>
<th>( K_1 )</th>
<th>( K_2 )</th>
<th>( N_1K_1 )</th>
<th>( N_1K_2 )</th>
<th>( N_1P_1K_1 )</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>3486</td>
<td>1401</td>
<td>2348</td>
<td>3674</td>
<td>5126</td>
<td>5000</td>
<td>6964</td>
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</table>

Control yield = 26571 Kg/ha.; No. of trials = 8.

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( N_1 )</th>
<th>( K_1 )</th>
<th>( K_2 )</th>
<th>( N_1K_1 )</th>
<th>( N_1K_2 )</th>
<th>( N_1P_1K_1 )</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>11813</td>
<td>8913</td>
<td>7772</td>
<td>9950</td>
<td>10995</td>
<td>13569</td>
<td>14906</td>
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</tbody>
</table>

Control yield = 32719 Kg/ha.; No. of trials = 7.

65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( N_1 )</th>
<th>( K_1 )</th>
<th>( K_2 )</th>
<th>( N_1K_1 )</th>
<th>( N_1K_2 )</th>
<th>( N_1P_1K_1 )</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of cane in Kg/ha.</td>
<td>8066</td>
<td>2800</td>
<td>2666</td>
<td>7700</td>
<td>8933</td>
<td>14800</td>
<td>13066</td>
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</tbody>
</table>

Control yield = 31099 Kg/ha.; No. of trials = 5.
Crop: - Sugarcane.  
Site: - Sugarcane Res. Stn., Buralikson.  
Type: - 'C'.

Object: - To study the effect of time and method of harvesting on the yield of Sugarcane.

1. BASAL CONDITIONS:
   (i) (a) Sugarcane-Ratoon.  (b) Fallow.  (c) Nil.  (ii) Sandy loam.  (iii) 23 to 25.5: 60 ; 21 to 23.4: 61 ; 29 to 31.3:63.  (iv) (a) One ploughing followed by two harrowings.  (b) Planted in trenches 23 cm. deep.  (c) N.A.  (d) 122 cm. between rows.  (e) Nil.  (v) 89.7 Kg/ha. of N as Castor Cake.  (vi) Co.: 0.419 (ave).  
   (vii) Unirrigated  (viii) 2 weedings and earthing.  (ix) N.A. ; 202·6 cm.; 218·8 cm.  (x) As per treatments.

2. TREATMENTS:
   Main-plot treatments:  
   2 methods of harvesting:  
   \( H_1 \) = Harvested flush with ridge, and  
   \( H_2 \) = Harvested flush with ground.

   Sub-plot treatments:  
   5 dates of harvesting:  
   \( D_1 \) = 18th Jan., \( D_2 \) = 18th Feb., \( D_3 \) = 18th March, \( D_4 \) = 18th April and \( D_5 \) = 18th May.

3. DESIGN:
   (i) Split-split-plot.  (ii) (a) 2 main-plots/replication and 5 sub-plots/main-plot.  (b) 29·9 m. \( \times \) 48·8 m.  (iii) 3.  
   (iv) a) 14·9 m. \( \times \) 9·8 m.  (b) 13·7 m. \( \times \) 7·3 m.  (v) 61 cm. \( \times \) 122 cm.  (vi) Yes.

4. GENERAL:
   (i) Fair.  (ii) N.A.  (iii) Yield of Sugarcane.  (iv) (a) 1959 to 63.  (b) No.  (c) Nil.  (v) N.A.  (vi) As the sub-plot error variances are heterogeneous, results of individual years are given (Expt. r edicted in 1960) under 5-Results.

5. RESULTS:
   60(3)
   (i) 269·5 Q/ha.  (ii) (a) N.A.  (b) 46·1 Q/ha.  (iii) Only the main effect of D is significant:  (iv) Av. yield of cane in Q/ha.

<table>
<thead>
<tr>
<th></th>
<th>( D_1 )</th>
<th>( D_2 )</th>
<th>( D_3 )</th>
<th>( D_4 )</th>
<th>( D_5 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( H_1 )</td>
<td>289·1</td>
<td>394·1</td>
<td>268·8</td>
<td>233·9</td>
<td>180·5</td>
<td>273·3</td>
</tr>
<tr>
<td>( H_2 )</td>
<td>316·5</td>
<td>287·9</td>
<td>287·6</td>
<td>235·9</td>
<td>200·3</td>
<td>265·7</td>
</tr>
<tr>
<td>Mean</td>
<td>302·8</td>
<td>341·0</td>
<td>278·2</td>
<td>234·9</td>
<td>190·4</td>
<td>269·5</td>
</tr>
</tbody>
</table>

C.D. for D marginal means = 56·4 Q/ha,
Crop: Sugarcane (1st ratoon).

Site: Sugarcane Res. Stn., Buralikson.

Object: To study the effect of time and method of harvesting plant cane on the ratoon.

1. BASAL CONDITIONS:
   (i) (a) Sugarcane-Ratoon. (b) Plant cane. (c) As per treatments. (ii) Sandy loam. (iii) As per treatments. (iv) (a) to (c) - (d) 122 cm. between rows. (e) N.A. (v) 101 Kg/ha. of N as Mustard oil cake applied at 1st earthing and 101 Kg/ha. of N as A/S applied from 19.7.61 to 1.8.61. (vi) Co.-419 (late). (vii) Un-irrigated. (viii) 2 weedings and earthing. (ix) 202.7 cm. (x) 6.3.62 to 9.3.62.

2. TREATMENTS:
   Main-plot treatments:
   2 methods of harvesting: \( H_1 = \) Flush with ridge and \( H_2 = \) Flush with ground.

Sub-plot treatments:
5 dates of harvesting: \( D_1 = \) 18th Jan., \( D_2 = \) 18th Feb., \( D_3 = \) 18th March, \( D_4 = \) 18th April and \( D_5 = \) 18th May 1961.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/replication and 5 sub-plots/main-plot. (b) 29.9 m. x 48.8 m. (iii) 3. (iv) (a) 14.9 m. x 8.9 m. (b) 13.7 m. x 7.3 m. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) Fair. (ii) N.A. (iii) Yield of cane. (iv) (a) 1961-only. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil. (viii) Nil.

5. RESULTS:
   (i) 278.4 Q/ha. (ii) (a) 92.0 Q/ha. (b) 32.1 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

<table>
<thead>
<tr>
<th></th>
<th>( D_1 )</th>
<th>( D_2 )</th>
<th>( D_3 )</th>
<th>( D_4 )</th>
<th>( D_5 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( H_1 )</td>
<td>152.8</td>
<td>164.4</td>
<td>124.1</td>
<td>185.0</td>
<td>98.0</td>
<td>144.9</td>
</tr>
<tr>
<td>( H_2 )</td>
<td>98.1</td>
<td>138.7</td>
<td>174.2</td>
<td>138.9</td>
<td>113.1</td>
<td>132.6</td>
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<tr>
<td>Mean</td>
<td>125.4</td>
<td>151.6</td>
<td>149.2</td>
<td>162.0</td>
<td>105.6</td>
<td>138.8</td>
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</table>

Ref: As. 61(10).
Type: ‘C’.
Crop : - Jute (Kharif).

Site : - Jute Res. Stn., Sorbhog.

Object : - To study the effect of N, P, and K alone and in combinations on the yield of Olitorious Jute fibre.

1. **BASAL CONDITIONS** :

   (i) (a) N. (b) Jute. (c) N.A. (ii) Sandy loam. (iii) 1.5.63. (iv) (a) 3 ploughings and 2 ladderings. (b) Line sowing with Jute seed-drill. (c) 7.4 Kg/ha. (d) 30 cm. between rows and 7.5 cm. between plants.

   (e) N.A. (v) 25'1 Q ha. of F.Y.M. (vi) JRC-212. (vii) Unirrigated. (viii) 2 hand-weedicings, 1 thinning and 3 hoe-hog ngs. (ix) 220.4 cm. (x) 30.9.63.

2. **TREATMENTS** :

   12 manurial treatments: 
   - T₀=Control, T₁=22.5 Kg/ha. of N, T₂=45 Kg/ha. of N, T₃=67.5 Kg/ha. o' N, T₄=90 Kg/ha. of N, T₅=180 Kg/ha. of N, T₆=11.2 Kg/ha. of P₂O₅+11.2 K₀. of K₂O, T₇=T₁+T₆, T₈=T₂+2×T₆, T₉=T₃+T₆, T₁₀=T₄+4×T₆, and T₁₁=T₅+8×T₆.

   Form of fertilizers: - N as A.S, P₂O₅ as Super and K₂O as Mur. Pot.

3. **DESIGN** :

   (i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 7.9 m.×7.3 m. (b) 6.7 m.×6.1 m. (v) 61 cm. discard-ed alround. (v) Yws.

4. **GENERAL** :

   (i) Nor-al. (i) Attack of Semi-looper end hairy caterpillar-Endrex 20 E.C. sprayed as control measure.

   (ii) Yie'd of fibre. (iv) (a) 1962-63. (b) No. (c) —. (v) No. (vi) N.A. (vii) Expt. failed in 1963

5. **RESULTS** :

   (i) 1612 Kg/ha. (ii) 452.9 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of fibre in Kg/ha.

   Treatment: 
   - T₀, T₁, T₂, T₃, T₄, T₅

   Av. yield: 1235, 1592, 1911, 1876, 1586, 1406

   T₀, T₁, T₂, T₃, T₄, T₅

   Av. yield: 1365, 1231, 2035, 1618, 1923, 1570

   C.D. = 524.3 Kg/ha.

---

Crop : - Jute (Kharif).

Site : - Jute Res. Stn., Sorbhog.

Object : - To study the effect of N, P, and K alone and in combinations on the yield of Olitorious Jute fibre.
1. BASAL CONDITIONS:
   (i) Nil. (b) Jute. (c) N.A. (ii) Sandy soil. (iii) 15, 16.5, 62. (iv) (a) 3 ploughings and 2 ladderings.
   (b) Line sowing with Jute seed-drill. (c) 4.9 Kg/ha. (d) 30 cm. between rows and 7.5 cm. between plants.
   (e) N.A. (v) 25'1 Q/ha. of F.Y.M. (vi) JRO-632 (late). (vii) Unirrigated. (viii) 2 hand-weedicings 1 thinning.
   and 3 wheel-hoeings. (ix) 270'6 cm. (xiv) 3.10.62.

2. TREATMENTS:
All combinations of (1), (2) and (3)
   (1) 3 levels of N as A/S: \( N_0 = 0, N_1 = 45 \), and \( N_2 = 90 \) Kg/ha.
   (2) 3 levels of \( P_0 \) as Super: \( P_0 = 0, P_1 = 22.5 \), and \( P_2 = 45 \) Kg/ha.
   (3) 3 levels of \( K_0 \) as Mur. Pot.: \( K_0 = 0, K_1 = 22.5 \), and \( K_2 = 45 \) Kg/ha.

3. DESIGN:
   (i) 3 spatially confd. (ii) (a) 9 plots/block and 3 blocks replication. (b) N.A. (iii) 2. (iv) (a) 7.9 m. x
   7.3 m. (b) 6.7 m. x 6.1 m. (v) 61 cm. discarded around. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Attack of Semi-looper and hairy caterpillar-Endrex 20 E.C. sprayed as control measure.
   (iii) Yield of fibre. (iv) (a) 1960-62. (b) and (c) N.o.—(v) No. (vi) N.A. (vii) Results of 1960 and 1961
   were not available.

5. RESULTS:
   (i) 1519 Kg/ha. (ii) 3115 Kg/ha. (iii) Main effect of N is highly significant and interaction N x K is signi-
   ficant. (iv) Av. yield of fibre in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>( P_0 )</th>
<th>( P_1 )</th>
<th>( P_2 )</th>
<th>( K_0 )</th>
<th>( K_1 )</th>
<th>( K_2 )</th>
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<td>929</td>
<td>903</td>
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<td>( N_2 )</td>
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<td>1746</td>
<td>2163</td>
<td>1753</td>
<td>1936</td>
<td>2029</td>
<td>1906</td>
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<table>
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<td>1454</td>
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<td>( K_2 )</td>
<td>1562</td>
<td>1330</td>
<td>1468</td>
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</table>

C.D. for N marginal means = 215.3 Kg/ha.
C.D. for means in the body of N x K table = 373.0 Kg/ha.

Crop :- Jute (Kharif).
Site :- (District) : Cachar and Kamrup (c.f.).
Ref :- As. 61(S.F.T.).
Type :- 'M'.
Object :- Type A: To study the response of Jute to levels of \( N, P \), and \( K \) applied individually and in
combinations.

1. BASAL CONDITIONS:
   (i) N.A. (ii) Hilly for Cachar and Alluvial for Kamrup. (iii) to (x) N.A.
2. **TREATMENTS**

*Manural treatments:

- **O**: Control (no manure).
- **N**: 22.4 kg/ha of N.
- **P**: 22.4 kg/ha of P2O5.
- **K**: 22.4 kg/ha of K2O.

**NP** = 22.4 kg/ha of N + 22.4 kg/ha of P2O5.
**NK** = 22.4 kg/ha of K2O.
**PK** = 22.4 kg/ha of K2O.
**NPK** = 22.4 kg/ha of N + 22.4 kg/ha of P2O5 + 22.4 kg/ha of K2O.

N applied as A:S, P2O5 as Super and K2O as Mur. Pot.

3. **DESIGN**

(i) and (ii): The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/ thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *Kharif* cereal, 8 on *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of Type C. Residual effects of P:phosphate application are studied on Type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98’8 ha. (b) 1/197’7 ha. (iv) Yes.

4. **GENERAL**

(i) and (ii) N.A. (iii) Yield of green weight of Jute steams. (iv) (a) 1961 only. (b) and (c) — (v) to (vii) N.A.

5. **RESULTS**

### Crop: Jute (*Kharif*).

Ref: As. 63, 64, 65(S.F.T) for Nowgong; 63, 64(S.F.T) for Goalpara and Kamrup.

**Site:** (District): Nowgong, Goalpara Type: ‘M’. and Kamrup (e.l.).

Object: —Type A: To study the response curve of important cereals, oilseeds and cash crops to N, P and K applied singly and in combination with other nutrients.

#### BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

#### TREATMENTS:

*Manural treatments:

- **O**: Control (no manure).
- **N**: 60 Kg/ha. of N
- **P**: 120 Kg/ha. of N
- **K**: 35 Kg/ha. of P2O5
- **NP**: 60 Kg/ha. of N + 35 Kg/ha of P2O5
- **NK**: 120 Kg/ha. of N + 35 Kg/ha. of P2O5
- **PK**: 120 Kg/ha. of N + 70 Kg/ha. of P2O5
- **NPK**: 120 Kg/ha. of N + 70 Kg/ha. of P2O5 + 35 Kg/ha. of K2O.

N applied as A:S, P2O5 as Super and K2O as Mur. Pot.
3. DESIGN:

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern, etc. In each zone, one block is selected at random. A block normally consists of a group of 50-100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A₁, 11 of type A₂, 11 of type A₃ and 3 are of type C. The eleven experiments under type A₁, A₂ and A₃ are distributed as 3 on a Kharif cereal, 3 on a rabi cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on a legume crop. For the purpose of conducting the A₁, A₂ and A₃ experiments, 11 villages are randomly selected in each block and in each village 3 experiments, one each of type A₁, A₂ and A₃ are laid out. For conducting the three type C trials three villages are randomly selected in each block.

(iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL:

(i) and (ii). N.A. (iii) Yield of green weight of jute steams. (iv) (a) 1963-65 for Nowgong; 1963-64 for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS:

Nowgong

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₃P₂</th>
<th>N₄P₂</th>
<th>N₅P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td>2189</td>
<td>2311</td>
<td>2270</td>
<td>3192</td>
<td>3965</td>
<td>6025</td>
<td>7162</td>
<td>281.3</td>
<td></td>
</tr>
<tr>
<td>Control yield = 21980 Kg/ha.; No. of trials = 10.</td>
<td></td>
<td></td>
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</table>

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₃P₂</th>
<th>N₄P₂</th>
<th>N₅P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td>1329</td>
<td>2668</td>
<td>518</td>
<td>5806</td>
<td>6301</td>
<td>7116</td>
<td>8623</td>
<td>1225.9</td>
<td></td>
</tr>
<tr>
<td>Control yield = 20237 Kg/ha.; No. of trials = 3.</td>
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<td></td>
<td></td>
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65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₃P₂</th>
<th>N₄P₂</th>
<th>N₅P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td>1140</td>
<td>1924</td>
<td>342</td>
<td>1461</td>
<td>2385</td>
<td>3887</td>
<td>4292</td>
<td>471.2</td>
<td></td>
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<tr>
<td>Control yield = 20860 Kg/ha.; No. of trials = 9.</td>
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Goalpara

63(S.F.T.)

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<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₃P₂</th>
<th>N₄P₂</th>
<th>N₅P₃K₁</th>
<th>S.E.</th>
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<tbody>
<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td>6819</td>
<td>850</td>
<td>2451</td>
<td>-6</td>
<td>118</td>
<td>9712</td>
<td>9956</td>
<td>4204.6</td>
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<tr>
<td>Control yield = 80172 Kg/ha.; No. of trials = 3.</td>
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64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₃P₂</th>
<th>N₄P₂</th>
<th>N₅P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td>309</td>
<td>303</td>
<td>-619</td>
<td>-625</td>
<td>309</td>
<td>1838</td>
<td>1225</td>
<td>995.1</td>
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<tr>
<td>Control yield = 27055 Kg/ha.; No. of trials = 3.</td>
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Kamrup

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N₁</th>
<th>N₂</th>
<th>P₁</th>
<th>N₁P₁</th>
<th>N₂P₁</th>
<th>N₃P₂</th>
<th>N₄P₂</th>
<th>N₅P₃K₁</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td>7841</td>
<td>9307</td>
<td>4645</td>
<td>10453</td>
<td>10282</td>
<td>10111</td>
<td>11765</td>
<td>11118</td>
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<tr>
<td>Control yield = 26574 Kg/ha.; No. of trials = 6.</td>
<td></td>
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</table>
Crop : Jute ('Kharif').  
Site : (District) : Nowgong, Kamrup and Goalpara (c.f.).

Object :—Type A1 : To study the response curve of important cereals, oilseeds and cash crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :
   (i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :
   8 manurial treatments:
   - $N_0$=Control (no manure)
   - $N_1$=60 Kg/ha. of N
   - $P_1$=35 Kg/ha. of $P_2O_5$
   - $P_2$=70 Kg/ha. of $P_2O_5$
   - $N_1P_1$=60 Kg/ha. of N+$+35$ Kg/ha. of $P_2O_5$
   - $N_1P_2$=60 Kg/ha. of N+$+70$ Kg/ha. of $P_2O_5$
   - $N_1P_3$=120 Kg/ha. of N+$+70$ Kg/ha. of $P_2O_5$
   - $N_1P_4$=120 Kg/ha. of N+$+70$ Kg/ha. of $P_2O_5$+$70$ Kg/ha of $K_2O$
   - N applied as A S, $P_2O_5$ as Super and $K_2O$ as Mur. Pot.

3. DESIGN :
   Same as in experiment Type A1 on Jute on page 104.

4. GENERAL :
   (i) and (ii) N.A. (iii) Yield of green weight of Jute stems. (iv) 1963 to 65 for Nowgong; 1963 to 54 for others. (v) to (vii) N.A.

5. RESULTS :

Nowgong
64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>$N_1P_1$</th>
<th>$N_1P_2$</th>
<th>$N_1P_3$</th>
<th>$N_1P_4$</th>
<th>$N_1P_5K_4$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of green jute stems in Kg/ha.</td>
<td>2167</td>
<td>1105</td>
<td>1337</td>
<td>2742</td>
<td>3590</td>
<td>6079</td>
<td>6527</td>
<td></td>
<td>299-9</td>
</tr>
<tr>
<td>Control yield=19554 Kg/ha.; No. of trials=8.</td>
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</table>

65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>$N_1P_1$</th>
<th>$N_1P_2$</th>
<th>$N_1P_3$</th>
<th>$N_1P_4$</th>
<th>$N_1P_5K_4$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of green jute stems in Kg/ha.</td>
<td>662</td>
<td>192</td>
<td>1008</td>
<td>3009</td>
<td>1230</td>
<td>5999</td>
<td>8396</td>
<td></td>
<td>7502-1</td>
</tr>
<tr>
<td>Control yield=19847 Kg/ha.; No. of trials=3.</td>
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66(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>$N_1P_1$</th>
<th>$N_1P_2$</th>
<th>$N_1P_3$</th>
<th>$N_1P_4$</th>
<th>$N_1P_5K_4$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of green jute stems in Kg/ha.</td>
<td>2880</td>
<td>1795</td>
<td>1942</td>
<td>3128</td>
<td>4665</td>
<td>6860</td>
<td>9771</td>
<td></td>
<td>648-2</td>
</tr>
<tr>
<td>Control yield=21530 Kg/ha.; No. of trials=9.</td>
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</tr>
</tbody>
</table>
Crop: Jute (Kharif)  
Ref.: As. 63, 64, 65(S.F.T.) for Nowgong; 63, 64(S.F.T.) for Kamrup and 64(S.F.T.) for Goalpara.  

Site: (District) Nowgong, Goalpara, Kamrup (c.f.). Type: 'M'.  

Object: Type A1. To study the response curve of important cereals, oilseeds and cash crop to potash applied singly and in combination with other nutrients.  

1. BASAL CONDITIONS:  
(i) N.A.  (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.  

2. TREATMENTS:  
8 manurial treatments:  
N0 = Control (no manure).  
N1 = 60 kg/ha. of N.  
K1 = 35 kg/ha. of K2O.  
K2 = 70 kg/ha. of K2O.  
N1K1 = 60 kg/ha. of N+35 kg/ha. of K2O.  
N1K2 = 60 kg/ha. of N+70 kg/ha. of K2O.  
N2K2 = 120 kg/ha. of N+70 kg/ha. of K2O.  
N1P1K1 = 60 kg/ha. of N+35 kg/ha. of P2O5+35 kg/ha. of K2O.  
N applied as A5, P2O5 as Super and K2O as Mur. Pot.  

3. DESIGN:  
Same as in experiment Type A1 on Jute on page 104.  

4. GENERAL:  
(i) and (ii) N.A. (iii) Yield of green weight of jute steams. (iv) 1964 for Goalpara, 1963—64 for Kamrup and 1963—65 for Nowgong. (v) to (vii) N.A.
5. RESULTS:

**Nowgong**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>S.E.</th>
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</thead>
<tbody>
<tr>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>2350</td>
<td>1217</td>
<td>1648</td>
<td>3110</td>
<td>3160</td>
<td>5403</td>
<td>4132</td>
<td>339 8</td>
</tr>
<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td></td>
<td></td>
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<tr>
<td>Control yield</td>
<td>18838 Kg/ha.</td>
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<tr>
<td>No. of trials</td>
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<table>
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<th>Treatment</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>S.E.</th>
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<tbody>
<tr>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>1704</td>
<td>716</td>
<td>1828</td>
<td>2935</td>
<td>4793</td>
<td>5673</td>
<td>7660</td>
<td>671 6</td>
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<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td></td>
<td></td>
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<tr>
<td>Control yield</td>
<td>19570 Kg/ha.</td>
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<tr>
<td>No. of trials</td>
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<td></td>
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**Kamrup**

<table>
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<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
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<tr>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>8167</td>
<td>3271</td>
<td>2988</td>
<td>9379</td>
<td>8935</td>
<td>11096</td>
<td>10948</td>
<td>18329</td>
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<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
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<td></td>
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<tr>
<td>Control yield</td>
<td>24647 Kg/ha.</td>
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</tr>
<tr>
<td>No. of trials</td>
<td>6</td>
<td></td>
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**Goaipara**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
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<tbody>
<tr>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>1232</td>
<td>929</td>
<td>-309</td>
<td>-303</td>
<td>1238</td>
<td>2767</td>
<td>619</td>
<td>1202 3</td>
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<tr>
<td>Av. response of green jute steams in Kg/ha.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control yield</td>
<td>27049 Kg/ha.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of trials</td>
<td>3</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Crop:—Jute (Kharif).

Site:—Jute Res. Stn., Shillongani.

Object:—To study and compare the effect of foliar spray and soil application of urea on the yield of two capsularis varieties of Jute.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 19.4.65. (iv) (a) 3 ploughings, 2 laddering and levelling. (b) Line sowing with Jute seed-drill. (c) 7.4 Kg/ha. (d) Rows 30 cm. apart and plants 7.5 cm. apart. (e) —. (f) N.A. (vi) As per treatments. (vii) U. irrigated. (viii) Weeding, matching, thinning and wheel-hoeing. (ix) N.A. (x) 24.8.65.
2. TREATMENTS:

Main-plot treatments:  
2 varieties: \( V_1 = \text{JRC-212} \) and \( V_2 = \text{JRC-321} \).

Sub-plot treatments:  
8 methods of application of Urea: \( T_2 = \text{Control (No fertilizer)} \), \( T_3 = \text{Water spray (No fertilizer)} \), \( T_4 = 22.4 \) Kg/ha. of N as soil application, \( T_5 = 44.8 \) Kg/ha. of N as soil application, \( T_6 = 5.6 \) Kg/ha. of N as foliar spray, \( T_7 = 11.2 \) Kg/ha. of N as foliar spray, \( T_8 = 16.8 \) Kg/ha. of N as foliar spray and \( T_9 = 22.4 \) Kg/ha. of N as foliar spray.

3. DESIGN:

(i) Split-plot.  
(ii) (a) 2 main-plots/rep. and 8 sub-plots/main-plot.  
(b) 22.2 m. x 17.8 m.  
(iii) 4.

4. GENERAL:

(i) N.A.  
(ii) Endrex 20 E.C. sprayed to control attack of semi-looper.  
(iii) Yield of fibre.  
(iv) (a) 1965—66.  
(b) N6.  
(c) Nil.  
(d) No.  
(e) N.A.  
(f) N.A.

5. RESULTS:

(i) 2013 Kg/ha.  
(ii) (a) 283.6 Kg/ha.  
(b) 221.7 Kg/ha.  
(iii) Main effects of \( V \) and \( T \) are significant, interaction \( V \times T \) is highly significant.  
(iv) Av. yield of fibre in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>( T_0 )</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>( T_7 )</th>
<th>Mean</th>
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<td>2289</td>
<td>1935</td>
<td>2079</td>
<td>2075</td>
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</tbody>
</table>

C.D. for \( V \) marginal means = 225.6 Kg/ha.  
C.D. for \( T \) marginal means = 223.8 Kg/ha.  
C.D. for \( T \) means at the same level of \( V = 316.5 \) Kg/ha.  
C.D. for \( V \) means at the same level of \( T = 364.8 \) Kg/ha.

Crop: Jute (Kharif).  
Site: Jute Res. Stn., Shillongani.  
Object: To study the effect of different sources of N in different instalments of application on the yield of two capsularis varieties.

1. BASAL CONDITIONS:

(i) (a) Nil.  
(b) and (c) N.A.  
(ii) Sandy loam.  
(iii) 16.6.65.  
(iv) (a) 3 ploughings, 2 ladderings and levelling.  
(b) Line sowing with Jute seed drill.  
(c) 7.4 Kg/ha.  
(d) Rows 30 cm. apart, Plants 7.5 cm. apart.  
(e) —.  
(v) 25.1 Q/ha. of F.Y.M.  
(vi) As per treatments.  
(vii) Unirrigated.  
(viii) Weeding and wheel-hoeing.  
(ix) N.A.  
(x) 21.9.65.

2. TREATMENTS:

Main-plot treatments:  
2 varieties: \( V_1 = \text{JRC-212} \) and \( V_2 = \text{JRC-321} \).

Sub-plot treatments:  
5 sources of N at 44.8 Kg/ha. of N + one control: \( S_0 = \text{Control} \), \( S_1 = A/S \), \( S_2 = A/S/N \), \( S_3 = \text{Urea} \), \( S_4 = A/C \) and \( S_5 = C/A/N \).

Sub-sub-plot treatments:  
4 times of application of N: \( T_1 = \text{Full dose at sowing} \), \( T_2 = \frac{1}{2} \) dose at sowing + \( \frac{1}{2} \) dose to 30 days old crop, \( T_3 = \frac{1}{2} \) dose at sowing + \( \frac{1}{2} \) dose to 30 days old crop and \( T_4 = \text{Full dose to 30 day's old crop} \).
3. DESIGN:
(i) Split-plot. (ii) 2 main-plots/rep., 6 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) 50 8 m. x 27'0 m. (iii) 2. (iv) 6) 6 0 m. x 4'0 m. (b) 5'4 m. x 3' 4 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:
(i) N.A (ii) Endrex 20 E.C. sprayed to control the attack of hairy caterpillar. (iii) Yield of fibre. (iv) (a) 1965—66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS.
(i) 951'2 Kg ha. (ii) (a) 127'2 Kg/ha. (b) 165'4 Kg/ha. (c) 110'1 Kg/ha. (42 d.f.). (iii) No e of the effects is significant (iv) Av. yield of fibre in Kg/ha.

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<td>T3</td>
<td>T4</td>
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<tr>
<td>V1</td>
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<td>986'9 990'2 1010'9 1005'4</td>
<td>998'4</td>
<td>920'5 952'1 958'9 949'6</td>
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<tr>
<td>V2</td>
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<td>854'0 913'9 906'9 893'8</td>
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<td>890'6</td>
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S1 Other sources of N Mean
V1 1078'4 998'4 1011'7
V2 883'0 892'2 890'6
Mean 980'7 945'3 951'2

Crop: Jute (Kharif).
Site: Jute Res. Stn., Shillongani.
Object: To study the maximum response of different capsule varieites to fertilizer application at successive higher doses of N, P and K.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 13.6.65. (iv) (a) 3 ploughings, 2 levelling and levelling. (b) Line sowing with Jute seed-drill. (c) 7'4 Kg/ha. (d) Rows 30 cm. apart. Plants 7'5 cm. apart. (e) —. (v) 46 Q/ha. of compost. (vi) As per treatments. (vii) Unirrigated. (viii) Weed, mulching and wheel-hoeing. (ix) N.A. (x) 17, 30.9.65 and 13.10.65.

2. TREATMENTS:
Main-plot treatments:
Sub-plot treatments:
5 levels of fertility: F1 = Nil, F1 = 44'8 Kg/ha. of N as A.S., F1 = 44'8 Kg of P as P.O., of K as Sulphate. F1 = 2 x F1, F1 = 3 x F1 and F1 = 4 x F1.

3. DESIGN:
(i) Split-plot. (ii) (a) 3 main-plots/rep. and 5 sub-plots/main-plot. (b) 22'4 m. x 26'0 m. (iii) 4. (iv) (a) 8'0 m. x 4'0 m. (b) 7'4 m. x 3'4 m. (v) 30 cm. discarded around. (vi) Yes.
4. GENERAL:
(i) Normal. (ii) N.A. (iii) Yield of fibre. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Expt. was conducted in modified form from 1966 to 1968.

5. RESULTS:
(i) 649.2 Kg/ha. (ii) (a) 119.2 Kg/ha. (b) 112.4 Kg/ha. (iii) Interaction V × F is significant. (iv) Av. yield of fibre in Kg/ha.

<table>
<thead>
<tr>
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<th>F₁</th>
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<th>F₃</th>
<th>F₄</th>
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<td>677'7</td>
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<td>724'4</td>
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<td>616'1</td>
<td>588'2</td>
<td>660'8</td>
<td>545'5</td>
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<tr>
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<td>696'6</td>
<td>669'7</td>
<td>690'6</td>
<td>604'5</td>
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C.D. for F means at the same level of V = 161'3 Kg/ha.
C.D. for V means at the same level of F = 189'5 Kg/ha.

Crop : Jute (Kharif).
Site : Jute Res. Stn., Sorbhog.
Ref : As. 63(26) and 64(26).
Type : 'MV'.

Object : To study the response of different capsularis varieties of Jute to various sources of Nitrogenous fertilizer applied in instalments.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) Sandy soil. (iii) 2.5.63 ; 3.5.64. (iv) (a) 3 ploughings and 2 jadderings. (b) Line sowing with Jute seed drill. (c) 7'4 Kg/ha. (d) 30 cm. between rows and 8 cm. between plants. (e) N.A. (v) 25 Q/ha. of F.Y.M. + 22'4 Kg/ha. of P₂O₅ as Super + 22'4 Kg/ha. of K₂O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) 2 hand weedings and thinning and 3 wheel-hoeings. (ix) 220'4 cm. ; 29'2 cm. (x) 29.63 and 2.10.64.

2. TREATMENTS:
Main-plot treatments: 2 varieties: V₁ = JRC-212 and V₂ = JRC-321.
Sub-plot treatments: 5 sources of N at 44'8 Kg/ha. of N+One control (S₀) : S₁ = A/S, S₂ = A/S/N, S₃ = Urea, S₄ = A/C and S₅ = C/A/N.
Sub-sub-plot treatments: 4 times of application : T₁ = Full dose at sowing time, T₂ = ½ dose at sowing + ½ dose at 30 days old crop, T₃ = ½ dose at sowing + 2/3rd dose at 30 days old crop and T₄ = Full dose at 30 days old crop.

3. DESIGN:
(i) Split-plot. (ii) (a) 2 main-plots/rep., 6 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) 50'8 m. × 27'0 m. (iii) 2. (iv) (a) 6'0 m. × 4'0 m. (b) 5'4 m. × 3'4 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:
(i) Not good. (ii) Attack of Hairy caterpillar and Semi-looper—Endræx 20 E.C. was sprayed. (iii) Yield of fibre. (iv) (a) 1963-64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As the sub-sub-plot error variances are heterogeneous, the individual results of experiments are given below.

5. RESULTS:
(i) 630 Kg/ha. (ii) (a) 99.7 Kg/ha. (b) 361.1 Kg/ha. (c) 205.3 Kg/ha. (42 d.f.) (iii) None of the effects is significant. (iv) Av. yield of fibre in Kg/ha.
Crop: Jute (Kharif).

Ref.: As. 63(28) and 64 28).

Site: Jute Res. Stn., Sorbhog.

Type: 'MV'.

Object: To study the maximum response of different olitoris varieties to fertilizer application at successive higher doses of N, P and K.

1. BASAL CONDITIONS:

- (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) April. (iv) (a) 3 ploughings and 2 lab. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2 hand-weedings, one thinning and 3 wheel-hoeings. (ix) 220·5 cm.; 292·9 cm. (x) September.

2. TREATMENTS:

- Main-plot treatments:
  3 varieties: V₁=JRO-632, V₂=JRO-620 and V₃=JRO-514.

- Sub-plot treatments:
  6 fertilizer levels: F₀=Control, F₁=22·4 Kg/ha. of N₁+12·2 Kg/ha. of P₂O₅+11·2 Kg/ha. of K₂O, F₂=2×F₁, F₃=4×F₁, F₄=6×F₁ and F₅=8×F₁.

N applied as A/S, P₂O₅ as Super and K₂O as Mur. Pot.
3. DESIGN:
   (i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) 12·0 m. x 27·0 m. (iii) 4.
   (iv) (a) 10·0 m. x 4·0 m. (b) 9·4 m. x 3·4 m. (v) 0·3 cm. discarded around. (vi) Yes.

4. GENERAL:
   (i) Normal in 63 and not good in 64. (ii) Attack of hairy caterpillar. Endre 20 E.C. sprayed as a control
   measure. (iii) Yield of fibre. (iv) (a) 1963-64. (b) No. (c) Results of combined analysis are given under
   5-RESULTS. (v) No. (vi) N.A. (vii) Main-plot error variances are heterogeneous and Main-plot Treatments x
   years interaction is present. Sub-plot error variances are homogeneous and Sub-plot Treatments x years
   interaction is absent.

5. RESULTS:
   Pooled results
   (i) 1699 Kg/ha. (ii) (a) 1130·2 Kg/ha. (based on 2 d.f. made up of Main-plot Treatments x years interaction).
   (b) 384·0 Kg/ha. (based on 105 d.f. made up of pooled error and Sub-plot Treatments x years interaction).
   (iii) Only the main effect of F is highly significant. (iv) Av. yield of fibre in Kg/ha.

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   C.D. for F marginal means = 219·5 Kg/ha.

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<th>F_2</th>
<th>F_3</th>
<th>F_4</th>
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<td>1903</td>
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<td>1760</td>
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Crop :- Jute (Kharif).
Site :- Jute Res. Stn., Sorbhog.
Ref :- As. 63(27), 64(27):
Type :- 'MV'.

Object :- To study the maximum response of different capsularis varieties to fertilizer application at successive higher doses of N, P and K.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) Sandy. (iii) April. (iv) 3 ploughings and 2 laddering. (b) Line sowing with Jute seed drill. (c) 7·4 Kg/ha. (d) 30 cm. between rows and 75 mm. between plants. (e) N.A. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2 handweedicides, 1 thinning and 3 wheel-hoeings. (ix) 220·4 cm.; 292·9 cm. (x) September.
2. TREATMENTS:

Main-plot treatments

Sub-plot treatments:
6 fertilizer doses: F₁ = Control, F₂ = 44.8 Kg/ha of N, F₃ = 22.4 Kg/ha of P₂O₅, F₄ = 22.4 Kg/ha of K₂O, F₅ = 3 × F₁, F₆ = 4 × F₁ and F₇ = 5 × F₁. N is applied as A.S., P₂O₅ as Super and K₂O as Mur. Pot.

3 DESIGN:
(i) Split-plot. (ii) 3 main-plots: replication and 6 sub-plots: main-plot. (b) 32'0 m. × 27'0 m. (iii) 4. (iv) (a) 10'0 m. × 4'0 m. (b) 9'4 m. × 3'4 m. (v) 0'3 m. discard around. (vi) Yes.

4 GENERAL:
(i) (a) No. good. (b) Attack of semi-looper and hairy caterpillar. Endrex 20 E.C. sprayed as a control measure. (ii) Yield of fibre. (iv) (a) 1963-64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Main-plot error variances are homogeneous. Sub-plot error variances are heterogeneous. The results of individual years are presented under 5-Results.

5. RESULTS:

63(27)
(i) 1300 Kg/ha. (ii) (a) 122.8 Kg/ha. (b) 163.6 Kg/ha. (iii) Main effects of V and F are highly significant. (iv) Av. yield of fibre in Kg/ha.

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<td>1407</td>
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C.D. for V marginal means = 86.8 Kg/ha.
C.D. for F marginal means = 134.9 Kg/ha.

64(27)
(i) 1169 Kg/ha. (ii) (a) 217.2 Kg/ha. (b) 231.4 Kg/ha. (iii) Main effects of V and F are highly significant. (iv) Av. yield of fibre in Kg/ha.

<table>
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<th>V₂</th>
<th>V₃</th>
<th>F₁</th>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1221</td>
<td>1566</td>
<td>1429</td>
<td>1618</td>
<td>1537</td>
<td>1440</td>
<td>1468</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>936</td>
<td>1274</td>
<td>1228</td>
<td>1250</td>
<td>1228</td>
<td>1100</td>
<td>1169</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C.D. for V marginal means = 153.4 Kg/ha.
C.D. for F marginal means = 190.8 Kg/ha.

Crop = Jute (Kharif).
Site = Jute Res. Stn., Shillongani.
Object = To test the effect of different close spacings with a view to obtain better quality of fibre.
1. **BASAL CONDITIONS**:
   (i) (a) Nil. (b) and (c) N.A. (ii) Sandy soil. (iii) 12.4.65. (iv) (a) 3 ploughings, 2 ladderings and levelling. 
   (b) Line sowing with jute seed drill. (c) 7.4 Kg/ha. (d) As per treatments. (e) (v) 25.1. Q/ha. of F.Y.M.: 44.8 Kg/ha. of N as A/S top dressed. 
   (vi) JRC-212 (Capsularis variety) (vii) Unirrigated. 
   (viii) Weeding and mulching. (ix) N.A. (x) 7.10.65.

2. **TREATMENTS**:
   All combinations of (1) and (2).
   (1) 4 row spacings:  
      \[ R_1 = 20, \quad R_2 = 22.5, \quad R_3 = 25, \quad R_4 = 30 \text{ cm.} \]
   (2) 2 plant spacings:  
      \[ P_1 = 5.0, \quad P_2 = 7.5 \text{ cm.} \]

3. **DESIGN**:
   (i) 4 x 2 Fac. in R.B.D. (ii) (a) 19 5 m. x 12.5 m. (iii) 6. (iv) (a) 4.5 m. x 6.0 m. (b) 3.9 m. x 5.4 m. (v) 30 cm, discarded around. (vi) Yes.

4. **GENERAL**:

5. **RESULTS**:
   (i) 3019 Kg/ha. (ii) 276.9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of fiber in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>R_1</th>
<th>R_2</th>
<th>R_3</th>
<th>R_4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_1</td>
<td>3034</td>
<td>3096</td>
<td>2906</td>
<td>2901</td>
<td>2984</td>
</tr>
<tr>
<td>P_2</td>
<td>3167</td>
<td>3143</td>
<td>2877</td>
<td>3025</td>
<td>3053</td>
</tr>
<tr>
<td>Mean</td>
<td>3101</td>
<td>3119</td>
<td>2891</td>
<td>2963</td>
<td>3019</td>
</tr>
</tbody>
</table>

_Crop_ :- Jute (Kharif)_.

Ref :- As. 62(18) and 63(24).

_Site_ :- Jute Res. Stn., Sorbhog.

Type :- 'CV'.

Object :- To study the optimum date of sowing for two olitorius varieties of Jute.

1. **BASAL CONDITIONS**:
   (i) (a) Nil. (b) and (c) N.A. (ii) Sandy soil. (iii) As per treatments. (iv) (a) 3 ploughings and 2 ladderings. 
   (b) Line sowing with jute seed drill. (c) 4.9 Kg/ha. (d) 30 cm. between rows and 7.5 cm. between plants. 
   (e) N.A. (v) 25.1 Q/ha. of F.Y.M. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings, 1 thinning and 3 wheel-hoeing. (ix) 270-6 cm.; 230-4 cm. (x) 28.9.62 and 30.9.63.

2. **TREATMENTS**:
   Main-plot treatments:
   2 varieties : \[ V_1 = JRO - 63, \text{and} \quad V_2 = C.G. \]

   Sub-plot treatments:
   4 dates of sowing: \[ D_1 = 1st \text{March}, \quad D_2 = 21st \text{March}, \quad D_3 = 10th \text{April} \text{and} \quad D_4 = 1st \text{May.} \]

3. **DESIGN**:
   (i) Split-plot. (ii) 2 main-plots/replication and 4 sub-plots/main-plot. (b) 15.9 m. x 21.3 m. (iii) 4. (iv)
   (a) 4.0 m. x 10.7 m. (b) 3.4 m. x 10.1 m. (v) 30 cm. discarded around. (vi) Yes.

4. **GENERAL**:
   (i) Fair. (ii) Attack of semi-looper-Gusler @ 3.9 Kg/ha. sprayed. (iii) Yield of fibre. (iv) (a) 1962-63. 
   (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Main-plot error variances are homogeneous; Sub-plot error variances 
   are heterogeneous. The results of individual-years are presented under 5-Results.
5. RESULTS:

62(18)

(i) 602 Kg/ha. (ii) (a) 171.1 Kg/ha. (b) 321.1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of fibre in Kg/ha

<table>
<thead>
<tr>
<th>D_1</th>
<th>D_2</th>
<th>D_3</th>
<th>D_4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_1</td>
<td>666</td>
<td>334</td>
<td>649</td>
<td>678</td>
</tr>
<tr>
<td>V_2</td>
<td>374</td>
<td>561</td>
<td>611</td>
<td>946</td>
</tr>
<tr>
<td>Mean</td>
<td>520</td>
<td>447</td>
<td>630</td>
<td>812</td>
</tr>
</tbody>
</table>

63(24)

(i) 705 Kg/ha (ii) (a) 77.3 Kg/ha. (b) 77.4 Kg/ha. (iii) Main effects of D is highly significant. (iv) Av. yield of fibre in Kg/ha.

<table>
<thead>
<tr>
<th>D_1</th>
<th>D_2</th>
<th>D_3</th>
<th>D_4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_1</td>
<td>745</td>
<td>908</td>
<td>890</td>
<td>1024</td>
</tr>
<tr>
<td>V_2</td>
<td>413</td>
<td>467</td>
<td>597</td>
<td>597</td>
</tr>
<tr>
<td>Mean</td>
<td>579</td>
<td>688</td>
<td>744</td>
<td>810</td>
</tr>
</tbody>
</table>

C.D. for D marginal means = 81.3 Kg/ha.

Crop: Jute (Kharif).

Site: Jute Res. Stn., Sorbhog.

Ref: As. 63(25).

Type: 'D'.

Object: To study the influence of different doses and time of application of Dowpon for the control of weeds in capsularis Jute.

1. BASAL CONDITIONS:

   (i) (a) N1 (b) and (c) N.A. (ii) 6.4.63. (iii) Sandy soil. (iv) (a) 3 ploughings and 2 ladderings. (b) Line sowing with Jute +2 drill. (c) 7.4 Kg/ha (d) Rows 30 cm. apart and plants 7.5 cm. apart. (e) —. (f) 25.1 Q/ha of F.Y.M. +44.8 Kg/ha. of N as A.S+22.4 Kg/ha of P_2O_5 as Super -22.4 Kg/ha. of K_2O as Mur. Pot (v) JRC—212 (are) (vi) Unirrigated. (vii) Unirrigated. (viii) 1 raking. (ix) 220.4 cm. (x) 9.10.63.

2. TREATMENTS:

   All combinations of (1) and (2) +2 extra treatments
   (1) 4 levels of Dowpon: D_1=5.6, D_2=8.4, D_3=11.2 and D_4=16.8 Kg/ha.
   (2) 4 times of post-emergence application of Dowpon: T_1=1, T_2=2, T_3 and T_4=4 weeks old crop.
   Extra treatments: E_1=Control—usual hand weeding and thinning and E_2=Control—No hand weeding, no weedicide and no thinning.

3. DESIGN:

   (i) R.B.D. (ii) (a) 18. (b) 390 m x 132 m. (iii) 3. (iv) (a) 6.0 m x 4.0 m. (b) 5.7 m x 3.7 m. (v) 15 cm. discarded around. (vi) Yes.

4. GENERAL:

   (i) Poor. (ii) Endrex 20 E.C. sprayed to control attack of hairy catterpillars and semi-looper. (iii) Yield of fibre (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Nil.
5. RESULTS:
   (i) 437.4 Kg/ha. (ii) 170.5 Kg/ha. (iii) Interaction D x T is significant. (iv) Av. yield of fibre in Kg/ha.

\[ E_1 = 605.3 \text{ Kg/ha. and } E_2 = 333.5 \text{ Kg/ha.} \]

<table>
<thead>
<tr>
<th></th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
<th>( T_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( D_1 )</td>
<td>170.7</td>
<td>461.5</td>
<td>635.4</td>
<td>354.0</td>
<td>405.4</td>
</tr>
<tr>
<td>( D_2 )</td>
<td>279.8</td>
<td>515.2</td>
<td>349.3</td>
<td>480.5</td>
<td>406.2</td>
</tr>
<tr>
<td>( D_3 )</td>
<td>393.6</td>
<td>466.2</td>
<td>328.7</td>
<td>521.6</td>
<td>427.5</td>
</tr>
<tr>
<td>( D_4 )</td>
<td>697.0</td>
<td>497.9</td>
<td>510.5</td>
<td>271.9</td>
<td>494.3</td>
</tr>
<tr>
<td>Mean</td>
<td>385.3</td>
<td>485.2</td>
<td>456.0</td>
<td>407.0</td>
<td>433.4</td>
</tr>
</tbody>
</table>

C.D. for mean in the body of table = 283.1 Kg/ha.

**Crop :-** Mustard *(Rabi).*

**Site :-** Pulse and Oilseeds Res. Stn., Roha.

**Ref :-** As. 62(19) and 63(29).

**Type :-** 'M'.

Object :- To study the effect of different doses of N and P on the yield of Mustard.

1. **BASE CONDITIONS :**
   (i) (a) Nil. (b) and (c) N.A. (ii) Loamy. (iii) 5.11.62; 7.11.63. (iv) (a) 5 top ploughings. (b) Broad casting. (c) 5.6—6.7 Kg/ha. (d) and (e) —. (v) Nil. (vi) M—27. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 25.1.63 and 28.1.64.

2. **TREATMENTS :**
   6 manurial treatments: \( T_0 = \text{Control}, T_1 = 22.4 \text{ Kg/ha. of } N \text{ as A/S} + 22.4 \text{ Kg/ha. of } P_2O_5 \text{ as Super}, T_2 = 33.6 \text{ Kg/ha. of } N \text{ as A/S} + 33.6 \text{ Kg/ha. of } P_2O_5 \text{ as Super}, T_3 = 44.8 \text{ Kg/ha. of } N \text{ as A/S} + 44.8 \text{ Kg/ha. of } P_2O_5 \text{ as Super}, T_4 = 56 \text{ Kg/ha. of } N \text{ as A/S} + 56 \text{ Kg/ha. of } P_2O_5 \text{ as Super} \) and \( T_5 = 67.2 \text{ Kg/ha. of } N \text{ as A/S} + 67.2 \text{ Kg/ha. of } P_2O_5 \text{ as Super} \).

3. **DESIGN :**
   (i) R.B.D. (ii) 6. (b) N.A (iii) 3. (iv) (a) 5.6 m. x 5.6 m. (b) 5.0 m. x 5.0 m. (v) 30 cm. discarded around. (vi) Yes.

4. **GENERAL :**
   (i) Normal. (ii) N.A. (iii) Yield of seed. (iv) (a) 1962—64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Expt. failed in 1964. As the error variances are heterogeneous and Treatments x years interaction is absent, the results of individual experiments are given below.

5. **RESULTS :**
   62(19)
   (i) 555 Kg/ha. (ii) 54.1 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Mustard in Kg/ha.

\[ \text{Treatment} \begin{array}{cccccc}
T_0 & T_1 & T_2 & T_3 & T_4 & T_5 \\
\text{Av. yield} & 334 & 598 & 576 & 502 & 714 & 603 \\
\end{array} \]

\[ \text{C.D.} = 98.4 \text{ Kg/ha.} \]

63(29)
   (i) 522 Kg/ha. (ii) 113.7 Kg/ha (iii) Treatment differences are highly significant. (iv) Av. yield of Mustard in Kg/ha.
Crop :- Mustard (Rabi).

Ref :- As. 62(20) and 63(30).

Site :- Pulse and Oilseeds Res. Stn., Roha.

Type :- 'M'.

Object :- To study the effect of N, P and K alone and in combination on the yield of Mustard.

1 BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (iii) Loamy. (iii) 7.11.62 ; 5.11.63. (iv) (a) 5 to 6 ploughings. (b) Broadcasting. (c) 5'6 to 6'7 Kg. ha. (d) and (e) —. (v) N.A. (vi) M—27. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 27.1.63 ; 26.1.64.

2. TREATMENTS:

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

(1) 2 levels of N as A, S: N$_0$=0 and N$_1$=33'6 Kg/ha. of N.

(2) 2 levels of P as Super: P$_0$=0 and P$_1$=33'6 Kg/ha. of P$_2$O$_5$.

(3) 2 levels of K as Mur. Pot.: K$_0$=0 and K$_1$=33'6 Kg/ha. of K$_2$O.

3. DESIGN:

(i) Fact. in R.B.D (ii) (a) 8. (b) N.A. (iiii) 3. (iv) (a) 5'6 m. x 3'2 m. (b) 5'0 m. x 2'6 m. (v) 30 cm. x 30 cm. (vi) —.

4. GENERAL:

(i) Not good. (ii) N.A. (iii) Yield of seed. (iv) (a) 1962—63. (b) No. (c) Results of combined analysis are given under 5. Results. (d) No. (v) N.A. (vii) Error variances are homogeneous and Treatments years interaction is present.

5. RESULTS:

Pooled results

(i) 376 Kg ha. (ii) 135'1 Kg. ha. (based on 6 d.f. made up of Treatments x years interaction). (iii) Only the main effect of K is significant. (iv) Av. yield of Mustard in Kg/ha.

<table>
<thead>
<tr>
<th>P$_0$</th>
<th>P$_1$</th>
<th>K$_0$</th>
<th>K$_1$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N$_0$</td>
<td>318</td>
<td>370</td>
<td>287</td>
<td>401</td>
</tr>
<tr>
<td>N$_1$</td>
<td>389</td>
<td>429</td>
<td>342</td>
<td>476</td>
</tr>
<tr>
<td>Mean</td>
<td>353</td>
<td>400</td>
<td>314</td>
<td>439</td>
</tr>
<tr>
<td>K$_0$</td>
<td>284</td>
<td>345</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K$_1$</td>
<td>423</td>
<td>454</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C.D. for K marginal means=95'4 Kg/ha.

Results of individual years

<table>
<thead>
<tr>
<th>Years</th>
<th>N$_0$</th>
<th>N$_1$</th>
<th>Sig.</th>
<th>P$_0$</th>
<th>P$_1$</th>
<th>Sig.</th>
<th>K$_0$</th>
<th>K$_1$</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E., plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>448</td>
<td>578</td>
<td>N.S.</td>
<td>509</td>
<td>517</td>
<td>N.S.</td>
<td>449</td>
<td>577</td>
<td>N.S.</td>
<td>513</td>
<td>57'9</td>
</tr>
<tr>
<td>1963</td>
<td>240</td>
<td>240</td>
<td>N.S.</td>
<td>198</td>
<td>282</td>
<td>N.S.</td>
<td>180</td>
<td>300</td>
<td>*</td>
<td>240</td>
<td>66'3</td>
</tr>
<tr>
<td>Pooled</td>
<td>344</td>
<td>409</td>
<td>N.S.</td>
<td>353</td>
<td>400</td>
<td>N.S.</td>
<td>314</td>
<td>439</td>
<td>*</td>
<td>376</td>
<td>135'1</td>
</tr>
</tbody>
</table>
Crop: Mustard (Rabi).

Site: (District): Goalpara, Lakhimpur, Sibsagar, Nowgong, and Darrang (c.f.)

Type: 'M'.

Object: To study the response curves of important cereal, cash and oilseed crops, nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:
   (i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS:
   8 manurial treatments
   \[ N_0 \] = Control (no manure)
   \[ N_1 \] = 25 Kg/ha of N
   \[ N_2 \] = 50 Kg/ha of N
   \[ P_1 \] = 25 Kg/ha of \( P_2 O_5 \)
   \[ N_1 P_1 \] = 25 Kg/ha of N + 25 Kg/ha of \( P_2 O_5 \)
   \[ N_2 P_1 \] = 50 Kg/ha of N + 25 Kg/ha of \( P_2 O_5 \)
   \[ N_2 P_2 K_1 \] = 50 Kg/ha of N + 50 Kg/ha of \( P_2 O_5 \) + 25 Kg/ha of \( K_2 O \)
   N applied as A/S, \( P_2 O_5 \) as Super and \( K_2 O \) as Mur. Pot.

3. DESIGN:
   (i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

4. GENERAL:
   (i) to (iii) N.A. (iv) 1963 to 1964 for Goalpara, 1963 to 65 (65 N.A.) for Kamrup, 1963 to 65 for others.
   (v) to (vii) N.A.

5. RESULTS:
   Goalpara
   63(S.F.T.)
   Treatment \[ N_1 \] \[ N_2 \] \[ P_1 \] \[ N_1 P_1 \] \[ N_2 P_1 \] \[ N_3 P_2 \] \[ N_2 P_2 K_1 \] S.E.
   Av. response of Mustard in Kg/ha. 21 2 57 81 88 140 163 42 3
   Control yield = 709 Kg/ha.; No. of trials = 5.

   64(S.F.T.)
   Treatment \[ N_1 \] \[ N_2 \] \[ P_1 \] \[ N_1 P_1 \] \[ N_2 P_1 \] \[ N_3 P_2 \] \[ N_2 P_2 K_1 \] S.E.
   Av. response of Mustard in Kg/ha. 28 38 60 49 51 59 64 23 4
   Control yield = 568 Kg/ha.; No. of trials = 5.

   Lakhimpur
   63(S.F.T.)
   Treatment \[ N_1 \] \[ N_2 \] \[ P_1 \] \[ N_1 P_1 \] \[ N_2 P_1 \] \[ N_3 P_2 \] \[ N_2 P_2 K_1 \] S.E.
   Av. yield of Mustard in Kg/ha. 24 -51 126 93 103 145 210 39 7
   Control yield = 373 Kg/ha.; No. of trials = 3.
64 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>P$_1$</th>
<th>N$_1$P$_1$</th>
<th>N$_2$P$_1$</th>
<th>N$_1$P$_2$</th>
<th>N$_1$P$_2$K$_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>84.24</td>
<td>62</td>
<td>177</td>
<td>188</td>
<td>306</td>
<td>261</td>
<td>43.7</td>
<td></td>
</tr>
<tr>
<td>Control yield = 369 Kg/ha; No. of trials = 5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

65 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>P$_1$</th>
<th>N$_1$P$_1$</th>
<th>N$_2$P$_1$</th>
<th>N$_1$P$_2$</th>
<th>N$_1$P$_2$K$_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>117.65</td>
<td>65</td>
<td>215</td>
<td>200</td>
<td>130</td>
<td>265</td>
<td>450</td>
<td>103.7</td>
</tr>
<tr>
<td>Control yield = 350 Kg/ha; No. of trials = 2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sibbagar

66 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>P$_1$</th>
<th>N$_1$P$_1$</th>
<th>N$_2$P$_1$</th>
<th>N$_1$P$_2$</th>
<th>N$_1$P$_2$K$_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>76.87</td>
<td>112</td>
<td>241</td>
<td>260</td>
<td>399</td>
<td>343</td>
<td>54.9</td>
<td></td>
</tr>
<tr>
<td>Control yield = 553 Kg/ha; No. of trials = 10.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

67 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>P$_1$</th>
<th>N$_1$P$_1$</th>
<th>N$_2$P$_1$</th>
<th>N$_1$P$_2$</th>
<th>N$_1$P$_2$K$_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>112.152</td>
<td>96</td>
<td>118</td>
<td>218</td>
<td>226</td>
<td>324</td>
<td>40.5</td>
<td></td>
</tr>
<tr>
<td>Control yield = 591 Kg/ha; No. of trials = 12.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nowgang

68 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>P$_1$</th>
<th>N$_1$P$_1$</th>
<th>N$_2$P$_1$</th>
<th>N$_1$P$_2$</th>
<th>N$_1$P$_2$K$_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>31.95</td>
<td>26</td>
<td>130</td>
<td>223</td>
<td>246</td>
<td>406</td>
<td>31.2</td>
<td></td>
</tr>
<tr>
<td>Control yield = 696 Kg/ha; No. of trials = 5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

69 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>P$_1$</th>
<th>N$_1$P$_1$</th>
<th>N$_2$P$_1$</th>
<th>N$_1$P$_2$</th>
<th>N$_1$P$_2$K$_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>139.163</td>
<td>46</td>
<td>191</td>
<td>304</td>
<td>424</td>
<td>473</td>
<td>21.4</td>
<td></td>
</tr>
<tr>
<td>Control yield = 998 Kg/ha; No. of trials = 8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

70 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>P$_1$</th>
<th>N$_1$P$_1$</th>
<th>N$_2$P$_1$</th>
<th>N$_1$P$_2$</th>
<th>N$_1$P$_2$K$_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>90.100</td>
<td>120</td>
<td>150</td>
<td>150</td>
<td>210</td>
<td>190</td>
<td>44.0</td>
<td></td>
</tr>
<tr>
<td>Control yield = 770 Kg/ha; No. of trials = 12.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

71 (S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N$_1$</th>
<th>N$_2$</th>
<th>P$_1$</th>
<th>N$_1$P$_1$</th>
<th>N$_2$P$_1$</th>
<th>N$_1$P$_2$</th>
<th>N$_1$P$_2$K$_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>70.114</td>
<td>99</td>
<td>149</td>
<td>208</td>
<td>248</td>
<td>325</td>
<td>20.5</td>
<td></td>
</tr>
<tr>
<td>Control yield = 830 Kg/ha; No. of trials = 9.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Darrang

**63(S.F.T.)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_1$</th>
<th>$N_1P_2K_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>114</td>
<td>208</td>
<td>133</td>
<td>203</td>
<td>232</td>
<td>228</td>
<td>346</td>
</tr>
</tbody>
</table>

Control yield = 964 Kg/ha.; No. of trials = 5.

### 64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_2$</th>
<th>$N_1P_2K_2$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>136</td>
<td>139</td>
<td>160</td>
<td>148</td>
<td>130</td>
<td>251</td>
<td>267</td>
</tr>
</tbody>
</table>

Control yield = 834 Kg/ha.; No. of trials = 6.

### 65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_2$</th>
<th>$N_1P_2K_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>176</td>
<td>198</td>
<td>99</td>
<td>164</td>
<td>214</td>
<td>408</td>
<td>322</td>
</tr>
</tbody>
</table>

Control yield = 340 Kg/ha.; No. of trials = 5.

### Kamrup

**63(S.F.T.)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$N_1$</th>
<th>$N_2$</th>
<th>$P_1$</th>
<th>$N_2P_1$</th>
<th>$N_1P_2$</th>
<th>$N_1P_2K_1$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>85</td>
<td>97</td>
<td>56</td>
<td>160</td>
<td>215</td>
<td>221</td>
<td>376</td>
</tr>
</tbody>
</table>

Control yield = 371 Kg/ha.; No. of trials = 6.

---

**Crop:** Mustard *(Rabi)*.

**Ref:** As. 63, 64(S.F.T.) for Goalpara and Kamrup; 64(S.F.T.) for Lakhimpur; 63, 64, 65(S.F.T.) for Sibsagar, Nowgong and Darrang.

**Site:** (District): Goalpara, Lakhimpur, Type: 'M'.

Sibsagar, Nowgong, Darrang and Kamrup *(cf.)*.

Object: --- Type A: To study the response curves of important cereals, oilseeds and cash crops to Phosphorus applied singly and in combination with other nutrients.

1. **BASAL CONDITIONS:**
   (i) N.A.  (ii) Alluvial for all. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. **TREATMENTS:**
   - 8 manurial treatments:
     - O=Control (no manure).
     - $N_1=25$ Kg/ha. of $N$.
     - $P_1=25$ Kg/ha. of $P_2O_5$.
     - $P_2=50$ Kg/ha. of $P_2O_5$.
     - $N_1P_1=25$ Kg/ha. of $N+25$ Kg/ha. of $P_2O_5$.
     - $N_1P_2=25$ Kg/ha. of $N+50$ Kg/ha. of $P_2O_5$.
     - $N_2P_2=50$ Kg/ha. of $N+50$ Kg/ha. of $P_2O_5$.
     - $N_1P_2K_2=50$ Kg/ha. of $N+50$ Kg/ha. of $P_2O_5$ + 50 Kg/ha. of $K_2O$.
     - $N$ applied as A/S, $P_2O_5$ as Super and $K_2O$ as Mur.-Pot.
3. **DESIGN:**

Same as the exper. type A1 on Mustard on page 119.

4. **GENERAL:**

(i) to (iii) N.A. (iv) (a) 1964 for Lakhimpur; 1963 to 66 (65 N.A.) for Goalpara, and Kamrup; 1963 to 65 for others. (b) No. (c) (v) to (vii) N.A.

5. **RESULTS**:

**Goalpara**

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P2</th>
<th>N4P2K2</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>80</td>
<td>36</td>
<td>56</td>
<td>111</td>
<td>103</td>
<td>149</td>
<td>179</td>
<td>37.6</td>
</tr>
</tbody>
</table>

Control yield = 711 Kg/ha.; No. of trials = 4.

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P2</th>
<th>N4P2K2</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>6</td>
<td>5</td>
<td>-6</td>
<td>19</td>
<td>17</td>
<td>34</td>
<td>58</td>
<td>16.1</td>
</tr>
</tbody>
</table>

Control yield = 527 Kg/ha.; No. of trials = 5.

**Lakhimpur**

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P2</th>
<th>N4P2K2</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>49</td>
<td>191</td>
<td>222</td>
<td>210</td>
<td>299</td>
<td>192</td>
<td>359</td>
<td>77.0</td>
</tr>
</tbody>
</table>

Control yield = 512 Kg/ha.; No. of trials = 5.

**Silhassar**

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P2</th>
<th>N4P2K2</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>164</td>
<td>149</td>
<td>205</td>
<td>284</td>
<td>305</td>
<td>354</td>
<td>481</td>
<td>50.3</td>
</tr>
</tbody>
</table>

Control yield = 535 Kg/ha.; No. of trials = 10.

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P2</th>
<th>N4P2K2</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>2</td>
<td>-33</td>
<td>61</td>
<td>118</td>
<td>72</td>
<td>145</td>
<td>218</td>
<td>70.8</td>
</tr>
</tbody>
</table>

Control yield = 568 Kg/ha.; No. of trials = 11.

65(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P2</th>
<th>N4P2K2</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>135</td>
<td>208</td>
<td>160</td>
<td>279</td>
<td>180</td>
<td>463</td>
<td>473</td>
<td>140.9</td>
</tr>
</tbody>
</table>

Control yield = 598 Kg/ha.; No. of trials = 4.

**Nowgong**

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N1</th>
<th>P1</th>
<th>P2</th>
<th>N1P1</th>
<th>N1P2</th>
<th>N2P2</th>
<th>N4P2K2</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>88</td>
<td>72</td>
<td>112</td>
<td>207</td>
<td>262</td>
<td>364</td>
<td>393</td>
<td>10.5</td>
</tr>
</tbody>
</table>

Control yield = 932 Kg/ha.; No. of trials = 7.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>00</td>
<td>00</td>
<td>80</td>
<td>90</td>
<td>80</td>
<td>280</td>
<td>580</td>
<td></td>
<td></td>
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</tbody>
</table>

Control yield=770 Kg/ha.; No. of trials=9.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>104</td>
<td>113</td>
<td>150</td>
<td>208</td>
<td>217</td>
<td>311</td>
<td>371</td>
<td>222</td>
<td></td>
</tr>
</tbody>
</table>

Control yield=778 Kg/ha.; No. of trials=9.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>59</td>
<td>138</td>
<td>182</td>
<td>158</td>
<td>163</td>
<td>162</td>
<td>287</td>
<td>412</td>
<td></td>
</tr>
</tbody>
</table>

Control yield=750 Kg/ha.; No. of trials=4.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>123</td>
<td>140</td>
<td>128</td>
<td>159</td>
<td>151</td>
<td>163</td>
<td>322</td>
<td>409</td>
<td></td>
</tr>
</tbody>
</table>

Control yield=925 Kg/ha.; No. of trials=7.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>44</td>
<td>67</td>
<td>67</td>
<td>109</td>
<td>41</td>
<td>148</td>
<td>207</td>
<td>579</td>
<td></td>
</tr>
</tbody>
</table>

Control yield=842 Kg/ha.; No. of trials=7.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>129</td>
<td>61</td>
<td>79</td>
<td>252</td>
<td>355</td>
<td>443</td>
<td>476</td>
<td>255</td>
<td></td>
</tr>
</tbody>
</table>

Control yield=371 Kg/ha.; No. of trials=5.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N&lt;sub&gt;1&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>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;1&lt;/sub&gt;</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. response of Mustard in Kg/ha.</td>
<td>61</td>
<td>21</td>
<td>60</td>
<td>133</td>
<td>163</td>
<td>193</td>
<td>242</td>
<td>378</td>
<td></td>
</tr>
</tbody>
</table>

Control yield=340 Kg/ha.; No. of trials=6.
Crop: Mustard (Rabi).

Site: Goalpara, Lakhimpur, Sibsagar, Nowgong, Darrang and Kamrup.

Object: To study the response curves of important oilseeds, cereals and cash crops to phosphorous applied singly and in combination with other nutrients.

1. BASAL CONDITIONS
(i) N.A. (ii) alluvial for all. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS:
8 manurial treatments:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N</th>
<th>K</th>
<th>N+K</th>
<th>N+K+P</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>49</td>
<td>128</td>
<td>95</td>
<td>39</td>
<td>67</td>
</tr>
</tbody>
</table>

Control yield = 780 Kg/ha.; No. of trials = 4.

3. DESIGN:
Same as the experiment Type A1 on Mustard on page 119.

4. GENERAL:
(i) to (iii) N.A. (iv) (a) 1963 to 66 (65 N.A.) for Goalpara and Kamrup; 1964 to 65 for Lakhimpur and Darrang; 1963 to 65 for Sibsagar and Nowgong. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS:

Goalpara

63(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N</th>
<th>K</th>
<th>N+K</th>
<th>N+K+P</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>13</td>
<td>-11</td>
<td>-20</td>
<td>11</td>
<td>76</td>
</tr>
</tbody>
</table>

Control yield = 528 Kg/ha.; No. of trials = 5.

Lakhimpur

64(S.F.T.)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N</th>
<th>K</th>
<th>N+K</th>
<th>N+K+P</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>148</td>
<td>247</td>
<td>158</td>
<td>206</td>
<td>1641</td>
</tr>
</tbody>
</table>

Control yield = 543 Kg/ha.; No. of trials = 3.
## Treatment

<table>
<thead>
<tr>
<th></th>
<th>N&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</th>
<th>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</th>
<th>S.E.</th>
<th>Average response of Mustard in Kg/ha.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sibsagar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>S.E.</td>
<td>107 48 84 103 96 179 227 57.0</td>
</tr>
<tr>
<td>Control yield = 570 Kg/ha.</td>
<td>No. of trials = 6.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>64(S.F.T.)</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>S.E.</td>
<td>79 48 84 103 96 179 227 57.0</td>
</tr>
<tr>
<td>Control yield = 371 Kg/ha.</td>
<td>No. of trials = 9.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>65(S.F.T.)</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>S.E.</td>
<td>92 61 211 198 293 395 51.7</td>
</tr>
<tr>
<td>Control yield = 644 Kg/ha.</td>
<td>No. of trials = 5.</td>
<td></td>
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</tr>
<tr>
<td>63(S.F.T.)</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>S.E.</td>
<td>117 31 117 224 232 415 555 23.0</td>
</tr>
<tr>
<td>Control yield = 1004 Kg/ha.</td>
<td>No. of trials = 6.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>64(S.F.T.)</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>S.E.</td>
<td>110 80 130 140 160 190 230 30.0</td>
</tr>
<tr>
<td>Control yield = 720 Kg/ha.</td>
<td>No. of trials = 11.</td>
<td></td>
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</tr>
<tr>
<td>65(S.F.T.)</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>S.E.</td>
<td>82 73 129 190 225 294 287 18.2</td>
</tr>
<tr>
<td>Control yield = 754 Kg/ha.</td>
<td>No. of trials = 9.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>64(S.F.T.)</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;2&lt;/sub&gt;K&lt;sub&gt;2&lt;/sub&gt;</td>
<td>N&lt;sub&gt;t&lt;/sub&gt;P&lt;sub&gt;1&lt;/sub&gt;K&lt;sub&gt;t&lt;/sub&gt;</td>
<td>S.E.</td>
<td>65 56 39 72 72 72 103 66.3</td>
</tr>
<tr>
<td>Control yield = 873 Kg/ha.</td>
<td>No. of trials = 5.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
**Crop :- Mustard (Rabi).**

**Site :- Pulse and Oilseed Res. Stn., Roha.**

Object :- To study the effect of different seed rates with different dates of sowing on the yield of Mustard.

1. **BASAL CONDITIONS**:
   
   (i) (a) Nil. (b) and (c) N.A. (ii) Loamy. (iii) As per treatments. (iv) (a) 5 to 6 ploughings. (b) Broadcasting. (c) As per treatments. (d) and (e) — (v) 163·1 Q/ha. of Cowdung. (vi) M—27. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 3.2.66.

2. **TREATMENTS**:
   
   All combinations of (1) and (2)
   
   (1) 3 dates of sowing: D₁ = Middle of October, D₂ = 1st half of November and D₃ = Late November
   
   (2) 4 seed rates: S₁ = 2·80, S₂ = 3·36, S₃ = 3·92 and S₄ = 4·48 Kg/ha.

3. **DESIGN**

   (i) Factor in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3·4 m. x 6·7 m. (v) N.A.

4. **GENERAL**


5. **RESULTS**

   (i) 706 Kg/ha. (ii) 120·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of Mustard in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
<th>S₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>415</td>
<td>533</td>
<td>896</td>
<td>917</td>
<td>690</td>
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<tr>
<td>D₂</td>
<td>338</td>
<td>502</td>
<td>1007</td>
<td>938</td>
<td>696</td>
</tr>
<tr>
<td>D₃</td>
<td>327</td>
<td>603</td>
<td>1006</td>
<td>996</td>
<td>733</td>
</tr>
<tr>
<td>Mean</td>
<td>360</td>
<td>546</td>
<td>970</td>
<td>950</td>
<td>706</td>
</tr>
</tbody>
</table>
Crop: Mustard (Rabi).  
Site: Pulse and Oilseed Res. Stn., Roha.  
Object: To study the effect of different spacings on the yield of Mustard.

1. BASAL CONDITIONS:
   (i) Nil. (b) and (c) N.A. (ii) Loamy. (iii) 8.11.64; 5.11.65. (iv) (a) 5 to 6 ploughings. (b) As per treatments. (c) N.A. (d) As per treatments. (e) N.A. (v) 163'1 Q/ha. of Cowdung. (vi) M—27. (vii) As per treatments. (ix) N.A. (x) 30.1.63; 25.1.66.

2. TREATMENTS:
   5 cultural treatments: T₁ = Broadcasting, T₂ = 15 cm. x 15 cm. with weeding, T₃ = 20 cm. x 20 cm. with weeding, T₄ = 15 cm. x 15 cm. without weeding and T₅ = 20 cm. x 20 cm. without weeding.

3. DESIGN:
   (i) R.B.D. (ii) 5. (b) N.A. (iii) 4. (iv) (a) 10'1 m. x 5'0 m. (b) 9'5 m. x 4'4 m. (v) 30 cm. around. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Yield of mustard seeds. (iv) (a) Yes., 1964—65. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As complete results for 1964 are not available, pooling of results has not been done.

5. RESULTS:
64(31)
   (i) 353 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of mustard in Kg/ha.
   Treatment  T₁  T₂  T₃  T₄  T₅  Av. yield
   Av. yield  419  357  326  329  334

65(39)
   (i) 182 Kg/ha. (ii) 39·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of mustard in Kg/ha.
   Treatment  T₁  T₂  T₃  T₄  T₅  Av. yield
   Av. yield  188  178  193  178  173

Crop: Sesamum (Rabi).  
Site: Pulse and Oilseed Res. Stn., Roha.  
Object: To find out the suitable spacing for Sesamum.

1. BASAL CONDITIONS:
   (i) Nil. (ii) and (iii) N.A. (iv) (a) 5 to 6 ploughings. (b) As per treatments. (c) N.A. (d) As per treatments. (e) N.A. (v) 163'1 Q/ha. of Cowdung. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) and (x) N.A.

2. TREATMENTS:
   5 methods of sowing: T₁ = Rows 23 cm. apart, T₂ = Rows 30 cm. apart, T₃ = Rows 38 cm. apart, T₄ = Rows 45 cm. apart and T₅ = Broadcasting.

3. DESIGN:
   (i) R.B.D. (ii) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 10'1 m. x 5'0 m. (v) N.A. (vi) Yes.

4. GENERAL:
   (i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—only. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.
5. RESULTS:
   (i) 143 Kg/ha. (ii) 54.5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain is
   Kg ha

   Treatment    | T₁ | T₂ | T₃ | T₄ | T₅
   Av. yield    | 211| 125| 86 | 96 | 198

---

Crop: Arecanut.  
Object: To determine the optimum N, P and K requirements of the Arecanut palm.

1. BASAL CONDITIONS:
   (i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) September, 1962. Planted with a spacing of
   23 cm. x 23 cm. (vi) 1 year. (vii) N.A. (viii) Weeding and hoeing. (ix) Nil. (x) Irrigated in summer
   season with power pump. (xi) N.A. (xii) Nil.

2. TREATMENTS:
   All combinations of (1), (2), (3) and (4)
   (1) 3 levels of N: N₀ = 0, N₁ = 22.7 and N₂ = 45.4 Kg/500 palms.
   (2) 3 levels of P₂O₅: P₀ = C, P₁ = 18.1 and P₂ = 36.3 Kg/500 palms.
   (3) 3 levels of K₂O: K₀ = 0, K₁ = 34.0 and K₂ = 68.0 Kg/500 palms.
   (4) 3 levels of green leaves: G₀ = 0, G₁ = 3401 and G₂ = 6802 Kg/500 palms.

   N.B.: 1/5th of the above doses of manures was applied during the year 1963.

3. DESIGN:
   (i) 3° confd. (ii) (a) 81 plots, replication. (b) N.A. (iii) N.A. (iv) (a) N.A. (b) 20 palms/plot. (v) N.A.
   (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) N.A. (iii) Girth, height and No. of functioning leaves taken after one year of planting.

5. RESULTS:
   Results of Girth
   (i) 3.5 cm plant. (ii) 0.4 cm/plant. (iii) Only interactions P x K and P x G are significant. (iv) Av. girth
   plant in cm

<table>
<thead>
<tr>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>G₀</th>
<th>G₁</th>
<th>G₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3</td>
<td>3.0</td>
<td>3.5</td>
<td>3.0</td>
<td>3.5</td>
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<td>3.5</td>
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<td>3.3</td>
<td>3.4</td>
<td>3.4</td>
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<tr>
<td>3.2</td>
<td>3.4</td>
<td>3.1</td>
<td>3.4</td>
<td>3.2</td>
<td>3.1</td>
<td>3.2</td>
</tr>
</tbody>
</table>

   Mean    | 3.3 | 3.2 | 3.4 | 3.3 | 3.3 | 3.3 | 3.3 |

   C.D. for means of the body of any table: 0.4 cm/plant.

   Treatment    | N₀ | N₁ | N₂
   Av. girth plant in cm. | 3.2 | 3.3 | 3.3

   Results for plant height
   (i) 93.7 cm plant. (ii) 11.7 cm/plant. (iii) Only interaction P x K is significant. (iv) Av. height plant in
   cm.
Crop: Arecanut.  Ref: As. 62(29) and 63(34).


Object: To determine the effect of planting inter-crops in Arecanut garden on palm performance.

1. BASAL CONDITIONS :

2. TREATMENTS:
   6 intercrops: T0=Control (no intercrop), T1=Banana, T2=Pineapple, T3=Ginger, T4=Khasi Mandarine Orange (citrus) and T5=Betel-vine.

   N.B.:—Banana, Pineapple and Khasi Mandarine Orange (which is commonly grown as an intercrop in K and J. Hills) were planted during 1962. Subsequently, Khasi Mandarine Orange was excluded from the treatments and a fodder grass namely Guinea grass was introduced. Betel-vines were planted during 1963.

3. DESIGN:
   (i) R.B.D.  (ii) (a) 6, (b) N.A.  (iii) 4.  (iv) (a) N.A.  (b) 20 palms/plot.  (v) N.A.  (vi) Yes.

4. GENERAL:
5. RESULTS:

62(29)

I. Girth

(i) 3'3 cm plant.  (ii) 0'29 cm plant.  (iii) Treatment differences are significant.  (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_2</th>
<th>T_1</th>
<th>T_3</th>
<th>T_4</th>
<th>T_5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>3'5</td>
<td>3'0</td>
<td>3'2</td>
<td>3'1</td>
<td>3'7</td>
</tr>
</tbody>
</table>

C.D. = 0'44 cm plant.

II. Height

(i) 9'89 cm plant.  (ii) 9'53 cm plant.  (iii) Treatment differences are not significant.  (iv) Av. height plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_6</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
<th>T_4</th>
<th>T_5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>96'9</td>
<td>93'7</td>
<td>95'1</td>
<td>97'7</td>
<td>100'1</td>
<td>99'9</td>
</tr>
</tbody>
</table>

III. No. of leaves

(i) 5'8 leaves/plant.  (ii) 0'28 leaves/plant.  (iii) Treatment differences are not significant.  (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_6</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
<th>T_4</th>
<th>T_5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>5'6</td>
<td>5'7</td>
<td>5'8</td>
<td>5'5</td>
<td>5'8</td>
<td>5'8</td>
</tr>
</tbody>
</table>

63(34)

I. Girth

(i) 8'0 cm plant.  (ii) 0'00 cm plant.  (iii) Treatment differences are not significant.  (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_6</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
<th>T_4</th>
<th>T_5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>7'8</td>
<td>7'8</td>
<td>7'3</td>
<td>8'6</td>
<td>8'0</td>
<td>8'3</td>
</tr>
</tbody>
</table>

II. Height

(i) 21'76 cm plant.  (ii) 23'80 cm plant.  (iii) Treatment differences are not significant.  (iv) Av. height plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_6</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
<th>T_4</th>
<th>T_5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>206'4</td>
<td>213'9</td>
<td>196'9</td>
<td>238'7</td>
<td>217'4</td>
<td>232'3</td>
</tr>
</tbody>
</table>

III. No of leaves

(i) 5'7 leaves plant.  (ii) 0'25 leaves/plant.  (iii) Treatment differences are not significant.  (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_6</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
<th>T_4</th>
<th>T_5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>4'7</td>
<td>5'6</td>
<td>5'7</td>
<td>5'8</td>
<td>5'8</td>
<td>5'8</td>
</tr>
</tbody>
</table>

Crop :- Arecanut.

Site :- Reg. Arecanut Res. Stn., Kahikuchi.

Object :- To determine the optimum spacing for Arecanut palm.

Ref :- As. 62(28) and 63(33).

Type :- 'C'.
2. TREATMENTS:

6 spacings: $S_1 = 1.83 \text{ m.} \times 1.83 \text{ m.}$, $S_2 = 1.83 \text{ m.} \times 2.74 \text{ m.}$, $S_3 = 1.83 \text{ m.} \times 3.66 \text{ m.}$, $S_4 = 2.74 \text{ m.} \times 2.74 \text{ m.}$, $S_5 = 2.74 \text{ m.} \times 3.66 \text{ m.}$, and $S_6 = 3.66 \text{ m.} \times 3.66 \text{ m.}$

3. DESIGN:

(i) R.B.D. (ii) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 20 palms/plot. (v) N.A. (vi) Yes.

4. GENERAL:


5. RESULTS:

62(18)

I. Girth

(i) 1.9 cm./plant. (ii) 0.20 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>$S_3$</th>
<th>$S_4$</th>
<th>$S_5$</th>
<th>$S_6$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>1.8</td>
<td>1.9</td>
<td>1.7</td>
<td>1.9</td>
<td>1.9</td>
<td>2.0</td>
</tr>
</tbody>
</table>

II. Height

(i) 72.6 cm./plant. (ii) 7.75 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>$S_3$</th>
<th>$S_4$</th>
<th>$S_5$</th>
<th>$S_6$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>73.2</td>
<td>72.8</td>
<td>66.8</td>
<td>72.8</td>
<td>75.8</td>
<td>74.1</td>
</tr>
</tbody>
</table>

III. No. of leaves

(i) 5.5 leaves/plant. (ii) 0.22 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>$S_3$</th>
<th>$S_4$</th>
<th>$S_5$</th>
<th>$S_6$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves/plant</td>
<td>5.5</td>
<td>5.5</td>
<td>5.5</td>
<td>5.5</td>
<td>5.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

63(33)

I. Girth

(i) 1.9 cm./plant. (ii) 0.42 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>$S_3$</th>
<th>$S_4$</th>
<th>$S_5$</th>
<th>$S_6$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>5.2</td>
<td>4.9</td>
<td>4.8</td>
<td>4.9</td>
<td>5.2</td>
<td>4.9</td>
</tr>
</tbody>
</table>

II. Height

(i) 149.4 cm./plant. (ii) 19.3 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>$S_3$</th>
<th>$S_4$</th>
<th>$S_5$</th>
<th>$S_6$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>160.1</td>
<td>148.6</td>
<td>146.2</td>
<td>142.7</td>
<td>152.2</td>
<td>146.5</td>
</tr>
</tbody>
</table>

III. No. of leaves

(i) 4.8 leaves/plant. (ii) 0.3 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$S_1$</th>
<th>$S_2$</th>
<th>$S_3$</th>
<th>$S_4$</th>
<th>$S_5$</th>
<th>$S_6$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves/plant</td>
<td>4.9</td>
<td>4.7</td>
<td>4.7</td>
<td>4.8</td>
<td>4.8</td>
<td>4.9</td>
</tr>
</tbody>
</table>
Crop : Arecanut.  
Ref : As. 61(23) and 62(27).
Type : 'C'.

Object : To find out the influence of certain pre-sowing treatments on the vigour of the resulting seedlings.

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) N.A.; Line sowing. (vi) Nil since seednuts sown. (vii) N.A. (viii) Pericdical weeding. (ix) Nil. (x) Irrigated in summer season with power pump. (xi) N.A. (xii) Seedlings were uprooted after one year for transplanting.

2. TREATMENTS :

12 pre-sowing treatments: 

- T1 = Harvesting and immediate sowing.
- T2 = Treating with Cowdung slurry and immediate sowing.
- T3 = Treating with Cowdung slurry, air-drying for 3 days, and sowing.
- T4 = Treating with Cowdung slurry, air-drying for 6 days, and sowing.
- T5 = Treating with Cowdung slurry, air-drying for 9 days, and sowing.
- T6 = Sun-drying for 2 days, and sowing.
- T7 = Sun-drying for 4 days, and sowing.
- T8 = Sun-drying for 6 days, and sowing.
- T9 = Air-drying for 3 days, and sowing.
- T10 = Air-drying for 6 days, and sowing.
- T11 = Air-drying for 9 days, and sowing.
- T12 = Soaking in water for 3 days, and sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A. (vi) Yes.

4. GENERAL :


5. RESULTS :

61(23)

I. Girth

(i) 1'2 cm/plant. (ii) 0 10 cm/plant. (iii) Treatment differences are not significant. (iv) Av. girth, plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>1'3</td>
<td>1'3</td>
<td>1'3</td>
<td>1'3</td>
<td>1'3</td>
<td>1'2</td>
</tr>
<tr>
<td>T7</td>
<td>T8</td>
<td>T9</td>
<td>T10</td>
<td>T11</td>
<td>T12</td>
<td></td>
</tr>
<tr>
<td>1'2</td>
<td>1'1</td>
<td>1'2</td>
<td>1'1</td>
<td>1'0</td>
<td>1'3</td>
<td></td>
</tr>
</tbody>
</table>

II. Height

(i) 54'3 cm/plant. (ii) 3'1 cm/plant. (iii) Treatment differences are not significant. (iv) Av. height, plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>59'8</td>
<td>63'0</td>
<td>55'0</td>
<td>52'0</td>
<td>54'0</td>
<td>54'5</td>
</tr>
<tr>
<td>T7</td>
<td>T8</td>
<td>T9</td>
<td>T10</td>
<td>T11</td>
<td>T12</td>
<td></td>
</tr>
<tr>
<td>55'0</td>
<td>44'3</td>
<td>52'0</td>
<td>53'3</td>
<td>48'3</td>
<td>60'8</td>
<td></td>
</tr>
</tbody>
</table>

III. No. of leaves

(i) 4'0 leaves/plant. (ii) 6'8 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>4'8</td>
<td>4'8</td>
<td>4'3</td>
<td>4'0</td>
<td>3'8</td>
<td>3'3</td>
</tr>
<tr>
<td>T7</td>
<td>T8</td>
<td>T9</td>
<td>T10</td>
<td>T11</td>
<td>T12</td>
<td></td>
</tr>
<tr>
<td>4'3</td>
<td>3'3</td>
<td>4'5</td>
<td>4'0</td>
<td>3'3</td>
<td>4'3</td>
<td></td>
</tr>
</tbody>
</table>
62(27)

I. Girth
(i) 1·1 cm/plant. (ii) 0·57 cm/plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>0·9</td>
<td>1·1</td>
<td>1·1</td>
<td>1·1</td>
<td>1·1</td>
<td>1·2</td>
</tr>
<tr>
<td>T₇</td>
<td>1·2</td>
<td>1·1</td>
<td>1·1</td>
<td>1·1</td>
<td>1·1</td>
<td>1·0</td>
</tr>
</tbody>
</table>

II. Height
(i) 52·5 cm/plant. (ii) 5·70 cm/plant. (iii) Treatment differences are significant. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>54·2</td>
<td>54·7</td>
<td>59·3</td>
<td>41·2</td>
<td>53·5</td>
<td>48·7</td>
</tr>
<tr>
<td>T₇</td>
<td>46·2</td>
<td>55·0</td>
<td>53·5</td>
<td>54·0</td>
<td>50·8</td>
<td>59·2</td>
</tr>
</tbody>
</table>

C.D. = 8·2 cm/plant.

III. No. of leaves
(i) 4·0 leaves/plant. (ii) 0·50 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>4·0</td>
<td>4·0</td>
<td>4·0</td>
<td>4·2</td>
<td>4·0</td>
<td>3·7</td>
</tr>
<tr>
<td>T₇</td>
<td>4·0</td>
<td>4·2</td>
<td>3·7</td>
<td>3·8</td>
<td>4·2</td>
<td>4·0</td>
</tr>
</tbody>
</table>

_Crop :- Arecanut._
_Site :- Reg. Arecanut Res. Stn., Kahikuchi._
_Type :- 'C'.

Object :- To study the effect of shade vs. no shade on the growth of seedlings.

1. BASAL CONDITIONS :

2. TREATMENTS :
3 cultural treatments : T₁=No shade, T₅=Partial shade and T₆=Complete shade.

3. DESIGN :
(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A. (vi) Yes.

4. GENERAL :

5. RESULTS :
61(22)

1. Girth
(i) 1·2 cm/plant. (ii) 0·37 cm/plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.
### II. Height

(i) 56.8 cm. plant. (ii) 1.2 cm. plant. (iii) Treatment differences are significant. (iv) Av. height plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>54.8</td>
<td>57.5</td>
<td>58.3</td>
</tr>
<tr>
<td>C.D.</td>
<td>1.3 cm. plant.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### III. No. of leaves

(i) 4.3 leaves/plant. (ii) 0.8 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>4.0</td>
<td>4.6</td>
<td>4.4</td>
</tr>
</tbody>
</table>

### 62(26)

#### I. Girth

(i) 1.3 cm. plant. (ii) 0.17 cm. plant. (iii) Treatment differences are significant. (iv) Av. girth plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>1'2</td>
<td>1'3</td>
<td>1'5</td>
</tr>
<tr>
<td>C.D.</td>
<td>0.21 cm. plant.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### II. Height

(i) 56.6 cm. plant (ii) 9.23 cm. plant. (iii) Treatment differences are significant. (iv) Av. height plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>43.9</td>
<td>61.0</td>
<td>65.0</td>
</tr>
<tr>
<td>C.D.</td>
<td>11.44 cm. plant.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### III. No. of leaves

(i) 4.0 leaves/plant. (ii) 0.5 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>4.0</td>
<td>3.8</td>
<td>4.4</td>
</tr>
</tbody>
</table>

---

**Crop:** Arecanut.  
**Site:** Reg. Arecanut Res. Stn., Kahikuchi.  
**Type:** 'C'.  
**Ref:** As. 61(21) and 62(25).  

Object: To study the effect of different spacings and efficiency of sowing unsprouted and sprouted seeds on seedling performance.

1. **BASAL CONDITIONS:**

(i) N.A.  
(ii) New alluvial.  
(iii) By seednuts.  
(iv) Local.  
(vi) Nil as Seednuts sown.  
(vii) N.A.  
(viii) Periodical weedings.  
(ix) Nil.  
(x) Irrigated.  
(xi) N.A.  
(xii) Seedlings were uprooted after one year for transplanting.
2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 spacings: \( S_1 = 23 \text{ cm.} \times 23 \text{ cm.}, S_2 = 30 \text{ cm.} \times 30 \text{ cm.}, S_3 = 38 \text{ cm.} \times 38 \text{ cm.} \) and \( S_4 = 46 \text{ cm.} \times 46 \text{ cm.} \)
(2) 2 natures of nuts: \( A_1 = \text{Unsprouted} \) and \( A_2 = \text{Sprouted} \).

3. DESIGN:
(i) Fact. in R.B.D.  (ii) 8  (b) N.A.  (iii) 4  (iv) (a) N.A.  (b) 50 nuts/plot.  (v) N.A.  (vi) Yes.

4. GENERAL:

5. RESULTS :
61(21)
I. Girth
(i) 1·3 cm./plant.  (ii) 0·12 cm./plant.  (iii) None of the effects is significant.  (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>( S_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( A_1 )</td>
<td>1·3</td>
<td>1·3</td>
<td>1·3</td>
<td>1·3</td>
<td>1·3</td>
</tr>
<tr>
<td>( A_2 )</td>
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<td>1·4</td>
<td>1·2</td>
<td>1·3</td>
<td>1·3</td>
</tr>
<tr>
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<td>1·4</td>
<td>1·4</td>
<td>1·3</td>
<td>1·3</td>
<td>1·3</td>
</tr>
</tbody>
</table>

II. Height
(i) 57·3 cm./plant.  (ii) 0·87 cm./plant.  (iii) Main effects of \( A \) and \( S \) are highly significant.  (iv) Av. height/ plant in cm.

<table>
<thead>
<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>( S_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( A_1 )</td>
<td>58·3</td>
<td>56·5</td>
<td>58·5</td>
<td>58·5</td>
<td>58·0</td>
</tr>
<tr>
<td>( A_2 )</td>
<td>55·8</td>
<td>54·8</td>
<td>58·0</td>
<td>57·6</td>
<td>56·6</td>
</tr>
<tr>
<td>Mean</td>
<td>57·0</td>
<td>55·6</td>
<td>58·3</td>
<td>58·1</td>
<td>57·3</td>
</tr>
</tbody>
</table>

C.D. for \( S \) marginal means=0·9 cm./plant.
C.D. for \( A \) marginal means=0·6 cm./plant.

III. No. of leaves
(i) 4·3 leaves/plant.  (ii) 0·72 leaves/plant.  (iii) None of the effects is significant.  (iv) Av. No. of leaves/plant

<table>
<thead>
<tr>
<th></th>
<th>( S_1 )</th>
<th>( S_2 )</th>
<th>( S_3 )</th>
<th>( S_4 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( A_1 )</td>
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<td>4·8</td>
<td>4·3</td>
<td>4·3</td>
<td>4·3</td>
</tr>
<tr>
<td>( A_2 )</td>
<td>4·5</td>
<td>4·3</td>
<td>4·0</td>
<td>4·0</td>
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<td>4·5</td>
<td>4·1</td>
<td>4·1</td>
<td>4·3</td>
</tr>
</tbody>
</table>

62(25)
I. Girth
(i) 1·2 cm./plant.  (ii) 0·21 cm./plant.  (iii) Only the main effect of \( A \) is significant.  (iv) Av. girth/plant in cm.
II. Height

(t): 58.4 cm plant. (ii) 5.59 cm plant. (iii) Only the main effect of A is significant. (iv) Av. height plant in cm.

<table>
<thead>
<tr>
<th></th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
<th>S₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁</td>
<td>62.5</td>
<td>63.0</td>
<td>62.0</td>
<td>61.5</td>
<td>62.3</td>
</tr>
<tr>
<td>A₂</td>
<td>55.5</td>
<td>54.3</td>
<td>53.0</td>
<td>55.3</td>
<td>54.5</td>
</tr>
<tr>
<td>Mean</td>
<td>59.0</td>
<td>58.6</td>
<td>57.5</td>
<td>58.4</td>
<td>58.4</td>
</tr>
</tbody>
</table>

C.D. for A marginal means = 4.1 cm/plot.

III. No. of leaves

(i): 3.81 leaves/plant. (ii) 0.69 leaves plant. (iii) None of the effects is significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th></th>
<th>S₁</th>
<th>S₂</th>
<th>S₃</th>
<th>S₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁</td>
<td>4.0</td>
<td>3.8</td>
<td>4.0</td>
<td>3.8</td>
<td>3.9</td>
</tr>
<tr>
<td>A₂</td>
<td>3.8</td>
<td>4.0</td>
<td>3.8</td>
<td>3.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Mean</td>
<td>3.9</td>
<td>3.9</td>
<td>3.9</td>
<td>3.6</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Crop :- Areca nut.

Ref :- As. 61(20) and 62(24).

Site :- Reg. Areca nut Res. Stn., Kahikuchi. Type :- 'C'.

Object : To determine a suitable medium or method for sprouting Areca nut seednuts.

1. BASAL CONDITIONS :


2. TREATMENTS :

5 cultural treatments : T₁=Sowing seednuts in soil medium, T₂=Sowing seednuts in sand medium, T₃=Arranging seednuts in country baskets with a layer of straw as cover, T₄=Tying seednuts in straw bundles and T₅=Heaping seednuts under shade.

3. DESIGN :

(i) R.B.D. (ii) 5. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 53 nuts/plot. (v) N.A. (vi) Yes.

4. GENERAL :

5. RESULTS:

61(20)

I. Girth

(i) 1·2 cm/plant. (ii) 0·1 cm/plant (iii) Treatment differences are significant. (iv) Av. girth/plant in cm.

Treatment

T₁ T₂ T₃ T₄ T₅

Av. girth 1·4 1·3 1·2 1·1 1·2

C.D. = 0·1 cm./plant.

II. Height

(i) 54·2 cm./plant. (ii) 2·7 cm./plant. (iii) Treatment differences are significant. (iv) Av. height/plant in cm.

Treatment

T₁ T₂ T₃ T₄ T₅

Av. height 58·7 55·3 55·5 49·3 52·0

C.D. = 3·3 cm./plant.

III. No. of leaves

(i) 4·2 leaves/plant. (ii) 3·9 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment

T₁ T₂ T₃ T₄ T₅

Av. No of leaves 4·5 4·8 3·8 4·0 3·7

62/24

I. Girth

(i) 1·0 cm./plant. (ii) 1·7 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment

T₁ T₂ T₃ T₄ T₅

Av. girth 1·1 1·0 1·0 1·1 1·0

II. Height

(i) 50·9 cm./plant. (ii) 6·3 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment

T₁ T₂ T₃ T₄ T₅

Av. height 51·2 49·3 48·3 51·3 54·5

III. No. of leaves

(i) 4·2 leaves/plant. (ii) 0·6 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment

T₁ T₂ T₃ T₄ T₅

Av. No. of leaves 4·0 4·0 4·2 4·3 4·5

Crop :- Arecanut. Ref :- As. 61(19) and 62(23).
Site :- Reg. Arecanut Res. Stn., Kahikuchi. Type :- 'C'.

Object :- To study the effect of different positions of seednuts and optimum depth of sowing.

1. BASAL CONDITIONS:

2. TREATMENTS:
All combinations of (1) and (2)
(1) 4 positions of seednats: A1 = Vertical, A2 = Slanting, A3 = Horizontal and A4 = Topsy•uroy.
(2) 4 depths of sowing seednuts: B1 = 0, B2 = 2.5, B3 = 5 and B4 = 7.5 cm.

3. DESIGN:
(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A (vi) Yes.

4. GENERAL:
(i) Normal. (ii) N.A. (iii) Girth and height measurements and No. of functioning leaves were taken after one year of sowing. (iv) Yes, 1960-62. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:
61(19)
I. Girth at collar
(i) 1 2 cm plant. (ii) 0 2 cm plant. (iii) Only the main effect of B is significant. (iv) Av. girth/plant in cm

<table>
<thead>
<tr>
<th></th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1'4</td>
<td>1'3</td>
<td>1'3</td>
<td>1'1</td>
<td>1'3</td>
</tr>
<tr>
<td>A2</td>
<td>1'2</td>
<td>1'2</td>
<td>1'2</td>
<td>1'1</td>
<td>1'2</td>
</tr>
<tr>
<td>A3</td>
<td>1'4</td>
<td>1'3</td>
<td>1'2</td>
<td>1'1</td>
<td>1'2</td>
</tr>
<tr>
<td>A4</td>
<td>1'2</td>
<td>1'2</td>
<td>1'1</td>
<td>1'1</td>
<td>1'1</td>
</tr>
<tr>
<td>Mean</td>
<td>1'3</td>
<td>1'2</td>
<td>1'2</td>
<td>1'1</td>
<td>1'2</td>
</tr>
</tbody>
</table>

C.D. for B marginal means = 0·1 cm. /plant.

II. Height
(i) 53·7 cm plant. (ii) 1 0 cm plant. (iii) Main effect of A, B and interaction A X B are highly significant. (iv) Av. height/plant in cm

<table>
<thead>
<tr>
<th></th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>58·5</td>
<td>57·5</td>
<td>57·3</td>
<td>56·0</td>
<td>57·3</td>
</tr>
<tr>
<td>A2</td>
<td>51·3</td>
<td>52·0</td>
<td>52·5</td>
<td>53·5</td>
<td>52·3</td>
</tr>
<tr>
<td>A3</td>
<td>53·5</td>
<td>54·0</td>
<td>52·5</td>
<td>52·5</td>
<td>53·1</td>
</tr>
<tr>
<td>A4</td>
<td>54·5</td>
<td>52·3</td>
<td>51·8</td>
<td>50·3</td>
<td>52·1</td>
</tr>
<tr>
<td>Mean</td>
<td>54·3</td>
<td>54·0</td>
<td>53·5</td>
<td>53·1</td>
<td>53·7</td>
</tr>
</tbody>
</table>

C.D. for A or B marginal means = 0·7 cm/plant
C.D. for means in the body of the table = 1·4 cm/plant.

III. No. of leaves
(i) 4·1 leaves/plant. (ii) 0·5 leaves/plant. (iii) Only the main-effect of A is highly significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th></th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>4'8</td>
<td>4'3</td>
<td>4'5</td>
<td>4'3</td>
<td>4'4</td>
</tr>
<tr>
<td>A2</td>
<td>3'8</td>
<td>4'3</td>
<td>4'0</td>
<td>4'0</td>
<td>4'0</td>
</tr>
<tr>
<td>A3</td>
<td>4'5</td>
<td>4'8</td>
<td>4'8</td>
<td>4'3</td>
<td>4'6</td>
</tr>
<tr>
<td>A4</td>
<td>4'0</td>
<td>3'3</td>
<td>3'0</td>
<td>3'3</td>
<td>3'4</td>
</tr>
<tr>
<td>Mean</td>
<td>4'3</td>
<td>4'1</td>
<td>4'1</td>
<td>3'9</td>
<td>4'1</td>
</tr>
</tbody>
</table>

C.D. for A marginal means = 0·3 leaves/plant.
I. Girth at collar

(i) 1.2 cm./plant. (ii) 0.2 cm./plant. (iii) Main effects of A and B are significant. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th></th>
<th>B₁</th>
<th>B₂</th>
<th>B₃</th>
<th>B₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁</td>
<td>1.5</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td>A₂</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
<td>0.9</td>
<td>1.0</td>
</tr>
<tr>
<td>A₃</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>A₄</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
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<tr>
<td>Mean</td>
<td>1.3</td>
<td>1.2</td>
<td>1.1</td>
<td>1.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

C.D. for A or B marginal means = 0.1 cm.

II. Height

(i) 52.3 cm./plant. (ii) 8.4 cm./plant. (iii) Main effects of A and B are significant. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th></th>
<th>B₁</th>
<th>B₂</th>
<th>B₃</th>
<th>B₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁</td>
<td>51.0</td>
<td>59.2</td>
<td>48.7</td>
<td>47.3</td>
<td>54.1</td>
</tr>
<tr>
<td>A₂</td>
<td>61.0</td>
<td>59.0</td>
<td>54.8</td>
<td>48.8</td>
<td>55.9</td>
</tr>
<tr>
<td>A₃</td>
<td>60.2</td>
<td>64.0</td>
<td>61.5</td>
<td>49.5</td>
<td>58.8</td>
</tr>
<tr>
<td>A₄</td>
<td>47.8</td>
<td>43.3</td>
<td>37.5</td>
<td>32.7</td>
<td>40.3</td>
</tr>
<tr>
<td>Mean</td>
<td>57.5</td>
<td>56.4</td>
<td>50.6</td>
<td>44.6</td>
<td>52.3</td>
</tr>
</tbody>
</table>

C.D. for A or B marginal means = 6.0 cm./plant.

III. No. of leaves

(i) 3.8 leaves/plant. (ii) 0.6 leaves/plant. (iii) None of the effects is significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th></th>
<th>B₁</th>
<th>B₂</th>
<th>B₃</th>
<th>B₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁</td>
<td>4.0</td>
<td>3.7</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
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<td>3.7</td>
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<td>3.8</td>
</tr>
<tr>
<td>A₃</td>
<td>3.8</td>
<td>3.8</td>
<td>4.2</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>A₄</td>
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<td>3.5</td>
<td>3.5</td>
<td>3.8</td>
<td>3.7</td>
</tr>
<tr>
<td>Mean</td>
<td>3.9</td>
<td>3.8</td>
<td>3.8</td>
<td>3.9</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Crop :- Coconut. Ref :- As. 63(11), 61(18), 62(22) and 63(32).

Site :- Reg. Coconut Res. Stn., Kahikuchi. Type :- 'C'.

Object :- To evolve the best method of planting nuts for getting quality seedlings of Coconut.

1. BASAL CONDITIONS:

(i) Cultivable waste; Newly reclaimed. (ii) Clay loamy soil. (iii) By seednuts. (iv) Local tall for 1960 and 1961; West coast tall for others. (v) N.A. (vi) Nil as seednuts sown. (vii) Nil. (viii) Only weeding and cleaning of bed. (ix) Nil. (x) Irrigated. (xi) 179.7 cm.; 147.2 cm.; 123.2 cm.; 194.5 cm. (xii) Nil.
2. TREATMENTS:
   \( T_1 = \text{Horizontal}, \ T_2 = \text{Vertical} \) and \( T_3 = \text{Oblique} \).

3. DESIGN:
   (i) R.B.D (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 30 nuts/plot. (v) Nil. (vi) Yes.

4. GENERAL:

5 RESULTS:

60(11)

I. Girth at collar
   (i) 3.4 cm./plant. (ii) 1.2 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av girth</td>
<td>3.1</td>
<td>3.3</td>
<td>3.9</td>
</tr>
</tbody>
</table>

II. Height
   (i) 31.1 cm./plant. (ii) 11.0 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av height</td>
<td>32.4</td>
<td>30.5</td>
<td>36.3</td>
</tr>
</tbody>
</table>

III. No. of leaves
   (i) 1.5 leaves/plant. (ii) 0.5 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av No. of leaves</td>
<td>1.5</td>
<td>1.6</td>
<td>1.6</td>
</tr>
</tbody>
</table>

62(18)

I. Girth at collar
   (i) 3.9 cm./plant. (ii) 1.4 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av girth</td>
<td>3.6</td>
<td>3.5</td>
<td>4.5</td>
</tr>
</tbody>
</table>

II. Height
   (i) 49.3 cm./plant. (ii) 13.6 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av height</td>
<td>48.6</td>
<td>45.2</td>
<td>54.2</td>
</tr>
</tbody>
</table>

III. No. of leaves
   (i) 2.1 leaves/plant. (ii) 0.9 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av No. of leaves</td>
<td>2.0</td>
<td>1.9</td>
<td>2.5</td>
</tr>
</tbody>
</table>

62(22)

I. Girth at collar
   (i) 6.8 cm./plant. (ii) and (iii) N.A. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av girth</td>
<td>6.7</td>
<td>6.7</td>
<td>6.9</td>
</tr>
</tbody>
</table>
II. Height

(i) 47.0 cm/plant. (ii) and (iii) N.A. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>46.9</td>
<td>45.2</td>
<td>48.8</td>
</tr>
</tbody>
</table>

III. No. of leaves

(i) 2.3 leaves/plant. (ii) and (iii) N.A. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>1.9</td>
<td>2.4</td>
<td>2.4</td>
</tr>
</tbody>
</table>

62(33)

1. Girth at collar

(i) 6.8 cm/plant. (ii) and (iii) N.A. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>7.3</td>
<td>6.4</td>
<td>6.7</td>
</tr>
</tbody>
</table>

II. Height

(i) 51.2 cm/plant. (ii) and (iii) N.A. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>59.4</td>
<td>46.6</td>
<td>47.6</td>
</tr>
</tbody>
</table>

III. No. of leaves

(i) 1.7 leaves/plant. (ii) and (iii) N.A. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>1.6</td>
<td>1.8</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Crop: Coconut.

Ref: As. 60(10), 61(17), 62(21), 63(31).


Type: ‘C’.

Object: To find out the best time of planting nuts for raising quality seedlings of Coconut.

1. BASAL CONDITIONS:

(i) Cultivable waste; Newly reclaimed. (ii) Loamy soil. (iii) By seednuts. (iv) Local tall for 1960 and 61; West coast tall for 1962 and 63. (v) As per treatments/Line sowing. Between lines—45 cm and within lines—37 cm. (vi) Nil; Seednuts only sown. (vii) Nil. (viii) Weeding and cleaning the bed. (ix) Nil. (x) Irrigated.

(a) 179.7 cm.; 147.2 cm.; 123.2 cm.; 150.5 cm. (xi) Nil.

2. TREATMENTS:

T1 = Early planting (in February), T2 = Mid planting (in April) and T3 = Late planting (in June).

3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Fair. (ii) N.A. (iii) Girth, height and No. of functioning leaves. (iv) 1959 to 64. (The data of 1964 is not available). (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

60(10)

1. Girth at collar

(i) 2.1 cm/plant. (ii) 1.6 cm/plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.
<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>1.2</td>
<td>2.8</td>
<td>2.4</td>
<td></td>
</tr>
</tbody>
</table>

II. Height
(i) 18.1 cm. plant. (ii) 14 cm. plant. (iii) Treatment differences are significant. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>9.2</td>
<td>21.5</td>
<td>23.7</td>
<td></td>
</tr>
<tr>
<td>C.D.</td>
<td>14.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

III. No. of leaves
(i) 1.1 leaves/plant. (ii) 0.2 leaves/plant. (iii) Treatment differences are significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>0.6</td>
<td>1.3</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>C.D.</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

61 (17)

I. Girth at collar
(i) 4.4 cm. plant. (ii) 1.0 cm. plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>5.0</td>
<td>4.4</td>
<td>4.0</td>
<td></td>
</tr>
</tbody>
</table>

II. Height
(i) 54.3 cm. plant. (ii) 24.9 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>59.1</td>
<td>53.2</td>
<td>50.5</td>
<td></td>
</tr>
</tbody>
</table>

III. No. of leaves
(i) 2.2 leaves/plant. (ii) 1.3 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>2.4</td>
<td>2.2</td>
<td>1.9</td>
<td></td>
</tr>
</tbody>
</table>

62 (21)

I. Girth at collar
(i) 7.5 cm. plant. (ii) and (iii) N.A. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>8.5</td>
<td>7.4</td>
<td>6.6</td>
<td></td>
</tr>
</tbody>
</table>

II. Height
(i) 53.4 cm./plant. (ii) and (iii) N.A. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>58.0</td>
<td>53.5</td>
<td>48.8</td>
<td></td>
</tr>
</tbody>
</table>

III. No. of functioning leaves
(i) 2.2 leaves/plant. (ii) and (iii) N.A. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>2.7</td>
<td>1.9</td>
<td>1.9</td>
<td></td>
</tr>
</tbody>
</table>
I. Girth at collar
(i) 8’0 cm/plant. (ii) and (iii) N.A. (iv) Av. girth/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. girth</td>
<td>8’1</td>
<td>8’0</td>
<td>7’9</td>
</tr>
</tbody>
</table>

II. Height
(i) 52’9 cm/plant. (ii) and (iii) N.A. (iv) Av. height/plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_1</th>
<th>T_2</th>
<th>T_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. height</td>
<td>54’5</td>
<td>47’1</td>
<td></td>
</tr>
</tbody>
</table>

III. No. of leaves
(i) 1’6 leaves/plant. (ii) and (iii) N.A. (iv) Av. No. of leaves/plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T_2</th>
<th>T_3</th>
<th>T_4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. No. of leaves</td>
<td>1’7</td>
<td>1’9</td>
<td>1’2</td>
</tr>
</tbody>
</table>

Crop: – Pineapple.  
Ref:– As. 60(15), 61(24) and 62(30).

Site:– Reg. Fruit Res. Stn., Kahikuchi. Type:– ‘M’.

Object: – To study the effect of N, P and K on the yield.

1. BASAL CONDITIONS:
(i) Cultivable waste, Newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Ken. (v) 2’1’9,5’8 by digging holes at 1’1m.x 1’1m. spacing. (vi) 4 months. (vii) 230’6 Q/ha. F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS:
All combinations of (1), (2) and (3)
1. 2 levels of N as A/S : N_0 =0 and N_1 =22’4 Kg/ha.
2. 2 levels of P_0 as Super : P_0 =0 and P_1 =73’9 Kg/ha.
3. 2 levels of K_0 as Pot. Sui. : K_0 =0 and K_1 =103’0 Kg/ha.

3. DESIGN:
(i) L. Sq. (ii) (a) 8. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vii) Yes.

4. GENERAL:

5. RESULTS:
(i) 8’0 Kg/plot. (ii) 3’5 Kg/plot. (iii) Main effects of P and interaction N x K are significant. (iv) Av. yield of fruits in Kg/plot.

<table>
<thead>
<tr>
<th>P_0</th>
<th>P_1</th>
<th>K_0</th>
<th>K_1</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N_0</td>
<td>7’6</td>
<td>7’1</td>
<td>5’6</td>
<td>9’1</td>
</tr>
<tr>
<td>N_1</td>
<td>10’7</td>
<td>6’7</td>
<td>8’8</td>
<td>8’7</td>
</tr>
<tr>
<td>Mean</td>
<td>9’2</td>
<td>6’9</td>
<td>7’2</td>
<td>8’9</td>
</tr>
</tbody>
</table>

K_0 | 8’2 | 6’2
K_1 | 10’2 | 7’6

C.D. for P marginal means =1’8 Kg/plot.
C.D. for means in the body of N x K table=2’5 Kg/plot.
Crop: Pineapple.  
Site: Reg. Fruit Res. Stn., Kahikuchi.  
Type: 'M'.

Object: To find out the response of pineapple to organic manures.

1. BASAL CONDITION:
   (i) (a) Cultivable waste: newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Queen. (v) 15.9.58 By digger tunnels at 1.5 m. - 1.5 m spacing. (vi) 5 months. (vii) 2306 Q ha. of F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS:
   All combinations of (1), (2), and (3):
   (1) 2 levels of N: N<sub>0</sub> = 0 and N<sub>336</sub> = 336 Kg ha. of mustard oilcake.
   (2) 2 levels of P: P<sub>0</sub> = 0 and P<sub>134.4</sub> = 134.4 Kg ha. of B.M.
   (3) 2 levels of K: K<sub>0</sub> = 0 and K<sub>336</sub> = 336 Kg ha. of wood ash.

N.B.: The manures were applied in one annual dose.

3. DESIGN:
   (i) L.Sq. (ii) N.A. (iii) 8. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vi) Yes

4. GENERAL:
5. RESULTS:

60(16)
(i) 1:5 Kg/plan. (ii) 1'92 Kg/plan. (iii) None of the effects is significant. (iv) Av. yield of fruits in Kg/plant.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>K0</th>
<th>K1</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>1'1</td>
<td>1'8</td>
<td>1'6</td>
<td>1'4</td>
<td>1'5</td>
</tr>
<tr>
<td>N1</td>
<td>1'4</td>
<td>1'6</td>
<td>1'5</td>
<td>1'4</td>
<td>1'5</td>
</tr>
<tr>
<td>Mean</td>
<td>1'3</td>
<td>1'7</td>
<td>1'6</td>
<td>1'4</td>
<td>1'5</td>
</tr>
</tbody>
</table>

61(25)
(i) 924 Kg/ha. (ii) 510:90 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of fruits in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>K0</th>
<th>K1</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>1038</td>
<td>860</td>
<td>968</td>
<td>929</td>
<td>949</td>
</tr>
<tr>
<td>N1</td>
<td>982</td>
<td>813</td>
<td>923</td>
<td>872</td>
<td>918</td>
</tr>
<tr>
<td>Mean</td>
<td>1010</td>
<td>837</td>
<td>946</td>
<td>901</td>
<td>924</td>
</tr>
</tbody>
</table>

62(31)
(i) 7'0 Kg/plan. (ii) 1'46 Kg/plan. (iii) N x P interaction is highly significant. (iv) Av. yield of fruits in Kg/plot.

<table>
<thead>
<tr>
<th></th>
<th>P0</th>
<th>P1</th>
<th>K0</th>
<th>K1</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>6'9</td>
<td>7'7</td>
<td>7'2</td>
<td>7'4</td>
<td>7'3</td>
</tr>
<tr>
<td>N1</td>
<td>7'3</td>
<td>6'0</td>
<td>6'6</td>
<td>6'7</td>
<td>6'7</td>
</tr>
<tr>
<td>Mean</td>
<td>7'1</td>
<td>6'9</td>
<td>6'9</td>
<td>7'0</td>
<td>7'0</td>
</tr>
</tbody>
</table>

C.D. for body of N x P table = 0'74 Kg/plot.

Crop:-- Pineapple.
Ref:-- As. 60(18), 61(27), 62(33) and 63(37).
Site:-- Reg. Fruit Res. Stn., Kahikuchi. Type:-- 'M'.
Object:-- To study the response of pineapple to the various practices of mulching.

1. BASAL CONDITIONS:
(i) Cultivable waste; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Kew. (v) June, 1959. By digging holes at 1'1 m x 1'1 m spacing. (vi) 3 to 4 months. (vii) 230:6 Kg/ha. of F.Y.M. (viii) As per treatments. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.
2. **TREATMENTS**:

5 mulching treatments. \( T_0 = \text{Control}, T_1 = \text{Back Alkathene film (700 gauge)} \) to be spread between rows, \( T_2 = 46.6 \text{ Q ha. of green tops of Bogamedeloa (Tephrosia candida)}, T_3 = 173.7 \text{ Q ha. of Saw dust and } T_4 = 173.7 \text{ Q ha. of Paddy husk.} \)

N.B.: Mulching were done once in a year in the month of October.

3. **DESIGN**:

(i) R.B.D. (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vi) Yes.

4. **GENERAL**:


5. **RESULTS**:

60.18.

(i) 59.1 cm/plant. (ii) 38 cm/plant. (iii) Treatment differences are not significant. (iv) Av. height plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_0 )</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
<th>( T_4 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av height</td>
<td>50.7</td>
<td>70.7</td>
<td>65.2</td>
<td>53.7</td>
<td>55.3</td>
</tr>
</tbody>
</table>

61.27.

(i) 2384 Kg ha. (ii) 2.2 Kg ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_0 )</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
<th>( T_4 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>513</td>
<td>5628</td>
<td>3640</td>
<td>3002</td>
<td>1638</td>
</tr>
</tbody>
</table>

62.33.

(i) 2.2 Kg plot. (ii) 3.0 Kg plot. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg/plot.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_0 )</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
<th>( T_4 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>0.8</td>
<td>3.0</td>
<td>2.5</td>
<td>2.5</td>
<td>2.4</td>
</tr>
</tbody>
</table>

63.37.

(i) 1 Kg plant. (ii) 0.21 Kg plant. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg plant.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>( T_0 )</th>
<th>( T_1 )</th>
<th>( T_2 )</th>
<th>( T_3 )</th>
<th>( T_4 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>1.3</td>
<td>1.0</td>
<td>1.3</td>
<td>1.2</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Crop:** Pineapple.  
**Site:** Reg. Fruit Res. Stn., Kahikuchi.  
**Ref.:** As. 64(34).  
**Type:** 'M'.

Object:—To study the effect of N, P and K on the growth and yield of Pineapple.

1. **BASAL CONDITIONS**:

(i) Cultivable waste; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Kew. (v) June, 1959. By digging holes at 1.14 m x 1.14 m. (vi) 4 months. (vii) 230.6 Q ha. of F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. **TREATMENTS**:

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

(1) 3 levels of N as A.S.: \( N_0 = 0, N_1 = 56 \) and \( N_2 = 112 \) Kg/ha.

(2) 3 levels of \( P_2 O_5 \) as Super: \( P_0 = 0, P_1 = 247 \) and \( P_2 = 493 \) Kg/ha.

(3) 3 levels of \( K_2 O \) as Pot. Sol.: \( K_0 = 0, K_1 = 44.8 \) and \( K_2 = 89.6 \) Kg/ha.

N.B.:—The fertilizers were applied in one annual dose.
3. **DESIGN:**
   (i) 3 confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vi) Yes.

4. **GENERAL:**

5. **RESULTS:**
   (i) 29.3 Kg/plot. (ii) 3.59 Kg/plot. (iii) Only the main effect of N is highly significant. (iv) Av. yield of fruits in Kg/plot.

<table>
<thead>
<tr>
<th></th>
<th>$P_0$</th>
<th>$P_1$</th>
<th>$P_2$</th>
<th>$K_0$</th>
<th>$K_1$</th>
<th>$K_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N_0$</td>
<td>27.1</td>
<td>25.3</td>
<td>29.0</td>
<td>26.1</td>
<td>26.4</td>
<td>28.9</td>
<td>27.1</td>
</tr>
<tr>
<td>$N_1$</td>
<td>29.7</td>
<td>25.8</td>
<td>31.2</td>
<td>29.7</td>
<td>28.4</td>
<td>28.7</td>
<td>28.9</td>
</tr>
<tr>
<td>$N_2$</td>
<td>30.0</td>
<td>32.1</td>
<td>33.7</td>
<td>33.7</td>
<td>32.1</td>
<td>30.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Mean</td>
<td>28.9</td>
<td>27.8</td>
<td>31.3</td>
<td>29.8</td>
<td>28.9</td>
<td>29.2</td>
<td>29.3</td>
</tr>
<tr>
<td>$K_0$</td>
<td>28.5</td>
<td>28.8</td>
<td>32.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$K_1$</td>
<td>29.7</td>
<td>26.6</td>
<td>30.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$K_2$</td>
<td>28.5</td>
<td>27.8</td>
<td>31.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. D. for N marginal means = 2.48 Kg/plot.

**Crop:** Pineapple. **Ref:** As. 60(17), 61(26), 62(32) and 63(36).

**Site:** Reg. Fruit Res. Stn., Kahikuchi. **Type:** ‘M’.

Object:— To find out the response of Pineapple to the application of trace elements.

1. **BASAL CONDITIONS:**
   (i) Cultivable waste; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) June, 1959. By digging holes at 1.14 m. x 1.14 m. spacing. (vi) 4 months. (vii) 230.6 Q/ha. of F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. **TREATMENTS:**
   1 trace element treatments: $T_0 =$ Control, $T_1 =$ Boron applied in the form of Granular Boric Acid @ 33.6 Kg/ha., $T_2 =$ Iron applied in the form of Fe. Sul. @ 22.4 Kg/ha., $T_3 =$ Manganese applied in the form of Mn. Sul. @ 33.6 Kg/ha., $T_4 =$ Copper applied in the form of Cu. Sul. @ 16.8 Kg/ha., $T_5 =$ Zinc applied in the form of Zn. Sul. @ 5.6 Kg/ha., $T_6 =$ Magnesium applied in the form of Mg. Sul. at 22.4 Kg/ha. and $T_7 =$ Sulphur applied in the form of Elemental Sulphur at 11.2 Kg/ha.

N.B.:— Trace elements were applied as spray in ten instalments.

3. **DESIGN:**
   (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vi) Yes.

4. **GENERAL:**
5. RESULTS:

60(17)

(i) 79·9 cm, ‘pl. nt. (ii) 10·60 cm, plant. (iii) Treatment differences are not significant. (iv) Av. height plant in cm.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
<th>T₇</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av height</td>
<td>73·8</td>
<td>86·5</td>
<td>85·2</td>
<td>82·5</td>
<td>73·0</td>
<td>79·8</td>
<td>85·3</td>
</tr>
</tbody>
</table>

61(26)

(i) 984 Kg, ha. (a) 501 8 Kg, ha. (ii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg, ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
<th>T₇</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>630</td>
<td>955</td>
<td>1172</td>
<td>1300</td>
<td>762</td>
<td>946</td>
<td>1394</td>
</tr>
</tbody>
</table>

62(32)

(i) 537 Kg, ha. (ii) 177 50 Kg, ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg, ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
<th>T₇</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>383</td>
<td>553</td>
<td>744</td>
<td>596</td>
<td>450</td>
<td>567</td>
<td>588</td>
</tr>
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</table>

63(36)

(i) 1022 Kg, ha. (ii) 434 60 Kg, ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg, ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
<th>T₆</th>
<th>T₇</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>954</td>
<td>954</td>
<td>1412</td>
<td>946</td>
<td>782</td>
<td>810</td>
<td>1221</td>
</tr>
</tbody>
</table>

---

Crop :- Pineapple.
Site :- Reg. Fruit Res. Stn., Kahikuehi.
Type :- 'C'.

Object :- To find out the difference if any, in planting Pineapples at different depths with and without defoliation of basal leaves.

1. BASAL CONDITIONS:

- Cultivable waste; newly reclaimed.
- New alluvial.
- Vegetative.
- By digging holes at 1'14 m. x 1'14 m. spacing.
- 4 months.
- 2'30'6 Q/ha. or F.Y.M.
- N.A.
- Nil.
- Irrigated.
- and N.A.

2. TREATMENTS:

A. combinations of (1) and (2)

1. 3 depths of planting: D₁ = 5'1, D₂ = 7'6 and D₃ = 10'2 cm.
2. 4 basal defoliation: B₀, B₁ = 5'1, B₂ = 7'6 and B₃ = 10'2 cm.

3. DESIGN:

- 1 row.
- Yes.

4. GENERAL:

- N.A.
- Height of plants in 1960 and yield of fruits in 62.
- 1959-63.
- N.A.
- The data for 1961 and 63 not available.

5. RESULTS:

60(20)

(i) 50'2 cm, plant.
(ii) 10'02 cm, plant.
(iii) None of the effects is significant.
(iv) Av. height/plant in cm.
Crop :- Pineapple.

Site :- Reg. Fruit Res. Stn., Kahikuchi.

Object :- To study the response of Pineapple to various practices of mulching with shade.

1. BASAL CONDITIONS :


2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 different shades : S₀ = No shade, S₁ = Artificial shade (Banana leaves over bamboo frame) and S₂ = Shade from standing legume (T. Candida).

(2) 3 different mulch : M₀ = No mulch, M₁ = Paddy straw and M₂ = Green leaves (topping of T. Candida).

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9 plants. (v) 1 row. (vi) Yes.

4. GENERAL :


5. RESULTS :

(i) 11'8 Kg/plot. (ii) 1'13 Kg/plot. (iii) Main effects of S and M are highly significant. (iv) Av. yield of fruits in Kg/plot.

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>B₀</th>
<th>B₁</th>
<th>B₂</th>
<th>B₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>36·8</td>
<td>44·6</td>
<td>56·9</td>
<td>69·4</td>
<td>51'9</td>
</tr>
<tr>
<td>D₂</td>
<td>49·4</td>
<td>43·4</td>
<td>62·1</td>
<td>70·4</td>
<td>56'3</td>
</tr>
<tr>
<td>D₃</td>
<td>53·6</td>
<td>50·9</td>
<td>68·5</td>
<td>68·3</td>
<td>60·3</td>
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<tr>
<td>Mean</td>
<td>46·6</td>
<td>46·3</td>
<td>62·5</td>
<td>69·4</td>
<td>56·2</td>
</tr>
</tbody>
</table>

### Table 2

<table>
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<tr>
<th></th>
<th>B₀</th>
<th>B₁</th>
<th>B₂</th>
<th>B₃</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁</td>
<td>186</td>
<td>156</td>
<td>255</td>
<td>337</td>
<td>233</td>
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<tr>
<td>D₂</td>
<td>180</td>
<td>207</td>
<td>308</td>
<td>285</td>
<td>245</td>
</tr>
<tr>
<td>D₃</td>
<td>321</td>
<td>165</td>
<td>439</td>
<td>371</td>
<td>324</td>
</tr>
<tr>
<td>Mean</td>
<td>229</td>
<td>176</td>
<td>334</td>
<td>331</td>
<td>267</td>
</tr>
</tbody>
</table>
Crop : Pineapple.  
Ref : As. 60(19) and 62(34).  
Type : 'CMV'.

Object : To investigate the performances of Kew and Queen varieties of Pineapple to different spacings in combination with different levels of N, P and K fertilizers.

1. BASAL CONDITIONS:
(i) Cultivable waste; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) As per treatments. (v) June, 1959. As per treatments. (vi) 4 months. (vii) 230·6 Q/ha. of F.Y.M. (viii) 12 hoeings and 6 weedicings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS:
Main-plot treatments:
A: combinations of (1) and (2)
(1) 2 varieties : \( V_1 = \text{Kew} \) and \( V_2 = \text{Queen} \).
(2) 2 levels of fertilizer : \( F_1 = 56 \text{ Kg} \, \text{ha.} \; \text{of AS} + 246 \text{ Kg} \, \text{ha.} \; \text{of Super} + 45 \text{ Kg} \, \text{ha.} \; \text{of Pot. Sul.} \) and \( F_2 = 112 \text{ Kg} \, \text{ha.} \; \text{of AS} + 493 \text{ Kg} \, \text{ha.} \; \text{of Super} + 90 \text{ Kg} \, \text{ha.} \; \text{of Pot. Sul.} \)
Sub-plot treatments:
\( S_1 = 76 \text{ cm} \; \text{both ways}, \; S_2 = 114 \text{ cm} \; \text{both ways and} \; S_4 = 152 \text{ cm} \; \text{both ways.} \)
\( N.B. \; \text{The fertilizers were applied in one annual dose.} \)

3. DESIGN:
(i) Split-plot. (ii) (a) 4 main-plots replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 64 plants including guard row for \( S_1 \), 68 plants including guard row for \( S_2 \) and 25 plants including guard row for \( S_4 \). (v) 1 row. (vi) Yes.

4. GENERAL:

5. RESULTS:
60(19)
(i) 42·3 cm. plant (ii) (a) 16·94 cm/plant. (b) 9·44 cm/plant. (iii) None of the effects is significant. (iv) Av. height plant in cm.

<table>
<thead>
<tr>
<th></th>
<th>( F_1 )</th>
<th>( F_2 )</th>
<th>( V_1 )</th>
<th>( V_2 )</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>( S_1 )</td>
<td>38·7</td>
<td>39·5</td>
<td>40·9</td>
<td>37·3</td>
<td>39·1</td>
</tr>
<tr>
<td>( S_2 )</td>
<td>45·5</td>
<td>47·5</td>
<td>47·1</td>
<td>45·8</td>
<td>46·5</td>
</tr>
<tr>
<td>( S_4 )</td>
<td>40·3</td>
<td>42·4</td>
<td>43·5</td>
<td>39·3</td>
<td>41·4</td>
</tr>
<tr>
<td>Mean</td>
<td>41·5</td>
<td>43·2</td>
<td>43·8</td>
<td>40·8</td>
<td>42·3</td>
</tr>
</tbody>
</table>

| \( V_1 \) | 43·0     | 44·7     |
| \( V_2 \) | 46·6     | 41·7     |

C.D. for S or M marginal means=0·97 Kg/plot.
(i) 8.1 Kg/plant. (ii) and (iii) N.A. (iv) Av. yield of fruits in Kg/plot.

<table>
<thead>
<tr>
<th></th>
<th>$F_1$</th>
<th>$F_2$</th>
<th>$V_1$</th>
<th>$V_2$</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_1$</td>
<td>7.4</td>
<td>7.3</td>
<td>7.9</td>
<td>6.8</td>
<td>7.4</td>
</tr>
<tr>
<td>$S_2$</td>
<td>12.3</td>
<td>8.1</td>
<td>8.1</td>
<td>12.2</td>
<td>10.2</td>
</tr>
<tr>
<td>$S_3$</td>
<td>6.5</td>
<td>6.5</td>
<td>4.6</td>
<td>8.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Mean</td>
<td>8.8</td>
<td>7.3</td>
<td>6.9</td>
<td>9.2</td>
<td>8.1</td>
</tr>
</tbody>
</table>

$V_1$ and $V_2$
MANIPUR

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

Ref :- Mn. 65(1).
Type :- 'M'.

Object :- To study the effect of doses of N with and without different doses of P on the yield of Paddy.

1. BASAL CONDITIONS :
   (i) a Nil. (ii) Clay loam. (iii) 15.8.65. (iv) (a) 3 ploughings followed by laddering and harrowing. (b) Transplanting. (c) 25 Kg/ha. (d) 15 cm. x 15 cm. (e) 2 to 3. (v) Nil. (vi) Unirrigated. (vii) 3 weedings. (viii) N.A. (ix) 18.12.65.

2. TREATMENTS :
   5 manual treatments : T₁ = Control, T₁ = 20 Kg/ha of N, T₂ = 40 Kg/ha. of N, T₃ = T₁ + 15 Kg/ha. of P₂O₅ and T₄ = T₁ + 30 Kg/ha. of P₂O₅. N is applied as A.S and P₂O₅ as Super.

3 DESIGN :
   (i) R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 7.5 m. x 2.4 m. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1965-66. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil

5. RESULTS :
   (i) 565 Kg. ha. (ii) 943 4 Kg. ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in kg. ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>3958</td>
<td>5222</td>
<td>5653</td>
<td>5653</td>
</tr>
<tr>
<td>C.D.</td>
<td>.453 5 Kg. ha.</td>
<td></td>
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<td></td>
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</table>

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

Ref :- Mn. 65(2).
Type :- 'M'.

Object :- To study the effect of N, P and K with lime on the yield of Paddy.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow. (c) . (ii) Clay loam. (iii) 7.8.65. (iv) (a) 3 ploughings followed by laddering and harrowing. (b) Transplanting. (c) 25 Kg/ha. (d) 15 cm. x 15 cm. (e) 2-3. (v) Nil. (vi) Medium. (vii) Unirrigated. (viii) 3 weedings. (ix) N.A. (x) 16.12.65.

2. TREATMENTS :
   6 manual treatments : T₁ = Control, T₁ = 25 Q ha. of lime, T₂ = T₁ + 50 Kg/ha. of N as A/S, T₃ = T₁ + 38 Kg/ha. of P₂O₅ as Super, T₄ = T₁ + 50 Kg/ha. of N as A/S + 38 Kg/ha. of P₂O₅ as Super and T₅ = T₁ + 38 Kg/ha. of K₂O as Mur. Pot.

3. DESIGN :
   (i) R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 4.5 m. x 3.0 m. (v) N.A. (vi) Yes.

4. GENERAL :
   (i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1965-66. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil

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5. RESULTS:
(i) 3333 Kg/ha. (ii) 400.0 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_0$</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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</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>3333</td>
<td>3148</td>
<td>3426</td>
<td>2778</td>
<td>4259</td>
<td>3055</td>
</tr>
<tr>
<td>C.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>602.5</td>
</tr>
</tbody>
</table>

Crop :- Paddy (*Kharif*).
Site :- Rice Res. Stn., Wangbal.
Object :- To study the effect of compost reinforced with Super on the yield of Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow. (c) —. (ii) Clay loam. (iii) 5.8.65. (iv) (a) 3 ploughings followed by laddering and harrowing. (b) Transplanting. (c) 25 Kg/ha. (d) 15 cm x 15 cm. (e) 2 — 3. (v) Nil. (vi) *Morrangphou* (medium). (vii) Unirrigated. (viii) 3 weedings. (ix) N.A. (x) 13.12.65.

2. TREATMENTS:
4 manurial treatments: $T_1$=Compost, $T_2$=Compost reinforced by adding Super at the time of filling pits, $T_3$=Equivalent quantity of Super and compost applied separately in usual way and $T_4$=Equal quantity of Super and compost applied mixed at the time of field preparation.

Doses of compost and Super : compost at 50 Q/ha. and Super at 62.5 Kg/ha.

3. DESIGN:
(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 10.5 m x 3.0 m. (v) N.A. (vi) Yes.

4. GENERAL:
(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1965-68. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS:
(i) 3280 Kg/ha. (ii) 770.7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>3230</td>
<td>2817</td>
<td>3095</td>
<td>3976</td>
</tr>
</tbody>
</table>
NAVALAND

Crop :- Paddy (N. kharif).

Site :- Agri. Res. Farm, Yisemyong, Mokokchung.

Object — To determine the optimum date of planting for Paddy in Yisemyong locality.

1. BASAL CONDITIONS:
   (i) a) N.1 brand 2 N.A. (ii) Sandy loam (iii) As per treatments. (iv) (a) Ploughing and pulverising b) Transplanting. (c) 25 K. ha. (d) 23 cm. x 23 cm. (e) 2.3. (v) 184.5 Q ha. of Cowdung. (vi) Rosette. (Local A. of P. (vii) Untreated. (viii) Weeding. (ix) N.A. (x) 18.11.65.

2. TREATMENTS:
   2 dates of planting: D1 = 30th June and D2 = 15th July.
   30 days old seedlings were planted.

3. DESIGN:
   (i) R. B. D. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1 355 7/1 ha. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
   1855 K2: (a) 120 f K2 ha. (b) Treatment differences are not significant. (iv) Av. yield of grain in Kg ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>D1</th>
<th>D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>1949</td>
<td>1803</td>
</tr>
</tbody>
</table>

Crop :- Maize (N. kharif).

Site :- Agri. Res. Farm, Yisemyong, Mokokchung.

Object :- To determine the optimum date of sowing for Maize.

1. BASAL CONDITIONS:
   (i) a) N.1. (ii) N.A. (iii) Sandy loam. (iv) As per treatments. (v) (a) 2-3 ploughings followed by adding and Sowing. (b) D.hill: g. 10 cm. x 30 cm. (c) 5 K2 ha. (d) 45 cm. x 30 cm. (e) N.A. (v) 184.5 Q ha. of Cowdung. (vi) Ganga-101. (vii) Upr. gated. (viii) Earthing up once. (ix) N.A. (x) 12.8.65.

2. TREATMENTS:
   2 date of sowing: D1 = 15th March and D2 = 30th March.

3. DESIGN:
   (i) R. B. D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3.6 m. x 1.8 m. (v) N.A. (vi) Yes.

4. GENERAL:

154
5. RESULTS:

(i) 8172 Kg/ha. (ii) 366·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of maize in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>D1</th>
<th>D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>7975</td>
<td>8369</td>
</tr>
</tbody>
</table>

_Crop :- Potato (Rabi)._  
_Ref :- N.L. 65(3)._  
_Site :- Agri. Res. Farm, Yisemyong, Mokokchung._  
_Type :- ‘M’._

Object :- To study the effect of different doses of fertilizer on the yield of potato.

1. BASAL CONDITIONS:

(a) Nil. (b) Sandy loam (with high percentage of stony particles). (iii) 20.10.65.  
(iv) Ploughing and pulverising. (b) Planted in furrows. (d) 45 cm. x 22·5 cm. (e) 1.  

2. TREATMENTS:

3 manurial treatments: 

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T0</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>6175</td>
<td>8151</td>
<td>9880</td>
</tr>
</tbody>
</table>

_Crop :- Potato (Rabi)._  
_Ref :- N.L. 65(4)._  
_Site :- Agri. Res. Farm, Yisemyong, Mokokchung._  
_Type :- ‘C’._

Object :- To determine the optimum date of planting for potato.

1. BASAL CONDITIONS:

(a) Nil. (b) Sandy loam. (iii) As per treatments. (iv) Ploughing and pulverising.  
(b) Planted in furrows. (c) 15 Q/ha. (d) 45 cm. x 22·5 cm. (e) 1.  

2. TREATMENTS:

3 dates of planting: D1 = 10th October, D2 = 10th November and D3 = 10th December.
3. DESIGN:
   (i) R.B.D (ii) a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 4.5 m. x 2.7 m. (v) N.A. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 482 Kg ha. (ii) and (iii) N.A. (iv) Av. yield of tubers in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>D_1</th>
<th>D_4</th>
<th>D_8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>4112</td>
<td>5718</td>
<td>4150</td>
</tr>
</tbody>
</table>
TRIPURA

Crop :- Paddy (Rabi).

Site :- Res.-Cum-Demons. Farm, Arundhatinagar.

Ref. :- Tr. 64(9) & 65(8).

Type :- ‘M’.

Object :- To find out the effect of mode of application of N on the yield of Boro Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 15.12.64(15.1.65) ; 13.12.65/13.1.66. (iv) (a) 5 ploughings followed by laddering. (b) Transplanting. (c) 49.4 Kg/ha. (d) 25 cm. x 23 cm. (e) 4. (v) Nil. (vi) Kali Boro. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 11.5.65 ; 13.5.66.

2. TREATMENTS :

5 manurial treatments : T_0=Control, T_1=30 Kg/ha. of N as C/A/N applied as soil application, T_2=30 Kg/ha. of N as Urea applied as soil application, T_3=15 Kg/ha. of N as Urea applied as foliar spray and T_4=30 Kg/ha. of N as Urea applied as foliar spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 17.0 m. x 3.0 m. (iii) 4. (iv) (a) 3.0 m. x 3.0 m. (b) 2.5 m. x 2.5 m. (v) 25 cm. discarded around. (vi) Yes.
4. GENERAL:
(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964-66. (b) and (c) No. (v) No. (vi) N.A.
(vi) As the experiment is continued beyond 1965, results of individual years are given below.

5. RESULTS:

64 9,
(i) 216 Kg/ha. (ii) 224 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in
Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>2656</td>
<td>2060</td>
<td>2084</td>
<td>2584</td>
<td>2148</td>
</tr>
<tr>
<td>C.D. (5%)</td>
<td>345.1 Kg/ha.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5:8
(i) 1525 Kg/ha. (ii) 416 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain
Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>1200</td>
<td>1604</td>
<td>1416</td>
<td>1788</td>
<td>1600</td>
</tr>
</tbody>
</table>

Crop: - Paddy (Kharif).
Site: - Res.-Cum-Demons. Farm, Arundhatinarag.
Type: - 'M'.

Object: - To find out the effect of N on the yield of 4 months Paddy.

1. BASAL CONDITIONS:
(i) (a) N. (b) Fallow in 62; Paddy in 63 and 64. (c) N.A. (ii) Clay loam (iii) 7.8.62; 13.8.63;
(iv) (a) 6 ploughings followed by ladder ng. (b) Transplanting. (c) 49.4 Kg/ha. (d) 23 cm. x 23 cm.
(e) 3-4. (vi) 44.8 Kg ha. of P₂O₅ as Super. (vi) Lai Sail. (vii) Unirrigated. (viii) 2 weedicings.

2. TREATMENTS:
Sown at various N as C A N : T₁ = J, T₂ = 2.4, T₃ = 4.8, T₄ = 6.2 and T₅ = 8.7 Kg/ha.
(4.4 Kg was applied 30 days after transplanting and the remaining 5% of N was applied 60 days after
transplanting.)

3. DESIGN:
(i) Randomised. (ii) 5. (b) 24.0 m. x 4.0 m. (iii) 4. (iv) (a) 4.0 m. x 4.0 m. (b) 3.5 m. x 3.5 m. (v) One
row in the order and 25 cm. at each end. (vi) Yes.

4. GENERAL:
(i) Geo C. (ii) N.A. (iii) Grain yield. (iv) (a) 1962—64. (b) No. (c) Results of combined analysis are
given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments x
years interaction is absent.

5. RESULTS:
Pooled results
(i) 5965 Kg ha. (ii) 6186 Kg/ha. (based on 44 d.f. made up of pooled error and Treatments x years
interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>T₅</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av yield</td>
<td>5815</td>
<td>6061</td>
<td>6257</td>
<td>5878</td>
<td>5817</td>
</tr>
</tbody>
</table>
Individual Results

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>6143</td>
<td>6306</td>
<td>6408</td>
<td>6408</td>
<td>6429</td>
<td>N.S.</td>
<td>6339</td>
</tr>
<tr>
<td>1963</td>
<td>5382</td>
<td>5744</td>
<td>5865</td>
<td>4982</td>
<td>5051</td>
<td>N.S.</td>
<td>5405</td>
</tr>
<tr>
<td>1964</td>
<td>5920</td>
<td>6133</td>
<td>6498</td>
<td>6243</td>
<td>5971</td>
<td>N.S.</td>
<td>6153</td>
</tr>
<tr>
<td>Pooled</td>
<td>5815</td>
<td>6061</td>
<td>3257</td>
<td>5878</td>
<td>5817</td>
<td>N.S.</td>
<td>5965</td>
</tr>
</tbody>
</table>

Crop: Paddy (Kharif).

Site: Res.-Cum-Demons. Farm, Arundhatinagar.

Ref: Tr. 62(2) & 63(2).

Object: To find out the best G.M. crop for Aman Paddy.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) Fallow in 62; Paddy in 63. (c) N.A. (ii) Clay loam. (iii) 30.7.62; 31.7.63. (iv) (a) 5 ploughings followed by laddering. (b) Transplanting. (c) 49.4 Kg/ha. (d) 23 cm × 3 cm. (e) 3 to 4.
   (v) 22.4 Kg/ha. of N as C/A/N+44.8 Kg/ha. of P₂O₅ as Super. (vi) Lati Sall. (vii) Unirrigated.
   (viii) 4 weedings. (ix) N.A. (x) 28.11.62; 30.11.63.

2. TREATMENTS:
   4 G.M. crops preceding Paddy crop: T₁ = Control, T₂ = Urd, T₃ = Dhaincha and T₄ = Cowpea.
   G.M. seeds were sown in the month of April.

3. DESIGN:
   (i) R.B.D. (ii) (a) 19.8 m × 6.71 m. (iii) 5. (iv) (a) 6.7 m × 4.3 m. (b) 6.4 m × 3.7 m.
   (v) 30 cm discarded around. (vi) Yes.

4. GENERAL:
   (i) Normal in 62; Good in 63. (ii) N.A. (iii) Grain yield. (iv) (a) 1962-63. (b) No. (c) Results of combined as well as individual analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS:

   Pooled results
   (i) 2121 Kg/ha. (ii) 332.2 Kg/ha. (based on 27 d.f. made up of pooled error and Treatments × years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>2136</td>
<td>2281</td>
<td>2091</td>
<td>1976</td>
<td>N.S.</td>
<td>910</td>
<td>381.2</td>
</tr>
</tbody>
</table>

Individual results

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
<th>T₄</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>933</td>
<td>1193</td>
<td>843</td>
<td>673</td>
<td>N.S.</td>
<td>3332</td>
<td>287.0</td>
</tr>
<tr>
<td>1963</td>
<td>3340</td>
<td>3370</td>
<td>3339</td>
<td>3279</td>
<td>N.S.</td>
<td>2121</td>
<td>332.2</td>
</tr>
<tr>
<td>Pooled</td>
<td>2136</td>
<td>2281</td>
<td>2091</td>
<td>1976</td>
<td>N.S.</td>
<td>910</td>
<td>381.2</td>
</tr>
</tbody>
</table>
Crop :- Paddy (Khari j).

Site :- Res.-cum-Demons. Farm, Arundhatinagar. Type :- 'M'.

Object :- To find out the effect of P on the yield of Aman Paddy.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Follow in 62; Paddy in 63 and 64. (c) N A. (iii) Sandy loam. (iv) 5 ploughings with chaukhi plough and laddering. (b) Transplanting. (c) 20 Kg/ha. (d) 25 0 m. x 25:0 m (e) 4 - 5. (v) 44 $K_4$ ha. of N applied as C/A/N in two equal doses. (vi) Lati Sari. (vii) Unirrigated. (viii) 4 weeding. (ix) N A (x) 15 12.62; 12.12.63; 14.12.64.

2. TREATMENTS :
   (1) Combinations of (1) and (2) with a control
   (1) 2 levels of $P_2O_5$ : $P_1=22.4$ and $P_2=44.8$ Kg/ha.
   (2) 2 sources of $P_2O_5$ : $S_1$ = Bone meal and $S_2$ = Super.

Bone meal and Super were applied as basal.

3. DESIGN :
   (i) Factor in R.B.D. (ii) (a) 5. (b) 32.9 m. x 5 5 m. (iii) 4. (iv) (a) 5.5 m x 4.6 m. (b) 4.9 m x 4.0 m. (v) 30 cm. discarded around (vi) Yes.

4. GENERAL :
   (i) Normal. (ii) N A. (iii) Grain yield. (iv) (a) 1962-64. (b) N A. (c) Results of combined analysis are given under 5-Results. (v) At Gokulnagar in 1964 only. (vi) N A. (vii) Error variances are homogeneous and Treatments $\times$ years interaction is presented.

5. RESULTS :

Pooled results
(i) 3029 Kg/ha. (ii) 510.4 Kg/ha. (based on 8 d.f. made up of Treatments $\times$ years interaction.) (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

\[
\begin{array}{ccc}
|   & S_1 & S_2 & \text{Mean} \\
\hline
P_1 & 2698 & 3113 & 2905 \\
P_2 & 3162 & 3168 & 3175 \\
\text{Mean} & 2940 & 3140 & 3061 \\
\end{array}
\]

Individual results
Av. yield of grain in Kg/ha.

\[
\begin{array}{ccccccccc}
\text{Years} & P_1 & P_2 & \text{Sig.} & S_1 & S_2 & \text{Sig.} & \text{Control} & \text{Sig.} & \text{G M.} & \text{S.E./plot} \\
\hline
1962 & 2742 & 2981 & * & 2632 & 3092 & * & 2287 & \text{N.S.} & 2747 & 212.2 \\
1963 & 2945 & 3158 & \text{N.S.} & 3102 & 3022 & \text{N.S.} & 2878 & \text{N.S.} & 3025 & 220.0 \\
1964 & 3008 & 3510 & ** & 3086 & 3432 & \text{N.S.} & 3545 & \text{N.S.} & 3316 & 318.3 \\
\hline
\text{Pooled} & 2935 & 3175 & \text{N.S.} & 2940 & 3140 & \text{N.S.} & 2903 & \text{N.S.} & 3029 & 519.4 \\
\end{array}
\]

Crop :- Paddy (Khari j).

Site :- Seed Multiplication Farm, Gokulnagar, Udaipur. Type :- 'M'.

Object :- To find out the effect of it on the yield of Aman Paddy.
1. **BASAL CONDITIONS**:

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 9.5.65. (iv) (a) 3-4 ploughings followed by laddering. (b) Broadcasting. (c) N.A. (d) and (e) — N.A. (v) 138 Q/ha. of compost + 22.4 Kg/ha. of N as C/A/N. (vi) Latt sail. (vii) Unirrigated. (viii) 3 weedicings. (ix) N.A. (x) 26.8.65.

2. **TREATMENTS**:

All combinations of (1) and (2) + Control.

1) 2 levels of P2O5: P1 =22.4 and P2 =44.8 Kg/ha

2) 2 sources of P: S1 = Bone meal and S2 = Super.

Bonemeal and Super were applied as basal.

3. **DESIGN**:

(i) Fact. in R.B.D. (ii) (a) 32.9 m. x 5.5 m. (iii) A. (iv) (a) 5.5 m. x 4.6 m. (b) 4.9 m. x 5.0 m. (v) 30 cm. discarded around. (vi) Yes.

4. **GENERAL**:

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964-65. (b) Nq. (c) Results of combined analysis are given under 5. Results. (v) At Arundhatinagar in 1964 only. (vi) N.A. (vii) Error variances are homogeneous and Treatments X years interaction is absent.

5. **RESULTS**:

**Pooled results**

(i) 2542 Kg/ha. (ii) 388.4 Kg/ha. (based on 28 d.f. made up of pooled error and Treatments X years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2660 Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>2440</td>
<td>2474</td>
<td>2457</td>
</tr>
<tr>
<td>P2</td>
<td>2572</td>
<td>2562</td>
<td>2567</td>
</tr>
<tr>
<td>Mean</td>
<td>2506</td>
<td>2518</td>
<td>2512</td>
</tr>
</tbody>
</table>

**Individual results**

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>P1</th>
<th>P2</th>
<th>Sig.</th>
<th>S1</th>
<th>S2</th>
<th>Sig.</th>
<th>Control</th>
<th>Sig.</th>
<th>G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>2526</td>
<td>2445</td>
<td>N.S.</td>
<td>2510</td>
<td>2461</td>
<td>N.S.</td>
<td>2574</td>
<td>N.S.</td>
<td>2503</td>
<td>478.1</td>
</tr>
<tr>
<td>1965</td>
<td>2318</td>
<td>2690</td>
<td>N.S.</td>
<td>2502</td>
<td>2576</td>
<td>N.S.</td>
<td>2745</td>
<td>N.S.</td>
<td>2580</td>
<td>306.4</td>
</tr>
<tr>
<td>Pooled</td>
<td>2457</td>
<td>2567</td>
<td>N.S.</td>
<td>2506</td>
<td>2518</td>
<td>N.S.</td>
<td>2660</td>
<td>N.S.</td>
<td>2542</td>
<td>388.4</td>
</tr>
</tbody>
</table>

**Crop:** Paddy (Kharif).

**Site:** Res.-cum-Demons. Farm, Arundhatinagar.

Ref :- Tr. 65(6).

**Type :- 'MV'**.

Object :- To study the effect of different levels of N on the yield of different varieties of Aus Paddy.

1. **BASAL CONDITIONS**:

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 9.5.65. (iv) (a) 3-4 ploughings followed by laddering. (b) Broadcasting. (c) N.A. (d) and (e) — N.A. (v) 138 Q/ha. of compost + 22.4 Kg/ha. of P2O5 as Super. (vi) 22.4 Kg/ha. of K2O as Mur.Pot. (vii) As per treatments. (viii) Unirrigated. (ix) Weeding and Thinning. (ix) N.A. (x) 26.8.65.
2. TREATMENTS

Main-plot treatments:
- 3 varieties: \( V_1 = \) Bhurial, \( V_2 = \) Sonamudi and \( V_3 = \) Halai.

Sub-plot treatments:
- 3 levels of \( N \) as \( C/A/N : N_1 = 0, N_2 = 33.6 \) and \( N_4 = 67.2 \) Kg/ha.
- 2nd and 3rd doses of \( N \) applied before sowing and 1rd dose applied one month after sowing.

3. DESIGN:

(a) 3 main-plots, replication and 3 sub-plots, main-plot.
(b) 12.8 m. x 18.3 m.
(c) 3 m. x 5 m.
(d) 4.9 m. x 3.1 m.
(e) 30 cm. discarded around.
(f) Yes.

4. GENERAL:

(a) Nil.
(b) Grain yield
(c) 1955-66.
(d) No.
(e) No.
(f) Nil.
(g) Nil.

5. RESULTS:

(a) 206.7 Kg/ha.
(b) 506.9 Kg/ha.
(c) 412.5 Kg/ha.
(d) Main effect of \( V \) is significant.
(e) Av. yield of \( V \) is Kg/ha.

\[ \begin{array}{cccc}
V_1 & N_1 & N_2 & N_3 \\
2855 & 2910 & 3316 & 3027 \\
2930 & 3584 & 3316 & 3210 \\
2620 & 2608 & 2237 & 2488 \\
\hline
\text{Mean} & 3027 & 3210 & 2488 \\
\end{array} \]

C.D. for \( V \) marginal means: 506.4 Kg/ha.

---

**Crop:** Paddy (Khurif).

**Site:** Res.-cum-Demons. Farm, Arundhatinagar.

**Object:** To see the effect of different doses of fertilizers on the yield of different \( Amas \) varieties of Paddy.

1. BASAL CONDITIONS:

(a) Nil.
(b) Paddy.
(c) Nil.
(d) Clay loam.
(e) 19.8.65.
(f) 3-4 ploughings following by laddering, puddling etc.
(g) Transplanting.
(h) 11.2 Kg/ha.
(i) 22.5 cm. x 15 cm.
(j) 3.0 cm. x 3.7 m.
(k) 0.9 m. x 3.1 m.
(l) Yes.

2. TREATMENTS:

(A') combinations of (1) and (2)

(1) 2 varieties: \( V_1 = \) Taichung Native—1 and \( V_2 = \) H—4.
(2) 7 fertilizer doses: \( F_1 = \) Control, \( F_2 = 67.2 \) Kg/ha.

\( N \) applied as \( C/A/N, P_2 O_5 \) as Super. and \( K_2 O \) as Mur. of Pot. \( P_2 O_5 \) and \( K_2 O \) were applied before sowing. 1rd of \( N \) was applied before sowing and the remaining 2/3rd was applied as top dressing in two equal splits.

3. DESIGN:

(a) Fact. in R.B.D.
(b) 3.7 m. x 31.2 m.
(c) 1.5 m. x 3.7 m.
(d) 0.9 m. x 3.1 m.
(e) 30 cm. discarded around.
(f) Yes.
4. GENERAL:
(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1935 only. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS
(i) 2989 Kg/ha. (ii) 574 Kgs/ha. (iii) Main effect of V is highly significant and main effect of F is significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>V1</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>2295</td>
<td>1937</td>
<td>2833</td>
<td>2762</td>
<td>2546</td>
<td>2887</td>
<td>3264</td>
</tr>
<tr>
<td>2099</td>
<td>2618</td>
<td>3817</td>
<td>3802</td>
<td>2887</td>
<td>3730</td>
<td>4358</td>
</tr>
<tr>
<td>Mean</td>
<td>2197</td>
<td>2277</td>
<td>3335</td>
<td>3282</td>
<td>2716</td>
<td>3308</td>
</tr>
</tbody>
</table>

C.D. for V marginal means = 470.8 Kg/ha.
C.D. for F marginal means = 389.5 Kg/ha.

Crop :- Paddy (Khmarf).
Site :- Res.-cum-Demons. Farm, Arundhitinagar.

Object :- To find out the optimum date of planting for Aman Paddy.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) Fallow for 62; Paddy for 63 and 64. (c) N.A. (ii) Clay loam. (iii) As per treatments.
(iv) (a) 6 ploughings followed by laddering. (b) Transplanting. (c) 22.4 Kg/ha. (d) 23 cm. x 23 cm.
(e) 3-4. (v) 138.3 Q/ha of Cowdung + 44.8 Kg/ha. of P2O5 as Super + 44.8 Kg/ha. of N as C/A/N:

2. TREATMENTS:
7 dates of planting : D1=10th July, D2=20th July, D3=30th July, D4=7th August, D5=19th August,
D6=29th August and D7=8th September.

3. DESIGN:
(i) R.B.D. (ii) (a) 7. (b) 22.6 m. x 7.6 m. (iii) 4. (iv) (a) 7.6 m. x 2.4 m. (b) 7.0 m. x 1.8 m.
(v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:
(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1962-64. (b) No. (c) Results of combined as well
as individual analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homog-
eneous and Treatments x years interaction is present.

5. RESULTS:
Pooled results
(i) 3158 Kg/ha. (ii) 837.8 Kg/ha. (based on 12 d.f. made up of Treatments x years interaction). (iii) Treat-
ment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>D6</th>
<th>D7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>3458</td>
<td>3613</td>
<td>3668</td>
<td>3521</td>
<td>3072</td>
<td>2495</td>
<td>2260</td>
</tr>
</tbody>
</table>

C.D. = 745.3 Kg/ha.
Crop : Paddy (\textit{Rehi}).

Site : Res.-cum-Demons. Farm, Arundhatinagar.

Object : To find out the optimum date of sowing and age of seedling for \textit{Boro} Paddy.

1. \textbf{BASELINE CONDITIONS :}

(i) (a) Nil. (b) Paddy. (c) N.A. (i) Clay loam. (iii) As per treatments. (iv) (a) 5 ploughings followed by harrowing. (b) Transplanting. (c) 49.4 Kg/ha. (d) 25 cm. \(\times\) 25 cm. (e) 4. (v) 138.3 Q/ha. of \(\text{Ca} \times \text{H}_{2} \text{SO}_{4}\) + 22.4 Kg/ha. as \(\text{P}_{2}\text{O}_{5}\) as Super-44.8 Kg/ha. of \(\text{N}\) as C/A\%N. (vi) \textit{Kaliboro}. (vii) Irrigated (from drain). (viii) 3 weedings. (ix) and (t) N.A.

2. \textbf{TREATMENTS :}

A 2 combinations of (1) and (2)

(1) 4 dates of sowing : \(D_{1}=21\text{st}\) November, \(D_{2}=6\text{th}\) Decem.ber, \(D_{3}=21\text{st}\) December and \(D_{4}=5\text{th}\) January.

(2) 3 ages of seedling : \(A_{1}=20\text{ days}, A_{2}=30\text{ days and } A_{3}=40\text{ days.}

3. \textbf{DESIGN :}

(i) F.F.c. in R.B.D. (ii) (a) 12. (b) 14.9 m. \(\times\) 20 1 m. (iii) 3. (iv) (a) 4.6 m. \(\times\) 4.6 m. (b) 4.0 m. \(\times\) 4.0 m. (c) 30 cm., discarded around. (vi) Yes.

4. \textbf{GENERAL :}

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1963-65. (b) No. (c) Results of combined as well as individual analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments \& years interaction is absent.

5. \textbf{RESULTS :}

Pooled results

(i) 2822 Kg/ha. (ii) 460.5 Kg/ha. (based on 88 d.f. made up of pooled error and Treatments \& years interaction). (iii) Only the main effect of \(D\) is highly significant. (iv) Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>(D_{1})</th>
<th>(D_{2})</th>
<th>(D_{3})</th>
<th>(D_{4})</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A_{1})</td>
<td>3297</td>
<td>3046</td>
<td>2570</td>
<td>2601</td>
</tr>
<tr>
<td>(A_{2})</td>
<td>3118</td>
<td>3179</td>
<td>2733</td>
<td>2554</td>
</tr>
<tr>
<td>(A_{3})</td>
<td>3016</td>
<td>2824</td>
<td>2735</td>
<td>2214</td>
</tr>
<tr>
<td>Mean</td>
<td>3144</td>
<td>3016</td>
<td>2679</td>
<td>2449</td>
</tr>
</tbody>
</table>

C.D. for \(D\) marginal means = 249.4 Kg/ha.
Individual results

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>Sig.</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>Sig.</th>
<th>1/G.M.</th>
<th>S.E./plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>2989</td>
<td>2519</td>
<td>2310</td>
<td>1666</td>
<td>**</td>
<td>2630</td>
<td>2281</td>
<td>2201</td>
<td>*</td>
<td>2371</td>
<td>395:1</td>
</tr>
<tr>
<td>1964</td>
<td>3359</td>
<td>3665</td>
<td>3059</td>
<td>3089</td>
<td>*</td>
<td>3270</td>
<td>3452</td>
<td>3157</td>
<td>N.S.</td>
<td>3293</td>
<td>420:9</td>
</tr>
<tr>
<td>1965</td>
<td>3084</td>
<td>2866</td>
<td>2670</td>
<td>2593</td>
<td>*</td>
<td>2765</td>
<td>2941</td>
<td>2734</td>
<td>N.S.</td>
<td>2822</td>
<td>376:2</td>
</tr>
<tr>
<td>Pooled</td>
<td>3144</td>
<td>3016</td>
<td>2679</td>
<td>2449</td>
<td>**</td>
<td>2878</td>
<td>2891</td>
<td>2697</td>
<td>N.S.</td>
<td>2822</td>
<td>460:5</td>
</tr>
</tbody>
</table>

Crop :- Paddy (Kharif).

Site :- Res.-Cmt:Demons: Farm, Arudhduttinagar. Type :- 'CM'.

Object :- To study the effect of line sowing and broadcasting on the yield of Aus Paddy in presence and absence of Dhanicha and Lime.

1. BASAL CONDITIONS :
   (i) (a) Nil. (b) Fallow for 62, Paddy for 63. (c) Clay loam. (iii) 12-13.5.62; 21.4.63.
   (iv) (a) 4 ploughings followed by laddering etc. (b) As per treatments. (c) to (e) N.A. (v) Nil.

2. TREATMENTS :
   Main-plot treatments :
   2 levels of lime : \( L_0 = 0 \) and \( L_1 = 27.7 \) Q/ha.

Sub-plot treatments :
   2 levels of dhanicha : \( D_0 = \) Without dhanicha and \( D_1 = \) With dhanicha.

Sub-sub-plot treatments :
   2 methods of sowing : \( M_1 = \) Broadcasting and \( M_2 = \) Line sowing.

N.B. : Dhanicha seeds were broadcasted at 34'6 Kg/ha. on 13.5.62 and 21.4.63 and ploughed down after two months from the date of sowing.

3. DESIGN:
   (i) Split-plot. (ii) (a) 2 main-plots/replication, 2 sub-plots/main-plot and 2 sub-sub-plots/sub-plot.
   (b) 18'6 m. x 20'0 m. (iii) 5. (iv) (a) 8'8 m. x 4'3 m. (b) 8'2 m. x 3'7 m. (v) 30 cm. discarded around.
   (vi) Yes.

4. GENERAL:
   (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Main-plot, sub-
   plot and sub-sub-plot error variances are homogenous. Main-plot Treatments x years interaction is absent. Sub-plot-Treatments x years interaction is present and sub-sub-plot Treatments x years interaction is absent.

5. RESULTS:
   (i) 999.0 Kg/ha. (ii) (a) 533.9 Kg/ha. (based on 9 d.f., made up of Treatments x years interaction and pooled error). (b) 567.3 Kg/ha. (based on 2 d.f., made up of Treatments x years interaction). (c) 243'2 Kg/ha.
   (based on 35 d.f., made up of pooled error and Treatments x years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.
Individual results

Av. yield of grain in Kg/ha.

<table>
<thead>
<tr>
<th>Years</th>
<th>L_a</th>
<th>L_b</th>
<th>M_a</th>
<th>M_b</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>570</td>
<td>770</td>
<td>N.S.</td>
<td>653</td>
<td>687</td>
</tr>
<tr>
<td>1963</td>
<td>1119</td>
<td>1537</td>
<td>N.S.</td>
<td>1350</td>
<td>1296</td>
</tr>
<tr>
<td>Pooled</td>
<td>844</td>
<td>1154</td>
<td>N.S.</td>
<td>1006</td>
<td>992</td>
</tr>
</tbody>
</table>

Mean

<table>
<thead>
<tr>
<th>D_2</th>
<th>L_a</th>
<th>L_b</th>
<th>M_a</th>
<th>M_b</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>821</td>
<td>1191</td>
<td>1017</td>
<td>995</td>
<td>1006</td>
<td></td>
</tr>
<tr>
<td>868</td>
<td>1116</td>
<td>1048</td>
<td>936</td>
<td>992</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>844</td>
<td>1154</td>
<td>1033</td>
<td>965</td>
<td>999</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M_1</th>
<th>M_2</th>
</tr>
</thead>
<tbody>
<tr>
<td>926</td>
<td>1139</td>
</tr>
<tr>
<td>763</td>
<td>1168</td>
</tr>
</tbody>
</table>

Crop :- Potato (Rabi).
Site :- Res.-Cum-Demons. Farm, Arundhatinagar. Type :- 'M'.
Object —To study the effect of different doses of N, P and K and their combinations on the yield of Potato.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 4.12.64 ; 8.11.65. (iv) (a) 6 ploughings followed by ladder. (b) Sown in lines. (c) 33 Kg/ha. (d) 45 cm. x 15 cm. (e) 1. (v) As per treatments. (vi) Up-to-date. (vii) Irrigated. (viii) 5 earthings and one weeding. (ix) N.A. (x) 15.3.65 ; 11.1.66.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N as C.A/N : N₀=0, N₁=67.2 and N₂=134.5 Kg/ha.
(2) 3 levels of P as Super : P₀=0, P₁=33.6 and P₂=67.2 Kg/ha.
(3) 3 levels of K as Mur. Pot. : K₀=0, K₁=33.6 and K₂=67.2 Kg/ha.
N.B. : 50% of P₂O₅ and 50% of K₂O were applied as basal. 50% of N was applied during 1st earthing up. The remaining 50% of P₂O₅, K₂O and N were applied one month after 1st earthing up.

3 DESIGN:
(i) 3² partially confounded. (ii) (a) 9 plots block ann 3 blocks/replication. (b) 23'8 m. x 3'7 m. (iii) 4. (iv) (a) 3'7 m. x 1'8 m. (b) 2'4 m. x 1'2 m. (v) 61 cm. > 31 cm. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) N.A. (iii) Yield of potato. (iv) (a) 1964—66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As the experiment is continued in 1965, the individual results are given over leaf.
5. RESULTS:

64(8)

(i) 5833 Kg/ha. (ii) 1726.8 Kg/ha. (iii) Main effects of N and P are highly significant and effect of K is significant. (iv) Av. yield of tubers in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₀</td>
<td>3526</td>
<td>4622</td>
<td>4701</td>
<td>3980</td>
<td>4280</td>
<td>4589</td>
<td>4283</td>
</tr>
<tr>
<td>N₁</td>
<td>5399</td>
<td>7386</td>
<td>6814</td>
<td>5449</td>
<td>6753</td>
<td>7397</td>
<td>6533</td>
</tr>
<tr>
<td>N₂</td>
<td>5051</td>
<td>6744</td>
<td>8252</td>
<td>5788</td>
<td>6809</td>
<td>7451</td>
<td>6682</td>
</tr>
<tr>
<td>Mean</td>
<td>4659</td>
<td>6251</td>
<td>6589</td>
<td>5073</td>
<td>5947</td>
<td>6479</td>
<td>5833</td>
</tr>
</tbody>
</table>

C.D. for N, P or K marginal means = 812.8 Kg/ha.

65(7)

(i) 8313 Kg/ha. (ii) 2252.6 Kg/ha. (iii) Effect of N is highly significant and effect of P is significant. (iv) Av. yield of tubers in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>P₀</th>
<th>P₁</th>
<th>P₂</th>
<th>K₀</th>
<th>K₁</th>
<th>K₂</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>6044</td>
<td>8115</td>
<td>6657</td>
<td>6772</td>
<td>7177</td>
<td>6867</td>
<td>6939</td>
</tr>
<tr>
<td>P₁</td>
<td>8535</td>
<td>8786</td>
<td>8832</td>
<td>8706</td>
<td>10147</td>
<td>8300</td>
<td>9051</td>
</tr>
<tr>
<td>P₂</td>
<td>8129</td>
<td>8829</td>
<td>9937</td>
<td>8760</td>
<td>9544</td>
<td>8591</td>
<td>8965</td>
</tr>
<tr>
<td>Mean</td>
<td>7569</td>
<td>8910</td>
<td>8475</td>
<td>8079</td>
<td>8956</td>
<td>7919</td>
<td>8318</td>
</tr>
</tbody>
</table>

C.D. for N or P marginal means = 603.0 Kg/ha.

Crop: Jute (Kharif).
Site: Res.-cum-Demons. Farm, Arundhutinagar.
Object: To study the effect of different doses of lime on the yield of Capsularis Jute fibre.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 25.4.63; 6.4.64; 12.4.65. (iv) (a) 4 ploughings followed by laddering. (b) N.A. (c) 3·4 Kg/ha. (d) 30 cm. x 10 cm. (e) N.A. (f) 184 Kg/ha. of compost + 22·4 Kg/ha. of K₂O as Mur. Pot. + 22·4 Kg/ha. of P₂O₅ as Super + 44·8 Kg/ha. of N as C/A/N. (vi) D-154. (vii) Unirrigated. (viii) 4 weedings and 2 thinnings. (ix) N.A. (x) 7.9.63; 25.9.64; 27.9.65.

2. TREATMENTS:
5 levels of lime: T₀=0, T₁=56, T₂=112, T₃=168 and T₄=224 Kg/ha. (Lime was applied 7 days before sowing.)
5. DESIGN:
(i) R.B.D. (a) 5. (b) 19'2 m. x 4'6 m. (ii) 4. (iv) (a) 4'6 m. x 3'4 m. (b) 4'0 m. x 2'7 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:
(i) Normal. (ii) N.A. (iii) Fibre yield. (iv) (a) 1963-65. (b) Nil. (v) No. (vi) N.A. (vii) Error variances are heterogeneous and Treatments x years interaction is absent. Results of individual years are given under 5-Results.

5. RESULTS:
63(7)
(i) 2621 Kg/ha. (ii) 423·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>2318</td>
<td>2962</td>
<td>2417</td>
<td>2516</td>
<td>2893</td>
</tr>
</tbody>
</table>

64(6)
(i) 1679 Kg/ha. (ii) 536·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>1092</td>
<td>1414</td>
<td>1743</td>
<td>1805</td>
<td>2339</td>
</tr>
</tbody>
</table>

65.3)
(i) 3936 Kg/ha. (ii) 998·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av. yield</td>
<td>2695</td>
<td>4006</td>
<td>4087</td>
<td>4243</td>
<td>4648</td>
</tr>
</tbody>
</table>

---

**Crop:** Jute (*Kharij*).  
**Site:** Seed Multiplication Farm, Gokulnagar, Udaipur.  
**Ref:** Tr. 65(12).  
**Type:** ‘MV’.

**Object:** To study the effect of different fertilizers doses on the yield of fibre of two *Capsularis* varieties of Jute.

1. BASAL CONDITIONS:
(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 1.5.65. (iv) (a) 5 ploughings followed by laddering. (b) Line sowing. (c) 7·4 Kg/ha. (d) 30 cm. x 10 cm. (e) —. (v) 18.5 Q/ha. of compost. (vi) As per treatments. (vii) Unirrigated. (viii) 3 weeding and 2 thinnings. (ix) N.A. (x) 28.9.65.

2. TREATMENTS:
All combinations of (1) and (2)
(i) 2 varieties of fertilizers: V1=JRC-321 and V2=JRC-212.
(2) 5 levels of fertilizers: F0=Control, F1=22·4 Kg/ha. of N as Ca(N+11·2 Kgs/ha. of PO4 as Super +11·2 Kg/ha. of K2O as Mur. Pot., F2=2XF1, F3=3XF1 and F4=4XF1.
Time of application: 4 doses of N, P and K were applied 30 days after sowing and the remaining doses were applied 60 days after sowing.

3. DESIGN.
(i) Fact. in R.B.D. (ii) (a) 10. (b) 22 0 m. x 14·3 m. (iii) 4. (iv) (a) 6 7 m. x 3·7 m. (b) 6 1 m. x 3·1 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:
5. RESULTS:
(i) 978.9 Kg/ha. (ii) 180.4 Kg/ha. (iii) Main effects of V and F and interaction V x F are highly significant. (iv) Av. yield of fibre in Kg/ha.

<table>
<thead>
<tr>
<th></th>
<th>F₀</th>
<th>F₁</th>
<th>F₂</th>
<th>F₃</th>
<th>F₄</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁</td>
<td>418.0</td>
<td>875.0</td>
<td>619.7</td>
<td>933.3</td>
<td>870.8</td>
<td>757.8</td>
</tr>
<tr>
<td>V₂</td>
<td>381.9</td>
<td>1170.8</td>
<td>1554.2</td>
<td>1362.5</td>
<td>1530.6</td>
<td>1200.0</td>
</tr>
<tr>
<td>Mean</td>
<td>400.0</td>
<td>1022.9</td>
<td>1122.9</td>
<td>1147.9</td>
<td>1200.7</td>
<td>978.9</td>
</tr>
</tbody>
</table>

C.D. for V marginal means = 117.1 Kg/ha.
C.D. for F marginal means = 185.1 Kg/ha.
C.D. for means in the body of table = 261.8 Kg/ha.

Crop: Jute (Kharif).
Site: Seed Multiplication Farm, Gokulnagar, Udaipur.
Type: 'MV'.

Object: To study the effect of different fertilizer doses on the yield of fibre of two oilseeds varieties of Jute.

1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 1.5.65. (iv) (a) 4 ploughings followed by laddering. (b) Line sowing. (c) 7.4 Kg/ha. (d) 30 cm. x 10 cm. (e) —. (v) 184.5 Q/ha. of compost. (vi) As per treatments. (vii) Unirrigated. (viii) 4 weedings and 2 thinnings. (ix) N.A. (x) 9.10.65.

2. TREATMENTS:
   All combinations of (1) and (2)
   (1) 2 varieties: V₁= JRO-632 and V₂= JRO-514.
   (2) 5 levels of fertilizers: F₀= Control, F₁= 22.4 Kg/ha. of N as C/A/N+11.2 Kg/ha. of P₂O₅ as Super+11.2 Kg/ha. of K₂O as Mur. Pot., F₂= 2×F₁, F₃= 3×F₁ and F₄= 4×F₁.
   Time of application: ½ doses of N, P and K were applied 30 days after sowing and the remaining doses were applied 60 days after sowing.

3. DESIGN:
   (i) Fact. in R.B.D. (ii) (a) 10. (b) 22.0 m. x 14.3 m. (iii) 4. (iv) (a) 6.7 m. x 3.7 m. (b) 6.1 m. x 3.1 m. (v) 30 cm. discarded around. (vi) Yes.

4. GENERAL:

5. RESULTS:
   (i) 1369 Kg/ha. (ii) 307.3 Kg/ha. (iii) Main effect of F is highly significant. (iv) Av. yield of fibre in Kg/ha.

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C.D. for F marginal means = 315.2 Kg/ha.
Crop: Jute (Kharif).

Site: Res.-cum-Demons. Farm, Arundhutinagar. Type: 'C'.

Object: To study the effect of different dates of sowing on Jute.

1. BASAL CONDITIONS:
(a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) 4 ploughings followed by laddering. (b) N.A. (c) 3.4 Kg/ha. (d) 30 cm. x 10 cm. (e) N.A. (v) 230.6 Q/ha. of compost + 11.2 Kg/ha. of P2O5 as Super 44.8 Kg/ha. of N as CA/N+11.2 Kg/ha. of K2O as Mur. Pot. (vi) JRC-212. (vii) Unirrigated. (viii) 3 weedings and 2 thinnings. (ix) N.A. (x) 22.9.64; 20.9.65.

2. TREATMENTS:
6 dates of sowing: D1 = 1st April, D2 = 10th April, D3 = 20th April, D4 = 30th April, D5 = 10th May and D6 = 20 May.

3. DESIGN:
(i) R.B.D. (ii) (a) 6. (b) 3·1 m. x 10·7 m. (iii) 4. (iv) (a) 3·1 m. x 1·5 m. (b) 2·7 m. x 1·2 m. (v) 15 cm. discarded all around. (vi) Yes.

4. GENERAL:
(i) Poor. (ii) N.A. (iii) Fibre yield. (iv) (a) 1964-65. (b) Nil. (v) N.A. (vi) N.A. (vii) Error variances are heterogeneous and Treatments x years interaction is absent, the results of individual years are given under 5-Results.

5. RESULTS:
64(7)
(i) 737 Kg/ha. (ii) 508·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

Treatment | D1 | D2 | D3 | D4 | D5 | D6
--- | --- | --- | --- | --- | --- | ---
Av. yield | 1129 | 538 | 852 | 717 | 598 | 590

65-4
(i) 571 Kg/ha. (ii) 1658·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

Treatment | D1 | D2 | D3 | D4 | D5 | D6
--- | --- | --- | --- | --- | --- | ---
Av. yield | 5569 | 5726 | 4365 | 3603 | 3379 | 2982

Crop: Groundnut (Kharif).

Site: Res.-cum-Demons. Farm, Arundhutinagar.

Object: To study the effect of different doses of N, P and K alone and in combination on the yield of Groundnut.

1. BASAL CONDITIONS:
(a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 13.5.64; 15.5.65. (iv) (a) 3 ploughings followed by laddering. (b) Line sowing. (c) N.A. (d) 60 cm. x 22·5 cm. (e) N.A. (v) 184.5 Q/ha. of compost. (vi) Local. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) 3 to 6.10.64; 11.10.65.

2. TREATMENTS:
All combinations of (1), (2) and (3)
(1) 3 levels of N as CA/N: N0=0, N1=11·2 and N2=22·4 Kg/ha.
(2) 3 levels of P2O5 as Super: P0=0, P1=22·4 and P2=44·8 Kg/ha.
(3) 3 levels of K2O as Mur. Pot.: K0=0, K1=22·4 and K2=44·8 Kg/ha.
P2O5 and K2O were applied before sowing while N was applied 30 days after sowing.
3. DESIGN:

(i) j partially confd.  (ii) (a) 9 plots/block; 3 blocks/replication.  (b) 15.9 m. x 4.3 m.  (iii) 4. (iv) (a) 4.3 m. x 1.2 m.  (b) 3.1 m. x 0.6 m.  (v) 30 cm. x 30 cm.  (vi) Yes.

4. GENERAL:

(i) Normal.  (ii) Foliodol @ 3 c.c. per gallon of water and Blitox at 15 gm/gallon of water against Tikka disease and cutter-pillar.  (iii) Pod yield.  (iv) (a) 1964—67.  (b) No.  (c) Nil.  (v) No.  (vi) N.A.  (vii) As the exp. is continued beyond 1965, individual results are presented under 5. Results.

5. RESULTS:

64(11)

(i) 721 Kg/ha.  (ii) 203.2 Kg/ha.  (iii) Main effect of K alone is significant.  (iv) Av. yield of Pods in Kg/ha.

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C.D. for K marginal means=92.8 Kg/ha.

68(10)

(i) 1603 Kg/ha.  (ii) 443.3 Kg/ha.  (iii) Main effect of P alone is highly significant.  (iv) Av. yield of Pods in Kg/ha.

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C.D. for P marginal means=208.6 Kg/ha.

**Crop**: Groundnut (Kharif).

**Site**: Res.-cum-Demons Farm, Arundhatinar.

**Object**: To study the effect of different dates of sowing and spacings on the yield of Groundnut.
1. BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 3 ploughings followed by paddering. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) 184.5 Q/ha. of compost + 11.2 Kg/ha. of N as CaN  + 33.6 Kg/ha. of P6O6 as Super+22.4 Kg/ha. of K2O as Mur. Pot. (vi) Local. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (x) N.A. (x) 28.10.64 to 5.11.64.

2. TREATMENTS:
   Main-plot treatments:
   4 dates of sowing: D1 = 20.4.64, D2 = 2.5.64, D3 = 14.5.64 and D4 = 26.5.64.
   Sub-plot treatments:
   3 spacings: S1 = 60 cm. x 10 cm., S2 = 60 cm. x 15 cm. and S3 = 60 cm. x 22.5 cm.

3. DESIGN:
   (i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) 18.9 m. x 9.5 m. (iii) 3. (iv) (a) 3.0 m. x 1.8 m. (b) 1.8 m. x 1.2 m. (v) 60 cm. x 30 cm. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Blitox sprayed at 10 grams per gallon of water against Tikka disease. (iii) Pod yield. (iv) (a) 1964 - only. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS
   (i) 2056 Kg/ha. (ii) (a) 601.9 Kg/ha. (b) 370.4 Kg/ha. (iii) Main effect of D is highly significant. Interaction D x S is significant. (iv) Av. yield of Pods in Kg/ha.

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C.D. for D marginal means = 694.3 Kg/ha.
C.D. for S marginal means at the same level of D = 641.1 Kg/ha.
C.D. for D marginal means at the same level of S = 857.3 Kg/ha.

---

Crop: Groundnut (Kharif).
Site: Res. Cum-Demons. Farm, Arundhutinagar.
Object: To study the effect of different dates of sowing and spacings on the yield of Groundnut.

1 BASAL CONDITIONS:
   (i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 3 ploughings followed by paddering. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) 184.4 Q/ha. of compost + 11.2 Kg/ha. of N as CaN  + 33.6 Kg/ha. of P6O6 as Super+22.4 Kg/ha. of K2O as Mur. Pot. (vi) Local. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (x) N.A. (x) 1, 20, 23 and 26.11.65.

2. TREATMENTS:
   Main-plot treatments:
   9 dates of sowing: D1 = 27.3.65, D2 = 8.4.65, D3 = 20.4.65, D4 = 2.5.65, D5 = 14.5.65, D6 = 26.5.65, D7 = 7.6.65, D8 = 19.6.65 and D9 = 1.7.65.
   Sub-plot treatments:
   3 spacings: S1 = 60 cm. x 10 cm., S2 = 60 cm. x 15 cm. and S3 = 60 cm. x 22.5 cm.
3. DESIGN:
   (i) Split-plot. (ii) (a) 9 main-plots.replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 3'0 m. x 1'8 m. (b) 1'8 m. x 1'2 m. (v) 60 cm. x 30 cm. (vi) Yes.

4. GENERAL:
   (i) Normal. (ii) Blitox sprayed @ 10 gm./gallon of water against Tikka disease. (iii) Yield of Pods. (iv) (a) 1965—only. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:
   (i) 877 Kg/ha. (ii) (a) 221'9 Kg/ha. (b) 278'0 Kg/ha. (iii) Only the main effect of D is highly significant. (iv) Av. yield of Pods in Kg/ha.

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C.D. for D marginal means = 221'8 Kg/ha.
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