

**INSTITUTE OF AGRICULTURAL RESEARCH STATISTICS**

**NATIONAL INDEX**

**OF**

**AGRICULTURAL**

**FIELD**

**EXPERIMENTS**

**VOL. 12 PART 2**

**RAJASTHAN**

**1954-59**



**सत्यमेव जयते**

**PUBLISHED BY  
INDIAN COUNCIL OF AGRICULTURAL RESEARCH  
NEW DELHI**

## FOREWORD

Increase in agricultural production is one of the main objectives of our agricultural planning. It is only by the exploitation of scientific methods of agriculture that we can hope to increase our agricultural production to the level needed for maintaining a reasonable standard of living to the country's population. The technical worth of improvement measures is best judged from carefully conducted field experiments. While it is true that a large number of agricultural field experiments are conducted in the country, the results of these experiments have not been brought together in an integrated manner for the use of research workers. The absence of such a unified account has often led to duplication of work and delay in the utilisation of results for practical farming. The Institute of Agricultural Research Statistics has rendered a very valuable service by preparing a compendium of agricultural field experiments conducted in the country. The first series of compendium containing the results of all agricultural field experiments during the period 1948-53 have already been published by the Institute.

The present compendium is the second in the series covering the period 1954-59. As in the earlier compendium, the present series also contains critical summaries of results of experiments bearing on important agronomic factors, such as the response of crops to fertilizers and manures, inter-relationship of fertilizers, varieties and cultivation practices and other information of value for giving sound advice to farmers in different regions. Judging from the demand for the first series of the compendium, I am sure that the present series will also prove equally useful.

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

NEW DELHI,  
March 26, 1965.

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

## PREFACE

The present set of volumes form Part II in the series of compendia of Agricultural Field Experiments being published by the Indian Council of Agricultural Research under the project for National Index of Field Experiments and contains a unified record of experiments conducted at agricultural research stations and institutes all over the country. Volumes in Part I in this series were published in 1962 and contained results of some 7,500 experiments conducted during the period 1948-53. The present set of volumes includes results of experiments conducted during the next period that is 1954-59. After the period, covered by Part I of the series, agricultural research and experimentation has expanded so much that for the period 1954-59, to which the present volumes refer, results of more than 15,000 experiments are available.

The present compendium is prepared on the same pattern as the previous one and is divided into 15 volumes one each for (1) Andhra Pradesh, (2) Assam, Manipur and Tripura, (3) Bihar, (4) Gujarat, (5) Kerala, (6) Madhya Pradesh, (7) Madras, (8) Maharashtra, (9) Mysore, (10) Orissa, (11) Punjab, Jammu and Kashmir and Himachal Pradesh, (12) Rajasthan, (13) Uttar Pradesh (14) West Bengal and (15) All Central Institutes. In each volume, background information of the respective state regarding its division into different soils and agro-climatic regions, rainfall and cropping pattern followed in each region and agricultural production and area under different crops in the State is given. The experiments reported in each volume have been arranged crop-wise for each State. All the experiments belonging to a particular crop at various research stations are Grouped together. For a particular crop, experiments are arranged according to the following classification :

Manurial (M), Cultural (C), Irrigational (I), Diseases, pests and chemicals other than fertilizers (D), Rotational (R), Mixed cropping (X) and combinations of these wherever they occur (*e.g.* CM as Cultural-cum-Manurial). Experiments in which crop varieties also form a factor are denoted by adding V to their symbol and are grouped together (*e.g.* MV as Manurial-cum-Varietal).

This publication owes its origin to the guidance and help of Dr. D.J. Finney, F.R.S., Professor of Statistics, Aberdeen University, Scotland, in formulating the project during his stay at the Institute of Agricultural Research Statistics as an F.A.O. expert in 1952-53.

At the Institute of Agricultural Research Statistics the work under the scheme was carried out under the supervision of Shri. T.P. Abraham, Assistant Statistical Adviser. The actual working of the scheme was conducted by Shri G.A. Kulkarni, Statistician till he left the Institute in July, 1964. The work was subsequently taken over by Shri O.P. Kathuria, Assistant Statistician. Messrs. L.B.S. Somayazulu, P.P. Rao, M.L. Sahni, Harbhajan Singh, A.L. Punhani, M.K. Joshi, N.K. Worrier, H.C. Jain and J.K. Kapoor of the statistical staff of the Institute deserve special mention for careful and painstaking work in editing and scrutiny of the manuscript as well as proofs of the compendium.

The burden of collecting the data from the various research stations and the analysis of a large number of experiments once again fell on the regional staff of the Council placed in different States. They deserve to be congratulated for the hard work they have put in.

Thanks are due to the State Departments of Agriculture, the Central Institutes and the Commodity Committees who made the data of the experiments conducted under their jurisdiction readily available to the staff of the Institute. The present publication has become possible only through their unstinted co-operation. The Institute is also thankful to the various

officers in the States who worked as Regional Supervisors for the project from time to time and took keen interest in the working of the Scheme. The list of the names of the regional supervisors and the regional staff of the project is given on the following page.

NEW DELHI,  
March 25, 1965.

V.G. PANSE  
*Statistical Adviser,*  
*Institute of Agricultural Research Statistics (I.C.A.R.).*

**REGIONAL SUPERVISORS AND REGIONAL STAFF FOR THE NATIONAL  
INDEX OF FIELD EXPERIMENTS**

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- SHRI N. SHANKARA MENON  
Director of Agriculture.
- SHRI P.D. NAIR,  
Director of Agriculture.

**ABBREVIATIONS COMMON TO EXPERIMENTS ON ANNUAL AND PERENNIAL  
CROPS AND EXPERIMENTS ON CULTIVATORS' FIELDS.**

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

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

Abbreviations adopted for States are as follows :-

- |                           |                        |
|---------------------------|------------------------|
| 1. A.P.—Andhra Pradesh    | 9. M.—Madras           |
| 2. As.—Assam              | 10. Mh.—Maharashtra    |
| 3. Bh.—Bihar              | 11. Ms.—Mysore         |
| 4. Gj.—Gujarat            | 12. Or.—Orissa         |
| 5. H.P.—Himachal Pradesh  | 13. Pb.—Punjab         |
| 6. J.K.—Jammu and Kashmir | 14. Rj.—Rajasthan      |
| 7. K.—Kerala              | 15. U.P.—Uttar Pradesh |
| 8. M.P.—Madhya Pradesh    | 16. W.B.—West Bengal   |

For the experiments conducted under the schemes sponsored by the Indian Council of Agricultural Research like the Model Agronomic Experiments or the 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 abbreviations MAE, SFT or TCM are given in the brackets against the year in which the experiment is conducted.

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

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

In case of the experiments conducted on cultivators' 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. e.g. CM is to be read as Cultural-cum-manurial.

**Object :-** A statement of the objective of the experiment is given indicating the main crop and type of the experiment. In case of M.A.E., S.F.T. and T.C.M. experiments, the type to which the experiment corresponds is also given, e.g. Type V, Type A or B or C etc.

**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 S.E. of comparison(s).

Other abbreviations used in the text of experiments :

Nitro. Phos.—Nitro. Phosphate	A/N—Ammonium Nitrate
Ammo. Phos.—Ammonium Phosphate	A/C—Ammonium Chloride
A/S—Ammonium Sulphate	C/N—Chilean Nitrate
A/S/N.—Ammonium Sulphate Nitrate	N—Nitrogen
C/A/N—Calcium Ammonium Nitrate	P—Phosphate

K—Potash	F.M.—Fish Manure
B.M.—Bone meal	G.N.C.—Groundnut cake
Mur. Pot.—Muriate of Potash	M.C.—Municipal Compost
Pot. Sul.—Potassium Sulphate	T.C.—Town Compost
Super—Super Phosphate	lb.—Pounds
Zn. Sul.—Zinc Sulphate	Srs.—Seers
C/S—Copper Sulphate	B.D.—Basal dressing
G.M.—Green Manure	C.L.—Cart load
F.Y.M.—Farm Yard Manure	ac.—Acre
F.W.C.—Farm Waste Compost	Dical. Phos.—Dicalcium Phosphate

Under the item (ii) (b) of the sub-heading 'Basal conditions' in the text of the experiment, the respective farm/station at which the experiment was conducted has been referred to for the soil analysis. The soil analysis of the farm, with other details of the research station is given under the background information of each state. The information regarding the details of experimental stations may be obtained under the respective items as given below :

#### DETAILS OF EXPERIMENTAL 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 monthly 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 as given below.

#### BASAL CONDITIONS

##### A. For experiments on annual crops :

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

##### B. For experiments on perennial crops :

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



**C. For experiments on cultivators' fields :**

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

**DESIGN**

**A. For experiments on annual crops :**

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

**B. For experiments on perennial crops :**

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

**C. For experiments on cultivators' fields :**

- (i) Method of selection of experimental sites. (ii) No. and distribution of experiments. (iii) Plot size. (a) Gross. (b) Net. (iv) Whether treatments are randomised.

**GENERAL**

**A. For experiments on annual crops :**

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

**B. For experiments on perennial crops :**

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

**C. For experiments on cultivators' fields :**

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

## TABLE OF CONVERSIONS TO METRIC UNITS

1 foot	=	304.8 mm.
1 acre	=	0.404606 hectare.
1 gram	=	0.035274 ounce = 0.085735 tola = 0.017147 chatak
1 kg.	=	2.20462 pounds=1.07169 seers.
1 metric tone	=	0.9842 ton = 26.7923 maunds.
1 maund	=	0.373242 quintal = 37.3242 kg.
1 lb./ac.	=	1.12085 kg./hectare.
1 md./ac.	=	92.23002 kg./hectare = 0.9223 quintal/hectare.
1 ton/ac.	=	2.51071 metric tones/hectare.
1 gallon (Imp.)	=	4.54596 litres.

GLOSSARY OF VERNACULAR NAMES OF CROPS

Sl. No:	Name of Crop	Botanical name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
1.	Paddy	<i>Oryza sativa</i> L.	Dhan	Dhan	Dhano	Vadlu	Nel	Nellu	Bhatta	Bhat	Dangar	Dhan, Chawal	Chaul, Dhan
2.	Wheat	<i>Triticum sativum</i> Lamk. <i>Triticum aestivum</i> L.	Gaum Ghehu	Gam	Gaham	Godumalu	Kothumai	Go:hambu	Godhi	Gahu	Ghahu	Gehon	Kanak
3.	Jowar	<i>Andropogon Sorghum</i> Brot.	—	Jowar	Juara	Jonna	Cholam	Cholam	Jola	Jowari Jondhla	Jowari ; Juar	Jowar, Jaur	Jowar
4.	Maize	<i>Zea mays</i> L.	Gom dhan	Bhutta	Macca	Mokkajonna	Makka- Cholam	Cholam Makka- cholam	Musukina Jola	Makka	Makkai	Makka	Makki, Makayee
5.	Barley	<i>Hordeum vulgare</i> L.	Ja'dhan	Joba	Jaba, Barlhi	Barley	Baari- arisi	Barley	Barley akki	Satu ; Jav	Jav	Jau	Jaun
6.	Bajra	<i>Pennisetum typhoideum</i> L.	—	Bajra	Bajra	Sajja	Kambu	Kambu	Sajje	Bajri	Bajri	Bajra	Bajra
7.	Potato	<i>Solanum tuberosum</i> L.	Alooguti	Aku	Bilati Alu	Bangala- dumpa	Uruzhai Kilangu	Urela- Kizangu	Alu gedde	Batata	Aloo, Batat	Aaloo	Alu
8.	Peas	<i>Pisum arvense</i> L.	Motor	Chota	Bada Chana	Desavali Batani	Pattaani	—	Holada battani	Vatana, Matar	Vatana	Muttar	Mattri
9.	Cowpeas	<i>Vigna catiang</i> Walp. <i>Vigna sinensis</i> savi	—	Barbati	—	—	Thata- Payaru	Mambayar	Alasande	Chavli	Chola, Choli	—	Lobia
10.	Bengal gram	<i>Cicer arietinum</i> L.	Butmah	Chola	Boot	Sanagalu	Kadalai, Sundal Kadalai	Kadala	Kadale	Harbara	Chana	Chana	Chhole, Chana
11.	Urid	<i>Phaseolus mungo</i> var. <i>radiatus</i> Linn.	Matimah	Mashkakai	Biri	Minumulu	Uzhundu	Uzhunnu	Uddu	Udid	Adad, Udad	Urd	Mash, Urd
12.	Green gram	<i>Phaseolus aureus</i> Roxb.	Magum	Sonamug	Mung	Pacha- pesalu	Pachai- payaru, Pasipayaru	Cerupayaru; Payaru	Hesaru	Mug	Mag	Moong	Moong, Mug
13.	Sugarcane	<i>Saccharum officinarum</i> L.	Kuhiar	Akh	—	Cheruku	Karumbu	Karimbu	Kabbu	Oos	Sherdi	Ganna, Kamad, Naishakar	Kamad, Ganna, Eakh
14.	Cotton	<i>Gossypium</i> spp.	Kapah	Karpas, Tula	Kapa	Pratti	Paruthi	Paruthi	Hatti	Kapus	Kapas	Kapas	Kapah

GLOSSARY OF VERNACULAR NAMES OF CROPS

Sl. No.	Name of Crop	Botanical Name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
15.	Groundnut	<i>Arachis hypogaea</i> L.	China-badam	Cheena-badam	China-badam	Nelashanga	Nilakadalai	Nilakkadala	Kadale kayi	Bhuimug	Bhois ng Magafali	Mungphali	Mungphali
16.	Sesamum	<i>Sesamum indicum</i> L.	Til	Til	Rasi	Navvulu	Ellu	Ellu	Yellu	Til, Tili	Tal	Til	Til
17.	Linseed	<i>Linum usitatissimum</i> L.	Tisi	Tishi	Peshi	Avise	Alivithai	Cheruchanavithu	Agase	Javas, Alsi	Alsi	Alsi	Alsi

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Paddy	...	1
Wheat	...	2
<i>Jowar</i>	...	112
Maize	...	127
Barley	...	140
<i>Bajra</i>	...	155
Potato	...	168
Peas	...	171
Cowpea	...	171
Gram	...	174
<i>Urid</i>	...	185
<i>Moong</i>	...	186
Sugarcane	...	188
Cotton	...	191
Groundnut	...	204
Sesamum	...	209
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# RAJASTHAN STATE

## 1. General :

Rajasthan State is located on the north-western border of India. It lies between 24° and 30° N. latitude, and between 69° and 78° E. longitude, covering an area of about 84.3 million acres. The land utilization statistics of the State are given in table 1 below :

TABLE 1

Land utilization statistics of Rajasthan State (1963-64)

Classification of area	Area in '000 acres
Total area as per village papers	84031
Forests	2367
Land put to non-agricultural uses	2820
Barren and unculturable land	12694
Permanent pastures and other grazing lands.	4329
Land under miscellaneous tree crops etc.	25
Culturable waste	16529
Fallow lands other than current fallows.	6924
Current fallows	5031
Net area sown	33352
Total cropped area	35741
Area sown more than once	2389

(Source : Statistical abstract, Rajasthan 1955, Directorate of Economics and Statistics, Rajasthan, Jaipur).

## 2. Topography :

The Aravali range runs from north-east to south-west almost across the entire State dividing it naturally into two parts, the north-western which comprises 3/5 and the south-eastern which comprises 2/5 of the total area. The north-western region is on the whole, a sandy, ill-watered and unproductive area. In the extreme west of this region it is more desert while towards the east it is comparatively more cultivable and habitable. The only river of consequence here is Luni. The soil yields rich returns if assured water supply is available as is known from the production in Ganganagar district which is served by canal. The climate of this region is extremely hot in summer, the temperature rising upto 50°C (122°F) and extremely cold in winter when, at places, the temperature goes below the freezing point.

## 3. Soil types and agro-climatic regions :

The soils of Rajasthan are predominantly of sandy or sandy loam type with 2 to 6 feet sand dunes scattered over the surface of practically the whole of west Rajasthan. As one proceeds towards east the soil texture is finer. The soils of Ajmer division are sandy loam, pale yellow to brown in colour. The region south-east of the Aravalis is higher in elevation, more fertile and also diversified in character. It contains extensive hill ranges and long stretches of rocks and wood-land. The region is traversed by many rivers although not perennial and in some parts there are fertile table lands and great stretches of excellent soil. The chief rivers are the Banas and the Chambal. The climate of this region is milder in comparison with that of the north-west region, because of higher rainfall. The soils are rich varying from loam, clay loam to clay including the black cotton soil in Jhalwar district and parts of Udaipur division, loam in Bharatpur and Alwar district. In parts of Udaipur division there are large forest areas in Dungarpur and Banswara districts.

The annual rainfall varies from less than 5 cm. to about 90 cm. The rainfall goes on

decreasing from south-west to north-east. Based on soil and climatic conditions obtaining in the State, Rajasthan can be divided into the following seven regions.

Table 2

Name of the region and district included	Soil type	Rainfall in cm.	Cropping pattern
<b>Region I</b>			
Jaipur, Bharatpur, Alwar, Ajmer, Tonk	Undifferentiated alluviums and red and yellow mixed	55—70	<i>Jowar</i> , wheat, barley, gram, potato, <i>tur</i> , groundnut, rape and mustard
<b>Region II</b>			
Ganganagar	Desert soil	26	Wheat, gram and cotton
<b>Region III</b>			
Bikaner, Churu, Jaisalmer, Jodhpur, Nagour, Barmer, Sikar, Jhunjhunu, Pali and Jalore	Predominantly desert, gray, brown in parts of some districts	15—30	<i>Jowar</i> , <i>bajara</i> , sesamum and castor
<b>Region IV</b>			
Udaipur, Chittor, Bhilwara and Jhalawar	Medium black and mixed red and black	60—90	<i>Jowar</i> , maize, cotton and groundnut
<b>Region V</b>			
Sirohi	Gray brown	50	Maize and wheat
<b>Region VI</b>			
Banswara and Dungarpur	Mixed red and black	90	Rice, maize and <i>tur</i>
<b>Region VII</b>			
Kotah and Bundi	Mixed black	70—75	<i>Jowar</i> , wheat, linseed and potato

#### 4. Irrigation :

Total irrigated area is about 4,593 thousand acres which accounts for about 13.8% of the total cropped area. The various sources of irrigation and area irrigated under each source is given in the table 3 below :

TABLE 3

Source	Area in '000 acres	%
Govt. canals	1,589	34.6
Private canals	—	—
Tanks	299	6.5
Wells	2,633	57.3
Other sources	72	1.6
Total	4,593	100.0

(Source: Statistical abstract, Rajasthan 1965, Directorate of Economics and Statistics, Rajasthan, Jaipur).

#### 5. Agricultural production and normal cropping pattern :

Millets like *bajra* and *jowar*, and pulse crops are extensively grown in the State of Rajasthan. But in places where assured water supply is available rice and wheat also are grown.

The area, total production and mean acre yields of different crops in the State are given in table 4 below :

TABLE 4

Crop	Area in '000 acres	Production in '000 tons	Yield in lb./ac.
Rice	282	128	1017
Wheat	2790	852	684
Barley	1038	437	943
Bajra	10689	808	169
Jowar	2545	269	237
Maize	1656	599	810
Small Millets	190	29.5	348
Gram	3771	534	317
Other pulses	4052	280	
Sesamum	1196	28.5	35
Mustard	754	42.3	126
Linseed	294	28.5	217
Groundnut	477	93.5	439
Sugarcane	74	567	7.66*
Cotton	578	184**	125

\*tons/ac.

\*\*bales of 392 lb. each.

[Source : Statistical Abstract, Directorate of Economics and Statistics, (1963-64)].

#### 6. Experimentation and agricultural research :

About 259 experiments are reported from the State of Rajasthan for the period of 1954-59. Crop-wise and type-wise distribution of these experiments is given in the table 5 below

TABLE 5

Crop	(M+MV)	Tyeps (C+CV+CM)	I	D	X	Total
Paddy	2	—	—	1	—	3
Wheat	69	9	1	44	—	123
Jowar	12	3	—	4	—	19
Maize	6	2	—	7	—	15
Barley	17	—	—	8	—	25
Bajra	16	—	—	4	—	20
Vegetables	1	—	—	3	—	4
Pulses	12	—	—	6	—	18
Sugarcane	—	—	—	2	—	2
Cotton	9	3	—	2	—	14
Oilseeds	7	—	—	3	—	10
Fodder crops	3	—	—	1	—	4
Mixed cropping	—	—	—	—	2	2
Total	154	17	1	85	2	259

Besides these experiments, 118 experiments belonging to co-ordinated Model Agronomic experiments project of the Indian Council of Agricultural Research and experiments



conducted by the State on the cultivator's fields, have also been included in the compendium. Experimental stations at Bassi, Borkhera (Kotah), Durgapur, Tabiji and Sriganaganagar are the important centres where a number of experiments are carried out on different crops. Most of the experiments reported for the period in question are on wheat and millets like *jowar*, *bajra* and maize.

About 59% of the experiments are of manurial type while about 33% of the total experiments are insecticidal and fungicidal trials.

The number of plots taken in a block in the case of R.B.D. varied from 4 to 29 while the number of sub-plots per main-plot in split-plot design varied from 3 to 9. In confounded design the number plots per block are between 9 and 12. The plot size varied from 60 sq. ft. to 141 sq. yds. The maximum number of replications taken in an experiment is only 6.

## PARTICULARS OF RESEARCH STATIONS AND SOIL ANALYSIS

### 1. Government Agricultural Experimental Farm, Bassi.

*A. General information :*

(i) In Jaipur district, 1 mile from Bassi Railway Station. (ii) N.A. (iii) Established in 1947. (iv) Barley—*bajra*—wheat and *moong* are the major crops. (v) N.A.

*B. Normal rainfall in cm. :*

Annual rainfall is about 51 cm.

*C. Soil type and soil analysis :*

(i) Clay loam. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

*D. Irrigation and drainage facilities :*

(i) (a) and (b) Irrigation done from well. (ii) N.A.

*E. No. of experiments :*

Wheat—17, *Jowar*—3, Maize—1, Barley—20, *Bajra*—6, Gram—2, *Moong*—1, Cotton—1 and Groundnut—5. Total=56.

### 2. Government Agricultural Farm, Bilara.

*A. General information to D. Soil type and soil analysis :*

Details are not available.

*E. No. of experiments :*

Wheat—9, Total=9.

### 3. Government Agricultural Farm, Bharatpur.

*A. General information to D. Soil type and soil analysis :*

Details are not available.

*E. No. of experiments :*

Mixed cropping—1, Total=1.

### 4. Government Agriculture Research Farm, Borkhera (Kotah).

*A. General information :*

(i) In Ladpura *tehsil* of Kotah district. It is a levelled flat area surrounded by cultivator's fields on three sides and a village on one side. Slightly low lying. (ii) Medium black soils. (iii) Established in 1960. (iv) N.A. (v) Working out judicious schedules of cultural and manurial requirements of major crops. Improvement and plant protection research.

*B. Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
1	10	14	47	7	1	1	5	—	—	—	—	86

(The period on which the average rainfall is based is not available).

*C. Irrigation and drainage facilities :*

(i) (a) and (b) Canal irrigation from 1960. In addition there are three wells for emergency use. (ii) Yes, after each hectare plot there is a field drain which runs into the main drain leading to natural *nala*.

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

(i) Medium black cotton soils. (ii) Chemical analysis : Nitrogen—Low to medium, Phosphate—medium and Potash—medium. (iii) Mechanical analysis—clay : 30%.

**E. No. of experiments :**

Paddy—2, Wheat—15, Jowar—10, Potato—1, Gram—6, Urid—1, Linseed—1, Total=36.

**5. Government Agricultural Experimental Farm, Durgapur.****A. General information :**

(i) In Sanganer *tehsil* of Jaipur district. One mile from Durgapur Railway Station. (ii) Semi-arid zone. (iii) Established in 1945. (iv) In general no cropping pattern is followed as the blocks are allotted to the respective research sections. (v) Experiments are conducted on improvement of varieties, control of insects and pests, control of diseases, manurial, cultural and irrigational aspects.

**B. Normal rainfall in cm. :**

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
—	7	11	3	—	—	—	—	—	—	—	2	23

(The average rainfall data is for the year 1963—1964).

**C. Irrigation and drainage facilities :**

(i) (a) and (b) Irrigated from tube wells since 1951. (ii) Proper drainage system exists.

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

(i) Sandy to sandy loam. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

**E. No. of experiments :**

Wheat—12, Barley—4, Bajra—9, Potato—1, Peas—1, Cowpea—1, Moong—1, Groundnut—3, Total=32.

**6. S.K.N. College of Agriculture, Jobner.****A. General information :**

(i) In Sambhar *tehsil* of Jaipur district. 10 km. from Asalpur Jobner Railway Station. (ii) Semi-arid zone. (iii) Established in 1947. (iv) *Kharif* : G.M. crop (*Sannhemp* or *guar*) ; *Rabi* : wheat—barley and carrot. (v) N.A.

**B. Normal rainfall in cm. :**

(The yearly average rainfall is 40 cm.).

**C. Irrigation and drainage facilities :**

(i) (a) and (b) Irrigation through well. (ii) No proper drainage system exists.

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

(i) Sandy loam, deep soil, brownish red and granular in structure. (ii) pH—8.3 and N—0.02%. (iii) Mechanical analysis : coarse sand—17 to 18%, fine sand—55 to 60%, Silt—13.15% and Clay—9.10%.

**E. No. of experiments :**

Wheat—4, Total=4.

**7. Soil Conservation Research, Demonstration and Training Centre, Kotah.****A. General information to D. Soil type and soil analysis :**

Details are not available.

E. *No. of experiments :*

Wheat—4, *Jowar*—3, Mixed cropping—1, Total=8.

**8. Government Seed Farm, Padasoli.**A. *General information :*

In Bassi *tehsil* of Jaipur district. 10 miles from Dansa Railway Station. (ii) Plain. (iii) Established in 1949. (iv) *Kharif* crops : *Bajra*, *jowar*, *guar*, *til* and *urd* ; *Rabi* crops : wheat—gram, barley, *sarson* and pea. (v) It is a seed multiplication farm.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	10	17	6	—	—	—	—	—	—	—	2	37

(The average rainfall is for the period 1962 to 1964).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) *Rabi* crops irrigated from Ramgarh dam through canal since 1949. (ii) Proper drainage system exists.

D. *Soil type and soil analysis :*

(i) Black hard clay soil, 2' to 2½' deep. When wet its structure is very loose. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Gram—1, Total=1.

**9. Government Agricultural Research Farm, Maksera.**A. *General information :*

(i) In Ajmer district, 4 miles from Beawar Railway Station. (ii) N.A. (iii) Established in 1936. (iv) Maize—barley—cotton and oats are the major crops. (v) N.A.

B. *Normal rainfall in cm. :*

(Annual rainfall is about 45 cm.).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Irrigation is done from the tank. (ii) N.A.

D. *Soil type and soil analysis :*

(i) Sandy loam. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Wheat—4, Maize—1 and Cotton—3, Total=8.

**10. Government Agricultural Farm, Mandore.**A. *General information :*

(i) In Jodhpur *tehsil* of Jodhpur district. One furlong from Mandore Railway Station. The land is levelled. (ii) Desert. (iii) Established in 1931. (iv) Fallow—wheat ; Legumes—fallow—*Bajra*—fallow. (v) N.A.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
—	10	9	6	—	—	—	—	—	—	—	—	25

(The average rainfall data is for the period 1961 to 1964).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) There are three wells in this farm and electric pumps have been fitted on these wells. These wells were constructed prior to the formation of Rajasthan. (ii) There is no drainage problem.

D. *Soil type and soil analysis :*

(i) Deep soils, light brown in colour and granular in structure. (ii) Chemical analysis : N—117 to 273 lb./ac.,  $P_2O_5$ —16 to 722 lb./ac.,  $K_2O$ —130 to 400 lb./ac. and pH—7.9 to 8.48. (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Wheat—22, Bajra—3, Sesamum—1, Jowar-fodder—3, Total=29.

**11. Regional Agricultural Research Station, Sriganganagar.**

A. *General information :*

(i) In Sriganganagar *tehsil* of Sriganganagar district. Levelled planes. (ii) Indo-Gangetic alluvial plains of north India. (iii) Established in 1949. (iv) Sugarcane—cotton—wheat. (v) Experiments are conducted on Botanical, Agronomical, Entomological and Plant Pathological aspects.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	5	6	7	—	—	—	—	—	—	—	3	23

(The average rainfall data is for the period 1961 to 1964).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Irrigation done by canal water. (ii) No proper drainage system exists.

D. *Soil type and soil analysis :*

(i) Sandy loam, light brown in colour and granular in structure. (ii) Chemical analysis : pH—8.2, available nitrogen—170 lb./ac., available  $P_2O_5$ —25 lb./ac., Potash—230 lb./ac. (iii) Mechanical analysis : Clay—15.8%, silt—22.5%, coarse sand—1.2% and fine sand - 62.5.

E. *No. of experiments :*

Wheat—18, Gram—3, Urid—1, Moong—1, Sugarcane—2, Cotton—7, Total=32.

**12. Seed Multiplication Farm, Sawai Madhopur.**

A. *General information :*

(i) In Sawai Madhopur *tehsil* of Sawai Madhopur district. (ii) It represents hill tract in north side, but in the other three sides sandy and clayey loam tract. (iii) Established in 1958. (iv) G.M.—Wheat—Maize ; Wheat—Jowar—Fallow. (v) No research work is being carried out.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
3	12	5	1	—	—	1	1	—	—	—	—	23

(The average rainfall data is for the year 1964—1965).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Irrigation facilities are available. (ii) No proper drainage system exists.

D. *Soil type and soil analysis :*

(i) Sandy loam to clayey loam, brown to dark black in colour, not well levelled. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Jowar—1, Maize—1, Barley—1, Groundnut—1, Total=4.

**13. Government Agricultural Experimental Farm, Tabiji.**A. *General information :*

(i) In Ajmer *tehsil* of Ajmer district. 3 miles from Tabiji Railway Station. Fairly levelled land. (ii) Sandy loam tract. (iii) Established in 1930. (iv) *Kharif* : Bajra, maize, cotton, groundnut, *moong* and cowpea ; *Rabi* : Wheat, barley, gram, peas and *raya*. (v) Experiments of different research sections such as Agronomy, Agriculture Chemistry, Entomology, Economic Botany and Pathology etc. are conducted.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
4	11	14	8	—	1	—	—	—	—	—	2	40

(The average rainfall data is for the last five years).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) 5 wells, out of which 3 are fitted with electric motors centrifugal pumps since 1956, before that *Charas* was being used. (ii) There is no problem of water logging and natural drainage system exists.

D. *Soil type and soil analysis :*

(i) Light brown, 5' to 6' deep. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Wheat—14, Jowar—2, Maize—10, Bajra—2, Cotton—3, Total=31.

**14. Government Agricultural Farm, Udaipur.**A. *General information :*

(i) In Udaipur district. 3 miles from Udaipur Railway Station. (ii) N.A. (iii) Established in 1957. (iv) Maize. (v) N.A.

B. *Normal rainfall in cm. :*

(Annual rainfall is about 64 cm.)

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Irrigation is done by well. (ii) N.A.

D. *Soil type and soil analysis :*

(i) Clay loam. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Wheat—4, Maize—2, Potato—1, Total=7.

**15. Mewar Sugar Mill Farm, Udaipur.**A. *General information to D. Soil type and soil analysis :*

Details are not available.

E. *No. of experiments :*

Paddy—1, Total=1.

Crop :- Paddy (Kharif).

Ref :- Rj. 59(63).

Site :- Mewar Sugar Mill Farm, Udaipur Sagar (Udaipur).

Type :- 'D'.

Object :- To study the effects of insecticides for controlling Rice Gundhi Bug.

1. BASAL CONDITIONS

(i) Paddy—Sugarcane—~~Methi~~. (b) ~~Methi~~. (c) Sugar mill's wastage used as manure. (ii) (a) and (b) N.A. (iii) 26.6.1959. (iv) (a) 6 ploughings. (b) and (c) N.A. (d) 1' between rows. (e) N.A. (v) N.A. (vi) Basmati (local). (vii) Irrigated. (viii) 2 weeding. (ix) and (x) N.A.

2. TREATMENTS :

5 insecticides : I<sub>0</sub>—Control, I<sub>1</sub>—Endrin E.C. 0.2% spray, I<sub>2</sub>—Parathion dust 1% at 20 lb./ac., I<sub>3</sub>—Malathion dust 5% at 20 lb./ac. and I<sub>4</sub>—Folidol E.C. 0.25%

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 751 lb./ac. (ii) 121.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	I <sub>0</sub>	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>
Av. yield	677	823	777	745	731

S.E./mean = 69.9 lb./ac.

Crop :- Paddy.

Ref :- Rj. 54(38).

Site : Govt. Agri. & Exptl. Farm, Kotah.

Type :- 'M'.

Object :- To find suitable manurial schedule for Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 30.7.1954. (iv) (a) N.A. (b) Transplanting. (c) to (e) N.A. (v) 2 md./ac. of compost and cowdung. (vi) Local. (vii) Irrigated. (viii) 2 weeding and hoeings. (ix) N.A. (x) 1st week of October, 1954.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N as A/S : N<sub>0</sub>=0, N<sub>1</sub>=20, N<sub>2</sub>=40 and N<sub>3</sub>=60 lb./ac.

(2) 4 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=20, P<sub>2</sub>=40 and P<sub>3</sub>=60 lb./ac.

Fertilizers were applied by spraying before cultivation.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 15'×24'. (b) 12'×21'. (v) 1½'×1½'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) and (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) The expt. was conducted on cultivators farm at Alfanagar.

5. RESULTS :

(i) 1173 lb./ac. (ii) 503 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	Mean
P <sub>0</sub>	1024	1054	1039	1239	1089
P <sub>1</sub>	653	1254	1848	1358	1278
P <sub>2</sub>	935	853	1143	1410	1085
P <sub>3</sub>	1039	1143	1068	1707	1239
Mean	913	1076	1274	1428	1173

S.E. of any marginal mean = 145.0 lb./ac.  
S.E. of body of table = 290.0 lb./ac.

**Crop :- Paddy.**

**Ref :- Rj. 54(40).**

**Site :- Govt. Agri. & Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-** To find suitable manurial schedule for Paddy.

**1. BASAL CONDITIONS:**

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 1st week of September, 1954. (iv) (a) N.A. (b) Japanese method. (c) to (e) N.A. (v) N.A. (vi) Local. (vii) Irrigated. (viii) 5 weedings. (ix) N.A. (x) Last week of December, 1954.

**2. TREATMENTS :**

Same as in expt. no. 54(38) above.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 30'×13½'. (b) 27'×10½'. (v) 1½'×1½'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) N.A. (b) No. (c) Nil. (v) and (vi) Nil. (vii) The expt. was conducted on cultivators farm at Alfanagar.

**5. RESULTS :**

(i) 1054 lb./ac. (ii) 458.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
N <sub>0</sub>	920	587	880	934	830
N <sub>1</sub>	947	1127	768	1027	967
N <sub>2</sub>	934	1660	1027	960	1145
N <sub>3</sub>	1114	1221	1267	1494	1274
Mean	979	1149	986	1104	1054

S.E. of any marginal mean = 132.3 lb./ac.  
S.E. of body of table = 264.5 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(1).**

**Site :- Govt. Agri. and Exptl. Farm, Bassi.**

**Type :- 'M'.**

**Object :-** To find out the optimum dose of N and P alone and in combination for Wheat.

**1. BASAL CONDITIONS :**

(i) N.A. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.11.1954. (iv) (a) to (e) N.A. (v) N.A. (vi) C-591 (medium). (vii) Irrigated (viii) 1 weeding. (ix) N.A. (x) 6.4.1955.

**2. TREATMENTS :**

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

(1) 3 levels of N as F.Y.M. : F<sub>0</sub>=0, F<sub>1</sub>=20 and F<sub>2</sub>=30 lb./ac.

(2) 3 levels of N as A/S : N<sub>0</sub>=0, N<sub>1</sub>=20 and N<sub>2</sub>=30 lb./ac.

(3) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=25 and P<sub>2</sub>=40 lb./ac.

Time of application N.A. Manures mixed with earth before application.



## 3. DESIGN

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) 22'×15'. (b) 19'×12'. (v) 1.5'×1.5'. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 1919 lb./ac. (ii) 260.8 lb./ac. (iii) Main effect of P and interaction P×F are highly significant. Interaction P×N is significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>
F <sub>0</sub>	1704	2010	1841	1852	1762	1913	1879
F <sub>1</sub>	1729	2075	2018	1940	1894	1907	2020
F <sub>2</sub>	1908	1935	2054	1966	1927	1978	1993
Mean	1780	2007	1971	1919	1861	1933	1964
N <sub>0</sub>	1622	2107	1854				
N <sub>1</sub>	1927	1913	1958				
N <sub>2</sub>	1792	1999	2101				

S.E. of any marginal mean  
S.E. of body of any table

= 43.4 lb./ac.  
= 75.3 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 54(48).

Site :- Govt. Agri. and Exptl. Farm, Bassi.

Type :- 'M'.

Object :- To find out the optimum dose of N and P alone and in combination for Wheat.

## 1. BASAL CONDITIONS :

(i) Nil. (b) Fallow. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) 17.11.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) C—591 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 6.4.1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(1) on page 2.

Fertilizers were sprayed. Time of application N.A.

## 5. RESULTS :

(i) 2092 lb./ac. (ii) 329.6 lb./ac. (iii) P effect and interaction N×P are highly significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>
F <sub>0</sub>	1853	2185	2047	2029	1960	2081	2045
F <sub>1</sub>	1880	2257	2194	2111	2061	2074	2197
F <sub>2</sub>	2076	2105	2234	2138	2096	2152	2167
Mean	1936	2182	2159	2092	2039	2102	2136
N <sub>0</sub>	1764	2292	2061				
N <sub>1</sub>	2096	2081	2130				
N <sub>2</sub>	1949	2174	2286				

S.E. of any marginal mean = 54.9 lb./ac.  
S.E. of body of any table = 95.1 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(11).**

**Site :- Govt. Agri. and Exptl. Farm, Bassi.**

**Type :- 'M'.**

**Object :-** To find the optimum dose of N and P alone and in combinations for Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 10.11.1955. (iv) (a) 4 ploughings. (b) N.A. (c) 70 lb./ac. (d) 9' between rows. (e) N.A. (v) N.A. (vi) C-591 (medium). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 7.4.1956.

**2. TREATMENTS :**

Same as in expt. no. 54(1) on page 2.

**3. DESIGN :**

(i) Fact in R.B.D. (ii) (a) 27. (b) N.A. (iii) 3. (iv) (a) 21'9" x 8'. (b) 19'9" x 6'. (v) 1' x 1'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954-1955. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1630 lb./ac. (ii) 510.9 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>
F <sub>0</sub>	1554	1460	1701	1572	1617	1544	1769
F <sub>1</sub>	1911	1570	1680	1720	1675	1434	1549
F <sub>2</sub>	1475	1638	1690	1601	1769	1822	1480
Mean	1572	1720	1601	1630	1687	1606	1600
N <sub>0</sub>	1586	1916	1559				
N <sub>1</sub>	1486	1801	1533				
N <sub>2</sub>	1643	1444	1712				

S.E. of any marginal mean = 98.3 lb./ac.  
S.E. of body of any table = 170.3 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 56(16).**

**Site :- Govt. Agri. and Exptl. Farm, Bassi.**

**Type :- 'M'.**

**Object :-** To find out the optimum dose of N and P alone and in combinations for Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Jowar. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 30.10.1956. (iv) (a) to (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Irrigated. (viii) 4 weedings. (ix) N.A. (x) 11.4.1957.

## 2. TREATMENTS

20 manurial treatments :  $M_0$  = Control,  $M_1$  = 20 lb./ac. of N as F.Y.M.,  $M_2$  = 30 lb./ac. of N as F.Y.M.,  $M_3$  = 20 lb./ac. of N as A/S.,  $M_4$  = 30 lb./ac. of N as A/S.,  $M_5$  = 25 lb./ac. of  $P_2O_5$  as Super.,  $M_6$  = 20 lb./ac. of N as F.Y.M.+20 lb./ac. of  $P_2O_5$  as Super.,  $M_7$  = 20 lb./ac. of N as F.Y.M.+30 lb./ac. of N as A/S.,  $M_8$  = 20 lb./ac. of N as F.Y.M.+25 lb./ac. of  $P_2O_5$  as Super.,  $M_9$  = 20 lb./ac. of N as F.Y.M.+20 lb./ac. of N as A/S.,  $M_{10}$  = 30 lb./ac. of N as F.Y.M.+20 lb./ac. of N as A/S.,  $M_{11}$  = 30 lb./ac. of N as F.Y.M.+30 lb./ac. of N as A/S.,  $M_{12}$  = 30 lb./ac. of N as F.Y.M.+25 lb./ac. of  $P_2O_5$  as Super.,  $M_{13}$  = 30 lb./ac. of N as F.Y.M.+20 lb./ac. of N as A/S.+25 lb./ac. of  $P_2O_5$  as Super.,  $M_{14}$  = 30 lb./ac. of N as F.Y.M.+20 lb./ac. of N as A/S.+25 lb./ac. of  $P_2O_5$  as Super.,  $M_{15}$  = 20 lb./ac. of N as A/S.+25 lb./ac. of  $P_2O_5$  as Super.,  $M_{16}$  = 20 lb./ac. of N as A/S.+40 lb./ac. of  $P_2O_5$  as Super.,  $M_{17}$  = 30 lb./ac. of N as A/S.+25 lb./ac. of  $P_2O_5$  as Super.,  $M_{18}$  = 30 lb./ac. of N as A/S.+40 lb./ac. of  $P_2O_5$  as Super.,  $M_{19}$  = 20 lb./ac. of N as F.Y.M.+20 lb./ac. of N as A/S.+25 lb./ac. of  $P_2O_5$  as Super.

Fertilizers sprayed at the time of cultivation.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv) (a) 21'9"×8". (b) 19'9"×6'. (v) 1'×1'. (vi) Yes.

## 4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1956 only. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 5678 lb./ac. (ii) 463.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	$M_7$	$M_8$	$M_9$
Av. yield	5341	5940	6018	6003	5924	5325	5624	5640	5467	5766
Treatment	$M_{10}$	$M_{11}$	$M_{12}$	$M_{13}$	$M_{14}$	$M_{15}$	$M_{16}$	$M_{17}$	$M_{18}$	$M_{19}$
Av. yield	5514	5798	5766	5688	5719	5294	5987	5734	5467	5546

S.E./mean = 267.3 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 56(44).

Site :- Govt. Agr. and Exptl. Farm, Bassi.

Type :- 'M'.

Object :- To study the effect of levels of N and P with F.Y.M. on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 18.11.1958. (iv) (a) 8 ploughings. (b) Drilled. (c) 80 lb./ac. (d) 9" furrows. (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) R.S. 31-1. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 5.4.1959.

## 2. TREATMENTS :

All combination of (1), (2) and (3)+3 extra treatments.

(1) 3 sources of N :  $S_1$ =A/S,  $S_2$ =A/S/N, and  $S_3$ =Urea.

(2) 3 levels of N :  $N_0$ =0,  $N_1$ =20 and  $N_2$ =40 lb./ac.

(3) 3 levels of  $P_2O_5$  as Super :  $P_0$ =0,  $P_1$ =20 and  $P_2$ =40 lb./ac.

Extra treatments :  $T_1$ =40 lb./ac. of N as A/S+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot.  $T_2$ =40 lb./ac. of N as A/S/N+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot. and  $T_3$ =40 lb./ac. of N as Urea+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 12 plots/block ; 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 30' 3"×18'. (b) 24' 3"×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958-N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1952 lb./ac. (ii) 192.6 lb./ac. (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in lb./ac.

$$T_1 = 2508, \text{ lb./ac. } T_2 = 2412 \text{ lb./ac. and } T_3 = 2297 \text{ lb./ac.}$$

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>
P <sub>0</sub>	1437	1713	1706	1619	1578	1706	1572
P <sub>1</sub>	1681	1995	2290	1989	2085	2014	1867
P <sub>2</sub>	1790	2213	2290	2098	1989	2220	2085
Mean	1636	1974	2095	1902	1884	1980	1841
S <sub>1</sub>	—	1995	2111	2053			
S <sub>2</sub>	—	1880	2239	2060			
S <sub>3</sub>	—	2046	1937	1992			

S.E. of N or P marginal mean = 64.2 lb./ac.  
 S.E. of S marginal mean = 78.6 lb./ac.  
 S.E. of body of any table or T mean = 111.2 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 59(70).

Site :- Govt. Agri. and Exptl. Farm, Bassi.

Type :- 'M'.

Object :- To study the effect of levels of N and P with F.Y.M. on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 21.11.1959. (iv) (a) 7 ploughings. (b) Sown behind the plough. (c) 50 srs./ac. (d) 9" between rows. (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) R.S. 31-1. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 25.4.1960.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 58(41) on page 5.

## 4. GENERAL :

(i) Good. (ii) No. (iii) Yield of grain. (iv) (a) 1958—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2044 lb./ac. (ii) 165.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

$$T_1 = 2539, \text{ lb./ac. } T_2 = 2457 \text{ lb./ac. and } T_3 = 2411$$

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>
P <sub>1</sub>	1435	2074	2127	1879	1778	2202	1656
P <sub>2</sub>	1784	2055	2195	2011	1965	2107	1962
P <sub>3</sub>	2015	1965	2320	2100	2086	2031	2183
Mean	1745	2031	2214	1997	1943	2113	1934
S <sub>1</sub>	—	2049	2058	2054			
S <sub>2</sub>	—	2114	2551	2332			
S <sub>3</sub>	—	1930	2033	1982			

S.E. of  $\bar{Y}$  or  $\bar{P}$  marginal mean = 55.2 lb./ac.  
 S.E. of  $\bar{Y}$  marginal mean = 67.6 lb./ac.  
 S.E. of body of any table or T mean = 95.6 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(9).**

**Site :- Govt. Agri. and Exptl. Farm, Bassi.**

**Type :- 'M'.**

**Object :-**To study the effect of Gypsum on saline and alkaline soil and Wheat yield.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Barley. (c) 140 md./ac. of F.Y.M. (ii) (a) Sandy loam. (b) N.A. (iii) 6.11.1957. (iv) (a) 3-4 ploughings. (b) Drilling. (c) 80 lb./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) R.S. 31-1 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 25.3.1958.

**2. TREATMENTS :**

10 manurial treatments :  $M_0$ —Control,  $M_1$ —10 tons/ac. of F.Y.M. before sowing,  $M_2$ —10 tons/ac. of F.Y.M. after sowing,  $M_3$ —2 tons/ac. of Gypsum+10 tons/ac. of F.Y.M.,  $M_4$ —4 tons/ac. of Gypsum+10 tons/ac. of F.Y.M.,  $M_5$ —6 tons/ac. of Gypsum+10 tons/ac. of F.Y.M.,  $M_6$ —20 lb./ac. of N as A/S+30 lb./ac. of  $P_2O_5$  as Super,  $M_7$ —4 tons/ac. of Gypsum+10 tons/ac. of F.Y.M.+30 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super,  $M_8$ —4 tons/ac. of Gypsum+20 lb./ac. of N as A/S+30 lb./ac. of  $P_2O_5$  as Super and  $M_9$ —4 tons/ac. of Gypsum.

Treatments mixed with the soil before sowing.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 2. (iv) (a) 30'3"×24'. (b) 24'3"×18'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1328 lb./ac. (ii) 382.9 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	$M_7$	$M_8$	$M_9$
Av. yield	990	1092	1020	986	1100	1423	1605	1859	1817	1393

S.E./mean = 270.8 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(33).**

**Site :- Govt. Agri. and Exptl. Farm, Bassi.**

**Type :- 'M'.**

**Object :-**To study the effect of Gypsum on saline and alkaline soil and Wheat yield.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Barley. (c) 140 mds./ac. of F.Y.M. (ii) (a) Alkaline. (b) N.A. (iii) 16.11.1957. (iv) (a) 5 ploughings. (b) N.A. (c) 80 lb./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) R.S. 31 1. (vii) Irrigated. (viii) 1 weeding. (ix) 0.71". (x) 25.3.1958.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(9) above.

**4. GENERAL:**

(i) N.A. (ii) Nil. (iii) Density of growth and yield. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2013 lb./ac. (ii) 386.0 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	1501	1655	1546	1495	1668	2156	2431	2816	2752	2111

S.E./mean = 273.0 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 58(15).

Site :- Govt. Agri. and Exptl. Farm, Bassi.

Type :- 'M'.

Object :—To study the effect of Gypsum on saline and alkaline soil and Wheat yield.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 14.11.1958. (iv) (a) 2 ploughings. (b) N.A. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) R.S. 31-1. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 2.4.1959.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(9) on page 7.

## 4. GENERAL :

(i) N.A. (ii) No. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2302 lb./ac. (ii) 658.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	1848	1694	2220	2124	1950	2432	2310	2983	2772	2688

S.E./mean = 465.4 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 59(80).

Site :- Govt. Agri. and Exptl. Farm, Bassi.

Type :- 'M'.

Object :—To study the effect of Gypsum on saline and alkaline soil and Wheat yield.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 9.11.1959. (iv) (a) 7 ploughings. (b) Sown behind the plough. (c) 80 lb./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) R.S. 31-1. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 30.3.1960.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(9) on page 7.

## 4. GENERAL :

(i) Good. (ii) No. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1551 lb./ac. (ii) 490.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	948	1007	1338	1410	1269	1684	1613	2168	2034	2046

S.E./mean = 346.6 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 54(44).

Site :- Govt. Agri. and Exptl. Farm, Bassi.

Type :- 'M'.

Object :- To study the response of wheat to soil with sanai crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sanai. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 29.11.1954. (iv) (a) 4 ploughings. (b) to (e) N.A. (v) Nil. (vi) R.S. - 31 (early). (vii) Irrigated. (viii) Weeding. (ix) N.A. (x) 7.4.1955.

2. TREATMENTS :

All combinations of (1) and (2)

(1) Applications of sanai at 4 intervals: T<sub>0</sub> = No application of sanai G.M, T<sub>1</sub> = 45 and T<sub>2</sub> = 60 and T<sub>3</sub> = 75 days.

(2) 4 levels of P<sub>2</sub>O<sub>5</sub>: P<sub>0</sub> = 0, P<sub>1</sub> = 50, P<sub>2</sub> = 100 and P<sub>3</sub> = 150 lb./ac.

Time and method of application of P<sub>2</sub>O<sub>5</sub> - Nil.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 30'3" x 18'. (b) 24'3" x 12'. (v) 3' x 3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954 - N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1319 lb./ac. (ii) 141.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
T <sub>0</sub>	1365	1315	1336	1403	1360
T <sub>1</sub>	1457	1295	1426	1202	1352
T <sub>2</sub>	1395	1255	1240	1371	1316
T <sub>3</sub>	1400	1258	1100	1289	1249
Mean	1403	1278	1275	1316	1319

S.E. of any marginal mean

= 35.4 lb./ac.

S.E. of body of table

= 70.8 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 54(50).

Site :- Govt. Agri. and Exptl. Farm, Bassi.

Type :- 'M'.

Object :- To find out the residual effect of different doses of B.M. and Super applied to previous Groundnut crop on the yield of subsequent crop of Wheat.

1. BASAL CONDITIONS :

(i) (a) Groundnut - Wheat. (b) Groundnut. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 16.12.1954. (iv) (a) N.A. (b) Drilled. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 12.4.1955.

2. TREATMENTS :

7 manurial treatments: M<sub>0</sub> = Control, M<sub>1</sub> = 50 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>2</sub> = 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>3</sub> = 150 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>4</sub> = 50 lb./ac. of P<sub>2</sub>O<sub>5</sub> as B.M., M<sub>5</sub> = 100 lb./ac. of P<sub>2</sub>O<sub>5</sub> as B.M., and M<sub>6</sub> = 150 lb./ac. of P<sub>2</sub>O<sub>5</sub> as B.M.

Fertilizers applied before sowing to the previous Groundnut crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 30'3" x 24'. (b) 24'3" x 18'. (v) 3' x 3'. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954 - N.A. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Crop was sown late; hence yield was poor. (vii) Nil.

## 5. RESULTS :

(i) 383 lb./ac. (ii) 210.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>
Av. yield	257	234	501	571	404	360	360

S.E./mean = 105.4 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(4).**

**Site :- Govt. Agri. and Exptl. Farm, Bassi.**

**Type :- 'M'.**

**Object :-**To find out the residual effect of different doses of B.M. and Super applied to previous Groundnut crop on the yield of subsequent crop of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Groundnut—Wheat. (b) Groundnut. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 3.12.1955. (iv) (a) 5 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 9' between rows. (e) N.A. (v) Nil. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 14.4.1956.

## 2. TREATMENTS :

Same as in expt. no. 54(50) on page 9.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 29'×25'. (b) 24'×20'. (v) 2½'×2½'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1325 lb./ac. (ii) 209.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>
Av. yield	1221	1451	1381	1440	1250	1282	1252

S.E./mean = 104.6 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(34).**

**Site :- Govt. Agri. and Exptl. Farm, Bassi.**

**Type :- 'M'.**

**Object :-**To find out the residual effect of different doses of B.M. and Super applied to previous Groundnut crop on the yield of subsequent crop of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Groundnut—Wheat. (b) Groundnut. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 15.10.1955. (iv) (a) to (c) N.A. (v) Nil. (vi) C-591 (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 7.3.1956.

## 2. TREATMENTS :

Same as in expt. no. 54(50) on page 9.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 26'×22'. (b) 24'×20'. (v) 1'×1'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) and (vii) Nil.



## 5. RESULTS :

(i) 1319 lb./ac. (ii) 221.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>
Av. yield	1221	1451	1391	1393	1250	1282	1258

S.E./mean = 110.5 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 57(31).

Site :- Govt. Agri. Farm, Bilara.

Type :- 'M'.

Object :- To study the effect of gypsum on the reclamation of alkaline soils and Wheat yield.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Saline. (b) N.A. (iii) 16.11.1957. (iv) (a) 10 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 12" between rows. (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 2.4.1958.

## 2. TREATMENTS :

10 manurial treatments : M<sub>0</sub> = Control, M<sub>1</sub> = 10 tons/ac. of F.Y.M. in May-June, M<sub>2</sub> = 10 tons/ac. of F.Y.M. in October, M<sub>3</sub> = 2 tons/ac. of Gypsum + 10 tons/ac. of F.Y.M., M<sub>4</sub> = 4 tons/ac. of Gypsum + 10 tons/ac. of F.Y.M., M<sub>5</sub> = 6 tons/ac. of Gypsum + 10 tons/ac. of F.Y.M., M<sub>6</sub> = 20 lb./ac. of N as A/S + 30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>7</sub> = 4 tons/ac. of Gypsum + 10 tons/ac. of F.Y.M. + 20 lb./ac. of A/S + 30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>8</sub> = 4 tons/ac. of Gypsum + 20 lb./ac. of N as A/S + 30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super and M<sub>9</sub> = 4 tons/ac. of Gypsum.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 30'3" x 24'. (b) 24'3" x 18'. (v) 3' x 3'. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957-N.A. (b) N.A. (c) Nil. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1173 lb./ac. (ii) 367.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	765	1484	902	1458	1591	1047	928	1133	1261	1163

S.E./mean = 212.4 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 58(20).

Site :- Govt. Agri. Farm, Bilara.

Type :- 'M'.

Object :- To study the effect of gypsum on reclamation of alkaline soil and Wheat yield.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Saline. (b) N.A. (iii) N.A. (iv) (a) 10 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 10" between rows. (e) N.A. (v) N.A. (vi) N.P.-718. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 16.4.1959.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(31) above.

## 4. GENERAL :

(i) Normal. (ii) Slight attack of brown rust. (iii) Yield of grain. (iv) (a) 1957-N.A. (b) N.A. (c) Nil. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1273 lb./ac. (ii) 254.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	1240	1634	1364	1317	1411	1330	1168	1095	1026	1142

S.E./mean = 147.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(82).**

**Site :- Govt. Agri. Farm, Bilara.**

**Type :- 'M'.**

Object :—To study the response of gypsum on saline and alkaline soils and Wheat yield.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Saline and alkaline. (b) N.A. (iii) 16.11.1959. (iv) (a) 6 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) N.P.—718. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 5.4.1960.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(31) on page 11.

## 4. GENERAL :

(i) Good. (ii) 10% rust attack. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) N.A. (c) Nil. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1287 lb./ac. (ii) 197.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	1125	1672	1266	1360	1232	1074	1198	1339	1373	1232

S.E./mean = 114.1 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(83).**

**Site :- Govt. Agri. Farm, Bilara.**

**Type :- 'M'.**

Object :—To study the effect of gypsum on saline and alkaline soils.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Saline and alkaline. (b) N.A. (iii) 14.11.1959. (iv) (a) 8 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) N.P.—718. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) 3.4.1990.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(31) on page 11.

## 4. GENERAL :

(i) Good. (ii) Slight attack of rust. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) N.A. (c) Nil. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2532 lb./ac. (ii) 3339 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	2327	2746	2648	2541	2772	2267	2387	2635	2536	2464

S.E./mean = 192.8 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 58(21).

Site :- Govt. Agri. Farm, Bilara.

Type :- 'M'.

Object .—To study the residual effect of gypsum on the reclamation of alkaline soil and Wheat yield.

1. BASAL CONDITIONS :

(i) (a) Fallow—*Methi*—Wheat. (b) *Methi*. (c) As per treatments. (ii) (a) Saline. (b) N.A. (iii) 2.12.1958. (iv) (a) 8 ploughings. (b) Drillings. (c) 40 srs./ac. (d) 10" between rows. (e) N.A. (v) N.A. (vi) NP—718. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 7.4.1959.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(31) on page 11.  
Treatments applied to previous crop.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) and (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 448 lb./ac. (ii) 139.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	466	650	381	532	483	295	402	428	479	359

S.E./mean = 80.6 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 57(36).

Site :- Govt. Agri. Farm, Bilara.

Type :- 'M'.

Object :—To study the effect of gypsum and sulphur on the reclamation of alkaline soil and Wheat yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Saline alkaline. (b) N.A. (iii) 16.11.1957. (iv) (a) 6 ploughings. (b) N.A. (c) 40 srs./ac. (d) 12" between rows. (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated (viii) 1-weeding (ix) 1.26". (x) 1.4.1958.

2. TREATMENTS :

16 manurial treatments : M<sub>1</sub>—Control, M<sub>2</sub>—10 tons/ac. of F.Y.M. in May-June, M<sub>3</sub>—10 tons/ac. of F.Y.M. in October, M<sub>4</sub>—2 tons/ac. of gypsum+10 tons/ac. of F.Y.M., M<sub>5</sub>—4 tons/ac. of gypsum+10 tons/ac. of F.Y.M., M<sub>6</sub>—6 tons/ac. of gypsum+10 tons/ac. of F.Y.M., M<sub>7</sub>— $\frac{1}{2}$  tons/ac. of sulphur+10 tons/ac. of F.Y.M., M<sub>8</sub>— $\frac{1}{2}$  tons/ac. of sulphur+10 tons/ac. of F.Y.M., M<sub>9</sub>— $\frac{1}{2}$  tons/ac. of sulphur+10 tons/ac. of F.Y.M., M<sub>10</sub>—20 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+10 tons/ac. of F.Y.M., M<sub>11</sub>—M<sub>10</sub>+4 of gypsum, tons/ac. 20 lb./ac. M<sub>12</sub>—of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+4 tons/ac. of gypsum, M<sub>13</sub>—M<sub>10</sub>+ $\frac{1}{2}$  tons/ac. of sulphur, M<sub>14</sub>—20 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+ $\frac{1}{2}$  tons/ac. of sulphur, M<sub>15</sub>—4 tons/ac. of gypsum and M<sub>16</sub>— $\frac{1}{2}$  tons/ac. of sulphur.

3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 30'3"×24'. (b) 24'3"×18'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 1139 lb./ac. (ii) 169.9 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>
Av. yield	740	1300	1292	1017	787	1035	1249	1309
Treatment	M <sub>9</sub>	M <sub>10</sub>	M <sub>11</sub>	M <sub>12</sub>	M <sub>13</sub>	M <sub>14</sub>	M <sub>15</sub>	M <sub>16</sub>
Av. yield	1001	1612	1416	1125	1236	962	1018	1121

S.E./mean = 98.1 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(19).**

**Site :- Govt. Agri. Farm, Bilara.**

**Type :- 'M'.**

**Object :-**To study the effect of gypsum and sulphur on the reclamation of alkaline soil and Wheat yield.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Saline. (b) N.A. (iii) 1.12.1958. (iv) (a) 10 ploughings. (b) Drilling (c) 40 srs./ac. (d) 10" between rows. (e) N.A. (v) N.A. (vi) N.P.—718. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 16.4.1959.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(36) on page 13.

**4. GENERAL :**

(i) Normal. (ii) Slight attack of brown rust. (viii) Yield of grain. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 1024 lb./ac. (ii) 155.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>
Av. yield	958	1249	1074	1086	1027	924	1000	1009
Treatment	M <sub>9</sub>	M <sub>10</sub>	M <sub>11</sub>	M <sub>12</sub>	M <sub>13</sub>	M <sub>14</sub>	M <sub>15</sub>	M <sub>16</sub>
Av. yield	1009	1099	941	821	1052	1069	984	1078

S.E./mean = 89.7 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(84).**

**Site :- Govt. Agri. Farm, Bilara.**

**Type :- 'M'.**

**Object :-**To study the effect of gypsum and sulphur on the reclamation of alkaline soil and Wheat yield.

**1- BASAL CONDITIONS :**

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Saline and alkaline. (b) N.A. (iii) 16.11.1959. (iv) (a) 7 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) N.P.—718. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) 4.4.1960.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(36) on page 13.

**4. GENERAL :**

(i) Good. (ii) No. (i.i) Yield of grain. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1694 lb./ac. (ii) 197.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>
Av. yield	1651	2156	2023	1583	1454	1454	1600	1685
Treatment	M <sub>9</sub>	M <sub>10</sub>	M <sub>11</sub>	M <sub>12</sub>	M <sub>13</sub>	M <sub>14</sub>	M <sub>15</sub>	M <sub>16</sub>
Av. yield	1574	1826	1912	1681	1784	1493	1484	1745

S.E./mean = 114.0 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 59(85).

Site :- Govt. Agri. Farm, Bilara.

Type :- 'M'.

Object :- To study the effect of *Argemone Mexicana* (dried plant) and F.Y.M. for reclamation of saline and alkaline soil and Wheat yield.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Saline and alkaline. (b) N.A. (iii) 14.11.1959. (iv) (a) 8 ploughings. (b) Drilled. (c) 40 srs./ac. (d) 9' between rows. (e) N.A. (v) N.A. (vi) N.P.—718. (vii) Irrigated. (viii) 2 weeding. (ix) N.A. (x) 2.4.1960.

## 2. TREATMENTS :

7 Manurial treatments : M<sub>0</sub>=Control. M<sub>1</sub>=1 md./ac. of *Argemone Mexicana* (dried leaves). M<sub>2</sub>=2 md./ac. of *Argemone Mexicana* (dried leaves). M<sub>3</sub>=3 md./ac. of *Argemone Mexicana* (dried leaves). M<sub>4</sub>=10 lb./ac. N as F.Y.M. M<sub>5</sub>=20 lb./ac. of N as F.Y.M. M<sub>6</sub>=30 lb./ac. of N as F.Y.M.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 30' 3" × 18'. (b) 24' 3" × 12'. (v) 3' × 3'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) 10% rust attack. (iii) Yield of grain. (iv) (a) 1959—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS:

(i) 2106 lb./ac. (ii) 281.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>
Av. yield	2122	2189	2079	2074	2035	2031	2209

S.E./mean = 140.9 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 54(4).

Site :- Govt. Agri. and Exptl. Farm, Durgapura.

Type :- 'M'.

Object :- To find out the effect of different doses and sources of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 3.11.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) C—519 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 7.4.1955.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 treatments consisting of 2 sources and 3 levels of N : N<sub>0</sub>=0, N<sub>1</sub>=20 lb./ac. of N as A/S, N<sub>2</sub>=40 lb./ac. of N as A/S, N<sub>3</sub>=20 lb./ac. of N as Urea and N<sub>4</sub>=40 lb./ac. of N as Urea.

- (2) 5 treatments consisting of 2 sources and 3 levels of  $P_2O_5$ :  $P_0=0$ ,  $P_1=25$  lb./ac. of  $P_2O_5$  as Super;  $P_2=40$  lb./ac. of  $P_2O_5$  as Super,  $P_3=25$  lb./ac. of  $P_2O_5$  as B.M. and  $P_4=40$  lb./ac. of  $P_2O_5$  as B.M.

**3. DESIGN :**

- (i) Fact. in R.B.D. (ii) (a) 25. (b) N.A. (iii) 3. (iv) (a)  $22' \times 15'$ . (b)  $19' \times 12'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL :**

- (i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) (a) Shri Ganganagar. (b) Nil. (vi) and (vii) Nil.

**5. RESULTS :**

- (i) 1224 lb./ac. (ii) 176.3 lb./ac. (iii) Only main effect of N is highly significant. (iv) Av. yield of grain in lb./ac.

	$N_0$	$N_1$	$N_2$	$N_3$	$N_4$	Mean
$P_0$	680	1055	1465	1195	1553	1190
$P_1$	802	1431	1374	1055	1480	1228
$P_2$	638	1374	1539	1251	1595	1279
$P_3$	606	1431	1244	1072	1553	1181
$P_4$	736	1293	1423	1227	1529	1242
Mean	692	1317	1409	1160	1542	1224

S.E. of N or P marginal mean = 45.5 lb./ac.  
S.E. of body of table = 101.8 lb./ac.

**Crop :-** Wheat (*Rabi*).

**Ref :-** Rj. 57(38).

**Site :-** Govt. Agri. and Exptl. Farm, Durgapura.

**Type :-** 'M'.

**Object :-** To study the effect of various trace elements at different levels on the yield of Wheat.

**1. BASAL CONDITIONS :**

- (i) (a) Nil. (b) Barley. (c) 15 C.L./ac. of F.Y.M. (ii) (a) Sandy loam. (b) N.A. (iii) 1.11.1957. (iv) (a) 8 ploughings. (b) Drilling (c) 40 srs./ac. (d)  $12'$  between rows. (e) N.A. (v) 30 lb./ac. of N as A/S+30 lb./ac. of  $P_2O_5$  as Super. (vi) R.S.—31—1. (vii) Irrigated. (viii) 3 weedings and hoeings. (ix) N.A. (x) 24, 25.3.1958.

**2. TREATMENTS :**

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

- (1) 5 trace elements:  $T_1$ =Ferrous sulphate,  $T_2$ =Copper sulphate,  $T_3$ =Zinc sulphate,  $T_4$ =Magnesium sulphate and  $T_5$ =Borax.

- (2) 3 levels of the elements:  $L_1=5$ ,  $L_2=10$  and  $L_3=15$  lb./ac.

**3. DESIGN :**

- (i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b)  $24' 3'' \times 12'$ . (v) Nil. (vi) Yes.

**4. GENERAL :**

- (i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

- (i) 2531 lb./ac. (ii) 857.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 2836 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	2086	2091	2476	1835	2733
L <sub>2</sub>	3015	3298	3144	3221	2374
L <sub>3</sub>	1578	2213	1989	2977	2656
Mean	2220	2534	2536	2678	2588

S.E. of T marginal mean = 285.7 lb./ac.  
 S.E. of body of table or control mean. = 495.0 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 59(76).

Site :- Govt. Agri. Farm, Durgapura.

Type :- 'M'.

Object :- To study the effect of foliar application of fertilizer on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Maize-Wheat. (b) Maize. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 16.11.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) 20 lb./ac. of N as basal dose + 100 md./ac. of F.Y.M + 40 lb./ac. of Super. (vi) RS. 31-1. (vii) Irrigated. (viii) and (ix) N.A. (x) 30.3.1960.

## 2. TREATMENTS :

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

(1) 3 sources of N : S<sub>1</sub>=Urea, S<sub>2</sub>=A/S and S<sub>3</sub>=A/N.(2) 3 levels of N : N<sub>1</sub>=10, N<sub>2</sub>=15 and N<sub>3</sub>=20 lb./ac.(3) 2 times of application : T<sub>1</sub>=Before tillering and T<sub>2</sub>=Before flowering.3 extra treatments : E<sub>1</sub>=Water spray before tillering, E<sub>2</sub>=Water spray before flowering and E<sub>3</sub>=Control (no spray).

## 3. DESIGN :

(i) R.B.D. (ii) (a) 21. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 30'x18'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and fodder. (iv) (a) 1959-N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2544 lb./ac. (ii) 400.1 lb./ac. (iii) Only effect of E is significant. (iv) Av. yield of grain in lb./ac.

E<sub>1</sub> = 2533, E<sub>2</sub> = 1508 and E<sub>3</sub> = 2759 lb./ac.

	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	Mean	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>
T <sub>1</sub>	2702	2793	2472	2656	2596	2799	2572
T <sub>2</sub>	2429	2569	2575	2524	2561	2724	2488
Mean	2565	2681	2523	2590	2478	2761	2530
N <sub>1</sub>	2522	2415	2498				
N <sub>2</sub>	2663	2882	2738				
N <sub>3</sub>	2510	2745	2334				

S.E. of N or S marginal mean	= 115.5 lb./ac.
S.E. of T marginal mean	= 94.3 lb./ac.
S.E. of body of S × T and T × N table	= 163.3 lb./ac.
S.E. of body of S × N table	= 200.1 lb./ac.
S.E. of extra treatment mean]	= 282.9 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(49).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the response of Wheat to trace-elements.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 27.11.1954. (iv) (a) 4 ploughings. (b) to (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 13.3.1955.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 5 sources of trace-elements : T<sub>1</sub>=Zinc Sulphate, T<sub>2</sub>=Copper Sulphate, T<sub>3</sub>=Ferrous Sulphate, T<sub>4</sub>=Magnesium Sulphate and T<sub>5</sub>=Borax.

(2) 3 levels of trace-elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=15 lb./ac.

Treatments were mixed with soil and applied before sowing.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 15. (b) N.A. (iii) 3. (iv) (a) 26'×17'. (b) 20'×11'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 551 lb./ac. (ii) 91.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	577	568	568	611	475
L <sub>2</sub>	543	543	594	636	492
L <sub>3</sub>	551	543	594	399	560
Mean	557	551	585	549	509

S.E. of T marginal mean	= 30.6 lb./ac.
S.E. of body of table	= 52.9 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(36).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the response of Wheat to trace-elements.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 15.11.1955. (iv) (a) 4 ploughings. (b) to (e) N.A. (v) N.A. (vi) C-591 (medium). (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 2.3.1956.



## 2. TREATMENTS :

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

(1) 5 trace-elements : T<sub>1</sub>=Borax, T<sub>2</sub>=Ferrous Sulphate, T<sub>3</sub>=Copper Sulphate, T<sub>4</sub>=Magnesium Sulphate and T<sub>5</sub>=Zinc Sulphate.

(2) 3 levels of trace-elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=20 lb./ac.

Treatments were sprayed before sowing.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 22'×13'. (b) 20'×11'. (v) 1'×1'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Mandore and Durgapura. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 547 lb./ac. (ii) 94.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 500 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	475	568	568	611	577
L <sub>2</sub>	492	594	543	636	543
L <sub>3</sub>	560	594	543	399	551
Mean	509	585	551	548	557

S.E. of T marginal mean = 31.4 lb./ac.  
S.E. of body of table or control mean = 54.3 lb./ac.

Crop :- Wheat (Rabi).

Site :- Govt. Agri. Exptl. Farm, Kotah.

Ref :- Rj. 56(4).

Type :- 'M'.

Object :- To study the response of Wheat to trace-elements.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jowar. (c) Nil. (ii) (a) Black cotton soil. (b) N.A. (iii) 9.10.1956. (iv) and (v) N.A. (vi) C-591 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 24.4.1957.

## 2. TREATMENTS :

Same as in expt. no. 55(36) on page 18.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b) 24'3"×12'. (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Mandore and Durgapura. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 518 lb./ac. (ii) 109.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 437 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	514	526	481	539	623
L <sub>2</sub>	565	520	488	462	629
L <sub>3</sub>	372	488	552	533	552
Mean	484	511	507	511	601

S.E. of T marginal mean = 36.6 lb./ac.  
S.E. of body of table or control mean = 63.4 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(40).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the response of Wheat to trace-elements.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 2.11.1957. (iv) (a) 3 ploughings. (b) Drilling. (c) 60 to 70 lb./ac. (d) 12" between rows. (e) N.A. (v) 30 lb./ac. of N as A/S+30 lb./ac. of  $P_2O_5$  as Super. (vi) Local *Malvi*. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 22.3.1958.

**2. TREATMENTS :**

Same as in expt. no. 55(36) on page 18

**3. DESIGN :**

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b) 24' 3" x 12'. (v) Nil. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Mandore and Durgapura. (b) Nil. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 93 lb./ac. (ii) 31.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control=67 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	90	90	125	83	58
L <sub>2</sub>	106	87	135	64	96
L <sub>3</sub>	90	106	87	112	61
Mean	95	94	116	86	72

S.E. of T marginal mean = 10.4 lb./ac.  
S.E. of body of table or control mean = 18.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(28).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the effect of N and P on the yield of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 13.11.1955. (iv) (a) to (e) N.A. (v) N.A. (vi) C-591 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 19.3.1956.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N<sub>0</sub>=0, N<sub>1</sub>=15 and N<sub>2</sub>=25 lb./ac.

(2) 3 levels of  $P_2O_5$  as Super : P<sub>0</sub>=0, P<sub>1</sub>=25 and P<sub>2</sub>=40 lb./ac.

Time and method of application N.A.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 19' x 12'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) (a) and (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 735 lb./ac. (ii) 166.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean
P <sub>0</sub>	638	646	809	709
P <sub>1</sub>	702	693	699	711
P <sub>2</sub>	839	793	724	785
Mean	725	724	744	735

S.E. of any marginal mean = 48.1 lb./ac.  
S.E. of body of table = 83.4 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 55(29).

Site :- Govt. Agri. Expt. Station, Meerut.

Type :- 'M'.

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

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Bajra. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 14.11.1955. (iv) (a) 4 ploughings. (b) N.A. (c) 40 srs./ac. (d) and (a) N.A. (v) N.A. (vi) C-591 (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 10.5.1956.

2. TREATMENTS:

Same as in expt. no. 55(28) on page 20.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) 22'x15'. (b) 19'x12'. (v) 1.5'x1.5'. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) (a) and (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 729 lb./ac. (ii) 190.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean
P <sub>0</sub>	638	646	818	701
P <sub>1</sub>	679	695	703	692
P <sub>2</sub>	839	793	728	793
Mean	725	711	750	729

S.E. of any marginal mean = 63.4 lb./ac.  
S.E. of body of table = 109.8 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 59(60).

Site :- Govt. Agri. Expt. Station, Meerut.

Type :- 'M'.

Object :- To study the effect of different types and levels of nitrogenous fertilizers with levels of P and K.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 18.12.1959. (iv) (a) N.A. (b) Behind the plough. (c) 40 srs./ac. (d) 9' between rows. (e) N.A. (v) 5000 lb./ac. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 13, 14.4.1960.

**2. TREATMENTS :**

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

(1) 3 sources of N :  $S_1=A/S$ ,  $S_2=A/S/N$  and  $S_3=Urea$ .

(2) 3 levels of N :  $N_0=0$ ,  $N_1=20$  and  $N_2=40$  lb./ac.

(3) 3 levels of  $P_2O_5$  as Super :  $P_0=0$ ,  $P_1=20$  and  $P_2=40$  lb./ac.

3 extra treatments as :

$T_1=40$  lb./ac. of N as A/S+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot.

$T_2=40$  lb./ac. of N as A/S/N+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot.

$T_3=40$  lb./ac. of N as Urea+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot.

$T_1$ ,  $T_2$  and  $T_3$  have been repeated in each block. Time and method of application N.A.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 12 plots/block ; 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 30'3"×18'. (b) 24' 3"×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) No. (iii) Yield of grain. (iv) (a) 1959—N.A. (b) and (c) N.A. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1315 lb./ac. (ii) 339.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

$T_1=1306$ ,  $T_2=1488$  and  $T_3=1334$  lb./ac.

	$N_0$	$N_1$	$N_2$	Mean	$S_1$	$S_2$	$S_3$
$P_0$	1158	1366	1421	1315	1549	1123	1273
$P_1$	1277	1382	1341	1333	1386	1161	1452
$P_2$	1366	1219	1245	1277	1312	1456	1062
Mean	1267	1322	1336	1308	1416	1247	1262
$S_1$	—	1394	1422	1408			
$S_2$	—	1261	1174	1218			
$S_3$	—	1312	1411	1361			

S.E. of N or P marginal mean

= 113.2 lb./ac.

S.E. of S marginal mean

= 138.6 lb./ac.

S.E. of body of any table or T mean

= 196.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(38).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

Object :- To study the effect of catalysts, with and without F.Y.M. on Wheat yield.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Black soil. (b) N.A. (iii) 10.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) RS. 31-1. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 22.3.1956.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 2 levels of F.Y.M. :  $F_0=0$  and  $F_1=2$  tons/ac.

(2) 6 levels of chemicals :  $C_0=0$ ,  $C_1=40$  lb./ac. of catalyst,  $C_2=80$  lb./ac. of catalyst,  $C_3=14$  lb./ac. of Ferrous sulphate,  $C_4=28$  lb./ac. of Ferrous sulphate and  $C_5=16$  lb./ac. of Potassium permanganate.

Time and method of application—N.A.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 14'×8'. (b) 12'×6'. (v) 1'×1'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 2939 lb./ac. (ii) 238.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	Mean
F <sub>0</sub>	2229	3112	3086	2956	2800	2541	2787
F <sub>1</sub>	3786	3371	3112	2904	2282	3086	3090
Mean	3008	3241	3099	2930	2541	2814	2939

S.E. of C marginal mean = 97.1 lb./ac.  
 S.E. of F marginal mean = 56.0 lb./ac.  
 S.E. of body of table = 137.3 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 54(33).

Site :- Govt. Agri. Res. Farm, Makrera.

Type :- 'M'.

Object :- To study the response of Wheat to different doses of N.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 16.11.1954. (iv) and (v) N.A. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 15.3.1955.

## 2. TREATMENTS:

5 levels of N as A/S : N<sub>0</sub>=0, N<sub>1</sub>=20, N<sub>2</sub>=40, N<sub>3</sub>=60 and N<sub>4</sub>=80 lb./ac.  
 Fertilizers were applied before cultivation by spraying.

## 3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 33'×25'. (b) 28'×20'. (v) 2½'×2½'. (vi) Yes.

## 4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) to (vii) Nil.

## 5. RESULTS :

(i) 977 lb./ac. (ii) 248.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>
Av. yield	768	728	1100	1278	1012

S.E./mean = 101.6 lb./ac.

Crop :- Wheat.

Ref :- Rj. 55(15).

Site :- Govt. Agri. Res. Farm, Makrera.

Type :- 'M'.

Object :- To study the effect of different levels of N and P on the yield of Wheat.

## 1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 18.11.1955. (iv) and (v) N.A. (vi) C-591 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 24.3.1956.

## 2. TREATMENTS:

5 treatments:  $M_0=0$ ,  $M_1=20$  lb./ac. of N+20 lb./ac. of  $P_2O_5$ ,  $M_2=20$  lb./ac. of N+40 lb./ac. of  $P_2O_5$ ,  $M_3=40$  lb./ac. of N+20 lb./ac. of  $P_2O_5$  and  $M_4=40$  lb./ac. of N+40 lb./ac. of  $P_2O_5$ . N as A/S and  $P_2O_5$  as Super were sprayed before sowing.

## 3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a)  $32' \times 18'$ . (b)  $30' \times 16'$ . (v)  $1' \times 1'$ . (vi) Yes.

## 4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) to (vi) Nil.

## 5. RESULTS:

(i) 620 lb./ac. (ii) 122.4 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$
Av. yield	400	542	604	744	808

S.E./mean = 50.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55 (21).**

**Site :- Govt. Agri. Res. Farm, Makrera.**

**Type :- 'M'.**

Object :- To study the effect of N in different forms on the yield of Wheat.

## 1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 19.11.1955. (iv) and (v) N.A. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 4.4.1956.

## 2. TREATMENTS:

5 treatments: A=Control, B=30 lb./ac. of N as A/S, C=30 lb./ac. of N as compost, D=30 lb./ac. of N as F.Y.M. and E=30 lb./ac. of N as oil cake.

Treatments were sprayed before sowing.

## 3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a)  $32' \times 18'$ . (b)  $30' \times 16'$ . (v)  $1' \times 1'$ . (vi) Yes.

## 4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) to (vi) Nil.

## 5. RESULTS:

(i) 1195 lb./ac. (ii) 313.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	A	B	C	D	E
Av. yield	1046	1254	1306	1166	1201

S.E./mean = 127.9 lb./ac.

**Crop :- Wheat.**

**Ref :- Rj. 55(23).**

**Site :- Govt. Agri. Res. Farm, Makrera.**

**Type :- 'M'.**

Object :- To study the response to different sources of nitrogen on the yield of Wheat.

**BASAL CONDITIONS :**

(i) (a) Nil. (b) Maize. (c) Nil. (d) (a) Sandy loam. (b) N.A. (iii) 24.11.1955. (iv) (a) to (c) N.A. (v) N.A. (vi) C-91. (vii) Irrigated. (viii) and (ix) N.A. (x) 15.3.1956.

**2. TREATMENTS :**

Same as in expt. no. 55(21) of page 24

**3. DESIGN :**

(i) R.B.D. (ii) (a) 52 (b) N.A. (iii) 6. (iv) (a) 32'x10'. (b) 30'x8'. (v) 1'x1'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 1598 lb./ac. (ii) 1657 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	A	B	C	D	E
Av. yield	1452	1561	1671	1601	1708

S.E./mean = 79.8 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 54(16).

Site :- Govt. Agri. Exptl. Farm, Mandore.

Type :- 'M'.

Object :- To find the optimum dose of N and P alone in combination on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 13.11.1954. (iv) (a) to (c) N.A. (v) Nil. (vi) C-59E. (medium). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 30.3.1955.

**2. TREATMENTS :**

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

(1) 3 levels of N as F.Y.M. :  $F_0=0$ ,  $F_1=20$  and  $F_2=30$  lb./ac.

(2) 3 levels of N as A/S :  $N_0=0$ ,  $N_1=20$  and  $N_2=30$  lb./ac.

(3) 3 levels of  $P_2O_5$  as Super :  $P_0=0$ ,  $P_1=25$  and  $P_2=40$  lb./ac.

Time and method of application N.A.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) 20'x15'. (b) 18'x12'. (v) 1'x1½'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) to (c) Nil. (v) (a) Bassi. (b) Nil. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1979 lb./ac. (ii) 740.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$N_0$	$N_1$	$N_2$	Mean	$F_0$	$F_1$	$F_2$
$P_0$	1731	1796	1789	1772	1798	1872	1646
$P_1$	1945	2247	1789	1994	1932	2104	1945
$P_2$	2117	2112	2286	2172	2314	2223	1979
Mean	1931	2052	1959	1979	2015	2066	1857
$F_0$	1817	2018	2208				
$F_1$	2085	2234	1879				
$F_2$	1891	1903	1777				

S.E. of any marginal mean  
S.E. of body of any table

= 123.4 lb./ac.  
= 213.8 lb./ac.

**Crop :- Wheat.**

**Ref :- Rj. 54(35).**

**Site :- Govt. Agri. Exptl. Farm, Mandore.**

**Type :- 'M'.**

**Object :-**To find out the optimum dose of nitrogenous and phosphatic fertilizers alone and in combination on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Gram--Wheat. (b) *Guar*. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 14.11.1954. (iv) (a) 4 ploughings. (b) N.A. (c) 40 lb./ac. (d) 9' between rows. (e) N.A. (v) Nil. (vi) C-594 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 25.3.1955.

**2. TREATMENTS :**

Same as in expt. no. 54(16) on page 25

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) 22'×15'. (b) 18'×12'. (v) 2'×1½'. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954--contd. (b) No. (c) Nil. (v) (a) Bassi. (b) Nil. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1999 lb./ac. (ii) 245.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	Mean	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>
N <sub>0</sub>	1819	2017	1892	1909	1732	1946	2050
N <sub>1</sub>	2009	2477	1905	2131	2039	2238	2115
N <sub>2</sub>	2210	1881	1778	1956	1791	1791	2287
Mean	2013	2125	1858	1999	1854	1992	2151
P <sub>0</sub>	1799	2115	1648				
P <sub>1</sub>	1922	2106	1946				
P <sub>2</sub>	2316	2156	1981				

S.E. of any marginal mean  
S.E. of body of any table

= 40.9 lb./ac.  
= 70.9 lb./ac.

**Crop:- Wheat (Rabi).**

**Ref :- Rj. 56(5).**

**Site :- Govt. Agri. Exptl. Farm, Mandore.**

**Type :- 'M'.**

**Object :-**To find out the optimum doses of N and P<sub>2</sub>O<sub>5</sub> alone and in combination on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 7.11.1956. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) and (ix) N.A. (x) 28.3.1957.



## 2. TREATMENTS :

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

(1) 5 trace elements : T<sub>1</sub>=Borax, T<sub>2</sub>=Ferrous sulphate, T<sub>3</sub>=Copper sulphate, T<sub>4</sub>=Magnesium sulphate, and T<sub>5</sub>=Zinc sulphate.

(2) 3 levels of trace elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=20 lb./ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 27.3'×15'. (b) 24.3'×12'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) (a) Kotah. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 2816 lb./ac. (ii) 275.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 2561 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	2786	2696	2985	2972	3191
L <sub>2</sub>	2979	2761	2953	2799	3114
L <sub>3</sub>	2831	2369	2754	2549	2754
Mean	2865	2609	2897	2773	3020

S.E. of T marginal mean = 91.9 lb./ac.

S.E. of body of table or control mean = 159.1 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 56(19).

Site :- Govt. Agri. Exptl. Farm, Mandore.

Type :- 'M'.

Object :- To study the effect of trace-elements on yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar*. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 10.11.1956. (iv) (a) 4 ploughings with disc harrow and 1 levelling. (b) N.A. (c) 40 srs./ac. (d) 9' between rows. (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Irrigated. (viii) Weeding. (ix) N.A. (x) 30, 31.3.1957.

## 2. TREATMENTS :

All combinations of (1) and (2) + 2 controls.

(1) 5 trace elements : T<sub>1</sub>=Borax, T<sub>2</sub>=Ferrous sulphate, T<sub>3</sub>=Copper sulphate, T<sub>4</sub>=Magnesium sulphate, T<sub>5</sub>=Zinc sulphate and T<sub>6</sub>=Ammonium sulphate.

(2) 3 levels of trace elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=20 lb./ac.

Treatments were mixed with soil and sprayed before sowing.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1243 lb./ac. (ii) 249.3 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control mean = 1358 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>
L <sub>1</sub>	937	1451	854	995	1271	1676
L <sub>2</sub>	1014	1547	1284	1040	1117	1618
L <sub>3</sub>	1104	976	1258	1265	1117	1618
Mean	1018	1325	1132	1100	1168	1637

S.E. of T marginal mean = 83.1 lb./ac.  
 S.E. of body of table or control mean = 143.9 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 55(42).

Site :- Govt. Agri. Exptl. Farm, Mandore.

Type :- 'M'.

Object :- To study the effect of tracelements on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 13.11.1955. (iv) (a) 4-5 ploughings. (b) N.A. (c) 40 srs./ac. (d) 9' between rows. (e) N.A. (v) Nil. (vi) RS-31(early). (vii) Irrigated. (viii) 4 weedings. (ix) N.A. (x) 10.3.1956.

## 2. TREATMENTS :

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

(1) 5 trace-elements : T<sub>1</sub>=Borax, T<sub>2</sub>=Ferrous sulphate, T<sub>3</sub>=Copper sulphate, T<sub>4</sub>=Magnesium sulphate and T<sub>5</sub>=Zinc sulphate.

(2) 3 levels of trace-elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=20 lb./ac.

The chemicals were sprayed.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 26' x 17'. (b) 20' x 11'. (v) 3' x 3'. (vi) Yes.

## 4. GENERAL :

(i) Normal. (ii) Slight infection of rust. (iii) Yield of grain. (iv) (a) 1955-contd. (b) No. (c) Nil. (v) (a) Kotah. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 2592 lb./ac. (ii) 484.9 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 2571 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	2402	2503	2393	2266	2444
L <sub>2</sub>	2911	2639	2817	3131	2529
L <sub>3</sub>	2147	2885	2214	2554	3080
Mean	2480	2676	2475	2650	2684

S.E. of T marginal mean = 161.6 lb./ac.  
 S.E. of body of table of control mean = 280.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 56(3).**

**Site :- Govt. Agri. Exptl. Farm, Mandore.**

**Type :- 'M'.**

**Object :-**To study the effect of trace-elements on the yield of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 11.11.1956. (iv) (a) 4 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) RS 31-1. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 28.3 1957.

**2. TREATMENTS :**

Same as in expt no. 55(42) on page 28

**3. DESIGN :**

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 27'3"×15'. (b) 24'3"×12'. (v) 1½'×1½'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1099 lb./ac. (ii) 258.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 1114 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	1181	1233	1046	1361	989
L <sub>2</sub>	1111	1027	1079	1265	1014
L <sub>3</sub>	912	847	1252	1117	1040
Mean	1068	1036	1126	1248	1014

S.E of T marginal mean = 86.1 lb./ac.

S.E. of body of table or control mean = 149.1 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(42).**

**Site :- Govt. Agri. Exptl. Farm, Mandore.**

**Type :- 'M'.**

**Object :-**To study the effect of different trace-elements at different levels on Wheat yield.

**1. BASAL CONDITIONS :**

(i) (a) to (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 9.11.1957. (iv) (a) 6 ploughing. (b) Drilling. (c) 50 srs./ac. (d) 12" between rows. (e) N.A. (v) 30 lb./ac. of N+30 lb./ac. of P<sub>2</sub>O<sub>5</sub>. (vi) C-591 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 1st week of April, 1958.

**2. TREATMENTS :**

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

(1) 5 trace-elements : T<sub>1</sub>=Borax, T<sub>2</sub>=Ferrous sulphate, T<sub>3</sub>=Copper sulphate, T<sub>4</sub>=Magnesium sulphate and T<sub>5</sub>=Zinc sulphate.

(2) 3 levels of trace-elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=15 lb./ac.

Treatments were sprayed.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b) 24'3"×12'. (v) Nil. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1955—contd. (Treatments changed in 1957). (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1104 lb./ac. (ii) 584.3 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 860 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	898	950	1296	1533	1270
L <sub>2</sub>	1193	930	1296	914	1033
L <sub>3</sub>	1014	751	1322	1180	1232
Mean	1035	877	1305	1209	1178

S.E. of T marginal mean = 194.8 lb./ac.  
 S.E. of body of table or control mean = 337.0 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 58(16).

Site :- Govt. Agri. Exptl. Farm, Mandore.

Type :- 'M'.

Object :- To study the effect of trace elements on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 8.11.1958. (iv) (a) 9 ploughings. (b) Drilling. (c) 80 lb./ac. (d) 9" between rows (e) N.A. (v) 30 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super. (vi) RS. 31-1. (vii) Irrigated. (viii) N.A. (ix) 1.10". (x) 7.4.1959.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(42) on page 29

## 4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1955—contd. (treatment changed in 1957). (b) No. (c) Nil. (v) to (vii) N.A.

## 5. RESULTS :

(i) 3003 lb./ac. (ii) 404.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 3028 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	3336	3375	3156	2701	2566
L <sub>2</sub>	2772	3015	3227	3028	2643
L <sub>3</sub>	3124	3195	3131	2932	2836
Mean	3077	3195	3171	2887	2682

S.E. of T marginal mean = 134.9 lb./ac.  
 S.E. of body of table or control mean = 233.6 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 59(81).

Site :- Govt. Agri. Exptl. Farm, Mandore.

Type :- 'M'.

Object :- To study the effect of trace elements on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 18.11.1959. (iv) (a) 9 ploughings. (b) Drilling. (c) 80 lb./ac. (d) 9" between rows (e) N.A. (v) 30 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super. (vi) C-591. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 27.3.1960

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(42) on page 29

**4. GENERAL :**

(i) Good. (ii) No. (iii) Yield of grain. (iv) (a) 1955—contd. (treatments changed in 1957). (b) No. (c) Nil. (v) to (vii) N.A.

**5. RESULTS :**

(i) 107.9 lb./ac. (ii) 303.7 lb./ac. (iii) Only control vs. treatment is significant. (iv) Av. yield of grain in lb./ac.

Control = 622 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	1039	892	1061	1527	1168
L <sub>2</sub>	1341	956	1116	1213	1367
L <sub>3</sub>	1052	1071	1136	1001	699
Mean	1144	973	1104	1247	1078

S.E. of T marginal mean = 101.2 lb./ac.

S.E. of body of table or control mean = 175.4 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(44).****Site :- Govt. Agri. Exptl. Farm, Mandore.****Type :- 'M'.****Object :-**To study the effect of different types of nitrogenous fertilizers at different levels with P and K.**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 14.11.1958. (iv) (a) 7 ploughings. (b) Drilling. (c) 80 lb./ac. (d) 9" between rows. (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) C-591. (vii) Irrigated. (viii) 1 weeding. (ix) 1.10". (x) 5, 6.4.1959.

**2. TREATMENTS :**

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

(1) 3 sources of N : S<sub>1</sub>=A/S, S<sub>2</sub>=A/S/N and S<sub>3</sub>=Urea.(2) 3 levels of N : N<sub>0</sub>=0, N<sub>1</sub>=20 and N<sub>2</sub>=40 lb./ac.(3) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=20 and P<sub>2</sub>=40 lb./ac.3 extra treatments : T<sub>1</sub>=40 lb./ac. of N as A/S+40 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. Pot., T<sub>2</sub>=40 lb./ac. of N as A/S/N+40 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. Pot. and T<sub>3</sub>=40 lb./ac. of N as Urea+40 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. Pot.T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> are repeated in each block. Time and method of application N.A.**3. DESIGN :**

(i) R.B.D. (ii) (a) 12 plots/block ; 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—contd. (b) N.A. (c) Nil. (v) to (vii) N.A.

**5. RESULTS :**

(i) 1295 lb./ac. (ii) 266.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

$T_1 = 1026 \text{ lb./ac.}$ ,  $T_2 = 1142 \text{ lb./ac.}$ , and  $T_3 = 1091 \text{ lb./ac.}$

	$N_0$	$N_1$	$N_2$	Mean	$S_1$	$S_2$	$S_3$
$P_0$	1187	1373	1386	1315	1386	1629	930
$P_1$	1553	1360	1033	1315	1123	1565	1257
$P_2$	1540	1328	1103	1324	1014	1366	1591
Mean	1427	1354	1174	1318	1174	1520	1259
$S_1$	—	1129	1039	1084			
$S_2$	—	1585	1546	1565			
$S_3$	—	1347	937	1142			

S.E. of N or P marginal mean = 88.9 lb./ac.  
 S.E. of S marginal mean = 108.9 lb./ac.  
 S.E. of body of any table or T mean = 154.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(67).**

**Site :- Govt. Agri. Exptl. Farm, Mandore.**

**Type :- 'M'.**

Object—To study the effect of different types of nitrogenous fertilizers at different levels with P and K.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.11.1959. (iv) (a) 8 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) C-591. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 27.3.1960.

**2. TREATMENTS to 4. GENERAL**

Same as in expt. no. 58(44) on page 31

**5. RESULTS :**

(i) 1788 lb./ac. (ii) 207.1 lb./ac. (iii) Only T treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

$T_1 = 2066$ ,  $T_2 = 1912$  and  $T_3 = 1360 \text{ lb./ac.}$

	$N_0$	$N_1$	$N_2$	Mean	$S_1$	$S_2$	$S_3$
$P_0$	1642	1540	1809	1664	1514	1655	1822
$P_1$	1937	1764	1841	1847	1950	1565	2027
$P_2$	1899	1880	1790	1856	1963	1803	1803
Mean	1826	1728	1813	1789	1809	1674	1884
$S_1$	—	1553	1925	1739			
$S_2$	—	1758	1469	1614			
$S_3$	—	1873	2046	1960			

S.E. of N or P marginal mean = 69.0 lb./ac.  
 S.E. of S marginal mean = 84.6 lb./ac.  
 S.E. of body of any table or T mean = 119.6 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 54(37).

Site :- Govt. Agri. Exptl. Farm, Mandore.

Type :- 'M'.

Object :- To study the effect of different doses of P on Moong and its subsequent effect on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) *Moong*-Wheat. (b) *Moong*. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 15.11.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 18.3.1955.

## 2. TREATMENTS :

All combinations of (1) and (2) + one control

(1) 2 sources of  $P_2O_5$  :  $S_1$ -Super and  $S_2$ -B.M.(2) 3 levels of  $P_2O_5$  :  $P_1$ =50,  $P_2$ =100 and  $P_3$ =150 lb./ac.Fertilizers sprayed at the time of cultivation of *Moong* crop.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 27'3"×21'. (b) 24'3"×18'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954-1955. (b) Yes. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1105 lb./ac. (ii) 63.2 lb./ac. (iii) Main effects of P and 'control vs. others' are highly significant. Main effects of S are highly significant. (iv) Av. yield of grain in lb./ac.

Control = 852 lb./ac.

	$P_1$	$P_2$	$P_3$	Mean
$S_1$	1219	1084	1227	1177
$S_2$	1131	980	1245	1119
Mean	1175	1032	1236	1148

S.E. of P marginal mean = 22.3 lb./ac.

S.E. of S marginal mean = 18.2 lb./ac.

S.E. of body of table or control mean = 31.6 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 54(2).

Site :- Govt. Agri. Exptl. Farm, Mandore.

Type :- 'M'.

Object :- To study the response of wheat the catalyst treatments.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) No. (ii) (a) Sandy. (b) N.A. (iii) 3.11.1954. (iv) (a) 4 ploughings. (b) Drilling. (c) 40 lb./ac. (d) 9' between rows. (e) N.A. (v) Nil. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 1.4.1955.

## 2. TREATMENTS :

All combinations of (1) and (2).

(1) 7 chemicals :  $C_0$ =No catalyst,  $C_1$ =Catalyst at 40 lb./ac.,  $C_2$ =Catalyst at 80 lb./ac.,  $C_3$ =Ferrous sulphate at 14 lb./ac.,  $C_4$ =Ferrous sulphate at 28 lb./ac.,  $C_5$ =Pot. Permanganate at 8 lb./ac. and  $C_6$ =Pot. Permanganate at 16 lb./ac.(2) 2 levels of F.Y.M. as basal dressing :  $F_0$ =0, and  $F_1$ =2 tons/ac.

Time and method of application - N.A.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 15'×9'. (b) 12'×6'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1952—N.A. (b) No. (c) Nil. (v) (a) Bassi. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 1257 lb./ac. (ii) 487.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	Mean
F <sub>0</sub>	1197	1374	1349	1349	920	1109	1286	1226
F <sub>1</sub>	1462	1008	1122	1727	1210	1084	1399	1287
Mean	1329	1191	1236	1538	1065	1096	1343	1257

S.E. of C marginal mean = 199.1 lb./ac.

S.E. of F marginal mean = 106.4 lb./ac.

S.E. of body of table = 281.6 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(39).**

**Site :- Govt. Agri. Exptl. Farm, Mandore.**

**Type :- 'M'.**

**Object :-** To study the response of Wheat to catalyst treatments.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 12.10.1955. (iv) (a) 4 to 5 ploughings. (b) N.A. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) RS-31 (early). (vii) Irrigated. (viii) and (ix) N.A. (x) 7.4.1956.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 6 chemical treatments : C<sub>0</sub>=No catalyst, C<sub>1</sub>=40 lb./ac. of catalyst, C<sub>2</sub>=80 lb./ac. of catalyst, C<sub>3</sub>=14 lb./ac. of ferrous sulphate, C<sub>4</sub>=28 lb./ac. of ferrous sulphate and C<sub>5</sub>=Potassium permanganate at 16 lb./ac.

(2) 2 levels of F.Y.M. : F<sub>0</sub>=0, F<sub>1</sub>=2 tons/ac.

Time and method of application N.A.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 15'×9'. (b) 12'×6'. (v) 1.5'×1.5'. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1952—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1067 lb./ac. (ii) 303.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	Mean
F <sub>0</sub>	958	1046	1260	819	1046	1323	1075
F <sub>1</sub>	1298	1160	1071	1122	920	781	1059
Mean	1128	1103	1166	970	983	1052	1067

S.E. of C marginal mean = 123.7 lb./ac.

S.E. of F marginal mean = 71.4 lb./ac.

S.E. of body of table = 175.0 lb./ac.



Crop :- Wheat (*Rabi*).

Ref :- Rj. 56(1).

Site :- Govt. Agri. Exptl. Farm, Mandore.

Type :- 'M'.

Object :- To study the response of Wheat to catalyst treatments.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 11.11.1956. (iv) (a) 3 ploughings with disc harrow. (b) N.A. (c) 40 srs./ac. (d) 9' between rows. (e) N.A. (v) Nil. (vi) RS. 31-1. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 27.3.1957.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 6 chemicals :  $C_0$  = No catalyst,  $C_1$  = Catalyst at 40 lb./ac.,  $C_2$  = Catalyst at 80 lb./ac.,  $C_3$  = Ferrous sulphate at 14 lb./ac.,  $C_4$  = Ferrous sulphate at 28 lb./ac. and  $C_5$  = Potassium Permanganate at 14 lb./ac.

(2) 2 levels of F.Y.M. :  $F_0$  = 0, and  $F_1$  = 2 tons/ac.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) and (b) 24' 3" × 12'. (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1952-N.A. (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1061 lb./ac. (ii) 380.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$C_0$	$C_1$	$C_2$	$C_3$	$C_4$	$C_5$	Mean
$F_0$	1310	835	1207	1014	777	1271	1068
$F_1$	1066	873	783	1310	918	1374	1054
Mean	1188	854	995	1162	847	1322	1061

S.E. of F marginal mean = 89.6 lb./ac.  
 S.E. of C marginal mean = 155.2 lb./ac.  
 S.E. of body of table = 219.5 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 54(7).

Site :- Govt. Agri. Exptl. Farm, Sriganaganagar.

Type :- 'M'.

Object :- To find out the effect of different doses of nitrogenous and phosphatic fertilizers on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 1.11.1954. (iv) (a) to (e) N.A. (v) Nil (vi) C-591. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 26.4.1955.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 levels of N from two sources :  $N_0$  = 0,  $N_1$  = 20 lb./ac. of N as A/S,  $N_2$  = 40 lb./ac. of N as A/S,  $N_3$  = 20 lb./ac. of N as Urea and  $N_4$  = 40 lb./ac. of N as Urea.

(2) 5 levels of  $P_2O_5$  from two sources :  $P_0$  = 0,  $P_1$  = 25 lb./ac. of  $P_2O_5$  as Super,  $P_2$  = 40 lb./ac. of  $P_2O_5$  as Super,  $P_3$  = 25 lb./ac. of  $P_2O_5$  as B.M. and  $P_4$  = 40 lb./ac. of  $P_2O_5$  as B.M.

Time and method of application N.A.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 25. (b) N.A. (iii) 4. (iv) (a) 22' × 15'. (b) 19' × 12'. (v) 1½' × 1½'. (vi) Yes.

## 4. GENERAL :

(i) Normal. (ii) No. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) (a) Durgapura. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 2139 lb./ac. (ii) 510.4 lb./ac. (iii) Only main effects of N are highly significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>	Mean
P <sub>0</sub>	1632	1907	2263	2106	2375	2057
P <sub>1</sub>	1411	2037	2302	2361	2680	2158
P <sub>2</sub>	1944	1963	2155	2103	2263	2086
P <sub>3</sub>	1239	2123	2748	2650	2712	2294
P <sub>4</sub>	1877	1693	2213	2123	2601	2101
Mean	1621	1945	2336	2267	2526	2139

S.E. of any marginal mean  
S.E. of body of table

= 114.1 lb./ac.  
= 255.2 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 55(27).

Site :- Govt. Agri. Exptl. Farm, Sriganganagar.

Type :- 'M'.

Object :- To study the effect of nitrogenous and phosphatic fertilizers on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 15.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 4.5.1956.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 levels of N from 2 sources : N<sub>0</sub>=0, N<sub>1</sub>=20 lb./ac. of N as A/S, N<sub>2</sub>=40 lb./ac. of N as A/S, N<sub>3</sub>=20 lb./ac. of N as Urea and N<sub>4</sub>=40 lb./ac. of N as Urea.

(2) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=25 and P<sub>2</sub>=40 lb./ac.

Time and method of application N.A.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a) 30' 3" × 24'. (b) 24' 3" × 18'. (v) 3' × 3'. (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 1921 lb./ac. (ii) 150.3 lb./ac. (iii) Main effects of N and interaction N×P are significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>	Mean
P <sub>0</sub>	1663	1812	1795	1911	1899	1816
P <sub>1</sub>	1885	1906	2085	2133	1969	1996
P <sub>2</sub>	1687	1957	2039	2044	2032	1952
Mean	1745	1892	1973	2029	1967	1921

S.E. of N marginal mean	= 43.4 lb./ac.
S.E. of P marginal mean	= 33.6 lb./ac.
S.E. of body of table	= 75.2 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 58(43).

Site :- Govt. Agri. Exptl. Sta., Sriranganganagar.

Type :- 'M'.

Object :- To study the effect of different sources and levels of N in combinations with P and K on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 17.1.1958. (iv) (a) 3 ploughings. (b) Drilling. (c) 32 srs./ac. (d) 9" between rows. (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) C-591. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (ix) 22, 23.4.1959.

2. TREATMENTS :

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

(1) 3 sources of N :  $S_1 = A/S$ ,  $S_2 = A/C$  and  $S_3 = \text{Urea}$ .

(2) 3 levels of N :  $N_0 = 0$ ,  $N_1 = 20$  and  $N_2 = 40$  lb./ac.

(3) 3 levels of  $P_2O_5$  as Super :  $P_0 = 0$ ,  $P_1 = 20$  and  $P_2 = 40$  lb./ac.

3 extra treatments :  $T_1 = 40$  lb./ac. of N as A/S + 40 lb./ac. of  $P_2O_5$  as Super + 20 lb./ac. of  $K_2O$  as Mur. Pot.,  $T_2 = 40$  lb./ac. of N as A/C + 40 lb./ac. of  $P_2O_5$  as Super + 20 lb./ac. of  $K_2O$  as Mur. Pot. and  $T_3 = 40$  lb./ac. of N as Urea + 40 lb./ac. of  $P_2O_5$  as Super + 20 lb./ac. of  $K_2O$  as Mur. Pot.

Time and method of application - N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 12 plots/block ; 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 30'4" x 18'. (b) 26'4" x 16'6". (v) 2' x 9". (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Slight attack of rust and smut. (iii) Yield of grain. (iv) (a) 1958 - N.A. (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

(i) 1444 lb./ac. (ii) 296.9 lb./ac. (iii) Only main effect of N is significant. (iv) Av. yield of grain in lb./ac.

$$T_1 = 1608, \text{ lb./ac. } T_2 = 1694 \text{ lb./ac. and } T_3 = 1675 \text{ lb./ac.}$$

	$N_0$	$N_1$	$N_2$	Mean	$S_1$	$S_2$	$S_3$
$P_0$	902	1669	1617	1396	1393	1257	1538
$P_1$	994	1602	1583	1393	1381	1316	1483
$P_2$	1274	1629	1508	1470	1472	1589	1349
Mean	1057	1633	1569	1420	1415	1387	1457
$S_1$	—	1460	1656	1558			
$S_2$	—	1669	1608	1638			
$S_3$	—	1771	1443	1607			

S.E. of N or P marginal mean	= 99.0 lb./ac.
S.E. of S marginal mean	= 121.2 lb./ac.
S.E. of body of any table or T means	= 171.4 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(68).**

**Site :- Govt. Agri. Exptl. Farm, Sriganaganagar.**

**Type :- 'M'.**

**Object :-**To study the effect of different sources and levels of N in combinations with P and K on the yield of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Sugarcane. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 2.11.1959. (iv) (a) 4 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) C-591. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) 14, 15 and 16.4.1960.

**2. TREATMENTS :**

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

(1) 3 sources of N :  $S_1 = A/S$ ,  $S_2 = A/S/N$  and  $S_3 = Urea$ .

(2) 3 levels of N :  $N_0 = 0$ ,  $N_1 = 20$  and  $N_2 = 40$  lb./ac.

(3) 3 levels of  $P_2O_5$  as Super :  $P_0 = 0$ ,  $P_1 = 20$  and  $P_2 = 40$  lb./ac.

3 extra treatments :  $T_1 = 40$  lb./ac. of N as A/S+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot.  $T_2 = 40$  lb./ac. of N as A/S/N+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot. and  $T_3 = 40$  lb./ac. of N as Urea+40 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot.

Time and method of application—N.A.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 12 plots/block ; 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 30'4"×18'. (b) 26'4"×16'6". (v) 2'×9". (vi) Yes.

**4. GENERAL :**

(i) Normal (ii) No. (iii) Yield of grain. (iv) (a) 1958—contd. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 1856 lb./ac. (ii) 387.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

$T_1 = 1729$  lb./ac,  $T_2 = 2170$  lb./ac. and  $T_3 = 2414$  lb./ac.

	$N_0$	$N_1$	$N_2$	Mean	$S_1$	$S_2$	$S_3$
$P_0$	1665	2143	2414	2074	1978	2312	1932
$P_1$	1537	1899	2066	1834	2101	1729	1671
$P_2$	1180	1692	1853	1575	844	1943	1938
Mean	1461	1911	2111	1828	1641	1955	1847
$S_1$	—	1830	1792	1811			
$S_2$	—	2212	1951	2082			
$S_3$	—	1692	2590	2141			

S.E. of N or P marginal mean = 129.2 lb./ac.

S.E. of S marginal mean = 158.2 lb./ac.

S.E. of body of any table or T mean = 223.8 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(10).**

**Site :- Govt. Agri. Exptl. Farm, Sriganaganagar.**

**Type :- 'M'.**

**Object :-**To study the effect of C/N alone and in combination with Super on the yield of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 13.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 4.5.1956.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as C/N :  $N_0=0$ ,  $N_1=20$  and  $N_2=40$  lb./ac.

(2) 3 levels of  $P_2O_5$  as Super :  $P_0=0$ ,  $P_1=20$  and  $P_2=40$  lb./ac.

Treatments were mixed with soil and applied before sowing.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a)  $30'3'' \times 24'$ . (b)  $24'3'' \times 18'$ . (v)  $3' \times 3'$ . (vi) Yes.

## 4. GENERAL :

(i) and (ii) Good. (iii) Yield of grain. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 2165 lb./ac. (ii) 263.6 lb./ac. (iii) Only main effect of P is highly significant. (iv) Av. yield of grain in lb./ac.

	$N_0$	$N_1$	$N_2$	Mean
$P_0$	1840	2089	2405	2112
$P_1$	2086	2207	2067	2120
$P_2$	2118	2159	2510	2263
Mean	2019	2152	2327	2165

S.E. of N or P marginal mean = 76.2 lb./ac.

S.E. of body of table = 131.8 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 54(25).

Site :- Govt. Agri. Exptl. Farm, Sriganagar.

Type :- 'M'.

Object :- To study the effect of different trace-elements on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 31.10.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 16.4.1955.

## 2. TREATMENTS :

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

(1) 5 trace elements :  $T_1$ =Borax,  $T_2$ =Ferrous sulphate,  $T_3$ =Copper sulphate,  $T_4$ =Manganese sulphate and  $T_5$ =Zinc sulphate.

(2) 3 levels of trace-elements :  $L_1=5$ ,  $L_2=10$  and  $L_3=15$  lb./ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a)  $26' \times 17'$ . (b)  $20' \times 11'$ . (v)  $3' \times 3'$ . (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Kotah. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 978 lb./ac. (ii) 239.2 lb./ac. (iii) 'Control vs. others' only is significant. (iv) Av. yield of grain in lb./ac.

	Control = 1229 lb./ac.				
	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$
$L_1$	1280	1009	712	899	831
$L_2$	797	1119	907	899	1128
$L_3$	1052	967	848	848	1127
Mean	1043	1032	822	882	1029

S.E. of T marginal mean = 80.8 lb./ac.  
S.E. of body of table or control mean = 139.9 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(26).**

**Site :- Govt. Agri. Exptl. Farm, Sriganganagar.**

**Type :- 'M'.**

**Object :-**To study the effect of trace elements on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Sarson*. (c) Nil. (ii) (a) Sandy. (b) N.A. (iii) 13.11.1955. (iv) (a) to (e) N.A. (v) N.A. (vi) C-591 (medium). (vii) Irrigated (viii) Hand hoeing (ix) N.A. (x) 4.5.1956.

**2. TREATMENTS :**

Same as in expt. no. 54(25) on page 39

**3. DESIGN :**

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 20'x11'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954-N.A. (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1605 lb./ac. (ii) 260.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 1764 lb./ac.

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
L <sub>1</sub>	1340	1450	1569	1866	1552
L <sub>2</sub>	1348	1866	1721	1628	1518
L <sub>3</sub>	1577	1543	1441	1721	1713
Mean	1422	1620	1577	1738	1594

S.E. of T marginal mean = 86.9 lb./ac.  
S.E. of body of table or control mean = 150.6 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 56(6).**

**Site :- Govt. Agri. Exptl. Farm, Sriganganagar.**

**Type :- 'M'.**

**Object :-**To study the effect of green manuring with guar on succeeding Wheat crop.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Guar*. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 10.11.1956. (iv) (a) Disc harrowing and beaming. (b) N.A. (c) 40 srs./ac. (d) and (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Irrigated. (viii) to (ix) N.A. (v) 5.5.1957.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 4 timings of burying of *guar* crop: T<sub>0</sub>=0, T<sub>1</sub>=45, T<sub>2</sub>=60 and T<sub>3</sub>=75 days of sowing of *guar* crop.

(2) 4 levels of P<sub>2</sub>O<sub>5</sub> as Super: P<sub>0</sub>=0, P<sub>1</sub>=50, P<sub>2</sub>=100 and P<sub>3</sub>=150 lb./ac.

Time and method of application N.A.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 27'3"×15'. (b) 24'3"×12'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1956. (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1373 lb./ac. (ii) 511.4 lb./ac. (iii) Only main effect of T is significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
T <sub>0</sub>	1072	699	1194	1252	1104
T <sub>1</sub>	1823	1746	1643	610	1455
T <sub>2</sub>	668	1592	1566	1444	1317
T <sub>3</sub>	1669	1823	1566	1412	1617
Mean	1308	1515	1492	1179	

S.E. of P or T marginal mean = 147.6 lb./ac.  
 S.E. of body of table = 295.2 lb./ac.

Crop :- Wheat (Rabi).

Ref :- Rj. 54(30).

Site :- Govt. Agri. Res. Farm, Tabiji.

Type :- 'M'.

Object :- To study the effect of different sources of P with N on the yield of Wheat.

## 1. BASAL CONDITIONS:

(i) (a) to (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 14.11.1954. (iv) (a) to (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) to (x) N.A.

## 2. TREATMENTS :

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

(1) 2 sources of P<sub>2</sub>O<sub>5</sub> : S<sub>1</sub> = B.M. and S<sub>2</sub> = Super.(2) 3 levels of P<sub>2</sub>O<sub>5</sub> : P<sub>1</sub> = 40, P<sub>2</sub> = 60 and P<sub>3</sub> = 80 lb./ac.

All treatments excluding control received 50 lb./ac. of N as A/S. Treatments were sprayed before cultivation.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 33'×19'. (b) 30'×16'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 1170 lb./ac. (ii) 229.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 1199 lb./ac.

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
S <sub>1</sub>	1195	1224	1102	1174
S <sub>2</sub>	1137	1148	1187	1157
Mean	1166	1186	1144	1165

S.E. of P marginal mean	=	81.2 lb./ac.
S.E. of S marginal mean	=	66.4 lb./ac.
S.E. of body of table or control mean	=	114.9 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(31).**

**Site :- Govt. Agri. Res. Farm, Tabiji.**

**Type :- 'M'.**

**Object :-**To study the effect of different levels of N on the yield of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 8.11.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 31.3.1955.

**2. TREATMENTS :**

5 levels of N as A/S :  $N_0=0$ ,  $N_1=20$ ,  $N_2=40$ ,  $N_3=60$  and  $N_4=80$  lb./ac.  
Fertilizers were spayed before cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a)  $33' \times 19'$ . (b)  $30' \times 16'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL:**

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Makrera, (b) Nil. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1333 lb./ac. (ii) 283.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$N_0$	$N_1$	$N_2$	$N_3$	$N_4$
Av. yield	1291	1286	1543	1329	1218

S.E./mean = 115.6 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(18).**

**Site :- Govt. Agri. Res. Farm, Tabiji.**

**Type :- 'M'.**

**Object :-**To study the effect of different levels of N on the yield of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 7.11.1955. (iv) (a) to (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 12.3.1956.

**2. TREATMENTS :**

Same as in expt. no. 54(31) above

**3. DESIGN :**

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a)  $35' \times 18\frac{1}{2}'$ . (b)  $33' \times 16\frac{1}{2}'$ . (v)  $1' \times 1'$ . (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) to and (vii) Nil.

**5. RESULTS :**

(i) 2969 lb./ac. (ii) 327.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.



Treatment	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>
Av. yield	2585	3056	3126	2193	3167

S.E./mean = 133.7 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(47).**

**Site :- Govt. Agri. Res. Farm, Tabiji.**

**Type :- 'M'.**

**Object :-**To study the effect of different levels of N and P on the yield of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.11.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) C-591. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 1.2.1955.

**2. TREATMENTS :**

7 manurial treatments : M<sub>0</sub>=Control, M<sub>1</sub>=50 lb./ac. of N as A/S, M<sub>2</sub>=50 lb./ac. of N as G.M., M<sub>3</sub>=50 lb./ac. of N as compost, M<sub>4</sub>=50 lb./ac. of N as A/S+50 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>5</sub>=50 lb./ac. of N as G.M.+120 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super and M<sub>6</sub>=50 lb./ac. of N as compost+120 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

Fertilizers were sprayed before cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 18'×32'. (b) 16'×30'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 1071 lb./ac. (ii) 146.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.'

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>
Av. yield	1061	1087	977	977	1208	1092	1091

S.E./mean = 73.4 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(11).**

**Site :- Govt. Agri. Res. Farm, Tabiji.**

**Type :- 'M'.**

**Object :-**To study the effect of different catalysts with and without F.Y.M. on the yield of Wheat

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Maize. (c) Green manured. (ii) (a) Sandy loam. (b) N.A. (iii) 10.11.1957. (iv) (a) 5 ploughings. (b) Drilling. (c) 40 srs./ac. (d) 12" between rows. (e) —. (v) Nil. (vi) R.S -31 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 29.3.1958.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 7 chemical treatments : C<sub>0</sub>=No catalyst, C<sub>1</sub>=40 lb./ac. of catalyst, C<sub>2</sub>=80 lb./ac. of catalyst, C<sub>3</sub>=15 lb./ac. of Ferrous Sulphate, C<sub>4</sub>=30 lb./ac. of Ferrous Sulphate, C<sub>5</sub>=10 lb./ac. of KMnO<sub>4</sub> and C<sub>6</sub>=15 lb./ac. of KMnO<sub>4</sub>.

(2) 2 levels of F.Y.M. : F<sub>0</sub>=0, and F<sub>1</sub>=5000 lb./ac.

Chemicals sprayed before cultivation

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 2. (iv) (a) 30' 3"×18'. (b) 24' 3"×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 774 lb./ac. (ii) 280.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	Mean
F <sub>0</sub>	636	999	579	878	649	801	776	760
F <sub>1</sub>	490	782	674	750	941	871	1005	788
Mean	563	891	627	814	795	836	890	774

S.E. of C marginal mean = 140.3 lb./ac.  
 S.E. of F marginal mean = 75.0 lb./ac.  
 S.E. of body of table = 198.4 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(17).**

**Site :- Govt. Agri. Res. Farm, Tabiji.**

**Type :- 'M'.**

Object :—To study the effect of different catalysts with and without F.Y.M. on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 27, 28.11.1958 and 1.12.1958. (iv) (a) 6 ploughings. (b) Drilling. (c) 80 lb./ac. (d) 9" between rows. (e) —. (v) N.A. (vi) R.S. 31—1. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 7.4.1959.

## 2. TREATMENTS :

Same as in expt. no. 57 (11) on page 43

## 3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) Poor. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1913 lb./ac. (ii) 209.6 lb./ac. (iii) Only main effect of C is significant. (iv) Av. yield of grain in lb./ac.

	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	Mean
F <sub>0</sub>	2051	1696	1731	1871	1941	1741	1966	1857
F <sub>1</sub>	1831	1841	1976	1926	2345	1891	1976	1969
Mean	1941	1768	1854	1898	2143	1816	1971	1913

S.E. of C marginal mean = 85.6 lb./ac.  
 S.E. of F marginal mean = 45.7 lb./ac.  
 S.E. of body of table = 121.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 56(MAE).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'M'.**

Object :—Type II—To study the effect of N, P, K and F.Y.M. on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Cotton—*Senji*—Maize—Wheat. (b) Maize. (c) As per treatments. (ii) (a) Sandy. (b) N.A. (iii) 17 to 23.11.1956. (iv) (a) 2 disc-harrowings, cross-wise and one beaming a week before sowing. (b) N.A. (c) 70 lb./ac. (d) 9" to 12" between rows. (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 6.82". (x) 6 to 15.5.1957.

## 2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

- (1) 3 levels of N as A/S :  $N_0=0$ ,  $N_1=20$  and  $N_2=40$  lb./ac.  
 (2) 3 levels of  $P_2O_5$  as Triple Super :  $F_0=0$ ,  $P_1=20$  and  $P_2=40$  lb./ac.  
 (3) 3 levels of  $K_2O$  as Pot. Sal. :  $K_0=0$ ,  $K_1=20$  and  $K_2=40$  lb./ac.  
 (4) 2 levels of F.Y.M. :  $F_0=0$  and  $F_1=5000$  lb./ac.

## 3. DESIGN :

(i)  $3^3 \times 2$  fact. confd. (ii) (a) 9 plots/block ; 6 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b)  $29' \times 15'$ . (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) Crop lodged at the time of harvest. (ii) Yellow and black rust attack. No control measures taken  
 (iii) Grain yield. (iv) (a) 1956—contd. (modified in 1957). (b) and (c) Yes. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1215 lb./ac. (ii) 132.0 lb./ac. (iii) Main effect of N and interactions  $N \times P$ ,  $N \times P \times K$  and  $N \times K \times F$  are highly significant. Main effect of P and interactions  $K \times F$  and  $P \times K \times F$  are significant. (iv) Av. yield of grain in lb./ac.

	$N_0$	$N_1$	$N_2$	$P_0$	$P_1$	$P_2$	$K_0$	$K_1$	$K_2$	Mean
$F_0$	993	1330	1422	1199	1305	1240	1232	1191	1322	1248
$F_1$	993	1200	1354	983	1123	1440	1230	1169	1147	1182
Mean	993	1265	1388	1091	1214	1340	1231	1180	1235	1215
$K_0$	952	1280	1451	1165	1289	1239				
$K_1$	1023	1205	1311	1178	1166	1196				
$K_2$	1005	1310	1391	931	1188	1586				
$P_0$	1000	1237	1037							
$P_1$	1048	1370	1225							
$P_2$	931	1188	1901							

S.E. of marginal mean of N, P or K = 22.0 lb./ac.  
 S.E. of marginal mean of F = 18.0 lb./ac.  
 S.E. of body of  $N \times P$ ,  $N \times K$  or  $P \times K$  table = 38.1 lb./ac.  
 S.E. of body of  $N \times F$ ,  $P \times F$  or  $K \times F$  table = 31.1 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 57(MAE).

Site :- Govt. Agri. Farm, Sriganganagar.

Type :- 'M'.

Object—Type—To study the effect of N, P, K and F.Y.M. on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Cotton—*Senji*—Maize—Wheat. (b) Maize. (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) Oct.—Nov., 1957. (iv) (a) 2 disc-harrowings and 2 beamings. (b) N.A. (c) 70 lb./ac. (d) 9". (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 2.30". (x) April—May, 1958.

## 2. TREATMENTS:

Same as in expt. no. 56(MAE) type II on page 44.

## 3. DESIGN:

(i) 3<sup>3</sup>×2 fact. confd. (ii) (a) 9 plots/block; 6 blocks/replication. (b) N.A. (iii) 1. (iv) (a) N.A. (b) 29'×15'. (v) N.A. (vi) Yes.

## 4. GENERAL:

(i) Normal. (ii) Attack of white ants and rust incidence. Aldrin powder was used with irrigation. (iii) Grain yield. (iv) (a) 1956—contd. (b) and (c) Yes. (v) to (vii) Nil.

## 5. RESULTS:

(i) 1037 lb./ac. (ii) 162.0 lb./ac. (iii) Main effect of N and P alone are highly significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	K <sub>0</sub>	K <sub>1</sub>	K <sub>2</sub>	Mean
F <sub>0</sub>	956	1137	1197	815	1148	1328	1077	1094	1119	1097
F <sub>1</sub>	742	1044	1146	766	958	1208	972	974	986	977
Mean	849	1091	1171	790	1053	1268	1025	1034	1053	1037
K <sub>0</sub>	783	1132	1159	738	1094	1242				
K <sub>1</sub>	938	982	1182	797	1114	1192				
K <sub>2</sub>	827	1160	1171	836	951	1371				
P <sub>0</sub>	673	822	876							
P <sub>1</sub>	892	1148	1119							
P <sub>2</sub>	983	1304	1517							

S.E. of marginal mean of N, P or K = 38.2 lb./ac.  
 S.E. of marginal mean of F = 31.2 lb./ac.  
 S.E. of body of N×P, N×K or P×K table = 66.1 lb./ac.  
 S.E. of body of N×F, P×F or K×F table = 54.0 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 58(MAE).

Site :- Govt. Agri. Farm, Sriganganagar.

Type :- 'M'.

Object :- Type II—To study the effect of N, P, K and F.Y.M. on Wheat.

## 1. BASAL CONDITIONS:

(i) (a) Cotton—*Senji*—Maize—Wheat. (b) Maize. (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 3rd and 4th week of November, 1958. (iv) (a) 4 ploughings and 1 harrowing. (b) N.A. (c) 70 lb./ac. (d) 9' between rows. (e) N.A. (v) Nil. (vi) C-591 (late). (vii) Irrigated. (viii) 2 weedings and 1 hoeing. (ix) 5%. (x) Last week of April, 1959.

## 2. TREATMENTS and 3. DESIGN:

Same as in expt. no. 57(MAE) type II on page 45

## 4. GENERAL:

(i) Satisfactory. (ii) White ant and yellow rust attack. (iii) Grain yield. (iv) (a) 1956—contd. (b) and (c) Yes. (v) to (vii) Nil.

## 5. RESULTS:

(i) 1651 lb./ac. (ii) 269.6 lb./ac. (iii) Main effect of N is highly significant and main effect of P is significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	K <sub>0</sub>	K <sub>1</sub>	K <sub>2</sub>	Mean
F <sub>0</sub>	1325	1720	1884	1489	1522	1918	1736	1588	1605	1643
F <sub>1</sub>	1407	1718	1852	1479	1774	1724	1594	1560	1823	1659
Mean	1366	1719	1868	1484	1648	1821	1665	1574	1714	1651
K <sub>0</sub>	1440	1695	1860	1489	1596	1910				
K <sub>1</sub>	1177	1736	1810	1432	1605	1685				
K <sub>2</sub>	1481	1726	1934	1531	1743	1868				
P <sub>0</sub>	1185	1415	1851							
P <sub>1</sub>	1407	1752	1786							
P <sub>2</sub>	1506	1991	1967							

S.E. of marginal mean of N, P or K = 63.5 lb./ac.  
 S.E. of marginal mean of F = 51.9 lb./ac.  
 S.E. of body of N×P, N×K or P×K table = 110.1 lb./ac.  
 S.E. of body of N×F, P×F or K×F table = 89.9 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(MAE).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'M'.**

**Object :- Type II—To study the effect of N, P, K and F.Y.M. on Wheat.**

**1. BASAL CONDITIONS :**

(i) (a) Cotton—*Senji*—Maize—Wheat. (b) Maize. (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 2nd week of Nov., 1959. (iv) (a) 3 ploughings. (b) N.A. (c) 70 lb./ac. (d) 9" (e) N.A. (v) Nil. (vi) C-591 (late). (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) 2". (x) April-May, 1960.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(MAE) type II on page 45

**4. GENERAL :**

(i) Normal. (ii) White ant attack. No control measures taken. (iii) Grain yield. (iv) (a) 1956—contd. (b) and (c) Yes. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1734 lb./ac. (ii) 220.0 lb./ac. (iii) Main effects of N and P alone are highly significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	K <sub>0</sub>	K <sub>1</sub>	K <sub>2</sub>	Mean
F <sub>0</sub>	1218	1695	1917	1374	1695	1761	1555	1703	1572	1610
F <sub>1</sub>	1492	1827	2253	1758	1833	1980	1907	1769	1895	1857
Mean	1355	1761	2085	1566	1764	1871	1731	1736	1734	1734
K <sub>0</sub>	1275	1761	2156	1580	1703	1910				
K <sub>1</sub>	1374	1777	2057	1580	1769	1859				
K <sub>2</sub>	1416	1745	2042	1538	1820	1844				
P <sub>0</sub>	1103	1687	1909							
P <sub>1</sub>	1465	1703	2123							
P <sub>2</sub>	1498	1893	2222							

S.E. of marginal mean of N, P or K	= 51.9 lb./ac.
S.E. of marginal mean of F	= 42.3 lb./ac.
S.E. of body of N×P, N×K or P×K table	= 89.8 lb./ac.
S.E. of body of N×F, P×F or K×F table	= 73.3 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(MAE).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'M'.**

**Object :-**Type III—To study the effect of continuous manuring of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Cotton—Wheat—Gram. (b) and (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) Oct.-Nov. 1957. (iv) (a) 2 disc-har owings and 2 beamings. (b) N.A. (c) 70 lb./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 2.30". (x) April-May, 1958.

**2. TREATMENTS :**

Treatment	1	2	3	4	5	6	7	8
1st year	M	M	M	M	0	0	0	0
2nd year	M	M	0	0	M	M	0	0
3rd year	M	0	M	0	M	0	M	0

Notation : 0=Control and M=30 lb./ac. of N+30 lb./ac. of P<sub>2</sub>O<sub>5</sub>.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 30'×14.5'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Normal. (ii) Attack of white ant and rust incidence. Aldrin powder was used with irrigation. (iii) Grain yield. (iv) (a) 1957—contd. (1st year). (b) and (c) Yes. (v) to (vii) Nil.

**5. RESULTS :**

(i) 2608 lb./ac. (ii) 337.0 lb./ac. (iii) Treatment differences is not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M	0
Av. yield	2740	2477

S.E./mean = 119.1 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(MAE).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'M'.**

**Object :-**Type III—To study the effect of continuous manuring of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Cotton—Wheat—Gram. (b) Cotton. (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 3rd and 4th week of Nov. 1958. (iv) (a) 4 ploughings and 1 harrowing. (b) N.A. (c) 70 lb./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) C—591 (late). (vii) Irrigated. (viii) 2 weedings and 1 hoeing. (ix) 5". (x) 4th week of April 1959.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(M.A.E.) type III above

**4. GENERAL :**

(i) Normal. (ii) White ant and yellow rust attack. (iii) Grain yield. (iv) (a) 1957—contd. (b) and (c) Yes. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1307 lb./ac. (ii) 229.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	MM	M0	OM	00
Av. yield	1455	1158	1470	1145

S.E./mean = 114.9 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- 59(MAE).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'M'.**

Object :- Type III—To study the effect of continuous manuring of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Cotton—Wheat—Gram. (b) Cotton. (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 2nd week of Nov. 1959. (iv) (a) 3 ploughings. (b) N.A. (c) 70 lb./ac. (d) 9". (e) N.A. (v) N.A. (vi) C-591 (late). (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) 2". (x) April—May 1960.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57 (MAE) type III on page 48

**4. GENERAL :**

(i) Good. (ii) White-ant attack. (iii) Grain yield. (iv) (a) 1957—contd. (b) and (c) Yes. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1688 lb./ac. (ii) 236.6 lb./ac. (iii) "Control vs others" alone is significant. (iv) Av. yield of grain in lb./ac.

Treatment	MMM	MM0	M0M	M00	0MM	0M0	00M	000
Av. yield	1925	1531	1917	1498	2156	1325	1975	1177

S.E./mean = 167.3 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- 57(MAE).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'M'.**

Object :- Type IV—To study the effect of direct and indirect manuring of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Legume—Wheat. (b) and (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 29.11.1957. (iv) (a) 2 disc harrowings and 2 beamings. (b) N.A. (c) 70 lb./ac. (d) 9". (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 2.30". (x) April—May 1958.

**2. TREATMENTS :**

**Main-plot treatments :**

All combinations of (1) and (2)+control ( $L_0P_0$ )

(1) 2 previous legume crops :  $L_1=Moong$  and  $L_2=Urid$ .

(2) 3 levels of  $P_2O_5$  as Triple Super applied to legumes :  $P_0=0$ ,  $P_1=40$  and  $P_2=80$  lb./ac.

**Sub-plot treatments :**

3 levels of N as A/S :  $N_0=0$ ,  $N_1=15$  and  $N_2=30$  lb./ac.

**3. DESIGN :**

(i) Split-plot. (ii) (a) 3 sub-plots/main-plot ; 7 main-plots/replications. (b) N.A. (iii) 3. (iv) (a) N.A. (b)  $29' \times 15'$ . (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Satisfactory (ii) Attack of rust and white ants. Aldrin used with irrigation. (iii) Grain yield. (iv) (a) 1957—contd. (b) and (c) Yes. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1459 lb./ac. (ii) (a) 316.5 lb./ac. (b) 293.8 lb./ac. (iii) "Control vs. others" is highly significant and main effect of N is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub> P <sub>0</sub>	L <sub>1</sub> P <sub>0</sub>	L <sub>1</sub> P <sub>1</sub>	L <sub>1</sub> P <sub>2</sub>	L <sub>2</sub> P <sub>0</sub>	L <sub>2</sub> P <sub>1</sub>	L <sub>2</sub> P <sub>2</sub>	Mean
N <sub>0</sub>	1981	941	1074	1191	1375	1216	1329	1301
N <sub>1</sub>	1815	1174	1427	1496	1402	1335	1508	1451
N <sub>2</sub>	2146	1341	1548	1535	1360	1627	1827	1626
Mean	1981	1152	1350	1407	1379	1393	1550	1459

S.E. of difference of two

1. LP marginal means = 163.3 lb./ac.
2. N marginal means = 90.7 lb./ac.
3. N means at the same level of LP = 239.9 lb./ac.
4. LP means at the same level of N = 255.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- 58(MAE).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'M'.**

Object :- Type IV—To study the effect of direct and indirect manuring of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Legume—Wheat. (b) and (c) As per treatments. (ii) Desert soil. (b) N.A. (iii) 3rd and 4th week of Nov. 1958. (iv) (a) 4 ploughings and 1 harrowing. (b) N.A. (c) 70 lb./ac. (d) 9". (e) N.A. (v) N.A. (vi) C—591 (late). (vii) Irrigated. (viii) 2 weedings and 1 hoeing. (ix) 5". (x) 4th week of April 1959.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(MAE) type IV on page 49

## 4. GENERAL :

(i) Satisfactory. (ii) White ant and yellow rust attack. (iii) Grain yield. (iv) (a) 1957—contd. (b) and (c) Yes. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1109 lb./ac. (ii) (a) 159.4 lb./ac. (b) 127.3 lb./ac. (iii) Main effect of P and N are highly significant. and "control vs. others is" significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub> P <sub>0</sub>	L <sub>1</sub> P <sub>0</sub>	L <sub>1</sub> P <sub>1</sub>	L <sub>1</sub> P <sub>2</sub>	L <sub>2</sub> P <sub>0</sub>	L <sub>2</sub> P <sub>1</sub>	L <sub>2</sub> P <sub>2</sub>	Mean
N <sub>0</sub>	757	691	798	930	765	831	897	810
N <sub>1</sub>	1053	996	1086	1218	1148	1185	1185	1124
N <sub>2</sub>	1177	1201	1358	1588	1333	1448	1636	1392
Mean	996	963	1081	1245	1082	1155	1239	1109

S.E. of difference of two

1. LP marginal means = 75.1 lb./ac.
2. N marginal means = 39.3 lb./ac.
3. N means at the same level of LP = 103.9 lb./ac.
4. LP means at the same level of N = 113.3 lb./ac.



Crop :- Wheat (*Rabi*).

Ref :- Rj. 59(MAE).

Site :- Govt. Agri. Farm, Sriganaganagar.

Type :- 'M'.

Object :-Type IV—To study the effect of direct and indirect manuring of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Legume—Wheat. (b) and (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 2nd week of Nov., 1959. (iv) (a) 3 ploughings. (b) N.A. (c) 70 lb./ac. (d) 9°. (e) N.A. (v) Nil. (vi) C-591 (late). (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) 2°. (x) April—May, 1960.

## 2. TREATMENTS :

Same as in expt. no. 57 (MAE) type IV on page 49

## 3. DESIGN :

(i) Split-plot. (ii) (a) 3 sub-plots/main-plot ; 7 main-plots/replication. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 31'×12'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) Normal. (ii) White ant attack. (iii) Grain yield. (iv) (a) 1957—contd. (b) and (c) Yes. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1314 lb./ac. (ii) (a) 377.7 lb./ac. (b) 255.3 lb./ac. (iii) Main effect of P and N are highly significant. "Control vs. others" is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub> P <sub>0</sub>	L <sub>1</sub> P <sub>0</sub>	L <sub>1</sub> P <sub>1</sub>	L <sub>1</sub> P <sub>2</sub>	L <sub>2</sub> P <sub>0</sub>	L <sub>2</sub> P <sub>1</sub>	L <sub>2</sub> P <sub>2</sub>	Mean
N <sub>0</sub>	1448	913	1424	1070	576	880	1456	1110
N <sub>1</sub>	1473	1218	1168	1341	946	1226	1670	1292
N <sub>2</sub>	2049	1177	1481	1744	1127	1415	1794	1541
Mean	1657	1103	1358	1385	883	1174	1640	1314

S.E. of difference of two

1. LP marginal means = 178.0 lb./ac.
2. N marginal means = 78.8 lb./ac.
3. N means at the same level of LP = 208.4 lb./ac.
4. LP means at the same level of N = 246.3 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 56(MAE).

Site :- Govt. Agri. Farm, Sriganaganagar.

Type :- 'M'.

Object :-Type VI—To study the effect of different sources and levels of P along with their methods of application.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) 17 to 23.11.1956. (iv) (a) 2 disc-harrowings and one beaming. (b) N.A. (c) 70 lb./ac. (d) 9° to 12°. (e) N.A. (v) *Guara* crop ploughed in *situ*. (vi) C-591 (late). (vii) Irrigated. (viii) N.A. (ix) 6.82°. (x) 10 to 15.6.1957.

## 2. TREATMENTS :

All combinations of (1), (2) and (3)+control.

(1) 2 sources of P<sub>2</sub>O<sub>5</sub> : S<sub>1</sub>=Triple Super and S<sub>2</sub>= Ammo. Phos.(2) 2 levels of P<sub>2</sub>O<sub>5</sub> : P<sub>1</sub>=20 and P<sub>2</sub>=40 lb./ac.(3) 3 methods of application : M<sub>1</sub>=Broadcasting, M<sub>2</sub>=2½" below seed and M<sub>3</sub>=Band placement.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/100 ac. (v) N.A. (vi) Yes.

## 4. GENERAL

(i) Crop lodged. (ii) Yellow and black rust attack. No control measures taken. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) (a) Nil. (b) N.A. (vi) Season was not favourable to the crop. (vii) Nil.

## 5. RESULTS :

(i) 1763 lb./ac. (ii) 244.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 1619 lb./ac.

	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	Mean	P <sub>1</sub>	P <sub>2</sub>
S <sub>1</sub>	1923	1692	1685	1767	1785	1749
S <sub>2</sub>	1749	1873	1727	1783	1763	1803
Mean	1836	1782	1706	1775	1774	1776
P <sub>1</sub>	1895	1804	1623			
P <sub>2</sub>	1777	1761	1790			

S.E. of marginal mean of S or P = 57.7 lb./ac.  
 S.E. of marginal mean of M = 70.6 lb./ac.  
 S.E. of body of S × M or P × M table = 99.9 lb./ac.  
 S.E. of body of S × P table = 81.6 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 57(MAE).

Site :- Govt. Agri. Farm, Sriganaganagar.

Type :- 'M'.

Object:—Type VI—To study the effect of different sources and levels of P along with their methods of application.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) Oct.—Nov., 1957. (iv) (a) 2 disc-harrowings and 2 beamings. (b) N.A. (c) 70 lb./ac. (d) 9°. (e) N.A. (v) N.A. (vi) Rj.—31—1 (late). (vii) Irrigated. (viii) N.A. (ix) 2.30°. (x) April—May, 1958.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 56(MAE) type VI on page 51

## 4. GENERAL :

(i) Satisfactory. (ii) Attack of white ants and rust. Aldrin used with irrigation. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) to (vii) Nil.

## 5. RESULTS :

(i) 2402 lb./ac. (ii) 323.5 lb./ac. (iii) Main effect of M alone is significant. (iv) Av. yield of grain in lb./ac.

Control = 2369 lb./ac.

	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	Mean	P <sub>1</sub>	P <sub>2</sub>
S <sub>1</sub>	2175	2486	2251	2304	2219	2389
S <sub>2</sub>	2270	2807	2442	2506	2486	2527
Mean	2222	2646	2347	2405	2353	2458
P <sub>1</sub>	2080	2635	2344			
P <sub>2</sub>	2365	2659	2349			

S.E. of marginal mean of S or P	= 76.3 lb./ac.
S.E. of marginal mean of M	= 93.4 lb./ac.
S.E. of body of S×M or P×M table	= 132.1 lb./ac.
S.E. of body of S×P table	= 107.8 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(MAE).**

**Site :- Govt. Agri. Farm, Sriganagar.**

**Type :- 'M'.**

Object:—Type VI—To study the effect of different sources and levels of P along with their methods of application.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) 3rd and 4th week of Nov., 1958. (iv) (a) 4 ploughing and 1 harrowing (b) N.A. (c) 70 lb./ac. (d) 9". (e) N.A. (v) N.A. (vi) C—591 (late). (vii) Irrigated. (viii) 2 weedings and 1 hoeing. (ix) 5". (x) 4th week of April, 1959.

**2. TREATMENTS :**

Same as in expt. no 56(MAE) type VI on page 51

**3. DESIGN :**

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 30'×14.5'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Satisfactory. (ii) White ant and yellow rust attack. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) to (vii) N.A.

**5. RESULTS :**

(i) 1792 lb./ac. (ii) 187.3 lb./ac. (iii) Main effect of S alone is significant. (iv) Av. yield of grain in lb./ac.

Control = 1592 lb./ac.

	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	Mean	P <sub>1</sub>	P <sub>2</sub>
S <sub>1</sub>	1728	1712	1777	1739	1720	1758
S <sub>2</sub>	1967	1802	1868	1879	1944	1814
Mean	1848	1757	1822	1809	1832	1786
P <sub>1</sub>	1958	1712	1827			
P <sub>2</sub>	1738	1802	1817			

S.E. of marginal mean of S or P	= 44.1 lb./ac.
S.E. of marginal mean of M	= 54.1 lb./ac.
S.E. of body of S×M or P×M table	= 76.5 lb./ac.
S.E. of body of S×P table	= 62.4 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(MAE).**

**Site :- Govt. Agri. Farm, Sriganagar.**

**Type :- 'M'.**

Object:—Type VI—To study the effect of different sources and levels of P along with their methods of application.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) 2nd week of Nov., 1959. (iv) (a) 3 ploughings. (b) N.A. (c) 70 lb./ac. (d) 9". (e) N.A. (v) N.A. (vi) C—591 (late). (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) 2". (x) April—May, 1960.

## 2. TREATMENTS :

Same as in expt. no. 56(MAE) type VI on page 51.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 30'×14'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) White ant attack. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) to (vii) Nil.

## 5. RESULTS :

(i) 2284 lb./ac. (ii) 185.0 lb./ac. (iii) Interaction  $S \times P \times M$  and 'control vs. others' are highly significant. Main effect of P is significant. (iv) Av. yield of grain in lb./ac.

Control = 1794 lb./ac.

	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	Mean	P <sub>1</sub>	P <sub>2</sub>
S <sub>1</sub>	2362	2255	2230	2282	2205	2359
S <sub>2</sub>	2288	2485	2329	2367	2303	2431
Mean	2325	2370	2279	2325	2254	2395
P <sub>1</sub>	2213	2320	2230			
P <sub>2</sub>	2437	2420	2328			

S.E. of marginal mean of S or P = 43.6 lb./ac.  
 S.E. of marginal mean of M = 53.4 lb./ac.  
 S.E. of body of  $S \times M$  or  $P \times M$  table = 75.5 lb./ac.  
 S.E. of body of  $S \times P$  table = 61.7 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Site :- Govt. Agri. Farm, Kotah.**

**Type :- 'M'.**

Object :- Type I (a) — To study the effect of P and different sources and levels of N on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Medium black soil. (b) N.A. (iii) 3, 4.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) C—591. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 20.4.1956.

## 2. TREATMENTS :

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

(1) 3 levels of N : N<sub>0</sub>=0, N<sub>1</sub>=20 and N<sub>2</sub>=40 lb./ac.

(2) 3 sources of N : S<sub>1</sub>=A/S, S<sub>2</sub>=A/N and S<sub>3</sub>=Urea.

(3) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=20 and P<sub>2</sub>=40 lb./ac.

Extra treatments : T<sub>1</sub>=60 lb./ac. of N+40 lb./ac. of P<sub>2</sub>O<sub>5</sub>, T<sub>2</sub>=40 lb./ac. of N+80 lb./ac. of P<sub>2</sub>O<sub>5</sub> and T<sub>3</sub>=60 lb./ac. of N+80 lb./ac. of P<sub>2</sub>O<sub>5</sub>.

N in extra treatments applied as A/S.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 12 plots/block ; 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 36'×20'. (b) 28'×15.5'. (v) N.A. (vi) Yes

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1953—1955. (b) No. (c) N.A. (v) to (vii) Nil.

## 5. RESULTS :

(i) 2225 lb./ac. (ii) 322.1 lb./ac. (iii) Main effect of P and interactions  $N \times P$  and  $N \times S$  are highly significant. (iv) Av. yield of grain in lb./ac.

$T_1 = 2568$  lb./ac,  $T_2 = 2639$  lb./ac., and  $T_3 = 2430$  lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>
N <sub>0</sub>	2049	1684	2087	1940	—	—	—
N <sub>1</sub>	2243	1845	2216	2101	2360	1953	1990
N <sub>2</sub>	2199	2483	2254	2312	2443	2043	2450
Mean	2164	2004	2186	2118	2402	1998	2220
S <sub>1</sub>	2153	2174	2460	2262			
S <sub>2</sub>	2103	1851	2010	1988			
S <sub>3</sub>	2236	1987	2088	2104			

S.E. of any marginal mean = 107.4 lb./ac.  
 S.E. of body of any table = 186.0 lb./ac.  
 S.E. of S marginal mean in S × N table = 131.5 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Site :- Govt. Agri. Farm, Kotah.**

**Type :- 'M'.**

Object :- Type II—To study the effect of time of application of N on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Medium black soil. (b) N.A. (iii) 2, 3.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) C—591. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 16.4.1956.

**2. TREATMENTS :**

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

(1) 3 sources of 20 lb./ac. of N : S<sub>1</sub>=A/S, S<sub>2</sub>=A/N and S<sub>3</sub>=Urea.

(2) 2 times of application : T<sub>1</sub>=At sowing (1.11.1955) and T<sub>2</sub>=With 1st irrigation (26.11.1955).

**3. DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 36' × 30'. (b) 28' × 26'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Crop lodged. (ii) Nil. (iii) Grain yield. (iv) (a) 1953—1955. (b) No. (c) N.A. (v) (a) and (b) N.A. (vi) Crop damaged by rats. (vii) Nil.

**5. RESULTS :**

(i) 2346 lb /ac. (ii) 280.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 2214 lb./ac.

	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	Mean
T <sub>1</sub>	2383	2454	2390	2409
T <sub>2</sub>	2286	2325	2369	2327
Mean	2334	2390	2379	2368

S.E. of marginal mean of S = 99.1 lb./ac.  
 S.E. of marginal mean of T = 80.9 lb./ac.  
 S.E. of body of table or control mean = 140.2 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 55(TCM).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'M'.**

Object :—Type IV—To study the effect of sources, levels and methods of application of P on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Medium black soil. (b) N.A. (iii) 9, 10, 11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) C—591. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 25 to 29.4.1956.

**2. TREATMENTS :**

All combinations of (1), (2) and (3)+3 control plots

(1) 3 sources of  $P_2O_5$  :  $S_1$ =Ammono. Phos.,  $S_2$ =Dical. Phos. and  $S_3$ =Super.(2) 2 levels of  $P_2O_5$  :  $P_1$ =20 and  $P_2$ =40 lb./ac.(3) 3 methods of application :  $M_1$ =Broadcast,  $M_2$ =Band placement and  $M_3$ =2½" below seed.**3. DESIGN :**(i)  $3^2 \times 2 + 3$  control plots. (ii) (a) 7 plots/block, 3 blocks/replication with one control plot in each block. (b) N.A. (iii) 4. (iv) (a) 25' x 25'. (b) 20.75' x 21'. (v) N.A. (vi) Yes.**4. GENERAL :**(i) Crop lodged. (ii) Nil. (iii) Grain yield. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) and (vi) N.A. (vii)  $M \times S$  table and corresponding S.E. are unadjusted.**5. RESULTS :**

(i) 2007 lb./ac. (ii) 272.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 1991 lb./ac.

	$M_1$	$M_2$	$M_3$	Mean	$P_1$	$P_2$
$S_1$	2116	2047	1900	2021	2055	1987
$S_2$	1998	2129	2010	2046	2066	2026
$S_3$	1942	2052	1892	1962	2023	1900
Mean	2019	2076	1934	2010	2048	1971
$P_1$	2106	2049	1989			
$P_2$	1932	2103	1879			

S.E. of marginal means of M or S

= 55.5 lb./ac.

S.E. of marginal mean of P

= 45.3 lb./ac.

S.E. of body of  $M \times S$  table

= 111.0 lb./ac.

S.E. of body of  $M \times P$  or  $S \times P$  table

= 78.5 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 55(TCM).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'M'.**

Object :—Type X—To study the effect of N on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Medium black soil. (b) N.A. (iii) 16.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) C—591. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 4.5.1956.

**2. TREATMENTS :**

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

(1) 3 sources of N :  $S_1$ =A/S,  $S_2$ =A/S/N and  $S_3$ =A/C.(2) 3 levels of N :  $N_1$ =20,  $N_2$ =40 and  $N_3$ =60 lb./ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 32'×28'. (b) 28'×24'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) No lodging. (ii) Nil. (iii) Grain yield. (iv) (a) 1953—1955. (b) No. (c) Yes. (v) (a) and (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 1523 lb./ac. (ii) 216.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 1410 lb./ac.				
	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean
S <sub>1</sub>	1318	1679	1644	1547
S <sub>2</sub>	1469	1525	1656	1550
S <sub>3</sub>	1446	1662	1425	1511
Mean	1411	1622	1575	1536

S.E. of any marginal mean = 62.4 lb./ac.

S.E. of body of table or control mean = 108.1 lb./ac.

**Crop :- Wheat.**

**Ref :- Rj. 55(TCM)**

**Centre :- Pisanganj (c.f.).**

**Type :- 'M'.**

Object :—Type I (i) :—To study the effect of different sources and levels of N on Wheat

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize. (c) Heavily manured with F.Y.M. (ii) Sandy loam. (iii) and (iv) N.A. (v) (a) to (e) N.A. (vi) November, 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS :

0 = Control.

n<sub>1</sub> = 20 lb./ac. of N as A/S.

n<sub>2</sub> = 40 lb./ac. of N as A/S.

n<sub>1</sub>' = 20 lb./ac. of N as Urea.

n<sub>2</sub>' = 40 lb./ac. of N as Urea.

## 3. DESIGN :

(i) R.B.D. with 5 plots/replication. (ii) For the layout of the experiments in each block, villages were selected at random and a list was prepared of the cultivators growing wheat in each selected village. From this list two cultivators were selected at random and one field each belonging to the selected cultivators was taken and in each selected field an unreplicated trial was laid out. (iii) (a) and (b) N.A. (iv) Yes.

## 4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) to (e) No. (v) to (vii) Nil.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '
Av. yield	889	1126	1275	1159	1289

G.M. = 1148 lb./ac. ; S.E. = 27.8 lb./ac. and no. of trials = 34.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Pisanganj (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and yellow soils. (iii) to (v) N.A. (vi) November, 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) March, 1955.

## 2. TREATMENTS :

0 =Control.  
 $n_1$  =20 lb./ac. of N as A/S.  
 $n_2$  =40 lb./ac. of N as A/S.  
 $n_1'$  =20 lb./ac. of N as Nitrochalk.  
 $n_2''$  =40 lb./ac. of N as Nitrochalk.

## 3. DESIGN :

(i) R.B.D. with plots/trial. (ii) For the layout of the experiments in each block, villages were selected at random and a list of cultivators growing wheat in each selected village was prepared. From this list two cultivators were selected at random and one field each belonging to the selected cultivators was taken and in each selected field an unreplicated trial was laid out. (iii) (a) and (b) N.A. (iv) Yes.

## 4. GENERAL :

(i) Normal. (ii) No. (iii) Grain yield. (iv) (a) 1953—1955. (b) and (c) N.A. (v) Others centre—N.A. (vi) N.A. (vii) Nil.

## 5. RESULTS :

Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2''$
Av. yield	979	1185	1382	1078	1218

G.M. = 1168 lb./ac., S.E. = 56.0 lb./ac., no. of trials = 19.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Pisanganj (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize. (c) Heavily manured with F.Y.M. (ii) Sandy soil. (iii) to (v) N.A. (vi) November, 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type I(ii) conducted at Pisanganj on page 57

## 5. RESULTS :

Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2''$
Av. yield	872	1053	1168	1111	1094

G.M. = 1060 lb./ac. ; S.E. = 62.7 lb /ac. and no. of trials = 8.

**Crop :- Wheat.**

**Ref :- Rj. 55(TCM).**

**Centre :- Pisanganj (c.f.).**

**Type :- 'M'.**

Object :—Type II (i)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (ii) Maize. (c) Heavily manured with F.Y.M. (ii) Sandy loam. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.



## 2. TREATMENTS :

- 0 = Control.  
 p = 20 lb./ac. of  $P_2O_5$  as Super.  
 $n_1p$  = 20 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of N as A/S.  
 $n_2p$  = 20 lb./ac. of  $P_2O_5$  as Super+40 lb./ac. of N as A/S.  
 $n_1'p$  = 20 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of N as Urea.  
 $n_2'p$  = 20 lb./ac. of  $P_2O_5$  as Super+40 lb./ac. of N as Urea.

## 3. DESIGN :

(i) R.B.D. with 6 plots/trial. (ii) For layout of the experiments in each block, villages were selected at random and a list was prepared of the cultivators growing wheat crop in each selected village. From this list two cultivators were selected at random and one field each belonging to the selected cultivators was taken and in each selected field an unreplicated trial was laid out. (iii) (a) and (b) N.A. (iv) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

Treatment	0	p	$n_1p$	$n_2p$	$n_1'p$	$n_2'p$
Av. yield	880	996	1119	1267	1201	1308

G.M. = 1128 lb./ac. ; S.E. = 32.9 lb./ac. and no. of trials = 33.

**Crop :- Wheat.**

**Ref :- Rj. 54(TCM).**

**Centre :- Pisanganj (c.f.).**

**Type :- 'M'.**

Object :—Type II (ii)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and yellow soils. (iii) to (v) N.A. (vi) Nov., 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) March, 1955.

## 2. TREATMENTS :

- 0 = Control.  
 $p_1$  = 20 lb./ac. of  $P_2O_5$  as Super.  
 $n_1p_1$  = 20 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super.  
 $n_2p_1$  = 40 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super.  
 $n_1'p_1$  = 20 lb./ac. of N as Nitro. chalk+20 lb./ac. of  $P_2O_5$  as Super.  
 $n_2'p_1$  = 40 lb./ac. of N as Nitro. chalk+20 lb./ac. of  $P_2O_5$  as Super.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 55(TCM) type (ii) (i) conducted at Pisanganj on page 58.

## 5. RESULTS :

Treatment	0	$p_1$	$n_1p_1$	$n_2p_1$	$n_1'p_1$	$n_2'p_1$
Av. yield	1005	1105	1158	1382	1183	1202

G.M. = 1172 lb./ac. ; S.E. = 78.7 lb./ac. and no. of trials = 19.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Pisanganj (c.f.).**

**Type :- 'M'.**

Object :—Type III (ii)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam soil. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS :

- 0 = Control.  
 $n_1$  = 20 lb./ac. of N as A/S.  
 $n_1p_1$  = 20 lb./ac. of N as A/S + 20 lb./ac. of  $P_2O_5$  as Super.  
 $n_1p_2$  = 20 lb./ac. of N as A/S + 40 lb./ac. of  $P_2O_5$  as Super.  
 $n_1p_1^*$  = 20 lb./ac. of N as A/S + 20 lb./ac. of  $P_2O_5$  as Dical. Phos.  
 $n_1p_2^*$  = 20 lb./ac. of N as A/S + 40 lb./ac. of  $P_2O_5$  as Dical. Phos.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 55(TCM) type II (i) conducted at Pisanganj on page 58

## 5. RESULTS :

Treatment	0	$n_1$	$n_1p_1$	$n_1p_2$	$n_1p_1^*$	$n_1p_2^*$
Av. yield	815	946	1129	1211	1182	1188

G.M. = 1078 lb./ac, S.E. = 62.0 lb./ac. and no. of trials = 7.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Pisanganj (c.f.).**

**Type :- 'M'.**

Object :- Type IV—To study the effect of N, P and K on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and yellow soil. (iii) to (v) N.A. (vi) Nov., 1954, (vii) Irrigated. (viii) and (ix) N.A. (x) March, 1955.

## 2. TREATMENTS :

- 0 = Control.  
 $n_1$  = 20 lb./ac. of N as A/S.  
 $n_1p_1$  = 20 lb./ac. of N as A/S + 20 lb./ac. of  $P_2O_5$  as Super.  
 $n_1p_1k_1$  = 20 lb./ac. of N as A/S + 20 lb./ac. of  $P_2O_5$  as Super + 20 lb./ac. of  $K_2O$  as Pot. Sul.  
 $n_1p_1k_2$  = 20 lb./ac. of N as A/S + 20 lb./ac. of  $P_2O_5$  as Super + 40 lb./ac. of  $K_2O$  as Pot. Sul.

## 3. DESIGN :

(i) R.B.D. with 6 p'ots/trial. (ii) For layout of the experiments in each block, villages were selected at random and a list was prepared of the cultivators growing wheat crop in each selected village. From this list two cultivators were selected at random and one field each belonging to the selected cultivators was taken and in each selected field an unreplicated trial was laid out. (iii) (a) and (b) N.A. (iv) Yes.

## 4. GENERAL :

(i) Normal. (ii) No. (iii) Grain yield. (iv) (a) 1953—1955. (b) and (c) N.A. (v) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

Treatment	0	$n_1$	$n_1p_1$	$n_1p_2$	$n_1p_1k_1$	$n_1p_1k_2$
Av. yield	966	1081	1070	1150	1128	1182

G.M. = 1096 lb./ac., S.E. = 44.1 lb./ac. and no. of trials = 11.

**Crop :- Wheat :- (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Pisanganj (c.f.).**

**Type :- 'M'.**

Object :- Type IV—To study the effect of N, P and K on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize. (c) Heavily manured with F.Y.M. (ii) Sandy loam. (iii) to (v) N.A. (vi) Nov. 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type IV conducted at Pisanganj on page 60.

## 5. RESULTS :

Treatment	0	n	np <sub>1</sub>	np <sub>2</sub>	np <sub>1</sub> k <sub>1</sub>	np <sub>1</sub> k <sub>2</sub>
Av. yield	823	987	1020	1070	1111	1185

G.M. = 1033 lb./ac., S.E. = 43.6 lb./ac. and no. of trials = 12.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Raisingnagar (c.f.)**

**Type :- 'M'.**

Object :—Type I (i)—To study the effect of different sources and levels of N on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(TCM) type I (i) conducted at Pisanganj on page 57.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '
Av. yield	1440	1613	1761	1662	1819

G.M. = 1659 lb./ac., S.E. = 45.3 lb./ac. and no. of trials = 15.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Raisingnagar.**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type I (ii) conducted at Pisanganj on page 57.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> "	n <sub>2</sub> "
Av. yield	1412	1661	1918	1557	1637

G.M. = 1637 lb./ac., S.E. = 68.1 lb./ac. and no. of trials = 18.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Raisingnagar (c.f.)**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type I (ii) conducted at Pisanganj on page 57

## 5. RESULTS :

Treatment	0	$n_1$	$n_2$	$n_1''$	$n_2''$
Av. yield	1424	1695	1893	1687	1753

G.M. = 1690 lb./ac., S.E. = 60.9 lb./ac. and no. of trials = 14.

**Crop :- Wheat.**

**Ref :- Rj. 55(TCM)**

**Centre :- Raisingnagar (c.f.)**

**Type :- 'M'.**

Object :—Type II (i)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(TCM) type II (i) conducted at Pisanganj on page 58.

## 5. RESULTS :

Treatment	0	$P_1$	$n_1P_1$	$n_2P_1$	$n_1P_1'$	$n_2P_1'$
Av. yield	1605	1868	2000	2181	2049	2049

G.M. = 1959 lb./ac., S.E. = 64.2 lb./ac. and no. of trials = 15.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Raisingnagar (c.f.).**

**Type :- 'M'.**

Object :—Type II (ii)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy soils. (iii) to (v) N.A. (vi) Nov., 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type II (ii) conducted at Pisanganj on page 59.

## 5. RESULTS :

Treatment	0	$P_1$	$n_1P_1$	$n_2P_1$	$n_1''P_1$	$n_2''P_1$
Av. yield	1604	1990	1986	2259	1910	1977

G.M. = 1954 lb./ac. ; S.E. = 84.6 lb./ac. and no. of trials = 21.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Raisingnagar (c.f.).**

**Type :- 'M'.**

Object :—Type III (ii)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(TCM) type III (ii) conducted at Pisanganj on page 59.

## 5. RESULTS :

Treatment	0	$n_1$	$n_1P_1$	$n_1P_2$	$n_1P_1'$	$n_1P_2'$
Av. yield	1620	1957	2138	2109	2015	2034

G.M. = 1979 lb./ac., S.E. = 98.7 lb./ac. and no. of trials = 9.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Raisingnagar (c.f.).**

**Type :- 'M'.**

Object :—Type III (iii)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS :

0 =Control.

$n_1$  =20 lb./ac. of N as A/S.

$n_1P_1$  =20 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super.

$n_1P_2$  =20 lb./ac. of N as A/S+40 lb./ac. of  $P_2O_5$  as Super.

$n_1P_1'$  =20 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Bonemeal.

$n_1P_2'$  =20 lb./ac. of N as A/S+40 lb./ac. of  $P_2O_5$  as Bonemeal.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 55(TCM) type II (i) conducted at Pisanganj on page 58.

## 5. RESULTS:

Treatment	0	$n_1$	$n_1P_1$	$n_1P_2$	$n_1P_1'$	$n_1P_2'$
Av. yield	1350	1558	1753	1943	1731	1762

G.M. = 1684 lb./ac. ; S.E. = 65.2 lb./ac. and no. of trials = 13

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Raisingnagar (c.f.).**

**Type :- 'M'.**

Object :—Type III A—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov. 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1955.

## 2. TREATMENTS :

0 =Control.

$n_1$  =20 lb./ac. of N as A/S.

$n_1P_1$  =20 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super.

$n_1P_2$  =20 lb./ac. of N as A/S+40 lb./ac. of  $P_2O_5$  as Super.

## 3. DESIGN :

(i) R.B.D. with 4 plots/trial. (ii) For layout of the experiments in each block, villages were selected at random and a list was prepared of the cultivators growing wheat crop in each selected village. From this list two cultivators were selected at random and one field each belonging to the selected cultivators was taken and in each selected field an unreplicated trial was laid out. (iii) (a) and (b) N.A. (iv) Yes.

## 4. GENERAL :

(i) Normal. (ii) Nil. (iii) Grain yield. (iv) and (v) No. (vi) and (vii) Nil.

## 5. RESULTS :

Treatment	0	$n_1$	$n_1p_1$	$n_1p_2$
Av. yield	1425	1952	2056	2228

G.M. = 1915 lb./ac. ; S.E. = 92.2 lb./ac. and no. of trials = 8.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Raisingnagar (c.f.).**

**Type :- 'M'.**

Object :—Type IV—To study the effect of N, P and K on Wheat.

## 1. BASAL CONDITIONS

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) November, 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type IV conducted at Pisanganj on page 60.

## 5. RESULTS :

Treatment	0	$n_1$	$n_1p_1$	$n_1p_2$	$n_1p_1k_1$	$n_1p_1k_2$
Av. yield	1563	1714	1977	2045	2101	2163

G.M. = 1927 lb./ac. ; S.E. = 97.1 lb./ac. no. and of trials = 18.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Raisingnagar (c.f.).**

**Type :- 'M'.**

Object :—Type IV—To study the effect of N, P and K on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) November, 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type IV conducted at Pisanganj on page 60.

## 5. RESULTS :

Treatment	0	$n_1$	$n_1p_1$	$n_1p_2$	$n_1p_1k_1$	$n_1p_1k_2$
Ay. yield	1094	1210	1341	1391	1473	1448

G.M. = 1326 lb./ac. ; S.E. = 65.0 lb./ac. and no. of trials = 11.

**Crop :- Wheat.**

**Ref :- 55(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object :—Type I (i)—To study the effect of different sources and levels of N on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(TCM) type I (i) conducted at Pisanganj on page 57.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '
Av. yield	617	831	897	798	806

G.M. = 790 lb./ac. ; S.E. = 42.0 lb./ac. and no. of trials = 13.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object :-Type I (ii) To study the effect of different sources and levels of N on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type I (ii) conducted at Pisanganj on page 57.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> ''	n <sub>2</sub> ''
Av. yield	940	988	1159	995	986

G.M. = 1014 lb./ac. ; S.E. = 44.4 lb./ac. and no. of trials = 14.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object :-Type I (ii)—To study the effect of different sources and levels of N on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type I (ii) conducted at Pisanganj on page 57.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> ''	n <sub>2</sub> ''
Av. yield	576	724	741	773	790

G.M. = 721 lb./ac., S.E. = 58.6 lb./ac. and no. of trials = 4.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object :-Type II (i)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1956.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(TCM) type II (i) conducted at Pisanganj on page 58.

## 5. RESULTS :

Treatment	0	$p_1$	$n_1p_1$	$n_2p_1$	$n_1'p_1$	$n_2'p_1$
Av. yield	601	749	996	1119	864	1012

G.M. = 890 lb./ac., S.E. = 55.1 lb./ac. and no. of trials = 9.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object :—Type II (ii)—To study the effects of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) March, 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt no. 54(TCM) type II (ii) conducted at Pisanganj on page 59.

## 5. RESULTS :

Treatment	0	$p_1$	$n_1p_1$	$n_2p_1$	$n_1''p_1$	$n_2''p_1$
Av. yield	837	897	983	1057	1039	1065

G.M. = 980 lb./ac., S.E. = 38.7 lb./ac. and no. of trials = 21.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object :—Type III (ii)—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) March, 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(TCM) type III (ii) conducted at Pisanganj on page 59.

## 5. RESULTS :

Treatments	0	$n_1$	$n_1p_1$	$n_1p_2$	$n_1p_1''$	$n_1p_2''$
Av. yield	937	986	1085	1103	1067	1107

G.M. = 1048 lb./ac., S.E. = 36.2 lb./ac. and no. of trials = 18.

**Crop :- Wheat (Rabi).**

**Ref :- 55(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object—Type III (ii) :—To study the effect of N and P on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov. 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April 1956.



## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55 (TCM) type III (ii) conducted at Raisinganagar on page 68.

## 5. RESULTS :

Treatment	0	$n_1$	$n_1P_1$	$n_1P_2$	$n_1P_1'$	$n_1P_2'$
Av. yield	1004	1201	1234	1382	1185	1284

G.M. = 1215 lb./ac. ; S.E. = 97.9 lb./ac. and no. of trials = 3.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 54(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object—Type IV :—To study the effect of N, P and K on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov., 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) March, 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type IV conducted at Pisanganj on page 60.

## 5. RESULTS :

Treatment	0	$n_1$	$n_1P_1$	$n_1P_2$	$n_1P_1K_1$	$n_1P_1K_2$
Av. yield	864	1005	1057	1333	1084	1243

G.M. = 1013 lb./ac. ; S.E. = 41.1 lb./ac. and no. of trials = 17.

**Crop :- Wheat (Rabi).**

**Ref :- 55(TCM).**

**Centre :- Sumerpur (c.f.).**

**Type :- 'M'.**

Object—Type IV :—To study the effect of N, P and K on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) to (v) N.A. (vi) Nov. 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) April 1955.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(TCM) type IV conducted at Pisanganj on page 60.

## 5. RESULTS :

Treatment	0	$n_1$	$n_1P_1$	$n_1P_2$	$n_1P_1K_1$	$n_1P_1K_2$
Av. yield	913	1185	1210	1333	1275	1284

G.M. = 1200 lb./ac. ; S.E. = 34.6 lb./ac. and no. of trials = 9.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(37).**

**Centre :- Bilara (c.f.).**

**Type :- 'M'.**

Object :—To study the effect of gypsum on alkaline soil and Wheat yield.

## 1 BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) Saline alkaline. (iii) 6 lb./ac. of compost. (iv) N.P. 718 (improved, medium to late). (v) (a) N.A. (b) Broadcasting. (c) 40 srs./ac. (d) and (e) N.A. (vi) 5 10.1957. (vii) Irrigated. (viii) and (ix) N.A. (x) 20.3.1958.

## 2. TREATMENTS :

$M_0$ =Control,  $M_1$ =10 tons/ac. of F.Y.M. in May,  $M_2$ =10 tons/ac. of F.Y.M. in October,  $M_3$ =2 tons/ac. of gypsum+10 tons/ac. of F.Y.M.,  $M_4$ =4 tons/ac. of gypsum+10 of F.Y.M.,  $M_5$ =6 tons/ac. of gypsum+10 tons/ac. of F.Y.M.,  $M_6$ =20 lb./ac. of N as A/S+30 lb./ac. of  $P_2O_5$  as Super applied in October,  $M_7$ = $M_6$ +4 tons/ac. of gypsum+10 tons/ac. of F.Y.M.,  $M_8$ = $M_6$ +4 tons/ac. of gypsum and  $M_9$ =4 tons/ac. of gypsum.

N, P and F.Y.M. applied before sowing.

## 3. DESIGN :

(i) R.B.D. with 3 replications and 10 plots/replication. (ii) N.A. (iii) (a) 30'3"×24'. (b) 24'3"×18'. (iv) Yes.

## 4. GENERAL :

(i) Fair. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 1156 lb./ac. (ii) 614.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	$M_7$	$M_8$	$M_9$
Av. yield	1155	813	1514	701	1266	1540	791	1488	1163	1129

S.E./mean = 354.6 lb./ac.

**Crop :- Wheat (Rabi).**

**Centre :- Banswara (c.f.).**

**Ref :- Rj. 57(SFT).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1957. (vii) to (ix) N.A. (x) April, 1958.

## 2. TREATMENTS :

0 =Control (no manure).  
 n =20 lb./ac. of N as A/S.  
 p =20 lb./ac. of  $P_2O_5$  as Super.  
 np =20 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super.  
 k =20 lb./ac. of  $K_2O$  as Mur. of Pot.  
 nk =20 lb./ac. of N as A/S+20 lb./ac. of  $K_2O$  as Mur. of Pot.  
 pk =20 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. of Pot.  
 npk =20 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. of Pot.

## 3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been 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 a kharif cereal, 8 on a rabi cereal, 8 on cash crops, 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 above 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) N.A. (b) 1/80 ac. (iv) Yes.

## 4. GENERAL :

(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) 1957—contd. (b) and (c) N.A. (v) As per design. (vi) and (vii) Nil.

## 5. RESULTS :

Effect	n	p	k	S.E.	np	rk	pk	nPK	S.E.
Av. response in lb./ac.	41	41	-41	29.6	25	16	16	-33	29.6

No. of trials = 15.

**Crop :- Wheat.**

**Ref :- Rj. 58(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1958. (vii) As per results. (viii) and (ix) N.A. (x) April 1959.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type A on page 68 conducted at Banswara.

## 5. RESULTS :

Effect	Irrigated								
	n	p	k	S.E.	np	nk	pk	nPK	S.E.
Av. response in lb./ac.	99	49	-33	79.0	-66	-16	16	66	43.6

Control mean = 8.39 lb./ac. and no. of trials = 8.

Effect	Unirrigated								
	n	p	k	S.E.	np	nk	pk	nPK	S.E.
Av. response in lb./ac.	74	-8	-16	18.9	16	33	107	33	17.3

Control mean = 8.39 lb./ac. and no. of trials = 6.

**Crop :- Wheat.**

**Ref :- Rj. 59(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1959. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type A on page 68 conducted at Banswara.

## 5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	nPK	S.E.
Av. response in lb./ac.	156	49	33	22.2	-25	0	25	16	32.9

Control mean = 7.57 lb./ac. and no. of trials = 11.

**Crop :- Wheat (Rabi).****Ref :- Rj. 57(SFT).****Centre :- Kotah (c.f.).****Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1957. (vii) to (ix) N.A. (x) April, 1958.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 57(SFT) type A on page 68 conducted at Banswara.

**5. RESULTS :**

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	140	58	58	24.7	66	49	16	33	24.7

No. of trials = 11.

**Crop :- Wheat****Ref :- Rj. 58(SFT).****Centre :- Kotah (c.f.).****Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1958. (vii) Irrigated. (viii) and (ix) N.A. (x) April 1959.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 57(SFT) type A on page 68 conducted at Banswara.

**5. RESULTS :**

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	156	123	91	36.2	0	33	99	49	29.6

Control mean = 790 lb./ac. and no. of trials = 10.

**Crop :- Wheat.****Ref :- Rj. 59(SFT).****Centre :- Kotah (c.f.).****Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1959. (vii) As per result. (viii) and (ix) N.A. (x) April, 1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt no. 57(SFT) type A on page 68 conducted at Banswara.

**5. RESULTS :**

Effect	Irrigated								S.E.
	n	p	k	S.E.	np	nk	pk	npk	
Av. response in lb./ac.	156	115	66	46.9	16	25	25	33	29.6

Control mean = 831 lb./ac. and no. of trials = 6.

## Unirrigated

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	58	91	49	12.3	49	-33	16	-8	13.2

Control mean = 296 lb./ac. and no. of trials = 5.

**Crop :- Wheat.**

**Ref :- Rj. 59(SFT).**

**Centre :- Pali (c.f.).**

**Type :- 'M'.**

Object :-Type A—To study the response of Wheat to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1959. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type A on page 68 conducted at Banswara.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	181	156	115	48.5	16	-8	41	107	40.3

Control mean = 1160 lb./ac. and no. of trials = 12.

**Crop :- Wheat.**

**Ref :- Rj. 58(SFT).**

**Centre :- Sriganganagar (c.f.).**

**Type :- 'M'.**

Object :-Type A—To study the response of Wheat to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1958. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type A on page 68 conducted at Banswara.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	280	140	74	28.0	0	-49	-16	-8	26.3

Control mean = 1086 lb./ac. and no. of trials = 6.

**Crop :- Wheat.**

**Ref :- Rj. 59(SFT).**

**Centre :- Sriganganagar (c.f.).**

**Type :- 'M'.**

Object :-Type A—To study the response of Wheat to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) Oct.—Nov. 1959. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type A on page 68 conducted at Banswara.

## 5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	304	197	66	29.6	82	-25	33	16	23.9

Control mean = 1210 lb./ac. and no. of trials = 14.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) Oct. 1957. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1958.

## 2. TREATMENTS :

0 = Control.  
 $n_1'$  = 20 lb./ac. of N as Urea.  
 $n_2'$  = 40 lb./ac. of N as Urea.  
 $n_1''$  = 20 lb./ac. of N as A/S/N.  
 $n_2''$  = 40 lb./ac. of N as A/S/N.  
 $n_1'''$  = 20 lb./ac. of N as C/A/N.  
 $n_2'''$  = 40 lb./ac. of N as C/A/N.

## 3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogenous zones and one field assistant has been 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 a *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 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 applications are studied on type C trials in two out of the four zones in each district every year. The above 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) N.A. (b) 1/80 ac. (iv) Yes.

## 4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1957—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) Nil.

## 5. RESULTS :

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	1029	1045	1308	1168	1243	1086	1843

G.M. = 1246 lb./ac. ; S.E. = 71.0 lb./ac. and no. of trials = 13.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) Oct.—Nov. 1958. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1959.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type B on page 72 conducted at Banswara.

## 5. RESULTS :

Treatment	0	n <sub>1</sub> '	n <sub>2</sub> '	n <sub>1</sub> ''	n <sub>2</sub> ''	n <sub>1</sub> '''	n <sub>2</sub> '''
Av. yield	708	749	930	806	864	749	856

G.M. = 809 lb./ac. ; S.E. = 127.4 lb./ac. and no. of trials = 7.

**Crop :- Wheat.**

**Ref :- Rj. 59(SFT).**

**Centre :- Banswara (c.f.)**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black. (iii) Nil. (iv) and (v) N.A. (vi) Oct.—Nov. 1959. (vii) As per results. (viii) and (ix) N.A. (x) April, 1960.

## 2. TREATMENTS :

0 = Control (no manure).  
 n<sub>1</sub> = 20 lb./ac. of N as A/S.  
 n<sub>2</sub> = 40 lb./ac. of N as A/S.  
 n<sub>1</sub>' = 20 lb./ac. of N as Urea.  
 n<sub>2</sub>' = 40 lb./ac. of N as Urea.  
 n<sub>1</sub>'' = 20 lb./ac. of N as C/A/N.  
 n<sub>2</sub>'' = 40 lb./ac. of N as C/A/N.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 57(SFT) type B on page 72 conducted at Banswara.

## 5. RESULTS :

Treatment	Irrigated						
	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '	n <sub>1</sub> '''	n <sub>2</sub> '''
Av. yield	724	897	1037	1037	1078	971	938

G.M. = 955 lb./ac. ; S.E. = 26.8 lb./ac. and no. of trials = 9.

Treatment	Unirrigated						
	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '	n <sub>1</sub> '''	n <sub>2</sub> '''
Av. yield	444	461	576	510	617	420	535

G.M. = 509 lb./ac. ; S.E. = N.A. and no. of trials = 3.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(SFT).**

**Centre :- Kotah.**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black. (iii) Nil. (iv) and (v) N.A. (vi) Oct. 1957. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1958.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type B on page 72 conducted at Banswara

## 5. RESULTS :

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	625	716	749	773	897	699	757

G.M. = 745 lb./ac. ; S.E. = 27.3 lb./ac. and no. of trials = 13.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(SFT).**

**Centre :- Kotah (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1958. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1959.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type B on page 72 conducted at Banswara.

## 5 RESULTS :

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av yield	724	880	938	963	1029	880	946

G.M. = 909 lb./ac. ; S.E. = 127.4 lb./ac. and no. of trials = 7.

**Crop :- Wheat.**

**Ref :- Rj. 59(SFT).**

**Centre :- Kotah (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black. (iii) Nil. (iv) and (v) N.A. (vi) October—November 1959. (vii) As per results. (viii) and (ix) N.A. (x) April, 1960.

## 2. TREATMENTS :

0 = Control (no manure).  
 $n_1$  = 20 lb /ac. of N as A/S.  
 $n_2$  = 40 lb./ac. of N as A/S.  
 $n_1'$  = 20 lb./ac. of N as Urea.  
 $n_2'$  = 40 lb./ac. of N as Urea.  
 $n_1''$  = 20 lb./ac. of N as A/S/N.  
 $n_2''$  = 40 lb./ac. of N as A/S/N.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 57(SFT) type B on page 72 conducted at Banswara.

## 6. RESULTS :

		Irrigated					
Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2'$	$n_1''$	$n_2''$
Av. yield	617	749	839	658	691	708	839

G.M. = 729 lb./ac., S.E. = 17.5 lb./ac. and no. of trials = 5.

		Unirrigated					
Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2'$	$n_1''$	$n_2''$
Av. yield	387	444	477	436	461	485	485

G.M. = 454 lb./ac., S.E. = — and no. of trials = 5.



**Crop :- Wheat.****Ref :- Rj. 59(SFT).****Centre :- Pali (c.f.).****Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (iv) N.A. (vi) October—November, 1959. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1960.

**2. TREATMENTS :**

0 = Control (no manure).  
 $n_1$  = 20 lb./ac. of N as A/S.  
 $n_2$  = 40 lb./ac. of N as A/S.  
 $n_1'$  = 20 lb./ac. of N as Urea.  
 $n_2'$  = 40 lb./ac. of N as Urea.  
 $n_1''$  = 20 lb./ac. of N as A/S/N.  
 $n_2''$  = 40 lb./ac. of N as A/S/N.  
 $n_1'''$  = 20 lb./ac. of N as C/A/N.  
 $n_2'''$  = 40 lb./ac. of N as C/A/N.

**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 57(SFT) type B on page 72 conducted at Banswara.

**5. RESULTS :**

Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2'$	$n_1'''$	$n_2'''$
Av. yield	1037	1218	1284	1267	1382	1300	1531

G.M. = 1288 lb./ac.; S.E. = — and no. of trials = 3.

Treatment	0	$n_1$	$n_2$	$n_1''$	$n_2''$	$n_1''$	$n_2''$
Av. yield	1489	1679	1670	1868	1786	1909	1876

G.M. = 1754 lb./ac., S.E. = 79.1 lb./ac. and no. of trials = 4.

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	765	1226	1358	1078	1358	1201	1539

G.M. = 1218 lb./ac., S.E. = — lb./ac. and no. of trials = 3.

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(SFT).****Centre :- Sriganganagar (c.f.).****Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (iv) N.A. (vi) October—November, 1958. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1959.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 57(SFT) type B on page 72 conducted at Banswara.

**5. RESULTS :**

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	1152	1275	1407	1399	1547	1506	1654

G.M. = 1420 lb./ac., S.E. = 32.0 lb./ac. and no. of trials = 8.

**Crop :- Wheat.****Ref :- Rj. 59(SFT).****Centre :- Sriganganagar (c.f.).****Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October—November 1959. (vii) Irrigated. (viii) and (ix) N.A. (x) April, 1960

## 2. TREATMENTS :

0 = Control (no manure).  
 $n_1$  = 20 lb./ac. of N as A/S.  
 $n_2$  = 40 lb./ac. of N as A/S.  
 $n_1'$  = 20 lb./ac. of N as Urea.  
 $n_2'$  = 40 lb./ac. of N as Urea.  
 $n_1'''$  = 20 lb./ac. of N as C/A/N.  
 $n_2'''$  = 40 lb./ac. of N as C/A/N.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 57(SFT) type B on page 72 conducted at Banswara.

## 5. RESULTS :

Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2'$	$n_1'''$	$n_2'''$
Av. yield	1201	1440	1728	1366	1531	1531	1802

G.M. = 1514 lb./ac., S.E. = 29.7 lb./ac. and no. of trials = 12.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(46).**

**Site :- S.K.N. Agri. College, Jobner.**

**Type :- 'MV'.**

Object :—Response of different varieties of Wheat to different levels of N.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Fallow. (c) Nil. (ii) (a) Sandy. (b) Refer soil analysis, Jobner. (iii) 23.11.1958. (iv) (a) 10 ploughings. (b) Behind the plough. (c) 1 md./ac. (d) Row to row 1'. (e) N.A. (v) 100 mds./ac. of F.Y.M.+100 lb./ac. of Super. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding. (ix) 0.8". (x) 1st week of April, 1959.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties:  $V_1$ =R S.—31-1 and  $V_2$ =C—591.

(2) 6 levels of N:  $N_0$ =0,  $N_1$ =20,  $N_2$ =40,  $N_3$ =60,  $N_4$ =80 and  $N_5$ =100 lb./ac.

Source, time and method of application N.A.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A (b) 1/80 ac. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958—1959. (b) Yes. (c) Nil. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2082 lb./ac. (ii) 285.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

	$N_0$	$N_1$	$N_2$	$N_3$	$N_4$	$N_5$	Mean
$V_1$	1958	2279	2412	2235	2235	2191	2218
$V_2$	1812	1896	2156	2006	1900	1905	1946
Mean	1885	2088	2284	2120	2068	2048	2082

S.E. of V marginal mean = 58.3 lb./ac.  
 S.E. of N marginal mean = 101.0 lb./ac.  
 S.E. of body of table = 142.8 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(72).**

**Site :- S.K.N. Agri. College, Jobner.**

**Type 'MV'.**

Object :- To study the response of different varieties of Wheat to different levels of N.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Guar* (G.M.). (c) No. (ii) (a) Sandy. (b) Refer soil analysis, Jobner. (iii) 4.11.1959. (iv) (a) 10 ploughings. (b) Behind the plough. (c) 40 srs./ac. (d) 12" between rows. (e) N.A. (v) N.A. (vi) As per treatment. (vii) Irrigated. (viii) 1 weeding. (ix) 0.90". (x) 1st week of April, 1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(46) on page 76.

**5. RESULTS :**

(i) 2371 lb./ac. (ii) 338.6 lb./ac. (iii) Main effects of N and V are significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>	N <sub>5</sub>	Mean
V <sub>1</sub>	2024	2606	2936	2681	2487	2174	2485
V <sub>2</sub>	2037	2249	2588	2412	2240	2019	2257
Mean	2030	2428	2762	2546	2364	2096	2371

S.E. of V marginal mean = 69.1 lb./ac.  
 S.E. of N marginal mean = 119.7 lb./ac.  
 S.E. of body of the table = 169.3 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref:- Rj. 55(TCM).**

**Site :- Govt. Agri. Farm, Kotah.**

**Type :- 'MV'.**

Object -Type VIII:—To study the effect of N and P on different varieties on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Medium black soil. (b) N.A. (iii) 17.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 1.5.1956.

**2. TREATMENTS :**

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

(1) 3 varieties : V<sub>1</sub> = *Malvi* (local), V<sub>2</sub> = Rj.—31—1 and V<sub>3</sub> = C—591.

(2) 3 levels of N : N<sub>0</sub> = 0, N<sub>1</sub> = 20 and N<sub>2</sub> = 40 lb./ac.

(3) 3 levels of P<sub>2</sub>O<sub>5</sub> : P<sub>0</sub> = 0, P<sub>1</sub> = 20 and P<sub>2</sub> = 40 lb./ac.

**3. DESIGN :**

(i) 3<sup>3</sup> Fact confd. (ii) (a) 9 plots/block ; 3 blocks/replications. (b) N.A. (iii) 1. (iv) (a) 45' × 20'. (b) 37' × 18'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(ii) Crop lodged. (ii) Nil. (iii) Grain yield. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1257 lb./ac. (ii) 298.5 lb./ac. (iii) Main effect of V is highly significant and main effect of N is significant (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>
V <sub>1</sub>	298	599	411	436	512	458	338
V <sub>2</sub>	1399	1768	2052	1740	1722	1595	1903
V <sub>3</sub>	994	1744	2048	1595	1702	1241	1842
Mean	897	1370	1504	1257	1312	1098	1361
P <sub>0</sub>	968	1572	1397				
P <sub>1</sub>	719	1153	1421				
P <sub>2</sub>	1004	1385	1694				

S.E. of any marginal mean = 99.5 lb./ac.  
S.E. of body of any table = 172.4 lb./ac.

**Crop :- Wheat (Rabi)**

**Ref : Rj. 58(47).**

**Site :- Soil Cons. Res. Demons. & Trg. Centre Kotah.**

**Type :- 'C'.**

**Object :-** To find out the optimum seed rate and row to row spacing of unirrigated Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 16 to 18.10.1958. (iv) (a) 2 ploughings and 3 *bakherings* (b) Behind the plough. (c) and (d) As per treatments. (e) N.A. (v) Nil. (vi) *Malvi*. (vii) Unirrigated. (viii) 2 weedings. (ix) and (x) N.A.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 3 seed rates : R<sub>1</sub>=33, R<sub>2</sub>=66 and R<sub>3</sub>=99 lb./ac.

(2) 3 row spacing : S<sub>1</sub>=8", S<sub>2</sub>=12" and S<sub>3</sub>=16".

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 41'3"×33'. (v) 3'4" around. (vi) Yes.

**4. GENERAL :**

(i) Poor growth. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958—contd. (b) Yes. (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 469 lb./ac. (ii) 70.9 lb./ac. (iii) No effect is significant. (iv) Av. yield of grain in lb./ac.

	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	Mean
S <sub>1</sub>	513	472	479	488
S <sub>2</sub>	450	499	431	460
S <sub>3</sub>	489	458	434	460
Mean	484	476	448	469

S.E. of any marginal mean = 16.7 lb./ac.  
S.E. of body of table = 28.9 lb./ac.

**Crop :- Wheat (Rabi)**

**Ref :- Rj. 59(87).**

**Site :- Soil Cons. Res. Demons. & Trg. Centre Kotah.**

**Type :- 'C'.**

**Object :-** To find out the optimum seed rate and row to row spacing of unirrigated Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 28.10.1959. (iv) (a) 2 ploughings and 3 *bakherings*. (b) Behind the plough. (c) and (d) As per treatments. (e) N.A. (v) Nil. (vi) *Malvi* (vii) Unirrigated. (viii) 2 weedings. (ix) and (x) N.A.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(47) on page 78.

## 5. RESULTS :

(i) 123 lb./ac. (ii) 40.8 lb./ac. (iii) Only S effect is significant. (iv) Av. yield of grain in lb./ac.

	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	Mean
S <sub>1</sub>	129	85	91	102
S <sub>2</sub>	103	141	115	120
S <sub>3</sub>	154	154	129	146
Mean	129	127	112	123

S.E. of any marginal mean = 9.6 lb./ac.

S.E. of body of table = 16.7 lb./ac.

**Crop :- Wheat (Rabi)**

**Ref :- Rj. 58(49)**

**Site :- Soil Cons. Res. Demons. & Trg. Centre Kotah.**

**Type :- 'C'**

**Object :-** To find out the best sowing date of Wheat under dry farming conditions.

## 1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) (a) Clay. (b) N.A. (iii) As per treatments. (iv) (a) 1 ploughing and 4 *bakherings*. (b) Behind the plough. (c) 20 lb./ac. (d) Row to row : 9" to 12". (e) N.A. (v) Nil. (vi) *Malvi*. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 30.3.1959.

## 2. TREATMENTS :

4 dates of sowing : S<sub>1</sub>=8.10.1958, S<sub>2</sub>=20.10.1958, S<sub>3</sub>=1.11.1958 and S<sub>4</sub>=13.11.1958.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 41'3" x 33'. (v) 3'4" around. (vi) Yes.

## 4. GENERAL :

(i) F:ir. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958--contd. (b) Yes. (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 317.5 lb./ac. (ii) 47.13 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>
Av. yield	287	326	356	301

S.E./mean = 19.2 lb./ac.

**Crop :- Wheat (Rabi)**

**Ref :- Rj. 59(89)**

**Site :- Soil Cons. Res. Demons. & Trg. Centre Kotah.**

**Type :- 'C'**

**Object :-** To find out the best sowing date of Wheat under dry farming conditions.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Clay. (b) N.A. (ii) As per treatments. (iv) (a) 1 ploughing and 4 *bakhering*. (b) Behind the plough. (c) 20 srs./ac. (d) Row to row: 9" to 12". (e) N.A. (v) Nil. (vi) *Malvi*. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 22.3.1960.

## 2. TREATMENTS :

4 dates of sowing :  $S_1=8.10.1959$ ,  $S_2=20.10.1959$ ,  $S_3=1.11.1959$  and  $13.11.1959$ .

## 3. DESIGN and 4. GENERAL :

Same as n expt. no. 58(49) on page 79.

## 5. RESULTS :

(i) 130 lb./ac. (ii) 64.6 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb. ac.

Treatment	$S_1$	$S_2$	$S_3$	$S_4$
Av. yield	0	110	263	148

S.E./mean = 26.4 lb./ac.

**Crop :- Wheat (*Rabi*).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Ref :- Rj. 59(77).**

**Type :- 'C'.**

Object :—To find out the optimum seed rate for Wheat.

## 1. BASAL CONDITION :

(i) (a) Nil. (b) N.A. (c) 20 lb./ac. of N+20 lb./ac. of  $P_2O_5$  (ii) (a) and (b) N.A. (iii) November, 1959. (iv) (a) 4 ploughings. (b) N.A. (c) As per treatments. (d) Row to row 9". (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) April, 1959.

## 2. TREATMENTS :

8 seed rates :  $S_1=25$ ,  $S_2=30$ ,  $S_3=35$ ,  $S_4=40$ ,  $S_5=45$ ,  $S_6=50$ ,  $S_7=55$  and  $S_8=60$  srs./ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) 30'×18'. (b) 28'×15' (v) 1'×1½'. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 1894 lb./ac. (ii) 256.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$S_1$	$S_2$	$S_3$	$S_4$	$S_5$	$S_6$	$S_7$	$S_8$
Av. yiled	2128	1947	1935	1893	1911	1902	1747	1693

S.E./mean = 104.6 lb./ac.

**Crop :- Wheat (*Rabi*).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Ref :- Rj. 59(86).**

**Type :- 'C'.**

Object :—To find out the optimum seed rate for Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize. (c) 40 lb./ac. of N+40 lb./ac. of  $P_2O_5$ . (ii) (a) and (b) N.A. (iii) Nov., 1959. (iv) (a) 4 ploughings. (b) N.A. (c) As per treatments. (d) Row to row 9". (e) N.A. (v) N.A. (vi) N.P.—718. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) March, 1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(77) on page 80

## 5. RESULTS :

(i) 2210 lb./ac. (ii) 240.6 lb./ac. (iii) The treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	S <sub>6</sub>	S <sub>7</sub>	S <sub>8</sub>
Av. yield	2142	2194	2282	2299	2230	2074	2247	2213

S.E./mean = 93.2 lb./ac.

**Crop :- Wheat.****Ref :- Rj. 55(22).****Site :- Govt. Agri. Res. Farm, Tabiji.****Type :- 'CV'.**

Object:—To study the response of different varieties of Wheat at various seed rates.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 28.11.1955. (iv) (a) 4 ploughings. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) N.A. (x) 19.3.1956.

## 2. TREATMENTS :

All combinations of (1) and (2).

(1) 3 seed rates : S<sub>1</sub>=30, S<sub>2</sub>=40 and S<sub>3</sub>=50 str./ac.(2) 2 varieties : V<sub>1</sub>=C-591 (medium) and V<sub>2</sub>=Desi.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 35'×24'. (b) 33'×22'. (v) 1'×1'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) No. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1862 lb./ac. (ii) 318.8 lb./ac. (iii) None of the effects is highly significant. (iv) Av. yield of grain in lb./ac.

	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	Mean
V <sub>1</sub>	1863	1933	1902	1899
V <sub>2</sub>	1732	1956	1788	1825
Mean	1798	1944	1845	1862

S.E. of V marginal mean = 91.8 lb./ac.

S.E. of S marginal mean = 112.4 lb./ac.

S.E. of body of table = 159.4 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(45).****Site :- S.K.N. Agri. College, Jobner.****Type :- 'CM'.**

Object:—To study the effect of varying seed rates and levels of N on Wheat yield.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) F.Y.M.—amount N.A. (ii) (a) Sandy. (b) N.A. (iii) 17.11.1958. (iv) (a) 10 ploughings. (b) N.A. (c) As per treatments. (d) Row to row 9". (e) N.A. (v) 100 mds./ac. of F.Y.M. (vi) R.S.—31—1. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 31.3.1959.

**2. TREATMENTS :**

All combinations of (1) and (2).

(1) 3 seed rates :  $S_1=30$ ,  $S_2=40$  and  $S_3=50$  srs./ac.

(2) 4 levels of N :  $N_0=0$ ,  $N_1=30$ ,  $N_2=60$  and  $N_3=90$  lb./ac.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 36'×15'. (b) 34'×13'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958—1959. (b) and (c) N.A. (v) to (vii) Nil.

**5. RESULTS :**

(i) 3348 lb./ac. (ii) 349.8 lb./ac. (iii) The effects of N, S and the interaction N×S are significant. (iv) Av. yield of grain in lb./ac.

	$N_0$	$N_1$	$N_2$	$N_3$	Mean
$S_1$	2928	3536	3341	2928	3183
$S_2$	3335	3639	3840	3232	3512
$S_3$	3009	3466	3151	3770	3349
Mean	3091	3547	3444	3310	3348

S.E. of marginal mean of S = 87.4 lb./ac.  
 S.E. of marginal mean of N = 101.0 lb./ac.  
 S.E. of body of the table = 174.9 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(71).**

**Site :- S.K.N. Agri. College, Jobner.**

**Type :- 'CM'.**

**Object :-** To find the effect of varying seedrates and levels of N on the yield of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 31.10.1959. (iv) (a) 10 ploughings. (b) N.A. (c) As per treatments. (d) Row to row 9". (e) N.A. (v) 100 md./ac. of F.Y.M. (vi) RS—31—1. (vii) Irrigated. (viii) 1 weeding. (ix) and (x) N.A.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(45) on page 81

**5. RESULTS :**

(i) 4256 lb./ac. (ii) 369.4 lb./ac. (iii) Only the main effect of N is significant. (iv) Av. yield of grain in lb./ac.

	$N_0$	$N_1$	$N_2$	$N_3$	Mean
$S_1$	3884	4096	4460	3824	4066
$S_2$	3873	4405	4541	4710	4382
$S_3$	3748	4519	4530	4481	4320
Mean	3835	4340	4510	4338	4256



S.E. of marginal mean of S	= 92.3 lb./ac.
S.E. of marginal mean of N	= 106.6 lb./ac.
S.E. of body of the table	= 184.7 lb./ac.

**Crop :- Wheat (Rabi)**

**Ref :- Rj. 56(MAE).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'CM'.**

**Object :-**Type VIII—To study the effect of seed rate, date of sowing and manures on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) Nil. (ii) (a) Desert soil. (b) N.A. (iii)  $D_1=7.11.1956$ ,  $D_2=22.11.1956$  and  $D_3=7.12.1956$ . (iv) (a) 2 disc-harrowings and one beaming. (b) N.A. (c) As per treatments. (d) 12". (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 6.82". (x) 6 to 15.5.1957.

**2. TREATMENTS :**

**Main-plot treatments :**

All combinations of (1) and (2)

(1) 3 seed rates :  $R_1=50$ ,  $R_2=70$  and  $R_3=90$  lb./ac.

(2) 3 dates of sowing :  $D_1=15$  days before normal,  $D_2=Normal$  and  $D_3=15$  days after normal.

**Sub-plot treatments :**

All combinations of (1) and (2)

(1) 3 levels of N as A/s :  $N_0=0$ ,  $N_1=20$  and  $N_2=40$  lb./ac.

(2) 3 levels of  $P_2O_5$  as super :  $P_0=0$ ,  $P_1=20$  and  $P_2=40$  lb./ac.

**3. DESIGN :**

(i) Split-plot. (ii) (a) 9 sub-plots/main-plot ; 9 main-plots/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 1/124.78 ac. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Normal crop lodged. (ii) Yellow and black rust attack. No control measures taken. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) (a) Nil. (b) N.A. (vi) Season was not favourable to the crop. (vii) Nil.

**5. RESULTS :**

(i) 1796 lb./ac. (ii) (a) 405.4 lb./ac. (b) 255.8 lb./ac. (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in lb./ac.

	$D_1$	$D_2$	$D_3$	$P_0$	$P_1$	$P_2$	$N_0$	$N_1$	$N_2$	Mean
$R_1$	2226	1740	1497	1828	1763	1872	1734	1922	1807	1821
$R_2$	2056	1944	1378	1707	1733	1939	1619	1810	1950	1793
$R_3$	2003	1911	1405	1690	1784	1845	1702	1802	1815	1773
Mean	2095	1865	1427	1742	1760	1885	1685	1845	1857	1796
$N_0$	1935	1748	1372	1601	1651	1803				
$N_1$	2218	1847	1470	1831	1797	1907				
$N_2$	2132	2000	1439	1794	1832	1945				
$P_0$	2097	1822	1307							
$P_1$	2065	1863	1352							
$P_2$	2123	1610	1622							

## S.E. of difference of two

1. R or D marginal means	= 78.0 lb./ac.
2. N or P marginal means	= 49.2 lb./ac.
3. N or P means at the same level of R or D	= 85.3 lb./ac.
4. R or D means at the same level of N or P	= 181.1 lb./ac.
S.E. of body of R×D table	= 95.6 lb./ac.
S.E. of body of N×P table	= 60.3 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57 (MAE).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'CM'.**

**Object :- Type VIII :- To study the effect of seed rate, date of sowing and manures on Wheat.**

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii)  $D_1=10.11.1957$ ,  $D_2=26.11.1957$  and  $D_3=12.12.1957$ .  
 (iv) (a) 2 disc-harrowings and 2 beamings. (b) N.A. (c) As per treatments. (d) 9". (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 2.30". (x) April-May, 1958.

## 2. TREATMENTS :

Same as in expt. no. 56(MAE) type VIII on page 75.

## 3. DESIGN :

(i) Split-plot. (ii) (a) 9 sub-plots/main-plot ; 9 main-plots/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 29'×15'. (v) N.A. (vi) Yes.

## 4. GENERAL

(i) Normal. (ii) Attack of white ants and rust incidence. Aldrin used with irrigation. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1614 lb./ac. (ii) (a) 679.9 lb./ac. (b) 274.2 lb./ac. (iii) Main effect of D, N and P are highly significant. (iv) Av. yield of grain in lb./ac

	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean
R <sub>1</sub>	1696	1735	1270	1360	1594	1748	1493	1528	1680	1567
R <sub>2</sub>	1670	1944	1385	1476	1667	1856	1564	1669	1766	1666
R <sub>3</sub>	1733	1836	1260	1462	1561	1806	1558	1574	1697	1610
Mean	1700	1838	1305	1433	1607	1803	1538	1590	1714	1614
N <sub>0</sub>	1659	1728	1228	1372	1523	1720				
N <sub>1</sub>	1668	1829	1274	1410	1558	1803				
N <sub>2</sub>	1772	1958	1413	1516	1741	1886				
P <sub>0</sub>	1628	1612	1058							
P <sub>1</sub>	1605	1913	1304							
P <sub>2</sub>	1867	1990	1552							

## S.E. of difference of two

1. R or D marginal means	= 130.8 lb./ac.
2. N or P marginal means	= 52.8 lb./ac.
3. N or P means at the same level of R or D	= 91.4 lb./ac.
4. R or D means at the same level of N or P	= 260.9 lb./ac.
S.E. of body of R×D table	= 160.3 lb./ac.
S.E. of body of N×P table	= 64.6 lb./ac.

Crop :- Wheat (*Rabi*).

Ref :- Rj. 58(MAE).

Site :- Govt. Agri. Farm, Sriganaganagar.

Type :- 'CM'.

Object :—Type VIII—To study the effect of seed rate, date of sowing and manures on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii)  $D_1=7.11.1958$ ,  $D_2=22.11.1958$  and  $D_3=7.12.1958$ .  
 (iv) (a) 4 ploughings and 1 harrowing. (b) N.A. (c) As per treatments. (d) 9". (e) N.A. (v) N.A. (vi)  
 C—591 (late). (vii) Irrigated. (viii) 2 weedings and 1 hoeing. (ix) 5". (x) 4th week of April, 1959.

## 2. TREATMENTS :

Same as in expt. no. 56(MAE) type VIII on page 75.

## 3. DESIGN :

(i) Split-plot. (ii) (a) 9 sub-plots/main-plot ; 9 main-plots/replication. (b) N.A. (iii) 2. (iv) (a) N.A.  
 (b) 30' x 14.5'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1828 lb./ac. (ii) (a) 872.6 lb./ac. (b) 239.0 lb./ac. (iii) Main effect of D, N and P are highly significant. (iv) \*Av. yield of grain in lb./ac.

	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean
R <sub>1</sub>	2279	1851	1695	1843	1983	2000	1744	1975	2107	1942
R <sub>2</sub>	2337	1629	1432	1712	1868	1817	1629	1786	1982	1799
R <sub>3</sub>	2090	1843	1300	1679	1744	1809	1473	1761	1998	1744
Mean	2235	1774	1476	1745	1865	1875	1615	1841	2029	1828
N <sub>0</sub>	1975	1637	1233	1506	1736	1603				
N <sub>1</sub>	2246	1761	1516	1736	1860	1927				
N <sub>2</sub>	2484	1924	1679	1993	1999	2095				
P <sub>0</sub>	2115	1637	1483							
P <sub>1</sub>	2296	1786	1513							
P <sub>2</sub>	2294	1899	1432							

S.E. of difference of two

- |   |                 |
|---|-----------------|
| 1. R or D marginal means                    | = 167.9 lb./ac. |
| 2. N or P marginal means                    | = 46.0 lb./ac.  |
| 3. N or P means at the same level of R or D | = 79.7 lb./ac.  |
| 4. R or D means at the same level of N or P | = 311.9 lb./ac. |
| S.E. of body of R x D table                 | = 205.7 lb./ac. |
| S.E. of body of N x P table                 | = 56.3 lb./ac.  |

Crop :- Wheat (*Rabi*).

Ref :- Rj. 59(MAE).

Site :- Govt. Agri. Farm, Sriganaganagar.

Type :- 'CM'.

Object :—Type VIII—To study the effect of seed rate, date of sowing and manures on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii)  $D_1=13.11.1959$ ,  $D_2=28.11.1959$  and  $D_3=13.12.1959$ .  
 (iv) (a) 3 ploughings. (b) N.A. (c) As per treatments. (d) 9". (e) N.A. (v) Nil. (vi) C—591 (late).  
 (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) 2". (x) April—May, 1960.

**2. TREATMENTS :**

Same as in expt. 56(MAE) type VIII on page 75.

**3. DESIGN :**

(i) Split-plot. (ii) (a) 9 main-plots/block; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) N.A. (b)  $30' \times 14.5'$ . (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (·) Yes. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1872 lb./ac. (ii) (a) 539.3 lb./ac. (b) 267.7 lb./ac. (iii) Main effect of D and N and interaction  $D \times N$  are highly significant. Main effect of P is significant. (iv) Av. yield of grain in lb./ac.

	$D_1$	$D_2$	$D_3$	$P_0$	$P_1$	$P_2$	$N_0$	$N_1$	$N_2$	Mean
$R_1$	2009	2074	1095	1621	1744	1813	1555	1769	1854	1726
$R_2$	2180	1901	1712	1909	1876	2008	1712	2041	2040	1931
$R_3$	2189	2139	1546	1884	1950	2040	1843	1967	2064	1958
Mean	2126	2038	1451	1805	1857	1954	1703	1926	1986	1872
$N_0$	2123	1827	1159	1687	1720	1703				
$N_1$	2172	2090	1516	1860	1868	2050				
$N_2$	2083	2197	1678	1868	1983	2108				
$P_0$	2074	1942	1399							
$P_1$	2057	2008	1505							
$P_2$	2247	2164	1450							

**S.E. of difference of two**

1. R or D marginal means	= 103.8 lb./ac.
2. N or P marginal means	= 51.5 lb./ac.
3. N or P means at the same level of R or D	= 89.2 lb./ac.
4. R or D means at the same level of N or P	= 219.6 lb./ac.
S.E. of body of $R \times D$ table	= 127.1 lb./ac.
S.E. of body of $N \times P$ table	= 63.1 lb./ac.

**Crop :- Wheat (Rabi).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Ref :- Rj. 59(75).**

**Type :- 'I'.**

**Object :-** To study the bed size in relation to volume of water and frequency of irrigation.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Maize. (c) 40 lb./ac. o N+40 lb./ac. of  $P_2O_5$ . (ii) (a) and (b) N.A. (iii) October, 1959.  
 (iv) (a) 4 ploughings. (b) N.A. (c) 1 md./ac. (d) Row to row 9". (e) N.A. (v) N.A. (vi) R.S.—31—1.  
 (vii) As per treatments. (viii) and (ix) N.A. (x) April, 1960.

## 2. TREATMENTS :

## Main-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of irrigation :  $I_1=1\frac{1}{2}$ ,  $I_2=2$  and  $I_3=2\frac{1}{2}$  ac./inch.(2) 3 bed sizes :  $B_1=4$  strips,  $B_2=4$  sq. plots and  $B_3=As$  whole plots.

## Sub-plot treatments :

3 frequencies of irrigation :  $F_1=4$ ,  $F_2=5$  and  $F_3=6$  irrigations.

## 3. DESIGN :

(i) Split-plot. (ii) (a) 9 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a)  $33' \times 33'$ . (b)  $29\frac{1}{2}' \times 29\frac{1}{2}'$  (v)  $1\frac{3}{4}' \times 1\frac{3}{4}'$ . (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 2066 lb./ac. (ii) (a) 70.1 lb./ac. (b) 160.7 lb./ac. (iii) Main plot treatments are highly significant. I, B, F effects and interaction I  $\times$  F are significant. (iv) Av. yield of grain in lb./ac.

	$I_1$	$I_2$	$I_3$	Mean	$F_1$	$F_2$	$F_3$
$B_1$	2128	2110	2111	2116	1875	2161	2313
$B_2$	1925	2227	1934	2029	1845	2088	2153
$B_3$	1753	2104	2303	2053	1977	2037	2145
Mean	1935	2147	2116	2066	1899	2095	2204
$F_1$	1644	1958	2096				
$F_2$	1914	2196	2176				
$F_3$	2249	2286	2076				

## S.E. of difference of two

- |   |                 |
|---|-----------------|
| 1. Main-plot marginal means                       | = 28.6 lb./ac.  |
| 2. Sub-plot marginal means                        | = 37.9 lb./ac.  |
| 3. Sub-plot means at the same level of main-plot  | = 113.6 lb./ac. |
| 4. Main-plot means at the same level of sub-plots | = 97.1 lb./ac.  |

Crop :- Wheat (*Rabi*).

Ref :- Rj. 56(MAE).

Site :- Govt. Agri. Farm, Sriganganagar.

Type :- 'IM'.

Object :- Type I - To study the effect of frequency and intensity of irrigation along with manures on Wheat.

## 1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) 17 to 23.11.1956. (iv) (a) 2 disc-harrowings and 1 beaming. (b) N.A. (c) 70 lb./ac. (d) 9" to 12" between rows. (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 6.82". (x) 6 to 15.5.1957.

## 2. TREATMENTS :

## Main-plot treatments :

All combinations of (1) and (2)

(1) 3 intensities of irrigation :  $I_1=2"$ ,  $I_2=3"$  and  $I_3=4"$ .(2) 3 frequencies of irrigation :  $F_1=3$ ,  $F_2=4$  and  $F_3=5$  irrigations.

## Sub plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N as A.S :  $N_0=0$ ,  $N_1=30$  and  $N_2=60$  lb./ac.(2) 3 levels of  $P_2O_5$  as Triple Super :  $P_0=0$ ,  $P_1=30$  and  $P_2=60$  lb./ac.

## 3. DESIGN :

(i) Split-plot. (ii) (a) 9 sub-plots/main-plot ; 9 main-plots/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 28'×15.5'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) Normal. (ii) Yellow and black rust attack. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) to (vii) Nil.

## 5. RESULTS :

(i) 2030 lb./ac. (ii) (a) 626.2 lb./ac. (b) 295.9 lb./ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in lb./ac.

	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean
I <sub>1</sub>	1919	2072	1980	1889	2079	2002	1894	2000	2076	1990
I <sub>2</sub>	2101	2023	2055	1898	2171	2111	1996	2143	2041	2060
I <sub>3</sub>	1874	2009	2239	1772	2106	2245	2035	2091	1997	2041
Mean	1965	2035	2091	1853	2119	2119	1975	2078	2038	2030
P <sub>0</sub>	1914	2037	1974	1786	2031	2108				
P <sub>1</sub>	1988	2147	2099	1916	2181	2137				
P <sub>2</sub>	1993	1921	2200	1857	2145	2112				
N <sub>0</sub>	1790	1883	1886							
N <sub>1</sub>	2042	2083	2232							
N <sub>2</sub>	2063	2139	2155							

## S.E. of difference of two

1. I or F marginal means = 120.5 lb./ac.
  2. N or P marginal means = 56.9 lb./ac.
  3. N or P means at the same level of I or F = 98.6 lb./ac.
  4. I or F means at the same level of N or P = 251.1 lb./ac.
- S.E. of body of I×F table = 147.6 lb./ac.  
S.E. of body of N×P table = 69.7 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(MAE).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'IM'.**

Object :-Type I—To study the effect of frequency and intensity of irrigation along with manures on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) Oct.—Nov., 1957. (iv) (a) 2 disc-harrowings and 2 beamings. (b) N.A. (c) 70 lb./ac. (d) 9°. (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 2.30°. (x) April—May, 1958.

## 2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 56(MAE) type I on page 87.

## 4. GENERAL :

(i) Normal. (ii) Attack of white ants and rust incidence. Aldrin powder used with irrigation. (iii) Grain yield. (iv) (a) 1956—contd. (b) No. (c) Yes. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2023 lb./ac. (ii) (a) 203.3 lb./ac. (b) 147.8 lb./ac. (iii) Main effect of F, N and P are highly significant. (iv) Av. yield of grain in lb./ac.

	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean
I <sub>1</sub>	1948	1966	2122	1848	2044	2144	1989	2023	2023	2012
I <sub>2</sub>	2082	2029	2142	1940	2091	2221	1969	2130	2154	2084
I <sub>3</sub>	1815	1902	2204	1812	2007	2104	1866	1978	2077	1974
Mean	1948	1966	2156	1867	2047	2156	1941	2044	2085	2023
P <sub>0</sub>	1850	1886	2088	1763	1990	2071				
P <sub>1</sub>	1974	2005	2152	1877	2089	2166				
P <sub>2</sub>	2021	2006	2228	1961	2062	2232				
N <sub>0</sub>	1804	1832	1964							
N <sub>1</sub>	1960	1945	2237							
N <sub>2</sub>	2082	2120	2267							

## S.E. of difference of two

1. I or F marginal means = 39.1 lb./ac.
  2. N or P marginal means = 28.4 lb./ac.
  3. N or P means at the same level of I or F = 49.3 lb./ac.
  4. I or F means at the same level of N or P = 97.2 lb./ac.
- S.E. of body of I×F table = 47.9 lb./ac.  
S.E. of body of N×P table = 34.8 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58 (MAE).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'IM'.**

Object :—Type I—To study the effect of frequency and intensity of irrigations along with manures on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) 3rd and 4th week of November, 1958. (iv) (a) 4 ploughings and 1 harrowing. (b) N.A. (c) 70 lb./ac. (d) 9" (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) 2 weedings and 1 hoeing. (ix) 5". (x) 4th week of April, 1959.

## 2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

- (1) 3 intensities of irrigation : I<sub>1</sub>=2", I<sub>2</sub>=3" and I<sub>3</sub>=4".
- (2) 3 frequencies of irrigation : F<sub>1</sub>=3, F<sub>2</sub>=4, F<sub>3</sub>=5 irrigations.
- (3) 3 levels of N : N<sub>0</sub>=0, N<sub>1</sub>=30 and N<sub>2</sub>=60 lb./ac.
- (4) 3 levels of P<sub>2</sub>O<sub>5</sub> : P<sub>0</sub>=0, P<sub>1</sub>=30 and P<sub>2</sub>=60 lb./ac.

## 3. DESIGN :

(i) 3<sup>4</sup> fact. confd. (ii) (a) 9 plots/block ; 9 blocks/replications. (b) N.A. (iii) 1. (iv) (a) N.A. (b) 32.25'×13.5'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1956—contd (modified in 1958). (b) No. (c) Yes. (v) to (vii) Nil.

## 5. RESULTS :

(i) 2167 lb./ac. (ii) 202.4 lb./ac. (iii) Main effect of N and P are highly significant. Main effect of I is significant. (iv) Av. yield of grain in lb./ac.

	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean
I <sub>1</sub>	2151	2168	2280	1773	2340	2486	2048	2267	2285	2200
I <sub>2</sub>	2012	2298	2165	1859	2246	2370	2011	2205	2258	2158
I <sub>3</sub>	2072	2132	2228	1875	2183	2374	2019	2137	2276	2144
Mean	2078	2199	2224	1836	2256	2410	2026	2203	2273	2167
P <sub>0</sub>	1911	2066	2100	1722	2114	2242				
P <sub>1</sub>	2116	2218	2275	1826	2329	2454				
P <sub>2</sub>	2208	2314	2298	1960	2325	2534				
N <sub>0</sub>	1802	1852	1853							
N <sub>1</sub>	2166	2307	2295							
N <sub>2</sub>	2267	2433	2525							

S.E. of any marginal mean

= 27.5 lb./ac.

S.E. of body of any table

= 47.7 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59 (MAE).**

**Site :- Govt. Agri. Farm, Srigananagar.**

**Type :- 'IM'.**

Object :- Type I—To study the effect of frequency and intensity of irrigation along with manures on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) 2nd week of November, 1959. (iv) (a) 4 ploughings. (b) N.A. (c) 70 lb./ac. (d) 9". (e) N.A. (v) N.A. (vi) C-591 (late). (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) 2". (x) April-May 1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(MAE), type I on page 89.

## 5. RESULTS :

(i) 1812 lb./ac. (ii) 238.3 lb./ac. (iii) Main effects of F, N and P and interaction I×F are highly significant. (iv) Av. yield of grain in lb./ac.

	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean
I <sub>1</sub>	1588	1679	2131	1627	1791	1979	1492	1942	1963	1799
I <sub>2</sub>	1580	1893	2000	1591	1827	2054	1676	1925	1871	1824
I <sub>3</sub>	1769	1893	1777	1414	1896	2129	1712	1873	1854	1813
Mean	1646	1822	1969	1544	1838	2054	1627	1913	1896	1812
P <sub>0</sub>	1366	1695	1820	1391	1637	1854				
P <sub>1</sub>	1819	1909	2012	1596	1942	2201				
P <sub>2</sub>	1753	1862	2074	1646	1934	2108				
N <sub>0</sub>	1415	1517	1700							
N <sub>1</sub>	1783	1775	1957							
N <sub>2</sub>	1740	2174	2249							



S.E. of any marginal mean = 32.4 lb./ac.  
S.E. of body of any table = 56.2 lb./ac.

**Crop :- Wheat.**

**Ref :- Rj. 55(12).**

**Site :- Govt. Agri. Exptl. Farm, Bassi.**

**Type :- 'D'.**

**Object :-** To study the effect of soaking seed in different strength of solutions of Pot. Phosphate and A/S.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.12.1955. (iv) (a) 4 ploughings. (b) N.A. (c) 70 lb./ac. (d) Row to row 9". (e) N.A. (v) Nil. (vi) C-591 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 16.4.1956.

**2. TREATMENTS :**

29 seed-soakings treatments :  $T_0$ =Control,  $T_1=S_1C_1D_1$ ,  $T_2=S_1C_2D_1$ ,  $T_3=S_1C_3D_1$ ,  $T_4=S_1C_4D_1$ ,  $T_5=S_1C_5D_1$ ,  $T_6=S_1C_1D_2$ ,  $T_7=S_1C_2D_2$ ,  $T_8=S_1C_3D_2$ ,  $T_9=S_1C_4D_2$ ,  $T_{10}=S_1C_5D_2$ ,  $T_{11}=S_2C_1D_1$ ,  $T_{12}=S_2C_2D_1$ ,  $T_{13}=S_2C_3D_1$ ,  $T_{14}=S_2C_4D_1$ ,  $T_{15}=S_2C_5D_1$ ,  $T_{16}=S_2C_1D_2$ ,  $T_{17}=S_2C_2D_2$ ,  $T_{18}=S_2C_3D_2$ ,  $T_{19}=S_2C_4D_2$ ,  $T_{20}=S_2C_5D_2$ ,  $T_{21}=M_1D_1$ ,  $T_{22}=M_2D_1$ ,  $T_{23}=M_3D_1$ ,  $T_{24}=WD_1$ ,  $T_{25}=M_1D_2$ ,  $T_{26}=M_2D_2$ ,  $T_{27}=M_3D_2$  and  $T_{28}=WD_2$ .

$S_1$ =Potassium phos. ;  $S_2$ =A/S,  $C_1=0.25\%$ ,  $C_2=0.5\%$ ,  $C_3=1\%$ ,  $C_4=2.5\%$  and  $C_5=5\%$  ;  $M_1=0.25\%$  of  $S_1$  and  $S_2$ ,  $M_2=0.5\%$  of  $S_1$  and  $S_2$ ,  $M_3=1\%$  of  $S_1$  and  $S_2$ , W=Water only ;  $D_1=6$  and  $D_2=12$  hours duration of seed soaking.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 29. (b) N.A. (iii) 3. (iv) (a) 16'x9'. (b) 12'x5'. (v) 2'x2'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 578 lb./ac. (ii) 198.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$	$T_6$	$T_7$	$T_8$	$T_9$
Av. yield	614	500	500	464	555	450	683	696	637	651
Treatment	$T_{10}$	$T_{11}$	$T_{12}$	$T_{13}$	$T_{14}$	$T_{15}$	$T_{16}$	$T_{17}$	$T_{18}$	$T_{19}$
Av. yield	673	491	573	546	419	482	637	683	582	651
Treatment	$T_{20}$	$T_{21}$	$T_{22}$	$T_{23}$	$T_{24}$	$T_{25}$	$T_{26}$	$T_{27}$	$T_{28}$	
Av. yield	664	601	491	528	469	601	696	582	637	

S.E./mean = 114.3 lb./ac.

**Crop :- Wheat.**

**Ref :- Rj 55(44).**

**Site :- Agri. Govt. and Exptl. Farm, Bassi.**

**Type :- 'D'.**

**Object :-** To study the effect of seed dressing by different chemicals on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Jowar. (c) Nil. (ii) (a) Yellow alluvium. (b) N.A. (iii) 1st week of November, 1955. (iv) (a) to (e) N.A. (v) Nil. (vi) RS-31 (early). (vii) Irrigated. (viii) 3 weedings and hoeings. (ix) N.A. (x) 12.4.1956.

**2. TREATMENTS :**

6 seed treatments :  $T_0$ =Control,  $T_1=4$ ,  $T_2=8$  tolas/md. of Semenon,  $T_3=8$  tolas/md. of Agrosan,  $T_4=9$  and  $T_5=20$  tolas/md. of Spergon.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a)  $25\frac{3}{4}' \times 9'$ . (b)  $22\frac{3}{4}' \times 6'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 1564 lb./ac. (ii) 366 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	1388	1645	1586	1374	1676	1614

S.E./mean = 183 lb./ac.

**Crop :- Wheat.**

**Ref :- Rj. 55(46).**

**Site :- Govt. Agri. and Exptl. Farm, Bassi.**

**Type :- 'D'.**

**Object :-**To study the effect of dusting and spraying sulphur solution on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Yellow alluvium. (b) N.A. (iii) 1st week of November, 1955. (iv) (a) to (e) N.A. (v) Nil. (vi) RS-31 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 26, 29.3.1956.

**2. TREATMENTS :**

4 treatments : T<sub>0</sub>=Control, T<sub>1</sub>=Dusting with sulphur at 25 lb./ac., T<sub>2</sub>=Spraying with colloidal sulphur solution (1 : 100), T<sub>3</sub>=Spraying with ultra sulphur solution.

Sulphur was sprayed on 5.2.1956.

**3. DESIGN :**

(i) R B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a)  $33' \times 21'$ . (b)  $30' \times 18'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Attack of rust—control measures N.A. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1911 lb./ac. (ii) 155.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Av. yield	1756	2005	1971	1913

S.E./mean = 77.6 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 55(47).**

**Site :- Govt. Agri. Exptl. Farm, Durgapur.**

**Type :- 'D'.**

**Object :-**To study the response of seed dressing by different chemicals on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Jowar. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 2nd week of November, 1955. (iv) (a) 4 ploughings. (b) to (e) N.A. (v) Nil. (vi) R.S.—31 (early). (vii) Irrigated. (viii) Nil. (ix) N.A. (z) 25.3.1956.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 55(44) on page 91.

## 5. RESULTS

(i) 1895 lb./ac. (ii) 357.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	1840	1840	2138	1727	1820	1788

S.E./mean = 178.9 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(36).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

Object :—To test the relative efficacy of different seed dressings on yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Guar*. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 7.11.1958. (iv) (a) to (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 31.3.1959.

## 2. TREATMENTS :

10 seed treatments : T<sub>0</sub>=Control, T<sub>1</sub>=Agrosan G N. 10 tolas/md, T<sub>2</sub>=Ceresan G.N. 6 tolas/md., T<sub>3</sub>=Ceresan G.N. 10 tolas/md., T<sub>4</sub>=Lundsan G.N. 6 tolas/md., T<sub>5</sub>=Fernasan G N. 10 tolas/md., T<sub>6</sub>=Harvasan G.N. 6 tolas/md., T<sub>7</sub>=Tillex G.N. 6 tolas./md, T<sub>8</sub>=Copper carbonate G.N. 12 tolas/md, and T<sub>9</sub>=Su phur G.N. 12 tolas/md.

## 3. DESIGN :

(i) R.B.D. (i.) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 15'×9'. (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—contd. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 883 lb./ac. (ii) 335.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	T <sub>7</sub>	T <sub>8</sub>	T <sub>9</sub>
Av. yield	797	905	1142	612	735	684	895	1281	609	1167

S.E./mean = 167.7 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(19).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

Object :—To test the relative efficacy of seed dressing fungicides on yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Guar*. (c) G.M. only. (ii) (a) Sandy loam. (b) N.A. (iii) 11.11.1959. (iv) (a) N.A. (b) Dibbling. (c) N.A. (d) Row to row 9". (e) N.A. (v) N.A. (vi) R.S.—31—1. (vii) Irrigated. (viii) 3 weedings. (ix) and (x) N.A.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(36) above except that the no. of replications is 6.

## 5. RESULTS :

(i) 2388 lb./ac. (ii) 394.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	T <sub>7</sub>	T <sub>8</sub>	T <sub>9</sub>
Av. yield	2339	2413	2228	2316	2581	2423	2292	2497	2413	2373

S.E./mean = 161.2 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(32).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'D'.**

Object :- To find out the effect of different levels of sulphur for the control of rust of Wheat.

**1. BASAL CONDITIONS :**(i) (a) Nil. (b) *Guar*. (c) N.A. (ii) (a) Sandy soil. (b) N.A. (iii) 5.11.1958. (iv) (a) to (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) 1 weeding on 16.12.1958. (ix) and (x) N.A.**2. TREATMENTS :**6 sulphur treatments: T<sub>0</sub>=Control, T<sub>1</sub>=Dusting with sulphur, T<sub>2</sub>=Spraying colloidal sulphur (1 : 25), T<sub>3</sub>=Spraying with ultra sulphur solution (1 lb. in 60 gallons water) T<sub>4</sub>=Spraying with colloidal sulphur (1 : 50) and T<sub>5</sub>=Spraying with colloidal sulphur (1 : 100)**3. DESIGN :**

(i) R B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 24'×18'. (b) 18'×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—N.A. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 1582 lb./ac. (ii) 386.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	1565	1426	1682	1740	1549	1530

S.E./mean = 193.2 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(20).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'D'.**

Object :- To find out the effect of different sulphur treatments of the control of rust of Wheat.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Maize. (c) A/S. Quantity—N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 14.11.1959. (iv) (a) and (b) N.A. (c) 1.25 md./ac. (d) and (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (ix) 15.4.1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(32) above.

**5. RESULTS :**

(i) 1885 lb./ac. (ii) 371.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	E <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	1878	1768	2256	1960	1626	1821

S.E./mean = 185.6 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(31).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'D'.**

Object :- To find out the economic way of controlling weeds in Wheat.

**1. BASAL CONDITIONS**(i) (a) Nil (b) *Guar*. (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 5.11.1958. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 3.4.1959.

## 2. TREATMENTS :

5 treatments :  $T_0$ =Control,  $T_1$ =Local method of weeding,  $T_2$ =1 post emergence application of weedicides  
 $T_3$ =2 post emergence applications of weedicides and  $T_4$ = $T_1$ +Cultural method of weeding.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a)  $24' \times 18'$ . (b)  $18' \times 12'$ . (v)  $3' \times 3'$ . (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2112 lb./ac. (ii) 301.1 lb./ac. (iii) The treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$
Av. yield	1873	2700	2014	1689	2284

S.E./mean = 123.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(21).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

Object :- To find out the economic way of controlling weeds in Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Cow-pea—Moong—Guar. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.11.1959. (iv) (a) and (b) N.A. (c) 1.25 md./ac. (d) and (e) N.A. (v) N.A. (vi) C—591. (vii) Irrigated. (viii) and (ix) N.A. (x) 27.4.1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(31) on page 94.

## 5. RESULTS :

(i) 2180 lb./ac. (ii) 303.1 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$
Av. yield	2533	2403	2134	1765	2067

S.E./mean = 123.8 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(26).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

Object :- To study the effect of various weedicides at different doses on the control of weeds in Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cow-pea. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.11.1958. (iv) (a) and (b) N.A. (c) 1md./ac. (d) and (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 6.4.1959.

## 2. TREATMENTS :

## Main-plot treatments :

$W_1$ =Sodium salt of 2,4—D,  $W_2$ =Ethylester of 2,4—D,  $W_3$ =Amine salt of 2,4—D, and  $W_4$ =Sodium salt of M.C.P.A.

## Sub-plot treatments :

5 levels of weedicides :  $L_0$ =Control,  $L_1$ =8,  $L_2$ =12,  $L_3$ =16 and  $L_4$ =20 ozs./ac. of acid equivalent.

## 3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/block ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a)  $24' \times 18'$ . (b)  $18' \times 12'$ . (v)  $3' \times 3'$ . (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—N.A. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1706 lb./ac. (ii) (a) 560.9 lb./ac. (b) 620.8 lb./ac. (iii) None of the treatment effects is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	1903	1807	1871	1659	1459	1740
W <sub>2</sub>	1781	1594	1549	1845	1755	1705
W <sub>3</sub>	1819	1228	1768	1607	1234	1531
W <sub>4</sub>	1794	1794	2302	1665	1691	1849
Mean	1824	1606	1872	1694	1535	1706

S.E. of difference of two

W marginal means	= 125.4 lb./ac.
L marginal means	= 155.2 lb./ac.
L means at the same level of W	= 310.4 lb./ac.
W means at the same level of L	= 304.7 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(31).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

Object :—To study the effect of various weedicides at different doses on the control of weeds in Wheat.

## 1. BASAL CONDITIONS

(i) (a) Nil. (b) N.A. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 12.11.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 1.5 md./ac. (d) and (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.4.1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(26) on page 95.

## 5. RESULTS :

(i) 2278 lb./ac. (ii) (a) 471.3 lb./ac. (b) 597.0 lb./ac. (iii) None of the treatment effects is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	2489	2401	2054	2653	2061	2332
W <sub>2</sub>	2155	2294	2193	1979	2133	2151
W <sub>3</sub>	2514	1973	2433	2470	2319	2342
W <sub>4</sub>	2319	1966	2508	2149	2489	2286
Mean	2369	2159	2297	2313	2251	2278

S.E. of difference of two

W marginal means	= 105.4 lb./ac.
L marginal means	= 149.3 lb./ac.
L means at the same level of W	= 298.5 lb./ac.
W mean at the same level of L	= 287.0 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(11).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'D'.**

Object :- To study the response of guar and tamarind seed powder on Wheat.

**1. BASAL CONDITIONS :**

(a) Nil. (b) Fallow. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 10.12.1958. (iv) (a) 3 ploughings. (b) Drilling. (c) 80 lb./ac. (d) Row to row 1'. (e) N.A. (v) N.A. (vi) R.S.—31—1. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 15.4.1959.

**2. TREATMENTS :**

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

(1) 2 seed powders :  $S_1$  = Guar seed powder and  $S_2$  = Tamarind seed powder.(2) 3 concentrations of powder :  $L_1$  = 0.025%,  $L_2$  = 0.05% and  $L_3$  = 0.10%.**3. DESIGN :**(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a)  $30\frac{1}{2}' \times 18'$ . (b)  $24\frac{1}{2}' \times 12'$ . (v)  $3' \times 3'$ . (vi) Yes.**4. GENERAL :**

(i) N.A. (ii) Slight insect attack. Control measure—N.A. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 1490 lb./ac. (ii) 317.0 lb./ac. (iii) S effect and control vs. treatment are significant. (iv) Av. yield of grain in lb./ac.

Control = 1241 lb./ac.

	$L_1$	$L_2$	$L_3$	Mean
$S_1$	1516	1157	1372	1348
$S_2$	1946	1734	1466	1715
Mean	1731	1445	1419	1532

S.E. of S marginal mean = 105.7 lb./ac.

S.E. of L marginal mean = 129.4 lb./ac.

S.E. of body of table or control mean = 183.0 lb./ac.

**Crop :-Wheat (Rabi).****Ref :- Rj. 58(38).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'D'.**

Object :- To find out the effect of different chemicals for the control of rust.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Maize. (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) 8.12.1958. (iv) (a) 4 ploughings. (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) Hy.—65. (vii) Irrigated. (viii) N.A. (ix) 3.7%. (x) N.A.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(32) on page 94.

**5. RESULTS :**

(i) 1223 lb./ac. (ii) 270.0 lb./ac. (iii) The treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$
Av. yield	1401	1182	1118	1170	1286	1183

S.E./mean = 135.0 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(25).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'D'.**

Object :- To find out the effect of different chemicals for the control of rust.

**1. BASAL CONDITIONS :**

(i) (a) and (b) N.A. (c) G.M. (ii) (a) Black cotton soil. (b) N.A. (iii) 26.10.1959. (iv) (a) 5 ploughings. (b) to (e) N.A. (v) N.A. (vi) C-591. (vii) to (ix) N.A. (x) 29.3.1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(32) on page 94.

**5. RESULTS :**

(i) 1628 lb./ac. (ii) 476.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	1626	1736	1497	1891	1616	1405

S.E./mean = 238.4 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(28).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'D'.**

Object :- To find out the economic way of controlling weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) 9.12.1958. (iv) (a) 4 ploughings. (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) N.A. (ix) 3.7. (x) N.A.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no 58(31) on page 94.

**5. RESULTS :**

(i) 1070 lb./ac. (ii) 137.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	1089	1054	1089	1003	1114

S.E./mean = 56.1 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(24).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'D'.**

Object :- To find out the economic way of controlling weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) 25.10.1959. (iv) 5 ploughings. (b) to (e) N.A. (v) N.A. (vi) C-591. (vii) to (ix) N.A. (x) 28.3.1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no 58(31) on page 94.



## 5. RESULTS :

(i) 2092 lb./ac. (ii) 270.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	2187	2107	2069	2019	2080

S.E./mean = 110.3 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj 59(32).**

**Site :- Govt. Agri. Farm, Kotah.**

**Type :- 'D'.**

Object :- To study the effect of five doses and four formulations of weedicides in the controlling of weeds in Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) 25.10.1959. (iv) 5 ploughings. (b) to (e) N.A. (v) N.A. (vi) C-591. (vii) to (ix) N.A. (x) 31.3.1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt no. 58(26) on page 95.

## 5. RESULTS :

(i) 565 lb./ac. (ii) (a) 182.2 lb./ac. (b) 154.0 lb./ac. (iii) None of the treatment effects is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	309	202	378	340	359	318
W <sub>2</sub>	359	384	195	315	243	299
W <sub>3</sub>	416	507	539	410	451	465
W <sub>4</sub>	425	410	353	347	366	380
Mean	377	376	366	353	355	365

S.E. of the difference of two

W marginal mean	= 40.8 lb./ac.
L marginal mean	= 38.5 lb./ac.
L means at the same level of W	= 77.0 lb./ac.
W means at the same level of L	= 80.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(51).**

**Site :- Govt. Agri. Farm, Kotah.**

**Type :- 'D'.**

Object :- To study the efficacy of different pesticides for the control of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Fallow—Wheat—Moong—Urd—Wheat. (b) Wheat (c) Nil. (ii) (a) and (b) N.A. (iii) 27.10.1959. (iv) (a) 5 ploughings. (b) and (c) N.A. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) Malvi. (vii) Unirrigated. (viii) Weeding. (ix) 0.1". (x) N.A.

## 2. TREATMENTS :

6 pesticide treatments : T<sub>0</sub>=Control, T<sub>1</sub>=D.D.T., W.P. 0.25%, T<sub>2</sub>=Aldrin, E.C. 0.05%, T<sub>3</sub>=Dieldrin E.C. 0.05% and T<sub>4</sub>=Endrin E.C. 0.05%.

All pesticides at 40 gallons/ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) 36'×19½'. (b) 33'×16½'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Termites, soil beetles and wheat-borer. Control measures—N.A. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 127 lb./ac. (ii) 40.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	122	102	140	143	130

S.E./mean = 23.3 lb./ac.

**Crop :- Wheat.**

**Ref :- Rj. 55(45).**

**Site :- Govt. Agri. Exptl. Farm, Mandore.**

**Type :- 'D'.**

Object :—To study the response of seed dressing by different chemicals on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 20.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) RS-31 (early). (vii) Irrigated. (viii) 4 weedings. (ix) N.A. (x) 1st week of April, 1956.

## 2. TREATMENTS :

6 seed treatments : T<sub>0</sub>=Control, T<sub>1</sub>=Semenon at 4 tolas/ac., T<sub>2</sub>=Semenon at 8 tolas/ac., T<sub>3</sub>=Agrosan at 8 tolas/ac., T<sub>4</sub>=Spergon at 20 tolas/ac. and T<sub>5</sub>=Ceresan at 9 tolas/ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 25'8"×9'. (b) 22'8"×6'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) N.A. (b) Yes. (c) N.A. (v) (a) Durgapura, Bassi and Ganganagar. (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 1341 lb./ac. (ii) 160 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	1295	1398	1336	1357	1377	1285

S.E./mean = 80 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 57(43).**

**Site :- Govt. Agri. Farm, Mandore.**

**Type :- 'D'.**

Object :—To find the effect of pre-sowing seed in different solutions.

## 1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 5.11.1957. (iv) (a) 6 ploughings. (b) Drilling. (c) 1 md./ac. (d) Row to row 1'. (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) 2 weedings. (ix) and (x) N.A.

## 2. TREATMENTS:

All combinations of (1) and (2).

- (1) 16 solutions :  $S_0$ =Water only,  $S_1$ =0.25 % A/S solution,  $S_2$ =0.5 % A/S solution,  $S_3$ =1 % A/S solution,  $S_4$ =0.25 % Pot. Phos. solution,  $S_5$ =0.5 % Pot. Phos. solution,  $S_6$ =1 % Pot. Phos. solution,  $S_7=S_1+S_4$ ,  $S_8=S_1+S_5$ ,  $S_9=S_1+S_6$ ,  $S_{10}=S_2+S_4$ ,  $S_{11}=S_2+S_5$ ,  $S_{12}=S_2+S_6$ ,  $S_{13}=S_3+S_4$ ,  $S_{14}=S_3+S_5$  and  $S_{15}=S_3+S_6$ .
- (2) 2 durations of seed soaking :  $D_1=6$  and  $D_2=12$  hours.

## 3. DESIGN:

- (i) R.B.D. (ii) (a) 32. (b) N.A. (iii) 3. (iv) (a)  $17\frac{1}{2}' \times 10'$ . (b)  $14\frac{1}{2}' \times 6'$ . (v)  $1\frac{1}{2}' \times 2'$ . (vi) Yes.

## 4. GENERAL:

- (i) N.A. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS:

- (i) 949 lb./ac. (ii) 437.1 lb /ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

	$S_0$	$S_1$	$S_2$	$S_3$	$S_4$	$S_5$	$S_6$	$S_7$	$S_8$	$S_9$	$S_{10}$	$S_{11}$	$S_{12}$	$S_{13}$	$S_{14}$	$S_{15}$	Mean
$D_1$	440	655	966	1169	300	536	429	1030	923	1309	1502	1051	1438	1180	1137	655	920
$D_2$	236	622	1760	1395	429	494	601	976	815	1288	1567	1223	1009	644	1288	1288	977
Mean	338	639	1363	1282	365	515	515	1003	869	1299	1535	1137	1224	912	1213	972	949

S.E./mean = 252.4 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj.58 (27).**

**Site :- Govt. Agri. Farm, Mandore.**

**Type :- 'D'.**

Object:—To study the effect of five doses and four formulation of weedicides for control of weeds in Wheat.

## 1. BASAL CONDITIONS:

- (i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 9.11.1958. (iv) (a) 8 ploughings. (b) N.A. (c) 1 md./ac. (d) Row to row 9". (e) N.A. (v) N.A. (vi) R.S.—31—1. (vii) Irrigated. (viii) to (x) N.A.

## 2. TREATMENTS to 4. GENERAL:

Same as in expt. no. 58(26) on page 95.

## 5. RESULTS:

- (i) 3469 lb./ac. (ii) (a) 1044.3 lb./ac. (b) 549.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$L_0$	$L_1$	$L_2$	$L_3$	$L_4$	Mean
$W_1$	3465	3101	3639	3681	3253	3428
$W_2$	3809	3012	3407	3202	2938	3274
$W_3$	3349	3099	3838	3439	3642	3473
$W_4$	3491	3751	3732	3603	3934	3702
Mean	3528	3241	3654	3481	3442	3469

S.E. of differences of two

- |                                   |                 |
|-----------------------------------|-----------------|
| 1. W marginal means               | = 233.5 lb./ac. |
| 2. L marginal means               | = 137.3 lb./ac. |
| 3. L means at the same level of W | = 274.5 lb./ac. |
| 4. W means at the same level of L | = 338.9 lb./ac. |

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(35).****Site :- Govt. Agri. Farm, Mandore.****Type :- 'D'.**

**Object :-**To study the effect of five doses and four formulations of weedicides for controlling of weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 12.11.1959. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) to (ix) N.A. (x) 24.3.1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(26) on page 95.

**5. RESULTS :**

(i) 679 lb./ac. (ii) (a) 269.2 lb./ac. (b) 276.7 lb./ac. (iii) L effect is highly significant and W effect is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	378	1172	832	744	674	760
W <sub>2</sub>	485	857	800	1040	800	796
W <sub>3</sub>	466	473	492	592	504	505
W <sub>4</sub>	384	592	725	794	781	655
Mean	428	773	712	792	690	769

S.E. of the difference of two

- |                                   |                 |
|-----------------------------------|-----------------|
| 1. W marginal mean                | = 60.2 lb./ac.  |
| 2. L marginal mean                | = 69.2 lb./ac.  |
| 3. L means at the same level of W | = 138.3 lb./ac. |
| 4. W means at the same level of L | = 137.6 lb./ac. |

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(34).****Site :- Govt. Agri. Farm, Mandore.****Type :- 'D'.**

**Object :-**To find out the economic way of controlling weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.11.1958. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) Row to row 9". (e) N.A. (v) N.A. (vi) R.S.—31—1. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.3.1959.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(31) on page 94.

**5. RESULTS :**

(i) 813 lb./ac. (ii) 356.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	774	1020	776	651	844

S.E./mean = 145.6 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(22).**

**Site :- Govt. Agri. Farm, Mandore.**

**Type :- 'D'.**

**Object :-**To find out the economic way of controlling weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 9.11.1159. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) to (ix) N.A. (x) 23.3.1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(31) on page 94.

**5. RESULTS :**

(i) 742 lb./ac. (ii) 366.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	609	807	893	773	630

S.E./mean = 149.5 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(44).**

**Site :- Govt. Agri. Farm, Mandore.**

**Type :- 'D'.**

**Object :-**To study the efficacy of different pesticides against termites on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Sandy soil. (b) N.A. (iii) 27.9.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 35 srs./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) RS-31-1. (vii) Irrigated. (viii) 3 weedings. (ix) and (x) N.A.

**2. TREATMENTS :**

6 pesticide treatments : T<sub>0</sub>=Control, T<sub>1</sub>=Aldrin dust 1.5%, T<sub>2</sub>=Dieldrin dust 1.5% T<sub>3</sub>=Endrin dust 1.5%, T<sub>4</sub>=B.H.C. dust 1.5% and T<sub>5</sub>=D.D.T. at 1.5%.

All pesticides applied at 30 lb./ac.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 35'×18½'. (b) 33'×16½'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

(i) Severe attack of termites due to water scarcity. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 960 lb./ac. (ii) 171.2 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	380	1498	1272	1409	620	581

S.E./mean = 98.8 lb./ac.

**Crop :- Wheat.****Ref :- Rj. 54(41).****Site :- Govt. Agri. Farm, Sriganaganagar.****Type :- 'D'.**

Object :—To study the effect of Guar seed powder on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 4.11.1954. (iv) (a) 2 disc harrowings. (b) N.A. (c) 1 md./ac. (d) Row<sub>2</sub> to row 9<sup>\*</sup>. (e) N.A. (v) N.A. (vi) C-591 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) April, 1955.

**2. TREATMENTS :**

4 treatments : T<sub>0</sub>=Control, T<sub>1</sub>=0.02%, T<sub>2</sub>=0.05% and T<sub>3</sub>=0.1% of Guar seed powder.  
Method of application—N.A.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 19'×12'. (b) 16'×9'. (v) 1½'×1½'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1952—N.A. (b) No. (c) N.A. (v) to (vii) Nil.

**5. RESULTS :**

(i) 2319 lb./ac. (ii) 218.1 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Av. yield	1468	2130	2455	3221

S.E./mean = 109.0 lb./ac.

**Crop :-Wheat.****Ref :- Rj. 55(49).****Site :- Govt. Agri. Exptl. Farm, Sriganaganagar.****Type :- 'D'.**

Object :—To study the response of seed dressing by different chemicals on Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 1st week of November, 1955. (iv) (a) to (e) N.A. (v) Nil. (vi) R.S.—31. (vii) Irrigated. (viii) and (ix) N.A. (x) 2.4.1956.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 55(45) on page 100.

**5. RESULTS :**

(i) 2436 lb./ac. (ii) 185.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	2364	2591	2447	2406	2426	2385

S.E./mean = 92.5 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(26).****Site :- Govt. Agri. Farm, Sriganaganagar.****Type :- 'D'.**

Object :—To find out the economic way of controlling weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 12.11.1959. (iv) (a) and (b) N.A. (c) 30 srs./ac. (d) and (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 12.4.1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(31) on page 94.

## 5. RESULTS :

(i) 1131 lb./ac. (ii) 376.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	1090	1300	1229	815	1223

S.E./mean = 153.6 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(33).****Site :- Govt. Agri. Farm, Sriganaganagar.****Type :- 'D'.****Object :-**To study the effect of five doses and four formulations of weedicides in the controlling of weeds in Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.11.1959. (iv) (a) and (b) N.A. (c) 30 srs./ac. (d) and (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 13.4.1960.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(26) on page 95.

## 5. RESULTS :

(i) 1906 lb./ac. (ii) (a) 884.0 lb./ac. (b) 493.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	1579	2146	1988	1572	1862	1829
W <sub>2</sub>	2256	1566	1831	1783	1289	1745
W <sub>3</sub>	2483	2319	1954	2354	2240	2270
W <sub>4</sub>	1780	1859	1727	1979	1563	1782
Mean	2024	1972	1875	1922	1738	1906

S.E. of the difference of two

1. W marginal means = 197.7 lb./ac.
2. L marginal means = 123.4 lb./ac.
3. L means at the same level of W = 246.7 lb./ac.
4. W means at the same level of L = 296.3 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(37).****Site :- Govt. Agri. Farm, Sriganaganagar.****Type :- 'D'.****Object :-**To find out the effect of different chemicals for the control of rust of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 12.11.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 30 srs./ac. (d) and (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) to (x) N.A.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(32) on page 94.

## 5. RESULTS :

(i) 1862 lb./ac. (ii) 344.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	1859	1576	1969	2013	1875	1881

S.E./mean = 172.0 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj 59(28).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'D'.**

Object :—To test the relative efficacy of seed dressing fungicides on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.11.1959. (iv) (a) and (b) N.A. (c) 35 srs./ac. (d) and (e) N.A. (v) N.A. (vi) C—591. (vii) Irrigated. (viii) and (ix) N.A. (x) 15.4.1960.

## 2. TREATMENTS :

10 seed treatments : T<sub>0</sub>=Control, T<sub>1</sub>=Agrosan at 6 tolas/md., T<sub>2</sub>=Ceresan at 6 tolas/md., T<sub>3</sub>=Ceresan at 10 tolas/md., T<sub>4</sub>=Hunasan at 6 tolas/md., T<sub>5</sub>=Fernasan 10 tolas/md., T<sub>6</sub>=Harvesan at 6 tolas/md., T<sub>7</sub>=Tillex at 6 tolas/md., T<sub>8</sub>=Copper carbonate at 12 tolas/md. and T<sub>9</sub>=Sulphur at 12 tola /md.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 15'×9'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N A. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 1636 lb./ac. (ii) 233.3 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	T <sub>7</sub>	T <sub>8</sub>	T <sub>9</sub>
Av. yield	1395	1539	1583	1324	1512	1791	1936	1852	1704	1728

S.E./mean = 95.3 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(41).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'D'.**

Object :—To find out the efficacy of different insecticides against termites on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 29.10.1959. (iv) (a) 3 ploughings. (b) N.A. (c) 35 srs./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) C—591. (vii) Unirrigated. (viii) 2 hoeings and 1 weeding. (ix) and (x) N.A.

## 2. TREATMENTS :

4 insecticides : T<sub>0</sub>=Control, T<sub>1</sub>=5% B.H.C., T<sub>2</sub>=2% Aldrin and T<sub>3</sub>=2% Toxaphenol. Dusting with 30 lb./ac. of the insecticides done 3 weeks after sowing.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.



## 4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 505 lb./ac. (ii) 149.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Av. yield	75	730	1020	197

S.E./mean = 86.3 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(45).****Site :- Govt. Agri. Farm, Sriganaganagar.****Type :- 'D'.**

Object :—To find out the efficacy of different insecticides against termites on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 24.10.1959. (iv) (a) 3 ploughings. (b) N.A. (c) 35 srs./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) C-591. (vii) Unirrigated. (viii) 2 hoeings and 1 weeding. (ix) and (x) N.A.

## 2. TREATMENTS :

4 insecticides : T<sub>0</sub>=Control, T<sub>1</sub>=5% B.H.C., T<sub>2</sub>=2% Aldrin and T<sub>3</sub>=2% Toxaphene.  
Insecticides dusted at 30 lb./ac. in 2 doses : Just before sowing and 3 weeks after sowing.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 59(41) on page 106.

## 5. RESULTS :

(i) 571 lb./ac. (ii) 242.6 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Av. yield	192	847	1148	98

S.E./mean = 140.1 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(46).****Site :- Govt. Agri. Farm, Sriganaganagar.****Type :- 'D'.**

Object :—To find out the efficacy of different insecticides against termites on Wheat.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 24.10.1959. (iv) (a) 3 ploughings. (b) N.A. (c) 35 srs./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) C-591. (vii) Unirrigated. (viii) 2 hoeings and 1 weeding. (ix) and (x) N.A.

## 2. TREATMENTS :

4 insecticides : T<sub>0</sub>=Control, T<sub>1</sub>=5% B.H.C., T<sub>2</sub>=2% Aldrin and T<sub>3</sub>=2% Toxaphene.  
Insecticides dusted just before sowing at 30 lb./ac.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 59(41) on page 106.

## 5. RESULTS :

(i) 365 lb./ac. (ii) 336.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Av. yield	137	713	420	185

S.E./mean = 194.5 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(18).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Type :- 'D'.**

Object :—To study the residual effect of Guar and Tamarind seed powder on the yield of Wheat.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Maize. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 1.12.1958. (iv) (a) 6 ploughings. (b) Drilling. (c) 80 lb./ac. (d) Row to row 9". (e) N.A. (v) N.A. (vi) R.S.—31—1. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 5.4.1959.

## 2. TREATMENTS :

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

(1) 2 types of seed powder : S<sub>1</sub>=Guar seed and S<sub>2</sub>=Tamarind seed.

(2) 3 levels of powder : L<sub>1</sub>=0.025%, L<sub>2</sub>=0.05% and L<sub>3</sub>=0.10%.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) 30½'×18'. (b) 24½'×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) Poor. (ii) No. (iii) Yield of grain. (iv) (a) to (vi) N.A.

## 5. RESULTS :

(i) 1717 lb./ac. (ii) 143.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 1577 lb./ac.

	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	Mean
S <sub>1</sub>	1766	1657	1906	1776
S <sub>2</sub>	1622	1791	1701	1705
Mean	1694	1724	1803	1740

S.E. of S marginal mean = 47.7 lb./ac.

S.E. of L marginal mean = 58.4 lb./ac.

S.E. of body of table or control = 82.7 lb./ac.

**Crop :- Wheat (Rabi.)**

**Ref :- Rj. 58(39).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Type :- 'D'.**

Object :—To find out the economic way of controlling weeds in Wheat.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 21.11.1958. (iv) (a) and (b) N.A. (c) 1md./ac. (d) and (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. n<sup>o</sup>. 58(31) on page 94.

## 5. RESULTS :

(i) 3617 lb./ac. (ii) 502.5 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	3129	3720	3879	3450	3909

S.E./mean = 205.2 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(39).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Type :- 'D'.**

Object :—To find out the economic way of controlling weeds in Wheat.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar*. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.11.1959. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) R.S.—31—1. (vii) Irrigated. (viii) to (x) N.A.

## 2. TREATMENTS to 4. GENERAL

Same as in expt. no. 58(31) on page 94.

## 5. RESULTS :

(i) 3738 lb./ac. (ii) 348.9 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	3270	3875	3788	3388	4369

S.E./mean = 142.5 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 58(25).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Type :- 'D'.**

Object :—To study the effect of five doses and four formulations of weedicides for the control of weeds in Wheat.

## 1. BASAL CONDITIONS

(i) (a) to (c) N.A. (ii) (a) Sandy. (b) N.A. (iii) 11.11.1958. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 26 and 27.3.1959.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(26) on page 95.

## 5. RESULTS :

(i) 2184 lb./ac. (ii) (a) 693.6 lb./ac. (b) 500.9 lb./ac. (iii) Only L effect is highly significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	1620	2777	1594	2083	2379	2091
W <sub>2</sub>	1440	3587	2777	2057	1954	2363
W <sub>3</sub>	1543	3201	2314	1903	1594	2111
W <sub>4</sub>	1491	3382	2494	1852	1646	2173
Mean	1523	3237	2295	1974	1893	2184

S.E. of difference of two

- |                                   |                 |
|-----------------------------------|-----------------|
| 1. W marginal means               | = 155.1 lb./ac. |
| 2. L marginal means               | = 125.2 lb./ac. |
| 3. L means at the same level of W | = 250.5 lb./ac. |
| 4. W means as the same level of L | = 272.6 lb./ac. |

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(38).****Site :- Govt. Agri. Farm, Tabiji.****Type :- 'D'.**

**Object :-**To study the effect of five doses and four formulations of weedicides for the control of weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Jowar. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 12.11.1959. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) R.S.—31.1. (vii) Irrigated. (viii) to (x) N.A.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(26) on page 95.

**5. RESULTS :**

(i) 2722 lb./ac. (ii) (a) 564.7 lb./ac. (b) 685.7 lb./ac. (ii) Only L effect is highly significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	2349	2975	3091	2637	2728	2756
W <sub>2</sub>	1906	2420	3675	3065	2823	2778
W <sub>3</sub>	2218	3000	2632	3343	2470	2733
W <sub>4</sub>	2143	2677	3040	2536	2702	2620
Mean	2154	2768	3110	2895	2681	2722

S.E. of difference of two

- |                                   |                 |
|-----------------------------------|-----------------|
| 1. W marginal means               | = 126.3 lb./ac. |
| 2. L marginal means               | = 171.4 lb./ac. |
| 3. L means at the same level of W | = 342.8 lb./ac. |
| 4. W means at the same level of L | = 332.8 lb./ac. |

**Crop :- Wheat. (Rabi).****Ref :- Rj. 58(40).****Site :- Agri.College Farm, Udaipur.****Type :- 'D'.**

**Object :-**To study the effect of five doses and four formulations of weedicides for the control of weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) and (ii) N.A. (iii) 24.11.1958. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) C—591. (vii) and (viii) N.A. (ix) 0.375%. (x) N.A.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(26) on page 95.

**5. RESULTS :**

(i) 1878 lb./ac. (ii) (a) 789.7 lb./ac. (b) 452.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	1858	1794	1826	1672	1736	1777
W <sub>2</sub>	1839	1987	1845	1498	1524	1739
W <sub>3</sub>	2044	1935	1492	1954	1929	1871
W <sub>4</sub>	1845	2462	1948	2263	2102	2124
Mean	1896	2044	1778	1847	1823	1878

S.E. of difference of two

1. W marginal means = 176.6 lb./ac.
2. L marginal means = 113.2 lb./ac.
3. L means at the same level of W = 226.3 lb./ac.
4. W means at the same level of L = 268.7 lb./ac.

**Crop :- Wheat (Rabi).**

**Ref :- Rj. 59(30).**

**Site :- Govt. Agri. Farm, Udaipur.**

**Type :- 'D'.**

Object :—To study the effect of five doses and five formulations of weedicides for controlling the weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Lucerne. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 2.12.1959. (iv) (a) 5 ploughings. (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) R.S.—31-1. (vii) Irrigated. (viii) and (ix) N.A. (x) 17.4.1960.

**2. TREATMENTS :**

Same as in expt. no. 58(26) on page 95.

**3. DESIGN :**

(i) Split-plot. (ii) (a) 4 main-plots/block ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 19'×15'. (b) 13'×9'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 3028 lb./ac. (ii) (a) 583.1 lb./ac. (b) 379.5 lb./ac. (iii) Only L effect is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	2932	3130	3258	3316	3444	3216
W <sub>2</sub>	3196	2560	2688	2711	2978	2827
W <sub>3</sub>	3211	3153	2996	2753	3165	3036
W <sub>4</sub>	3327	3293	2560	3002	2978	3032
Mean	3167	3034	2876	2921	3141	3038

S.E. of the difference of two

1. W marginal means = 130.4 lb./ac.
2. L marginal means = 94.9 lb./ac.
3. L means at the same level of W = 189.8 lb./ac.
4. W means at the same level of L = 214.1 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 58(83).****Site :- Agri. College Farm, Udaipur.****Type :- 'D'.**

Object :- To find out the economic way of controlling weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) 21.11.1958. (iv) (a) and (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) N.A. (ix) 0.375". (x) N.A.

**2. TREATMENTS to 4. GENERAL:**

Same as in expt. no. 58(31) on page 94.

**5. RESULTS :**

(i) 2444 lb./ac. (ii) 4120 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	2443	2409	2122	2623	2623

S.E./mean = 168.2 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 59(23).****Site :- Govt. Agri. Farm, Udaipur.****Type :- 'D'.**

Object :- To find out the economic way of controlling weeds in Wheat.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Maize. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 1.12.1959. (iv) (a) 5 ploughings. (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) C-591. (vii) Irrigated. (viii) and (ix) N.A. (x) 22.4.1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(31) on page 94.

**5. RESULTS:**

(i) 2014 lb./ac. (ii) 415.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	1794	2185	1996	1865	2230

S.E./mean = 169.8 lb./ac.

**Crop :- Jowar (Kharif).****Ref :- Rj. 54(20).****Site :- Govt. Agri. Exptl. Farm, Bassi.****Type :- 'M'.**

Object :- To study the effect of catalysts on the yield of Jowar.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Sandy to sandy loam. (b) N.A. (iii) 3.7.1954. (iv) (a) 1 ploughing after rains. (b) to (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 6.10.1954.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 7 manurial treatments : M<sub>0</sub>=0, M<sub>1</sub>=40 lb./ac. of catalyst, M<sub>2</sub>=80 lb./ac. of catalyst, M<sub>3</sub>=14 lb./ac. of FeSO<sub>4</sub>, M<sub>4</sub>=28 lb./ac. of FeSO<sub>4</sub>, M<sub>5</sub>=8 lb./ac. of Pot. Permanganate and M<sub>6</sub>=16 lb./ac. of Pot. permanganate.(2) 2 levels of F.Y.M. as basal dressing : F<sub>0</sub>=0 and F<sub>1</sub>=2 tons/ac.

## 3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 15'×9'. (b) 12'×6'. (v) 1.5'×1.5'. (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 1791 lb./ac. (ii) 314.2 lb./ac. (iii) Only interaction F×M is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	Mean
F <sub>0</sub>	2041	1384	1512	1565	1792	2018	2366	1811
F <sub>1</sub>	1739	2170	2094	1512	1739	1610	1535	1771
Mean	1890	1777	1803	1538	1766	1814	1950*	1791

S.E. of M marginal mean = 128.3 lb./ac.

S.E. of F marginal mean = 68.6 lb./ac.

S.E. of body of table = 181.4 lb./ac.

Crop :- Jowar (*Kharif*).

Ref :- Rj. 55(7).

Site :- Govt. Agri. Exptl. Farm, Bassi.

Type :- 'M'.

Object :—To study the effect of catalysts on the yield of Jowar.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) Nil. (ii) (a) Sandy to sandy loam. (b) N.A. (iii) 6.7.1955. (iv) and (v) N.A. (vi) Local (early). (vii) Unirrigated. (viii) and (ix) N.A. (x) 4.11.1955.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 6 manurial treatments : M<sub>0</sub>=Control, M<sub>1</sub>=Catalyst at 40 lb./ac., M<sub>2</sub>=Catalyst at 80 lb./ac., M<sub>3</sub>=FeSO<sub>4</sub> at 14 lb./ac., M<sub>4</sub>=FeSO<sub>4</sub> at 28 lb./ac. and M<sub>5</sub>=Pot. permanganate at 16 lb./ac.(2) 2 levels of F.Y.M. : F<sub>0</sub>=0 and F<sub>1</sub>=2 tons/ac.

These treatments were mixed with earth thoroughly and applied before sowing.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 20'2"×13'. (b) 16'2"×9'. (v) 2'×2'. (vi) Yes.

## 2. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) (a) Kotah. (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 1399 lb./ac. (ii) 271.9 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	Mean
F <sub>0</sub>	984	1314	1559	1635	1187	1482	1360
F <sub>1</sub>	1559	1467	1558	1455	1199	1390	1438
Mean	1272	1390	1558	1545	1193	1436	1399

S.E. of M marginal mean	= 111.0 lb./ac.
S.E. of F marginal mean	= 64.1 lb./ac.
S.E. of body of table	= 157.0 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 56(20).**

**Site :- Govt. Agri. Exptl. Farm, Bassi.**

**Type :- 'M'.**

**Object :—**To study the effect of catalysts on the yield of Jowar.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy to sandy loam. (b) N.A. (iii) 10.7.1956. (iv) (a) 3 ploughings. (b) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 9.11.1956.

**2. TREATMENTS :**

Same as in expt. no. 55(7) on page 113.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3' (vi) Yes.

**4. GENERAL :**

(i) (a) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 316 lb./ac. (ii) 19.3 lb./ac. (iii) Main effect of M is significant. Main effect of F and interaction M×F are highly significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	Mean <sub>M</sub>
F <sub>0</sub>	238	276	355	271	311	361	302
F <sub>1</sub>	343	349	311	372	323	274	329
Mean	290	312	333	322	317	318	316

S.E. of F marginal mean	= 4.53 lb./ac.
S.E. of M marginal mean	= 7.85 lb./ac.
S.E. of body of table	= 11.14 lb./ac.

**Crop :- Jowar (Kharif)**

**Ref :- Rj. 59(90).**

**Site :- Soil Cons. Res. Demons. and Tr. Centre Kotah. Type :- 'M'.**

**Object :—**To find out the best manuring dose for Jowar under rainfed conditions.

**1. BASAL CONDITIONS :**

(i) (a) to (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) (a) 1 ploughing and 3 bakherings. (b) Sowing behind the plough. (c) 7 lb./ac. (d) Rows 12" apart. (e) N.A. (v) Nil. (vi) R.S.-1. (vii) Unirrigated. (viii) 2 weedings. (ix) and (x) N.A.

**2. TREATMENTS :**

T<sub>1</sub>=Control, T<sub>2</sub>=5 C.L./ac. of F.Y.M. giving 20 lb./ac. of N, T<sub>3</sub>=10 C.L./ac. of F.Y.M. giving 40 lb./ac. of N and T<sub>4</sub>=20 C.L./ac. of F.Y.M. giving 80 lb./ac. of N.  
Time and method of application—N.A.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 1/100 ac. (v) N.A. (vi) Yes.



## 4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959—1963. (b) Yes. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 145 lb./ac. (ii) 40.5 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	106	152	159	163

S.E./mean = 18.1 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 54(15).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

Object :- To find out the optimum dose of N and P alone and in combinations for Jowar.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Black soil. (b) N.A. (iii) 6.7.1954. (iv) (a) 2 ploughings. (b) to (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) and (ix) N.A. (x) 3.10.1954.

## 2. TREATMENTS :

M<sub>0</sub>=Control, M<sub>1</sub>=20 lb./ac. of N as A/S, M<sub>2</sub>=40 lb./ac. of N as A/S, M<sub>3</sub>=20 lb./ac. of N as F.Y.M., M<sub>4</sub>=40 lb./ac. of N as F.Y.M., M<sub>5</sub>=30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>6</sub>=20 lb./ac. of N as A/S+30 lb./ac. of N as F.Y.M., M<sub>7</sub>=20 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>8</sub>=40 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>9</sub>=20 lb./ac. of N as F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super and M<sub>10</sub>=40 lb./ac. of N as F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 3. (iv) (a) 15'×20'. (b) 12'×18'. (v) 1½'×1'. (vi) Yes.

## 4. GENERAL .

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

## 5. RESULTS :

(i) 1511 lb./ac. (ii) 222.0 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>	M <sub>10</sub>
Av. yield	909	998	1460	1043	1818	1371	1505	1818	2101	1371	2220

S.E./mean = 128.2 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 54(6).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 3.7.1954 (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) and (ix) N.A. (x) 28.11.1954.

## 2. TREATMENTS :

Same as in expt. no. 54(15) above.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 3. (iv) (a) 24'.3"×18'. (b) 18'.3"×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 2584 lb./ac. (ii) 841.4 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>	M <sub>10</sub>
Av. yield	1552	1706	2422	1790	3120	2378	2583	3120	3598	2352	3802

S.E./mean = 485.8 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj.58(2).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the effect of different types of N at different levels with and without F.Y.M. and Super.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 17.7.1958. (iv) (a) N.A. (b) Drilling. (c) 8 srs./ac. (d) 12' between rows. (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated, (viii) 2 weedings. (ix) N.A. (x) 1.12.1958.

## 2. TREATMENTS :

M<sub>0</sub>=Control, M<sub>1</sub>=20 lb./ac. of N as A/S+5000 lb./ac. of F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>2</sub>=40 lb./ac. of N as A/S+5000 lb./ac. of F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>3</sub>=20 lb./ac. of N as A/S/N+5000 lb./ac. of F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>4</sub>=40 lb./ac. of N as A/S/N/+5000 lb./ac. of F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>5</sub>=20 lb./ac. of N as Urea+5000 lb./ac. of F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>6</sub>=40 lb./ac. of N as Urea+5000 lb./ac. of F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>7</sub>=5000 lb./ac. of F.Y.M.+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super, M<sub>8</sub>=5000 lb./ac. of F.Y.M. and M<sub>9</sub>=30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) to (e) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 332 lb./ac. (ii) 174.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	354	195	354	520	366	260	346	190	452	279

S.E./mean = 87.3 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 54(18).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the effect of trace elements on the yield of Jowar.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Black soil. (b) N.A. (iii) 16.7.1954. (iv) (a) 2 ploughings after rains. (b) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 13.10.1954.

## 2. TREATMENTS :

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

(1) 2 trace elements :  $T_1$ =Ferrous sulphate and  $T_2$ =Copper sulphate.

(3) 3 levels of treatments :  $L_1=5$ ,  $L_2=10$  and  $L_3=20$  lb./ac.

Time and method of application—N.A.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a)  $15' \times 14'$ . (b)  $12' \times 11'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 1266 lb./ac. (ii) 219.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 1138 lb./ac.

	$L_1$	$L_2$	$L_3$	Mean
$T_1$	1255	1407	1262	1308
$T_2$	1020	1272	1407	1266

S.E. of T marginal mean = 73.0 lb./ac.

S.E. of body of table or control mean = 126.5 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 58(6).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

Object :—To study the effect of different types of trace-elements at different levels on the yield of Jowar.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Jowar. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 16.6.1958. (iv) (a) N.A. (b) Drilling. (c) 8 lb./ac. (d)  $12'$  between rows. (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 28.11.1958.

## 2. TREATMENTS :

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

(1) 5 sources of trace elements :  $S_1$ =Copper sulphate,  $S_2$ =Zinc sulphate,  $S_3$ =Borax powder,  $S_4$ =Magnesium sulphate and  $S_5$ =Ferrous sulphate.

(2) 3 levels of trace elements :  $L_1=5$ ,  $L_2=10$  and  $L_3=15$  lb./ac.

20 lb./ac. of N as A/S + 20 lb./ac. of  $P_2O_5$  as Super applied to all treatments combinations.

Extra treatments :  $T_0$ = control (2 plots) and  $T_1$ =20 lb./ac. of N as A/S + 20 lb./ac. of  $P_2O_5$  as Super.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 18. (b) N.A. (iii) 3. (iv) (a)  $30'3'' \times 18'$ . (b)  $24'3'' \times 12'$ . (v)  $3' \times 3'$ . (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS

(i) 504 lb./ac. (ii) 167.8 lb./ac. (iii) Only interaction  $S \times L$  is significant. (iv) Av. yield of grain in lb./ac.

	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>
L <sub>1</sub>	638	542	375	491	378
L <sub>2</sub>	391	346	401	465	773
L <sub>3</sub>	327	539	507	526	757
Mean	452	476	428	494	636

S.E. of S marginal mean = 55.9 lb./ac.  
 S.E. of body of table or T<sub>1</sub> mean = 96.9 lb./ac.  
 S.E. of control (T<sub>0</sub>) mean = 68.5 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 54(46).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the effect of organic matters on the yield of Jowar.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Black soil. (b) N.A. (iii) 2nd week of July 1954. (iv) (a) 2 ploughings. (b) N.A. (c) 40 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 10.11.1954.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 3 levels of straw of wheat : S<sub>0</sub>=0, S<sub>1</sub>=1 ton/ac. applied during ploughing and S<sub>2</sub>=2 tons/ac. applied after ploughing.

(2) 5 levels of F.Y.M. : F<sub>0</sub>=0, F<sub>1</sub>=1 ton/ac. applied during ploughing, F<sub>2</sub>=1 ton/ac. applied after ploughing, F<sub>3</sub>=2 tons/ac. applied during ploughing, and F<sub>4</sub>=2 tons/ac. applied after ploughing.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 15. (b) N.A. (iii) 3 (iv) (a) 24'3"×18'. (b) 18'3"×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 3066 lb/ac. (ii) 1001 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	Mean
S <sub>0</sub>	2311	2833	3549	2686	3842	3044
S <sub>1</sub>	3052	2955	3126	2825	2865	2964
S <sub>2</sub>	2727	3622	2507	3460	3622	3188
Mean	2697	3137	3061	2990	3443	3066

S.E. of F marginal mean = 333.7 lb./ac.  
 S.E. of S marginal mean = 258.4 lb./ac.  
 S.E. of body of table = 577.9 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 54(27).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the effect of catalysts on the yield of Jowar.

**1. BASAL CONDITIONS :**

(i) (a) Wheat—Jowar—Fallow. (b) Wheat. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 3.7.1954. (iv) (a) to (e) N.A. (v) 2 tons/ac. of F.Y.M. (vi) Local. (vii) Unirrigated. (viii) and (ix) N.A. (x) 15.12.1954.

**2. TREATMENTS :**

Same as in expt. no. 54(20) on page 112.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 14'×8'. (b) 12'×6'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1878 lb./ac. (ii) 380.9 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	Mean
F <sub>0</sub>	1606	2021	2125	1969	1814	1969	1503	1858
F <sub>1</sub>	1866	1866	2306	1969	1969	1399	1917	1899
Mean	1736	1944	2216	1969	1892	1684	1710	1878

S E. of M marginal mean = 155.5 lb./ac.

S.E. of F marginal mean = 83.2 lb./ac.

S.E. of body of table = 219.9 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 57(5).**

**Site :- Govt. Agri. Exptl. Farm, Kotah.**

**Type :- 'M'.**

**Object :-**To study the effect of catalysts on the yield of Jowar.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Black soil. (b) N.A. (iii) 13.7.1957. (iv) (a) 2 ploughings. (b) N.A. (c) 40 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 2.11.1957.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 7 manurial treatments : M<sub>0</sub>=0, M<sub>1</sub>=Catalyst at 40 lb./ac., M<sub>2</sub>=Catalyst at 80 lb./ac., M<sub>3</sub>=Ferrous sulphate at 15 lb./ac., M<sub>4</sub>=Ferrous sulphate at 30 lb./ac., M<sub>5</sub>=Pot. permanganate at 10 lb./ac. and M<sub>6</sub>=Pot permanganate at 15 lb./ac.

(2) 2 levels of F.Y.M. : F<sub>0</sub>=0 and F<sub>1</sub>=5000 lb./ac.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 345 lb./ac. (ii) 138.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	Mean
F <sub>0</sub>	315	296	411	382	308	279	315	330
F <sub>1</sub>	337	318	405	475	296	386	308	361
Mean	326	307	408	428	302	332	312	345

S.E. of M marginal mean = 56.6 lb./ac.

S.E. of F marginal mean = 30.3 lb./ac.

S.E. of body of table = 80.1 lb./ac.

**Crop :- Jowar.**  
**Centre :- Kotah (c.f.).**

**Ref :- Rj. 58(SFT).**  
**Type :- 'M'.**

**Object—Type A :—**To study the response of Jowar to levels of N, P and K applied individually and in combinations.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) August, 1958. (vii) to (ix) N.A. (x) November, 1958.

**2. TREATMENTS :**

0 =Control (no manure).

n =20 lb./ac. of N as A/S.

p =20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

np =20 lb./ac. of N as A/S+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

k =20 lb./ac. of K<sub>2</sub>O as Mtr. of Pot.

nk =20 lb./ac. of N as A/S+20 lb./ac. of K<sub>2</sub>O as Mur. of Pot.

pk =20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. of Pot.

npk =20 lb./ac. of N as A/S+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. of Pot.

**3. DESIGN :**

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been 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 a kharif cereal, 8 on a rabi cereal, 8 on cash crops, 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 above 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) N.A. (b) 1/80 ac. (iv) Yes.

**4. GENERAL :**

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1958—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) Nil.

**5. RESULTS :**

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	165	107	16	21.4	0	0	25	82	20.6

Control mean = 518 lb./ac. and no. of trials = 12.

**Crop :- Jowar.**  
**Centre :- Kotah (c.f.).**

**Ref :- Rj. 59(SFT).**  
**Type :- 'M'.**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Black. (iii) Nil. (iv) and (v) N.A. (vi) August, 1959. (vii) to (ix) N.A. (x) November, 1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(SFT) type A on page 120 conducted at Kotah.

5. RESULTS :

Effect	n	p	k	S.E	np	nk	pk	npk	S.E.
Av. response in lb./ac.	140	132	66	40.3	16	0	-16	8	23.0

Control mean = No. of trials = 10.

**Crop :- Jowar.**  
**Centre :- Kotah (c.f.).**

**Ref :- Rj. 57(SFT).**  
**Type :- 'M'.**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black. (iii) Nil. (iv) and (v) N.A. (vi) August, 1957. (vii) to (ix) N.A. (x) November, 1957.

2. TREATMENTS :

0 = Control (no manure).  
 $n_1$  = 20 lb./ac. of N as A/S.  
 $n_2$  = 40 lb./ac. of N as A/S.  
 $n_1'$  = 20 lb./ac. of N as Urea.  
 $n_2'$  = 40 lb./ac. of N as Urea.  
 $n_1''$  = 20 lb./ac. of N as A/S/N.  
 $n_2''$  = 40 lb./ac. of N as A/S/N.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 58(SFT) type A on page 120 conducted at Kotah.

5. RESULTS :

Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2'$	$n_1''$	$n_2''$
Av. yield	815	946	1004	922	971	971	1037

G.M. = 952 lb./ac., S.E. = 23.3 lb./ac. and no. of trials = 12.

**Crop :- Jowar.**  
**Centre :- Kotah (c f.).**

**Ref :- Rj. 58(SFT).**  
**Type :- 'M'.**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) August 1958. (vii) to (ix) N.A. (x) November, 1958.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(SFT) type B on page 121 conducted at Kotah.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '	n <sub>1</sub> ''	n <sub>2</sub> ''
Av. yield	625	839	872	732	872	815	798

G.M. = 793 lb./ac. ; S.E. = 35.5 lb./ac. and no. of trials = 10.

**Crop :- Jowar.**

**Ref :- Rj. 59(SFT).**

**Centre :- Kotah (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black. (iii) Nil. (iv) and (v) N.A. (vi) August, 1959. (vii) to (ix) N.A. (x) November, 1959.

## 2. TREATMENTS :

0 = Control (no manure).  
 n<sub>1</sub> = 20 lb./ac. of N as A/S.  
 n<sub>2</sub> = 40 lb./ac. of N as A/S.  
 n<sub>1</sub>' = 20 lb./ac. of N as Urea.  
 n<sub>2</sub>' = 40 lb./ac. of N as Urea.  
 n<sub>1</sub>'' = 20 lb./ac. of N as A/S/N.  
 n<sub>2</sub>'' = 40 lb./ac. of N as A/S/N.  
 n<sub>1</sub>''' = 20 lb./ac. of N as C/A/N.  
 n<sub>2</sub>''' = 40 lb./ac. of N as C/A/N.

## 3. DESIGN and GENERAL :

Same as in expt. no. 58(SFT) type A on page 120 conducted at Kotah.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '	n <sub>1</sub> ''	n <sub>2</sub> ''	n <sub>1</sub> '''	n <sub>2</sub> '''
Av. yield	428	379	510	527	592	782	1004	551	592

G.M. = 596 lb./ac. ; S.E. = 22.7 lb./ac. and no. of trials = 14.

**Crop :- Jowar.**

**Ref :- Rj. 57(SFT).**

**Centre :- Kotah (c.f.).**

**Type :- 'M'.**

Object:—To see the effect of different manurial combinations on the yield of Jowar.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black. (iii) Nil. (iv) and (v) N.A. (vi) August, 1957. (vii) to (ix) N.A. (x) November, 1957.

## 2. TREATMENTS :

0 = Control (no manure).  
 n'' = 20 lb./ac. of N as A/S/N.  
 n''p<sub>1</sub> = 20 lb./ac. of N as A/S/N+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
 n''p<sub>2</sub> = 20 lb./ac. of N as A/S/N+40 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
 n''p<sub>1</sub>k = 20 lb./ac. of N as A/S/N+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. of Pot.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 58(SFT) type A on page 120 conducted at Kotah.



## 5. RESULTS :

Treatment	0	n''	n''p <sub>1</sub>	n''p <sub>2</sub>	n''p <sub>1</sub> k
Av. yield	839	946	996	996	1078

G.M. = 971 lb./ac., S.E. = 22.7 lb./ac. and no. of trials = 12.

**Crop :- Jowar.**  
**Centre :- Kotah (c.f.).**

**Ref :- Rj. 57(SFT).**

**Type :- 'M'.**

Object :—To see the effect of N and P applied individually and in combinations.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black. (iii) Nil. (iv) and (v) N.A. (vi) August, 1957. (vii) to (ix) N.A. (x) November, 1957.

## 2. TREATMENTS :

0 = Control (no manure).  
n<sub>1</sub>'' = 20 lb./ac. of N as A/S/N.  
n<sub>2</sub>'' = 40 lb./ac. of N as A/S/N.  
p<sub>1</sub> = 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
n<sub>1</sub>''p<sub>1</sub> = 20 lb./ac. of N as A/S/N + 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
n<sub>2</sub>''p<sub>1</sub> = 40 lb./ac. of N as A/S/N + 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 58(SFT) type A on page 120 conducted at Kotah.

## 5. RESULTS :

Treatment	0	n <sub>1</sub> ''	n <sub>2</sub> ''	p <sub>1</sub>	n <sub>1</sub> ''p <sub>1</sub>	n <sub>2</sub> ''p <sub>1</sub>
Av. yield	642	724	815	683	938	979

G.M. = 797 lb./ac. ; S.E. = 25.6 lb./ac. and no. of trials = 11.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 58(48).**

**Site :- Soil Cons. Res. Demons. and Tr. Centre Kotah.**

**Type :- 'C'.**

Object :—To find out optimum seed rate and spacing for Jowar under rainfed conditions.

## 1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 12.7.1958. (iv) (a) 1 ploughing and 3 *bakherings*. (b) Behind the plough. (c) and (d) As per treatments. (e) N.A. (v) 5 C.L./ac. of F.Y.M. (vi) RS-1. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 2, 4.12.1958.

## 2. TREATMENTS :

All combinations of (1) and (2)  
(1) 3 seed rates : R<sub>1</sub>=4.4, R<sub>2</sub>=8.8 and R<sub>3</sub>=13.2 lb. ac.  
(2) 3 spacings between rows : S<sub>1</sub>=12, S<sub>2</sub>=18 and S<sub>3</sub>=24 inches.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 35'×24'. (b) 33'×22'. (v) 1'×1'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Bird damage at maturity stage. Scaring of the birds by beating drum is done. (iii) Yield of grain and fodder. (iv) (a) 1958—1963. (b) Yes. (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 719 lb./ac. (ii) 289.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	Mean
S <sub>1</sub>	630	824	756	737
S <sub>2</sub>	797	710	738	748
S <sub>3</sub>	631	707	680	673
Mean	686	747	725	719

S.E. of any marginal mean = 68.3 lb./ac.  
S.E. of body of table = 118.3 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 59(88).**

**Site :- Soil Cons. Res. Demons. and Tr. Centre Kotah.**

**Type :- 'C'.**

Object :—To find out optimum seed rate and spacing for Jowar under rainfed conditions.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jowar. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) (a) 1 ploughing and 3 bakherings. (b) Behind the plough. (c) and (d) As per treatments. (e) N.A. (v) F.Y.M. at 5 C.L./ac. (vi) RS.—1. (vii) Unirrigated. (viii) 2 weedings. (ix) and (x) N.A.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(48) on page 123.

## 5. RESULTS :

(i) 871 lb./ac. (ii) 305.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	Mean
S <sub>1</sub>	886	686	861	811
S <sub>2</sub>	689	1024	869	861
S <sub>3</sub>	1010	874	943	942
Mean	862	861	891	871

S.E. of any marginal mean = 71.9 lb./ac.  
S.E. of body of table = 124.6 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj 59(61).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Type :- 'C'.**

Object :—To study the effect of different dates of sowing on Jowar.

## 1. BASAL CONDITIONS :

(i) (a) Jowar—Wheat. (b) Wheat. (c) Super, A/S and compost. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) 3 ploughings. (b) N.A. (c) 3 srs./ac. (d) 36" between rows. (e) N.A. (v) N.A. (vi) Local. (vii) Irrigated. (viii) 3 weedings. (ix) and (x) N.A.

## 2. TREATMENTS :

3 dates of sowing : D<sub>1</sub>=23.6.1959, D<sub>2</sub>=9.7.1959, and D<sub>3</sub>=31.7.1959.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b)  $33' \times 16\frac{1}{2}'$  (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) *Morasimia Traparelis*, *Tyrtarp* etc. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 119 lb./ac. (ii) 39.5 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>
Av. yield	134	143	80

S.E./mean = 22.8 lb./ac.

**Crop :- Jowar (*Kharif*)****Ref :- Rj. 58 (10).****Site :- Govt. Agri. Exptl. Farm, Kotah.****Type :- 'D'.**

Object :—To study the effect of Guar and Tamarined seed powder on the yield of Jowar.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 15.7.1958 (iv) (a) N.A. (b) Drilling. (c) 8 lb./ac. (d) 12° between rows (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 25.11.1958.

## 2. TREATMENTS :

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

(1) 3 levels of concentrations : L<sub>1</sub>=0.025%, L<sub>2</sub>=0.05% and L<sub>3</sub>=0.10%.(2) 2 chemicals : C<sub>1</sub>=*Guar* seed powder and C<sub>2</sub>=*Tamarined* seed powder.

## 3. DESIGN :

(i) R.B.D. (ii) 7. (b) N.A. (iii) 3. (iv) (a)  $30'3'' \times 18'$ . (b)  $24'3'' \times 12'$ . (v)  $3' \times 3'$ . (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 505 lb./ac. (ii) 30.0 lb./ac. (iii) All effects are highly significant. (iv) Av. yield of grain in lb./ac.

Control = 398 lb./ac.				
	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	Mean
C <sub>1</sub>	481	584	802	622
C <sub>2</sub>	391	388	494	424
Mean	436	486	648	523

S.E. of C marginal mean = 10.0 lb./ac.

S.E. of body of table = 17.3 lb./ac.

**Crop :- Jowar (*Kharif*).****Ref :- Rj. 59 (13).****Site :- Govt. Agri. Exptl. Farm, Kotah.****Type :- 'D'.**

Object :— To find out the economic way of controlling weeds in Jowar.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 17.7.1959. (iv) (a) 3 ploughings. (b) and (c) N.A. (d) 18" between rows. (e) N.A. (v) N.A. (vi) R.S.—I. (vii) Unirrigated. (viii) and (ix) N.A. (x) 9.12.1959.

## 2. TREATMENTS :

T<sub>1</sub>=Unweeded (Control), T<sub>2</sub>=Local method of weeding, T<sub>3</sub>=Pre-emergence applications of weedicides, T<sub>4</sub>=Post-emergence application of weedicides (once), T<sub>5</sub>=Post-emergence application of weedicides (twice), T<sub>6</sub>=Combination of pre-and post-emergence (once), T<sub>7</sub>=Pre-emergence+Cultural method of weeding, T<sub>8</sub>=Post-emergence+Cultural method of weeding, and T<sub>9</sub>=Pre+Post emergence+Cultural method of weeding.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 24'×18'. (b) 18'×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and fodder (iv) to (vii) N.A.

## 5. RESULTS :

(i) 507 lb./ac. (ii) 151.4 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	T <sub>7</sub>	T <sub>8</sub>	T <sub>9</sub>
Av. yield	425	633	309	586	555	296	498	867	397

S.E./mean = 75.7 lb./ac.

**Crop :- Jowar (Kharif)**

**Ref :- Rj. 59(9)**

**Site :- Govt. Agri. Farm, Sawai Madhopur.**

**Type :- 'D'.**

**Object :-** To find out the economic way of controlling weeds in Jowar.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow—Gram. (c) 10 srs./ac. of Super. (ii) Medium loam (b) N.A. (iii) 24.7.1959. (iv) (a) 3 ploughings (b) and (c) N.A. (d) 18" between rows. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) and (ix) N.A. (x) 24.11.1959.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. 59 (13) on page 125.

## 5. RESULTS :

(i) 534 lb./ac. (ii) 197.3 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	T <sub>7</sub>	T <sub>8</sub>	T <sub>9</sub>
Av. yield	252	548	321	668	637	435	662	561	725

S.E./mean = 98.6 lb./ac.

**Crop :- Jowar (Kharif).**

**Ref :- Rj. 59(62).**

**Site :- Govt. Agri. Exptl. Farm, Tabiji.**

**Type :- 'D'.**

**Object :-** To work out a spray schedule for the control of Chilo—Zouellus.

## 1. BASAL CONDITIONS :

(i)(a) *Jowar* -Wheat. (b) Wheat. (c) Super A/S and compost. (ii) (a) Sandy loam. (b) N.A. (iii) 10.7.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 3 srs./ac. (d) 36" between rows. (e) N.A. (v) N.A. (vi) Local. (vii) Irrigated. (viii) 3 weedings. (ix) and (x) N.A.

## 2. TREATMENTS :

C<sub>0</sub>=Control, C<sub>1</sub>=0.05% of Endrine sprayed, C<sub>2</sub>=0.25% of B.H.C. sprayed and C<sub>3</sub>=0.25% of D.D.T. sprayed.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) N A. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 449 lb./ac. (ii) 60.1 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>
Av. yield	327	444	579	446

S.E./mean = 34.7 lb./ac.

**Crop :- Maize (*Kharif*).**

**Ref :- Rj. 55(48).**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'M'.**

Object :-To find out the optimum dose of N in the form of A/S for Maize crop.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) and (iv) N.A. (v) Nil. (vi) Local (vii) Irrigated. (viii) to (x) N.A.

## 2. TREATMENTS :

3 manurial treatments : M<sub>0</sub>=Control, M<sub>1</sub>=20 lb./ac. of N as A/S and M<sub>2</sub>=40 lb./ac. of N as A/S. Fertilizers sprayed at the time of cultivation before sowing.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) 24'3"×16'. (b) 18'3"×12'. (v) 3'×2'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1955—1956. (b) Yes. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 5074 lb./ac. (ii) 395.4 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>
Av. yield	4412	5185	5625

S.E./mean = 228.3 lb./ac.

**Crop :- Maize (*Kharif*).**

**Ref :- Rj. 54(32).**

**Site :- Govt. Agri. Farm, Makrera.**

**Type :- 'M'.**

Object :-To find out the response of Maize to N in the form of A/S in different doses.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 16.7.1954. (iv) and (v) N.A. (vi) Local (medium). (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 15.10 1954.

## 2. TREATMENTS :

4 manurial treatments:  $M_0$ =Control,  $M_1$ =20 lb./ac. of N as A/S,  $M_2$ =40 lb./ac. of N as A/S and  $M_3$ =60 lb./ac. of N as A/S.

Fertilizers were applied by spraying before cultivation.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 30'×16'. (b) 28'×15'. (v) 1'× $\frac{1}{2}$ '. (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 1645 lb./ac. (ii) 337.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$
Av. yield	1419	1760	1738	1664

S.E./mean = 137.9 lb./ac.

**Crop :- Maize (Kharif).**

**Ref :- Rj. 54(12).**

**Site :- Govt. Agri. Exptl. Farm, Tabiji.**

**Type :- 'M'.**

Object :—To see the effect of different doses of compost on the yield of Maize.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 20.7.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 15.10.1954.

## 2. TREATMENTS :

4 manurial treatments:  $M_0$ =Control,  $M_1$ =20 lb./ac. of compost,  $M_2$ =40 lb./ac. of compost and  $M_3$ =60 lb./ac. of compost.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 32'×16'. (b) 30'×14'. (v) 1'×1'. (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 1460 lb./ac. (ii) 314.4 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$
Av. yield	1116	1635	1501	1589

S.E./mean = 128.3 lb./ac.

**Crop :- Maize (Kharif).**

**Ref :- Rj. 58(3).**

**Site :- Govt. Agri. Exptl. Farm, Tabiji.**

**Type :- 'M'.**

Object :—To study the response of Maize to different types of catalysts at different levels with and without F.Y.M.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 15.7.1958. (iv) (a) and (b) N.A. (c) 5 srs./ac. (d) 18" to 24" between rows. (e) N.A. (v) N.A. (vi) Local. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 8.10.1958.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 7 manurial treatments :  $M_0$ =Control,  $M_1$ =40 lb./ac. of catalyst,  $M_2$ =80 lb./ac. of catalyst,  $M_3$ =15 lb./ac. of Ferrous sulphate,  $M_4$ =30 lb./ac. of Ferrous sulphate,  $M_5$ =10 lb./ac. of Pot. permanganate, and  $M_6$ =20 lb./ac. of Pot. permanganate.

(2) 2 levels of F.Y.M. :  $F_0$ =0 and  $F_1$ =5000 lb./ac. of F.Y.M.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 30'3'' $\times$ 18'. (b) 24'3'' $\times$ 12'. (v) 3' $\times$ 3'. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 1969 lb./ac. (ii) 712.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	Mean
$F_0$	2021	1748	1620	1970	1886	2348	2184	1968
$F_1$	1366	1700	2239	2213	1841	2014	2476	1971
Mean	1693	1724	1929	2091	1863	2181	2305	1969

S.E. of M marginal mean = 290.9 lb./ac.

S.E. of F marginal mean = 155.5 lb./ac.

S.E. of body of M $\times$ F table = 411.4 lb./ac.

**Crop :- Maize (Kharif).**

**Ref :- Rj. 55(17).**

**Site :- Govt. Agri. Exptl. Farm, Tabiji.**

**Type :- 'M'.**

Object :- To study the response of Maize to A/S and Super.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 7.7.1955. (iv) (a) to (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) and (ix) N.A. (x) 10.10.1955.

## 2. TREATMENTS :

5 manurial treatments :  $M_0$ =Control,  $M_1$ =20 lb./ac. of N,  $M_2$ =40 lb./ac. of N,  $M_3$ = $M_1$ +20 lb./ac. of  $P_2O_5$  and  $M_4$ = $M_2$ +40 lb./ac. of  $P_2O_5$ .

N as A/S and  $P_2O_5$  as Super applied by spraying before cultivation.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 33' $\times$ 19'. (b) 33' $\times$ 16½'. (v) N.A. (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 2171 lb./ac. (ii) 325.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$
Av. yield	2349	2159	2313	2010	2025

S E./mean = 133.0 lb./ac.

**Crop :- Maize (Kharif).****Ref :- Rj. 58(8).****Site :- Govt. Agri. Exptl. Farm, Tabiji.****Type :- 'M'.**

Object :- To study the effect of different types of Nitrogenous fertilizers at different levels with P and F.Y.M.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.7.1958. (iv) (a) and (b) N.A. (c) 5 srs./ac. (d) 18" to 24" between rows. (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 10.10.1958.

**2. TREATMENTS :**

10 manurial treatments :  $M_0$ =Control,  $M_1$ =5000 lb./ac. of F.Y.M.,  $M_2$ =30 lb./ac. of  $P_2O_5$  as Super.  $M_3=M_1+M_2$ ,  $M_4$ =20 lb./ac. of N as A/S+ $M_3$ ,  $M_5$ =40 lb./ac. of N as A/S+ $M_3$ ,  $M_6$ =20 lb./ac. of A/S/N+ $M_3$ ,  $M_7$ =40 lb./ac. of N as A/S/N+ $M_3$ ,  $M_8$ =20 lb./ac. of N as Urea+ $M_3$  and  $M_9$ =40 lb./ac. of N as Urea+ $M_3$ .

**3. DESIGN :**

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 2026 lb./ac. (ii) 538.3 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	$M_7$	$M_8$	$M_9$
Av. yield	1535	2055	1872	2069	2026	2516	1925	2132	1338	2791

S.E./mean = 269.6 lb./ac.

**Crop :- Maize (Kharif).****Ref :- 57(MAE).****Site :- M.A.E. Farm, Sriganagar.****Type :- 'M'.**

Object—Type—II : To study the residual effect of manures applied to the previous crops of Wheat and Cotton on Maize.

**1. BASAL CONDITIONS :**

(i) (a) Cotton—Senji—Maize—Wheat. (b) Cotton and Senji. (b) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 2nd week of July 1959. (iv) (a) and (b) N.A. (c) 30 lb./ac. (d) 18". (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Weeding. (ix) N.A. (x) Oct., 1959.

**2. TREATMENTS :**

All combinations of (1), (2), (3) and (4).

(1) 3 levels of N as A/S :  $N_0=0$ ,  $N_1=30$  and  $N_2=60$  lb./ac.

(2) 3 levels of  $P_2O_5$  as Super :  $P_0=0$ ,  $P_1=30$  and  $P_2=60$  lb./ac.

(3) 3 levels of  $K_2O$  as Pot. Sul. :  $K_0=0$ ,  $K_1=30$  and  $K_2=60$  lb./ac.

(4) 2 levels of F.Y.M. :  $F_0=0$  and  $F_1=5000$  lb./ac.

Manures applied only to the main crops, wheat and cotton. Residual effect studied on Maize.

**3. DESIGN :**

(i)  $3^3 \times 2$  fact. confd. (ii) (a) 9 plots/block ; 3 blocks for  $F_0$  and 3 blocks for  $F_1$ /replications. (b) N.A. (iii) 1. (iv) (a) 1/80 ac. (b) 1/100 ac. (v) N.A. (vi) Yes.



## 4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1957—contd. (b) Yes. (c) N.A. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1466 lb./ac. (ii) 181.7 lb./ac. (iii) Interaction  $F \times K$  is highly significant while interaction  $N \times K$  is significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	K <sub>0</sub>	K <sub>1</sub>	K <sub>2</sub>	Mean
F <sub>0</sub>	1320	1408	1443	1378	1386	1405	1369	1519	1282	1390
F <sub>1</sub>	1510	1550	1565	1456	1566	1604	1513	1481	1632	1542
Mean	1415	1479	1504	1417	1476	1504	1441	1500	1457	1466
K <sub>0</sub>	1544	1323	1455	1359	1421	1543				
K <sub>1</sub>	1313	1645	1542	1466	1503	1530				
K <sub>2</sub>	1388	1469	1515	1426	1504	1440				
P <sub>0</sub>	1484	1348	1420							
P <sub>1</sub>	1341	1476	1612							
P <sub>2</sub>	1420	1612	1479							

S.E. of marginal mean of N, P or K = 42.8 lb./ac.

S.E. of marginal mean of F = 35.0 lb./ac.

S.E. of body of  $N \times P$ ,  $N \times K$  or  $P \times K$  table = 74.2 lb./ac.

S.E. of body of  $N \times F$ ,  $P \times F$  or  $K \times F$  table = 60.6 lb./ac.

**Crop :- Maize.**

**Ref :- 59(M.A.E.).**

**Site :- M.A.E. Farm, Sriganganagar.**

**Type :- 'M'.**

Object :- Type—II—To study the residual effect of manures applied to the previous crops wheat and cotton on Maize.

## 1. BASAL CONDITIONS :

(i) (a) Cotton+*Senji*—Maize—Wheat. (b) Cotton+*Senji*. (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 2nd week of July, 1959. (iv) (a) and (b) N.A. (c) 30 lb./ac. (d) 18" between rows. (e) N.A. (v) Nil. (vi) Bassi. (vii) Irrigated. (viii) 2 hoeings and 3 weedings. (ix) 16". (x) 1st week of Oct. 1959.

## 2. TREATMENTS :

Same as in expt. no. 57 (M.A.E.) type II on page 130.

## 3. DESIGN :

(i)  $3^3 \times 2$  fact. contd. (ii) (a) 9 plots/block ; 6 blocks/replication. (b) N.A. (iii) 1. (iv) (a)  $33' \times 16.5'$ . (b)  $29 \times 13.5'$ . (v)  $2' \times 1\frac{1}{2}'$ . (vi) Yes.

## 4. GENERAL :

(i) Below normal. (ii) Attack of ants. Control measures taken. (iii) Grain yield. (iv) (a) 1957—contd. (expt. failed in 1958). (b) Yes. (c) N.A. (v) to (vii) Nil.

## 5. RESULTS :

(i) 732 lb./ac. (ii) 218.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	K <sub>0</sub>	K <sub>1</sub>	K <sub>2</sub>	Mean
F <sub>0</sub>	617	601	757	741	584	649	683	601	691	658
F <sub>1</sub>	771	831	817	823	788	808	715	825	878	806
Mean	694	716	787	782	686	729	699	713	785	732
K <sub>0</sub>	650	625	823	757	543	797				
K <sub>1</sub>	691	724	724	741	806	592				
K <sub>2</sub>	741	799	814	848	709	798				
P <sub>0</sub>	724	724	897							
P <sub>1</sub>	667	765	625							
P <sub>2</sub>	691	658	839							

S.E. of marginal mean of N, P or K = 51.4 lb./ac.  
 S.E. of marginal mean of F = 42.0 lb./ac.  
 S.E. of body of N×P, N×K or P×K table = 89.0 lb./ac.  
 S.E. of body of N×F, P×F or K×F table = 72.7 lb./ac.

**Crop :- Maize.**

**Centre :- Banswara (c.f.).**

**Ref :- Rj. 58(SFT).**

**Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) July, 1958. (vii) to (ix) N.A. (x) October, 1958.

**2. TREATMENTS :**

0 = Control (no manure).  
 n = 20 lb./ac. of N as A/S.  
 p = 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
 np = 20 lb./ac. of N as A/S+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
 k = 20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 nk = 20 lb./ac. of N as A/S+20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 pk = 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 npk = 20 lb./ac. of N as A/S+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. Pot.

**3. DESIGN :**

(i) and (ii) The district has been divided into four agriculturally homogenous zones and one field assistant has been 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 a *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 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 above 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) N.A. (b) 1/80 ac. (iv) Yes.

**4. GENERAL :**

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1958—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) Nil.

## 5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	239	66	41	33.7	—16	58	41	41	31.3

Control mean = 543 lb./ac. and no. of trials = 9.

**Crop :- Maize.**

**Ref :- Rj. 59(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

Object :- Type A—To investigate the response of Maize to levels of N, P and K applied individually and in combinations.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) July, 1959. (vii) to (ix) N.A. (x) October, 1959.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(SFT) type A on Maize crop on page 132.

## 5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	206	99	115	86.4	25	58	8	—8	37.9

Control mean = 560 lb./ac. and no. of trials = 7.

**Crop :- Maize**

**Ref :- Rj. 58(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) July, 1958. (vii) to (ix) N.A. (x) October, 1958.

## 2. TREATMENTS :

0 = Control.  
 $n_1'$  = 20 lb./ac. of N as Urea.  
 $n_2'$  = 40 lb./ac. of N as Urea.  
 $n_1''$  = 20 lb./ac. of N as A/S/N.  
 $n_2''$  = 40 lb./ac. of N as A/S/N.  
 $n_1'''$  = 20 lb./ac. of N as C/A/N.  
 $n_2'''$  = 40 lb./ac. of N as C/A/N.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 58(SFT) type A on Maize crop on page 132 conducted at Banswara.

## 5. RESULTS :

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	617	773	773	683	782	790	1020

G.M. = 777 lb./ac.; S.E. = 37.8 lb./ac. and no. of trials = 9.

**Crop :- Maize.****Ref :- Rj. 59(SFT).****Centre :- Banswara (c.f.).****Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) July, 1959. (vii) to (ix) N.A. (x) October, 1959.

**2. TREATMENTS :**

0 = Control (no manure).

 $n_1''$  = 20 lb./ac. of N as A/S/N. $n_1$  = 20 lb./ac. of N as A/S. $n_2''$  = 40 lb./ac. of N as A/S/N. $n_2$  = 40 lb./ac. of N as A/S. $n_1'''$  = 20 lb./ac. of N as C/A/N. $n_1'$  = 20 lb./ac. of N as Urea. $n_2'''$  = 40 lb./ac. of N as C/A/N. $n_2'$  = 40 lb./ac. of N as Urea.**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 58(SFT) type A on Maize crop on page 132 conducted at Banswara.

**5. RESULTS :**

Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2'$	$n_1'''$	$n_2'''$
Av. yield	453	716	913	724	987	667	946

G.M. = 772 lb./ac. ; S.E. = 25.6 lb./ac. and no. of trials = 4.

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	658	831	946	716	790	872	815

G.M. = 804 lb./ac. ; S.E. = 25.6 lb./ac. and no. of trials = 9.

**Crop :- Maize.****Ref :- Rj. 57(SFT).****Centre :- Banswara (c.f.).****Type :- 'M'.**

Object :—To investigate the efficiency of N and P applied individually and in combinations.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) July, 1957. (vii) to (ix) N.A. (x) October, 1957.

**2. TREATMENTS :**

0 = Control (no manure).

 $n''$  = 20 lb./ac. of N as A/S/N. $n''p_1$  = 20 lb./ac. of N as A/S/N + 20 lb./ac. of  $P_2O_5$  as Super. $n''p_2$  = 20 lb./ac. of N as A/S/N + 40 lb./ac. of  $P_2O_5$  as Super. $n''p_1k$  = 20 lb./ac. of N as A/S/N + 20 lb./ac. of  $P_2O_5$  as Super + 20 lb./ac. of  $K_2O$  as Mur. Pot.**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 58(SFT) type A on Maize crop on page 132 conducted at Banswara.

**5. RESULTS :**

Treatment	0	$n''$	$n''p_1$	$n''p_2$	$n''p_1k$
Av. yield	741	716	765	806	782

G.M. = 762 lb./ac. ; S.E. = 36.1 lb./ac. and no. of trials = 6.

**Crop :- Maize.****Ref :- Rj. 57(SFT).****Centre :- Banswara (c.f.).****Type :- 'M'.**

Object :—To investigate the efficiency of N and P applied individually and in combinations.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) July, 1957. (vii) to (ix) N.A. (x) October, 1957.

## 2. TREATMENTS :

0 = Control (no manure).  
 $n_1^*$  = 20 lb./ac. of N as A/S/N.  
 $n_2^*$  = 40 lb./ac. of N as A/S/N.  
 $p_1$  = 20 lb./ac. of  $P_2O_5$  as Super.  
 $n_1^*p_1$  = 20 lb./ac. of N as A/S/N + 20 lb./ac. of  $P_2O_5$  as Super.  
 $n_2^*p_1$  = 40 lb./ac. of N as A/S/N + 40 lb./ac. of  $P_2O_5$  as Super.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 58(SFT) type A on Maize crop on page 132 conducted at Bauswara.

## 5. RESULTS :

Treatment	0	$n_1^*$	$n_2^*$	$p_1$	$n_1^*p_1$	$n_2^*p_1$
Av. yield	617	494	625	346	584	592

G.M. = 543 lb./ac.; S.E. = 47.1 lb./ac. and no. of trials = 6.

**Crop :- Maize (Kharif).**

**Ref :- Rj. 59(56).**

**Site :- Govt. Agri. Farm, Sawai Madhopur.**

**Type :- 'C'.**

Object :—To study the effect of different dates of sowing on the infestation of different insects.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) 250 mds./ac. of F.Y.M. and  $\frac{1}{2}$  mds./ac. of Super. (ii) (a) Loamy. (b) N.A. (iii) As per treatments. (iv) (a) 3 ploughings. (b) Dibbling. (c) 20 srs./ac. (d) 18" between rows. (e) N.A. (v) N.A. (vi) Bassi selected. (vii) Irrigated. (viii) Weedings  $\frac{1}{3}$ , 2 and 1 in early, normal and late sowing respectively. (ix) and (x) N.A.

## 2. TREATMENTS :

3 dates of sowing :  $D_1$  = Early sowing on 22.6.1959.  $D_2$  = Normal sowing on 14.7.1959 and  $D_3$  = Late sowing on 11.8.1959.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) and (b)  $33' \times 16\frac{1}{2}$ . (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) Growth was vigorous, medium and poor in early, normal and late sowing respectively. (ii) Incidence of insect pest was high in early sowing, medium in normal sowing and least in late sowing. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 672 lb./ac. (ii) 38.7 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	$D_1$	$D_2$	$D_3$
Av. yield	823	741	453

S.E./mean = 22.3 lb./ac.

**Crop :- Maize (Kharif).**

**Ref :- Rj. 59(57).**

**Site :- Govt. Agri. Exptl. Farm Tabiji.**

**Type :- 'C'.**

Object :—To study the effect of different dates of sowing on the incidence of Maize stem-borer.

**1. BASAL CONDITIONS :**

(i) (a) Maize—Wheat. (b) Wheat. (c) Super, A/S and compost. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) 3 ploughings. (b) N.A. (c) 6 srs./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) Bassi selected. (vii) Irrigated. (viii) 3 weedings. (ix) and (x) N.A.

**2. TREATMENTS :**

3 dates of sowing :  $D_1$  = Early sowing on 17.6.1959,  $D_2$  = Normal sowing on 6.7.1959 and  $D_3$  = Late sowing on 27.7.1959.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b)  $33' \times 16\frac{1}{2}'$ . (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 1619 lb./ac. (ii) 323.4 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	$D_1$	$D_2$	$D_3$
Av. yield	1070	2227	1561

S.E./mean = 186.7 lb./ac.

**Crop :- Maize (Kharif)**

**Ref :- Rj. 58(7).**

**Site :- Govt. Agri. Exptl. Farm, Tabiji.**

**Type :- 'D'.**

**Object :-** To study the effect of guar seed and tamarined seed powder on the yield of Maize crop.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) Nil. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 9.7.1958. (iv) (a) and (b) N.A. (c) 5 srs./ac. (d) 18" to 24" between rows. (e) N.A. (vi) Local. (vii) Irrigated. (viii) 2 Weedings. (ix) N.A. (x) 8.10.1958.

**2. TREATMENTS :**

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

(1) 2 chemicals :  $T_1$  = Guar seed powder and  $T_2$  = Tamarined seed powder.

(2) 3 concentrations :  $C_1$  = .025%,  $C_2$  = .05% and  $C_3$  = .10%.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a)  $30'3'' \times 18'$ . (b)  $24'3'' \times 12'$ . (v)  $3' \times 3'$ . (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 1889 lb./ac. (ii) 536.6 lb./ac. (iii) Interaction  $C \times T$  and control vs rest are significant. (iv) Av. yield of grain lb./ac.

Control = 940 lb./ac.

	$C_1$	$C_2$	$C_3$	Mean
$T_1$	1501	2326	3121	2316
$T_2$	2101	1796	1437	1778
Mean	1801	2061	2279	2047

S.E. of C marginal mean = 219.1 lb./ac.

S.E. of T marginal mean = 178.9 lb./ac.

S.E. of body of table or control mean = 309.8 lb./ac

**Crop :- Maize (Kharif).****Ref :- Rj. 59(58).****Site :- Govt. Agri. Farm, Tabiji.****Type :- 'D'.**

Object :—To work out a spray schedule for the control of Chilo—Zouellus.

**1. BASAL CONDITIONS :**

(i) (a) Maize—Wheat. (b) Wheat. (c) Super, A/S and compost. (ii) (a) Sandy loam. (b) N.A. (iii) 9.7.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 6 srs./ac. (d) 36" between rows. (e) N.A. (v) N.A. (vi) Bassi selected. (vii) Irrigated. (viii) 2 weedings. (ix) and (x) N.A.

**2. TREATMENTS :**4 insecticidal treatments :  $T_0$ =Control,  $T_1$ =Endrin 0.05% spray,  $T_2$ =B.H.C. 0.25% spray and  $T_3$ =D.D.T 0.25 % spray.**3. DESIGN :**

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

**4. GENERAL :**(i) N.A. (ii) *Merasmia traparelis* and *Athuga ne Zedica*. (iii) Yield of grain. (iv) to (vii) N.A.**5. RESULTS :**

(i) 2324 lb./ac. (ii) 237.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$
Av. yield	2153	2263	2603	2279

S.E./mean = 137.3 lb./ac.

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**Crop :- Maize (Kharif).****Ref :- Rj. 59(59).****Site :- Govt. Agri. Exptl. Farm, Tabiji.****Type :- 'D'.**

Object :—To determine the optimum timing of insecticidal treatment for control of Chilo—Zouellus.

**1. BASAL CONDITIONS :**

(i) (a) Maize—Wheat. (b) Wheat. (c) Super, A/S and compost. (ii) (a) Sandy loam. (b) N.A. (iii) 15.7.1959. (iv) (a) 3 ploughings. (b) N.A. (iii) 6 srs./ac. (d) 36" between rows. (e) N.A. (v) N.A. (vi) Bassi selected. (vii) Unirrigated. (viii) 1 weeding. (ix) and (x) N.A.

**2. TREATMENTS :**6 times of application of spray of 0.5% B.H.C. :  $T_0$ =Control (no spraying),  $T_1$ =2 sprays at the interval of 15 days,  $T_2$ =3 sprays at the interval of 15 days,  $T_3$ =2 sprays at the interval of 10 days,  $T_4$ =3 sprays at the interval of 10 days and  $T_5$ =2 sprays at the interval of 30 days.**3. DESIGN :**

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

**4. GENERAL :**(i) N.A. (ii) *Merasmia traparelis*, stem maggets and white grubs. (iii) Yield of grain. (iv) to (vii) N.A.**5. RESULTS :**

(i) 1811 lb./ac. (ii) 263.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$
Av. yield	1577	1715	1985	1666	2026	1899

S.E./mean = 131.7 lb./ac.

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**Crop :- Maize (Kharif).****Ref :- Rj. 59(60).****Site :- Govt. Agri. Exptl. Farm, Tabiji.****Type :- 'D'.**

Object :—To compare several insecticides as a control of Chilo—Zouellus.

**1. BASAL CONDITIONS :**

(i) (a) Maize—Wheat. (b) Wheat. (c) Super, A/S and compost. (ii) (a) Sandy loam. (b) N.A. (iii) 15.7.1959. (iv) (a) 3 ploughings. (b) N.A. (c) 6 srs./ac. (d) 36" between rows. (e) N.A. (v) N.A. (vi) Bassi selected. (vii) Unirrigated. (viii) 3 weedings. (ix) and (x) N.A.

**2. TREATMENTS :**

8 insecticidal sprays :  $T_0$ =Control,  $T_1$ =Two sprays of Endrin 0.05% and 0.1%,  $T_2$ =Two sprays of B.H.C. 0.1% and 0.2%,  $T_3$ =Two sprays of D.D.T. 0.25% and 0.5%,  $T_4$ =Endrine 0.1 dust at 20 lb./ac.,  $T_5$ =B.H.C. 0.1% dust at 30 lb./ac.,  $T_6$ =D.D.T. 0.5% dust at 30 lb./ac., and  $T_7$ =One spray of B.H.C. 0.1%.

**3. DESIGN :**

(i) R B D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) *Merasmia, traparelis*, stem maggets and white grubs. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 1545 lb./ac. (ii) 347.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$	$T_6$	$T_7$
Av. yield	1667	1253	1165	1358	1874	1672	1641	1733

S.E./mean = 173.6 lb./ac.

**Crop :- Maize (Kharif).****Ref :- Rj. 59(73).****Site :- Govt. Agri. Exptl. Farm, Tabiji.****Type :- 'D'.**

Object :—To find out the effect of detasseling at different stages on the yield of Maize.

**1. BASAL CONDITIONS :**

(i) (a) Wheat—Maize. (b) Wheat. (c) 60 lb./ac. of N+40 lb./ac. of  $P_2O_5$ . (ii) (a) Sandy loam. (b) N.A. (iii) 25.7.1959. (iv) (a) 3 ploughings. (b) and (c) N.A. (d) 24" between rows. (e) N.A. (v) N.A. (vi) Bassi selected. (vii) N.A. (viii) 1 weeding. (ix) N.A. (x) Sept, 1959.

**2. TREATMENTS**

5 detasseling treatments :  $T_0$ =Control,  $T_1$ =Detasseling in alternate plants after one week,  $T_2$ =Detasseling in alternate plants after two weeks,  $T_3$ =Detasseling in alternate rows after one week and  $T_4$ =Detasseling in alternate rows after two weeks.

**3. DESIGN :**

(i) L. Sq. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 32'3"×20'. (b) 30'3"×16'. (v) 1'×2'. (vii) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain and fodder. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 1266 lb./ac. (ii) 410.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$
Av. yield	1244	1343	1213	1348	1184

S.E./mean = 183.5 lb./ac.



**Crop :- Maize (Kharif).**  
**Site :- Govt. Agri. Farm, Udaipur.**

**Ref :- Rj. 59(7).**  
**Type :- 'D'.**

Object :—To find out the economic way of controlling weeds in Maize.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Wheat. (c) 40 lb./ac. of A/S. (ii) (a) Clay loam. (b) N.A. (iii) 17.7.1959.  
 (iv) (a) and (b) N.A. (c) 10 srs./ac. (d) and (e) N.A. (v) N.A. (vi) *Malan*. (vii) Unirrigated. (viii)  
 to (x) N.A.

**2. TREATMENTS :**

9 methods of controlling weeds :  $M_0$ =Unweeded control,  $M_1$ =Local method of weeding,  $M_2$ =Pre-emergence application of weedicides,  $M_3$ =Post-emergence application of weedicides (once),  $M_4$ =Post-emergence application of weedicides (twice),  $M_5$ =Combination of pre and post-emergence (once),  $M_6$ =Pre-emergence+Cultural method of weeding.  $M_7$ =Post-emergence+cultural method of weeding and  $M_8$ =Pre and Post-emergence+Cultural method of weeding.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) 24'×18'. (b) 18'×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain and fodder. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 2008 lb./ac. (ii) 523.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	$M_7$	$M_8$
Av. yield	1481	2492	2089	2376	1418	1919	1935	2366	1935

S.E./mean = 261.7 lb./ac.

**Crop :- Maize (Kharif).**  
**Site :- Govt. Agri. Farm, Udaipur.**

**Ref :- Rj. 59(15).**  
**Type :- 'D'.**

Object :—To study the effect of weedicides in controlling weeds in Maize.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Barley. (c) 40 lb./ac. of A/S. (ii) (a) Clay loam. (b) N.A. (iii) 16.7.1959. (iv) (a) 6 ploughings. (b) N.A. (c) 10 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) to (x) N.A.

**2. TREATMENTS :**

**Main-plot treatments**

4 weedicides :  $W_1$ =Sodium salt of 2, 4-D,  $W_2$ =Ethylester of 2, 4-D,  $W_3$ =Amine salt of 2, 4-D  
 $W_4$ =Sodium salt of M.C.P.A.

**Sub-plot treatments**

5 levels of weedicides :  $L_0=0$ ,  $L_1=8$ ,  $L_2=12$ ,  $L_3=16$ , and  $L_4=20$  ozs./ac. of acid equivalent.

**3. DESIGN :**

(i) Split-plot. (ii) (a) 4 main-plots/block, 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 18'×12'. (b) 12'×6'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 4999 lb./ac. (ii) (a) 2145 lb./ac. (b) 1841 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	4386	5492	6031	6712	4689	5462
W <sub>2</sub>	4405	4235	5114	6012	4793	4912
W <sub>3</sub>	4481	3309	6277	5114	2912	4419
W <sub>4</sub>	7430	3819	4727	5294	4745	5203
Mean	5176	4214	5537	5783	4285	4999

S.E. of difference of two

1. W marginal mean = 678.3 lb./ac.
2. L marginal mean = 650.8 lb./ac.
3. L means at the same level of W = 1301.8 lb./ac.
4. W means at the same level of L = 1347.6 lb./ac.

**Crop :- Barley.**

**Ref :- Rj. 54(34).**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'M'.**

**Object :-**To find out the optimum dose of N for Barley.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 25.11.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium) (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 5.4.1955.

**2. TREATMENTS :**

3 levels of N as A/S : N<sub>0</sub>=0, N<sub>1</sub>=20 and N<sub>2</sub>=40 lb./ac. of N.  
A/S broadcasted before cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) 22'×15'. (b) 19'×12'. (v) 1½'×1½'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 4763 lb./ac. (ii) 223.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>
Av. yield	4556	4900	4834

S.E./mean = 128.9 lb./ac.

**Crop :- Barley.**

**Ref :- Rj. 55(3).**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'M'.**

**Object :-**To find out the optimum dose of N for Barley.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) N.A. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 4.12.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) No. (ix) N.A. (x) 31.3.1956.

**2. TREATMENTS :**

3 levels of N as A/S : N<sub>0</sub>=0, N<sub>1</sub>=20 and N<sub>2</sub>=40 lb./ac.  
A/S broadcasted at the time of cultivation.

## 3. DESIGN:

(i) R.B.D. (ii) (a) 3, (b) N.A. (iii) 3. (iv) (a) 18'×24½'. (b) 12'×18½'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL:

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

## 5. RESULTS:

(i) 3977 lb./ac. (ii) 311.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>
Av. yield	3458	4064	4409

S.E./mean = 180.0 lb./ac.

**Crop :- Barley.**

**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 56(10).**

**Type :- 'M'.**

Object :—To find out the optimum dose of N for Barley.

## 1. BASAL CONDITIONS:

(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam of Gangetic plan. (b) Nil. (iii) 18.11.1936. (iv) (a) to (c) N.A. (v) Nil. (vi) Local. (vii) to (ix) N.A. (x) 29.3.1957.

## 2. TREATMENTS to 4. GENERAL:

Same as in expt. no. 55(3) on page 140.

## 5. RESULTS:

(i) 6112 lb./ac. (ii) 200.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>
Av. yield	5297	6056	6982

S.E./mean = 115.8 lb./ac.

**Crop :- Barley (Rabi).**

**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 57(41).**

**Type :- 'M'.**

Object :—To study the effect of N, P and K with F.Y.M. as basal dressing on the yield of Barley.

## 1. BASAL CONDITIONS:

(i) (a) Nil. (b) Barley. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) 15.11.1957. (iv) (a) 5 ploughings. (b) N.A. (c) 80 lb./ac. (d) Row to row 9". (e) N.A. (v) 5000 lb./ac. of F.Y.M. (vi) R.S.—17 (early). (vii) Irrigated. (viii) 1 weeding. (ix) .71". (x) 23.3.1958.

## 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>=20 and N<sub>2</sub>=40 lb./ac.

(2) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=20 and P<sub>2</sub>=40 lb./ac.

(3) 2 levels of K<sub>2</sub>O as Mur. Pot : K<sub>0</sub>=0, and K<sub>1</sub>=20 lb./ac.

## 3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 2. (iv) (a) 18'×30½'. (b) 12'×24½'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL:

(i) N.A. (ii) Aphids attack ; B.H.C. sprayed. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 1563 lb./ac. (ii) 153.6 lb./ac. (iii) No effect is significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	K <sub>0</sub>	K <sub>1</sub>	Mean
N <sub>0</sub>	1410	1587	1472	1461	1519	1490
N <sub>1</sub>	1607	1506	1650	1563	1617	1590
N <sub>2</sub>	1698	1614	1518	1690	1530	1610
Mean	1572	1569	1547	1571	1555	1563
K <sub>0</sub>	1564	1609	1541			
K <sub>1</sub>	1580	1530	1556			

S.E. of N or P marginal mean = 44.3 lb./ac.  
 S.E. of K marginal mean = 36.2 lb./ac.  
 S.E. of body of N×P table = 76.8 lb./ac.  
 S.E. of body of P×K or N×K table = 62.7 lb./ac.

Crop :- Barely (*Rabi*).

Ref :- Rj. 59(66).

Site :- Govt. Agri. Farm, Bassi.

Type :- 'M'.

Object :- To study the effect of different nitrogenous fertilizers with P on the yield of Barley.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 19.11.1959. (iv) (a) 8 ploughings. (b) N.A. (c) 100 lb./ac. (d) Row to row 9". (e) N.A. (v) 5000 lb./ac. of F Y.M. (vi) R.S.—17. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 25.3.1960.

## 2. TREATMENTS :

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

(1) 3 sources of N : S<sub>1</sub>=A/S, S<sub>2</sub>=A/S/N and S<sub>3</sub>=Urea.(2) 3 levels of N : N<sub>0</sub>=0, N<sub>1</sub>=20 and N<sub>2</sub>=40 lb./ac.(3) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=20 and P<sub>2</sub>=40 lb./ac.3 extra treatments are : T<sub>1</sub>=P<sub>2</sub>+S<sub>1</sub>N<sub>2</sub>+K, T<sub>2</sub>=P<sub>2</sub>+S<sub>2</sub>N<sub>2</sub>+K and T<sub>3</sub>=P<sub>2</sub>+S<sub>3</sub>N<sub>2</sub>+K.  
K=20 lb./ac. of K<sub>2</sub>O as Mur. Pot.

## 3. DESIGN :

(i) 3<sup>3</sup>+3 confd. (ii) (a) 12 plots/block ; 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 18'×30¼'. (b) 12'×24¼'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Aphids attack—B.H.C. sprayed. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 2472 lb./ac. (ii) 314.5 lb./ac. (iii) Only main effect of N is highly significant. Other effects and interactions are not significant. (iv) Av. yield of grain in lb./ac.

T<sub>1</sub>=2810, T<sub>2</sub>=2482 and T<sub>3</sub>=2972 lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	Mean	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>
P <sub>0</sub>	1915	2688	1943	2182	2236	2411	1899
P <sub>1</sub>	2195	2361	3118	2558	2258	2847	2570
P <sub>2</sub>	2093	2676	2972	2580	2698	2626	2417
Mean	2068	2575	2678	2440	2397	2628	2295
S <sub>1</sub>	—	2591	2769	2680			
S <sub>2</sub>	—	2735	2813	2774			
S <sub>3</sub>	—	2398	2451	2424			

S.E. of N or P marginal mean	= 104.8 lb./ac.
S.E. of S marginal mean	= 128.4 lb./ac.
S.E. of body of N×P or P×S table	= 181.6 lb./ac.
S.E. of body of N×S table	= 181.6 lb./ac.

**Crop :- Barley.**

**Ref :- Rj. 55 (2)**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'M'.**

Object :- To study the effect of F.Y.M. on the yield of Barley.

**1. BASAL CONDITIONS :**

(i) (a) and (b) N.A. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 4.12.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) and (ix) N.A. (x) 31.3.1956.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 6 manures :  $M_0$ =No manure,  $M_1$ =40 lb./ac. of catalyst,  $M_2$ =2 times  $M_1$   $M_3$ =14 lb./ac. of  $FeSO_4$ ,  $M_4$ =28 lb./ac. of  $FeSO_4$ , and  $M_5$ =16 lb./ac. of  $KMnO_4$ .

(2) 2 levels of F.Y.M. :  $F_0$ =0 and  $F_1$ =2 tons/ac.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 16'×10'. (b) 12'×6'. (v) 2'×2'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) No. (iii) Yield of grain. (iv) (a) 1955-1957. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1727 lb./ac. (ii) 313.9 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	Mean
$F_0$	1881	2106	1778	1588	2019	1467	1837
$F_1$	1819	1588	2054	1329	1553	1536	1647
Mean	1850	1847	1916	1459	1786	1502	1727

S.E. of F marginal mean	= 74.0 lb./ac.
S.E. of M marginal mean	= 128.1 lb./ac.
S.E. of body of M×S table	= 181.2 lb./ac.

**Crop :- Barley.**

**Ref :- Rj. 56 (2)**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'M'.**

Object :- To study the effect of catalyst, K and F.Y.M. on the yield of Barley.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Nil. (iii) 31.10.1956. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (early) (vii) Irrigated. (viii) and (ix) N.A. (x) 25.3.1957.

**2. TREATMENTS :**

Same as in expt. no. 55 (2) as above

**3. DESIGN :**

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) and (b) 24½'×12'. (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1955-1957. (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 3382 lb./ac. (ii) 424.4 lb./ac. (iii) None of the effects is significant. (iv) Yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	Mean
F <sub>0</sub>	3216	3139	3640	3313	3403	3223	3322
F <sub>1</sub>	3396	3595	3249	3460	2979	3974	3442
Mean	3306	3367	3444	3386	3191	3598	3382

S E. of F marginal mean = 100.6 lb./ac.  
 S E. of M marginal mean = 173.2 lb./ac.  
 S.E. of body of M×S table = 245.0 lb./ac.

**Crop :- Barley (Rabi).**

**Ref :- Rj. 57(34).**

**Site :- Govt. Agri. Farm, Bassii**

**Type :- 'M'.**

Object:—To study the effect of catalyst, K and F.Y.M. on the yield of Barley.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Barley. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 11.11.1957. (iv) (a) 5 ploughings. (b) N.A. (c) 80 lb./ac. (d) Row to row 9". (e) N.A. (v) N.A. (vi) RS—17 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 71". (x) 21.3.1958.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 7 manures : M<sub>0</sub>=No manure, M<sub>1</sub>=40 lb./ac. of catalyst, M<sub>2</sub>=80 lb./ac. of catalyst, M<sub>3</sub>=15 lb./ac. of FeSO<sub>4</sub>, M<sub>4</sub>=30 lb./ac. of FeSO<sub>4</sub>, M<sub>5</sub>=10 lb./ac. of KMnO<sub>4</sub> and M<sub>6</sub>=15 lb./ac. of KMnO<sub>4</sub>.

(2) 2 levels of F.Y.M. : F<sub>0</sub>=0 and F<sub>1</sub>=5000 lb./ac.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 20'×14½'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Aphids attack—dusting of B.H.C. (iii) Yield of grain. (iv) (a) 1955—1957. (b) No. (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 2490 lb./ac. (ii) 521.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	Mean
F <sub>0</sub>	2401	1524	2874	2478	2237	2806	2671	2427
F <sub>1</sub>	1823	2768	2546	2546	2748	2623	2816	2553
Mean	2172	2146	2710	2512	2492	2714	2743	2490

S.E. of M marginal mean = 260.8 lb./ac.  
 S.E. of F marginal mean = 139.9 lb./ac.  
 S.E. of body of M×F table = 368.9 lb./ac.

**Crop :- Barley.**  
**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 54(28).**  
**Type :- 'M'.**

Object :—To study the effect of different trace-elements on growth, germination and yield of Barley.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) *Moong*. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 3.11.1954. (iv) (a) to (c) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) and (ix) N.A. (x) 9.4.1955.

**2. TREATMENTS :**

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

(1) 6 trace-elements : E<sub>1</sub>=Borax powder, E<sub>2</sub>=Ferrous sulphate, E<sub>3</sub>=Copper sulphate, E<sub>4</sub>=Magnesium sulphate, E<sub>5</sub>=Zinc sulphate and E<sub>6</sub>=Ammonium molybdate.

(2) 3 levels of trace-elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=20 lb./ac.

Fertilizers were applied by spraying before cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 19. (b) N.A. (iii) 3. (iv) (a) 22'×13'. (b) 20'×11'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 2838 lb./ac. (ii) 572.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 2400 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>	E <sub>6</sub>
L <sub>1</sub>	3366	2680	2942	2179	2841	3061
L <sub>2</sub>	2230	3095	2968	2264	3205	3248
L <sub>3</sub>	3112	2858	3019	2595	3019	2832
Mean	2903	2878	2976	2346	3022	3047

S.E. of E marginal mean = 190.8 lb./ac.

S E. of body of table or control mean = 330.5 lb./ac.

**Crop :- Barley.**  
**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 55(5).**  
**Type :- 'M'.**

Object .—To study the effect of different trace-elements on the yield of Barley.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) N.A. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 3.12.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) and (ix) N.A. (x) 30.3.1956.

**2. TREATMENTS :**

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

(1) 5 trace-elements : E<sub>1</sub>=Borax powder, E<sub>2</sub>=Ferrous sulphate, E<sub>3</sub>=Copper sulphate, E<sub>4</sub>=Manganese sulphate and E<sub>5</sub>=Zinc sulphate.

(2) 3 levels of trace-elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=20 lb./ac.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 24'×15' (b) 20'×11'. (v) 2'×2'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain/plot. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 2488 lb./ac. (ii) 382.7 lb./ac. (iii) E effect is significant. (iv) Av. yield of grain in lb./ac.

Control = 2527 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>
L <sub>1</sub>	2163	2502	2570	2307	2324
L <sub>2</sub>	2561	2417	2502	2510	2697
L <sub>3</sub>	2688	2459	2570	2629	2375
Mean	2471	2459	2547	2482	2465

S.E. of E marginal mean = 127.6 lb./ac.

S.E. of body of table or control mean = 220.9 lb./ac.

**Crop :- Barley.****Site :- Govt. Agri. Farm, Bassi.****Ref :- Rj. 57(8).****Type :- 'M'.**

Object :- To study the effect of various trace-elements on the yield of Barley.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Barley. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 10.11.1957. (iv) (a) 3 to 4 ploughings. (b) Drilled. (c) 80 lb./ac. (d) Row to row 9". (e) N.A. (v) 30 lb./ac. of N as A/S + 30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super. (vi) R.S.-17 (early). (vii) Irrigated. (viii) 1 weeding and hoeing. (ix) .71". (x) 24.3.1958.

## 2. TREATMENTS :

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

(1) 5 trace-elements : E<sub>1</sub>=Ferrous sulphate, E<sub>2</sub>=C/S, E<sub>3</sub>=Zinc sulphate, E<sub>4</sub>=Manganese sulphate and E<sub>5</sub>=Borax.(2) 3 levels of trace elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=15 lb./ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 18'×30½'. (b) 12'×24½'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Aphids attack controlled by dusting B.H.C. (iii) Yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) (a) Durgapura. (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 2733 lb./ac. (ii) 2050 lb./ac. (iii) E effect is not significant. (iv) Av. yield of grain in lb./ac.

Control = 2658 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>
L <sub>1</sub>	2966	2478	2863	2523	2928
L <sub>2</sub>	2761	2818	2683	2542	2883
L <sub>3</sub>	2806	2677	2722	2658	2761
Mean	2844	2657	2756	2574	2857

S.E. of E marginal mean = 683.3 lb./ac.

S.E. of body of table or control mean = 1184.0 lb./ac.



**Crop :- Barley (Rabi).****Ref :- Rj. 58(14).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'M'.**

Object :—To study the effect of various trace-elements on the yield of Barley.

**1. BASAL CONDITIONS :**(i) (a) No. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 3.12.1958. (iv) (a) 8 ploughings. (b) Drilling (c) 1.25 md./ac. (d) Row to row 9°. (e) N.A. (v) 30 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super. (vi) R.S.—17. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 26.4.1959.**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(8) on page 146.

**4. GENERAL :**

(i) N.A. (ii) No. (iii) Yield of grain. (iv) (a) 1959—contd. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 3213 lb./ac. (ii) 225.4 lb./ac. (iii) E effect is not significant. (iv) Av. yield of grain in lb./ac.

Control = 3086 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>
L <sub>1</sub>	3156	3221	3285	3298	3298
L <sub>2</sub>	3298	3169	3266	3156	3028
L <sub>3</sub>	3118	3259	3400	3144	3221
Mean	3191	3216	3317	3199	3182

S.E. of E marginal mean = 75.1 lb./ac.

S.E. of body of table or control mean = 130.1 lb./ac.

**Crop :- Barley (Rabi).****Ref :- Rj. 59(79).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'M'.**

Object :—To study the effect of various trace-elements on the yield of Barley.

**1. BASAL CONDITIONS :**(i) (a) No. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 8.12.1959. (iv) (a) 7 ploughings. (b) Drilling. (c) 1.25 md./ac. (d) Row to row 9°. (e) N.A. (v) 30 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super. (vi) R.S.—17. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 4.4.1960.**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 57(8) on page 146.

**5. RESULTS :**

(i) 3117 lb./ac. (ii) 238.4 lb./ac. (iii) E effect is not significant. (iv) Av. yield of grain in lb./ac.

Control = 3100 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>
L <sub>1</sub>	2978	2963	3112	3019	3000
L <sub>2</sub>	3131	3181	3062	3150	3050
L <sub>3</sub>	3112	3278	3415	3197	3119
Mean	3074	3141	3196	3122	3056

S.E. of E marginal mean = 79.5 lb./ac.

S.E. of body of E×L table or control mean = 137.6 lb./ac.

**Crop :- Wheat (Rabi).****Ref :- Rj. 57(39).****Centre :- Bassi (c.f.).****Type :- 'M'.**

Object :- To study the effect of Gypsum on the reclamation of alkaline soil and Barley yield.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Wheat. (c) 140 mds. ac of F.Y.M. in July, 1957. (ii) (a) Alkaline soil. (b) N.A. (iii) Nil. (iv) Local. (v) (a) 7 ploughings. (b) N.A. (c) 1 md./ac. (d) Row to row 9" (e) N.A. (vi) 18.10.1957. (vii) Irrigated (viii) and (ix) N.A. (x) 15.3.1958.

**2. TREATMENTS :**

10 manures :  $M_0$ =Control,  $M_1$ =F.Y.M. at 10 tons/ac. in May,  $M_2$ =F.Y.M. at 10 tons ac. in October,  $M_3$ = $M_2$ +Gypsum at 2 tons/ac,  $M_4$ = $M_2$ +Gypsum at 4 tons/ac.,  $M_5$ = $M_2$ +Gypsum at 6 tons/ac,  $M_6$ =20 lb./ac. of N as A/S+30 lb./ac. of  $P_2O_5$  as Super,  $M_7$ = $M_6$ + $M_4$ ,  $M_8$ = $M_6$ +Gypsum at 4 tons/ac. and  $M_9$ =Gypsum at 4 tons/ac.

**3. DESIGN.**

(i) R.B.D. (ii) 10 plots/block and 2 replications. (iii) (a)  $30\frac{1}{2}' \times 24'$ . (b) N.A. (iv) Yes.

**4. GENERAL :**

(i) N.A. (ii) Aphids attack ; control measures not taken. (iii) Yield of grain. (iv) and (v) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1735 lb./ac. (ii) 351.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	$M_7$	$M_8$	$M_9$
Av. yield	1604	2006	1851	1574	1974	1712	1604	1635	1882	1512

S.E./mean = 248.5 lb./ac.

**Crop :- Barley.****Ref :- Rj 54(5).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'M'.**

Object :- To study the effect of catalyst, ferrous sulphate, potassium permanganate and F.Y.M. on Barely yield.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Wheat. (c) No. (ii) (a) Sandy loam. (b) N.A. (iii) Oct. 1954. (iv) (a) to (e) N.A. (v) N.A. (vi) R.S.—17 (early). (vii) Irrigated. (viii) Weeding. (ix) N.A. (x) April, 1955.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 7 manures :  $M_0$ =Control (no manure),  $M_1$ =40 lb./ac. of catalyst,  $M_2$ =80 lb./ac. of catalyst,  $M_3$ =14 lb./ac. of Ferrous sulphate,  $M_4$ =28 lb./ac. of Ferrous sulphate,  $M_5$ =8 lb./ac. of Pot. permanganate and  $M_6$ =10 lb./ac. of Pot. permanganate.

(2) 2 levels of F.Y.M. :  $F_0$ =0 and  $F_1$ =2 tons/ac.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a)  $15' \times 9'$ . (b)  $12' \times 6'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL :**

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Bassi. (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 798 lb./ac. (ii) 172.9 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	Mean
F <sub>0</sub>	689	933	762	586	829	865	948	802
F <sub>1</sub>	829	814	777	689	622	845	985	794
Mean	759	873	769	638	725	855	966	798

S.E. of M marginal mean = 70.6 lb./ac.

S.E. of F marginal mean = 37.7 lb./ac.

S.E. of body of table = 99.8 lb./ac.

**Crop :- Barley.**

**Site :- Govt. Agri. Farm, Durgapura.**

**Ref :- Rj. 55(30).**

**Type :- 'M'.**

Object :—To study the effect of catalyst, ferrous sulphate, potassium permanganate and F.Y.M. on Barley yield.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 8.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 15.2.1956.

**2. TREATMENTS :**

Same as in expt. no. 55(2) on page 143.

**3. DESIGN:**

(i) Fact. in R B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 14'×8'. (b) 12'×6'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 204 lb./ac. (ii) 83.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	Mean
F <sub>0</sub>	218	140	187	183	239	156	187
F <sub>1</sub>	193	208	193	295	214	223	221
Mean	205	174	190	239	226	189	204

S.E. of F marginal mean = 19.7 lb./ac.

S.E. of M marginal mean = 34.1 lb./ac.

S.E. of body of table = 48.2 lb./ac.

**Crop :- Barley.**

**Site :- Govt. Agri. Farm, Durgapura.**

**Ref :- Rj. 56(9).**

**Type :- 'M'.**

Object :—To study the effect of catalyst, ferrous sulphate, potassium permanganate and F.Y.M. on Barley yield.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 15.11.1956. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) and (ix) N.A. (x) 23.3.1957.

**2. TREATMENTS :**

Same as in expt. no. 55(2) on page 143.

Fertilizers sprayed at the time of cultivation.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 15'×27½'. (b) 12'×24½'. (v) 1½'×1½'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 892 lb./ac. (ii) 169.1 lb./ac. (iii) Main effect of M and interaction M×F are highly significant. M effect is not significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	Mean
F <sub>0</sub>	1035	559	527	791	759	932	767
F <sub>1</sub>	797	1260	913	1170	945	1022	1018
Mean	916	909	720	980	852	977	892

S.E. of M marginal mean = 69.0 lb./ac.

S.E. of F marginal mean = 39.8 lb./ac.

S.E. of body of table = 97.6 lb./ac.

**Crop :- Barley.**

**Ref :- Rj. 57(14).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'M'.**

Object :—To study the effect of various trace-elements on the yield of Barley.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) *Guar*. (c) B.M. (ii) (a) Sandy loam. (b) N.A. (iii) 10.11.1957. (iv) (a) 4 ploughings. (b) Drilling. (c) 1.25 md./ac. (d) 1' between rows. (e) N.A. (v) 30 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub>. (vi) R.S.—17 (early). (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 25 to 27.3.1958.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(8) on page 146.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) (a) Bassi. (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 1538 lb./ac. (ii) 325.7 lb./ac. (iii) E effect is not significant. (iv) Av yield of grain in lb./ac.

Control = 1528 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>
L <sub>1</sub>	1412	1631	1387	1456	1348
L <sub>2</sub>	1489	1733	1566	1477	1528
L <sub>3</sub>	1650	1412	1733	1489	1733
Mean	1517	1592	1562	1487	1536

S.E. of E marginal mean = 108.6 lb./ac.  
S.E. of body of table or control mean = 188.0 lb./ac.

**Crop :- Barley (Rabi).**

**Ref :- Rj. 58(30).**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'D'.**

Object :—To find out the economic way of controlling weeds in Barley.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Wheat (c)  $1\frac{1}{2}$  md./ac. of Urea. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 9 ploughings. (b) N.A. (c) 1 md./ac. (d) and (e) N.A. (v) N.A. (vi) R.S—17. (vii) Irrigated. (viii) to (x) N.A.

**2. TREATMENTS :**

5 weeding treatments :  $M_0$ =control,  $M_1$ =Local method of weeding,  $M_2$ =Post-emergence application of weedicides (once),  $M_3$ =Post-emergence application of weedicides (twice) and  $M_4=M_1+M_2$ .

**3. DESIGN :**

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a)  $24' \times 18'$ . (b)  $18' \times 12'$ . (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—N.A. (b) and (c) N.A. (v) to (vii) Nil.

**5. RESULTS :**

(i) 2171 lb./ac. (ii) 342.5 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$
Av. yield	2237	2194	1962	2216	2240

S.E./mean = 139.8 lb./ac.

**Crop :- Barley (Rabi).**

**Ref :- Rj. 59(29).**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'D'.**

Object :—To find out the economic way of controlling weeds in Barley.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 20.11.1959. (iv) (a) 8 ploughings, (b) Dibbling (c) to (e) N.A. (v) N.A. (vi) R.S—17. (vii) Irrigated. (viii) and (ix) N.A. (x) 24.3 1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no 58(30) above.

**5. RESULTS :**

(i) 3058 lb./ac. (ii) 415.4 lb. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$
Av. yield	3196	3213	3053	2919	2911

S.E./mean = 169.6 lb./ac.

**Crop :- Barley (Rabi).****Ref :- Rj. 59(47).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'D'.**

Object:—To study the efficacy of pre-sowing and post-sowing applications of Dieldrin spray for control of termites.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Maize. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 18.11.1959. (iv) (a) 7 ploughings. (b) N.A. (c) 45 srs./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) R.S.—17. (vii) Irrigated. (viii) 2 weedings. (ix) and (x) N.A.

**1. TREATMENTS.**

M<sub>0</sub>=Control, M<sub>1</sub>=Pre-sowing application of Dieldrin at 1 lb./ac. dissolved in 40 gallons of water M<sub>2</sub>=Post sowing application of Dieldrin at 1 lb./ac. dissolved in 40 gallons of water/ac., and M<sub>3</sub>=M<sub>1</sub>+M<sub>2</sub>.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Aphids attack. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS.**

(i) 2046 lb./ac. (ii) 187.6 lb./ac. (iii) Treatment differences are not significant (iv) Av. yield of grain in lb /ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>
Av. yield	1735	2167	2037	2264

S.E./mean = 108.3 lb./ac.

**Crop :- Barley (Rabi).****Ref :- Rj. 58(35).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'D'.**

Object:—To test the relative efficacy of seed dressing fungicides on the yield of Barley.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 26.11.1958. (iv) (a) 6 ploughings. (b) N.A. (c) 1 md./ac. (d) Row to row 9'. (e) N.A. (v) N.A. (vi) R.S.—17. (vii) Irrigated. (viii) 2 weedings. (ix) and (x) N.A.

**2. TREATMENTS:**

10 fungicidal treatments : F<sub>0</sub>=Control, F<sub>1</sub>=Agrosan G.M. at 10 tolas/md., F<sub>2</sub>=Cereson at 6 tolas/md., F<sub>3</sub>=Cereson at 10 tolas/md., F<sub>4</sub>=Lunasan at 6 tolas/md., F<sub>5</sub>=Fernasan at 10 tolas/md., F<sub>6</sub>=Hervason at 6 tolas/md., F<sub>7</sub>=Tillex at 6 tolas/md., F<sub>8</sub>=Copper carbonate at 12 tolas/md. and F<sub>9</sub>=Sulphur at 12 tolas/md.

Fungicides given in one maund of seed.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 15'×9'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—contd. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 3166 lb./ac. (ii) 262.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb /ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>	F <sub>8</sub>	F <sub>9</sub>
Av. yield	3127	3014	3333	3189	3127	3425	2973	3055	3230	3189

S.E./mean = 131.5 lb./ac.

**Crop :- Barley (Rabi).****Ref :- Rj. 59(36).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'D'.**

Object :- To test the relative efficacy of seed dressing fungicides on the yield of Barley.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 7.11.1959. (iv) (a) 8 ploughings. (b) and (c) N.A. (d) Row to row 9". (e) N.A. (v) G.M. only. (vi) R.S.—17. (vii) Irrigated. (viii) and (ix) N.A. (x) 27.3.1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(35) on page 152 except that the no. of replications is 6.

**5. RESULTS :**

(i) 4592 lb./ac. (ii) 504.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>	F <sub>8</sub>	F <sub>9</sub>
Av. yield	4480	4350	4542	4638	4563	4700	4474	4734	4687	4748

S.E./mean = 205.8 lb./ac.

**Crop :- Barley (Rabi).****Ref :- Rj. 58(37).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'D'.**

Object :- To study the effect of weedicides in controlling weeds in Barley.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Fallow. (c) 1½ md. of Urea for Wheat crop in Rabi. (ii) (a) Sandy loam. (b) N.A. (iii) 18.11.1958. (iv) (a) 6 ploughings. (b) N.A. (c) 1 md./ac. (d) Row to row 9". (e) N.A. (v) N.A. (vi) R.S.—17. (vii) Irrigated. (viii) to (x) N.A.

**2. TREATMENTS :****Main-plot treatments :**4 weedicides : W<sub>1</sub>=Sodium salt of 2, 4-D, W<sub>2</sub>=Ethylester of 2, 4-D, W<sub>3</sub>=Amine sal. of 2, 4-D and W<sub>4</sub>=Sodium salt of M.C.P.A.**Sub-plot treatments :**5 levels of weedicides : L<sub>0</sub>=0, L<sub>1</sub>=8, L<sub>2</sub>=12, L<sub>3</sub>=16 and L<sub>4</sub>=20 oz./ac. of acid equivalent.**3. DESIGN :**

(i) Split-plot. (ii) (a) 4 main-plots/block ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 24'×18'. (b) 18'×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—contd. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 2245 lb./ac. (ii) (a) 801.8 lb./ac. (b) 386.7 lb./ac. (iii) No effect is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	2668	2417	2199	2482	2552	2464
W <sub>2</sub>	2308	1909	1961	2051	1967	2039
W <sub>3</sub>	2462	2385	2231	2302	2321	2340
W <sub>4</sub>	1935	2462	2186	2141	1961	2137
Mean	2343	2293	2144	2244	2200	2245

## S.E. of difference of two

1. W marginal means	= 253.5 lb./ac.
2. L marginal means	= 136.7 lb./ac.
3. L means at the same level of W	= 273.4 lb./ac.
4. W means at the same level of L	= 352.3 lb./ac.

**Crop :- Barley (Rabi).****Ref :- Rj. 59(34).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'D'.**

Object :—To study the effect of weedicides in the control of weeds in Barley.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 20.11.1959. (iv) (a) 8 ploughings. (b) to (e) N.A. (v) N.A. (vi) R.S.—17. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.3.1960.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 58(37) on page 153.

**5. RESULTS :**

(i) 2737 lb./ac. (ii) (a) 569.8 lb./ac. (b) 550.8 lb./ac. (iii) No effect is significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	2653	2710	2956	2546	2508	2675
W <sub>2</sub>	3164	2527	2710	2634	2842	2775
W <sub>3</sub>	3195	3132	2269	2451	2899	2789
W <sub>4</sub>	2773	2899	2836	2281	2760	2710
Mean	2946	2817	2693	2478	2752	2737

## S.E. of difference of two

1. W marginal means	= 180.2 lb./ac.
2. L marginal means	= 194.7 lb./ac.
3. L means at the same level of W	= 389.5 lb./ac.
4. W means at the same level of L	= 392.1 lb./ac.

**Crop :- Barley (Rabi).****Ref :- Rj. 59(40).****Site :- Govt. Agri. Farm, Sawai Madhopur.****Type :- 'D'.**

Object :—To study the efficacy of different insecticidal sprays for the control of termites under irrigated conditions.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Chari. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 28.11.1959. (iv) (a) 12 ploughings. (b) N.A. (c) 1 md./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) R.S.—17. (vii) Irrigated. (viii) 1 weeding. (ix) and (x) N.A.

**2. TREATMENTS :**13 insecticidal treatments : T<sub>0</sub>=Control (4 plots), T<sub>1</sub>=1 lb. of Aldrin, T<sub>2</sub>=1 lb. of Dieldrin, T<sub>3</sub>=2.5 lb. of B.H.C., T<sub>4</sub>=2.5 lb. of D.D.T., T<sub>5</sub>=1.25 lb. of Aldrin, T<sub>6</sub>=1.25 lb. of Dieldrin, T<sub>7</sub>=3 lb. of B.H.C., T<sub>8</sub>=3 lb. of D.D.T., T<sub>9</sub>=1.5 lb. of Aldrin, T<sub>10</sub>=1.5 lb. of Dieldrin, T<sub>11</sub>=3.5 lb. of B.H.C. and T<sub>12</sub>=3.5 lb. of D.D.T.

Chemicals applied in 40 gallons of water /ac.



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## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 33'×16.5'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Aphids attack. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 4180 lb./ac. (ii) 301.4 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>
Av. yield	4106	4145	4331	4418	3955	4233	4135
Treatment	T <sub>7</sub>	T <sub>8</sub>	T <sub>9</sub>	T <sub>10</sub>	T <sub>11</sub>	T <sub>12</sub>	
Av. yield	4382	4058	4289	4084	4557	3868	

S.E. of control mean = 75.4 lb./ac.

S.E./mean (other than control). = 150.7 lb./ac.

**Crop :- Bajra (Kharif).****Ref :- Rj. 54(19).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'M'.**

Object :- To study the response of Bajra to A/S and F.Y.M. in different doses.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat—Gram. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 14.7.1954. (iv) (a) 2 ploughing. (b) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 29.10.1954.

## 2. TREATMENTS :

10 manurial treatments : M<sub>0</sub>=Control, M<sub>1</sub>=10 lb./ac. of N as A/S, M<sub>2</sub>=20 lb./ac. of N as A/S, M<sub>3</sub>=30 lb./ac. of N as A/S, M<sub>4</sub>=10 lb./ac. of N as F.Y.M., M<sub>5</sub>=20 lb./ac. of N as F.Y.M., M<sub>6</sub>=30 lb./ac. of N as F.Y.M., M<sub>7</sub>=M<sub>1</sub>+M<sub>4</sub>, M<sub>8</sub>=M<sub>1</sub>+M<sub>5</sub> and M<sub>9</sub>=M<sub>2</sub>+M<sub>4</sub>.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 21'×15'. (b) 18'×12'. (v) 1½'×1½'. (vi) Yes.]

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Durgapura. (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 269 lb./ac. (ii) 39.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	278	239	257	301	313	278	239	278	249	257

S.E./mean = 22.9 lb./ac.

**Crop :- Bajra (Kharif).****Ref :- Rj. 55(8).****Site :- Govt. Agri. Farm, Bassi.****Type :- 'M'.**

Object :- To study the response of Bajra to A/S and F.Y.M. in different doses.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 9.7.1955. (iv) (a) to (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) and (ix) N.A. (x) 2.11.1955.

## 2. TREATMENTS :

Same as in expt. no 54(19) on page 155,

## 3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 29'2" × 17'. (b) 24'2" × 12'. (v) 2½' × 2½'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) No. (iii) Yield of grain/plot. (iv) (a) 1954—contd. (b) No. (c) Nil. (iv) (a) Durgapura. (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 712 lb./ac. (ii) 109.6 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yie'd	582	659	749	730	672	664	716	659	837	850

S.E./mean = 63.3 lb./ac.

**Crop :- Bajra (Kharif).**

**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 56(7).**

**Type :- 'M'.**

Object :—To study the effect of N on Bajra under unirrigated conditions.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 11.7.1956. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 27.10.1956.

## 2. TREATMENTS :

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

(1) 3 sources of N : S<sub>1</sub>=A/S, S<sub>2</sub>=Urea and S<sub>3</sub>=F.Y.M.

(2) 3 levels of N : N<sub>1</sub>=10, N<sub>2</sub>=15, and N<sub>3</sub>=20 lb./ac.

Extra treatments : E<sub>0</sub>=Control, E<sub>1</sub>=10 lb./ac. of N as A/S+10 lb./ac. of N as F.Y.M.+20 lb./ac. of N as Urea and E<sub>2</sub>=10 lb./ac. of N as A/S.+20 lb./ac. of N as F.Y.M.+20 lb./ac. of N as Urea.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) and (b) 24'3" × 18'. (v) Nil. (vii) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 567 lb./ac. (ii) 73.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

E<sub>0</sub>=481, E<sub>1</sub>=584 and E<sub>2</sub>=578 lb./ac.

	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	Mean
S <sub>1</sub>	533	552	661	582
S <sub>2</sub>	565	572	603	580
S <sub>3</sub>	539	565	565	556
Mean	546	563	610	573

S.E. of N or S marginal mean = 24.4 lb./ac.

S.E. of body of table or E mean = 42.3 lb./ac.

**Crop :- Bajra (Kharif).**  
**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 57(3).**  
**Type :- 'M'.**

Object :--To study the response of Bajra to N from different sources.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 10.7.1957. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 12.11.1957.

**2. TREATMENTS**

All combinations of (1), (2) and (3) +2 extra treatments.  
 (1) 3 sources of N :  $S_1=A/S$ ,  $S_2=Urea$  and  $S_3=A/S/N$ .  
 (2) 3 levels of N :  $N_1=10$ ,  $N_2=15$  and  $N_3=20$  lb./ac.  
 (3) 2 levels of F.Y.M. :  $F_0=0$  and  $F_1=15$  lb./ac. of N as F.Y.M.  
 Extra treatments :  $E_0=Control$  and  $E_1=15$  lb./ac. of N as F.Y.M.  
 Fertilizers sprayed at the time of cultivation before sowing.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv) (a)  $30'3'' \times 18'$ . (b)  $24'3'' \times 12'$ . (v)  $3' \times 3'$ . (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) (a) Durgapura and Mandore. (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 482 lb./ac. (ii) 169.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

$$E_0 = 540 \text{ and } E_1 = 341 \text{ lb./ac.}$$

	$N_1$	$N_2$	$N_3$	$F_0$	$F_1$	Mean
$S_1$	397	566	411	465	452	458
$S_2$	600	402	492	529	467	498
$S_3$	535	530	447	497	512	504
Mean	511	499	450	497	477	487
$F_0$	571	435	484			
$F_1$	452	563	415			

S.E. of S or N marginal mean = 40.0 lb./ac.  
 S.E. of F marginal mean = 32.6 lb./ac.  
 S.E. of body of N×S table = 69.2 lb./ac.  
 S.E. of body of F×S or F×N table = 56.5 lb./ac.  
 S.E. of E mean = 97.8 lb./ac.

**Crop :- Bajra (Kharif).**  
**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 58(9).**  
**Type :- 'M'.**

Object :--To study the response of Bajra to N from different sources.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Moong. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 12.7.1958. (iv) (a) 4 ploughings. (b) N.A. (c) 4 lb./ac. (d) 12" between rows. (e) N.A. (v) N.A. (vi) T-5. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 7.11.1958.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 57(3) above.

## 5. RESULTS :

(i) 752 lb./ac. (ii) 102.0 lb./ac. (iii) Only control vs. rest is highly significant. (iv) Av. yield of grain in lb./ac.

$$E_0 = 478 \text{ and } E_1 = 699 \text{ lb./ac.}$$

	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	F <sub>0</sub>	F <sub>1</sub>	Mean
S <sub>1</sub>	744	783	788	733	855	794
S <sub>2</sub>	768	763	779	760	780	770
S <sub>3</sub>	701	788	752	728	766	747
Mean	738	800	773	740	800	770
F <sub>0</sub>	677	784	760			
F <sub>1</sub>	799	816	786			

S.E. of N or S marginal mean	= 24.0 lb./ac.
S.E. of F marginal mean	= 19.6 lb./ac.
S.E. of body of N×S table	= 41.6 lb./ac.
S.E. of body of N×F or N×S table	= 34.0 lb./ac.
S.E. of E mean	= 58.8 lb./ac.

**Crop :- Bajra (Kharif).**

**Ref :- Rj. 54(21).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'M'.**

Object :- To study the response of Bajra to A/S and F.Y.M.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 10.7.1954. (iv) (a) 5 ploughings. (b) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 24.10.1954.

## 2. TREATMENTS :

10 manurial treatments : M<sub>0</sub>=Control, M<sub>1</sub>=10 lb./ac. of N as A/S, M<sub>2</sub>=20 lb./ac. of N as A/S, M<sub>3</sub>=30 lb./ac. of N as A/S, M<sub>4</sub>=10 lb./ac. of N as F.Y.M., M<sub>5</sub>=20 lb./ac. of N as F.Y.M., M<sub>6</sub>=30 lb./ac. of N as F.Y.M., M<sub>7</sub>=M<sub>1</sub>+M<sub>4</sub>, M<sub>8</sub>=M<sub>1</sub>+M<sub>5</sub> and M<sub>9</sub>=M<sub>2</sub>+M<sub>4</sub>.

## 3. DESIGN :

(i) R B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 27'×15'. (b) 24'×12'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) Poor. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954-1955. (b) No. (c) Nil. (v) (a) Bassi and Mandore. (b) Nil. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 103 lb./ac. (ii) 42.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	101	122	144	95	91	91	42	132	91	122

S.E./mean = 24.5 lb./ac.

**Crop :- Bajra (Kharif).****Ref :- Rj. 55(14).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'M'.**

Object :- To study the response of Bajra to A/S and F.Y.M.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Barley. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 15.7.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 30.10.1955.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 54(21) on page 158.

**4. GENERAL :**

(i) Normal. (ii) Slight smut infection. Control measures—N.A. (iii) Yield of grain. (iv) (a) 1954—1955. (b) Yes. (c) Nil. (v) (a) Bassi and Mandore. (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 228 lb./ac. (ii) 47.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb /ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	79	236	338	426	168	82	100	225	278	347

S.E./mean = 27.4 lb./ac.

**Crop :- Bajra (Kharif).****Ref :- Rj. 57(7).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'M'.**

Object :- To study the effect of N from different sources alone and in combination on the yield of Bajra.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.7.1957. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 2.11.1957.

**2. TREATMENTS :**All combinations of (1), (2) and (3) + 2 extra treatments  
(1) 3 sources of N: S<sub>1</sub>=A/S, S<sub>2</sub>=Urea and S<sub>3</sub>=A/S/N.  
(2) 3 levels of N: N<sub>1</sub>=10, N<sub>2</sub>=15 and N<sub>3</sub>=20 lb./ac.  
(3) 2 levels of F.Y.M.: F<sub>0</sub>=0 and F<sub>1</sub>=15 lb./ac. of N as F.Y.M.  
The extra treatments are: E<sub>0</sub>=Control and E<sub>1</sub>=15 lb./ac. of N as F.Y.M.  
Fertilizers sprayed at the time of cultivation before sowing.**3. DESIGN :**

(i) R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) Poor. (ii) Slight smut infection (iii) Yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) (a) Bassi and Mandore. (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 68 lb./ac. (ii) 84.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb /ac.

$E_0=48$  and  $E_1=42$  lb./ac.

	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	F <sub>0</sub>	F <sub>1</sub>	Mean
S <sub>1</sub>	69	35	75	68	52	60
S <sub>2</sub>	55	78	78	60	81	70
S <sub>3</sub>	77	117	54	77	90	83
Mean	67	77	69	68	74	71
F <sub>0</sub>	57	69	79			
F <sub>1</sub>	78	85	59			

S.E. of S or N marginal mean	= 20.0 lb./ac.
S.E. of F marginal mean	= 16.3 lb./ac.
S.E. of body of N×S table	= 34.6 lb./ac.
S.E. of body of F×S or N table	= 28.2 lb./ac.
S.E. of E mean	= 48.9 lb./ac.

**Crop :- Bajra (Kharif).**

**Ref :- Rj. 58(5).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'M'.**

Object :—To study the effect of N on the yield of Bajra.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) Fallow. (c) N.A. (ii) Sandy loam. (b) N.A. (iii) 11, 12.7.1958. (iv) (a) 4 ploughings. (b) N.A. (c) 2 srs./ac. (d) 9' between rows. (e) N.A. (v) N.A. (vi) R.S.J. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 12—15.10.1958.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(7) on page 159.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1957—contd. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 758 lb./ac. (ii) 215.0 lb./ac. (iii) Only 'control vs rest' is significant. (iv) Av. yield of grain in lb./ac.

$E_0=411$  and  $E_1=686$  lb./ac.

	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	F <sub>0</sub>	F <sub>1</sub>	Mean
S <sub>1</sub>	543	729	805	627	757	692
S <sub>2</sub>	776	807	763	789	772	780
S <sub>3</sub>	721	837	1052	802	939	870
Mean	680	789	873	739	823	781
F <sub>0</sub>	623	787	808			
F <sub>1</sub>	738	791	939			

S.E. of S or N marginal mean	= 50.7 lb./ac.
S.E. of F marginal mean	= 41.4 lb./ac.
S.E. of body of N×S table	= 87.8 lb./ac.
S.E. of body of F×S or N table	= 71.7 lb./ac.
S.E. of E mean	= 124.2 lb./ac.

**Crop :- Bajra (Kharif).****Ref :- Rj. 54(22).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'M'.**

Object :—To study the effect of catalysts on the yield of Bajra.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) 2 tons/ac. of compost. (ii) (a) Sandy loam. (b) N.A. (iii) 3.7.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (late). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 29.10.1954.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 7 manurial treatments :  $M_0$ =Control,  $M_1$ =40 lb./ac. of catalyst,  $M_2$ =80 lb./ac. of catalyst,  $M_3$ =14 lb./ac. of ferrous sulphate,  $M_4$ =28 lb./ac. of ferrous sulphate,  $M_5$ =8 lb./ac. of Pot. Permanganate and  $M_6$ =16 lb./ac. of Pot. permanganate.(2) 2 levels of F.Y.M. :  $F_0$ =0 and  $F_1$ =2 tons/ac. of F.Y.M.**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 14 (b) N.A. (iii) 3. (iv) (a) 15'×9'. (b) 12'×6'. (v) (a) 1½'×1½'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) (a) Bassi. (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 234 lb./ac. (ii) 137.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	Mean
$F_0$	189	151	212	212	363	136	204	210
$F_1$	325	469	174	287	181	98	280	259
Mean	257	310	193	249	272	117	242	234

S.E. of M marginal mean = 55.9 lb./ac.  
 S.E. of F marginal mean = 29.9 lb./ac.  
 S.E. of body of table = 79.1 lb./ac.

**Crop :- Bajra (Kharif).****Ref :- Rj. 55(13).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'M'.**

Object :—To study the effect of catalysts on the yield of Bajra.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 15.7.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 25.10.1955.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 6 manurial treatments :  $M_0$ =Control,  $M_1$ =40 lb./ac. of catalyst,  $M_2$ =80 lb./ac. of catalyst,  $M_3$ =14 lb./ac. of ferrous sulphate,  $M_4$ =28 lb./ac. of ferrous sulphate and  $M_5$ =16 lb./ac. of Pot. permanganate.(2) 2 levels of F.Y.M. :  $F_0$ =0 and  $F_1$ =2 tons./ac.**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 15'×9'. (b) 12'×6'. (v) 1½'×1½'. (vi) Yes.

**4. GENERAL :**

Same as in expt. no. 54(22) above.

**5. RESULTS :**

(i) 208 lb./ac. (ii) 150.3 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	Mean
F <sub>0</sub>	206	271	206	194	85	129	182
F <sub>1</sub>	220	233	65	414	129	349	235
Mean	213	252	135	304	107	239	208

S.E. of M marginal mean = 61.4 lb./ac.  
 S.E. of F marginal mean = 35.4 lb./ac.  
 S.E. of F × M marginal mean = 86.8 lb./ac.

**Crop :- Bajra**

**Ref :- Rj. 57(6).**

**Site :- Govt. Agri. Exptl. Farm, Durgapur.**

**Type :- 'M'.**

**Object :-** To study the effect of catalyst, Ferrous Sulphate and Pot. Permanganate with and without F.Y.M. on Bajra.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 11.7.1957. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 29.10.1957.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 7 manurial treatments : M<sub>0</sub>=Control, M<sub>1</sub>=40 lb./ac. of catalyst, M<sub>2</sub>=80 lb./ac. of catalyst, M<sub>3</sub>=15 lb./ac. of ferrous sulphate, M<sub>4</sub>=30 lb./ac. of ferrous sulphate, M<sub>5</sub>=10 lb./ac. of pot. permanganate, and M<sub>6</sub>=15 lb./ac. pot. permanganate.

(2) 2 leves of F.Y.M. : F<sub>0</sub>=0 and F<sub>1</sub>=50000 lb./ac. of F.Y.M.

**3. DESIGN :**

(i) Fact in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 30'3" × 18'. (b) 24'3" × 12". (v) 3' × 3'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Infection of stigma. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 386 lb./ac. (ii) 54.0. lb./ac. (iii) Main effect of M and interaction F × M are highly significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	Mean
F <sub>0</sub>	395	405	395	434	318	395	472	402
F <sub>1</sub>	482	540	405	318	482	167	196	370
Mean	439	473	400	376	400	281	334	386

S.E. of M marginal mean = 22.0 lb./ac.  
 S.E. of F marginal mean = 11.8 lb./ac.  
 S.E. of body of F × M table = 31.2 lb./ac.



**Crop :- Bajra (Kharif).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Ref :- Rj. 58(4).**

**Type :- 'M'.**

**Object :-** To study the effect of different trace elements at different levels on the yield of Bajra.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.7.1958. (iv) (a) 4 ploughings. (b) N.A. (c) 2 srs./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) R.S.J. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 21.10.1958.

**2. TREATMENTS :**

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

(1) 5 trace elements :  $E_1$ =Copper sulphate,  $E_2$ =Zinc sulphate,  $E_3$ =Borax powder,  $E_4$ =Magnesium sulphate, and  $E_5$ =Ferrous sulphate.

(2) 3 levels of trace elements :  $L_1=5$ ,  $L_2=10$  and  $L_3=15$  lb./ac.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 16 (b) N.A. (iii) 3. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3' around the plot. (vi) Yes.

**4. GENERAL**

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 603.0 lb./ac. (ii) 193.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Control = 706 lb./ac.

	$E_1$	$E_2$	$E_3$	$E_4$	$E_5$
$L_1$	507	642	452	577	654
$L_2$	603	600	548	597	577
$L_3$	680	629	686	430	751
Mean	597	624	562	535	661

S.E. of E marginal mean = 64.4 lb./ac.

**Crop :- Bajra (Kharif).**

**Site :- Govt. Agri. Farm, Mandore.**

**Ref :- Rj. 55(31).**

**Type :- 'M'.**

**Object :-** To find out the effect of N on Bajra.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy. (d) N.A. (iii) 13.8.1955. (iv) (a) and (b) N.A. (c) 3 srs./ac. (d) 12" between rows. (e) N.A. (v) N.A. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 18.11.1955.

**2. TREATMENTS :**

10 manurial treatments :  $M_0$ =Control,  $M_1=10$  lb./ac. of N as A/S,  $M_2=20$  lb./ac. of N as A/S,  $M_3=30$  lb./ac. of N as A/S,  $M_4=10$  lb./ac. of N as F.Y.M.,  $M_5=20$  lb./ac. of N as F.Y.M.,  $M_6=30$  lb./ac. of N as F.Y.M.,  $M_7=M_1+M_4$ ,  $M_8=M_1+M_5$  and  $M_9=M_2+M_5$ .

**3. DESIGN :**

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 29'2"×17'. (b) 24'2"×12'. (v) 2½'×2½'. (vi) Yes.

**4. GENERAL.**

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

## 5. RESULTS :

(i) 154 lb./ac. (ii) 181.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	139	112	177	220	145	154	119	139	166	173

S.E./mean = 104.6 lb./ac.

**Crop : Bajra.**

**Ref :- Rj. 57(4)**

**Site :- Govt. Agri. Farm, Mandore.**

**Type :- 'M'.**

Object :— To study the effect of N from different sources on the yield of Bajra.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy desert. (b) N.A. (iii) 8.7.1957. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 1.11.1957.

## 2. TREATMENTS :

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

(1) 3 sources of N : S<sub>1</sub>=A/S S<sub>2</sub>=Urea and S<sub>3</sub>=A/S/N.

(2) 3 levels of N : N<sub>1</sub>=10, N<sub>2</sub>=15 and N<sub>3</sub>=20lb./ac.

(3) 2 levels of F.Y.M. : F<sub>0</sub>=0 and F<sub>1</sub>=15 lb./ac. of N as F.Y.M.

Extra treatments : E<sub>0</sub>=control and E<sub>1</sub>=15 lb./ac. of N as F.Y.M.

Fertilizers sprayed at the time of cultivation before sowing.

## 3. DESIGN :

(i) R.B.D. (ii) (a) and (b) N.A. (iii) 3. (iv) (a) 30'3"×18". (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) Good (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) (a) Durgapura and Bassi. (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 287 lb./ac. (ii) 135.9 lb./ac. (iii) Main effects of F, F×S and N×S interactions are significant (iv) Av. yield of grain in lb./ac.

E<sub>0</sub> = 231 and E<sub>1</sub> = 180 lb /ac.

	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	F <sub>0</sub>	F <sub>1</sub>	Mean
S <sub>1</sub>	199	332	293	300	249	275
S <sub>2</sub>	255	454	247	316	322	319
S <sub>3</sub>	351	209	321	394	194	294
Mean	268	332	287	337	255	296
F <sub>0</sub>	346	347	317			
F <sub>1</sub>	190	317	258			

S.E. of N or S marginal mean = 32.0 lb /ac.  
 S.E. of F marginal mean = 26.2 lb./ac.  
 S.E. of body of N×S table = 55.5 lb./ac.  
 S.E. of body of N×F or F×S table = 45.3 lb./ac.

**Crop :- Bajra (Kharif).****Ref :- Rj. 58(1).****Site :- Govt. Agri. Farm, Mandore.****Type :- 'M'.**

Object :—To study the effect of different sources and levels of N on the yield of Bajra.

**1. BASAL CONDITIONS :**(i) (a) N.A. (b) *Bajra*. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 3.7.1958. (iv) (a) 3 ploughings. (b) N.A. (c) 2 srs./ac. (d) 12" between rows. (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 26.10.1958.**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 57(4) on page 164.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—contd. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 433 lb./ac. (ii) 118.4 lb./ac. (iii) Only control vs. rest is significant. (iv) Av. yield of grain in lb./ac.

$$E_0 = 257 \text{ and } E_1 = 301 \text{ lb./ac.}$$

	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	F <sub>0</sub>	F <sub>1</sub>	Mean
S <sub>1</sub>	445	379	462	415	443	429
S <sub>2</sub>	445	462	558	522	455	488
S <sub>3</sub>	413	497	388	436	430	433
Mean	434	446	469	458	443	450
F <sub>0</sub>	429	440	503			
F <sub>1</sub>	440	451	436			

S.E. of N or S marginal mean = 27.9 lb./ac.  
 S.E. of F marginal mean = 22.8 lb./ac.  
 S.E. of body of N×S table = 48.3 lb./ac.  
 S.E. of body of F×N or F×S table = 39.5 lb./ac.

**Crop :- Bajra.****Ref :- Rj. 59(SFT).****Centre :- Pali (c.f.).****Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) July, 1959. (vii) Unirrigated. (viii) and (ix) N.A. (x) October, 1959.

**2. TREATMENTS :**

0 = Control (no manure).  
 n = 20 lb./ac. of N as A/S.  
 p = 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
 np = 20 lb./ac. of N as A/S + 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
 k = 20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 nk = 20 lb./ac. of N as A/S + 20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 pk = 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super + 20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 npk = 20 lb./ac. of N as A/S + 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super + 20 lb./ac. of K<sub>2</sub>O as Mur. Pot.

**3. DESIGN :**

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field Assistant has been 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 a kharif cereal, 8 on a rabi cereal, 8 on cash crops, 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 crops other than the legumes. The three trials on legumes are 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 above 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) N.A. (b) 1/80 ac. (iv) Yes.

#### 4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Grain yield. (iv) (a) 1959—contd. (b) and (c) N.A. (v) As per design. (vi) and (vii) Nil.

#### 5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	453	272	436	100.4	-66	16	49	444	65.8

Control mean = 1029 lb./ac. and no. trials = 4.

**Crop :- Bajra.**

**Ref :- Rj. 59(SFT).**

**Centre :- Pali (c.f.).**

**Type :- 'M'.**

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

#### 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert soil. (iii) Nil. (iv) and (v) N.A. (vi) July, 1959. (vii) Unirrigated. (viii) and (ix) N.A. (x) October, 1959.

#### 2. TREATMENTS :

0 = Control (no manure).  
 $n_1'$  = 20 lb./ac. of N as Urea.  
 $n_2'$  = 40 lb./ac. of N as Urea.  
 $n_1''$  = 20 lb./ac. of N as A/S/N.  
 $n_2''$  = 40 lb./ac. of N as A/S/N.  
 $n_1'''$  = 20 lb./ac. of N as C/A/N.  
 $n_2'''$  = 40 lb./ac. of N as C/A/N.

#### 3. DESIGN and 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 165.

#### 5. RESULTS :

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	773	1168	1308	938	1218	1218	1440

G.M. = 1152 lb./ac. ; S.E. = 89.6 lb./ac., and no. of trials = 8.

**Crop :- Bajra (Kharif).**

**Ref :- Rj. 59(14).**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'D'.**

Object :—To determine the relative efficacy of seed dressing fungicides against smut on the yield of Bajra crop.

#### 1. BASAL CONDITIONS :

(i) (a) *Moong-Bajra*. (b) *Moong*. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 22.7.1959. (iv) (a) 3 ploughings. (b) and (c) N.A. (d) 12" between rows. (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) and (ix) N.A. (x) 13.11.1959.

#### 2. TREATMENTS :

8 fungicidal treatments :  $F_0$ =Control  $F_1$ =Agrosan G.M. at 12 tolas/md. of seed,  $F_2$ =Ceresan at 9 tolas/md. of seed,  $F_3$ =Tillex at 9 tolas/md. of seed,  $F_4$ =Lunasan at 9 tolas/md. of seed,

F<sub>5</sub>=Hervasan at 9 tolas/md. of seed, F<sub>6</sub>=Fernasas at 12 tolas/md. of seed and  
F<sub>7</sub>=Sulphur at 18 tolas/md. of seed.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) and (b) 15'×6'. (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and fodder. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 538 lb./ac. (ii) 114.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>
Av. yield	514	565	605	499	504	524	565	529

S.E./mean = 46.5 lb./ac.

**Crop :- Bajra (Kharif).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Ref :- Rj. 59(10).**

**Type :- 'D'.**

Object :—To determine the relative efficacy of seed dressing fungicides against smut on the yield of Bajra.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Moong—Zeera*. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 7.7.1959. (iv) (a) 4 ploughings. (b) Drilling. (c) N.A. (d) 12" between rows. (e) N.A. (v) N.A. (vi) T—5. (vii) Unirrigated. (viii) and (ix) N.A. (x) 27.10.1959.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(14) on page 165.

## 5. RESULTS :

(i) 210 lb./ac. (ii) 77.7 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>
Av. yield	111	187	232	76	121	292	373	287

S.E./mean = 31.7 lb./ac.

**Crop :- Bajra (Kharif).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Ref :- Rj. 59(8).**

**Type :- 'D'.**

Object :—To find out the economic way of controlling weeds in Bajra.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) to (x) N.A.

## 2. TREATMENTS :

8 manurial treatments : M<sub>0</sub>=Control (no weeding), M<sub>1</sub>=Local method of weeding, M<sub>2</sub>=Pre-emergence application of weedicides, M<sub>3</sub>=Post-emergence application of weedicides (once), M<sub>4</sub>=Post-emergence application of weedicides (twice), M<sub>5</sub>=Combination of Pre and Post emergence application each (once), M<sub>6</sub>=Pre-emergence application+Cultural method of weeding, M<sub>7</sub>=Post-emergence application+Cultural method of weeding and M<sub>8</sub>=Pre+Post emergence application+Cultural method of weeding.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 24'×18'. (b) 18'×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and fodder. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 631 lb./ac. (ii) 90.9 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>
Av. yield	262	772	473	381	366	514	775	873	1260
S.E./mean = 45.4 lb./ac.									

**Crop :- Bajra (Kharif),**

**Ref :- Rj. 59(17).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Type :- 'D'.**

Object :—To study the effect of weedicides in controlling of weeds in Bajra.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) to (x) N.A.

## 2. TREATMENTS :

**Main-plot treatments :**

4 weedicides : W<sub>1</sub>=Sodium salt of 2, 4-D, W<sub>2</sub>=Ethylester of 2, 4-D, W<sub>3</sub>=Amine salt of 2, 4-D and W<sub>4</sub>=Sodium salt of M.C.P.A.

**Sub-plot treatments :**

5 levels of weedicides : L<sub>0</sub>=Control, L<sub>1</sub>=8 ozs. acid equivalent per acre, L<sub>2</sub>=12 ozs. acid equivalent per acre, L<sub>3</sub>=16 ozs. acid equivalent per acre and L<sub>4</sub>=20 ozs. acid equivalent per acre.

## 3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/block ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 24'×18'. (b) 18'×12'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) (a) Durgapura. (b) N.A. (vi) and (vii) N.A.

## 5. RESULTS :

(i) 431 lb./ac. (ii) (a) 166.7 lb./ac. (b) 159.3 lb./ac. (ii) Interaction W×L alone is highly significant. (iv) Av. yield of grain in lb./ac.

	L <sub>0</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Mean
W <sub>1</sub>	227	523	444	369	334	379
W <sub>2</sub>	195	728	986	274	381	513
W <sub>3</sub>	315	583	652	214	309	415
W <sub>4</sub>	362	545	520	413	246	417

S.E. of difference of two

1. W marginal means = 52.7 lb./ac.
2. L means at the same level of W = 112.6 lb. ac.
3. W means at the same level of L = 113.7 lb./ac.

**Crop :- Potato (Rabi).**

**Ref :- Rj. 58(42).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'M'.**

Object :—To study the effect of various fertilizers at different levels on the yield of Potato.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Moong. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 22.11.1958. (iv) (a) 4 ploughings (b) N.A. (c) 10 mds./ac. (d) 2' between row. (e) N.A. (v) N.A. (vi) Local. (vii) Irrigated. (viii) and (ix) N.A. (x) 18 to 22.3.1959.

**2. TREATMENTS :**

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

(1) 3 levels of N as A/S :  $N_0=0$ ,  $N_1=45$  and  $N_2=90$  lb./ac.(2) 3 levels of  $P_2O_5$  as Super :  $P_0=0$ ,  $P_1=45$  and  $P_2=90$  lb./ac.(3) 3 levels of  $K_2O$  as Mur. Pot. :  $K_0=0$ ,  $K_1=45$  and  $K_2=90$  lb./ac.**3. DESIGN :**(i) 3<sup>3</sup> confd. (ii) (a) 9 plots/block ; 3 blocks/replication, (b) N.A. (iii) 2. (iv) (a) and (b) 30'3"×18'.  
(v) Nil. (vi) Yes.**4. GENERAL :**

(i) N.A. (ii) Mosaic and heavy frost attack ; Brodeaux mixture sprayed. (iii) Yield of tuber. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 5269 lb./ac. (ii) 1379 lb./ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of tuber in lb./ac.

	$N_0$	$N_1$	$N_2$	Mean	$K_0$	$K_1$	$K_2$
$P_0$	2450	5653	6931	5011	4785	4558	5691
$P_1$	3643	5650	7265	5519	5390	5506	5662
$P_2$	2955	6077	6795	5276	5283	5407	5138
Mean	3016	5793	6997	5269	5153	5157	5497
$K_0$	2968	5321	7169				
$K_1$	2630	5660	7181				
$K_2$	3450	6399	6641				

S.E. of any marginal mean

= 325.0 lb./ac.

S.E. of body of any table

= 563.0 lb./ac.

**Crop :- Potato (Rabi).****Ref :- Rj. 58(29).****Site :- Govt. Agri. Farm, Kota.****Type :- 'D'.****Object :-**To test the relative efficacy of spraying the different fungicides on the control of early Blight of Potato.**1. BASAL CONDITIONS :**(i) N.A. (b) Fallow. (c) N.A. (ii) (a) Black cotton soil. (b) N.A. (iii) 22.11.1958. (iv) (a) 3 ploughings.  
(b) N.A. (c) 20 md./ac. (d) 1½' between rows. (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) N.A.  
(ix) 3.7'. (x) N.A.**2. TREATMENTS :**8 fungicidal sprayings :  $F_0$ =Control,  $F_1$ =Spraying with shell copper fungicides at 3.5 lb./ac.,  $F_2$ =Spraying with shell crag 6·8 at 2 lb./ac,  $F_3$ =Spraying with shell Blitox 50 at 3.5 lb./ac.  $F_4$ =Spraying with shell Bordeaux mixture at 4.5 lb./ac.,  $F_5$ =Spraying with shell Cuprason at 3.5 lb./ac,  $F_6$ =Spraying with shell Dithane 778 at 3.5 lb./ac. and  $F_7$ =Spraying with shell Dithane D-14 at 3.5 lb./ac.

Each fungicides has been dissolved in 100 gallons of water.

**3. DESIGN :**

(i) R B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 18'×12'. (b) 12'×6'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of tuber. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 9178 lb./ac. (ii) 3161 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>
Av. yield	5786	10260	9720	10414	10839	8312	7136	10954

S.E./mean = 1580 lb./ac.

**Crop :- Potato (Rabi).**

**Ref :- Rj. 59(48).**

**Site :- Agri. College Farm, Udaipur.**

**Type :- 'D'.**

Object :—To study the comparative toxicity of Toxaphene, Endrin and Aldrex against Potato cut worm.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar*. (c) A/S at 100 mds./ac. and G.M. cowpea. (ii) (a) Clay loam. (b) N.A. (iii) 10.11.1959. (iv) (a) 3 ploughings. (b) N.A. (c) 15 mds./ac. (d) 2' between rows. (e) N.A. (v) N.A. (vi) Rhuhoa. (vii) Irrigated. (viii) Weeding twice. (ix) and (x) N.A.

## 2. TREATMENTS :

6 insecticidal treatments : T<sub>0</sub>=Control, T<sub>1</sub>=Toxaphene 10% dust at 20 lb./ac., T<sub>2</sub>=Endrex 1% dust at 20 lb./ac., T<sub>3</sub>=Aldrex 5% dust at 20 lb./ac., T<sub>4</sub>=Aldrex 30 E.C.4 pint in 40 gallons of water per acre and T<sub>5</sub>=Endrex 20 E.C. 4 pint in 40 gallons of water per acre.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 36'×19½'. (b) 33'×16½'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) Late blight of Potato. (ii) Nil. (iii) Yield of tuber. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 6035 lb./ac. (ii) 966.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
Av. yield	5593	5676	6262	5807	5807	7065

S.E./mean = 557.8 lb./ac.

**Crop :- Cauliflower (Rabi).**

**Ref :- Rj. 59(50).**

**Site :- Abu Road (c.f.).**

**Type :- 'D'.**

Object :—To study the comparative toxicity of B.H.C., D.D.T., Dieldrin against cauliflower cater pillar.

## 1. BASAL CONDITIONS :

(i) (a) Cauliflower. (b) A/S at 60 lb./ac. and compost at 100 lb./ac. (iii) N.A. (iv) Local. (v) (a) 4 ploughings (b) N.A. (c) 10560 plants./ac. (d) Row to row 1½'. (e) N.A. (vi) 4.9.1959. (vii) Irrigated. (viii) 2 weedings. (ix) and (x) N.A.

## 2. TREATMENTS :

4 insecticidal treatments : T<sub>0</sub>=Control, T<sub>1</sub>=Dieldrin (w.p.) 1% at 20 lb./ac., T<sub>2</sub>=B.H.C. (w.p.) .25% at 20 lb./ac. and T<sub>3</sub>=D.D.T. (w.p.) .25% .25% at 20 lb./ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) and (b) 4 plots./block ; 3 replications. (iii) (a) 36'×18½'. (b) 33'×16½'. (iv) Yes.



## 4. GENERAL :

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

## 5. RESULTS :

(i) 3902 lb./ac. (ii) 212.3 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of caulieflower in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Av. yield.	3086	5129	3950	3442

S.E./mean = 122.6 lb./ac.

**Crop :- Pea (Rabi).**

**Ref :- Rj. 59(42).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

Object :—To study the efficacy of different insecticides for control of termites under irrigated conditions.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 15.11.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 20 srs./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) Local. (vii) Irrigated. (viii) Two weedings. (ix) and (x) N.A.

## 2. TREATMENTS :

13 insecticidal treatments : T<sub>0</sub>=Control (4 plots), T<sub>1</sub>=1 lb./ac. of Aldrin, T<sub>2</sub>=1.25 lb./ac. of Aldrin, T<sub>3</sub>=1.5 lb./ac. of Aldrin, T<sub>4</sub>=1 lb./ac. of Dieldrin, T<sub>5</sub>=1.25 lb./ac. of Dieldrin, T<sub>6</sub>=1.5 lb./ac. of Dieldrin, T<sub>7</sub>=2.5 lb./ac. of B.H.C., T<sub>8</sub>=3.0 lb./ac. of B.H.C., T<sub>9</sub>=3.5 lb./ac. of B.H.C., T<sub>10</sub>=2.5 lb./ac. of D.D.T., T<sub>11</sub>=3.0 lb./ac. of D.D.T., and T<sub>12</sub>=3.5 lb./ac. of D.D.T.

Each insecticide is dissolved in 40 gallons of water/ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) N.A. (ii) Mild attack of pea pod borer and cut worms. (iii) Yield of pea. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 739 lb./ac. (ii) 267.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>
Av. yield	578	707	936	715	591	831	586
Treatment	T <sub>7</sub>	T <sub>8</sub>	T <sub>9</sub>	T <sub>10</sub>	T <sub>11</sub>	T <sub>12</sub>	
Av. yield	792	724	1016	856	1044	717	

S.E./treatment mean = 133.7 lb./ac.

S.E./control mean = 66.8 lb./ac.

**Crop :- Cow Pea (Kharif).**

**Ref :- Rj. 59(64).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

Object :—To study the efficacy of different insecticides for control of red hairy caterpillars.

## 1. BASAL CONDITIONS :

(i) (a) Cow pea—Wheat—Cow pea. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 30.6.1959. (iv) (a) 3 ploughings. (b) N.A. (c) 6 srs./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) soLal. (vii) Unirrigated. (viii) One weeding. (ix) and (x) N.A.

**2. TREATMENTS :**

17 insecticidal sprayings : T<sub>0</sub>=Control (4 plots), T<sub>1</sub>=Aldrin 0.004%, T<sub>2</sub>=Aldrin 0.008%, T<sub>3</sub>=Aldrin 0.012%, T<sub>4</sub>=Aldrin 0.02%, T<sub>5</sub>=B.H.C., 0.1%, T<sub>6</sub>=B.H.C. 0.2%, T<sub>7</sub>=B.H.C. 0.3%, T<sub>8</sub>=B.H.C. 0.4%, T<sub>9</sub>=D.D.T. 0.04%, T<sub>10</sub>=D.D.T. 0.08%, T<sub>11</sub>=D.D.T. 0.12%, T<sub>12</sub>=D.D.T. 0.20%, T<sub>13</sub>=Folidol 0.3%, T<sub>14</sub>=Folidol 0.4%, T<sub>15</sub>=Folidol 0.5% and T<sub>16</sub>=Folidol 0.6%.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv, (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) Yield of cowpea. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 286 lb./ac. (ii) 85.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of cowpea in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	T <sub>7</sub>	T <sub>8</sub>
Av. yield	286	315	319	360	285	199	237	305	336
Treatment	T <sub>9</sub>	T <sub>10</sub>	T <sub>11</sub>	T <sub>12</sub>	T <sub>13</sub>	T <sub>14</sub>	T <sub>15</sub>	T <sub>16</sub>	
Av. yield	285	237	291	309	336	243	243	271	

S.E./treatment mean = 49.4 lb./ac.

S.E./control mean = 24.7 lb./ac.

**Crop :- Chilli.**

**Centre :- Kotah. (c.f.).**

**Ref :- Rj. 58(SFT).**

**Type :- 'M'.**

Object :-Type A—To study the response of Chilli to levels of N, P and K applied individually and in combinations.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) to (x) N.A.

**2. TREATMENTS :**

0 =Control (no manure).

n =50 lb./ac of N as A/S.

p =25 lb /ac. of P<sub>2</sub>O<sub>5</sub> as Super.

np =50 lb./ac. of N as A/S+25 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

k =50 lb./ac. of K<sub>2</sub>O as Mur. Pot.

nk =50 lb./ac. of N as A/S+50 lb./ac. of K<sub>2</sub>O as Mur. Pot.

pk =25 lb./ac of P<sub>2</sub>O<sub>5</sub> as Super+50 lb./ac. of K<sub>2</sub>O as Mur. Pot.

npk =50 lb./ac. of N as A/S+25 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+50 lb./ac. of K<sub>2</sub>O as Mur. Pot.

**3. DESIGN :**

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been 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 a *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 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 above 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) N.A. (b) 1/80 ac. (iv) Yes.

**4. GENERAL :**

(i) Good. (ii) N.A. (iii) Chilli yield. (iv) (a) 1958—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) Nil.

## 5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	280	41	-41	64.2	-82	156	0	41	66.7

Control mean = 1621 lb./ac. and no. of trials=4.

**Crop :- Chilli.**

**Ref :- Rj. 59(SFT).**

**Centre :- Kotah. (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) to (x) N.A.

## 2. TREATMENTS :

0 = Contr. 1 (no manure).  
 $n_1'$  = 50 lb./ac. of N as Urea.  
 $n_2'$  = 100 lb./ac. of N as Urea.  
 $n_1''$  = 50 lb./ac. of N as A/S/N.  
 $n_2''$  = 100 lb./ac. of N as A/S/N.  
 $n_1'''$  = 50 lb./ac. of N as C/A/N  
 $n_2'''$  = 100 lb./ac. of N as C/A/N.

## 3. DESIGN :

Same as in expt. no. 58(SFT) type A conducted on Kotah on page 172.

## 4. GENERAL :

(i) Poor (ii) N.A. (iii) Chilli yield. (iv) (a) 1958—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) Nil.

## 5. RESULTS :

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	378.5	362.1	493.7	485.5	493.7	501.9	469.0

G.M. = 455 lb./ac. ; S.E. = 71.6 lb./ac. and no of trials = 3.

**Crop :- Mustard.**

**Ref :- Rj. 59(SFT).**

**Centre :- Sriganganagar (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (e) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October 1959. (vii) Unirrigated. (viii), and (ix) N.A. (x) April, 1960.

## 2. TREATMENTS :

0 = Control (no manure).  
 n = 20 lb./ac. of N as A/S.  
 p = 20 lb./ac. of  $P_2O_5$  as Super.  
 np = 20 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super.  
 k = 20 lb./ac. of  $K_2O$  as Mur. Pot.  
 nk = 20 lb./ac. of N as A/S+20 lb./ac. of  $K_2O$  as Mur. Pot  
 pk = 20 lb./ac. of  $P_2O_5$  as Super+ 20 lb./ac. of  $K_2O$  as Mur. Pot.  
 npk = 20 lb./ac. of N as A/S+20 lb./ac. of  $P_2O_5$  as Super+20 lb./ac. of  $K_2O$  as Mur. Pot.

## 3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been 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 a *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 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 above 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) N.A. (b) 1/80 acre (iv) Yes.

## 4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield (iv) (a) 1957—contd. (b) No. (c) N.A. (v) As per design. (vi) and (viii) Nil.

## 5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response	214	148	41	14.0	33	-49	33	16	15.6

Control mean = 724 lb./ac. and no of trials = 6.

**Crop :- Mustard.**

**Centre :- Sriganaganagar (c.f.).**

**Ref :- Rj. 59(SFT).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October, 1959. (vii) Unirrigated. (viii) and (ix) N.A. (x) April, 1960.

## 2. TREATMENTS :

0 = Control (no manure).  
 $n_1$  = 20 lb./ac. of N as A/S.  
 $n_2$  = 40 lb./ac. of N as A/S.  
 $n_1'$  = 20 lb./ac. of N as Urea.  
 $n_2'$  = 40 lb./ac. of N as Urea.  
 $n_1'''$  = 20 lb./ac. of N as C/A/N.  
 $n_2'''$  = 40 lb./ac. of N as C/A/N.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 173.

## 5. RESULTS :

Treatment	0	$n_1$	$n_2$	$n_1'$	$n_2'$	$n_1'''$	$n_2'''$
Av. yield	708	905	1251	971	1119	1086	1349

G.M. = 1056 lb./ac. ; S.E. = N.A. and no. of trials = 3.

**Crop :- Gram.**

**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 56(15).**

**Type :- 'M'.**

Object :—To find out the effect of different doses of P on Gram.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 27.10.1956. (iv) and (v) N.A. (vi) Local. (vii) Irrigated. (viii) and (ix) N.A. (x) 2.4.1957.

## 2. TREATMENTS :

3 doses of P as Super :  $P_0=0$ ,  $P_1=20$  and  $P_2=40$  lb./ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a)  $30'3'' \times 18'$ . (b)  $24'3'' \times 12'$ . (v)  $3' \times 3'$ . (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 981 lb./ac. (ii) 376 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	$P_0$	$P_1$	$P_2$
Av. yield	823	784	1337

S.E./mean = 217.1 lb./ac.

**Crop :- Gram.**

**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 56(8).**

**Type :- 'M'.**

Object :—To study the effect of catalyst,  $FeSO_4$  and  $KMnO_4$  with and without F.Y.M. on the yield of Gram.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Yellow alluvium soil. (b) N.A. (iii) 27.10.1956 (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) to (ix) N.A. (x) 3.4.1957.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 6 manurial treatments :  $M_0$ =Control,  $M_1$ =Catalyst at 40 lb./ac.,  $M_2$ =Catalyst at 80 lb./ac.,  $M_3$ =14 lb./ac. of  $FeSO_4$ ,  $M_4$ =28 lb./ac. of  $FeSO_4$  and  $M_5$ =15 lb./ac. of  $KMnO_4$ .

(2) 2 levels of F.Y.M. :  $F_0=0$  and  $F_1=2$  tons/ac.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) and (b)  $24'3'' \times 12'$ . (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) Good (ii) Nil. (iii) Grain yield. (iv) (a) and (b) N.A. (c) Nil. (v) to (vi) Nil.

## 5. RESULTS :

(i) 1244 lb./ac. (ii) 307.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	Mean
$F_0$	1297	1117	1001	1212	1079	1303	1168
$F_1$	1310	1425	1194	1457	1316	1213	1319
Mean	1304	1271	1098	1335	1198	1258	1244

S.E. of M marginal mean = 125.5 lb./ac.

S.E. of F marginal mean = 72.4 lb./ac.

S.E. of body of table = 177.5 lb./ac.

**Crop :- Gram.****Ref :- Rj. 54(23).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'M'.**

Object:—To study the effect of catalyst,  $\text{FeSO}_4$  and  $\text{KMnO}_4$  with and without F.Y.M. on the yield of Gram.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Bajra*. (c) Nil. (v) (a) Black soil. (b) N.A. (iii) 14.10.1954. (iv) (a) 4 ploughings. (b) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 10.3.1955.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 7 manurial treatments :  $M_0$ =Control,  $M_1$ =40 lb./ac. of catalyst,  $M_2$ =80 lb./ac. of catalyst,  $M_3$ =14 lb./ac. of  $\text{FeSO}_4$ ,  $M_4$ =28 lb./ac. of  $\text{FeSO}_4$ ,  $M_5$ =8 lb./ac. of  $\text{KMnO}_4$  and  $M_6$ =16 lb./ac.

(2) 2 levels of F.Y.M. :  $F_0$ =0 and  $F_1$ =2 tons/ac.

Fertilizers applied by spraying before cultivation.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a)  $15' \times 9'$ . (b)  $12' \times 6'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 649 lb./ac. (ii) 105.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	Mean
$F_0$	605	605	627	680	605	658	680	637
$F_1$	658	680	703	627	703	605	658	662
Mean	631	642	665	653	654	631	669	649

S.E. of M marginal mean = 43.1 lb./ac.

S.E. of F marginal mean = 23.0 lb./ac.

S.E. of body of table = 60.9 lb./ac.

**Crop :- Gram****Ref :- Rj. 55(37).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'M'.**

Object:—To study the effect of catalyst,  $\text{FeSO}_4$  and  $\text{KMnO}_4$  with and without F.Y.M. on the yield of Gram.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) *Jowar*. (c) Nil. (ii) (a) Black soil (b) N.A. (iii) 4.11.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) N.A. (viii) Nil. (ix) N.A. (x) 5.4.1956.

**2. TREATMENTS :**

Same as in expt. no. 56(8) on page 175.

Fertilizers sprayed at the time of cultivation.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a)  $27'3'' \times 15'$ . (b)  $24'3'' \times 12'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1955—cond. (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 147 lb./ac. (ii) 146.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	Mean
F <sub>0</sub>	148	145	154	177	135	128	148
F <sub>1</sub>	164	135	148	164	119	145	146
Mean	156	140	151	170	127	136	147

S.E. of M marginal mean = 59.85 lb./ac.  
 S.E. of F marginal mean = 34.55 lb./ac.  
 S.E. of body of table = 84.64 lb./ac.

**Crop :- Gram.**

**Site :- Govt. Agri. Farm, Kotah.**

**Ref :- Rj. 56(13).**

**Type :- 'M'.**

**Object :-** To study the effect of catalyst, FeSO<sub>4</sub> and KMnO<sub>4</sub> with and without F.Y.M. on the yield of Gram.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Jowar*. (c) Nil. (ii) (a) Black soil. (b) N.A. (iii) 7, 8.11.1956. (iv) (a) to (c) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 14.3.1957.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 55(37) on page 176.

**5. RESULTS :**

(i) 1307 lb./ac. (ii) 34.7 lb./ac. (iii) All the effects are highly significant. (iv) Av. yield of grain in lb./ac.

	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	Mean
F <sub>0</sub>	1183	1273	1414	1266	1311	1234	1280
F <sub>1</sub>	1247	1344	1305	1337	1337	1440	1335
Mean	1215	1308	1359	1301	1324	1337	1307

S.E. of M marginal mean = 14.17 lb./ac.  
 S.E. of F marginal mean = 8.18 lb./ac.  
 S.E. of body of table = 20.03 lb./ac.

**Crop :- Gram.**

**Site :- Govt. Agri. Farm, Kotah.**

**Ref :- Rj. 55(35).**

**Type :- 'M'.**

**Object :-** To study the effect of trace elements on Gram.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Medium black soil. (b) N.A. (iii) 12.11.1955. (iv) (a) N.A. (b) Local sowing 4 times. (c) to (e) N.A. (v) N.A. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 5.3.1956.

**2. TREATMENTS :**

All combinations of (1) and (2) + Control.

(1) 5 trace elements : E<sub>1</sub>=Borax powder, E<sub>2</sub>=FeSO<sub>4</sub>, E<sub>3</sub>=C/S, E<sub>4</sub>=MgSO<sub>4</sub> and E<sub>5</sub>=ZnSO<sub>4</sub>.

(2) 3 levels of trace elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=20 lb./ac.

Fertilizers sprayed before sowing.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 22'×13'. (b) 20'×11'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 823 lb./ac. (ii) 104.3 lb./ac. (iii) E effect is not significant. (iv) Av. yield of grain in lb./ac.

Control = 755 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>
L <sub>1</sub>	797	806	781	763	780
L <sub>2</sub>	941	907	806	924	797
L <sub>3</sub>	839	823	873	729	848
Mean	859	845	820	805	808

S.E. of E marginal mean = 30.08 lb./ac.  
 S.E. of body of table = 52.1 lb./ac.

**Crop :- Gram.****Ref :- Rj. 57(17).****Site :- Govt. Agri. Farm, Kotah.****Type :- 'M'.**

Object :—To study the effect of various trace elements on the yield of Gram.

**1. BASAL CONDITIONS :**(i) (a) Nil. (b) *Til.* (c) Nil. (ii) (a) Black soil. (b) N.A. (iii) 30.10.1957. (iv) (a) 3 ploughings. (b) N.A. (c) 60 lb./ac. (d) 1' between rows. (e) N.A. (v) 20 lb./ac. of N as A/S+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as S/P. (vi) RS-10 (early). (vii) Unirrigated. (viii) One weeding. (ix) N.A. (x) 12.3.1958.**2. TREATMENTS :**

Same as in expt. no. 55(35) on page 177.

Fertilizers sprayed before cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 2. (iv) (a) 27'3"×15'. (b) 24'3"×12'. (v) 1½'×1½'. (vi) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 148 lb./ac. (ii) 42.4 lb./ac. (iii) E effect is not significant. (iv) Av. yield of grain in lb./ac.

Control = 141 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>	
L <sub>1</sub>	132	90	167	141	141	
L <sub>2</sub>	148	132	148	125	154	
L <sub>3</sub>	180	157	167	205	144	
Mean	153	126	161	157	146	149

S.E. of E marginal mean = 17.3 lb./ac.  
 S.E. of body of table = 21.2 lb./ac.



**Crop :- Gram (Rabi).**

**Ref :- Rj. 58(12).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'M'.**

Object:—To study the effect of different levels of N, P and K on the yield of Gram.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Cottor. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.11.1958. (iv) (a) 4 ploughings. (b) Drilled. (c) 24 srs./ac. (d) Row to row 1'. (e) N.A. (v) N.A. (vi) R.S.—10. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) 25.4.1959.

**2. TREATMENTS :**

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

(1) 2 levels of N as A/S :  $N_0=0$  and  $N_1=20$  lb./ac.

(2) 2 levels of  $K_2O$  as Mur Pot. :  $K_0=0$  and  $K_1=20$  lb./ac.

(3) 3 levels of  $P_2O_5$  as Super :  $P_0=0$ ,  $P_1=20$  and  $P_2=40$  lb./ac.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a)  $30'3'' \times 18'$ . (b)  $30'3'' \times 16'$ . (v) 1' on either side length wise. (vi) Yes.

**4. GENERAL :**

(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) 1958—contd. (b) and (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 2001 lb./ac. (ii) 283.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$P_0$	$P_1$	$P_2$	Mean	$K_0$	$K_1$
$N_0$	2090	2065	1929	2028	2107	1950
$N_1$	1911	1855	2156	1974	1919	2029
Mean	2000	1960	2042	2001	2013	1989
$K_0$	1908	1981	2149			
$K_1$	2092	1940	1936			

S.E. of N or K marginal mean = 66.89 lb./ac.

S.E. of P marginal mean = 81.93 lb./ac.

S.E. of body of N×K table = 115.9 lb./ac.

S.E. of body of N×K or P×K table = 94.6 lb./ac.

**Crop :- Gram (Rabi).**

**Ref :- Rj. 59(78).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'M'.**

Object:—To study the effect of N, P and K on the yield of Gram.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Sugarcane. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 27.10.1959. (iv) (a) 4 ploughings. (b) Behind the plough. (c) N.A. (d) Row to row 1'. (e) N.A. (v) N.A. (vi) R.S.—10. (vii) Irrigated. (viii) One weeding. (ix) N.A. (x) 15, 16 and 17.4.1960.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 58(12) above.

**4. GENERAL :**

(i) Normal. (ii) No. (iii) Yield of grain and fodder. (iv) (a) 1958—contd. (b) and (c) N.A. (v) to (vii) N.A.

## 5. RESULTS :

(i) 1977 lb./ac. (ii) 237.5 lb./ac. (iii) Interaction K×N alone is significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Mean	K <sub>0</sub>	K <sub>1</sub>
N <sub>0</sub>	1971	1814	2013	1933	1830	2035
N <sub>1</sub>	1998	2096	1969	2021	2080	1963
Mean	1985	1955	1991	1977	1955	1999
K <sub>0</sub>	2006	1912	1946			
K <sub>1</sub>	1964	1998	2036			

S.E. of N or K marginal mean . = 55.98 lb./ac.  
 S.E. of P marginal mean = 68.56 lb./ac.  
 S.E. of body of N×K table = 79.17 lb./ac.  
 S.E. of body of N×P or P×K table = 96.96 lb./ac.

**Crop :- Gram (Rabi).**

**Ref :- Rj. 58(13).**

**Site :- Govt. Agri. Farm, Sriganagar.**

**Type :- 'M'.**

**Object :-** To study the effect of different trace elements on the yield of Gram.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Cotton. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 19.11.1958. (iv) (a) 5 ploughings. (b) Drilled. (c) 24 srs./ac. (d) Row to row 1'. (e) N.A. (v) 15 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super. (vi) R.S.—10 (medium). (vii) Irrigated. (viii) One weeding and hoeing. (ix) N.A. (x) 26.4.1959.

## 2. TREATMENTS :

All combinations of (1) and (2)+Control.

(1) 5 trace elements : E<sub>1</sub>=FeSO<sub>4</sub>, E<sub>2</sub>=C/S, E<sub>3</sub>=ZnSO<sub>4</sub>, E<sub>4</sub>=MgSO<sub>4</sub> and E<sub>5</sub>=Borax powder.

(2) 3 levels of trace elements : L<sub>1</sub>=5, L<sub>2</sub>=10 and L<sub>3</sub>=15 lb./ac.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 24'3"×12'. (b) 24'3"×10'. (v) 1' on either side length wise. (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 2064 lb./ac. (ii) 200.0 lb./ac. (iii) E effect is not significant. (iv) Av. yield of grain in lb./ac.

Control = 2148 lb./ac.

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>
L <sub>1</sub>	1965	1968	2107	1987	2129
L <sub>2</sub>	2171	2092	2036	2197	2096
L <sub>3</sub>	1931	2013	2159	2069	1950
Mean	2022	2024	2101	2084	2058

S.E. of E marginal mean = 66.65 lb./ac.  
 S.E. of body of table = 115.44 lb./ac.

Ref :- Rj. 57(SFT).

Crop :- Gram.

Type :- 'M'.

Centre :- Kotah (c.f.).

Object :- Type C :- To compare the responses of leguminous crops to different levels of  $P_2O_5$ .

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) and (v) N.A. (vi) October-November 1957. (vii) to (ix) N.A. (x) April-March 1958.

## 2. TREATMENTS :

3 levels of  $P_2O_5$  as Super : 0 = Control (no manure),  $p_1=30$  lb./ac. and  $p_2=60$  lb./ac.]

## 3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been posted in each zones. 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 a *kharif* cereal, 8 on a *rabi* cereal 8 on cash crops, 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 above experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zone of the rate of one experiment per village (iii) (a) N.A. (b) 1/80 ac. (iv) Yes.

## 4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1957—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) Nil.

## 5. RESULTS :

Treatment	0	$p_1$	$p_2$
Av. yield	485	617	568

G.M. = 557 lb./ac. ; S.E. = 23.9 lb./ac. and no of trials=11.

Crop :- Bengal Gram.

Ref :- Rj. 58(SFT).

Centre :- Banswara (c.f.).

Type :- 'M'.

Object :-Type C--To compare the responses of leguminous crops to alternative sources and levels of  $P_2O_5$ .

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1958. (vii) to (ix) N.A. (x) March—April 1959.

## 2. TREATMENTS :

0 = Control.  
 $p_1$  = 30 lb./ac. of  $P_2O_5$  as Super.  
 $p_2$  = 60 lb./ac. of  $P_2O_5$  as Super.  
 $p_1'$  = 30 lb./ac. of  $P_2O_5$  as Dicalcium phosphate  
 $p_2'$  = 60 lb./ac. of  $P_2O_5$  as Dicalcium phosphate.

## 3. DESIGN and 4. GENERAL :

Same as in expt. 57(SFT) type C above conducted at Kotah.

## 5. RESULTS :

Treatment	0	$p_1$	$p_1'$	$p_2'$
Av. yield"	724	856	971	1094

G.M. = 899 lb./ac. ; S.E. = 20.4 lb./ac. and no. of trials=10.

**Crop :- Bengal Gram.****Ref :- Rj. 58(SFT).****Centre :- Kotah (c.f.).****Type :- 'M'.**Object:—Type C—To compare the responses of leguminous crops to alternative sources and levels of  $P_2O_5$ .**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1958. (vii) to (ix) N.A. (x) March—April, 1959.

**2. TREATMENTS :**

0 = Control.

 $P_1$  = 30 lb./ac. of  $P_2O_5$  as Super. $P_2$  = 60 lb./ac. of  $P_2O_5$  as Super. $P_1'$  = 30 lb./ac. of  $P_2O_5$  as Dicalcium Phosphate. $P_2'$  = 60 lb./ac. of  $P_2O_5$  as Dicalcium Phosphate.**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 57(SFT) type C on page 181 conducted at Kotah.

**5. RESULTS :**

Treatment	0	$P_1$	$P_2$	$P_1'$	$P_2'$
Av. yield	560	658	749	625	675

G.M. = 653 lb./ac., S.E. = 15.7 lb./ac. and no. of trials = 8.

**Crop :- Bengal Gram.****Ref :- Rj. 58(SFT).****Centre :- Sriganganagar (c.f.).****Type :- 'M'.**Object:—Type C—To compare the responses of leguminous crops to alternative sources and levels of  $P_2O_5$ .**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October—November 1958. (vii) to (ix) N.A. (x) March—April 1959.

**2. TREATMENTS :**

0 = Control.

 $P_1$  = 30 lb./ac. of  $P_2O_5$  as Super. $P_2$  = 60 lb./ac. of  $P_2O_5$  as Super. $P_1'$  = 30 lb./ac. of  $P_2O_5$  as Dicalcium Phosphate. $P_2'$  = 60 lb./ac. of  $P_2O_5$  as Dicalcium Phosphate.**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 57(SFT) type C on page 181 conducted at Kotah.

**5. RESULTS :**

Treatment	0	$P_1$	$P_2$	$P_1'$	$P_2'$
Av. yield	1029	1794	2090	1399	1769

G.M. = 1616 lb./ac.; S.E. = 78.0 lb./ac. and no. of trials = 3.

**Crop :- Bengal Gram.****Ref :- Rj. 59(SFT).****Centre :- Banswara (c.f.).****Type :- 'M'.**Object:—Type C—To compare the responses of leguminous crops to alternative sources and levels of  $P_2O_5$ .

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1959. (vii) to (ix) N.A. (x) March—April, 1960.

## 2. TREATMENTS :

0 = Control (no manure).  
 $p_1$  = 30 lb./ac. of  $P_2O_5$  as Single Super.  
 $p_2$  = 60 lb./ac. of  $P_2O_5$  as Single Super.  
 $n_1p_1$  = 30 lb./ac. of  $P_2O_5$  as Single Super + Nitrogen present in treatment  $p_1$ .  
 $n_2p_2$  = 60 lb./ac. of  $P_2O_5$  as Single Super + Nitrogen present in  $p_2$ .  
 $p_1'$  = 30 lb./ac. of  $P_2O_5$  as Mono Ammo. Phos.  
 $p_2'$  = 60 lb./ac. of  $P_2O_5$  as Mono Ammo. Phos.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 57(SFT) type C on page 181 conducted at Kotah.

## 5. RESULTS :

Treatment	0	$p_1$	$p_2$	$n_1p_1$	$n_2p_2$	$p_1'$	$p_2'$
Av. yield	691	905	1029	996	1103	946	1086

G.M. = 965 lb./ac. ; S.E. = 36.7 lb./ac. and no. of trials = 10.

**Crop :- Bengal Gram.**

**Centre :- Kotah (c.f.).**

**Ref :- Rj. 59(SFT).**

**Type :- 'M'.**

Object :- Type C—To compare the responses of leguminous crops to alternative sources and levels of  $P_2O_5$ .

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium black. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1959. (vii) to (ix) N.A. (x) March—April, 1960.

## 2. TREATMENTS :

Same as in expt. no. 59(SFT) type C on page 182 conducted at Banswara.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 57(SFT) type C on page 181 conducted at Kotah.

## 5. RESULTS :

Treatment	0	$p_1$	$p_2$	$n_1p_1$	$n_2p_2$	$p_1'$	$p_2'$
Av. yield	625	683	806	806	913	675	749

G.M. = 751 lb./ac. ; S.E. = 26.8 lb./ac. and no. of trials = 6.

**Crop :- Bengal Gram.**

**Centre :- Pali (c.f.).**

**Ref :- Rj. 59(SFT).**

**Type :- 'M'.**

Object :- Type C—To compare the responses of leguminous crops to alternative sources and levels of  $P_2O_5$ .

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October—November, 1959. (vii) to (ix) N.A. (x) March—April, 1960.

## 2. TREATMENTS :

Same as in expt. no. 59(SFT) type C on page 182 conducted at Banswara.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 57(SFT) type C on page 181 conducted at Kotah.

## 5. RESULTS :

Treatment	0	P <sub>1</sub>	P <sub>2</sub>	n <sub>1</sub> P <sub>1</sub>	n <sub>2</sub> P <sub>2</sub>	P <sub>1</sub> '	P <sub>2</sub> '
Av. yield	757	1037	1004	1037	1218	1103	1012

G.M. = 1024 lb./ac. ; S.E. = 72.1 lb./ac. and no. of trials = 4.

**Crop :- Bengal Gram.**

**Ref :- Rj. 59(SFT).**

**Centre :- Sriganganagar (c.f.).**

**Type :- 'M'.**

Object :—Type C—To compare the responses of leguminous crops to alternative sources and levels of P<sub>2</sub>O<sub>5</sub>.

## 1. BASAL CONDITIONS :

(i) (a) to N.A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) October–November, 1959. (vii) to (ix) N.A. (x) March–April, 1960.

## 2. TREATMENTS :

Same as in expt. no. 59(SFT) type C on page 182 conducted at Banswara.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 57(SFT) type C on page 181 conducted at Kotah.

## 5. RESULTS :

Treatment	0	P <sub>1</sub>	P <sub>2</sub>	n <sub>1</sub> P <sub>1</sub>	n <sub>2</sub> P <sub>2</sub>	P <sub>1</sub> '	P <sub>2</sub> '
Av. yield	1020	1152	1481	1234	1300	1168	1325

G.M. = 1240 lb./ac. ; S.E. = 54.1 lb./ac. and no. of trials = 8.

**Crop :- Gram (Rabi).**

**Ref :- Rj. 59(49).**

**Site :- Govt. Agri. Farm, Kotah.**

**Type :- 'D'.**

Object :— To study the effect of insecticides for the control of Gram pod borer.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) Fallow. (c) Nil. (ii) (a) and (b) N.A. (iii) 27.10.1959. (iv) (a) 5 ploughings. (b) N.A. (c) 38 srs./ac. (d) Row to row 10". (e) N.A. (v) N.A. (vi) RS—10. (vii) Unirrigated. (viii) Weeding and thriving once. (ix) and (x) N.A.

## 2. TREATMENTS :

5 insecticidal treatments : T<sub>0</sub>=Control, T<sub>1</sub>=Endrex 1% dust, T<sub>2</sub>=Dieldrex 1.5% dust, T<sub>3</sub>=Aldrex 2% dust, and T<sub>4</sub>=Parathion 1% dust.

Each insecticide is applied at 20 lb./ac.

## 3. DESIGN :

(i) R B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) 36'×19½'. (b) 33'×16½'. (v) 1½'×1½'. (vi) Yes.

## 4. GENERAL :

(i) Weak flowering. (ii) Nil—except pod borer. (iii) Yield of grain. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 330 lb./ac. (ii) 95.5 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
Av. yield	271	391	281	321	385

S.E./mean = 55.12 lb./ac.

**Crop :- Gram (Rabi).****Ref :- Rj. 59(43).****Site :- Govt. Agri. Farm, Padasauli.****Type :- 'D'.**

**Object :-** To find out the optimum timing for spraying B.H.C., D.D.T. and Endrin to control Gram Pod borer.

**BASAL CONDITIONS :**

(i) (a) Nil. (b) Gower. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 29.10.1959. (v) (a) 1 ploughing. (b) N.A. (c) 35 srs./ac. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) RS-10. (vii) Irrigated. (viii) to (x) N.A.

**2. TREATMENTS :****Main-plot treatments :**

3 insecticides:  $W_1$ =B.H.C. .25%,  $W_2$ =D.D.T. 25%,  $W_3$ =Endrin .05%.

**Sub-plots treatments :**

5 Times of application:  $T_0$ =No application,  $T_1$ =Before flowering and after 3 weeks,  $T_2$ =Immediately after setting pods,  $T_3$ =2 weeks after setting pods, and  $T_4$ =4 weeks after setting pods.

**3. DESIGN :**

(i) Split-plot. (ii) (a) 3 main-plots/block; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 33'×16½'. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) Grain yield. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 600 lb./ac. (ii) (a) 199.1 lb./ac. (b) 128.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	Mean
$W_1$	600	634	540	793	583	630
$W_2$	652	538	673	684	744	658
$W_3$	540	463	436	552	563	511
Mean	597	545	550	676	630	600

**S.E. of difference of two :**

1. W marginal means = 72.72 lb./ac.
2. T marginal means = 60.51 lb./ac.
3. T means at the same level of W = 104.81 lb./ac.
4. W means at the same level of T = 118.71 lb./ac.

**Crop :- Urid (Kharif)****Ref :- Rj. 59(4).****Site :- Govt. Agri. Farm, Sriganaganagar.****Type :- 'D'.**

**Object :-** To determine the relative efficacy of seed dressing fungicides on the yield of Urid under field conditions.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) to (c) N.A. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) to (x) N.A.

**2. TREATMENTS :**

8 fungicidal treatments:  $F_0$ =Control,  $F_1$ =Agrosan G.N. at 9 tolas/md.,  $F_2$ =Ceresan at 6 tolas/md.,  $F_3$ =Tillax at 6 tolas/md.,  $F_4$ =Sunasan at 6 tolas/md.,  $F_5$ =Hervasan at 6 tolas/md.,  $F_6$ =Fernasan at 9 tolas/md., and  $F_7$ =Sulphur at 12 tolas/md.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) and (b) 20'×6'. (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) to (vii) N.A.

## 5. RESULTS :

(i) 365 lb./ac. (ii) 122.3 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>
Av. yield	178	378	423	427	397	359	223	537

S.E./mean = 49.9 lb./ac.

**Crop :- Urid (Kharif).**

**Ref :- Rj. 59(11).**

**Site :- Govt. Agri. Farm, Kotah.**

**Type :- 'D'.**

Object :— To determine the relative efficacy of different fungicide seed treatments on the yield of Urid under field conditions.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Linseed. (c) N.A. (ii) Black cotton soil. (b) N.A. (iii) 18.7.1959. (iv) (a) 3 ploughings. (b) and (c) N.A. (d) Row to row 1½' (e) 3 seeds/hill. (v) N.A. (vi) Local. (vii) to (ix) N.A. (x) 28.11.1959.

## 2. TREATMENTS to 4. GENERAL :

Same as in expt. 59(4) on page 185.

## 5. RESULTS :

(i) 219 lb./ac. (ii) 152.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>
Av. yield	246	234	204	197	193	219	197	261

S.E./mean = 62.35 lb./ac.

**Crop :- Moong.**

**Ref :- Rj. 55(50).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'M'.**

Object :—To study the effect of G M. guar on wheat in Rabi and then Moong in Kharif.

## 1. BASAL CONDITIONS :

(i) (a) Wheat—Moong. (b) Wheat. (c) Guar was grown in the previous season. (ii) (a) Sandy desert. (iii) 1.8.1955. (iv) (a) to (c) N.A. (v) Nil. (vi) Local (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 29.10.1955.

## 2. TREATMENTS:

All combinations of (1) and (2)

(1) 4 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=50, P<sub>2</sub>=100 and P<sub>3</sub>=150 lb./ac.

(2) 4 ages of Guar plants at the time of application : T<sub>0</sub>=Nil, T<sub>1</sub>=45, T<sub>2</sub>=60 and T<sub>3</sub>=75 days.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 30'3"×24'. (b) 24'3"×18'. (v) 3'×3'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1954—1955. (b) Yes. (c) Nil. (v) to (vii) Nil.



**5. RESULTS :**

(i) 282 lb./ac. (ii) 42.0 lb./ac. (iii) Main effect of T and interaction T×P are significant. (iv) Av. yield of grain in lb./ac.

	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
T <sub>0</sub>	282	268	294	276	280
T <sub>1</sub>	253	279	265	201	249
T <sub>2</sub>	244	279	338	340	300
T <sub>3</sub>	372	250	268	311	300
Mean	288	269	291	282	282

S.E. of any marginal mean = 10.5 lb./ac.

S.E. of body of table = 21.0 lb./ac.

**Crop :- Moong (Kharif).**

**Ref :- Rj. 59(5).**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'M'.**

Object :—To determine the relative efficacy of seed dressing fungicides in relation to germination and yield of Moong.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 23.7.1959. (iv) (a) to (c) N.A. (d) Row to row 1½'. (e) 3 seeds/hill. (v) N.A. (vi) R.S.—4. (vii) Unirrigated. (viii) and (ix) N.A. (x) 6 11.1959.

**2. TREATMENTS :**

8 fungicidal treatments : F<sub>0</sub>=Control, F<sub>1</sub>=Agrosan G.N. at 9 tolas./md., F<sub>2</sub>=Cersan at 6 tolas /md., F<sub>3</sub>=Tillea at 6 tolas./md., F<sub>4</sub>=Lunasan at 6 tolas./md., F<sub>5</sub>=Hervasan at 6 tolas./md., F<sub>6</sub>=Fernasan at 9 total./md. and F<sub>7</sub>=Sulphur at 12 tolas./md.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) and (b) 20'×6'. (v) Nil. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Grain yield. (iv) (a) 1959—N.A. (b) to (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 672 lb./ac. (ii) 141.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>
Av. yield	582	643	703	643	734	665	711	696

S.E./mean = 57.9 lb./ac.

**Crop :- Moong (Kharif).**

**Ref :- Rj. 59(6).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

Object :—To determine the relative efficacy of seed dressing fungicides in relation to germination and yield of Moong.

**1. BASAL CONDITIONS :**

(i) (a) *Moong* - Potato. (b) Potato. (c) A/S, Super and F.Y.M. (ii) (a) Sandy loam. (b) N.A. (iii) 7.7.1959. (iv) (a) 4 ploughings. (b) Dibbling. (c) N.A. (d) Row to row 1½'. (e) N.A. (v) N.A. (vi) R.S.—4. (vii) to (ix) N.A. (x) 16.10.1959.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 59(5) on page 187.

**5. RESULTS :**

(i) 79 lb./ac. (ii) 57.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>
Av. yield	58	117	113	70	43	74	83	73

S.E./mean = 23.53 lb./ac.

**Crop :- Sugarcane.**

**Ref :- Rj. 59(18).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'D'.**

Object :- To find out the economic way of controlling weeds in Sugarcane.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) to (c) N.A. (d) Row to row 3'. (e) N.A. (v) to (x) N.A.

**2. TREATMENTS :**

10 methods of controlling weeds : M<sub>0</sub>=Control, M<sub>1</sub>=Local method of weeding, M<sub>2</sub>=Pre-emergence application (once), M<sub>3</sub>=Post emergence application (once), M<sub>4</sub>=Post emergence application (twice), M<sub>5</sub>=Combination of Pre and Post emergence application (once), M<sub>6</sub>=Pre emergence application + Cultural method of weeding, M<sub>7</sub>=Post-emergence application + Cultural method of weeding, M<sub>8</sub>=Combination of Pre and Post application emergence (once) + Cultural method of weeding and M<sub>9</sub>=Combination of Pre and Post emergence application (twice) + Cultural method of weeding.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 24'×18'. (b) 18'×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) to (vii) N.A.

**5. RESULTS :**

(i) 22.44 tons/ac. (ii) 3.76 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of cane in tons/ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>	M <sub>7</sub>	M <sub>8</sub>	M <sub>9</sub>
Av. yield	23.11	22.06	19.99	24.98	24.64	18.68	19.99	21.13	26.45	23.34

S.E./mean = 18.78 tons/ac.

**Crop :- Sugarcane (Kharif).**

**Ref :- Rj. 59(53).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'D'.**

Object :- To work out a spray schedule for the control of Sugarcane borers.

## 1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 9.4.1959. (iv) (a) 5 ploughings. (b) N.A. (c) 64 mds./ac. (d) and (e) N.A. (v) N.A. (vi) CO—312. (vii) Irrigated. (viii) 3 hoeings and 2 weedings. (ix) and (x) N.A.

## 2. TREATMENTS :

4 fungicidal treatments :  $F_0$ =Control,  $F_1$ =B.H.C. 0.25%,  $F_2$ =D.D.T. 0.25% and  $F_3$ =Endrin 0.05%.

## 3. DESIGN :

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

## 4. GENERAL :

(i) Very poor. (ii) Minor pests of sugarcane. (iii) Yield of cane. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 7.66 tons/ac. (ii) 2.23 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of cane in tons/ac.

Treatment	$F_0$	$F_1$	$F_2$	$F_3$
Av. yield	7.25	7.37	7.26	8.74

S.E./mean = 1.29 tcns/ac.

**Crop :- Sugarcane.**

**Ref :- Rj. 59(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

Object :—Type A—To study the responses of Sugarcane to levels of N, P and K applied individually and in combinations.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) to (x) N.A.

## 3. TREATMENTS :

0 =Control (no manure).  
 n =60 lb./ac. of N as A/S.  
 p =40 lb./ac. of  $P_2O_5$  as Super.  
 np =60 lb./ac. of N as A/S+40 lb./ac. of  $P_2O_5$  as Super.  
 k =40 lb./ac. of  $K_2O$  as Mur. Pot.  
 nk =60 lb./ac. of N as A/S+20 lb./ac. of  $K_2O$  as Mur. Pot.  
 pk =40 lb./ac. of  $P_2O_5$  as Super+40 lb./ac. of  $K_2O$  as Mur. Pot.  
 npk =60 lb./ac. of N as A/S+40 lb./ac. of  $P_2O_5$  as Super+40 lb./ac. of  $K_2O$  as Mur. Pot.

## • DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been 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 a *harif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 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 above 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) N.A. (b) 1,80 ac. (iv) Yes.

## 4. GENERAL :

(i) (a) to (c) N.A. (ii) Nil. (iii) Cane yield. (iv) (a) 1957—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) Nil.

## 5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in tons/ac.	2.76	0.63	0.78	0.194	—0.249	0.11	0.91	0.97	0.170

Control mean = 19.94 tons/ac. and no. of trials = 4.

**Crop :- Sugarcane.****Ref :- Rj. 58(SFT).****Centre :- Kotah (c.f.).****Type :- 'M'.**

Object :—Type A—To study the responses of Sugarcane to levels of N, P and K applied individually and in combinations.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) to (x) N.A.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 59(SFT) type A sugarcane crop on page 189.

**5. RESULTS :**

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in tons/ac.	5 18	2.30	1.29	1.135	0.18	—0.13	0.11	—0.04	0.433

Control mean = 12.09 tons/ac. and no. of trials = 4.

**Crop :- Sugarcane.****Ref :- Rj. 59(SFT).****Centre :- Kotah (c.f.).****Type :- 'M'.**

Object :—Type A—To study the responses of Sugarcane to levels of N, P and K applied individually and in combinations.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) to (x) N.A.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 59(SFT) type A Sugarcane crop on page 189.

**5. RESULTS :**

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in tons/ac.	3.88	3.74	2.41	0.342	0.72	0.44	0.57	0.19	0.439

Control mean = 15.81 tons/ac. and no. trials = 9.

**Crop :- Sugarcane.****Ref :- Rj. 59(SFT).****Centre :- Sriganganagar (c.f.).****Type :- 'M'.**

Object :—Type A—To study the responses of Sugarcane to levels of N, P and K, applied individually and in combinations.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) to (x) N.A.

**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 59(SFT) type A Sugarcane crop on page 189.

**5. RESULTS :**

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in tons/ac.	5.94	0.51	1.75	1.308	—0.51	0.68	—0.49	1.86	0.658

Control mean = 26.47 tons/ac. and no. of trials = 5.

**Crop :- Sugarcane.**  
**Centre :- Kotah (c.f.).**

**Ref :- Rj. 57(SFT).**  
**Type :- 'M'.**

Object:—To study the effect of N and P applied individually and in combinations on Sugarcane crop.

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) to (x) N.A.

**2. TREATMENTS :**

0 =Control (no manure).

$n_1''$  =20 lb./ac. of N as A/S/N.

$n_2''$  =40 lb./ac. of N as A/S/N.

$p_1$  =20 lb./ac. of  $P_2O_5$  as Super.

$n_1''p_1$  =20 lb./ac. of N as A/S/N+20 lb./ac. of  $P_2O_5$  as Super.

$n_2''p_1$  =40 lb./ac. of N as A/S/N+20 lb./ac. of  $P_2O_5$  as Super.

**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 59(SFT) type A Sugarcane crop on page 189.

**5. RESULTS :**

Treatment	0	$n_1''$	$n_2''$	$p_1$	$n_1''p_1$	$n_2''p_1$
Av. yield	12.26	15.76	16.64	13.97	17.89	16.49

G.M. = 15.50 tons/ac. ; S.E. = 0.744 tons/ac, and no. of trials = 6.

**Crop :- Sugarcane.**  
**Centre :- Kotah (c.f.).**

**Ref :- Rj. 58(SFT).**  
**Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Desert. (iii) Nil. (iv) to (x) N.A.

**2. TREATMENTS :**

0 =Control.

$n_1'$  =20 lb./ac. of N as Urea.

$n_2'$  =40 lb./ac. of N as Urea.

$n_1''$  =20 lb./ac. of N as A/S/N.

$n_2''$  =40 lb./ac. of N as A/S/N.

**3. DESIGN and 4. GENERAL :**

Same as in expt. no. no. 59(SFT) type A on page 190 conducted at Kotah.

**5. RESULTS :**

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$
Av. yield	13.37	15.47	20.81	16.86	21.12

G.M. = 17.53 tons/ac. ; S.E. = 0.663 tons/ac, and no. of trials = 4

**Crop :- Cotton.**  
**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 54(59).**  
**Type :- 'M'.**

Object:—To determine the optimum dose of N and P alone and in combinations on the yield of Cotton.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) Barley. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 20.6.1954. (iv) (a) to (e) N.A. (v) N.A. (vi) *Desi* (late). (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 3 pickings on 29.11.1954, 22.12.1954 and 20.1.1955.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 nitrogenous treatments :  $N_0$ =No nitrogen,  $N_1$ =30 lb./ac. of N as A/S,  $N_2$ =60 lb./ac. of N as A/S,  $N_3$ =30 lb./ac. of N as A/N. and  $N_4$ =60 lb./ac. of N as A/N.

(2) 3 levels of  $P_2O_5$  as Super :  $P_0$ =0,  $P_1$ =20 and  $P_2$ =60 lb./ac.

Fertilizers sprayed at the time of cultivation.

## 3. DESIGN :

(i) Fact. in R B D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a) 24'3"×20'. (b) 19'3"×15'. (v) 2½'×2½'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) *Kapas* yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 966 lb./ac. (ii) 225.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	$N_0$	$N_1$	$N_2$	$N_3$	$N_4$	Mean
$P_0$	1032	1062	1054	820	813	956
$P_1$	966	1042	955	1029	891	977
$P_2$	1041	1021	913	885	970	946
Mean	1013	1042	974	911	891	966

S.E. of N marginal mean = 65.07 lb./ac.

S.E. of P marginal mean = 50.40 lb./ac.

S.E. of body of table = 112.7 lb./ac.

**Crop :- Cotton.**

**Site :- Govt. Agri. Farm, Ganganagar.**

**Ref :- Rj. 54(26).**

**Type :- 'M'.**

Object :—To study the effect of N and P on the yield of Cotton.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (b) N.A. (iii) 21.7.1954. (iv) (a) to (e) N.A. (v) N.A. (vi) N.A. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) 13.4.1955.

## 2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S :  $N_0$ =0,  $N_1$ =30 and  $N_2$ =60 lb./ac.

(2) 3 levels of  $P_2O_5$  as Super :  $P_0$ =0,  $P_1$ =30 and  $P_2$ =60 lb./ac.

Fertilizers sprayed before cultivation.

## 3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 22'×15'. (b) 19'3"×12'. (v) 1'4½"×1'6" (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) No. (iii) *Kapas* yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

## 5. RESULTS :

(i) 1170 lb./ac. (ii) 241 lb./ac. (iii) N effect alone is significant. (iv) Av. yield of *kapas* in lb./ac.

	$N_0$	$N_1$	$N_2$	Mean
$P_0$	1228	1182	702	1037
$P_1$	1382	1395	951	1243
$P_2$	1463	1291	938	1231
Mean	1358	1289	864	1170

S.E. of any marginal mean = 69.6 lb./ac.  
S.E. of body of table = 120.5 lb./ac.

**Crop :- Cotton.**

**Ref :- Rj. 54(13).**

**Site :- Agri. Res. Farm, Makrera.**

**Type :- 'M'.**

Object :—To study the effect of different doses of N as A/S on the yield of Cotton.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 22.6.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) *Desi*. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) 2 pickings on 15.11.1954 and 9.12.1954.

**2. TREATMENTS :**

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

**3. DESIGN :**

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a)  $35' \times 25'$ . (b)  $30' \times 20'$ . (v)  $2\frac{1}{2}' \times 2\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) *Kapas* yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 450 lb./ac. (ii) 111.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	$N_0$	$N_1$	$N_2$	$N_3$
Av. yield	456	440	440	466

S.E./mean = 45.6 lb./ac.

**Crop :- Cotton.**

**Ref :- Rj. 54(14).**

**Site :- Govt. Agri. Res. Farm, Makrera.**

**Type :- 'M'.**

Object :—To see the effect of different doses of N as A/S on the yield of Cotton.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 13.6.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) Rajasthan American Cotton. (vii) Irrigated. (viii) 4 weedings. (ix) N.A. (x) Pickings on 13.11.1954 and 12.12.1954.

**2. TREATMENTS :**

Same as in expt. no. 54(13) above.

**3. DESIGN :**

(i) R B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a)  $32' \times 19'$ . (b)  $28' \times 15'$ . (v)  $2' \times 2'$ . (vi) Yes.

**4. GENERAL :**

Same as in expt. no. 54(13) above.

**5. RESULTS :**

(i) 493 lb./ac. (ii) 67.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	$N_0$	$N_1$	$N_2$	$N_3$
Av. yield	482	502	478	509

S.E./mean = 67.6 lb./ac.

**Crop :- Cotton.****Ref :- Rj. 55 (6).****Site :- Govt. Agri. Farm, Makrera.****Type :- 'M'.**

Object :—To study the effect of different doses of N separately and in combination with P on Cotton.

**1. BASAL CONDITIONS :**

(i) No. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 27.5.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Rajasthan American Cotton (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) Pickings in January, 1956.

**2. TREATMENTS :**

5 manurial treatments :  $M_0$ =Control,  $M_1$ =20 lb./ac. of N,  $M_2$ =40 lb./ac. of N,  $M_3$ = $M_1$ +10 lb./ac. of  $P_2O_5$  and  $M_4$ = $M_2$ +20 lb./ac. of  $P_2O_5$ .  
N as A/S and  $P_2O_5$  as Super sprayed at the] of sowing.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 6. (iv) (a) 34'×18' (b) 30'×16'. (v) 2'×1'. (vi) Yes.

**4. GENERAL :**

(i) Normal. (ii) Nil. (iii) *Kapas* yield. (iv) (a) and (b) No (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 545 lb./ac. (ii) 105.5 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$
Av. yield	483	585	529	594	536.

S.E./mean = 43.1 lb./ac.

**Crop :- Cotton (*Kharif*).****Ref :- Rj. 58 (22).****Site :- Govt. Agri. Farm, Sriganganagar.****Type :- 'M'.**

Object :—To study the effect of different types of N alone and in combination with P at different levels on Cotton.

**1. BASAL CONDITIONS :**

(i) (a) No (b) Wheat. (c) N.A. (ii) (a) Sandy loam (alluvial soil) (b) N.A. (iii) 27.6.1958. (iv) (a) 2 ploughings. (b) N.A. (c) 6 srs./ac. (d) Row to row 3'. (e) N.A. (v) N.A. (vi) 320—F (American). (vii) Irrigated. (viii) 2 weedings and 2 hoeings. (ix) N.A. (x) Pickings on 1.12.1958 and 3.2.1959.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 5 nitrogenous treatments :  $N_0$ =No nitrogen,  $N_1$ =20 lb./ac of N as A/S,  $N_2$ =40 lb./ac. of N as A/S,  $N_3$ =20 lb./ac. of N as A/C and  $N_4$ =40 lb. ac. of N as A/C.  
(2) 3 levels of  $P_2O_5$  as Super :  $P_0$ =0,  $P_1$ =20 and  $P_2$ =40 lb./ac.

**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 15. (b) N.A. (iii) 3. (iv) (a) 30'3"×18'. (b) 30'3"×12'. (v) 3' on either side lengthwise. (vi) Yes.

**4. GENERAL :**

(i) Poor. (ii) Attack of jassids controlled by dusting of B.H.C. (iii) Yield of *Kapas*. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 237 lb./ac. (ii) 50.0 lb./ac. (iii) Main effect of N alone is significant. (iv) Av. yield of *kapas* in lb./ac.



	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>	Mean
P <sub>0</sub>	221	201	270	216	324	246
P <sub>1</sub>	193	239	273	231	219	231
P <sub>2</sub>	216	208	293	216	242	235
Mean	210	216	279	221	262	237

S.E. of N marginal mean = 16.7 lb./ac.  
 S.E. of P marginal mean = 12.9 lb./ac.  
 S.E. of body of table = 28.9 lb./ac.

**Crop :- Cotton (Kharif).**

**Ref :- Rj. 58(23).**

**Site :- Govt. Agri. Farm, Sriganaganagar.**

**Type :- 'M'.**

**Object :-** To study the effect of N, P and K on the yield of Cotton.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 3.7.1958. (iv) (a) 3 ploughings. (b) N.A. (c) 6 srs./ac. (d) Row to row 3'. (e) N.A. (v) N.A. (vi) 320—F (American). (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) Pickings on 30.11.1958 and 3.2.1959.

**2. TREATMENTS :**

All combinations of (1), (2) and (3)+control (2 plots)

(1) 3 sources of N : S<sub>1</sub>=A/S, S<sub>2</sub>=A/S/N and S<sub>3</sub>=Urea.

(2) 2 manurial treatments : M<sub>1</sub>=30 lb./ac. of N+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super and M<sub>2</sub>=60 lb./ac. of N+60 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

(3) 2 levels of K<sub>2</sub>O as Mur. Pot. : K<sub>1</sub>=20 and K<sub>2</sub>=40 lb./ac.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 30'3"×18'. (b) 30'3"×12'. (v) 3' on either side lengthwise. (vi) Yes.

**4. GENERAL :**

Same as in expt. no. 58(22) on page 194.

**5. RESULTS :**

(i) 276 lb./ac. (ii) 73.4 lb./ac. (iii) 'Control vs. rest' alone is significant. (iv) Av. yield of kapas in lb./ac.

Control = 193 lb./ac.,

	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	Mean	K <sub>1</sub>	K <sub>2</sub>
M <sub>1</sub>	303	278	298	293	301	286
M <sub>2</sub>	306	312	244	287	304	271
Mean	305	295	271	290	303	278
K <sub>1</sub>	322	306	280			
K <sub>2</sub>	288	284	262			

S.E. of K or M marginal mean = 17.3 lb./ac.  
 S.E. of S marginal mean = 21.2 lb./ac.  
 S.E. of body of M×S or K×S table = 30.0 lb./ac.  
 S.E. of body of M×K table = 24.5 lb./ac.  
 S.E. of control mean = 30.0 lb./ac.

**Crop :- Cotton (Kharif).**

**Ref :- Rj. 58(24).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'M'.**

**Object :-**To study the effect of different types of catalysts with and without basal dose of F.Y.M.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) 40 lb./ac. of  $P_2O_5$  as Super+30 lb./ac. of N as Urea+20 lb./ac. of N as oilcake +F.Y.M. one trolly per ac. (ii) (a) Sandy loam. (b) N.A. (iii) 27.6.1958. (iv) (a) 2 ploughings. (b) N.A. (c) 6 srs./ac. (d) Row to row 3'. (e) N.A. (v) N.A. (vi) 320—F (American). (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) N.A. (x) Pickings on 1.12.1958 and 3.2.1959.

**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 7 manurial treatments :  $M_0$ =Control,  $M_1$ =40 lb./ac. of catalyst,  $M_2$ =80 lb./ac. of catalyst,  $M_3$ =15 lb./ac. of  $FeSO_4$ ,  $M_4$ =30 lb./ac. of  $FeSO_4$ ,  $M_5$ =10 lb./ac. of  $KMnO_4$  and  $M_6$ =15 lb./ac. of  $KMnO_4$ .

(2) 2 levels of F.Y.M. :  $F_0$ =0 and  $F_1$ =5000 lb./ac.

**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 58(23) on page 195.

**5. RESULTS :**

(i) 275 lb./ac. (ii) 54.9 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	Mean
$F_0$	293	298	255	270	229	311	234	270
$F_1$	296	360	260	221	273	265	283	280
Mean	294	329	257	245	251	288	258	275

S.E. of M marginal mean = 22.4 lb./ac.  
 S.E. of F marginal mean = 12.0 lb./ac.  
 S.E. of body of table = 31.7 lb./ac.

**Crop :- Cotton.**

**Ref :- Rj. 55(16).**

**Site :- Govt. Agri. Farm, Tabiji.**

**Type :- 'M'.**

**Object :-**To study the effect of N and P on the yield of Cotton.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 15.6.1955. (iv) and (v) N.A. (vi) American cotton. (vii) Unirrigated. (viii) and (ix) N.A. (x) 21.5.1956.

**2. TREATMENTS :**

Same as in expt. no. 55(6) on page 194.

N as A/S and  $P_2O_5$  as Super sprayed before cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 32'×18'. (b) 30'×16'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) *Kapas* yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 130 lb./ac. (ii) 53.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	M <sub>0</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>
Av. yield	145	110	126	137	130

S.E./mean = 22.0 lb./ac.

**Crop :- Cotton (Kharif).**

**Ref :- Rj. 57(MAE).**

**Site :- M.A.E. Farm, Sriganaganagar.**

**Type :- 'M'.**

Object :—Type II—To study the effect of N, P, K and F.Y.M. on Cotton.

**1. BASAL CONDITIONS :**

- (i) (a) Cotton - *Senji*—Maize—Wheat. (b) and (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) 19.6.1957.  
 (iv) (a) 2 harrowings, double discing cross wise and beaming twice. (b) By dibbling. (c) 12 lb./ac. (d) 27" × 12" to 18". (e) N.A. (v) Nil. (vi) 320—F (late). (vii) Irrigated. (viii) 3 hoeings, 1 weeding and 2 thianings. (ix) 3". (x) 4, 5 and 29.11.1957.

**2. TREATMENTS :**

All combinations of (1), (2), (3) and (4)

- (1) 3 levels of N as A/S : N<sub>0</sub>=0, N<sub>1</sub>=30 and N<sub>2</sub>=60 lb./ac.  
 (2) 3 levels of P<sub>2</sub>O<sub>5</sub> as Super : P<sub>0</sub>=0, P<sub>1</sub>=30 and P<sub>2</sub>=60 lb./ac.  
 (3) 3 levels of K<sub>2</sub>O as Pot. Sul. : K<sub>0</sub>=0, K<sub>1</sub>=30 and K<sub>2</sub>=60 lb./ac.  
 (4) 2 levels of F.Y.M. : F<sub>0</sub>=0 and F<sub>1</sub>=5000 lb./ac.

**3. DESIGN :**

- (i) 3<sup>3</sup> × 2 Fact. confd. (ii) (a) 9 plots/block ; 3 blocks for F<sub>0</sub> and 3 blocks for F<sub>1</sub>/replication. (b) N.A.  
 (iii) 2. (iv) (a) 1/80 ac. (b) 1/119.7 ac. (v) N.A. (vi) Yes.

**4. GENERAL :**

- (i) Good. (ii) Attack of Jassids. B.H.C. and D.D.T. sprayed twice. (iii) *Kapas* yield. (iv) (a) 1957—contd. (b) Yes. (c) N.A. (v) to (vii) Nil.

**5. RESULTS :**

- (i) 1096 lb./ac. (ii) 287.5 lb./ac. (iii) Main effect of N and K are [highly significant. (iv) Av. yield of *kapas* in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	K <sub>0</sub>	K <sub>1</sub>	K <sub>2</sub>	Mean
F <sub>0</sub>	987	1053	1119	1037	1086	1036	963	1185	1010	1053
F <sub>1</sub>	1043	1219	1157	1103	1164	1152	1193	1147	1080	1140
Mean	1015	1136	1138	1070	1125	1094	1078	1166	1045	1096
K <sub>0</sub>	996	1111	1127	1020	1119	1095				
K <sub>1</sub>	1029	1234	1234	1160	1193	1145				
K <sub>2</sub>	1020	1063	1053	1030	1063	1042				
P <sub>0</sub>	1029	1086	1094							
P <sub>1</sub>	1004	1218	1152							
P <sub>2</sub>	1012	1103	1168							

S.E. of marginal mean of N, P or K = 47.9 lb./ac.

S.E. of marginal mean of F = 39.1 lb./ac.

S.E. of body of N × P, N × K or P × K table = 83.0 lb./ac.

S.E. of body of N × F, P × F or K × F table = 67.8 lb./ac.

**Crop :- Cotton (Kharif).**

**Ref :- Rj. 59(MAE).**

**Site :- M.A.E. Farm, Sriganagar.**

**Type :- 'M'.**

Object :- Type II—To study the effect of N, P, K and F.Y.M. on Cotton.

**1. BASAL CONDITIONS :**

(i) (a) Cotton—Senji—Maize—Wheat. (b) Wheat. (c) As per treatments. (ii) (a) Desert soil. (b) N.A. (iii) 2nd week of June, 1959. (iv) (a) N.A. (b) By dibbling. (c) 16 lb./ac. (d) 28"×18". (e) N.A. (v) Nil. (vi) 320—F (late). (vii) Irrigated. (viii) 2 hoeings and 3 weedings. (ix) 17". (x) 3rd week of January, 1960.

**2. TREATMENTS :**

Same as in expt. no. 57(MAE) type II on page 197.

**3. DESIGN :**

(i) 3<sup>3</sup>×2 Fact. confd. (ii) (a) 9 plots/block ; 6 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 33'×16.5'. (b) 29'×11.3'. (v) 2'×2'5". (vi) Yes.

**4. GENERAL :**

(i) Normal. (ii) Nil. (iii) Kapas yield. (iv) (a) 1957—contd. (not conducted in 1958). (b) Yes. (c) N.A. (v) to (vii) Nil.

**5. RESULTS :**

(i) 1153 lb./ac. (ii) 161.7 lb./ac. (iii) Main effect of P is highly significant and effect of N is significant. (iv) Av. yield of kapas in lb./ac.

	N <sub>0</sub>	N <sub>1</sub>	N <sub>2</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	K <sub>0</sub>	K <sub>1</sub>	K <sub>2</sub>	Mean
F <sub>0</sub>	1004	1020	1136	946	1070	1143	1061	1061	1037	1053
F <sub>1</sub>	1130	1284	1344	1176	1224	1359	1287	1177	1295	1253
Mean	1067	1152	1240	1061	1147	1251	1174	1119	1166	1153
K <sub>0</sub>	1061	1127	1333	1160	1185	1177				
K <sub>1</sub>	1086	1168	1103	938	1119	1300				
K <sub>2</sub>	1054	1161	1284	1085	1137	1276				
P <sub>0</sub>	1012	1053	1119							
P <sub>1</sub>	1152	1078	1210							
P <sub>2</sub>	1037	1325	1391							

S.E. of marginal mean of N, P or K = 38.1 lb./ac.

S.E. of marginal mean of F = 31.1 lb./ac.

S.E. of body of N×P, N×K or P×K table = 66.0 lb./ac.

S.E. of body of N×F, P×F or K×F table = 53.9 lb./ac.

**Crop :- Cotton (Kharif).**

**Ref :- Rj. 57(MAE).**

**Site :- M.A.E. Farm, Sriganagar.**

**Type :- 'M'.**

Object :- Type III—To study the effect of N and P on Cotton.

**1. BASAL CONDITIONS :**

(i) (a) Cotton—Wheat—Gram. (b) and (c) N.A. (ii) (a) Desert soil. (b) N.A. (iii) 18.7.1957. (iv) (a) 2 harrowings, double discing cross wise and beaming twice. (b) By dibbling. (c) 12 lb./ac. (d) 27"×12" to 18". (e) N.A. (v) Nil. (vi) 320—F (medium). (vii) Irrigated. (viii) 3 hoeings, 1 weeding and 2 thinnings. (ix) 3". (x) 3.1.1958.

## TREATMENTS :

Treatment	1	2	3	4	5	6	7	8
1st year	M	M	M	M	O	O	O	O
2nd year	M	M	O	O	M	M	O	O
3rd year	M	O	M	O	M	O	M	O

Notation used : O=Control, M=30 lb./ac. of N as A/S+30 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 1/111.4 ac. (v) N.A. (vi) Yes.

## 4. GENERAL :

(i) Very poor. (ii) Nil. (iii) *Kapas* yield. (iv) (a) 1957—contd. (b) Yes. (c) N.A. (v) to (vii) Nil.

## 5. RESULTS :

(i) 156 lb./ac. (ii) 30.7 lb./ac. (iii) Treatment difference is not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	M	O
Av. yield	188	123

S.E./mean = 10.9 lb./ac.

**Crop :- Cotton.**

**Ref :- Rj. 58(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

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

## 1. BASAL CONDITIONS :

(i) (a) to (c) N A. (ii) Desert. (iii) Nil. (iv) and (v) N.A. (vi) July, 1958. (vii) Unirrigated. (viii) and (ix) N.A. (x) November—December, 1958.

## 2. TREATMENTS :

- 0 =Control (no manure).
- n =25 lb./ac. of N as A/S.
- p =25 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.
- np =25 lb./ac. of N as A/S+25 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.
- k =25 lb./ac. of K<sub>2</sub>O as Mur. Pot.
- nk =25 lb./ac. of N as A/S+25 lb./ac. of K<sub>2</sub>O as Mur. Pot.
- pk =25 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+25 lb./ac. of K<sub>2</sub>O as Mur. Pot.
- npk =25 lb./ac. of N as A/S+25 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+25 lb./ac. of K<sub>2</sub>O as Mur. Pot.

## 3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been 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 a *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 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 above 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) N.A. (b) 1/80 acre. (iv) Yes.

## GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Cotton yield. (iv) (a) 1958—contd. (b) N.A. (v) As per design. (vi) (vii) Nil.

**RESULTS :**

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	91	58	-16	27.2	25	8	-16	25	27.2

No. of trials = 4.

**Crop :- Cotton.**

**Centre :- Banswara (c.f.).**

**Ref :- Rj. 59(SFT).**

**Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) July, 1959. (vii) Unirrigated. (viii) and (ix) N.A. (x) November—December, 1959.

**2. TREATMENTS :**

- 0 = Control (no manure).  
 n = 25 lb./ac. of N as A/S.  
 p = 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
 np = 25 lb./ac. of N as A/S+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super.  
 k = 20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 nk = 25 lb./ac. of N as A/S+20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 pk = 20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. Pot.  
 npk = 25 lb./ac. of N as A/S+20 lb./ac. of P<sub>2</sub>O<sub>5</sub> as Super+20 lb./ac. of K<sub>2</sub>O as Mur. Pot.

**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 58(SFT) type A cotton crop on page 199.

**5. RESULTS :**

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response in lb./ac.	107	41	33	17.3	0	16	-8	-8	14.8

Control mean = 379 lb./ac. and no. trials = 6.

**Crop :- Cotton.**

**Centre :- Banswara (c.f.).**

**Ref :- Rj. 58(SFT).**

**Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) July—1958. (vii) Unirrigated. (viii) and (ix) N.A. (x) November and December, 1958.

**2. TREATMENTS :**

- 0 = Control (no manure).  
 n<sub>1</sub> = 25 lb./ac. of N as A/S.  
 n<sub>2</sub> = 50 lb./ac. of N as A/S.  
 n<sub>1</sub>' = 25 lb./ac. of N as Urea.  
 n<sub>2</sub>' = 50 lb./ac. of N as Urea.  
 n<sub>1</sub>'' = 25 lb./ac. of N as C/A/N.  
 n<sub>2</sub>'' = 50 lb./ac. of N as C/A/N.

**3. DESIGN and 4. GENERAL :**

Same as in expt. no. 58(SFT) type A on cotton crop on page 199.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '	n <sub>1</sub> '''	n <sub>2</sub> ''
Av. yield	321	387	444	420	453	387	502

G.M. = 416 lb./ac., S.E. = 12.2 lb./ac. and no. of trials = 6.

**Crop :- Cotton.**

**Ref :- Rj. 59(SFT).**

**Centre :- Banswara (c.f.).**

**Type :- 'M'.**

**Object :-**To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

## 1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black soil. (iii) Nil. (iv) and (v) N.A. (vi) July, 1959. (vii) Unirrigated. (viii) and (ix) N.A. (x) November—December, 1959.

## 2. TREATMENTS :

0 = Control (no manure).  
 n<sub>1</sub> = 40 lb./ac. of N as A/S.  
 n<sub>2</sub> = 80 lb./ac. of N as A/S.  
 n<sub>1</sub>' = 40 lb./ac. of N as Urea.  
 n<sub>2</sub>' = 80 lb./ac. of N as Urea.  
 n<sub>1</sub>''' = 40 lb./ac. of N as C/A/N.  
 n<sub>2</sub>''' = 80 lb./ac. of N as C/A/N.

## 3. DESIGN and 4. GENERAL :

Same as in expt no. 58(SFT) type A cotton crop on page 199.

## 5. RESULTS :

Treatment	0	n <sub>1</sub>	n <sub>2</sub>	n <sub>1</sub> '	n <sub>2</sub> '	n <sub>1</sub> '''	n <sub>2</sub> '''
Av. yield	346	411	510	428	535	420	527

G.M. = 454 lb./ac. ; S.E. = 18.0 lb./ac. and no. of trials = 6.

**Crop :- Cotton (Kharif).**

**Ref :- Rj. 59(27).**

**Site :- Govt. Agri. Farm, Sriganganagar.**

**Type :- 'C'.**

**Object :-**To study the beneficial effect of mixed cropping of cotton and Moth in the control of 'Root rot' disease of Cotton.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) to (v) N.A. (vi) local. (vii) to (x) N.A.

## 2. TREATMENTS :

T<sub>1</sub> = Cotton only and T<sub>2</sub> = Moth sown between cotton rows.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) and (b) 18'×12'. (v) Nil. (vi) Yes.

## 4. GENERAL :

(i) and (ii) N.A. (iii) *Kapas* yield. (iv) to (vii) N.A.

## 5. RESULTS :

(i) 742 lb./ac. (ii) 200.8 lb./ac. (iii) Treatment difference is highly significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T <sub>1</sub>	T <sub>2</sub>
Av. yield	870	613

S.E./mean = 57.96 lb./ac.

**Crop :- Cotton.**

**Site :- Govt. Agri. Farm, Tabiji.**

**Ref :- Rj. 55(20).**

**Type :- 'C'.**

**Object :-** To study the effect of different cultural practices on the yield of Cotton.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 29.6.1955. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) As per treatments. (e) N.A. (v) N.A. (vi) *Desi*. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.5.1956.

**2. TREATMENTS :**

3 cultural practices : G<sub>1</sub>=Broad cast, G<sub>2</sub>=Lines 1' apart, and G<sub>3</sub>=Lines 1½' apart.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 36'×19'. (b) 33'×16½'. (v) 1½'×1¼'. (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Nil. (iii) *Kapas* yield. (iv) (a) and (b) No. (c) Nil (v) to (vii) Nil.

**5. RESULTS :**

(i) 97 lb./ac. (ii) 61.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Av. yield	109	81	101

S.E./mean = 30.8 lb./ac.

**Crop :- Cotton.**

**Site :- Govt. Agri. Farm, Tabiji.**

**Ref :- Rj. 55(24).**

**Type :- 'C'.**

**Object :-** To study the effect of different spacings on the yield of Cotton.

**1. BASAL CONDITION :**

(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 28.6.1955. (iv) (a) to (c) N.A. (d) As per treatments. (v) N.A. (vi) American (late). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 21,22.7.1956.

**2. TREATMENTS :**

4 spacings : S<sub>1</sub>=2'×1½', S<sub>2</sub>=2'×2', S<sub>3</sub>=2½'×2', and S<sub>4</sub>=2½'×2½'.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 30'×16'. (v) Nil. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) N.A. (iii) *Kapas* yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 96 lb./ac. (ii) 41.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.



Treatment	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>
Av. yield	73	132	84	94

S.E./mean = 16.71 lb./ac.

**Crop :- Cotton (Kharif).**

**Ref :- Rj. 59 (55).**

**Site :- Govt. Agri. Farm, Sriganagar.**

**Type :- 'D'.**

Object :—To work out spray schedule for the control of Cotton jassides.

**1. BASAL CONDITIONS**

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 24.5.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 6 to 7 lb./ac. (d) Row to row 3'. (e) N.A. (v) N.A. (vi) 320-F. (vii) Irrigated. (viii) 2 hoeings and weedings. (ix) and (x) N.A.

**2. TREATMENTS :**

4 fungicidal treatments : F<sub>0</sub>=Control, F<sub>1</sub>=B.H.C. 0.25% spray, F<sub>2</sub>=D.D.T 0.25% spray and F<sub>3</sub>=Endrin 0.05% spray.

**3. DESIGN :**

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

**4. GENERAL :**

(i) Satisfactory. (ii) Root rot and other minor pests of cotton. (iii) Yield of cotton. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 979 lb./ac. (ii) 114.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of kapas in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>
Av. yield	922	1066	943	984.

S.E./mean = 66.05 lb./ac.

**Crop :- Cotton (Kharif).**

**Ref :- Rj. 59 (54).**

**Site :- Govt. Agri. Farm, Sriganagar.**

**Type :- 'D'.**

Object :—To work out a spray schedule for the control of Cotton boll worm.

**1. BASAL CONDITIONS :**

(i) (a) Sugarcane—Cotton. (b) Sugarcane. (c) 40 lb./ac. of N. (ii) (a) Sandy loam. (b) N.A. (iii) 25.5.1959. (iv) (a) 4 ploughings (b) N.A. (c) 6 to 7 lb./ac. (d) Row to row 3'. (e) N.A. (v) N.A. (vi) 3.0-F. (vii) Irrigated. (viii) 3 weedings. (ix) and (x) N.A.

**2. TREATMENTS and 3. DESIGN :**

Same as in expt. no. 59 (55) above.

**4. GENERAL :**

(i) Lack of proper moisture at the time of sowing. Heterogeneity of soil. (ii) Root rot disease of cotton. (iii) Yield of kapas. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 654 lb./ac. (ii) 148.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of kapas in lb./ac.

Treatment	F <sub>0</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>
Av. yield	638	631	706	641

S.E./mean = 85.9 lb./ac.

**Crop :- Groundnut.**  
**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 54(11).**  
**Type :- 'M'.**

**Object :-**To study the effect of different sources and levels of P on the yield of Groundnut.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) Wheat. (c) Nil. (ii) (a) Yellow gray soils of Gangetic plain, alluvium sandy loam. (b) N.A. (iii) 22.7.1954. (iv) (a) to (e) N.A. (v) N.A. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 20.11.1954.

**2. TREATMENTS :**

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

(1) 2 sources of  $P_2O_5$ :  $S_1$ =Super and  $S_2$ =B.M.

(2) 3 levels of  $P_2O_5$ :  $P_1$ =50,  $P_2$ =100 and  $P_3$ =150 lb./ac.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 30'3"×24'. (b) 24'3"×18'. (v) 3' x 3'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield data per plot. (iv) (a) 1952—contd. (b) No. (c) Nil. (v) (a) Durgapura. (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 2272 lb./ac. (ii) 439.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of pod in lb./ac.

Control = 2050 lb./ac.

	$P_1$	$P_2$	$P_3$	Mean
$S_1$	2107	2200	2390	2232
$S_2$	2422	2229	2512	2388
Mean	2264	2214	2451	2310

S.E. of S marginal mean = 126.8 lb./ac.

S.E. of P marginal mean = 155.3 lb./ac.

S.E. of body of table or control mean = 219.7 lb./ac.

**Crop :- Groundnut.**  
**Site :- Govt. Agri. Farm, Bassi.**

**Ref :- Rj. 55(8).**  
**Type :- 'M'.**

**Object :-**To study the effect of different sources and levels of P on the yield of Groundnut.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) N.A. (c) Nil. (ii) (a) Yellow alluvium soil of Gangetic plain. (b) Nil. (iii) 14.7.1955. (iv) (a) to (e) N.A. (v) N.A. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 23.11.1955.

**2. TREATMENTS :**

Same as in expt. no. 54(11) above.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) 29'×25'. (b) 24'×20'. (v) 2½'×2½'. (vi) Yes.

**4. GENERAL :**

Same as in expt. no. 54(11) above.

**5. RESULTS :**

(i) 3378 lb./ac. (ii) 606.4 lb./ac. (iii) Main effect of S alone is highly significant. (iv) Av. yield of pod in lb./ac.

Control = 3358 lb./ac.

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
S <sub>1</sub>	3172	3959	4151	3761
S <sub>2</sub>	3113	2737	3163	3064
Mean	3142	3348	3657	3382

S.E. of P marginal mean = 175.10 lb./ac.  
 S.E. of S marginal mean = 142.9 lb./ac.  
 S.E. of body of table or control mean = 247.5 lb./ac.

Crop :- Groundnut.

Ref :- Rj. 56(18).

Site :- Govt. Agri. Farm, Bassi.

Type :- 'M'.

Object :—To study the effect of different sources and levels of P on the yield of Groundnut.

## 1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) No. (ii) (a) Sandy loam of Gangetic plain. (b) N.A. (iii) 12.7.1956. (iv) (a) 4 to 5 ploughings. (b) N.A. (c) 1md./ac. (d) 9' between rows. (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 12.11.1956.

## 2. TREATMENTS :

Same as in expt. no. 54(11) on page 204.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 30'×21'. (b) 24'×15'. (v) 3' x 3'. (vi) Yes.

## 4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of pod. (iv) (a) 1952—contd. (b) No. (c) Nil. (v) (a) Durgapur. (b) N.A. (vi) and (vii) Nil.

## 5. RESULTS :

(i) 2965 lb./ac (ii) 839.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of pod in lb./ac.

Control = 3096 lb./ac.

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
S <sub>1</sub>	2989	3155	3085	3076
S <sub>2</sub>	3132	2514	2792	2813
Mean	3061	2835	2936	2944

S.E. of S marginal mean = 242.4 lb./ac.  
 S.E. of P marginal mean = 296.9 lb./ac.  
 S.E. of body of P×S table or control mean = 419.9 lb./ac.

Crop :- Groundnut.

Ref :- Rj. 55(33).

Site :- Govt. Agri. Farm, Bassi.

Type :- 'M'.

Object :—To study the effect of different sources and levels of P on the yield Groundnut.

**1. BASAL CONDITIONS :**

(i) (a) Groundnut—Wheat. (b) and (c) N.A. (ii) (a) Yellow alluvium soil of Gangetic plain ; sandy loam. (b) N.A. (iii) 25.7.1955. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 31.10.1955.

**2 TREATMENTS :**

Same as in expt. no. 54(11) on page 205.  
Fertilizers applied by spraying before sowing.

**3 DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 26'×22'. (b) 24'×20'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

Same as in expt. no. 56(18) on page 205.

**5. RESULTS :**

(i) 2257 lb./ac. (ii) 662.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of pod in lb./ac.

Control = 2212 lb./ac.

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
S <sub>1</sub>	2089	2607	2734	2477
S <sub>2</sub>	2250	1803	2102	2052
Mean	2169	2205	2418	2264

S.E. of P marginal mean = 234.1 lb./ac.  
S.E. of S marginal mean = 191.2 lb./ac.  
S.E. of body of table = 331.1 lb./ac.

**Crop :- Groundnut.**

**Ref :- Rj. 56(12).**

**Site :- Govt. Agri. Farm, Bassi.**

**Type :- 'M'.**

Object :—To study the effect of different sources and levels of P on the yield of Groundnut.

**1. BASAL CONDITIONS :**

(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy loam of Gangetic plain. (b) N.A. (iii) 12.7.1956. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 13.11.1956.

**2. TREATMENTS :**

Same as in expt. no. 54(11) on page 204.  
Fertilizers sprayed at the time of cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 24'×15½'. (b) 22'×13½'. (v) 1'×1'. (vi) Yes.

**4. GENERAL :**

Same as in expt. no. 56(18) on page 205.

**5. RESULTS :**

(i) 1871 lb./ac (ii) 42.0 lb./ac. (iii) Main effect of P, interaction P×S and 'control vs. rest' are highly significant. (iv) Av. yield of pod in lb./ac.

Control = 1796 lb./ac.

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
S <sub>1</sub>	1881	1985	1775	1880
S <sub>2</sub>	1839	2056	1763	1886
Mean	1860	2020	1769	1883

S.E. of P marginal mean = 14.84 lb./ac.

S.E. of S marginal mean = 12.11 lb./ac.

S.E. of body of table or control mean = 20.98 lb./ac.

**Crop :- Groundnut.****Ref :- Rj. 56(17).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'M'.**

Object :—To study the effect of different sources and levels of P on the yield of Groundnut.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam of Gangetic plain. (b) N.A. (iii) 10.7.1956. (iv) (a) 4 to 5 ploughings. (b) N.A. (c) 1 md./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) and (ix) N.A. (x) 13.11.1956.

**2. TREATMENTS :**

Same as in expt. no. 54(11) on page 204.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 30'×24'. (b) 24'×18'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of pod. (iv) (a) 1952—contd. (b) No. (c) Nil. (v) (a) Bassi. (b) N.A. (vi) and (vii) Nil.

**5. RESULTS :**

(i) 421 lb./ac. (ii) 99.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of pod in lb./ac.

Control = 421 lb./ac.

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	Mean
S <sub>1</sub>	408	434	421	421
S <sub>2</sub>	424	418	424	422
Mean	416	426	422	421

S.E. of P marginal mean = 35.1 lb./ac.

S.E. of S marginal mean = 28.6 lb./ac.

S.E. of body of P×S table or control mean = 49.6 lb./ac.

**Crop :- Groundnut (Kharif).****Ref :- Rj. 59(65).****Site :- Govt. Agri. Farm, Durgapura.****Type :- 'D'.**

Object :—To study the efficacy of Aldrin for control of termites.

**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) *Bajra*. (c) A/S. (ii) (a) Sandy loam. (b) N.A. (iii) 15.7.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 1.25 md./ac. (d) and (e) N.A. (v) and (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

**2. TREATMENTS :**

Two insecticidal treatments :  $T_0$ =Control (8 plots) and  $T_1$ =Aldrin at 1.5 lb./ac.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) N.A. (b)  $33' \times 16\frac{1}{2}'$ . (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) N.A. (b) Nil. (iii) Yield of pod. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 1382 lb./ac. (ii) 213.1 lb./ac. (iii) Treatment difference is highly significant. (iv) Av. yield of pod in lb./ac.

Treatment	$T_0$	$T_1$
Av. yield	1447	985

S.E./mean  $T_1$  = 123.0 lb./ac.

S.E./mean  $T_0$  = 43.50 lb./ac.

**Crop :- Groundnut (*Kharif*).**

**Ref :- Rj. 59(3).**

**Site :- Govt. Agri. Farm, Durgapura.**

**Type :- 'D'.**

**Object :-**To determine the relative efficacy of seed dressing fungicides in relation to germination and yield of Groundnut.

**1. BASAL CONDITIONS :**

(i) (a) and (b) *Moong*-Potato. (c) 50 lb./ac. of A/S. (ii) (a) Sandy loam. (b) N.A. (iii) 26.7.1959. (iv) (a) 4 ploughings. (b) N.A. (c) N.A. (d) Row to row  $1\frac{1}{2}'$ . (e) N.A. (v) N.A. (vi) R.S.-1. (vii) Unirrigated. (viii) to (x) N.A.

**2. TREATMENTS :**

8 fungicidal treatments :  $T_0$ =Control,  $T_1$ =Agrosan G.N. at 9 tolas/md.,  $T_2$ =Ceresan at 6 tolas/md.,  $T_3$ =Tillex at 6 tolas/md.,  $T_4$ =Lunasan at 6 tolas/md.,  $T_5$ =Hervasan at 6 tolas/md.,  $T_6$ =Ceresan at 9 tolas/md. and  $T_7$ =Sulphur at 12 tolas/md.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) and (b)  $20' \times 6'$ . (v) Nil. (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of pod. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 837 lb./ac. (ii) 207.4 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of pod in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$	$T_6$	$T_7$
Av. yield	469	855	1119	734	628	734	1444	711

S.E./mean = 84.7 lb./ac.

**Crop :- Groundnut (*Kharif*).**

**Ref :- Rj. 59(2).**

**Site :- Govt. Agri. Farm, Sawai Madhopur.**

**Type :- 'D'.**

**Object :-**To determine the relative efficacy of seed dressing fungicides in relation to germination and yield of Groundnut.

## 1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 23.7.1959. (iv) (a) 3 ploughings, (b) N.A. (c) N.A. (d) Row to row  $1\frac{1}{2}'$ . (e) N.A. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) and (ix) N.A. (x) 24.11.1959.

## 2. TREATMENTS :

8 fungicidal treatments :  $T_0$  = Control,  $T_1$  = Agrosan G.N. at 9 tolas/md.,  $T_2$  = Ceresan at 6 tolas/md.,  $T_3$  = Tillix at 6 tolas/md.,  $T_4$  = Lupasan at 6 tolas/md.,  $T_5$  = Hervasan at 6 tolas/md.,  $T_6$  = Fernasan at 9 tolas/md. and  $T_7$  = Sulphur at 12 tolas/md.

## 3. DESIGN and 4. GENERAL :

Same as in expt. no. 59(3) on page 208.

## 5. RESULTS :

(i) 1777 lb./ac. (ii) 474.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of pod in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$	$T_6$	$T_7$
Av. yield	1225	1898	2049	2027	1739	1785	1724	1770

S.E./mean = 193.6 lb./ac.

Crop :- Sesamum,

Ref :- Rj. 54(49).

Site :- Govt. Exptl. Farm, Mandore.

Type :- 'M'.

Object :—To study the effect of different sources and levels of N on the yield of Sesamum.

## 1. BASAL CONDITIONS :

(i) (a) No. (b) and (c) N.A. (ii) (a) Sandy desert soil. (b) N.A. (iii) Last week of July, 1954. (iv) (a) to (e) N.A. (v) Nil. (vi) Local (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 10.11.1954.

## 2. TREATMENTS:

16 manurial treatments :  $M_0$  = Control,  $M_1$  = 10 lb./ac. of N as A/S,  $M_2$  = 20 lb./ac. of N as A/S,  $M_3$  = 30 lb./ac. of N as A/S,  $M_4$  = 10 lb./ac. of N as oil cake,  $M_5$  = 20 lb./ac. of N as oil cake,  $M_6$  = 30 lb./ac. of N as oil cake,  $M_7$  = 10 lb./ac. of N as F.Y.M.,  $M_8$  = 20 lb./ac. of N as F.Y.M.,  $M_9$  = 30 lb./ac. of N as F.Y.M.,  $M_{10}$  =  $M_1 + M_6$ ,  $M_{11}$  =  $M_1 + M_5$ ,  $M_{12}$  =  $M_1 + M_7$ ,  $M_{13}$  =  $M_1 + M_8$ ,  $M_{14}$  =  $M_2 + M_4$  and  $M_{15}$  =  $M_2 + M_5$ .

Fertilizers applied by spraying before sowing.

## 3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a)  $15'3'' \times 21'$ . (b)  $12'3'' \times 18'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

## 4. GENERAL :

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

## 5. RESULTS :

(i) 77 lb./ac. (ii) 33.7 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	$M_7$
Av. yield	47	50	56	72	55	83	141	68
Treatment	$M_8$	$M_9$	$M_{10}$	$M_{11}$	$M_{12}$	$M_{13}$	$M_{14}$	$M_{15}$
Av. yield	83	119	83	63	106	45	111	52

S.E./mean = 19.5 lb./ac.

**Crop :- Linseed.****Ref :- Rj. 57(SFT).****Centre :- Kotah (c.f.).****Type :- 'M'.**

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

**1. BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Medium black soil. (iii) Nil. (iv) and (v) N.A. (vi) October 1957. (vii) Unirrigated. (viii) and (ix) N.A. (x) April 1958.

**2. TREATMENTS:**

O = Control (no manure).

$n_1'$  = 20 lb./ac. of N as Urea.

$n_2'$  = 40 lb./ac. of N as Urea.

$n_1''$  = 20 lb./ac. of N as A/S/N.

$n_2''$  = 40 lb./ac. of N as A/S/N.

$n_1'''$  = 20 lb./ac. of N as C/A/N.

$n_2'''$  = 40 lb./ac. of N as C/A/N.

**3. DESIGN and 4 GENERAL :**

Same as in expt. no. 59(SFT) type A Mustard crop on page 173.

**5. RESULTS :**

Treatment	0	$n_1'$	$n_2'$	$n_1''$	$n_2''$	$n_1'''$	$n_2'''$
Av. yield	263	395	370	329	387	362	362

G.M. = 353 lb./ac. S.E. = 1.75 lb./ac. and no. of trials = 11.

**Crop :- Linseed (Rabi).****Ref :- Rj. 59(52).****Site :- Govt. Agri. Farm, Borekhera, Kotah.****Type :- 'D'.**

Object :— To study the efficacy of different insecticides for control of termites in Linseed.

**1. BASAL CONDITIONS :**

(i) (a) Fallow—Linseed—Fallow—Gram. (b) Gram. (c) Nil. (ii) (a) and (b) N.A. (iii) 21.10.1959. (iv) (a) 4 ploughings. (b) N.A. (c) 21 srs./ac. (d) Row to row  $1\frac{1}{2}'$ . (e) N.A. (v) N.A. (vi) T—65. (vii) Unirrigated. (viii) Weeding and thinning once. (ix) and (x) N.A.

**2. TREATMENTS :**

5 Insecticidal treatments :  $T_0$ =Control,  $T_1$ =B.H.C. spray at 3 lb./ac.,  $T_2$ =D.D.T. spray at 3 lb./ac.  $T_3$ =Aldrin spray at 1 lb./ac., and  $T_4$ =Dieldrin spray at 1 lb./ac. Each insecticide is dissolved in 40 gallons of water/ac.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a)  $36' \times 19\frac{1}{2}'$ . (b)  $33' \times 16\frac{1}{2}'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{2}'$ . (vi) Yes.

**4. GENERAL :**

(i) N.A. (ii) Wilt disease. (iii) Yield of seed. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 7357 lb./ac. (ii) 28.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of seed in lb./ac.

Treatment	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$
Av. yield	5596	6007	9628	7324	8229

S.E./mean = 16.6 lb./ac.



**Crop :- Fodder Jowar (Kharif).**  
**Site :- Govt. Agri. Farm, Mandore.**

**Ref :- Rj. 56(11).**  
**Type :- 'M'.**

Object :— To study the effect of N on Jowar Fodder.

**1. BASAL CONDITIONS:**

(i) (a) Nil. (b) *Guar*. (c) Nil. (ii) (a) Sandy desert. (b) N.A. (iii) 16.7.1956. (iv) (a) 2 ploughings. (b) N.A. (c) 8 to 10 :rs./ac. (d) 9"×6". (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 20.10.1956.

**2. TREATMENTS :**

$M_0$ =Control,  $M_1$ =1 ton/ac. of F.Y.M.,  $M_2$ = $M_1$ +20 lb./ac. of N as A/S,  $M_3$ = $M_1$ +30 lb./ac. of N as A/S,  $M_4$ = $M_1$ +40 lb./ac. of N as A/S,  $M_5$ = $M_1$ +20 lb./ac. of N as Urea,  $M_6$ = $M_1$ +30 lb./ac. of N as Urea,  $M_7$ = $M_1$ +40 lb./ac. of N as Urea.  
 Fertilizers sprayed at the time of cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 27'3"×21'. (b) 24'3"×18'. (v) 1½'×1½' (v) Yes.

**4. GENERAL :**

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

**5. RESULTS :**

(i) 4817 lb./ac. (ii) 252.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in lb./ac.

Treatment	$M_0$	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$	$M_6$	$M_7$
Av. yield.	2572	3223	5777	4765	6857	4492	5143	5697

S.E./mean = 146.0 lb./ac.

**Crop :- Fodder Jowar (Kharif).**  
**Site :- Govt. Agri. Exptl. Farm, Mandore**

**Ref :- Rj. 57(1).**  
**Type :- 'M'.**

Object :— To study the effect of different doses of N on the yield of Jowar Fodder.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy desert. (b) N.A. (iii) 9.7.1957. (iv) (a) to (c) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 7.10.1957.

**2. TREATMENTS :**

All combinations of (1) and (2)+2 extra treatments.  
 (1) 3 sources of N :  $S_1$ =A/S,  $S_2$ =A/S/N and  $S_3$ =Urea.  
 (2) 2 levels of N :  $N_1$ =20 and  $N_2$ =40 lb./ac.  
 2 extra treatments :  $T_0$ =Control and  $T_1$ =5000 lb./ac. of F.Y.M.  
 All fertilisers sprayed at the time of cultivation.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 30'3"×18'. (b) 24'3"×12'. (v) 3'×3'. (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1957—N.A. (b) No. (c) Nil. (iv) to (vii) Nil.

**5. RESULTS :**

(i) 3758 lb./ac. (ii) 1550 lb./ac. (iii) Only interaction M×N is highly significant. (iv) Av. yield of fodder in lb./ac.

$T_0 = 3235 \text{ lb./ac.}$  and  $T_1 = 3107 \text{ lb./ac.}$

	$S_1$	$S_2$	$S_3$	Mean
$N_1$	5084	2670	3338	3697
$N_2$	3364	6445	2816	4208
Mean	4224	4558	3077	3953

S.E. of S marginal mean = 548.1 lb./ac.  
 S.E. of N marginal mean = 447.4 lb./ac.  
 S.E. of body of table or T mean = 775.0 lb./ac.

**Crop :- Fodder Jowar (Kharif)**

**Ref :- Rj. 57 (2).**

**Site :- Govt. Agri. Expt. Farm, Mandore.**

**Type :- 'M'.**

Object :- To study the response of N in different forms on Jowar fodder.

**1. BASAL CONDITIONS :**

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Sandy desert. (b) N.A. (iii) 23.7.1957. (iv) (a) to (c) N.A. (v) Nil. (vi) Local (early). (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 12.12.1957.

**2. TREATMENTS:**

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

(1) 3 sources of N :  $S_1 = A/S$ ,  $S_2 = A/S/N$  and  $S_3 = \text{Urea}$ .

(2) 2 levels of N :  $N_1 = 20$  and  $N_2 = 40 \text{ lb./ac.}$

Extra Treatment :  $T_0 = \text{Control}$  and  $T_1 = 5000 \text{ lb./ac.}$  of F.Y.M.

Treatments were mixed with earth and applied before sowing.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a)  $27'3'' \times 15'$ . (b)  $24'3'' \times 12'$ . (v)  $1\frac{1}{2}' \times 1\frac{1}{4}'$ . (vi) Yes.

**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1957—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

**5. RESULTS :**

(i) 3551 lb./ac. (ii) 1343 lb./ac. (iii) Only interaction  $M \times N$  is highly significant. (iv) Av. yield of fodder in lb./ac.

$T_0 = 2933 \text{ lb./ac.}$   $T_1 = 3817 \text{ lb./ac.}$

	$S_1$	$S_2$	$S_3$	Mean <sub>1</sub>
$N_1$	4609	2421	3026	3352
$N_2$	3154	5843	2607	3868
Mean	3882	4132	2816	3610

S.E. of S marginal mean = 474.9 lb./ac.  
 S.E. of N marginal mean = 387.7 lb./ac.  
 S.E. of body of table or control mean = 671.5 lb./ac.

**Crop :- Mustard + Wheat (Rabi).**

**Ref :- Rj. 59 (74).**

**Site :- Govt. Agri. Farm, Bharatpur.**

**Type :- 'X'.**

**Object:—**To find out the most suitable mixture of Mustard and Wheat.

**1. BASAL CONDITIONS :**

(i) (a) Fallow - Wheat + Mustard. (b) Fallow. (c) Nil. (ii) (a) and (b) N.A. (iii) 10.9.1959. (iv) (a) 2 ploughings. (b) N.A. (c) 40 srs./ac. for wheat. (d) Wheat 9" and mustard 18" apart. (e) N.A. (v) N.A. (vi) Wheat R.S.31-1; Mustard yellow. (vii) Unirrigated. (viii) One weeding and hoeing. (ix) N.A. (x) 10.4.1960.

**2. TREATMENTS :**

5 mixed cropping treatments :  $C_1$  = Mustard alone,  $C_2$  = Wheat alone,  $C_3$  = Mustard + Wheat (5% mixture of mustard),  $C_4$  = Mustard + Wheat (10% mixture of mustard) and  $C_5$  = Mustard + Wheat (20% mixture of mustard).

**3. DESIGN :**

(i) L. Sq. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a)  $31\frac{1}{2}' \times 19\frac{1}{2}'$ . (b)  $30' \times 18'$ . (v)  $9' \times 9'$ . (vi) Yes.

**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain and fodder. (iv) to (vii) N.A.

**5. RESULTS :**

(i) 1266 lb./ac. (ii) 484.8 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	$C_1$	$C_2$	$C_3$	$C_4$	$C_5$
Av. yield	530	1615	1202	1566	1416

S.E./mean = 216.8 lb./ac.

**Crop :- Wheat + Gram (Rabi).**

**Ref :- Rj. 58(50).**

**Site :- Soil Cons. Res. Demons. and Trg. Farm, Kota.**

**Type :- 'X'.**

**Object:—** To find out the economics of growing of legume and cereal mixture under dry farming.

**1. BASAL CONDITIONS:**

(i) (a) to (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 30.10.1958. (iv) (a) 1 ploughing and 4 *bakharings*. (b) Behind the plough. (c) 30 srs./ac. (d) Row to row 9" to 12". (e) N.A. (v) Nil. (vi) Malvi (Wheat) (vii) Unirrigated. (viii) Two weedings and two hoeings. (ix) and (x) N.A.

**2. TREATMENTS :**

3 mixed cropping treatments :  $C_1$  = Wheat alone,  $C_2$  = Gram alone and  $C_3$  = Wheat gram in 1 : 1 ratio.

**3. DESIGN :**

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/60 ac. (v) N.A. (vi) Yes.

**4. GENERAL :**

(i) Normal growth. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958—1962. (b) Yes. (c) N.A. (v) to (vii) N.A.

**5. RESULTS :**

(i) 458 lb./ac. (ii) 184.1 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of wheat grain in lb./ac.

Treatment	$C_1$	$C_2$	$C_3$
Av. yield	330	458	586

S.E./mean = 65.1 lb./ac.