



Crop Experiments

**Punjab Revenue
Academy**

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CROP EXPERIMENTS

Replaces Standing Order No. 9-A. original issue, dated 18th October, 1929

EXPERIMENTS BY REVENUE STAFF

1. The Government having directed tables to be prepared quinquennially showing the average produce of the principal crops cultivated, the Revenue Department will conduct crop experiments in all districts of the Province. With the help of the results of these experiments, and of those conducted by the Agricultural Department under paragraph 2, the existing estimates of the normal rates of yield will be revised at the end of each period of five years. When a district comes under settlement, the Settlement Officer will conduct as may reliable crop experiments as he can in the manner prescribed in Appendix X to the Settlement Manual, and report the results to the Commissioner, who will forward them with his remarks to the Director of Land Records.

2. Experiments by Agricultural Staff: In all districts where agricultural assistants are stationed, experiments will, under the orders of Government, also be conducted by members of the Agricultural Department. The results of experiments conducted by them will be communicated by the Director of Agriculture on 1st July and 1st October in the case of kharif and rabi experiments respectively to the Director of Land Records.

3. Preliminary Reports by Revenue Staff: (a) Deputy Commissioners should make preliminary reports about the arrangements made to conduct crop experiments to the Director of Land Records on the following dates each year:--

| Crop | Date |
|-------------------|----------------------------|
| Toria | 1 st December. |
| Rape and taramira | 15 th January |
| Other rabi crops | 1 st march |
| Tobacco | 21 st may |
| Karif crops | 15 th September |

1. Punjab Government Letter No. 125 (R.A. Agri.) dated the 17th April 1915,--Printed file.

(b) two crop experiments should be made each harvest by each Naib-Tehsildar, Tehsildar, ¹ [Revenue Assistant] and ²[Sub-Divisional Officer]. The Revenue Department will conduct crop experiments in all the districts of the Province, in respect of the crops indicated against each in the accompanying Table A, and report the result in Table B for each such crop.

4. Preliminary Reports by Agricultural Staff: (a) Each Deputy Director of Agriculture and Extra Assistant Director of Agriculture shall personally make on experiment with cotton and one with wheat each year. Each agricultural assistant on district work shall conduct five experiments in *kharif* and six experiments in the *rabi* harvest with the crops shown in Table C as follows:--

Kharif: cotton two, and jawar, cane and bajra, one each.

Rabi: wheat two, and barely, gram, toria, sarson and tobacco, one each.

Table attached shows the principal crops in which, and the kind of land on which, experiments are to be made.

(b) on the following dates each year the officer in charge of the experiment should make a preliminary report in Table D to the Director of Agriculture, stating in what villages and in what zamindars' lands he will conduct the experiment for the crop then ripening. The assessment circle in which the villages in question are situated should also be stated. This can be ascertained without any difficulty any difficulty by enquiry from the Tehsil:--

¹ Now designated as "E.A.A.(Revenue)/G.A."

² Now designated as "Assistant Commissioner"

| Crop | Date |
|-------------------|----------------------------|
| Toria | 1 st December. |
| Rape and taramira | 15 th January |
| rabi crops | 1 st march |
| Tobacco | 21 st may |
| Karif crops | 15 th September |

4-A. Dates of Submission of Result of Crop Experiments: Results of crop experiments should be sent by Deputy Commissioner to the Director of Land Records and by Deputy Directors of Agriculture to the Director of Agriculture by the following dates:--

| Crop | Date |
|----------------------|-------------------------|
| Toria | 1 st march |
| Rapeseed and mustard | 1 st may |
| Other rabi crops | 1 st July |
| Tobacco | 1 st August |
| Cotton | 1 st march |
| Sugarcane | 15 th April |
| Other kharif crops | 1 st January |

5. Instructions as to How Experiments are to be Carried Out:- The plots on which experiments are to be undertaken should be selected in consultation with prominent *zamindars*.

6. As far as possible the plots selected for the experiments should be long narrow strips, at least Five times as long as broad, of which the areas should be not less than $\frac{1}{6}$ th of an acre and not more than $\frac{1}{3}$ rd of an acre. In the case of cane, the area should be $\frac{1}{20}$ th or $\frac{1}{40}$ th of an acre.

7. The field selected should be an average field in an average village in the assessment circle concerned. Experiments are not required in any class of Crop not entered against the name of the district in table a in the case of the revenue department and in table C in the case of Agricultural Department by irrigated crops are meant crops to which water has been supplied by the ordinary methods in use in the district, as by canals, Wells, etc. The kind of irrigation applied to each

crop experiment on should be noted experiments in crops, which are specially noted as unirrigated, should of course only be made in rain fed crops. At the time of selection the officer Deputy to conduct the experiments should in invariably record what the *zamindars* associated with him in the selection calculate the outturn will be, and weather they consider it average of the harvest for the crop and soil under experiment. Their opinion should be noted in the column of remarks of table B. The particulars regarding the history and circumstances of the holding and other information required in the printed form of report should be stated intelligently but in the briefest form. Deputy Commissioner and³[Revenue Assistants] should inspect as many selected fields for experiment by the revenue staff as they can, and should scrutinize carefully the statements of the results of the experiments before sending them to the Director of Land Records.

8. With all the crops specified, excepting cotton, tobacco and cane, the process of conducting the experiment is simple and easy sun till it is fit for threshing. The produce should then be trodden out or threshed in the way common in the neighborhood. Care must of course be taken that grain is not lost during threshing or winnowing. In weighing the grain and tobacco a deduction of five percent. Will usually be sufficient for dry age, but, if the grain and tobacco seem at all moist, five seers of them should be thoroughly dried and weighed again, and the resulting deduction applied proportionately to the whole quantity.

9. Cotton is picked several times at intervals of several days as the pods ripen. In the case of tobacco, the crop after cutting is exposed to the sun for about a week and then buried under ground a similar period after it is taken out. The leaves are then dried twisted into ropes, and wighed to fix the yield per acre. It will therefore generally be difficult for ran officer to supervise the whole of the experiment on these two crops personally. He should see the first and at least on of the subsequent pickings performed in case of cotton, and the cutting and weighing operations in case of tobacco, and must depute the remainder of the work to a trustworthy subordinate. In the case of sugar cane it may not be possible to get the canes crushed at once and the juice boiled within a reasonable

³ Now designated as "E.A.C, (Revenue)/G.A."

time, it may, however, be possible either to obtain a correct result by weighing the cut cane after removal of the trash and tops, and by then ascertaining what weight of *gur orrab* is produced from a given weight of similar cane; or else the area of the experiment may be sufficiently reduced to permit of a complete direct experiment being carried out.

10. The agricultural officer in charge of the experiment should at the end of each harvest submit to the Director of Agriculture a report of the result of the experiment in the form of Table B. Separate forms should be used for each district experiment on. Printed copies of this form will be supplied by the Director of Agriculture's office. In filling up the form care should be taken that instructions printed thereunder as footnotes are correctly carried out.

11. After each harvest all experiments made during it, whether by the agricultural or the revenue staff, should be carefully examined in detail by the Directors of Agriculture and of Land Records, sitting together, and any experiment they consider unreliable, of reasons to be briefly recorded, should be discarded.

12. The Director of Land Records should submit on 15th August and 15th November a short note on the *kharif* and *rabi* crop experiments respectively, for the information of the Board of Revenue and Government, showing for each crop experimented on the in each district the results of the experiments made by the Agricultural and Revenue Departments and by Settlement Offices separately in the preceding crop, the number of experiments, are experimented on and the like. It should also show the outturn assumed at last settlement. To this note should be appended a statement in the following form: --

| District | Tehsil | Assessment circle | Number of experiments conducted | | Outturn per acres of all periments on | | Total area experi mente d on | Rem arks |
|----------|--------|-------------------|---------------------------------|-----------------------|---------------------------------------|------------------|------------------------------|----------|
| | | | By agricultural department | By revenue department | Irrigated land | Unirrigated land | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | |

13. crop experiment returns should be kept till next settlement and then made over to Settlement officers.

TABLE 'A'**Crops in which experiments will be made by the revenue department**

| Serial no | Districts | Kharif | | | | | | | |
|--------------------|---------------------------|--------|---|-------|---|------|---|-------|---|
| | | Rice | | Maize | | Cane | | Jowar | |
| | | I | U | I | U | I | U | I | U |
| 1 | Lahore | . | . | . | . | . | . | | |
| 2 | Sialkot | . | | . | | . | | | |
| 3 | Gujranwala | . | | . | | . | | | |
| 4 | Sheikhupura | . | | . | | . | | | |
| 5 | Gujrat | . | | . | | . | | | |
| 6 | ⁵ [Shahpur] | . | | . | | . | | . | . |
| 7 | Jhelum | | | | | | | . | |
| 8 | Rawalpindi | | | | . | | | | . |
| 9 | ⁶ [attock] | | | | | | | | . |
| 10 | Mianwali | | | | | | | | . |
| 11 | ⁷ [montgomery] | . | | . | | . | | | . |
| 12 | Lyalpur | . | | . | | . | | | |
| 13 | Jhang | . | | . | | . | | . | |
| 14 | Multan | . | | . | | . | | . | |
| 15 | Muzaffargarh | . | | | | . | | . | |
| 16 | Dera ghazi khan | . | | | | | | . | . |
| ⁴ [...] | | | | | | | | | |

"I" indicates irrigated.

"U" indicates unirrigated.

⁴ Bahawalpur, Bahawalnagar and Rahimyar Khan districts.

⁵ Now called 'Sargodha'.

⁶ Now called 'Campbellpur'

⁷ Now called 'Sahiwal'.

| | | | | | | Rabi | | | | | | | | | |
|-------|---|--------|---|---|---|-------|---|--------|---|------|---|------|---|---------|---|
| Bajra | | Cotton | | | | Wheat | | Barley | | Gram | | Rape | | Tobacco | |
| I | U | I | U | I | U | I | U | I | U | I | U | I | U | I | U |
| . | | . | | . | | . | . | . | . | . | . | . | . | . | |
| . | . | . | | . | | . | . | . | . | . | . | . | . | . | . |
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| . | . | . | | . | | . | . | . | . | . | . | . | . | . | . |

In districts where the important variety of “irrigated rape” is toria, the experiment should be conducted in toria.

Note: experiments to be made in crops under which an asterisk is marked.

TABLE B

_____ District

Statement of results of crop experiments in the-----District for ----- Season 19

| | | | |
|------|---|-------|--|
| 18 | remarks | | |
| 17 | Average outturn per acre assumed at last settlement of grain in seers | | |
| 16 | Quinquennial average outturn per acre of grain in seers | | |
| 15 | Produce per acre in seers | Straw | |
| 14 | | Grain | |
| 13 | Weight of produce in seers | Straw | |
| 12 | | Grain | |
| 11 | Area cut | | |
| 10 | Name and rank of officers and date of making the experiment | | |
| 9 | Details of manuring and watering of crop under experiment | | |
| 8 | Details of cultivation in three preceding seasons | | |
| 7 | Status and resources of cultivator | | |
| 6 | Class of irrigation | | |
| 5 | Area sown with the crop | | |
| 4 | Kind of crop | | |
| 3 | Village | | |
| 2 | Assessment circle | | |
| 1(a) | Tehsil | | |
| 1 | Serial No. | | |

Note: In column 6 enter the class of irrigation of the crop experimented upon according to girdwari:

In column 7 state whether the cultivator is a man of good, average or insufficient resources as regards cattle, labour, etc., extent of his holdings, whether indebted or not; also his caste, if considered is relevant.

In Column 8 enter crops according to girdwari, specifying class of irrigation and whether matured or failed.

In column 9 if a preceding crop was manured, as, for instance, when wheat follows manured maize, mention this, give number of ploughings, weeding, etc., etc., also in case of rabi crop whether ploughed before or after rainy season; if only one watering was given, mention whether it was before or after sowing.

In column 12 and 14 enter the weight of the main produce in its marketable form. In the case of cotton, enter weight of cleaned cotton. In case of tobacco enter the weight of dry leaf ordinarily marked by the cultivator. In case of sugarcane, enter weight of gur or rab. In case of maize, enter weight of grain removed from cob.

In columns 13 and 15 enter the weight of other marketable products, giving their name. In case of cotton, enter weight of seed. In case of tobacco enter weight of stalks. In case of jowar, straw, etc., enter weight of straw dried.

In columns 16 enter the outturn given in the latest quinquennial statement issued by the Director of Land Records, showing the approximate yield per acre in lbs. of the principal crops in each district of the Punjab.

Important variation of column 14 as compared with those of 16 and 17 should be explained.

In column 18 state the reasons for the selection of the site of the experiment, mention any other circumstances affecting the value of the result, and give probable reason for any specially good or bad yield, as for instance whether the crop was sown late or early; nature of soil, whether light or heavy, high or low; whether the season suited such soil, whether an damage occurred from wind, hail, frost, vermin or other causes.

If more than one experiment has been made in any class of crop, enter each separately. It is not necessary to give an average for the whole.

The weight of "cane" for the area under experiment as well as the yield per acre of "cane" in addition to the weight of gur shown in columns 12 and 14 should also be noted in this column.

Table 'C'

Crops in which experiments will be made by the officers of the Agriculture Department

| Serial no. | District | Kharif | | | | | | | | | | | |
|--------------------|---------------------------|-----------|---|--------|---|-------|---|-------|---|----------|---|------|---|
| | | Sugarcane | | | | Jowar | | Bajra | | Cotton | | | |
| | | Planted | | Ratoon | | I | U | I | U | American | | Desi | |
| | | I | U | I | U | | | | | I | U | I | U |
| 1 | Lahore | . | | . | | | | . | | . | | . | |
| 2 | Sheikhupura | . | | . | | | | . | | . | | . | |
| 3 | ⁹ [Montgomery] | . | | . | | | | . | | . | | . | |
| 4 | Sialkot | . | . | . | . | | | . | . | . | . | . | . |
| 5 | Gujranwala | . | | . | | | | . | . | . | . | . | . |
| 6 | Gujrat | . | | . | | | | . | . | . | . | . | . |
| 7 | ¹⁰ [Shahpur] | . | | . | | . | . | . | . | . | . | . | . |
| 8 | Jhelum | | | | | . | | | . | | | | |
| 9 | Rawalpindi | | | | | | . | | . | | | | |
| 10 | ¹¹ [attock] | | | | | | . | | . | | | | |
| 11 | Mianwali | | | | | | . | | . | | | | |
| 12 | Lyalpur | . | | . | | | . | | . | | | . | |
| 13 | Jhang | . | | . | | . | | . | | . | | . | |
| 14 | Multan | . | | . | | . | | . | | . | | . | |
| 15 | Muzaffargarh | . | | . | | . | | . | | . | | . | |
| 16 | Dera ghazi khan | | | | | . | . | . | . | | | | |
| ⁸ [...] | | | | | | | | | | | | | |

"I" indicates irrigated.

"U" indicates unirrigated.

Notes: (1) Experiments are to be made with crops under which the sign is marked.

⁸ Bahawalpur, Bahawalnagar and Rahimyar Khan districts.

⁹ Now called 'Sahiwal'

¹⁰ Now called 'Sargodha'.

¹¹ Now called 'Campbellpur'

(2) In the districts where the important variety of irrigated rape is 'toria' experiment should be made with 'toria'.

| Rabi | | | | | | | | | | | Name of officer in charge of experiments | | |
|-------|---|--------|---|------|---|---------|---|----------------------|---|----------------|--|---|--|
| Wheat | | Barley | | Gram | | Tobacco | | | | Torja and rape | | | |
| I | U | I | U | I | U | Desi | | N. Tobaccum Virginia | | I | | U | |
| . | . | . | . | . | . | . | . | . | . | . | . | . | Deputy director of agriculture, Sahiwal. |
| . | . | . | . | . | . | . | . | . | . | . | . | . | |
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| . | . | . | . | . | . | . | . | . | . | . | . | . | Deputy director of agriculture, Rawalpindi |
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| . | . | . | . | . | . | . | . | . | . | . | . | . | Deputy director of agriculture, Multan |
| . | . | . | . | . | . | . | . | . | . | . | . | . | |
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| . | . | . | . | . | . | . | . | . | . | . | . | . | |

Table D

Preliminary report on crop experiments proposed to be conducted in the _____ district for season 19

| Serial no. | Kind of crop | Name of village | Assessment circle and Tehsil | Owner's name and caste | Class of soil | Area of field | Estimated outrun per acre | Remarks |
|------------|--------------|-----------------|------------------------------|------------------------|---------------|---------------|---------------------------|---------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | |