

SOIL TESTING SERVICE IN RAJASTHAN

(A Case Study of Sriganganagar Soil Testing Laboratory)

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F O R E W O R D

Recognizing the importance of soil testing service in the context of increasing fertilizer consumption, the Ministry of Agriculture & Irrigation, Government of India, had asked several Agro-Economic Research Centres to undertake an evaluation study on the working of soil testing service. This Centre was asked to take up such a study in Rajasthan.

The Organisational set up and working of soil testing service in Rajasthan have been examined in this study on the basis of available secondary data. A field survey covering 60 beneficiary households and 40 non-beneficiary households was also conducted for the reference year 1979-80 in order to assess the impact of this service on the farmers' fields.

The present study reveals two satisfactory aspects about the soil testing service in Rajasthan. Firstly, the available data suggest that the work of soil testing service has expanded considerably during the last two decades. Secondly, it also reveals that, by and large, the method adopted for collecting soil samples has been scientific and satisfactory.

The present study has thrown up some disturbing results also. For instance, it has been reported that fertilizers have not been used on any of the soil tested plots as per the recommendations. Similarly, the yield rates have been found to be higher on farms using less than the recommended doses of nutrients NP and NPK. These results deserve to be looked into more carefully for making this service more effective.

Although soil testing service has expanded significantly during the last two decades in Rajasthan, there is a need for opening more laboratories in order to enable the farmers to avail of the benefits of this service more easily. There is also a need for more effective follow up extension effort for getting better results. In this connection the author has put forward several specific recommendations for improving the working of this service in Rajasthan.

Shri R. D. Sevak has put in sustained hard work to study this crucial but relatively neglected area of research. He received valuable assistance from Sarvashree C. F. Patel, H. M. Verma and S. D. Purohit. Shri S. D. Purohit has helped in the field work, while Shri H. M. Verma was associated with field work as well as data sheet preparation. Shri C. F. Patel was associated with this project at all stages. Shri R. M. Patel, Deputy Director, provided valuable encouragement to the project team and offered useful suggestions/comments. Dr. C. H. Babaria, who has done a useful study on this subject for Gujarat, provided valuable help in the initial stages of this project work. The Machine Tabulation Unit of the Centre has competently handled the work of data processing.

It is hoped that this study will be found useful by those concerned with the problems of agricultural development in Rajasthan.

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Mahesh Pathak
Honorary Director

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C O N T E N T S

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CONCLUSION AND SUGGESTIONS

The present research study was undertaken to examine : (i) the organizational set-up of soil testing service in the State, (ii) working of soil testing service in the State particularly with reference to Sriganaganagar soil testing laboratory (SSTL) and (iii) the extent of adoption of soil testing service and the factors associated with non-adoption at farm level in Sriganaganagar district.

The review of performance of soil testing laboratories, particularly of SSTL, is based on data available for 5 years period from 1974 to 1979. The extent of adoption at farm level and factors associated with non-adoption of soil testing service have been ascertained by a sample survey of 60 beneficiary households and 47 non-beneficiary households from six different villages of Sriganaganagar tehsil from Sriganaganagar district which falls under the jurisdiction of SSTL. The reference period for the farm level data was agricultural year 1979-80.

I

Soil Testing Service in the State

There are 4 soil testing laboratories situated in different parts of Rajasthan. In addition one mobile van is kept at Durgapura laboratory, Jaipur. The Joint Director, Agriculture (Soil Survey) is in-charge of this service at State level. He is assisted by a Deputy Director, Agriculture (Quality Control & Soil Survey), Durgapura. Soil testing service has made

satisfactory progress. The capacity for testing soil samples has increased from 5000 per annum in 1960-61 to 90,000 per annum in 1979-80. The actual number of soil samples tested has moved up from 7569 in 1960-61 to 80,545 in 1979-80.

Considering 5 years (1974 to 1979) period together, the best performance in terms of soil samples to be tested against set targets was given by Durgapura STL (108%) and the lowest achievement was at Sriganganagar STL (71%). All the laboratories put together had achieved 88 per cent of the target for the five year period.

The co-ordination between extension staff and laboratory staff was found to be poor at the State level as well as at the laboratory level. Of the total number of tehsils served by all the laboratories, about 71 per cent of the tehsils were at a distance of more than 100 kms.

II

Working of Sriganganagar Soil Testing Laboratory (SSTL)

Significance of SSSL :

This laboratory has analysed 71,000 soil samples during 1974-79. It has found that in Sriganganagar district, the nutrient K, i.e. potash is declining in the soil year after year. This laboratory was established in 1968-69 and the area of its jurisdiction at present is Sriganganagar and Bikaner districts. Water tests are also carried out in this laboratory. The annual capacity of testing the soil samples in 1979-80 was 20,000 per annum and the per day maximum capacity was 100.

Performance of SSTL :

During the period 1974-79, excepting 1977 and 1979, the soil samples tested were below the set target. It was found that the proportion of soil samples received through BDO was declining over the years.

The preponderent share of the total soil samples was claimed by Sriganganagar district and tehsil as compared to other districts and tehsils falling under the jurisdiction of SSTL. The highest number of soil samples were tested for cotton followed by wheat. The other crops did not reveal any trend. Majority of the soil samples received at SSTL were during pre-kharif and pre-rabi period. The results of soil test were not always despatched in time prior to kharif and rabi seasons because of the prevailing backlog of work. The trend of inflow of soil samples was found to be seasonal. The ABC demonstration results had proved the superiority of soil test recommendations over other two practices viz. general departmental recommendations and practices followed without fertilizer use.

III

Use of Soil Testing Service at Farm Level

Characteristics : The available primary data suggested that the beneficiary households enjoyed better socio-economic status as compared to non-beneficiary households.

Coverage under Extension Service : Consultation of the extension workers was appreciable for both groups of households. This was particularly due to the Benor scheme.

Awareness : The awareness about existence of soil testing laboratory in the district was higher among beneficiary households than non-beneficiary households. However, the awareness about getting the soil tested directly by paying fees was poor among both groups of households.

The Reason for Non-adoption : The reasons given for non-adoption of soil testing in order of importance were as follows : (i) ignorance about soil testing facility (57%), (ii) no major problem (20%), (iii) soil was tested prior to reference period (17.5%), (iv) non-availability of VLW's service (7.5%), and (v) apathy towards soil testing service (5%).

Details about Soil Samples :

Crops covered : The following three crops viz. American cotton, wheat and gram were covered under soil testing. Majority of the households had sent soil samples for one crop only.

Seasons covered : A majority of the beneficiary households (56) had sent soil samples for one season only. This is somewhat surprising for an area with better irrigation facility.

Recurrence of soil samples : About 40 per cent of beneficiary households were not new to this service, i.e. 24 beneficiary households had adopted soil testing prior to the reference period which indicates their faith and interest in soil testing service.

Fertilizer use level : On none of the soil tested plots fertilizers in terms of nutrients NPK were applied as per the recommendation of soil testing laboratory.

Fertilizer use level and yield level : The superiority in terms of per hectare yield (kgs./hect.) of soil tested plots over non-tested soil plots either of beneficiary or non-beneficiary farms was proved only in the case of wheat. Such superiority was not established in the case of American cotton and gram. The yield rates were found to be higher on the farms using less than the recommended doses of soil testing laboratory for nutrients NP and NPK as compared to those using higher doses.

Method of soil sample collection : A majority of the soil samples taken were found satisfactory with respect to average area covered per soil sample, the number of spots represented per soil sample, the quantity of soil collected per soil sample, the depth of layer of soil sample and instrument used for collecting the soil sample.

Attitude/Opinion : It is heartening to note that majority of the sample beneficiary households reported satisfaction with the service. The main source of awareness for soil testing service was VLW followed by other farmers and ABC demonstration plots. No beneficiary had reported his ignorance about soil sample collection. Only three households had reported that the soil test results were not communicated to them. The remaining households reported that these results were not conveyed in time. The services of VLW to explain the results of the soil test were not available to majority of the households. Some beneficiaries were not happy with the present position of the SSL in terms of soil testing facility for the micro-nutrient test.

Specific Suggestions :

1. The co-ordination between extension staff and laboratory staff at State level as well at laboratory level needs to be improved.
2. With a view to launch intensive follow-up work of soil test recommendations, the laboratory should be strengthened by providing extension cell.
3. The replacement of old equipments should be considered at the end of every five years.
4. Provision of two diesel-based vehicles instead of one petrol vehicle should be considered to facilitate intensive follow-up work of soil test recommendations in addition to routine work.
5. To avoid the problems which arise in the absence of electricity, a provision of generator for the laboratory should also be made.
6. Facility for micro-nutrient tests like Zn, Fe and Borone should be provided in the laboratory with a view to satisfy the demand from farmers for crops like sugarcane, sugarbit, wheat and fodder.
7. The amount granted per sample was found to be static in relation to rising cost of material almost every year. The amount given per soil sample to be tested should be increased keeping in view the price rise.
8. At present about 71 per cent of the tehsils lie at a distance of more than 100 kms. from the soil testing laboratories. Secondly, inflow of

soil samples was also found to be seasonal. New laboratories may be opened keeping in view the above factors.

9. In order to increase the coverage of soil testing service, the soil sample test should be made compulsory for demonstration plots, crop cutting harvest competition and hybrid seed production plots etc.
10. Facility of mobile van should be provided in villages once in a season prior to sowing and soil test results should be explained to farmers on the site.
11. The ABC demonstration plots and documentary films for soil testing service should be arranged in the villages for the propagation of the soil testing service.
12. Arrangement may be made to send soil test reports directly to cultivators and this report should also be self-explanatory.
13. A token charge may be levied for soil sample test. This would reduce the financial stringency faced by the laboratory.
14. The follow-up work of soil test recommendations should be intensively launched by the laboratory staff itself.