

Effectiveness of Soil Testing in Increasing Agricultural Production

By

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ABSTRACT

The findings showed that the majority of the soil samples were collected by the Village Level Works (V.L.Ws.) and sent to Soil Testing Laboratories (S.T.L.) for analysis through the Blocks. But the results of the analysis received from the S.T.L. were communicated only to 3.5 per cent of the respondents and that too with inordinate delay. Among those who had received the results only two-fifths adopted the S.T.L. recommendations. This adoption percentage was in no way better in the case of respondents who personally approached the S.T.L. and got their soil samples tested. Further, the study showed that by following the S.T.L. recommendations, there is a possibility to increase the yield of food crops upto 30 per cent and the yield of cotton upto 33.3 per cent over the normal yields.

INTRODUCTION

Increased agricultural production depends on a number of factors of which soil fertility plays an important role in a number of ways. When maximum net return is aimed at from crop production the inputs like fertilizers are to be applied to the soil in appropriate quantities and in proper time. This optimum quantity can be decided only on the basis of the availability of N P K in the soil. In this respect S. T. Ls are doing an onerous service to the farming community by analysing their soil samples and recommending the correct dose of fertilizers. But how far the services of the S.T.Ls. have been utilised by the farmers in increasing agricultural production was not studied so far. Therefore, a study was taken up with the following objectives: (i) to find out the extent of adoption of S.T.L recommendations by the farmers

(ii) to assess the effectiveness of the adoption of the recommendations in increasing agricultural production and (iii) to study the bottleneck, if any, in the adoption of the S.T.L. recommendations by the farmers.

MATERIALS AND METHODS

The study was conducted with two different groups of respondents viz., group 1 includes 41 C. D. blocks of Coimbatore district, 10 blocks representing all the four agricultural divisions were selected at random. From the entries in the S.T.L records a list of farmers whose soil samples were received through the concerned blocks and analysed at the S.T.L Coimbatore was prepared for each of the selected blocks. From these lists 200 respondents in all were selected for the study by adopting proportionate random sampling method. The group 2 includes a list of

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farmers who had sent their soil samples directly to the S.T.L. Coimbatore and got analysed was prepared. From this list 32 farmers (25 per cent) from 18 different blocks were selected at random as respondents for the study. The data from all the 232 respondents were gathered by administering a well structured and pre-tested interview schedule and the same were processed, tabulated and analysed and drawn the following findings.

RESULTS AND DISCUSSION

From the study it was found that 99 per cent and cent per cent of respondents in groups 1 and 2 respectively were aware about the soil testing programme. However, the soil sampling procedure was known only to 46.5 and 87.6 per cent of the respondents in groups 1 and 2 respectively and 95.7 and 37.5 per cent of the respondents from groups 1 and 2 respectively learnt this sampling procedure from the block staff and the rest through other agencies as furnished in Table 1. Further, it

Table 1. Extent of awareness to the soil sampling procedure and the sources through which respondents learnt

Details	Samples received through Blocks Group 1 (n=200)		Samples received directly from farmers Group 2 (n=32)	
	No.	Per cent	No.	Per cent
Awareness to the soil sampling procedure	93	46.5	28	87.6
Sources through which the procedure was learnt* (n=93)		(n=93)		(n=28)
Village level workers	64	68.0	7	25.0
Dy. Agrl. Officers	17	18.2	3	10.7
C. D. I./Agrl. Asst/Dem. Maistry	8	8.6	2	7.1
Neighbours, friends and relatives	—	—	5	17.1
Fertilizer firms	6	6.5	3	10.7
Literature	5	5.4	6	21.4
Staff of S. T. L.	4	4.3	5	17.8
Staff of Farmers Training Centre	3	3.2	3	10.7
Radio	2	2.1	2	7.1

* Totals do not add to 100 because of multiple responses existed for certain items

is estimated that 86 per cent of the soil samples of group 1 respondents were collected and sent to block headquarters by V.L.Ws and the rest through other block staff and other agencies (Table 2). Yet, it is reported by 15.5 per cent of group 1 respondents that they were not at all aware about the sending of their soil samples for analysis.

Regarding the frequency at which the soil samples are to be got analysed, it was known to the majority of the respondents in both the groups, 53.1 and 75.5 per cent in groups 1 and 2 respectively. However, it was found that 83 and 49.3 per cent of group 1 and 2 respondents sent their samples only once during the past 4 years for analysis; 11.5 and 34.4 per cent sent the samples

Table 2. Agencies through whom the soil samples were sent to S. T. L. for analysis.

Name of agencies	Samples received through Blocks Group 1 (n=200)		Samples received directly from respondents Group 2 (n=32)	
	No.	Per cent	No.	Per cent
Village level workers	172	86.0	4	12.5*
Demonstration maistries	15	7.5	—	—
Dy. Agrl. Officers	7	3.5	—	—
Agrl. Asst./C. D. I.	5	2.5	—	—
Staff of Farmers' Training Centre	1	0.5	2	6.2
Staff of S. T. L.	—	—	2	6.2
Neighbours, friends and relatives	—	—	3	9.4
Fertilizer firm's representatives	—	—	3	9.4
Direct (personally)	—	—	22	68.8

*Samples sent through V. L. Ws in addition to the samples sent directly or through other agencies. But the results for these samples were not received by the respondents even after a lapse one year.

every year and 3.5 and 6.3 per cent sent their samples for analysis once in every two years.

Regarding the receipt of the S.T.L. results by the respondents, in group 1 it was found that only 31.5 per cent (63 out of 200) had received the results. This included the oral communication of the results by the concerned V.L.Ws to

3 per cent of the respondents. Among those who had received the results, 9 per cent received within a quarter, 6 per cent in 3 to 6 months, 4 per cent in 6 to 9 months, 2.5 per cent each in 9 to 12 months and 13 to 18 months, 2 per cent in 19 to 24 months and 2.5 per cent after 24 months. But from a perusal of the entries made in the S.T.L. and block registers, it was

found that majority of the samples were analysed at the S.T.L and the results communicated to the blocks within a month's time and only in a few cases the S.T.L had taken upto 4 months for analysis and communicating the results. Thus, it is evident that there existed undue delay with the block authorities in communicating the results to the farmers.

In group 2 where the samples were personally handled over to the S.T.L for analysis, the S.T.L had communicated the results to the majority of the respondents in a week's time and in a few cases it had taken upto one month for analysing and communicating. Further, out of 32 respondents 4 had sent their samples through the V.L.Ws also, but the results were not received by any of of them even after a lapse of one year.

With regard to the adoption of S. T. L recommendations, among the respondents who had received the results, only 39.68 and 34.4 per cent in groups 1 and 2 respectively had fully adopted. The factors which prompted these respondents of both the groups to adopt the S.T.L recommendations fully were (i) to reclaim alkalinity (ii) to gain more net profit (iii) firm belief in scientific recommendations and (iv) to over-come the low yields experienced. Similarly, the reasons attributed for non-adoption of the recommendations were (i) the inputs were not available or costly; (ii) the crops mentioned were not grown (iii) for want of funds.

The reasons given for not sending the soil samples subsequently for analysis by 83 per cent of respondents in

group 1 were (i) the results were not received for the samples already sent; (ii) no problem in the soil; (iii) not interested and no time to think of analysing soil samples; (iv) do not know the procedure to take soil samples and (v) lack of follow up by the block staff.

The S. T. L at Coimbatore, apart from analysing the soil samples received from blocks and individual farmers, is undertaking some experiments in the farmers' holdings to prove the effectiveness of the adoption of S.T.L recommendations. Such experiments are being conducted in selected holdings in every block. The awareness, among the respondents of these experiments were also enquired and found that 30.5 and 53.1 per cent of the respondents in groups 1 and 2 respectively were aware of them; but among them 34.4 and 58.8 per cent only had visited the experimental plots and the rest had only just heard about the conduct of the experiments. Regarding the effectiveness of adoption of S.T.L recommendations in the case of rice the increase in yield ranged from 5 to 19.4 per cent with an average of 10.1 per cent over the normal yield. This increase went up to even 200 per cent when paddy was grown after reclaiming the soil from alkalinity. In cotton, the increase ranged from 7.14 to 33.3 per cent with an average of 14.52 per cent, in cumbu 20 to 30 per cent with an average of 26.82 per cent, in groundnut, 4.39 to 25 per cent with an average of 11.28 per cent and in ragi the increase in yield ranged from 13.09 to 25 per cent with an average of 19.64 per cent.