

Impact analysis of adoption of soil testing techniques for providing balance dose of fertilizers for kharif and rabi crops grown in Mandsaur district (M.P.)



Agriculture

KEYWORDS : Attitude, knowledge, soil testing practices, Extension activities and Respondents

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ABSTRACT

A study was carried out in the Mandsaur district of Madhya Pradesh to find out the knowledge and attitude of farmers toward soil testing practice. As the soil testing is an important measure of the soil's ability to supply nutrient elements needed for better plant growth. A proper soil testing will help to ensure the application of enough fertilizer to meet the requirements of the crop and taking advantage of the nutrients already present in the soil. Soil testing is a comprehensive soil fertility evaluation programme, which helps the farmer's injudicious application of chemical fertilizers. The farmers will be able to know how much nutrients are already available in the soil and how much will have to be provided additionally for a particular crop. In present study, the majority of farmers had knowledge about soil testing practices. A Majority of 20.83% respondents gained the knowledge from trainings/ Kisan Gosthis/ Kisan Mela conducted by Krishi Vigyan Kendra in the operational area and the 15.83% respondents gain knowledge by personnel of State Department of Agriculture. Therefore, efforts should be made by KVK and Department of Agriculture for encouraging and to increasing the respondent or the farmers to adopt soil testing practices by organizing training programmes and campaigns especially on soil testing process.

INTRODUCTION

Soil analysis is a valuable tool for farm as it determines the inputs required for efficient and economic production. A proper soil test will help to ensure the application of enough fertilizer to meet the requirements of the crop while taking advantage of the nutrients already present in the soil. It will also allow to determining lime requirements and can be used to diagnose problem of that area. It is very important that soil sampling technique is correct as the results are only as good as the sample take. Soil testing is also a requirement for farms that must complete a nutrient management plan. The best time of soil sampling is after the crop is removed. Since results can vary depending on the time of year, it is best to sample at the same time each year. Soil tests should be completed every 2-3 years for most crops. Accurate fertilizer recommendations are important, because problems can result from either inadequate or excessive fertilization. Too little fertilizer leads to poor plant growth, but too much fertilizer can also reduce plant growth and quality. In addition, excessive applications of fertilizer can be harmful to the environment. Fertilizer recommendations are based on the kinds of plants that are grown, the type of soil they are growing in, and the results of soil tests. Soil testing provides information on the availability of nutrients in the soil and is required for accurate fertilizer and lime recommendations. Therefore, soil testing will definitely be advantageous to the farmers in achieving maximum production and in earning max profit. So it is essential to create maximum awareness among farmers about judicious use of chemical fertilizers. Keeping in view the importance of soil testing towards optimum production of crop and maximum net profit of farmers, this study was carried out in the Mandsaur district of Madhya Pradesh with the following objectives

- 1) To find out the status of knowledge of farmers toward soil testing practice.
- 2) To study the attitude of farmers towards soil testing practices.

METHODOLOGY

The study was conducted in purposively selected district Mandsaur in 2012-2013. Ten villages from the district were selected purposively. Twelve farmers randomly selected from each village who have availed soil-testing technique formed the sample. Thus, total numbers of farmers from ten villages were 120. The data was collected by personal interview method with the pre-tested schedule designed for the purpose.

RESULTS AND DISCUSSION

The data presented in Table 1 indicated that majority of the farmers 68.33 per cent had knowledge about soil testing practices while only 31.67 per cent respondents farmers had lack of knowledge of soil testing practices. Thus, the knowledge about soil testing practices had been found satisfactory in the district.

Table 1: Knowledge of farmers about appropriate soil testing practices

S.N.	Response of respondents	No. of Respondents	Percentage
1	Positive	82	68.33
2	Negative	38	31.67

Table 2: Distribution of respondents according to utilization of source of knowledge

S. No.	Source of knowledge	Frequency	Percentage
1-	Extension Personnel of State Department of Agriculture /IFFCO mobile soil testing laboratory.	19	15.83
2-	Fellow Farmers	9	7.50
3-	Radio	10	8.33
4-	T.V.	12	10.00
5-	Training/Kisan Gosthis/ Kisan Mela/ campaigns conducted by KVK with Department of Agriculture	25	20.83
6-	Extension Literature/Dashpur Krishi samachar KVK	15	12.50
7-	Kisan Mobile Advisory KVK	18	15.00
8-	No Knowledge about soil testing	12	10.00
Total		120	100

Further, data presented in Table 2 indicated that majority of respondents (20.83 %) were gained the knowledge from trainings/ kisan gosthis/ kisan mela conducted by Krishi Vigyan Kendra followed by extension personnel of State Department of Agriculture /IFFCO mobile soil testing laboratory (15.83%). While, 15.00 per cent respondents gain knowledge by the Kisan Mobile Advisory service operated by Krishi Vigyan Kendra and 12.50 per cent respondents collected information and knowledge from Extension Literature like Dashpur Krishi samachar published quarterly by Krishi Vigyan Kendra. Among the respondents, 10.00 per cent respondents gained knowledge through television. 8.33 per cent respondents collected knowl-

edge from radio and 7.50% respondents collected knowledge from Fellow Farmers. It is also surprising that 10.00 per cent farmers had no knowledge of soil testing practice but they are using soil testing practice.

Table 3. Distribution of respondents according to their attitude towards soil testing practices.

S. No.	Statements of respondents	Response of respondents (out of 120)					
		Agree	%	Undecided	%	Disagreed	%
1-	Result is given timely	29	24.17	13	10.83	78	65.00
2-	Result of soil testing is reliable	93	77.50	19	15.83	8	6.67
3-	Behavior of soil testing staff is good	85	70.83	23	19.17	12	10.00
4-	Understand the soil health card technical information.	78	65.00	21	17.50	21	17.50
5-	Soil testing is necessary for better crop production	97	80.83	18	15.00	5	4.17
6-	Soil testing is wastage of time and money	15	12.50	16	13.33	89	74.17
7-	Expenditure of crop production decreases after soil testing	77	64.17	27	22.50	16	13.33

The results in Table 3 indicated that the majority of respondents were in agree with the towards soil testing practices but it could also be pointed that they had showed positive attitude because most of adaptors (74.17 per cent) did not agree with the statement that "soil testing is wastage" of time and money. When the respondents were asked that "Result of soil testing is reliable" total 77.50 per cent adopters agreed with the statement whereas only 6.67 per cent adopters disagreed with it. Sixty five per cent adopters said that, "soil testing result given very late". It was also observed that majority of farmers agreed (97%) with the statement "Soil testing is necessary for better crop production". It means the farmer's attitude was generally conservative. Soil analysis can guide farmers and gardeners in making soil amendment and soil management decisions. Making soil sampling an annual event will allow for tracking management practices and influencing future soil amendment decisions.

Table 4 show the trends of soil sample collected and tested for N P K in the five blocks of the Mandsaur district from 2008-09 to 2012-13. Soil testing laboratory is established at headquarter of district Mandsaur. Where, Mandsaur, Malhargarh and Sitamau blocks having distance radius about 5 to 60 KM but Bhanpura and Garoth blocks having distance around 120 to 160 Kms from district headquarter. Because of this long distance of Bhanpura and Garoth blocks from soil testing laboratory, farmers are sending less number of soil samples as compared to another three blocks in district.

Table 4. Block wise information of tested soil samples (NPK) of at soil testing lab district Mandsaur

Block	Soil samples	2008-09	2009-10	2010-11	2011-12	2012-13
Mandsaur	Collected	2829	1591	2250	1347	2222
	Tested	1700	1583	2242	1347	2218
	% of tested	60.09	99.50	99.64	100	99.82
Malhargarh	Collected	884	523	1535	1029	2222
	Tested	850	522	1514	1029	2219
	% of tested	96.15	99.80	98.63	100	99.86
Bhanpura	Collected	351	289	648	342	689
	Tested	345	282	648	314	689
	% of tested	98.29	97.58	100	91.81	100

Garoth	Collected	710	411	841	834	1192
	Tested	700	406	841	834	1192
	% of tested	98.59	98.78	100	100	100
Sitamau	Collected	1387	736	1327	1080	2039
	Tested	905	729	1324	1080	2037
	% of tested	65.25	99.05	99.77	100	99.90
Total	Collected	6161	3550	6601	4632	8364
	Tested	4500	3522	6569	4604	8355
	% of tested	73.04	99.21	99.52	99.40	99.89

Similarly, data presented in Table 5 shows that trainings, kisan goshtis, kisan mela, Kisan Mobile advisory service and campaigns play important role for encouragement of farmers regarding testing of micro nutrients. Farmers are aware regarding importance of soil testing for micro nutrient for getting better crop production through provide balance fertilizers dose as per requirement of field crop. As per data shown in above tables, one new soil testing laboratory can be open at Bhanpura or Garoth block because both blocks having large distance from district headquarter. The increment in the awareness and change in attitude and knowledge of the farmers in the district for provide balance dose fertilizers in Kharif and Rabi crops for higher crop production increased the number of testing of soil samples.

Table 5. Block wise information of tested soil sample (Micro nutrients) of at soil testing lab district Mandsaur

Block	Soil samples	2008-09	2009-10	2010-11	2011-12	2012-13
Mandsaur	Collected	509	402	532	54	141
	Tested	119	402	532	54	141
	% of tested	23.38	100	100	100	100
Malhargarh	Collected	148	151	187	165	930
	Tested	10	151	187	165	930
	% of tested	6.76	100	100	100	100
Bhanpura	Collected	6	1	64	1	14
	Tested	5	1	64	1	14
	% of tested	83.3	100	100	100	100
Garoth	Collected	21	25	9	12	539
	Tested	4	25	9	12	539
	% of tested	19.04	100	100	100	100
Sitamau	Collected	114	87	44	32	300
	Tested	36	87	34	32	300
	% of tested	31.58	100	77.27	100	100
Total	Collected	798	666	836	264	1924
	Tested	174	666	826	264	1924
	% of tested	21.80	100	98.80	100	100

CONCLUSION

Soil testing results can indicate nutrient deficiencies or excesses, nutrient-holding capacity, organic matter content and soil alkalinity or acidity. The value and reliability of this information depends on how a sample is taken and which area of the farm represents the sample. The study indicated that the soil testing process was well known to the farmers and they also knew its importance. But efforts should be made by KVK and Department of Agriculture for encouraging the farmers to adopt soil testing practices by organizing training programmes and campaigns especially on soil testing process. IFFCO mobile soil testing laboratories should create awareness regarding adoption of soil testing. By doing this, the reliability of results of soil samples could be increased among the farmers widely in future for better farming. Above result show one new soil testing laboratory may open at Bhanpura or Garoth block because both blocks having large distance from district headquarter.

REFERENCE

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