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**ADOPTION OF SOIL TESTING TECHNIQUES AND ITS  
RECOMMENDATIONS BY THE FARMERS IN SALINE-SODIC  
TRACK OF VIDARBHA**

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**ABSTRACT**

The present study was under taken in Akola, Amravati and Buldana district in Vidarbha region of Maharashtra state. From each selected district one Tahsil has been selected purposively where soil is saline or sodic. The selected Tahsils are Akola, Daryapur and Shegaon from Akola, Amravati and Buldana districts respectively. From each Tahsil four villages have been selected randomly and from each selected village ten farmers have been interviewed. Thus the total 120 respondents is the sample for this study. The objectives of the study were, to study the adoption of the respondents about the soil testing techniques and its recommendations in saline sodic track of Vidarbha and to study the constraints faced by the farmers in the adoption of soil testing techniques and its recommendations. The exploratory research design was used for present study. The findings revealed that majority of the respondents having medium level of adoption about soil testing techniques and its recommendations. No technical guidance from Govt. agency about soil testing, lack of technical skill about soil testing technique, delay in soil test report, and non availability of soil testing lab nearby village, were major constraints with the selected farmers.

**Keywords:** Adoption, Soil testing techniques, Recommendations, Saline, Sodic.

**INTRODUCTION**

Agriculture is the backbone of Indian economy. The increased agricultural production depends upon number of factor of which soil fertility plays an important role. Soil fertility shows the nutrient status of the soil. Certain nutrients present in the soil are essential for plant growth. Soil

testing has been used by soil scientists as an aid in determining soil fertility level. Soil testing (ST) is known as a precise management method for determining and assessing soil fertility that enables farmers to assess the impact of management methods and identify what changes are needed each year. Soil testing is “a process by which elements are chemically removed from the soil and measured for their ‘plant available’ content within the sample.” The quantity of available nutrients in the sample determine the amount of fertilizer that is recommended. It help in correct diagnosis of soil health and appropriate dose of nutrient can be added to get optimum crop yield.

The soil of Akola, Amravati and Buldana district of Vidarbha around purna river belt is saline sodic. Under salinity 547 villages are present from 14 Tahsils of 3 districts viz. Amravati, Akola and Buldana. The area covered 136 villages of Amravati, 318 villages of Akola and 93 villages of Buldana district. The saline belt is spread in north and south of river Purna and maximum part is on the north side. Nearly 1500 to 6000 mg. salt/lit of water is present. Due to this high salinity of Purna river belt, makes the soil infertile, low yield and water become non-potable. The track having excess salt in soil and water in saline track. Saline soil is the soil with excess salt having EC less than 4 and pH is greater than 8.5. Sodic soil is the soil with sodium content sufficiently high to interfere with the growth of crop plants having EC greater than 4 and pH is less than 8.5. The salinisation/sodification is a chemical deterioration, mainly observed in arid and semiarid region due to unscientific use of irrigation water, inadequate drainage, seepage from irrigation channel and increase in level of ground water.

Soil is the most valuable natural resources, soil fertility plays a key role in increasing crop production in almost all soils of the world. Parvizi (2005) described soil management as an optimal use of farm soil resources for improving production management and achieving sustainable goals. Yadav *et al.* (2006) stated that soil testing has exposed some information about the accurate amount of nutrients of special kinds of plants and also other information such as acid and saline-alkali soil.

## **MATERIAL AND METHODS**

The present study was under taken in Akola, Amravati and Buldana district in Vidarbha region of Maharashtra state. From each selected district one Tahsil has been selected purposively where soil is saline or sodic. The selected Tahsils are Akola, Daryapur and Shegaon respectively. From each Tahsil four villages have been selected randomly and from each selected village ten farmers have been interviewed. Thus the total 120 respondents is the sample for this study. The exploratory research design was used for present study. Data were collected by the personally interviewing the respondents with the help of pre- tested and structured interview schedule.

## RESULTS AND DISCUSSION

The distribution of respondents according to practice wise adoption of soil testing techniques and its recommendations in Table 1 shows that 10 (8.33%) respondents have done their soil testing from that none of the respondents were observed who have fully adopted the application of nitrogenous, phosphorus, potash fertilizers, any other nutrients, organic manures, green manures and vermi compost as per soil test report. The 100.00 and 90.00 per cent of the respondents partially adopt the application of phosphate fertilizers and application of nitrogenous fertilizers respectively and 70.00 per cent of the respondents partially adopted recommended application of potash fertilizers, followed by 70.00 per cent of the respondents partially adopted the application of organic manures, green manures, vermi compost as per soil test report and 30.00 per cent of the respondents partially adopted the other nutrients as per soil test report. Whereas, It is surprised to note that, 70.00 per cent of the respondents not adopted application of other nutrients, followed by 30.00 per cent of the respondents have not adopted the potash fertilizers and organic manures, green manures, vermi compost as per soil test reports, while 10.00 per cent respondents had not adopted application of nitrogenous fertilizer and none of the respondents not adopted the phosphate fertilizers as per soil test report.

Only 10 respondents have done their soil testing out of 120 respondents from that most of the respondents 60.00 per cent of the respondents having medium level of adoption about soil testing techniques and its recommendations. Similar finding were reported by Dohtare (2014) and Mankar., *et. al.* (2015).

**Table 1- Distribution of the respondents according to practice wise adoption of soil testing techniques and its recommendations**

Sl. No.	Particular	Adoption by the Respondents (n=10)			
		FA (2)	PA (1)	NA (0)	Total
1	Have you used the Nitrogenous Fertilizers as per soil test report	0 (0.00)	9 (90.00)	1 (10.00)	10 (100.00)
2	Have you used the Phosphate Fertilizers as per soil test report	0 (00.00)	10 (100.00)	0 (0.00)	10 (100.00)
3	Have you used the Potash Fertilizers as per soil test report	0 (0.00)	7 (70.00)	3 (30.00)	10 (100.00)

4	Have you used any other nutrients as per soil test report	0 (0.00)	3 (30.00)	7 (70.00)	10 (100.00)
5	Have you used the Organic manures, Green manures, Vermi compost as per soil test report	0 (0.00)	7 (70.00)	3 (30.00)	10 (100.00)

FA = Full Adoption, PA = Partial Adoption, NA = Not Adoption

**Table 2- Distribution of the respondents according to their level of adoption of soil testing techniques and its recommendations**

Sl. No.	Different parameters	Categories	Respondents (n=10)	
			No.	Per cent
1.	Adoption level	Low (Up to 33.33)	4	40.00
		Medium (33.34 to 66.66)	6	60.00
		High (Above 66.66)	0	0.00

It is seen from the distribution in Table 3 that, in case of technical constraints, 74.16 per cent of the respondents reported that no technical guidance from Govt. agency about soil testing, followed by 69.16 per cent of respondents reported that lack of technical skill about soil testing technique e.g. soil sample collection, sample preparation. In case of situational constraints, 53.33 per cent respondents reported that delay in getting the soil test report, followed by 35.84 per cent respondents reported that non availability of soil testing lab nearby village, nearly 16.67 per cent respondents reported the non availability of fertilizers in market. In case of other constraints, majority of respondents 51.67 per cent respondents reported the soil test report not clear/understood to them and 4.16 per cent reported that high cost of soil testing.

**Table 3- Constraints in adoption of soil testing techniques and its recommendations by the farmers**

Sl. No.	Constraints	Respondent (N=120)		Rank
		Frequency	Percentage	
<b>A)</b>	<b>Technical Constraints</b>			
1	Lack of technical skill about soil testing Technique e.g. Soil sample collection, Sample preparation.	83	69.16	II
2	No technical guidance from Govt. agency about soil testing	89	74.16	I
<b>B)</b>	<b>Situational Constraints</b>			
1	Delay in soil test reports.	64	53.33	III
2	Non availability of required fertilizer in market	20	16.67	VI
3	Non availability of soil testing lab nearby village	43	35.84	V
<b>E)</b>	<b>Other Constraints</b>			
1	Soil test report not clear/understood to them	62	51.67	IV
2	High cost of soil testing	5	4.16	VII

## CONCLUSION

Thus, study concluded that only 10 (8.33%) respondents have done their soil testing out of 120 respondents from that most of the respondents 60.00 per cent of the respondents having medium level of adoption about soil testing techniques and its recommendations.

Hence this research study clears that soil testing is important technique but still only 8.33 per cent of selected respondents have done the soil testing and majority of them not followed the soil test recommendations as per the soil test report. Hence there is vast scope to convince the farmers about to do the soil test and adopt the soil testing report recommendations for maintaining the soil health for better productivity and reducing the excess expenditure on fertilizers.

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