RESEARCH ARTICLE :

Knowledge of soil test recommendations by the orange growers

■ **A.R. Lothe, A.N. Deshmukh, S.N. Gawande and N.B. Lothe**

SUMMARY : The present study on knowledge of soil test recommendations by the orange growers was conducted in Amravati, Chandur Railway and Chandur Bazar talukas of Amravati district. The study was planned to investigate knowledge of soil testing techniques and its recommendations by the orange growers. The exploratory research design of social research was used for the present investigation. The present study was undertaken in Amravati district of Vidarbha in Maharashtra state. The farmers were selected from three taluka Amravati, Chandur Railway and Chandur Bazar, on the basis of having area under orange orchards and orange growers were selected randomly having productive orange orchards. Thus, the total fourteen villages were selected. Data were collected by personally interviewing the respondents with the help of pretested and structured interview schedule. The data collected were tabulated and the statistical tools namely mean, standard deviation, percentage, frequency, correlation co-efficient were employed for interpretation of the findings. Null hypothesis set for the study was tested for its acceptance or rejection. The respondents were selected by proportionate random sampling method to constitute sample size of 80 respondents. The salient findings of the present study revealed that the distributional analysis pertaining to age of respondents indicated that 56.25 per cent were in middle age group, education of respondents indicated that 22.5 per cent of the respondents were studied high school, and 43.75 per cent of the respondents had annual income between 1,00,001 to 1,50,000. From all selected respondents, majority (93.75%) of the respondents were having upto 2 ha area under orange orchard, 62.5 per cent respondents were having orange orchard from 7 to 12 years age. 52.5 per cent respondents availed employment guarantee scheme for plantation of orange orchard. Most (48.75%) of the respondents had deep type of soil. Majority (78.75%) of the respondents had farming experience between 8 to 14 years. More than half (100.00%) respondents have to travel distance upto 50 km from their village for soil testing laboratory. More than half of the respondents (73.75%) had medium level of extension contact, 57.5 per cent of the respondents using drip as a method of irrigation. Out of the total selected orange growers 65.00% of respondents were having medium level of knowledge about soil testing techniques and its recommendations. The variables namely education, type of soil, extension contact and method of irrigation were positively and highly significantly correlated with knowledge of soil testing techniques at 0.01 level of probability. The variable namely age of orchards, annual income, employment guarantee scheme availed and farming experience were positively and significantly correlated with knowledge of soil testing techniques at 0.05 level of probability. Whereas, area under orange orchards, were non-significantly correlated with knowledge about soil testing techniques and its recommendation at 0.05 level of probability. Whereas, age of respondents, distance from soil testing laboratory were negatively and non-significantly correlated with knowledge of soil testing techniques and its recommendation as per the soil test report.

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BACKGROUND AND OBJECTIVES

Soil testing is a process by which, element 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. Soil testing is a comprehensive soil fertility evaluation programme which helps to the farmer injudicious application of chemical fertilizer to the crops. The soil testing of a particular field gives reliable information about the deficiency of major nutrients in the soil as well as hazards such as soil acidity, alkalinity and salinity etc. After testing the soil, farmers can know the exact amount of nutrient to be applied for particular crop. The farmers will be able to know how much nutrients are already available in soil and how much will have to be provided additionally for a particular crop.

The soil health card is a simple document, which contains useful data on soil based chemical analysis of the soil to describe soil health in term of its nutrient availability and its physical and chemical properties. Gujarat became the first state to launch soil health card programme for the farmer. Soil health card can be used to optimize the use of fertilizer in the integrated nutrient management (INM) system. The soil health card programme brings together the scientific community in the field of agriculture, the information repository of latest tool, techniques and cropping practices, the farmers and the government for the economics upliftment of the people at large. Since, change in knowledge preceded acceptance and application of an innovation, it is therefore, always important to find out the factor responsible for positive or negative disposition associated with farmer toward the usefulness and application of soil health card programme. Hence, present study was undertaken to measure the knowledge of benefits of soil testing and utility perception of soil health card.

Specific objectives of the study :
– To study the profile of selected orange growers.
– To study the knowledge of orange growers about soil testing techniques.
– To study the relationship between selected characteristics of orange growers with knowledge of soil test recommendations of orange growers.

RESOURCES AND METHODS

The exploratory research design of social research was used for the present investigation. The present study was undertaken in Amravati district of Vidarbha in Maharashtra state. The farmers were selected from three taluka Amravati, Chandur Railway and Chandur Bazar, on the basis of having area under orange orchards and orange growers were selected randomly having productive orange orchards. Thus, the total fourteen villages were selected. Data were collected by personally interviewing the respondents with the help of pretested and structured interview schedule. The data collected were tabulated and the statistical tools namely mean, standard deviation, percentage, frequency, correlation co-efficient were employed for interpretation of the findings. Null hypothesis set for the study was tested for its acceptance or rejection. The respondents were selected by proportionate random sampling method to constitute sample size of 80 respondents.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Practice wise knowledge about soil testing :
The data regarding practice wise knowledge of the respondents about soil testing techniques and its recommendations in Table 1, revealed that per cent (100.00%) of the respondents had knowledge about benefits of soil testing, followed by 98.75 per cent of the respondents having knowledge about recommended dose of FYM for orange per plant, 93.75 per cent of respondent had knowledge about selection of sites, 88.75 per cent respondents have knowledge about time of soil sampling

(before and after planting of orange orchards), 78.75 per cent respondents have knowledge about information to be attached with soil sample, 73.75 per cent of the respondents had knowledge about depth of soil sample and meaning of soil testing, 67.5 per cent each respondents possesed knowledge about micronutrients testing, 53.75 per cent respondents possesed knowledge about preparation of soil sample. The 52.5 per cent each of the respondents were having knowledge about recommended dose of K_2O for orange orchards, 41.45 per cent each of the respondents were having knowledge about recommended dose of P_2O_5 for orange orchards, 35.00 per cent of the respondents were having knowledge about procedure of soil sampling and knowledge about recommended dose of N for orange per plant, 28.75 per cent respondents possesed knowledge about water quality testing, and Only 6.25 per cent respondents possesed complete knowledge about soil testing report.

It is observed from the Table 2 that majority of the respondents (65.00%) had medium level of knowledge about soil testing techniques and its recommendation where as 18.75 per cent and 16.25 per cent of the respondent farmers were having low and high level of knowledge about the soil testing techniques and its recommendation, respectively.

Thus, study concluded that majority of the respondent had medium level of knowledge about soil testing techniques and its recommendation

Relational analysis :

Data presented in Table 3, revealed that among selected characteristics of respondents age of orchards,

Table 1 : Distribution of respondents according to their knowledge about soil testing techniques and its recommendations by the orange grower
(n=80)

Sr. No.	Particular	Have knowledge	
		Frequency	Percentage
	Soil Sampling		
1.	Depth of soil sample (0-30), (30-60), (60-90)	59	73.75
2.	Selection of sites	75	93.75
3.	Procedure of soil sampling	28	35.00
4.	Preparation of soil sample	43	53.75
5.	Information to be attached	63	78.75
6.	Time of soil sampling (Before and after planting of orange orchards)	71	88.75
7.	Water quality testing	23	28.75
8.	Micronutrients testing (Zn, Fe, Mn, Cu)	54	67.5
	Soil testing		
1.	Meaning of soil testing	59	73.75
2.	Objective of soil testing	46	57.5
3.	Benefits of soil testing	80	100.00
	Knowledge about Recommended doses N, P, K and FYM		
1.	Recommended dose of N for orange 800 g/plant	28	35.00
2.	Recommended dose of P_2O_5 for orange 400 g/plant	33	41.45
3.	Recommended dose of K_2O for orange 600 g/plant	42	52.5
4.	Recommended dose of FYM for orange 50 kg/plant	79	98.75
5.	Complete knowledge about soil testing report	5	6.25

Table 2 : Distribution of the respondents according to their knowledge level about soil testing techniques and its recommendations by the orange growers
(n=80)

Sr. No.	Knowledge level	Respondents	
		Number	Percentage
1.	Low (Upto 44)	15	18.75
2.	Medium (45 to 80)	52	65.00
3.	High (Above 80)	13	16.25
	Total	80	100.00

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Table 3 : Co-efficient of correlation between selected characteristics of the respondents with their knowledge

Sr. No.	Variables	Knowledge ('r' value)	t cal
1.	Age	-0.167 NS	-1.5169
2.	Education	0.6371 **	11.0404
3.	Income	0.23 NS	-0.3846
4.	Area under orange orchards	0.0484 NS	0.4283
5.	Age of orchards	0.2339 *	2.1848
6.	Employment guarantee Scheme availed	0.2232*	2.0741
7.	Farming experience	0.2905**	2.8015
8.	Type of soil	0.2288*	2.1319
9.	Distance from soil testing laboratory	-0.0579 NS	-0.5129
10.	Extension contact	0.3718**	3.8096
11.	Method of irrigation	0.3262**	3.2233

* and ** indicate significance of values at P=0.05 and 0.01, respectively
NS=Non-significant

employment guarantee scheme availed, farming experience was found to be positively and significantly correlated with knowledge about soil testing techniques and its recommendations at 0.05 level of probability. Whereas characteristics of respondents education, type of soil, extension contact and method of irrigation were positively and significantly correlated with knowledge about soil testing techniques and its recommendations at 0.01 level of probability.

Therefore the Null hypothesis was rejected for these characteristics stating that their exits significant relation between these characteristics and knowledge. This indicate that if education, extension contact, age of orchards, employment guarantee scheme availed, farming experience, type of soil and method of irrigation increases the knowledge about soil testing techniques and its recommendation of orange growers also increase.

Whereas, age of respondents, distance from soil testing laboratory, annual income and area under orange orchards, were not significantly correlated with knowledge about soil testing techniques and its recommendation at 0.05 level of probability. Therefore Null hypothesis of these variables were accepted.

Dhole (2006); Ingle (2011); Dohtare (2014); Hole (2014) and Mankar *et al.* (2015) was observed that Majority of the responded had medium level of knowledge where as Deshmukh (2007) and Kale *et al.* (2012) was observed that majority of the responded had low level of knowledge of soil test recommendation.

Dhotare (2014); Hole (2014); Mankar *et al.* (2015); Chavan (2017) was observed that majority of the respondent had medium level of adoption where as Deshmukh (2007) and Ingle (2011) was found that maximum number of respondent had low level of adoption of soil test recommendation.

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