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Correlates of Knowledge Regarding Utility of Soil Testing and Soil Health Card

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ABSTRACT

It is always important to find out the factor responsible for positive or negative disposition associated with farmer toward the usefulness and application of any innovation as change in knowledge preceded acceptance and application of an innovation. The present investigation was undertaken in Petlad taluka of Anand district in middle Gujarat region. The random sampling of one hundred farmers from Petlad taluka was done based on number of respondent who had soil health cards. The results revealed that 52 per cent respondent belonged to high to very high category with respect to knowledge of soil testing. These farmers adopted the technology of soil testing and use of SHC to balance the dose of fertilizers for sustaining soil health. The half of the respondents found the technology beneficial for sustaining soil health, lowering the input cost and improving the farm production.

Keywords: Awareness, Adoption, Knowledge, Soil health cards and soil testing

INTRODUCTION

Soil is one of the elements required for farming as it provides nutrients to the plant. Healthy soil contain all the elements for growth and development of crop or the soil deprived from one or more nutrient either reduce the production or degrade quality of crops. Therefore, proportion and quantity of macro and micro nutrients altogether refer to the soil health. As far as agriculture production is concerned, soil health play vital role in ensuring sustainable production with optimizing the utilization of fertilizer and reducing its waste. Most of the farmers are using continuously larger quantities of chemical fertilizers to increase production without knowing the fertility status of the soils of their fields (Srivastava and Pandey, 1999).

Soil Testing is well recognized as a sound scientific tool to assess inherent power of soil to supply plant nutrients. The benefits of soil testing have been established through scientific research, extensive field demonstrations and on the basis of actual fertilizer use by the farmers on soil test based fertilizer use recommendations. Neufeld and Davison (2000) stated that soil testing is the only necessary and available tool for determining the amount of soil nutrients. Hence, to avoid deterioration of soil in long run and visualizing the importance of balance nutrient in crop production, government of Gujarat commenced soil health card programme. The soil health card is a simple document, which contains useful data on 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 farmers. 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

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community in the field of agriculture, the information repository of latest tool, techniques and cropping practices, the farmers and the Government for the economic 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 of soil health card.

METHODOLOGY

The present study was undertaken in Petlad taluka of Anand district in Gujarat. The district is consisted of total number of eight talukas. Out of all eight talukas, Petlad taluka was purposively selected looking to the number of respondent had soil health card. One hundred farmers were randomly selected from ten different villages of Petlad taluka. A comprehensive list of all the respondents having SHC was obtained from *e-dhara* office of the respective villages. Thus, ten respondents from each village were selected at random for the study. The questionnaire was prepared in *Gujarati* language with a view to study and collect data through personal interview of the selected respondents. The data were tabulated and analyzed with the objectives to draw the meaningful conclusion.

RESULTS AND DISCUSSION

The demographic characteristics of respondent played an important role in the usefulness and application of soil testing and soil health card programme. Some of the profile variables were selected, analyzed and presented in Table 1. The result reveals that among the five characters of the family profile, size of family and occupation found to be the most influencing factors in utilizing the technology whereas age, land holding and annual income did not establish any relation with the adoption of the technology. **T**hese findings are consistent with the results found by Rajput and Chinchmalatpure (2016).

The study revealed that 50 per cent farmers had occupation in mixed form *i.e.* agriculture + livestock farming and rest of 41 per cent and 9 per cent involved in practicing agriculture and agriculture + Livestock + business, respectively. Among the group of respondents, around 56 per cent of the respondents belonged to the middle age group *i.e.* 36 to 50 years with having large family size (60 per cent). Around 45 per cent farmers had small land holding *i.e.* 1 to 2 hectare and nearly 70

Table 1: Demographic characteristics of the respondents according to family profile (n=100)

S.No.	Characteristic	Category	Number of Farmers	% Distribution
1.	Age	Young (Up to 35 year)	06	6.00
		Middle (36 to 50 year)	56	56.00
		Old (Above 50 year)	38	38.00
2.	Land holding	Landless	0	0.00
		Marginal (Up to 1 ha)	42	42.00
		Small (Above 1 to 2 ha)	45	45.00
		Large (Above 2 ha.)	13	13.00
3.	Annual income	Low (Up to Rs.50,000)	27	27.00
		Medium (Rs.50,001 to Rs.1,00,000)	70	70.00
		High (> Rs.1,00,000)	3	3.00
4.	Size of family	Small (Up to 5 member)	40	40.00
		Large (> 5 member)	60	60.00
5.	Occupation	Only Agriculture	41	41.00
		Agriculture with Live stock Farming	50	50.00
		Agriculture with Livestock farming and Business/Service	09	09.00

per cent farmers earn between Rs. 5,00,01 to 1,00,000/-. Factors such as age, farming experience, training received, socio-economic status, cropping intensity, aspiration, economic motivation, innovativeness, source of information and agent credibility have been found to have positive and significant association with adoption (Rao and Rao, 1996).

The demographic characteristics of the farmers personal profile is directly or indirectly related with the family profile and suggests the positive chances of adoption of the technology. The result revealed that among the five characters of the personal profile, education and resources of farmers found to be the most influencing factors in utilizing the technology whereas farming experience, social participation and source of finance had lower extent of influence on adoption (Table 2).

In personal characterization of all respondents, about 42 per cent farmers had secondary level of education *i.e.* 8th to 10th standard and only 18 per cent had higher secondary to graduate level education. Nearly 65 per cent farmers had experience for more than 21 years in the field of agriculture without any social participation (61 per cent). The majority of the farmers (53 per cent) considered Government sector or banks as a source to support their financial needs. In adoption of any technologies personal profile like education, farming experience, social participations, source of finance and resources of farmer play a major role (Rai and Saharia, 2004).

Adoption of technology is the decision to make full use of a new idea as the best course of action available and involves a change in the orientation and behaviour of the farmer from the time he/she becomes aware of the technology to its adoption (Akubuilo *et al.*, 1982). In the study knowledge about soil testing was analyzed with the help of some variables and presented in Table 3. The data revealed that 52 per cent of the respondent had high to very high level of knowledge and adoption of the technology. Knowledge regarding the benefit of soil testing was found most important for SHC programme. Agbamu's (1993) finding stated that farmers' knowledge

Table 2: Demographic characteristics of the respondents according to personal profile (n=100)

S.No	Characteristic	Category	Number of Farmers	% Distribution
1.	Education	Illiterate	06	6.00
		Primary (1 to 7th Std)	34	34.00
		Secondary (8th to 10th)	42	42.00
		Higher Secondary (11th to 12th)	04	4.00
		Graduate and above	14	14.00
2.	Farming Experience	Low (1 to 10 years)	07	07.00
		Medium (11 to 20 years)	28	28.00
		High (> 21 years)	65	65.00
3.	Social participations	No participation	61	61.00
		Participation in 1 organization	26	26.00
		Participation in 2 organization	12	12.00
		Participation in more than 2 organization	01	01.00
4.	Source of Finance	No Finance	09	09.00
		Private Sector	02	02.00
		Govt. Sector/ Bank	53	53.00
		Co- operative Sector	36	36.00
5.	Resources of Farmer	Low (0-25)	62	62.00
		Medium (26-50)	35	35.00
		High (above 50)	03	03.00

Table 3: Knowledge regarding benefits of soil testing and utility perception of soil health Card (SHC) (n=100)

S.No.	Characteristic	Category	Number of Farmers	% Distribution
1.	Knowledge regarding benefits of Soil Testing	Very Low (0-20)	14	14.00
		Low (21-40)	18	18.00
		Medium (41-60)	16	16.00
		High (61-80)	37	37.00
		Very High (Above 80)	15	15.00
2.	Knowledge regarding utility perception about Soil Health Card	Very Low (0-20)	14	14.00
		Low (21-40)	18	18.00
		Medium (41-60)	16	16.00
		High (61-80)	37	37.00
		Very High (Above 80)	15	15.00

of technology made contribution to its adoption. They found the technology satisfactory and important with respect to lower the input cost, benefit of soil testing and use of soil health card in their farming operation. Chowdary *et al*. (2016) also found that more than two-thirds (67 per cent) of the respondents had high level of satisfaction on SHC recommendations. These findings are consistent with the results founded by Srivastava and Pandey (1999), Yadav *et al*. (2005), Pagaria (2011) and Patel and Chauhan (2012). To ensure the importance of the technology state government has always given their advisement in time interval to enhance balance and efficient use of fertilizers based on soil testing and soil health cards.

It was found that around one third respondents reported very low to low adoption of the recommended technology. These respondents reported the hurdles while utilizing the technology which limited the extent of their adoption to this technology. The major constraints involved difficulty in understanding of soil testing, delay in getting the test reports, difficulty in following test based fertilizer recommendation, uncertainty in yield gain and lack of proper and scientific guidance.

CONCLUSION

It can be concluded that majority of respondent from Petlad taluka are of middle age and literate. Majority of the respondent (68 per cent) had medium to very high level knowledge about benefits of soil testing and use of soil health card (SHC). Educational awareness and resource laboratory to test soil samples in nearby location found to be the most influential factor in adoption of the technology. Therefore, as per problem faced and suggested by the farmers more scientific and educational trainings and facilities are required to disseminate the technology at large. Extension worker can take lead in this to overcome the barriers and promoting technology adoption of the technology at large.

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