Farmers' Perception and Adoption of Soil Health Cards in Guntur District

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Abstract

Perception and adoption of 102 farmers regarding soil health card information and recommendations were studied during 2016-17 in Guntur district. Results revealed that more than three-fourth (>75%) of the farmers had moderate perception about Soil Health Card (SHC) information and recommendations and medium adoption to SHC recommendations. More than fifty percent of the farmers adopted recommended N, P, K, organic manures, micro nutrients and gypsum as suggested in Soil Health Cards (SHCs).

Keywords: profile, perception, adoption, soil health cards.

Introduction

Soil testing is known as a precise method for determining and assessing soil fertility that enables farmers to assess the nutrient status and the impact of soil management and identify what nutrients are needed each year.The quantity of available nutrients in the sample determines the amount of fertilizer that is recommended, helps in correct diagnosis of soil health and appropriate doses of nutrients that can be added to get optimum crop yield. Soil Health Cards (SHCs) provide timely information and calculate the use of major fertilizers and also make farmers aware of the micro nutrients, which could be added to balance the soil health. It also aims at helping the farmers get better agricultural yield. Government of India initiated Soil Health Card scheme in the year 2015 encouraged by the Department of Agriculture, Cooperation and Farmers Welfare under the Ministry of Agriculture and it is implemented through the Department of Agriculture in all the States and Union Territories. The SHCs contain information on what kind of fertilisers should be

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Received Date: 04-12-2019 Accepted Date: 07-01-2020

used for getting better productivity from the field. Moderate to high perception about SHC scheme can lead to the adoption of SHC recommendations by the farmers and may also lead to regular soil testing, once in every three years. Keeping in view the above facts, the present study was conducted with the following specific objectives:

1. To study the personal, socio-economic characteristics of the respondents and
2. To find out the perception and adoption level of farmers regarding utility of Soil Health Card.

Material and Methods

The study was conducted in Guntur district of Andhra Pradesh purposively with ex-post facto research design, following proportionate random sampling method. The study is based on primary data collected for the year 2016-17 and was conducted in two mandals viz., Mangalagiri and Kollipara. A total of 102 respondents were selected randomly from four villages: Chinavadlamudi (16), Pedavadlamudi (8), Nuttakki (30), Atmakur (21) of Mangalagiri mandal and two -Athota (12) and Kollipara (15) villages of Kollipara mandal. A structured interview schedule was developed to collect data from the respondents by personal interview method and was pre-tested. The data so obtained was analysed with the help of descriptive statistical measures such as frequency, percentage, mean and standard deviation. The findings were interpreted and necessary conclusions and inferences were drawn.

Results and Discussion

Personal and Socio-Economic Characteristics of the Respondents

The study revealed that about 48 per cent of the respondents belonged to middle age followed by 41 per cent belonging to old age and 11 per cent belonging to young age (Table 1). The data revealed that less than half (40%) of the respondents had high school education and 23 per cent of the farmers are illiterates; an equal proportion (15%) of the respondents had primary school education and graduation respectively. A meagre percentage of the farmers had received intermediate education. Ninety six per cent of the respondents considered farming as their occupation and most (86%) of the farmers

belonged to open category with respect to their caste. Slightly more than half (51%) of the farmers were having more than 20 years of farming experience followed by 34 per cent having 11-20 years of farming experience (Table 1).

Table 1. Distribution of Farmers based on Personal and Socio-Economic Characteristics n=102

S. No.	Variables	Category	Respondents	
			Frequency	Percentage
1	Age	Young age (< 35 years)	11	10.78
	$\overline{X}$ = 45.25	Middle age (36-58 years)	49	48.05
	α = 9.07	Old age (>59 years)	42	41.17
2	Education	Illiterate	23	22.54
		Primary school	15	14.70
		High school	40	39.24
		Inter/Diploma	9	8.82
		Graduation	15	14.70
3	Occupation	Farming	98	96.08
		Farming+ Business	2	1.96
		Farming + Service	2	1.96
4	Caste	SC/ST	4	3.92
		BC	10	9.80
		OC	88	86.28
5	Farming experience	Below 10 years	15	14.70
		11 to 20 years	35	34.30
		More than 20 years	52	51.00
6	Land Holding	Less than 1 ha	30	29.40
		1 to 2 has	36	35.30
		More than 3 has	36	35.30
7	Annual Income	Upto 50,000	40	39.22
		50,000 to 1 lakh	38	37.25
		More than 1 lakh	24	23.53

8	Source of information $\overline{X}$ = 7.53 α = 1.21	Low (<6) Medium (6 to 9) High (>9)	11 78 13	10.78 76.48 12.74
9	Family size	Upto 5 Greater than 5	83 19	81.40 18.60
10	Family type	Nuclear Joint	79 23	77.50 22.50
11	Social participation	No Membership Membership in an organisation	87 15	85.30 14.70
12	Extension contact $\overline{X}$ = 3.5 α = 0.84	Low (<2.7) Medium (2.8 to 4.3) High (>4.3)	9 79 14	8.83 77.45 13.72

The data presented in Table 1 also shows that slightly more than one-third (39.2 %) of the respondents had annual income below Rs.50,000/-, followed by 37.25 per cent having annual income between Rs.50,000 to 1 lakh, and 23 per cent of the respondents having annual income above Rs.1 lakh. Regarding source of information, majority of the respondents belonged to medium category followed by high and low category respectively. Further, 81 per cent of the respondents had family size up to five members and 18.6 per cent had more than five members in their family. Majority of the respondents belonged to nuclear family and 22 per cent of the respondents had joint families. Nowadays there is decline in number of joint families. Regarding social participation a great majority (85%) of the farmers do not have any membership while nearly 15 per cent of the respondents are having membership in an organisation. More than two-third (77%) of the respondents were having medium extension contact followed by high (13.7%) and low (8.8%) levels of extension contact, respectively. These results were in agreement with the findings of (Patel et al. 2017).

The results indicated that more than four-fifth (77.45%) of the respondents had medium level of perception regarding soil health cards, followed by 12.74 per cent and 9.81 per cent who had low and high level of perception, respectively (Table 2).

Table 2. Distribution of Farmers based on Perception and Adoption of Soil Health Cards n=102

S.No	Variables	Category	Frequency	Percentage
1	PERCEPTION	Low (<22.6)	13	12.74
	$\overline{X}$ = 27.69	Moderate (22.7 to 32.6)	79	77.45
	α = 5.04	High (>32.6)	10	9.81
2	ADOPTION	Low (<7.8)	15	14.71
	$\overline{X}$ = 10.0	Medium (7.9 to 12.3)	77	75.49
	α = 2.24	High (>12.3)	10	9.80

It is inferred that majority (75.49%) of the respondents had medium level of adoption of SHC recommendations followed by 14.71 per cent and 9.80 per cent who had low and high level of adoption, respectively (Table 2). Soil health card programme was given a lot of publicity by the State Department of Agriculture and Ministry of Agriculture, therefore, more than seventy percent of the respondents fell under the categories of medium level of perception and adoption.These results draw support from the findings of Sali et al. (2016); Raghavendra and Theodore (2016) who recorded that 67 per cent of the respondents had high level of satisfaction on SHC recommendations.

Table 3. Farmers'Perception on Individual Statements Regarding Soil Health Cards n=102

Sl.No	Perception	Agree %	Undecided %	Disagree %
1	The results given in SHC are reliable	68.6	10.8	20.6
2	The results given in SHC are useful to increase yields	63.4	23.5	12.7
3	The SHCs were distributed in time	52.9	8.8	38.2
4	The results given in SHC are useful to reduce cost of cultivation	53.9	27.5	18.6
5	SHC helps in selecting right crop suitable to my soil	66.7	14.7	18.6

6	Information provided in SHC helps to sustain soil fertility	66.7	28.4	4.9
7	Information provided in SHC is simple to understand	70.6	25.5	3.9
8	Information provided in SHC is simple to adopt	66.7	25.5	7.8
9	Micro nutrient management is possible with SHC	72.5	18.6	8.8
10	Problematic soils are easily diagnosed with SHC	81.4	14.7	3.9
11	Reclamation of problematic soils with SHC is possible	68.6	27.5	3.9

A perusal of Table 3 conveys that 81.4 per cent of the farmers agreed with the statement 'Problematic soils were easily diagnosed with SHC' as the soil tests are accurate and 72.5 per cent of the respondents agreed with the statement 'Micro nutrient management is possible with SHC'. Information provided in SHC was simple to understand was agreed by 70.6 per cent of the respondents followed by an equal percent of the respondents who agreed to the statements 'Reclamation of problematic soils with SHC is possible' and 'The results given in SHC are reliable'. The plausible reason could be that the soil health card includes a detailed report of the deficiencies in the soil and the amendments that are needed and it also contains the information pertaining to the quantity of fertilizers that need to be applied for the particular soil.

More than half (66.7%) of the respondents agreed with the statements 'SHC helps in selecting right crop suitable to the soils', 'Information provided in SHC helps to sustain soil fertility' and 'Information provided in SHC helps to sustain soil fertility'. Nearly 68.6 per cent of the respondents agreed with, 'The results given in SHC are reliable' and further, 'The results given in SHC are useful to increase yields' was agreed by 63.4 per cent of the respondents followed by slightly more than half (53.9%) who agreed that 'The results given in SHC are useful to reduce cost of cultivation' while a meagre (38.2%) of the respondents disagreed to the statement 'The SHCs were given in time'. The plausible cause could be due to the lack of adequate staff in the agriculture department hence it was not possible for them to ensure the delivery of soil health cards in time. These results are

in agreement with the findings of Patel et al. (2017) who studied 100 farmers of Anand district and reported that nearly 52 per cent of the famers had knowledge regarding high to very high level of knowledge with respect to soil testing and perception to use soil health card.

Table 4. Farmers' Adoption based on SHC Recommendations N=102

Sl. No.	Adoption	Adopted %	Not Adopted %
1	Recommended organic manures as per SHC results	67.6	32.4
2	Recommended Nitrogen as per SHC results	72.5	27.5
3	Recommended Phosphorous as per SHC results	72.5	27.5
4	Recommended Potash as per SHC results	71.6	28.4
5	Recommended Micro nutrients as per SHC results	68.6	31.4
6	Recommended Gypsum/Lime as per SHC results	59.8	40.2

The results in Table 4 indicate that majority of the respondents (72.5%) adopted recommended use of Nitrogen and Phosphorous as per SHC results and 71.6 per cent of the respondents adopted recommended Potash as per SHC results. The plausible reason could be that farmers opined that the recommended fertilizer dose is sufficient for healthy growth of their crops.

More than half (68.6%) of the respondents adopted recommended Micro nutrients as per SHC results followed by 67.6 per cent who adopted recommended organic manures as per SHC results and slightly more than half (59.8%) adopted recommended Gypsum/ Lime as per SHC results. Awareness about problems associated with micro nutrient deficiencies, acidic soil and information on remedial measures was the reason behind adoption of soil amendments. The results are in line with the studies conducted by Lalatendu and Kameswari (2014) who reported that farmers of Mayurbhanj district of Odisha have medium level of adoption regarding recommended acidic soil management practices; Raghavendra and Theodore (2016) recorded that out of the 100 respondents studied, 47 of them had followed SHC recommendations all the five years.

Conclusion

Majority of the respondents had moderate perception (77.75%) of SHC information and adoption (75.49%) of Soil Health Card recommendations in Guntur district. More than fifty percent of the farmers adopted recommended N, P, K, organic manures, micro nutrients and gypsum as suggested in SHCs.

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