Perception Of Farmers Towards Soil Health Card Recommendations In East Godavari District Of Andhra Pradesh

ABSTRACT

Realizing the importance of Soil Health Card as a tool for efficient nutrient management, the decision to participate in new agricultural technologies depends on farmer's perception which does a key determinant in influencing adoption and importance of the soil health card. The present study was undertaken during the year 2018-19 in East Godavari districts of Andhra Pradesh with a sampling of 200 farmers based on number of respondents who had soil health cards. The main objective of the study is to find out the significant relationship between the profile characteristics and the perception of the farmers on SHC recommendations. The data indicated that majority of the respondent (47 percent) from middle age group with majority (59 percent) of the respondents was educated up to primary school showing almost (94.5 percent) respondents had farming as occupation. From the results it is evident that half of the respondents (54 percent) had medium level of perception followed by high level of perception (28.5 percent) and low level of perception observed is 17.5 percent. From the above results, it could be concluded that majority of respondents had medium level of perception about soil health card recommendations and its use. Further, it also found that extension contact had positive and significant relationship with the perception about soil health card recommendations.

Key Words: Profile characters, Soil Health Card, Perception, Correlation.

INTRODUCTION

In India, Agricultural Sector still occupies a predominant position in the country's economy, accounting for about 20.00 percent of Gross Domestic Product. With the Success of Green revolution, India is now self reliant in food grains production, by 2025, about 118 million tonnes additional food grains needs to be produced per year. But, the demographic projections indicated that the per capital land availability will shirk from 0.14 ha in the year 2025. This will lead to use the high intensive crops and extensive use of fertilizers which can lead to consequences like deterioration of soil structure, wastage of nutrients, and destruction of soil microorganisms and scorching of plants at the extreme cases. Naturally, soils contain many nutrients, among these the major elements of prime importance are nitrogen, phosphorus, calcium and potassium. Such nutrients are important for the growth and development of plants (Stevens, 2018). Therefore it needs to be managed judiciously to restore its capacity to feed our population sustainably in the long run. As far as agriculture production is concerned, soil health plays a vital role in ensuring sustainable production by optimizing the utilization of fertilizer and reducing its waste (Lokesh *et. el.,* 2021). To maintain the soil healthy, it is very essential to assess the quantity of nutrient present in it and applying only those nutrients which were present in less quantity in the soil. Precise and

comprehensive measurements of soil health will provide the basis for soil health management (Liu *et al*., 2018).

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 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 (Patel et. al., 2019). In order to achieve this, the application of soil test based fertilisers as per the recommendations of the 'Soil Health Card' is a significant move by the Government of India towards sustainable agriculture, which was launched in 2015 (Mukati *et al*., 2018). A Soil Health Card (SHC) is a printed card given to farmers that contains the status of various plant nutrients available in soil as well as the dosage of different fertilizers for the major crops grown in farm land based on the soil test results. A SHC is intended to denote soil nutrient status to each farmer and recommend him on the right usage of fertilizers and micronutrients and also on the required soil amendments to be applied in the long term to maintain soil health (Subhash *et al.,* 2019). Realizing the importance of Soil Health Card as a tool for efficient nutrient management,the decision to participate in new agricultural technologies depends on farmer's perception which does a key determinant in influencing adoption (Negatu and parikh, 1999) know the motive and importance of the soil health card. The present study was conducted to know the farmers profile characteristics, perception of soil health card recommendations and their relationship.

MATERIALS AND METHODS

Government is taken up soil testing and issue of soil health cards on massive scale in East Godavari district of Andhra Pradesh, hence to know the perception of respondents about soil health cards, the study was conducted in East Godavari district of Andhra Pradesh during 2018-19. The district consists of 10 agricultural divisions and 36 mandals. 10 agricultural divisions were selected purposively. One mandal from each division selected and from each mandal two villages were selected based on highest number of soil health cards issued. From each village 5 farmers were selected randomly, thus making a total of 200 farmers for the study. The sample size is limited to 200 because of limited resources and in order to satisfy the required sample size and keeping in view of the principles of statistics. The primary data was collected from the farmers through well designed and structured questionnaire based on close ended multiple choice and five point likert scale questions which were specifically designed to get in depth information about the profile of the respondent farmers. To determine the perception of soil health card recommendations by the farmers an interview schedule was prepared and for perception measurement, 11 Statements on three points continuum with the score of 3 for agree, 2 for undecided and 1 for disagree were given for the response of the farmers. The frequency and Percentage for each statement were worked out and rank was given based on frequency and percentage. Along with frequency and percentage, statistical tools like Mean, Standard Deviation and Correlation coefficients were also used and analyzed the data.

RESULTS AND DISCUSSION

1. Profile and Socio-economic characteristics of the farmers:

The data (Table 1) indicated that majority of the respondent (47 percent) from middle age group followed by 35 percent and 18 percent from old age group and young age group respectively. This might be due to moving of young age people for other occupations. These findings are same with that of Sunaina *et.al.* (2018).

Table 1. Profile and Socio-economic characteristics of the farmers (N=200):

S. No.	Independent variable	Category	Respondents	
			Frequency (No.)	Percentage (%)
1	Age	Young age (< 35 years)	36	18.00
		Middle age(36-54 years)	94	47.00
		Old age (> 55 years)	70	35.00
2	Education	Illiterate	43	21.50
		Primary school	118	59.00
		Inter/Diploma	16	8.00
		Graduation	22	11.00
		Post Graduation	1	0.50
3	Occupation	Farming	189	94.5
		Farming + family occupation	11	5.50
4	Caste	ST	25	12.5
		SC	15	7.50
		BC	45	22.50
		OC	115	57.50
5	Farming experience	< 10 years	29	14.50
		11 to 20 years	60	30.00
		21 to 30 years	63	31.50
		> 30 years	48	24.00
6	Land Holding	1 to 5 acres	129	64.50
		6 to 10 acres	50	25.00
		11 to 15 acres	21	10.50
7	Annual Income	Up to 1 lakh	167	83.50
		> 1 lakh	33	16.50
9	Family size	Up to 5 members	166	83.00
		> 5 members	34	17.00
10	Family type	Joint	36	18.00
		Nuclear	164	82.00

11	Social participation	Membership in organisation	54	27.00
		No membership	146	73.00
12	Extension contact	Low	74	37.00
		Medium	92	46.00
		High	34	17.00

In case of education, majority (59 percent) of the respondents was educated up to primary school only, where as 21.5 percent were illiterates. This shows the fact that after primary school education the school dropout rate is high.

The data in table 1 also shows that almost (94.5 percent) all the respondents have farming as occupation. The majority (57.5 percent) of the respondents belongs to other caste (OC) followed by Backward caste (22.5 percent), scheduled caste (12.5 percent) and scheduled tribes (7.5 percent). This shows that majority of the other caste and backward caste farmers owned large share of land & practicing farming.

The data (Table 1) revealed that majority (31.5 percent) belonged to 21 to 30 Years of farming experience where as 30 and 24 percent of respondents possessed 11 to 20 years and more than years of farming experience. This might be due to continuation of old age people in farming and moving of young people to cities for other jobs. These findings aresimilar with that of (Veeraiah *et al*., 2019). The data about size of land holding indicated that majority (64.5 percent) belongs to small holdings. i.e. 1 to 5 acres, 25 percentmedium holdings and 10.5 percent possessed large holdings.

The data (Table 1) indicated that majority (83.5 percent) of respondents getting below one lakh income per annum and only 16.5 percent of respondents gained more than one lakh income per year. This might be due to majority of the respondents belongs to small and marginal farmers and also due to level of income in agriculture compared to other enterprises.

The data in Table 1 further indicated that majority of (83 percent) of respondents contains upto 5 members only in their family. While 17 percent of members contains family size of above 5 members. This might be due to preference for nuclear families and also due to self imposed restriction of having one or two children per family.

The data in table 1 shows that majority (73 percent) of respondents had no membership in organization; where as 27 percent of respondents had membership in organization. Further, nearly half of the respondents (46 percent) falls under medium category regarding Extension contact, while 37 percent belongs to low category and 17 percent of respondents fall under high category. This might be due to the fact that the farmers are not approaching the extension agencies for solving day to day problems of agriculture and also it reflects extension programmes not related to agriculture.

2. Perception of Soil health card recommendations by the respondents :

Table 2. Perception level of farmers (N=200):

S. No	Department Variable	Category	Frequency (No.)	Percentage (%)
1.	Perception Mean= 27.6; SD = 3.9	Low Perception	35	17.50
2.		Medium Perception	108	54.00
3.		High Perception	57	28.50

It is observed that half of the respondents (54 percent) had medium level of perception followed by high level of perception (28.5 percent) and low level of perception observed is 17.5 percent. From the above results, it could be concluded that majority of respondents had medium level of perception about soil health card recommendations and its use. This results are in accordance with the findings of Ravikishore *et al*., (2020) who conducted study on Perception and Adoption of Soil Health Card (SHCs) Recommendations by the Farmers in Anantapuramu District.

Table 3. Statement analysis of Perception of respondents about soil health card recommendations:

S. No.	Item	Agree		Undecided		Disagree	
		Frequency	percentage	Frequency	percentage	Frequency	percentage
1	The results given in SHC are reliable	70	35.00	92	46.00	38	19.00
2	The results given in SHC are useful to increase yields	25	12.50	45	22.50	130	65.00
3	The SHC were given in time	55	27.50	30	15.00	115	57.50
4	The results given in SHC are useful to reduce cost of cultivation	155	77.50	20	10.00	25	12.50
5	SHC helps in selecting right crop suitable to the soils	47	23.50	110	55.00	43	21.50
6	Information provided in SHC helps to sustain soil fertility	116	58.00	51	25.50	33	16.50
7	Information provided in SHC was simple to understand	98	49.00	59	29.50	43	21.50
8	Information provided in SHC was simple to adopt	62	31.00	102	51.00	36	18.00
9	Micronutrient	133	66.50	48	24.00	19	9.50

	management is possible with SHC						
10	Problematic soils were easily diagnosed with SHC	137	68.50	24	12.00	39	19.50
11	Reclamation of problematic soils with SHC	142	71.00	33	16.50	25	12.50

It is evident from the Table 3 that 46 percent of respondents were 'undecided' to the statement that the results given in SHC are reliable followed by 'agree' (35 percent) and 'disagree' (19 percent). Regarding the statement 'The results given in soil health card are useful to increase yields', 65 percent of respondents were 'disagree' with the statement followed by 'undecided' (22.5 percent) and 'agree' (12.5 percent).

As far as the statement 'The soil health cards were given in time' is concerned 57.50 percent of the respondents were 'undecided' (15 percent). The statement 'The results given in soil health cards are useful to reduce cost of cultivation' was agreed by 77.50 percent of the respondents followed by 'disagree' (12.5 percent) and 'undecided' (10 percent). These results are same as the findings of (Anil *et al*., 2018).

Further the statement "Soil health card helps in selecting right crop suitable to the soils" was undecided by 55 percent followed by agreed (23.5 percent) and disagree (21.5 percent).About 58 percent of the respondents were agreed about the statement that "Information provided in soil health card helps to sustain soil fertility" followed by undecided (25.5 percent) and disagree (16.5 percent). Regarding the statement "Information provided in soil health card was simple to understand", 49 percent of respondents were agreed regarding the statement followed by undecided (29.5 percent) and disagree (21.5 percent).

As far as the statement "Information provided in soil health card was simple to adopt" is concerned, the percentage of respondents who undecided to the statement was 51 percent followed by agreed (31 percent) and disagree (18 percent). Regarding the statement "Micronutrient Management is possible with soil health card" 66.50 percent of respondents expressed their agreement followed by undecided (24 percent) and disagree (9.50 percent).

About 68.50 percent of respondents agreed to the statement that "Problematic soils were easily diagnosed with soil health card" followed by disagree (19.50 percent) and undecided (12 percent). Further, 71 percent of respondents were agreed to the statement that "Reclamation of problematic soils with soil health card" followed by undecided (16.5 percent) and disagree (12.5 percent).

Table 4: Relationship between profile characteristics of the farmers and perception of Soil Health Card Recommendations:

S. No	Variable	Correlation co-efficient 'r' value Perception
1.	Age	-0.034 ^{NS}
2.	Education	0.087^{NS}
3.	Occupation	0.081^{NS}
4.	Caste	-0.045^{NS}
5.	Farming experience	0.001^{NS}
6.	Land holding	0.049^{NS}
7.	Annual Income	0.011^{NS}
8.	Source of Information	0.025^{NS}
9.	Family size	0.011^{NS}
10.	Family type	-0.172*
11.	Social participation	0.016^{NS}
12.	Extension contact	0.151*

* Significant at 5% level of significance

NS- Non-Significant at 5% level of significance

It was evident that the computed 'r' value between extension contact had positive and significant relationship while family type had negative and significant relationship with their perception about soil health card recommendations. The probable reason for this might be that the extension contact of respondents increase the understanding ability of farmer and also easily perceive the scientific facts which increase their level of perception. And also it might be that the famers who had regular contact with extension agencies might have aware about the advantages of soil test based fertilizer recommendation. The similar findings were resemblance with the results of Ravi kishore *et al.*, (2020) who conducted study on Perception and Adoption of Soil Health Card (SHCs) Recommendations by the Farmers in Anantapuram District. The other dependent variables like age, caste were non significant negative correlation observed with perception of farmers about soil health card recommendations where as education, occupation, farming experience, land holding, annual income, source of information, family size and social participation were found non significant positive correlation with perception of soil health card recommendations among farmers. Moreover, Age and Caste had negative and non-significant relationship with their perception about soil health card recommendations. The similar findings regarding occupation and age was found with the results of Charel *et.al.*, (2018). Whereas Anil *et.al.* (2018) was found similar results about perception of soil health card recommendations with that of farming experience, annual income and social participation. The non significant relationship of respondents profile characteristics with perception except extension contact and family type shows the ambiguity in their perception about soil health card recommendations. This might be due to the fact that most of farmers lack faith in soil health card results in their fields due to lack of finance, availability of inputs in time, non understandability of results etc.

CONCLUSION

The study revealed that the respondents were dominated by middle age group having high school education with high farming experience. Similar findings were reported by Chowdary *et al*., (2018).The majority farmers were with small holdings and with majority were below one lakh income. Majority of families were nuclear in nature with below 5 family members and majority had no social participation. Further, the majority of respondents showed medium level of perception. In order to improve the perception of soil health recommendations, results demonstrations to be organized on large scale and awareness meetings on interpretation of soil health card results are needed. Most of the profile characteristics the respondents were found non significant with the perception of soil health card recommendations. Hence, to remove the ambiguity in perception of farmers about soil health card recommendations, the soil test laboratories to be modernized, the professional persons specialized in soil testing to be recruited for working in soil test laboratories for accurate results and the soil health card results to be simplified in order to understand by the farmers. Finally to adopt soil health card recommendations make availability of inputs in time.

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