

A study on constraints and suggestions for adoption of soil health card (SHC) recommendations by the farmers in YSR district of Andhra Pradesh

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ABSTRACT: Soil health has a crucial role in ensuring sustainable profitability of the farmers. Deterioration of soil health has now become a cause of concern due to indiscriminate use of fertilizers. Keeping in view of this situation, Government of India launched Soil Health Card Scheme to encourage judicious use of chemicals and to maintain soil fertility. The soil health card scheme aims at promoting soil test based and balanced use of fertilisers to enable farmers to realise higher yields at low cost. A survey was conducted to study the awareness, adoption and constraints in adopting soil health card recommendations by the farmers of YSR district of Andhra Pradesh during the year 2019-20. Through purposive sampling method, 64 respondents were selected from twelve divisions of the district. The data were collected through interview schedule prepared for the purpose. The results showed that that majority of farmers (59.52%) agree with the benefits of soil health card recommendations, while 18.89 % of farmers remain undecided and 21.59 % disagree with the benefits of soil health card recommendations. Likewise, majority of farmers (60.14 %) are adopting the soil health card recommendations. The major constraints expressed by the farmers in adopting the SHC recommendations were lack of awareness about the procedure of soil sampling, lack of guidance and difficult to understand & follow the recommended doses. To overcome these challenges, conducting training on soil sample collection procedure, use of soil health card recommendations, timely supply of soil health cards and organising demonstrations are the suggestions elicited by the farmers.

Key words: Soil health, Awareness, Adoption, Constraints, Suggestions.

Introduction :

Soil is the major element necessary for farming since it provides essential nutrients for the growth of the plant. Fertile soils provide all the elements required for the growth and development of crop. As far as agriculture production is concerned, soil health plays a vital role in ensuring sustainability with optimization of fertilizer usage and reduction of waste (Patel *et al*, 2017). Larger part of the farmers are applying chemical fertilizers indiscriminately to boost the production without any prior knowledge on the fertility status of the soils (Srivastava and Pandey, 1999).

Soil Testing can be considered as a sound scientific tool to judge the inherent power of soil to provide the plant nutrients. The advantages of soil testing have been established on the basis of scientific research, extensive field demonstrations and actual fertilizer use by the farmers by following soil test based fertilizer recommendations. Soil testing is the only necessary and available tool for determining the amount of soil nutrients Neufeld *et al* (2006).

To avoid soil deterioration over long run and visualizing the necessity of balanced nutrition in agriculture production, Government of India commenced soil health card programme. A SHC is intended to denote soil nutrient status to each farmer and recommend him on the right usage of fertilisers and micronutrients and also on the required soil amendments to be applied in the long term to maintain soil health (Subhash *et al.*, 2019). The SHC is a simple document, which contains useful data on soil based on chemical analysis of the soil to describe soil health in terms of its nutrient availability and its physical and chemical properties. The soil health card is made available through online for the farmers. Soil health card can be utilized to optimize the fertilizer usage in integrated nutrient management (INM) approach. The soil health card scheme combine together the scientific community in the field of agriculture, the information repository of latest techniques, tools, cropping practices, the farmers and the Government for the economics upliftment of the farmers at a large scale.

Since, change in knowledge preceded acceptance and application of an innovation, it is therefore, necessary to find out the factors responsible for positive or negative disposition associated with the farmers towards the usefulness and application of soil health card recommendations. So, realizing the importance of soil health in agriculture production, the present study was conducted with the objective to delineate the constraints being faced by the farmers in the adoption of Soil Health Card results and also to obtain the suggestions from the farmers themselves to improve the adoption of Soil Health Card results .

Materials and Methods :

A Study was conducted in YSR district of Andhra Pradesh. The district consists of 12 Agricultural divisions and 51 mandals. Out of which 3 mandals were selected randomly and from each mandal four villages were selected randomly and from each village 5 farmers selected purposively. A total of 64 sample of farmers for the study areselected. To determine the awareness, adoption and constraints of soil health cards, an interview schedule was prepared. For awareness measurement, 11 statements were posed to the farmers to which three responses were recorded as agree, undecided and Disagree. With regard to adoption, 6 statements were posed to the farmers and responses were recorded as adopted and non adopted. For assessing the constraints , 7 statements were posed to the farmers to which the responses were recorded in the schedule itself. Similarly, regarding suggestions to improve the adoption of soil health cards, 6 suggestions were informed to the farmers and their opinions were recorded. The frequency and percentage for each were worked out and ranks were given based on frequency and percentage. Statistics such as frequency, percentage, Mean, and ranks were used in the presentation.

Results and Discussion :

Characteristics of respondents :

The data (Table I) indicated that majority of the respondents (51.56%) from high age group followed by 37.5 percent and 10.94 percent from middle age group and young age group respectively. This might be due to moving of young age people for other occupations. In cities due to higher income compared to Agriculture.

Table 1: Profile characteristics of respondents**n=64**

Particulars	Category	Frequency	Percentage
Age	Young (Upto 35)	07	10.94
	Middle (36 – 50)	24	37.50
	High (51 and above)	33	51.56
Education	Illiterate	20	31.25
	Primary School	17	26.56
	High school	16	25.00
	Inter	04	6.25
	Degree & above	07	10.94
Farming Experience	Up to 10 Years	06	9.38
	11 – 20	22	34.38
	21 and above	36	56.24
Size of holding	Marginal (upto 1ha)	9	14.06
	Small (1- 2.5 ha)	28	43.75
	Medium (2.5 – 5 ha)	19	29.69
	High(>5 ha)	08	12.50
Annual Income	< 1 Lakh	55	85.94
	1 - 2 Lakhs	07	10.94
	> 2 Lakhs	02	3.12
Family Size	Upto 5	54	84.37
	5 and above	10	15.63
Family Type	Joint	28	43.75
	Nuclear	36	56.25
Social participation	No membership	46	71.88
	Membership in one Organisation	18	28.12
Extension contact	Frequently	22	34.38
	Some times	25	39.06
	Rarely	17	26.56
Source of information	Private dealers	-	-
	Neighbours/friends	18	28.13
	AEOs	14	21.87
	MAOs	25	39.06
	ADAs	-	-
	Scientists	07	10.94

In case of education, majority (31.25%) of the respondents were illiterates, where as 26.56 percent respondents were educated up to primary school level, 25 percent up to high school level 6.25 percent up to Intermediate level and 10.94 percent were educated up to degree and above level.. This might be due to lack of Job opportunities for high school and below high school level of education and they stayed in villages and depend on Agriculture for income.

The data (Table 1) revealed that majority (56.24%) belongs to above 20 years of farming experience, where as 34.38 and 9.38 percent respondents possessed 10 – 20 years and below 10 years of farming experience respectively. This might be due to continuation of old age people in farming and moving of young people to cities for other jobs. The data about size of holding indicated, majority (43.75%) belongs to small farmers, 29.69 percent possessed medium holdings, 14.06 percent possessed marginal holdings and 12.50 % possessed large holdings.

The data of Table 1. indicated that majority 85.94 percent getting below one Lakh income per annum and where as 10.94 percent respondents gained between 1 – 2 lakh annual income/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 study revealed that majority 39.06 percent respondents contacted mandal Agricultural officer for information on Agriculture, where as 28.13 percent Neighbours, 21.87 percents Agricultural extension officers and 10.94 percents contacted scientists respectively. This might be due to availability of mandal Agricultural officers very nearer to them interms of distance. The table – 1 majority (56.25%) belongs to nuclear family and 43.75 % had joint family. This might be due to preference of people towards nuclear families compared to joint families at present in the existing society.

The table 1 further indicated that majority (84.37%) respondents contains up to 5 members only in their family, where as 15.63 % of respondents 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 above table – 1 also reveals that majority (71.88%) of respondents had no membership in organisation; where as 28.12% of respondents had membership in one organisation. Further, data of Table – 1 reveals that majority (39.06%) had extension contact sometimes only, 34.38 percent of respondents had frequent extension contact and 26.56 percent had rare extension contact. This might be due to that the programmes related to Agriculture not regularly attended by the farmers and also not approaching the extension agencies for solving day to day problems of Agriculture.

Table 2 : Mean of perception of benefits of SHC by the farmers

Sl.No	Type of perception	Frequency	Percentage
1.	Agree	38	59.52
2.	Undecided	12	18.89
3.	Disagree	14	21.59
Total		64	100.00

(n=64)

As evident from the mean values in the table 2, that majority of farmers (59.52%) agree with the benefits of soil health card recommendations, while 18.89 % of farmers remain undecided and 21.59 % disagree with the benefits of soil health card recommendations. From the above findings, it could be concluded that majority of the farmers are aware and agree with the benefits of soil health card recommendations. The reason that could be attributed for this kind of results might be that most of the farmers were much aware of about soil health cards scheme, location of soil testing laboratories and information available from soil health card report. The findings are in accordance with the findings of Archana and Balasubramanian (2019) who conducted the study on awareness, knowledge and attitude of farmers towards soil health card scheme in Tamilnadu.

Table 3 : Mean of adoption level of farmers

Sl.No	Level of Adoption	Frequency	Percentage
1.	Adoption	38.5	60.14
2.	Non Adoption	25.5	39.86
Total		64	100.00

(n=64)

It can be concluded from the mean values in the Table 3, that majority of farmers (60.14 %) are adopting the soil health card recommendations which could be attributed to the fact that majority of the farmers (59.52%) agree with the benefits of soil health card recommendations. regard to soil health card recommendations. Whereas, 39.86 % of farmers are not adopting the soil health recommendations.

Table 4: Constraints for non-adoption of SHC recommendations

S.No	Constraints / Reasons	Freq	Per (%)	Rank
1.	Delay in issuing Soil health cards	13	20.31	6
2.	Lack of awareness about soil sampling	35	54.68	1
3.	Non-availability of Gypsum in nearby shops	25	39.06	4
4.	If applied fertilizer as per SHC results – getting lower yields	15	23.43	5
5.	Farmers feel that fertilizer dose is not sufficient if applied as per SHC results	25	39.06	4
6.	Difficult to understand & follow the recommended doses	26	40.62	3
7.	Lack of guidance	29	45.31	2

A constraint refers to anything which prevents or limits a person or a group to utilize any resource or information or restrains them from tapping the intended effect of the information (Kumar *et al.*, 2017). Constraints are of any type such as personal or external in a social system. In this survey, the constraints faced by farmers for adopting the Soil Health Card recommendations were analysed and the results depicted in the Table 6. From the glance of Table 6, it was noticed that lack of awareness about the procedure of soil sampling was the first ranked constraint with 54.68 per cent followed by the lack of guidance (45.31%), difficult to understand & follow the recommended doses (40.62%), perception of farmer that fertilizer dose is not sufficient if applied as per SHC results (39.06%), non-availability of Gypsum in nearby shops (39.06%), farmers' perception of getting lower yields if fertilizers were applied as per the SHC results (23.43%) and delay in issuing Soil health cards as last ranked constraint. These findings are in accordance with the findings of Patel (2013), Mukati (2016), Bunkar (2018) and Rathore (2018) who revealed that lack of awareness regarding SHCs and lack of education among farmers were the major socio-personal and psychological constraints faced by the respondents in the adoption of SHCs.

Table 5: Suggestions by farmers for increasing the adoption of soil health card recommendations

S.No	Suggestions given/ by farmers	Frequency	Percentage	Rank
1.	Timely supply of soil health card recommendations	15	23.43	1
2.	Awareness meetings on soil health card recommendations	13	20.31	2
3.	Organization of demonstrations	11	17.18	3
4.	Training programmes on soil sample collection methodology	10	15.62	4
5.	Increasing the required fertilizers availability	6	7.81	5
6.	Creation of awareness of soil health card recommendations by scientists and extension officials itself.	6	7.81	5
7.	Soil sample collection by extension officials	3	4.68	6

Glance at the suggestions elicited from the farmers as presented in the table 5 reveals that foremost suggestion offered by the farmers is timely supply of soil health card recommendations (23.43%) followed by conducting awareness meetings on soil health card recommendations (20.31%), organization of demonstrations (17.18%), training programmes on soil sample collection methodology (15.62%), increasing the required fertilizers availability (7.81%), creation of awareness of soil health card recommendations by scientists and extension officials itself (7.81%) and soil

sample collection by extension officials itself (4.68%) as the least expressed suggestion by the farmers. These suggestions are in resemblance with the suggestions found by Chowdary *et al.*, 2018 who expressed quick distribution soil health card as greater suggested by the farmers in their survey conducted in Kurnool district of Andhra Pradesh.

Conclusion: The study revealed that the respondents were dominated by high age group, illiterates with high farming experience. The majority farmers were with small holdings and with majority were below one Lakh income. Majority were approached MAO for their information, families were nuclear in nature with below 5 family members, majority no social participation and extension contact with some times only.

Further, the majority respondents agree and adopt the benefits of soil health card recommendations. The major impeding factor in adopting the SHC recommendations were lack of awareness about the procedure of soil sampling, lack of guidance and difficult to understand & follow the recommended doses. To overcome these limiting factors, conducting training on soil sample collection procedure, use of soil health card recommendations, timely supply of soil health cards and organising demonstrations are the suggestions elicited by the farmers which could become a greater driving forces to improve the adoption of soil health card recommendations by the farmers.

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