Awareness about Soil Health Card and Constraints encountered in adoption of Soil Health card Recommendations in Karaikal district of Pondicherry U.T.

ABSTRACT

Aims To study the awareness about Soil Health Card and constraints encountered in adoption of Soil Health card Recommendations in Karaikal district of Pondicherry U.T.
Study design Purposive random sampling.
Place and Duration of Study: The study was conducted in the Karaikal district of Pondicherry U.T. and the survey was conducted during September 2021 and October 2021.
Methodology: The random sampling of 120 respondents from Karaikal district who had soil health cards. Among the two Taluks (Karaikal and Thirunallar), total six Firkas were selected purposively and 20 farmers from each Firkas were selected through random sampling technique. From the 120 sample respondents, information regarding study were collected with structured interview schedule.
Results: It was discovered that farmers were aware of Soil health card provides information on the status of available nutrients (Micro & Macro) in the soil, which Soil health card suggests conservative measures to improve soil health and yield, soil health card decreases extra expenses by supplying recommended nutrients in the soil, soil health cards are only useful and effective if the farmers follow the recommendations on a regular basis. Garret ranking analysis revealed that the major constraint encountered in adoption of soil health card recommendations is that the information on Soil Health Card is not in local language followed by recommendations are not calculated based on farmers land holdings, inaccessibility of micro-nutrient fertilizer in the market, etc.
Conclusion: To overcome these constraints Farmers training on use of Soil Health Card by calculating recommended dose of fertilizers and the information on Soil Health Card should be in local language is recommended.

Keywords: Awareness, constraint, Soil health card, Garrett ranking

1. INTRODUCTION

A natural environment provides essential functions that support life without impeding the advancement of human civilization. Human history has always been linked to the use of natural resources, and it seems likely that this will continue in the future. People's awareness of how to effectively manage natural resources such as air, water, and soil (Montgomery, 2012) and, ultimately, how to avoid their loss or degradation, determines civilization's success or Water, air, and soil resources all require the same level of concern and protection from degradation cau indiscriminate human activity. Chemical pollutants are one of the most serious dangers to the above-mentioned natural resources, either directly or indirectly. However, unlike the use of air and water, the use of soil (as a source of food, fiber, and fodder) since the beginning of agriculture necessitates a change in its fundamental.

Soils are essential to lifestyles on Earth however human pressures on soil assets are accomplishing essential limits and it materials the vital nutrients, water, oxygen and root aid that our food-generating flora want to develop and flourish. Proper soil management is one vital detail of sustainable agriculture and additionally affords a precious l weather law and a pathway for protecting environment offerings and biodiversity (Jones et.al., 2006). Soil is a vital numerous ecological features and socioeconomic contributions. It is largely a non-renewable aid with doubtlessly degradation charges and extraordinarily low formation and regeneration processes. However, abuse and mismana

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are threatened by increasing demands for inconsistent use and eroding sustainability. It holds five interconnected services besides moderating the water cycle, namely, it provides physical support to the seeds by, supplies and retains nutrients to the soil, plays a major role in the decomposition of organic wastes, inorganic chemicals result from decomposition return to chemicals result from decomposition returns to the plant as a nutrient, soil is a key factor in the regulation of elemental cycles. Soil, on the other hand, is multifunctional and cannot supply all ecosystem functions in one location at the same time. The Soil Health Card program connects together the agricultural-scientific community, an information repository of the newest technologies, techniques, and cropping practices and the government for the benefit of the general public (Patel,2013). However, due to extremely poor coverage and a delay in timely distribution of fertilizer recommendations to farmers, India's soil health card program has failed to have the desired influence on the farming community (Purakayastha et.al., 2019). In light of these facts, an attempt was made to examine farmers awareness and the many constraints they encounter in utilizing the information in order to better employ the Recommended fertilizer dosages.

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2. METHODOLOGY

The present study was conducted in the Karaikal of Pondicherry U.T. which was selected purposively. Among the two Taluks (Karaikal and Thirunallar), total six Firkas were selected purposively and 20 farmers from each Firkas were selected through random sampling technique. Several categories of constraints were formulated through literature review, opinions of the various experts and perceptions of extension personnel. The reliable information regarding the study was gathered utilizing a semi-structured questionnaire. The tools and techniques employed to study the socioeconomic profile and awareness about Soil health card recommendations and constraints encountered were described below

2.1 Descriptive Analysis

Percentage and averages of key variables were worked out to bring out the general characteristics of sample farms and awareness in the study area.

2.2 Garrett Ranking Technique

Garrett ranking technique was used to assess the constraints in adoption of soil health card scheme. The respondents were asked to rank (in the order of severity) the constraints and these ranks were converted to scores by referring to Garrett table. Each of the 120 farmers was asked to rank the constraints. In this analysis, rank one meant the most important factor; and nth rank meant the least important factor. In the next stage, the rank assigned to each factor under constraints and strategies by each respondent was converted into per cent position using the formula:

$$\text{Percent position} = 100\ (R_{ij} - 0.5)/N_j$$

where, R_{ij} = Rank given for the i^{th} item by the j^{th} individual

N_j = Number of items ranked by the j^{th} individual

The percent position of each rank was converted to scores by referring to the table given by Garrett and Woodworth (1969). Then, for each factor, the scores of individual respondents were summed up and divided by the total number of respondents for whom scores were gathered. The mean scores for all the factors were ranked by assigning rank 1,2,3 etc., in the descending order of the mean scores.

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3. RESULTS AND DISCUSSION

Government is taking several promoting and conservative measures such as recommending soil test-based recommendations through collective use of both inorganic and organic sources of nutrient management to sustain better soil health and increased crop productivity (Niranjan et al., 2018). Socioeconomic profile of the respondents was enlisted in the below Table 1 and Figures 1a to 1h. The details on age wise distribution of sample respondents are presented in Figure1a, in which they are classified under four categories viz., less than 35 years, 36-45 years, 46-55 years and above 55 years.

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Table 1: Socioeconomic profile of the sample respondents **n=120**

S. No.	Particulars	Category	Number of farmers	Total Number of Farmers
1.	Age	≤ 35 years	10 (08.33)	120 (100.00)

		36 to 45 years	20 (16.67)	
		46-55 years	57 (47.50)	
		>55 years	33 (27.50)	
2.	Education	Illiterate	17 (14.18)	120 (100.00)
		Primary	37 (30.83)	
		Secondary	35 (29.16)	
		Graduate and above	31 (25.83)	
3.	Gender	Male farmers	97 (80.83)	120 (100.00)
		Female farmers	23 (19.17)	
4.	Occupation	Agriculture as a Primary occupation	65 (54.17)	120 (100.00)
		Agriculture as a Secondary occupation	55 (45.83)	
5.	Land holding	Marginal farmer (< 1ha)	64 (53.33)	120 (100.00)
		Small farmer (1-2 ha)	35 (29.17)	
		Medium (2-4 ha)	19 (15.83)	
		Large (4-10 ha)	2 (01.67)	
6.	Family Size	<4 members	25 (20.83)	120 (100.00)
		4 to 6 members	86 (71.67)	
		>6 members	19 (07.50)	
7.	Annual income	≤ Rs.1,00,000	26 (21.67)	120 (100.00)
		Rs.1,00,000 to Rs.3,00,000	49 (40.83)	
		>Rs.3,00,000)	45 (37.50)	
8.	Experience in Farming	≤ 10 years	19 (15.83)	120 (100.00)
		11-20 years	18 (15.00)	
		21-30 years	45 (37.50)	
		>30 years	38 (31.67)	

(Note: Figures in parenthesis indicate percentage to total)

From the Table 1 and Figure 1a, results showed that in selected respondents, 57 farmers (47.50 per cent of the farmers) fall in the age group between 46 to 55 years followed by 33 farmers (27.50 per cent) in the age group of more than 55 years, 20 farmers (16.67 per cent) were between 36 to 45 years and 10 farmers (08.33 per cent) falls under the category less than 35 years. In the Figure 1b the selected farmers were classified into four groups as illiterate, primary education, secondary education and graduation and it is revealed that in the overall respondents per cent had completed their higher secondary education followed by primary school educated (31.70 per cent), college education (23.30 per cent) and illiterates (11.70 per cent). Figure 1c depicts that among the respondents, 97 farmers were male and 23 were female. From Figure 1d, Among the selected respondents, 65 farmers (54.17 per cent of the farmers) in Karaikal considered agriculture as main stay and the rest were doing agriculture as secondary occupation.

Figure 1 (1a to 1h): The socio-economic profile of the respondents

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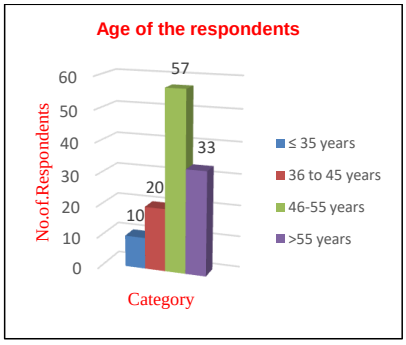
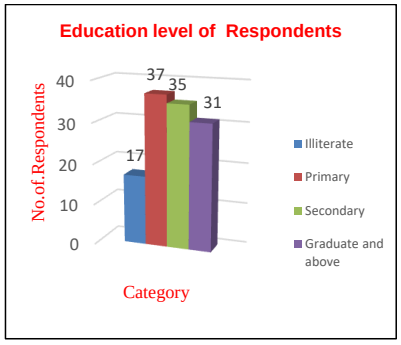
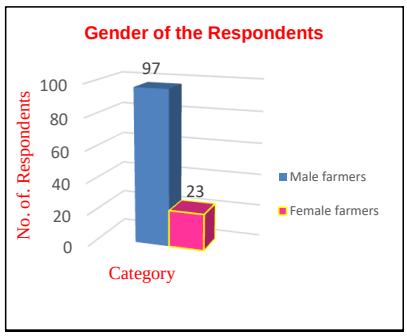


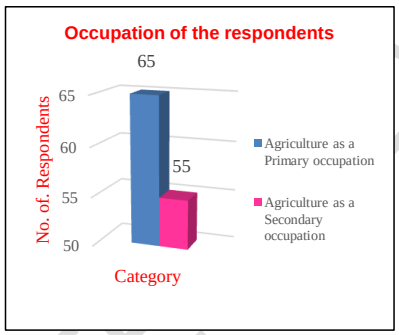
1a. Age of the respondents



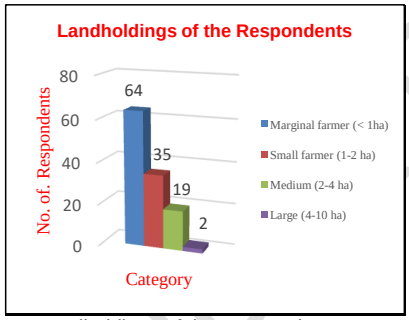
1b. Education level of respondents



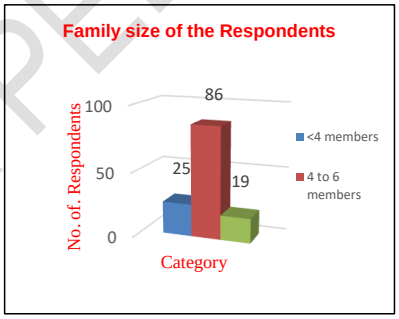
1c. Gender of the Respondents



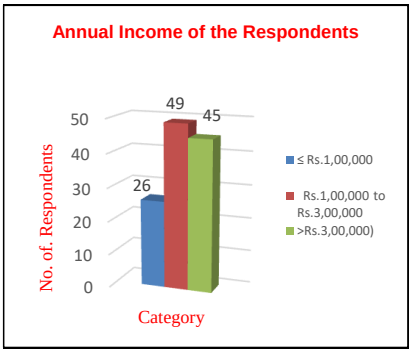
1d. Occupation of the respondents



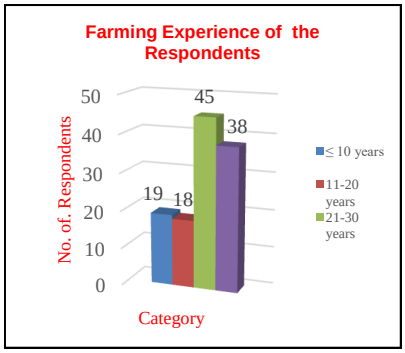
1e. Landholdings of the Respondents



1f. Family size of the Respondents



1g. Annual Income of the Respondents



1h. Farming Experience of the Respondents

Figure 1e shows that among the selected farmers, 64 respondents (53.33 per cent) were marginal farmers, followed by 35 respondents (29.10 per cent) were small farmers, 19 respondents (15.83 per cent) were medium size farmers and 2 respondents (01.67) per cent were large farmers. The size of the family has important implications with respect to income of the sample households and the extent of consumption expenditure which determined the potential for saving and in turn, investment. The details on the family size of the sample farmers are given in Table 1 and Figure 1f. The selected farmers were classified into three groups as households with less than 4 members, 4-6 members and more than 6 members. It is revealed that overall, among respondents 25 respondents (20.80 per cent) had less than four members, followed by 86 respondents (71.62 per cent) with 4 to 6 members and 19 respondents (07.50 per cent) had more than 6 family members.

The experience of the farmers made them more certain about the decision-making regarding farming practices. The number of years of experience in farming of the sample farmers is given in Table 1 and Figure 1h. The farming years of experience was grouped as less than 10 years, 11-20 years, 21-30 years and more than 30 years. From the Table 1 and Figure 1h, it could be observed that 45 respondents (37.50 per cent of the respondents) had farming experience of 21 to 30 years followed by 38 respondents (31.67 per cent) with more than 30 years of experience, 19 respondents (15.83 per cent) with less than 10 years of experience and 18 respondents (15.00 per cent) had11 to 20 years of experience.

In Figure 1g, Majority of the respondents (49 respondents,40.83 per cent) falls under category Rs.1,00,000 to Rs.3,00,000 of Annual income.

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Table 2: Awareness about soil health card information and its Recommendations(n=120)

S. No.	Awareness about soil health card and its Recommendations	Yes	No
1.	Soil health card provides information on the status of available nutrients (Micro & Macro) in the soil	82 (68.33)	38 (31.67)
2.	Soil health card suggests conservative measures to improve soil health and yield	75 (62.50)	45 (37.50)
3.	Soil health card decreases extra expenses by supplying recommended nutrients in the soil	90 (75.00)	30 (25.00)
4.	The soil health card assists farmers in gaining a better understanding of the crop-specific nutrition and fertilizer needs in each soil type.	88 (73.33)	32 (26.67)

5.	Soil health cards are only useful and effective if the farmers follow the recommendations on a regular basis.	100 (83.33)	20 (16.67)
6.	Soil health card guides in practicing scientific way farming	99 (82.50)	21 (17.50)
7.	Soil health card guides farmers to check the excessive usage of fertilizers	103 (85.83)	17 (14.17)
8.	Soil health cards reveal the state of a farm's health, as well as its strengths and weaknesses in terms of various nutrients and organic carbon elements.	111 (92.50)	9 (07.50)

(Note: Figures in parenthesis indicate percentage to total)

From the Table 2, It was found that majority of sample respondents (82.00 per cent) were aware about the Soil health card provides information on the status of available nutrients (Micro & Macro) in the soil, which Soil health card suggests conservative measures to improve soil health and yield (75.00 per cent). In further investigation majority of respondents (90.00 per cent) were aware that Soil health card decreases extra expenses by supplying recommended nutrients in the soil (88 per cent) were aware about that the soil health card assists farmers in gaining a better understanding of the crop-specific nutrition and fertilizer needs in each soil type. It was observed that Most of the farmers (100 per cent) were aware that soil health cards are only useful and effective if the farmers follow the recommendations on a regular basis. Similarly, the proportion of 85.83 per cent of the total respondents were aware of soil health card guides farmers to check the excessive usage of fertilizers. 92.50 per cent of the respondents were aware that soil health cards reveal the state of a farm's health, as well as its strengths and weaknesses in terms of various nutrients and organic carbon elements.

The constraints reported by the respondents while in adopting soil health card recommendations are recommendations are not calculated based on farmers land holdings, the information on soil health card is not in local language, inaccessibility of micro-nutrient fertilizer in the market, insufficient knowledge regarding the significance of micronutrients, soil analysis and fertilizer recommendations was not compelling and no regular monitoring, lack of NPK fertilizer and its various forms and unavailability of organic manure. The above-mentioned constraints are ranked with their corresponding mean score are given in the Table 2 and Figure 2. Among the constraints listed out by the sample respondents, the information on soil health card is not in local language is ranked as most important constraint with rank first; recommendations are not calculated based on farmers land holdings followed next. Inaccessibility of micro-nutrient fertilizer in the market ranked as third constraint. Soil analysis and fertilizer recommendations was not compelling and no regular monitoring ranked last as less important constraint.

Table 3: Constraints Encountered by farmers in adoption of Soil Health Card Recommendations

S. No.	Constraints	Mean score	Rank
1	Recommendations are not calculated based on farmers land holdings	58.76	II
2	The information on Soil Health Card is not in Local language	63.97	I
3	Inaccessibility of micro-nutrient fertilizer in the market	53.93	III
4	Insufficient knowledge regarding the significance of micronutrients	44.99	V
5	Soil analysis and fertilizer recommendations was not	17.43	VII

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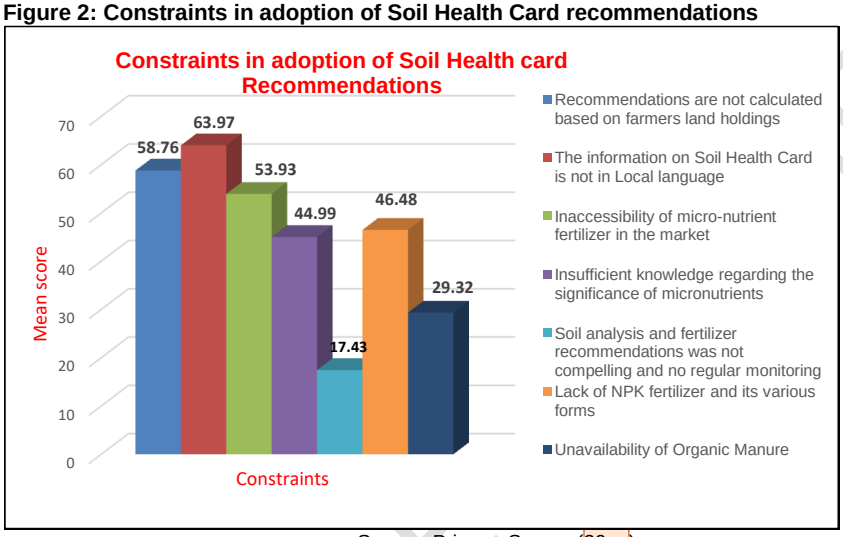
	compelling and no regular monitoring		
6	Lack of NPK fertilizer and its various forms	46.48	IV
7	Unavailability of Organic Manure	29.32	VI

Source: Primary Survey (20nn)

Figure 2: Constraints in adoption of Soil Health Card recommendations



Source: Primary Survey (20nn)

4. CONCLUSION

In this survey, it can be concluded that majority of the sample respondent from Karaikal region are of middle age and educated. It was discovered that farmers were aware of Soil health card provides information on the status of available nutrients (Micro & Macro) in the soil, which Soil health card suggests conservative measures to improve soil health and yield, soil health card decreases extra expenses by supplying recommended nutrients in the soil, soil health cards are only useful and effective if the farmers follow the recommendations on a regular basis. The majority of farmers facing problem in adoption of soil health card recommendations is that the information on Soil Health Card is not in local language, recommendations are not calculated based on farmers land holdings, inaccessibility of micro-nutrient fertilizer in the market were major constraints. To overcome these constraints Farmers training on use of Soil Health Card by calculating recommended dose of fertilizers and the information on Soil Health Card should be in local language is recommended.

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