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Study on Socio-economic profile and constraints faced by farmers in utilization of soil health card in Surajpur district of Chhattisgarh

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Abstract
Crop production and crop health are directly related to soil quality. Plants can survive in healthy soils, which also maintain the quality of the air, water and encourage human health. The study was carried out in Surajpur district (C.G.), with 120 farmers. The majority of farmers (56.67%) were found old age, were educated (21.67%) up to primary class, had medium level (50.67%) farming experience, small category of the farmers (41.67%), were agriculture are main occupation (85%), had the medium level of annual income (64.7%). Were medium level (55.33%) social participation, were medium level of extension contact (65.84%), were medium level of mass media exposure (55.00%), were medium level of scientific orientation (50.00%) and were medium level of innovativeness (56.67%). Among constraints, soil health cards was received after the crop harvest were the main constraint that farmers faced while using soil health cards.

Keywords: Soil health card, Socio-economic status and constraints of farmers

Introduction
Soil health plays a vital role to ensure agricultural production in a sustainable manner. It has been a concern that the health of the soil is decreasing, which leading to in less than ideal use of farm resources. In many areas of the nation, nutrient shortages, and a decrease in soil fertility have been caused by an unbalanced use of fertilizers, a lack of organic matter addition, and a failure to restore lost micro-and secondary nutrients over time. To make sure that farmers apply the necessary nutrients while using the nutrients already present in the soil, soil health has to be evaluated on a regular basis. To protect soil health and for sustainable agriculture, the Government of India launched the Soil Health Card (SHC) scheme on 19th February 2015. Soil health card is a printed report that will be given to a farmer for each of his holdings/It will show his soil's status according to 12 parameters: N, P, K (macronutrients) and S (secondary nutrients), Zn, Fe, Cu, Mn, and Bo are micronutrients and pH, EC and OC (Physical parameters). Based on this, the SHC will also recommend fertilizers and soil amendments that the farm needs.
The Soil Health Card will provide a suggestion on the recommended dosage of various nutrients depending on the soil nutrient status of the farmer's holding. Following that, it will provide the farmer suggestions on how much fertilizer to use and what soil amendments to use. Farmers will get the Soil Health Card once every three years, and it will indicate the condition of the soil's health at that time.

Materials and Methods
The study was carried out in Surajpur district (C.G.), 2022-23. There are six total blocks in the Surajpur district. Out of which, 2 blocks were purposely selected. From each block, 4 villages, total 8 villages were selected. From each village, 15 farmers total 120 respondents purposely selected. The researcher personally gathered the data using a structured and personal interview schedule. Analyze and understand the data, percentages and frequency were used.

Results and Discussion
Socio-economic profile of respondent

Table 1: Distribution of respondents based on their Socio-economic variables. (n=120)

S.No.	Variables	Category					
1.	Age	Young	Middle	Old			
		19.17%	24.16%	56.67%			
2.	Education	Illiterate	Up to primary	Up to Secondary	High School	Intermediate	Graduate & above
		7.50%	21.67%	18.33%	09.16%	29.17%	14.17%
3.	Farming experience	Low	Medium	High			
		21.67%	50.00%	28.33%			
4.	Land holding	Marginal farmer	Small farmer	Medium farmer	Large farmer		
		30%	41.67%	20%	8.33%		
5.	Occupation	Agriculture	Agri+ Animal husbandry	Agriculture+ Other work			
		85%	4.7%	10.3%			
6.	Annual income	Low	Medium	High			
		25%	64.7%	10.33%			
7.	Social participation	Low level	Medium level	High level			
		20%	55.33%	24.07%			
8.	Extension Contact	Low	Medium	High			
		19.16%	65.84%	15.00%			
9.	Mass Media Exposure	Low	Medium	High			
		23.33%	55.00%	21.7%			
10.	Scientific orientation	Low	Medium	High			
		33.33%	50.00%	16.07			
11.	Innovativeness	Low	Medium	High			
		22.50%	56.67%	20.83%			

Table no.1 reveals that the majority of farmers were in the middle age group (19.17% of them), followed by the young (24.16%), and old (56.67%), Education, 29.17 percent were having intermediate education, followed by up to primary school 21.67 percent, up secondary school 18.33 percent, graduate and above 14.17 percent, high school 9.16 percent and Illiterate 07.50 percent, In terms of agricultural experience, 50.00 percent had a medium level, followed by 28.00 percent high and 28.33 percent low.. Similar results were reported by Mukati (2018) [3] and Patel (2022) [5]. Out of all respondents who received a soil health card, 41.67 percent reported owning a small farm, followed by 30 percent marginal farmer, 20 percent medium farmer and 8.33 percent large farmer, Occupation, majority of farmers 85 percent belong to agriculture followed by 10.3 agriculture+ others and agri + animal husbandry, annual income, 64 percent of farmers had medium incomes, followed by 25.00 percent of farmers low incomes level and 10.33 percent of farmers high incomes level. Similar result were reported by Jaiswal (2018) [1]. Social participation reveals that the majority of soil health card holders, 55.33 percent, had medium levels of participation followed by 20 percent low levels and 24.7% had high levels, Extension contact, majority of farmers (65.84%) had medium-level extension contact followed by low (19.16%) and high (15.00%) levels of extension contact, mass media exposure, shows that majority farmer 55.00 percent were medium level followed by 23.33 percent low and 21.7 percent high. Similar result were reported by Patel (2022) [5]. scientific orientation, the majority of farmers (50%) had medium levels, followed by 33.33 percent had low levels and 16.7 percent had high levels, Innovativeness, majority of farmers (56.67%) had medium levels of innovativeness, followed by high levels (20.83%) and low levels (22.50%). Similar result were reported by Padmaja (2018) [4] and Patel (2022) [5].

Constraints expressed by farmers in utilization of soil health card

Table no. 2 shows the difficulties the respondent had using the soil health card. According to the frequency with which farmers have complained about the utilization process and got rank accordingly the item wise were Soil health card was received after the crop harvest 70.83 percent rank first, collection of soil sample was not done in presence of former 61.67 percent rank second, Extension worker are not available for advice 58.33 percent rank third, lace of trust in the information given in SHC 50.83 percent rank fourth, unable to understand the content of SHC 48.33 percent rank fifth, delay in getting the soil test result 45.83 percent rank sixth, lack of awareness regarding the method of taking sample 44.17 percent rank seventh, Soil testing labs are not available 43.33 percent rank eighth. And fertilizer calculations are not given in soil health card 28.33%, nine rank.

Table 2: Respondents were distributed based on the constraints that farmers observed when using the soil health card.

S. No.	Constraints	%
1	Soil testing labs are not available in nearby area	43.33
2	Fertilizer calculations are not given in soil health Card	28.33
4	Soil health card was received after the crop Harvest	70.83
5	Collection of soil sample was not done in presence of farmer	61.67
6	Extension worker are not available for advice.	58.33
7	Lack of trust in the information given in SHC	50.83
8	Unable to understand the contents of SHC.	48.33
9	Delay in getting the soil test results	45.83
10	Lack of awareness regarding the method of taking sample.	44.17

Conclusions

It has been shown that the majority of responses were in the medium age category, Up to primary education status, having medium level of farming experience, small farmers with low annual income, medium level of extension contact, most of the belong to agriculture occupation, social participation, mass media exposure, scientific orientation and innovativeness. The main barriers that farmers faced while using soil health cards are Soil health card was received after the crop harvest.

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