# Association of Socio-economic Profile of Farmers with Perception towards Soil Health Card in Surajpur District (C.G.)

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*Authors' contributions*

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## ABSTRACT

Soil test based nutrient management has emerged as a key issue in efforts to increase agricultural productivity and production. The optimal use of nutrients, based on soil analysis, can improve crop productivity and minimize nutrient waste, thus minimizing impact on the environment. The study was conducted in Surajpur District of Chhattisgarh, with 120 respondents. The finding indicated that majority of farmers had a high perception level 40 precent followed by medium 35 precent and only

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25 precent farmer had low perception level. Education, Farming experience, land holding, Annual Income, Extension Contact, Mass Media Exposure, Scientific Orientation and Innovativeness were significantly related and age, Occupation, social participation were found non significantly relationship with perception level.

## 1. INTRODUCTION

The greatest number of the rural people will remain engaged in agriculture as their primary occupation for a very long time. While we have implemented the Green Revolution, the nation's expanding population need even greater efforts in the areas of research, education, and extension. Because there are so many productive technologies accessible across the nation, it is crucial for extension agents to understand how farmers feel about the technologies before they are adopted. Nutrient imbalance in the soil, excessive fertilisation, soil pollution, and processes that lead to soil loss are all factors that have a negative impact on the health and quality of the soil. Although the producing function of soil has long been understood, it has only recently become important to preserve and improve the ecological services that soil provides. 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. Soil health card is one of the most crucial approaches in agriculture because it is essential for sustainable production [1,2].

## 2. METHODOLOGY

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. Analyse and understand the data, percentages, frequency and correlation coefficient were used.

## 3. RESULTS AND DISCUSSION

Table 1 indicated that the majority 49.17 per cent of the respondents had agreed with statement that soil health card can be obtained after the soil sample testing, followed by 32.50 per undecided and 18.33 per cent had disagreed with the statement. Most of farmer 40 per cent undecided with the statement that farming cannot be done in scientific ways by using soil health card information, followed by the 37.50 per cent agreed and 22.50 per cent had disagreed. More than half 56.67 per cent agreed with statement that SHC help to maintain soil fertility and productivity, followed by 28.33 per cent undecided and 15.00 per cent had disagreed. Majority of farmer 39.17 per cent had undecided with the statement that SHC provides information about current fertility status of soil, followed by the majority 34.16 per cent agreed and 26.67 per cent had disagreed. Most of farmers 42.20 per cent undecided with statement that SHC reduces the excess cost on fertilizers & nutrient, followed by 39.17 per cent agreed and 18.33 per cent had disagreed with the statement. Majority of farmer 37.50 per cent agreed with statement that soil test result not useful for converting fallow land, followed by 35.83 per cent undecided and 26.67 per cent disagreed. Majority of farmer 58.33 per cent disagreed with statement that quantity of macro and micronutrient applied soil test, followed by 31.67 per cent undecided and 10 per cent agreed. Most of farmers 49.7 per cent agreed with statement that secondary nutrient not much useful to farmers followed by 35.33 per cent undecided and 15 per cent disagreed. Out of total farmers 34.17 per cent agreed with statement that amendments are used for soil reclamation, followed by 33.33 per cent disagreed and 32.50 per cent undecided. Majority of farmers 47.50 per cent agreed with statement that SHC help to establish, coordination among farmers, extension worker and experts, followed by 33.33 per cent had undecided and 19.17 per cent disagree. Most of farmers 49.16 per cent had undecided with statement that SHC gives crop amount of fertilizer to be applied, followed by 31.67 per cent disagreed, 19.17 per cent undecided and 5.83 per cent disagree with the. 35.00 per cent of the

respondents had agreed & undecided with statement that SHC gives information about amount of fertilizer to be applied, followed by 30.00 per cent disagreed. Majority of farmer 34.17 per cent of the respondents had agreed with statement that soil testing should by every year, followed by 33.33 per cent disagreed and 32.50 per cent undecided with the statement. Most of farmer 35.00 per cent of the respondents had agreed with statement that information helps to adopt suitable crop plan given in SHC, followed by 33.33 per cent of the soil health card holders had disagreed and 31.67 percent of the soil health card holders had undecided with the statement [3-5]. Mostly farmer 45 per cent of the respondents had agreed with statement that Acidity, alkalinity of the soils can be known with the help of SHC information, followed by 33.75 per cent had undecided and 21.25 per cent disagreed. Majority of farmer 57.50 per cent agreed with statement that Soil test result doesn't choose the

income generating crop, followed by 28.33 per cent had undecided and 14.17 per cent disagreed. Most of farmer 42.50 per cent of the respondents had undecided with statement that Soil is known by EC value, followed by 39.17 per cent of the soil health card holders had disagreed and 18.33 per cent of the soil health card holders had agreed with the statement. Most of farmer 56.67 per cent agreed with statement that cannot achieve economic stability by SHC, followed by 25.00 per cent had undecided and 18.33 per cent disagreed. Majority of farmers 48.33 percent had agreed with statement that farmers can plan future their crops as well as land, followed by 36.67 per cent undecided and 15.00 per cent disagreed. in this Table 1 shows majority of farmer 40.00 per cent of the respondents had agreed with statement that give a clear idea nutrient the soil is lacking, followed by 37.50 per cent undecided and 22.50 per cent of the soil health card holders had disagreed with the statement.

**Table 1. Distribution of respondents according to Level of perception of farmers about soil health card**

(n=120)

| S. No. | Parameters | A | | UD | | DA | |
|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % |
| 1 | Soil test results give the soil health information. | 59 | 49.17 | 39 | 32.50 | 22 | 18.33 |
| 2 | SHC recommendation helps in scientific farming | 45 | 37.50 | 48 | 40 | 27 | 22.50 |
| 3 | Soil fertility increases the crop production and productivity. | 68 | 56.67 | 34 | 28.33 | 18 | 15.00 |
| 4 | Quantity of fertilizer can be easily calculated by using SHC | 41 | 34.16 | 47 | 39.17 | 32 | 26.67 |
| 5 | SHC reduces the excess cost on fertilizers and nutrients | 47 | 39.17 | 41 | 34.16 | 32 | 26.67 |
| 6 | Soil test result is not useful for converting fallow land to cultivableland | 45 | 37.50 | 43 | 35.83 | 32 | 26.67 |
| 7 | The required quantity of macro and micronutrients can be applied by soil test results. | 12 | 10.00 | 38 | 31.67 | 70 | 58.33 |
| 8 | Secondary nutrient given in the SHC is not much useful to farmers. | 59 | 73.75 | 16 | 20.00 | 5 | 6.25 |
| 9 | Amendments are use for soil reclamation. | 41 | 34.17 | 39 | 32.50 | 40 | 33.33 |
| 10 | SHC helps us to establish coordinationamong farmers, extension workers and scientists. | 57 | 47.50 | 40 | 33.33 | 23 | 19.17 |
| 11 | SHC gives crop wise recommendation of fertilizers & nutrients | 23 | 19.17 | 59 | 49.16 | 38 | 31.67 |
| 12 | Soil degradation cannot be reduced from soil test results | 42 | 35.00 | 42 | 35.00 | 36 | 30.00 |
| 13 | Soil testing should be done every year | 41 | 34.17 | 39 | 32.50 | 40 | 33.33 |
| 14 | SHC information helps to adopt suitable crop plan. | 42 | 35.00 | 38 | 31.67 | 40 | 33.33 |
| 15 | Soil pH gives acidity & alkalinity of soil. | 36 | 45 | 27 | 33.75 | 17 | 21.25 |
| 16 | Soil test result does not give idea to choose the income generating crops. | 69 | 57.50 | 34 | 28.33 | 17 | 14.17 |
| 17 | Salinity the soil is known by electrical conductivity (EC) value. | 22 | 18.33 | 51 | 42.50 | 47 | 39.17 |
| 18 | Farmers cannot achieve economic stability by SHC | 68 | 56.67 | 30 | 25.00 | 22 | 18.33 |
| 19 | Based on soil test results farmers canplan the future of their crops as well as land. | 58 | 48.33 | 44 | 36.67 | 18 | 15.00 |
| 20 | SHC is not necessary for practicing Agriculture | 39 | 32.50 | 43 | 35.83 | 38 | 31.67 |

**Table 2. Respondents were divided into groups based on their perception level.**

(n=120)

| S. No. | Category | Frequency | Percentage |
|---|---|---|---|
| 1 | Low perception level (Up to 20 score) | 30 | 25.00 |
| 2 | Medium perception level (21 to 40 score) | 42 | 35.00 |
| 3 | High perception level (Above 40 score) | 48 | 40.00 |
| | Total | 120 | 100.00 |

**Table 3. Association between socio-economic profile of farmer and their perception level**

| S. No. | Characteristics | Correlation coefficient |
|---|---|---|
| 1 | Age | $0.108^{NS}$ |
| 2 | Education | $0.216^{*}$ |
| 3 | Farming Experience | $0.229^{*}$ |
| 4 | Land Holding | $0.300^{**}$ |
| 5 | Occupation | $0.095^{NS}$ |
| 6 | Annual income | $0.434^{**}$ |
| **7** | Social Participation | $0.084^{NS}$ |
| 8 | Extension Contact | $0.261^{**}$ |
| 9 | Mass Media Exposure | $0.232^{*}$ |
| 10 | Scientific Orientation | $0.655^{**}$ |
| 11 | Innovativeness | $0.229^{*}$ |

\* Indicate that .05% level of significance
\*\* Indicate that .01% level of significance
[NS] indicate that non-significant

To measure the perceived perception level of farmer were asked to rate the agreement on three-point continuum i.e., low perception level, medium perception level and high perception level. Table 2 evince that maximum number of respondent 40 percent were having high perception level followed by medium perception level 35 percent and only 25 percent respondents had low perception level.

Table 3 concluded that correlation of all the selected independent variables with perception of SHC showed non-significant with age (0.108[NS]) , Occupation (0.095[NS]), social participation (0.084[NS] ) However, Education (0.216*), Farming experience (0.229*) , land holding (0.300**), Annual Income (0.434**), Extension Contact (0.261**), Mass Media Exposure (0.232* ), Scientific Orientation (0.65**) and Innovativeness (0.229*) depicts positive significant correlation.

## 4. CONCLUSIONS

It was concluded that, Education, Farming experience, land holding, Annual Income, Extension Contact, Mass Media Exposure, Scientific Orientation and Innovativeness were significantly related and age, Occupation, social participation were found non significantly relationship with perception level. Among perception level, most of respondent had high perception level towards soil health card.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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