

RESEARCH ARTICLE

A study on perception and adoption of farmers regarding soil health card in Saharsa district of Bihar

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SUMMARY

Since inception of soil health card scheme during 2015-16 in order to increase agricultural production and sustain soil health, a large number of soil health card have been distributed to the farmers. In order to assess the perception and adoption of soil health card, the present study was conducted. The present work has been comprise of 60 respondents from ten blocks of Saharsa district. The data collected through interview schedule prepared for the purpose. The result showed that majority of the farmers had medium level of perception (85%) and adoption (63.33%). The correlation coefficient between independent variables and dependent variables is perception and adoption showed non-significant relationship. In order to improve the adoption of soil health card recommendation, practical demonstration to be organized on large scale, awareness meeting on interpretation soil health card.

Key Words : Perception, Adoption, Soil health card, Farmers

How to cite this article : Pandey, Amit Kumar, Singh, Ashutosh and Singh, Umesh (2022). A study on perception and adoption of farmers regarding soil health card in Saharsa district of Bihar. *Internat. J. Plant Sci.*, 17 (2): 218-221, DOI: 10.15740/HAS/IJPS/17.2/218-221, Copyright@ 2022:Hind Agri-Horticultural Society.

Article chronicle : Received : 05.05.2022; Revised : 15.05.2022; Accepted : 19.06.2022

The soil, supplier of water, nutrients and mechanical support to crop plant, is explained as four-dimensional, unconsolidated and dynamic in nature (Lal, 2016). The major components of soil system consist of mineral matter, which act as a storehouse. This four-

dimensional nature give soil distinct physical, chemical and biological properties that change over time dimensions. Any significant variation in these factors beyond the range of crop tolerance limits makes soil unfit for crop cultivation and will be the most important reason for soil illness. The tolerance limit for plant growth is expressed as the different parameter that express the physical, chemical and biological properties of the soil, while the soil with all properties in the acceptable range is considered healthy (Lal, 2001 and Aulakh and Sidhu, 2015). The soil with the ability to meet plant and ecosystem requirement for water, aeration and strength over time, and to resist and recover from processes that

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might diminish this ability is considered as physically healthy (Are, 2019). Soil biological health is the ability of soil to support large and diverse microbial communities (Brackin *et al.*, 2017) while chemically healthy soil has plant nutrients in optimum quantity, available forms and balanced proportions (Lal, 2005). The importance of soil health in sustaining the agricultural ecosystem is well recognized (Jat *et al.*, 2015), it is imperative to discuss the different issues and concern of soil health.

The current interest in soil health reflects the growing awareness that soil is an essential components of the biosphere and its restoration is often the first entry point to increasing the productivity of food insecure farm (Sanchez and Swaminathan, 2005), which is also affects global climate. Soil health and fertility are the basis for sustainable profitability of the farmers all over the world. Further, utilization of optimum doses of fertilizers according to scientific recommendation is the initial step towards sustainable farming. As far as agriculture production is concerned, soil health play vital role in ensuring sustainable production with optimizing with utilization of fertilizers and reducing its waste (Patel *et al.*, 2017). Non-judicious use of fertilizer, low addition of organic matter and non-replacement of depleted micro and secondary nutrients over the years have resulted in nutrient deficiencies in soil. Knowledge level and adoption of soil fertility management practices are relatively less (Chowdary *et al.*, 2017). Therefore, in order to grasp and improve soil ecosystem function need to be evaluated. Accurate and systematic soil health measurement can provide a basis for soil health management (Obade and Lal, 2015). Therefore, Government of India started a new scheme of providing soil health card to farmers. The soil health card provides soil health data to get appropriate guidance to the farmers for the efficient use of fertilizer to cultivate crops based on soil health analysis which is simple documents, 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 (Mukati *et al.*, 2018). The soil health card system brings together the scientific community in the field of agriculture, the information repository of latest tools, techniques and cropping practices, the farmer and the government for the economic upliftment of the people at large (Patel, 2013).

Knowing the motive and importance of the soil health card and present study was undertaken to assess the farmer's perception and adoption of soil health card recommendation.

MATERIAL AND METHODS

The investigation was conducted in Saharsa district of Bihar state which was selected purposively. Total 12 villages namely; Purikh and Bara in Sattar Kataiya block, Murli Basantpur and Amarapur in Kahra bock, Chandrayan and Bakunia in Nauhatta block, Chandaur and Suhath in Saur Bazar block, Ghogheepur and Naharwar in Maheshi block and Paharpur and Kantho in Simri Bakhtiyarpur block were selected purposively and five farmers from each village this making a total 60 farmers for the study. To determine the perception and adoption level in adoption of soil health card, an interview schedule was prepared. For perception measurement 11 statements on three point continuum with the score agree 3, undecided 2 and disagree 1 were given for the response of farmers. With regard to adoption 6 statements with two point continuum with the score of adopted 2 and not adopted 1 was given for respondents. The frequency and percentage for each were worked out.

RESULTS AND DISCUSSION

The data revealed that majority (53.33%) belong to above 20 years of farming experience whereas 41.67 and 5.0 per cent farmers possessed 10-20 years and below 10 years of farming experience, respectively (Table 1). This might be due to continuation of old age people in farming and moving of young people to cities for other jobs. Similar findings was also reported by Veeraiah *et al.* (2019). The data about the size of holding (Table 1) indicated that majority (53.33%) belongs to small farmers, 20 per cent belongs to medium holding, 15 per cent possessed marginal holding and 11.67 per cent large holdings. Majority of the farmers (70.00%) getting below 1.0 lakh income per annum whereas 28.33 per cent gained between 1.2 lakh annual income and 1.67 per cent farmers getting above 2.0 lakh income per year (Table 1). This might be due to majority of the farmers belong to small and marginal farmers and also due to level of income in agriculture compared to other enterprises. The results are in the line of the study conducted by Veeraiah *et al.* (2019). It could be observed that majority of the farmers (85%) had medium level of perception followed by low level of perception (11.67%) and high level of perception (3.33%) (Table 2). The finding are in accordance with the finding of Archana and Balasubramanian (2019). From the above result it could be concluded that majority of farmers had medium

level of perception about soil health card recommendations and its use. It could be observed that majority of farmers (63.33%) had medium level of adoption of soil health card recommendations followed by low level of adoption (31.67%) and high level of adoption (5.0%) (Table 3). Similar results were also reported by Modem and Puram (2022). The results of Pearson's co-efficient of correlation analysis were taken into consideration for analysis the influence of respondent's income characteristics on perception and adoption of farmers on adoption of soil health card recommendation. The data in the Table 4 revealed that correlation co-efficient value (r) between farming experience, size of holding and annual income were non-significant negative correlation observed with perception of farmers about soil health recommendation. Further, the perusal of data (Table 5) revealed that correlation co-efficient (r) value of farming experience and annual

Table 1: Distribution of farmers according to their economic characteristics

Sr. No.	Characteristics	Frequency	Percentage
1.	Farming experience		
	Below 10 years	03	5.0
	In between 10-20 years	25	41.67
	Above 20 years	32	53.33
2.	Size of holding		
	Marginal (Below 1 ha)	09	15.00
	Small (1 – 2.5 ha)	32	53.33
	Medium (2.5 – 5.0 ha)	12	20.00
	Large (Above 5.0 ha)	07	11.67
3.	Annual income		
	Below 1.0 lakh	42	70.00
	Between 1 – 2 lakh	17	28.33
	Above 2 lakh	01	1.67

Table 2 : Perception level of farmers (n=60)

Sr. No.	Level of perception	Frequency	Percentage
1.	Low perception	07	11.67
2.	Medium perception	51	85.00
3.	High perception	02	3.33

Table 3 : Adoption level of farmers (n=60)

Sl. No.	Level of adoption	Frequency	Percentage
1.	Low	19	31.67
2.	Medium	38	63.33
3.	High	03	5.00

Table 4: Correlation between economic parameters of farmers and their perception of soil health card recommendations

Sr. No.	Variables	Correlation co-efficient (r)
1.	Farming experience	-0.09
2.	Size of land holding	-0.35
3.	Annual income	-0.39

Table 5: Correlation between economic parameters of farmers and their adoption of soil health card recommendations

Sr. No.	Variables	Correlation co-efficient (r)
1.	Farming experience	-0.07
2.	Size of land holding	-0.15
3.	Annual income	0.19

income were non-significant and positively correlated and size of land holding was non-significantly and negatively correlated with adoption of soil health card recommendations.

Conclusion:

The majority farmers were with small holding and below 1.0 lakh per year. Further, the majority respondents showed medium level of perception and adoption. The relationship between economic characteristics and their perception and adoption of soil health card recommendations also showed non-significant relationship. In order to improve the adoption of soil health card recommendations, practical demonstration to be organized on large scale, awareness meeting on interpretation soil health card and taking samples before farmers presence in needed.

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