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Constraints faced by the farmers in adaption of soil health card in Saharsa district of Bihar

Amit Kumar Pandey, Ashutosh Singh, Umesh Singh

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ABSTRACT

Soil is the key to ecosystem functions which support the production of food, forestry products and human health. Understanding soil health condition is essential to the sustainability and stability of the entire ecosystem of farmland. In order to grasp and improve soil ecosystem function, soil health under different management system need to be evaluated. This study was an attempt to analyze the constraints being faced by the farmers in the adoption of soil health card. It was found that main constraints faced by farmers were difficult to calculate fertilizers dose on the basis of nutrients status of soil, time gap between soil samples taken and issuing cards in very high and improper information about micronutrient status in soil. For each type of soil crop wise recommendation of nutrients and fertilizer required should be given in soil health card, timely availability of soil health card to the farmers and detailed information regarding the status of available micronutrient status in the soil are the major suggestion offered by the farmers to overcome the constraints faced by the farmers in adoption of soil health card.

Keywords Soil health card, Constraints, Adoption, Soil health Forestry produ etc.

INTRODUCTION

Healthy soil produce healthy crop that in turn nourish people and animals. In soil properties soil health plays an important role in agricultural productivity, food quality, environmental resiliency and ecosystem sustainability. Non judicial use of fertilizers, low addition of organic matter and non-replacement of depleted micro and secondary nutrients over the years have resulted in nutrient deficiencies in soil (Chowdary *et al*. 2018). Our natural resources have been depleting and failing to serve this ever increasing mass people. In order to fulfil the need based goals of agricultural production, the production enhancement pattern will have to rely largely on increased productivity. The only thing that we can do is optimizing the usages of existing farm land by adoption of new strategies for agricultural development. In India, fertilizer consumption is focused in about on one-third of the cultivated area. Farmers often apply too much heavily subsidized urea while seldom, if ever applying secondary nutrients. This scenario has critically resulted in declining vitality of Indian soils and as a result of the same, threat to food security (Gopikrishna 2012). Hence to improve the soil heath and boost productiv-

Amit Kumar Pandey, Ashutosh Singh*
Assistant Professor-cum-Junior Scientist, Mandan Bharti Agriculture College, Agwanpur, Saharsa, Bihar (India)
Umesh Singh
Associate Dean-cum-Principal, Mandan Bharti Agriculture College, Agwanpur, Saharsa, Bihar (India)
E mail: dr.ashusingh1984@gmail.com
*Corresponding author

ity it has become necessary to nurture the soil. In the wake of this, Government of India has launched the soil health card scheme in February, 2015. Soil health card is one of the important approaches in agriculture because it is key elements for the suitable production in soil. The aim of the scheme is to promote integrated nutrient management through judicious use of inorganic fertilizer including secondary and micro nutrients in conjunction with organic manure and bio fertilizer for improving the soil health and its productivity. The soil health card provides soil health data to get appropriate guidance to the farmers for the efficient use of fertilizer to cultivate crop based on soil health analysis which is a 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 farmers and the government for the economic upliftment of the people at the large (Patel 2013). Considering all these facts an attempt was made to analyze the different constraints faced by the farmers in utilizing the soil health card and the various suggestion offered by the soil health card holders to overcome these constraints for better use of recommended dose of fertilizers.

MATERIALS AND METHODS

The Saharsa District of Bihar state was selected purposively to conduct the present study. The reasons for the selection was that the department of soil science and agricultural chemistry of Mandan Bharti Agriculture College, Agwanpur, Saharsa is actively engaged with soil testing activity is located in Saharsa District further it comes under the jurisdiction of Bihar Agricultural University, Sabour, Bhagalpur. Total six block of Saharsa district namely Kahra, Nauhatta, Mahishi, Sonbarsa, Sour Bazar and Sattar Kataiya were selected. The two villages from each block such as Bariyahi and Amarpur villages in Kahra block, Muradpur and Chandrain villages in Nauhatta block, Naharwar and Ghonghepur villages in Mahishi block, Soha and Lagma villages in Sonbarsa block, Rampur and Tiri villages in Sour Bazar block and Purikh and Baro villages in Sattar Kataiya selected randomly and thus total villages were twelve under study. The list of farmers who are holding the soil health card was collected from reliable sources from each randomly selected village. 10 respondent were selected randomly from each 12 randomly selected villages. Thus the total number of respondent were 120 an Ex-post-facto research design was used in the present investigation. Different categories of constraints were collected through literatures reviews, expert's opinion and agricultural scientists and extension personnel's is perceptions. Data was collected semi structured interview schedule.

RESULTS AND DISCUSSION

A constraints is anything that prevent or limits an individuals or a group of utilize any resources or information or restrains them from tapping the intended effect of the information (Kumar *et al.* 2019). It refers as situations or circumstances which impede or restrict the activity or performance of an individual. In the present study, it operationalized as the items of difficulties faced by the farmers in perception and use of soil health card. The information regarding constraints faced by them were collected by using open ended questionnaire. The frequency and percentage was worked out for each constraints, then, rank was assigned. The data in the Table 1 reveals that constraints viz., "difficulty in calculating fertilizer dose on the basis of nutrient status of soil" which was ranked first (68.33%) by respondents followed by "time gap between soil samples taken and issuing of card is very high" second (63.33%) and "improper information about micronutrient status in soil" had ranked third (61.66%), "difficulty in understanding all the information given in the soil health card" was ranked fourth (54.16%), respectively. The fifth ranked was assigned for "unavailability of soil health card reported at the time of crop sowing (51.66%) followed by ranked VI "results of soil testing is not reliable (46.66%). Similarly the seventh rank was assigned for "collection of soil sample was not done in presence of farmer (35.83%). The results are in the line with the finding of Naruka *et al.* (2018), Lamkane (2018), Sheetal *et al*. (2020) who found that majority of the respondent that lack of knowledge about the impor-

Table 1. Constraints expressed by farmers in utilization of soil health card.

N=120

Sl. No.	Constraints	Frequency	Percent	Rank
1.	Collection of soil sample was not done in presence of farmers	43	35.83	VII
2.	Time gap between soil samples taken and issuing of card is very high	76	63.33	II
3.	Difficulty in calculating fertilizers dose on the basis of nutrient status of soil	82	68.33	I
4.	Unavailability of soil health card report at the time of crop sowing	62	51.66	V
5.	Difficulting in understanding all information given in the soil health card	65	54.16	IV
6.	Result of soil testing is not reliable	56	46.66	VI
7.	Improper information about micronutrient status in soil	74	61.66	III

tance of micronutrients, improper informations about micronutrient status in soil and time gap between soil sample taken and issuing card is very high were the major constraints. The study also shows resemblance with the Niranjan *et al*. (2018) Mukati *et al.* (2018) who found that majority of soil tested farmers were found to be difficulty in calculating the required quantity of fertilizers as per soil health card.

Suggestion by the respondents to overcome the constraints

Suggestion refers as an opinion about constraints which can be used as solution to overcome or to minimize them. In order to develop an extension strategy, it is essential to seek the opinion of the respondent who directly involved in use of soil health card. The suggestion receiving high percentage was considered as an important suggestion and the suggestion receiving low percentage considered as less important. The data related to suggested affected by the respondent was presented in Table 2. The data in the Table 2 depicted that the suggestion "for each type of soil, crop wise recommendation of nutrients and fertilizers required should be given in the soil health card" ranked first (75.00%) followed by "timely availability of soil health card to the farmers" ranked second (73.33%). Similarly, "soil health card should provide information regarding the states of available micronutrients in the soil" and "soil testing laboratory should be established at Panchayat level" ranked third (70.00%) and forth (68.33%), respectively. Suggestion offered by respondents "soil health card should be issued prior to crop season" ranked fifth (66.66%), "provide training for better understanding about content of soil health" ranked sixth (65.00%) followed by "training of farmers about method of collecting ideal soil" which ranked seventh (61.66%). Collection of soil sample should be done in presence of farmers" and government should provide soil health card every

Table 2. Suggestion of respondents to overcome the constraints.

N=120

Sl. No.	Constraints	Frequency	Percent	Rank
1.	Collection of soil sample should be done in presence of farmers	52	43.33	VIII
2.	Soil health card should provide informations regarding the status of available micronutrients in the soil	84	70.00	III
3.	Timely availability of soil health card to the farmers	88	73.33	II
4.	Soil health card should be issued prior to crop season	80	66.66	V
5.	Training of farmers about method of collecting ideal soil sample	74	61.66	VII
6.	Soil testing laboratory should be established at Panchayat level	82	68.33	IV
7.	Provide training for better understanding about content of soil health	78	65.00	VI
8.	For each type of soil, crop wise recommendation of nutrients and fertilizer required should be given in soil health card	90	75.00	I
9.	Government should provide soil health card every year to each farmer	36	30.00	IX

year to each farmers" were ranked eight (43.33%) and ninth (30.00%), respectively. These finding shows a respondents with the Charel *et al.* (2018), Sheetal *et al.* (2020) Chowdary *et al*. (2018).

CONCLUSION

It conclusion this study provided the analysis of the constraints being faced the farmers in Saharsa District. The most important constraints faced by the respondents in the adoption of soil health card were "difficulty in calculating fertilizer dose on the basis of nutrient status of soil. "Time gap between soil samples taken and issuing of card is very high" and improper information about micronutrients status in soil. So, in order to mitigate these constraints, the most important suggestion offered by respondents were "for each type of soil, crop wise recommendations of nutrients" and "timely availability of soil health card".

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