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Impact of Soil Health Card on Paddy Grower's Income in Saharsa District of Bihar

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Abstract

Soil health card is an analysis of the quality of the soil right from its functional characteristics to water and nutrient content and other biological properties. It contains corrective measures that a farmer should adopt to obtain a better yield. The soil health card helps the farmers to get a well monitored report about the soil and they are guided by the expert to improve soil health. The present study has analysed the impact of sol health card on paddy growing farmers by studying the economics of cultivation of paddy in Saharsa district of Bihar. For study data were collected from thirty soil tested beneficiaries before and after of recommended dose of fertilizer. The result of the study revealed that yield of paddy increased by 18.35 per cent after adoption of recommendation made in soil health card. The net income per acre increased from Rs. 10401 to 16272 (19.86 %) after soil testing by the farmers. The B:C ratio increased from 1.46 to 1.63 on adoption of recommendation made in soil health card. Thus soil health card was found highly beneficial to the farmers in term of increasing their income. However, there is a need to generate awareness about the benefits of soil health card among the farmers on one hand and strengthening of soil testing laboratories on the other hand for a wider adoption if recommended dose of fertilizer suggested in the soil health card.

***Key words :** Soil health card, farmer's income, paddy, Saharsa.*

Introduction

Soil are the resources that support and sustain huge diversity of life form on earth with its diverse physical, chemical and biological properties. The health of these dynamic resource is a measures of healthy plant growth (1). Soil health and fertility is the basis for sustainable profitability of the farmer. Using optimal dose of fertilizers and cropping pattern as per the scientific recommendation is the first step towards sustainable farming (2, 3). Soil testing is a science based and time-tested tool for assessment of soil fertility status and soil ailments and for nutrient amendment recommendations. In India, the current composition of NPK ratio is 6.0, 7.2 and 4.1 which is highly skewed towards nitrogen as against ideal ratio of 4:2:1. India is spreading nearly rupees seventy thousand crores on fertilizer subsidy every year. According to the estimates, subsidy amount is about Rs. 5000/ha of the net cropped area and about Rs. 5100/ farmers resulting in excessive use of fertilizers speciously NPK at the cost of micro-nutrient and manure. Hence, there is need for balanced use of fertilizer, keeping this government of India introduced soil health card scheme across the India on 5th December, 2015. Soil health card enable the farmers to apply recommended dose of nutrients based on soil test values to realize improved and sustainable soil health and fertility, low cost and higher profits (4)). Soil health card is an analysis of the quality of soil contains corrective measures that a farmer should adopt to obtain a better yield (5). There are many farmers in India and they do not know which types of crops they should grow to get maximum yield. Soil health card has ushered in a new awareness about the importance of a green economy (6,7). Soil health card is basically a printed report that a farmers is given for all his land or holding. It contains the status of soil considering 12 parameters. Based on all this, the soil health card will also specify fertilizer recommendations and soil changes required for the farm. This SHC will have an advisory based on the soil nutrient status of the farmer's holding which will tell about the recommendations on the dosage of different nutrients required.

Considering all the above facts, the present study has analysed the impact of soil health card on economics in cultivation of paddy crops in Saharsa district of Bihar.

Materials and Methods

Study area : The study area falls in the eastern part of the Bihar state, India with a sub-humid climate, situated the eastern bank of Kosi river. It is located in the Agro-climatic zone of Bihar between 25^{o}88' N longitudeand 86^{o}58'65" latitude E at an altitude of 41 meter above MSL.

Sampling and data collection : the study was conducted in Saharsa district of Bihar, which is purposively selected in consonance with the objectives of the study. Saharsa was selected for the study on the basis of major soil health card distribution in the state. For study area one block, Sattar Kataiya from the Saharsa district, one village

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Table-1 : Impact of soil health card recommendation of fertilizer on yield of paddy crop.

Average Yield (q/acre)		% Change
Before	After	
19.46	23.24	18.35

Table-2 : Changes reported after application of soil health card recommended dose of fertilizer to paddy crop (% of farmers).

Change	Most important	Important	Least important	Total
Increase in crop yield	51.45	17.38	31.17	100
Improvement in soil texture	55.32	19.80	24.88	100
Improvement in crop growth	19.06	59.54	21.40	100
Improvement in grain filling	11.84	61.24	26.92	100
Lower incidence of pest and diseases	10.44	28.47	61.09	100
Reduction in application of other inputs like seed, pesticides, labour etc.	61.25	17.25	21.50	100

Table-3 : Impact of soil health card on economics of cultivation of paddy crop (Rs./acre).

Variable	Before getting SHC	After getting SHC	Differences
Total cost	22551	25169	2618 (10.40)
Gross income	32952	41122	8170 (19.86)
Net income	10404	16272	5872 (36.00)
B:C ratio	1.46	1.63	0.17 (10.42)

Figures in the parenthesis show percentage difference

Pursottampur Purikh from Sattar Kataiya block, a thirty soil tested farmers from the choosen village was randomely selected. Thus, the study had thirty soil tested farmers who reported on before and after receiving soil health card. Paddy crop was taken to study the impact of soil health card on farmer's income.

Analytical tools and techniques employed : To fulfil the specific objective of the study, based on native and extent of the data, collected data was analyzed with the help of tabular analysis, averages, percentages etc.

Results and Discussion

A remarkable change in field of paddy crop was observed before and after getting soil health card in the area under study. On application of recommended doses of fertilizer the yield of paddy increased by 18.35 per cent (Table-1). This might be due to balanced fertilizer use by soil health card users. The results are line with the results obtained by Makadia, 2012 and Ramappa *et al.,*2015. Chouhan *etal*., 2017 also reported an increase of 19.42 per cent in the yield of paddy crop after adoption of soil health card. The most important changes observed after the application of recommended dose of fertilizer were (i) reduction in application of other input like seed, labour, pesticides etc. (61.23 %) (ii) improvement in soil texture (55.23%) and (iii) increase in crop yield (51.45%). The important changes observed were (i) improvement in crop growth (59.54%) (ii) improvement in grain filling (61.24%) and the lowest incidences of pest and diseases after application of recommended dose of fertilizer (61.09%) was observed among the least important changes (Table-2). The impact of soil health card on the economics of paddy crop was studies and it's presented in Table-3. In paddy the total cost of cultivation increased by (10.40%), from Rs. 22551 to 25169 per acre. Net income also increased by 36.00 per cent, from Rs. 10401 to 16272 per acre. The return per rupees investment also increased from 1.46 to 1.63 after the farmers got their soil health card. Similar findings were also reported by (7, 11).

Conclusions

The study has concluded that adoption of recommended doses of fertilizer as per soil health card leads to reduction in the application of other inputs. At the same time, they also started adopting the recommended package and practices of paddy cultivation resulting in reduction in expenditure on different inputs thereby cost of cultivation. It could lead to increase in farmer's income. It is suggested that the issued soil health card need to be periodically updated so that the farmers remains aware about the changing fertility status of their land.

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