



# Farmers' Awareness and Usage of Soil Health Cards in Crop Management Practices

Sube Singh, P. S. Shehrawat<sup>1</sup> and Sandeep Bhakar<sup>2</sup>

Assistant Director (Extension Education)

CCS Haryana Agricultural University, Hisar-125 004

The study was conducted in Fatehabad district of Haryana State covering 10 randomly selected villages. Out of these villages 10 farmers from each village were selected randomly to make the sample size of 100 for the study. The data were collected through well structured farmers' interview schedule regarding usage pattern of soil health card in selection and management practices of different crops by the farmers of the district. The basic information of the individual farmer regarding their socio-economic status were also collected. The study revealed that more than half of the respondents (55.00 %) belonged to the middle age group (31-50 years) followed by old age group (51 and above) to the extent of 23.00 per cent. About one-third of respondents (36.00%) were metric, followed by 20.00 per cent having education level of higher secondary. About three-fourth (72%) farmers having farming experience up 30 years, and remaining 28.00 per cent of them having farming experience more than 30 years. As for as land holding of respondents is concerned, the maximum respondents (44.00%) were having land up to 5 acres followed 5 to10 acres (38%). Majority of the respondents (78.00%) had agriculture as main occupation followed by Agriculture plus allied occupation (15.00%).

In case of awareness level of farmers about use of soil health cards in crop management practices, the 45.00 per cent of respondents were moderately aware while 30.00 per cent fully aware about the SHC scheme. Majority of the respondents were aware to fully aware that it is a Government of India scheme. They were also aware that soil health card helps to reduce input cost, shows the nutrient status, contains soil type information, cropping pattern, crop sequence and soil nutrient status. The data further reveals that majority (> 70.00%) of the respondents had awareness that SHC helps in maintaining soil fertility and use of inorganic fertilizers, increase in productivity of crops and encourage in judicious use of fertilizers to the extent of 64.00 per cent. However, majority of them were not aware about world soil day (83.00%), SHC web-portal (70.00%), SHC issued for three years (62.00%). A majority of farmers (72.00%) were not aware that SHC tells about plantation of horticultural crops.

The data pertaining to use of soil health cards in selection and management practices of different crops revealed that more than half (52.00%) of the respondents used soil health cards as it gives the idea of fertilizer used pattern followed by use of soil health cards, it helps to increase farm income by applying recommended fertilizer dose at appropriate time (48.00%), in selection of rabi and kharif crops and provide information about crops grown suited to soil types (42.00%), respectively. Respondents also uses soil health cards as it helps in maintaining soil structure and soil texture, reduce soil degradation, improve in quality of produce, provide the dosages of lime and gypsum.

<sup>1</sup>Professor (Extension Education), Department of Extension Education, COA, CCSHAU, Hisar

<sup>2</sup>District Extension Specialist (Extension Education), CCSHAU, Krishi Vigyan Kendra, Fatehabad

## INTRODUCTION:

Soil health and fertility is the basis for sustainable profitability of the farmers. Using optimal doses of fertilizers and cropping pattern as per the scientific recommendation is the first step towards sustainable farming. Soil testing is a science based and time-tested tool for assessment of soil fertility status and soil ailments and for nutrient amendment recommendations. Soil testing, as a tool for judicious fertilizer use, works on the principle of profitability, meaning if all other factors of production are at optimum and none of them limiting, there is all probability to obtain more profitable response to applied nutrients based on soil testing than those applied on adhoc basis. In India, the current consumption of NPK ratio is 6.7:2.4:1, which is highly skewed towards nitrogen as against ideal ratio of 4:2:1. India is spending nearly Rupees Seventy thousand crore on fertilizer subsidy every year. According to the estimates, subsidy amount is about Rs.5000/ha of net cropped area and about Rs.5100/farmer resulting in excessive use of fertilizers, especially NPK at the cost of micro-nutrients and manure (Reddy, A. 2017).

Hence, there is a need for balanced use of fertilizers, keeping this government of India introduced Soil Health Card Scheme across India (GoI, 2017). On 5th December 2015 the Ministry of Agriculture introduced the soil health card (SHC) scheme. The SHC scheme has been approved for implementation during the remaining period of 12th plan. SHC will be provided to all farmers in the country at an interval of 2 years to enable the farmers to apply recommended doses of nutrients based on soil test values to realize improved and sustainable soil health and fertility, low costs and higher profits. The injudicious and unbalanced use of chemical fertilizers in agriculture is a matter of concern in recent times (Patel and Chauhan, 2012). Soil is one of the elements required for farming as it provides nutrients to the plant and healthy soil containing all the elements for growth and development of crop. On the other hand, soil deprived of one or more elements either reduces production or degrades quality of crops. To avoid deterioration of soil in long run and visualizing the importance of balance nutrient in crop production, the Government of India launched Soil Health Cards (SHC) Scheme in February 2015. The soil health card is made available online also for the farmers and 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 (Patel and Chauhan, 2012). It is one of the important approaches in agriculture for the sustainable production, which serves as a natural nutrient source for growth of plants (Charelet al, 2018). The present study was made to know the usage of soil health card and farmers' awareness on usage pattern of soil health card in selection and management practices of different crops.

## MATERIALS AND METHODS:

The study was conducted from ten randomly selected villages. viz. Dangra, Haroli, Jandli Kalan, Chandrawal, Gorakhpur, Bajailpur, Dhani-Bikaneri, Hasanga, Dhani Maghawali and Dhani-Dult from Fatehabad district (Haryana), India. Out of these villages 10 farmers from each village were selected randomly to make the sample size of 100 for the study. The data were collected through well structured farmers' interview schedule regarding usage pattern of soil health card in selection and management practices of different crops by the farmers of the district. The basic information of the individual farmer regarding their socio-economic status were also collected. The collected data was analyzed, tabulated, interpreted and conclusion were drawn.

## RESULTS AND DISCUSSION:

### Socio-Personal attributes of Farmers:

The data in table 1 revealed that more than half of the respondents (55.00 %) belonged to the middle age group (31-50 years) followed by old age group (51 and above) to the extent of 23.00 per cent. The remaining 22.00 per cent belonged to young age group (up to 30 years). The data also reported that about one-third of respondents (36.00%) were metric, followed by 20.00 per cent and 15.00 per cent, 10.00 per cent, 9.00 per cent, 8.00 per cent were having education level of higher secondary, primary, graduate and illiterate, respectively. Only 2.00 per cent of the respondents having post graduate education qualification. In case of farming experience, the data revealed that majority of respondents (72.00%) having farming experience up to 30 years. 28.00 per cent of the respondents were having farming experience more than 30 years. As for as land holding of respondents is concerned, the data in table 1 showed maximum respondents (44.00%) were having land up to 5 acres followed by land holding (above 5-10 acres) to the extent of 38.00 per cent, 13.00 per cent of respondents having land ranged from above 10 to 15 acres. The remaining (5.00%) respondents had land more than 15 acres. Majority of the respondents (78.00%) had agriculture as main occupation followed by Agriculture plus allied occupation (15.00%) and only 7.00 per cent respondents had occupation of agriculture plus service.

### Farm Implements Possessed by the Farmers:

The data in table 2 depicts that about half of the respondents (48.00 %) had tractor followed by harrow (42.00 %), seed cum fertilizer drill & rotavator /TMS to the extent of 32.00 per cent, zero till seed drill (12.00%) laser land leveler (05.00%) and pumping sets (2.00%), respectively. Majority of the respondents having knap-sack sprayer and tube well /submersible as source of irrigation to the extent of 82.00 per cent and 74.00 per cent, respectively.

### Mass Media Exposure of Farmers:

It is indicated from table 3 that viewing of Television ranked first with weighted mean score of 1.61, followed by reading newspaper ranked second, listening radio ranked third, online solution ranked fourth, reading magazines ranked fifth and visit of Kisan Sewa Kendra ranked sixth with weighted mean score of 0.87, 0.70, 0.28, 0.19 and 0.07, respectively for seeking information.

### Extension Contact of Farmers:

It is revealed from the table 4 that among the extension contact of farmers, the most popular were the progressive farmers with weighted mean score 2.03. ADO and SDAO/SMS ranked second and third with weighted mean score of 1.83 and 1.73, followed by scientists and others ranked at fourth and fifth with weighted mean score of 1.45, 0.42, respectively.

### Awareness of Farmers about Soil Health Card (SHC) Scheme:

It is evident from the data presented in table 5 that 45.00 per cent of respondents were aware about soil health card scheme while 30.00 per cent respondents were fully aware about soil health card scheme. Majority of the respondents were aware to fully aware that it is a Government of India scheme. Respondents were also aware that soil health card helps to reduce input cost, shows the nutrient status, contains soil type information, cropping pattern, crop sequence and soil nutrient status. The data further reveals that majority (more than 70.00%) of the respondents

had awareness that SHC helps in maintaining soil fertility and use of inorganic fertilizers. Respondents' awareness regarding soil health cards to increase in productivity of crops and encourage in judicious use of fertilizers to the extent of 64.00 per cent. However, respondents were not aware about world soil day (83.00%), SHC web-portal (70.00%), SHC issued for three years (62.00%) and mobile phone application for soil health cards (07.00%). A vast majority of respondents (72.00%) were not aware that SHC tells about plantation of horticultural crops.

### Usage pattern of Soil Health Card in selection and management practices of different crops:

The data pertaining to use of soil health cards in selection and management practices of different crops presented in table 6 revealed that more than half (52.00%) of the respondents used soil health cards as it gives the idea of fertilizer used pattern followed by use of soil health cards as it helps to increase farm income by applying recommended fertilizer dose at appropriate time (48.00%), in selection of *Rabi* and *Kharif* crops and provide information about crops grown suited to soil types to the extent of 42.00 per cent, respectively. Respondents also uses soil health cards as it helps in maintaining soil structure and soil texture, reduce soil degradation, improve in quality of produce, provide the dosages of lime and gypsum.

**Table 1: Socio-personal attributes of Respondents (N=100)**

S. No.	Variables	Category	Percentage
1.	Age	Young (up to 30)	22.00
		Middle(31-50 years)	55.00
		Old (51 and above)	23.00
2.	Education	Illiterate	08.00
		Primary	15.00
		Middle	10.00
		Matriculation	36.00
		Higher secondary	20.00
		Graduate	09.00
		Post graduate	02.00
3.	Farming Experience	Up to 15 years	28.00
		16-30 years	44.00
		>30 years	28.00
4.	Land holding	Landless	00.00
		Less than 1 acre	00.00
		Above 1 and up to 5 acres	44.00
		Above 5 and up to 10 acres	38.00
		Above 10 to 15 acres	13.00
		Above 15 acres	05.00
5.	Occupation	Agriculture	78.00
		Agriculture + Allied occupation	15.00
		Agriculture + Service	7.00

**Table 2: Farmimplements****N=100**

Sr. No.	Farm implements	Percentage
1	Tractor	48.00
2	Harrow	42.00
3	Seed cum fertilizer drill	32.00
4	Zero Till Seed Drill	12.00
5	Laser land leveler	05.00
6	Pumping sets	02.00
7	Tube-well/Submersible	74.00
8	Sprayer pump (Knap Sack)	82.00
9	Any others (Rotavator/TMSP)	32.00

**Table 3: Mass Media Exposure****N=100**

Sr. No.	Mass media	Used	Extent of utilization			Total score	Weighted mean score	Rank order
			Daily (3)	Often (2)	Sometimes (1)			
1	Radio	42 (42.00)	04(12)	20(40)	18 (18)	70	0.70	III
2	TV	75 (75.00)	32 (96)	22 (44)	21 (21)	161	1.61	I
3	Newspaper	33 (33.00)	23 (69)	08(16)	02(2)	87	0.87	II
4	Magazines	12 (12.00)	00 (0)	07 (14)	05 (5)	19	0.19	V
5	Kisan Sewa Kendra	04 (04.00)	00 (0)	03(6)	01 (1)	7	0.07	VI
6.	Online solution	12 (12.00)	05 (15)	06 (12)	01 (1)	28	0.28	IV

**Table 4: Extensioncontact****N=100**

Sr. No.	Extension Official	Frequency of contact				Total score	Weighted mean score	Rank order
		Weekly (4)	Fortnightly (3)	Monthly (2)	Whenever Needed (1)			
1	ADO	8(32)	22(66)	18(36)	30 (30)	183	1.83	II
2	SDAO/SMS	10(40)	18 (54)	05(10)	69(69)	173	1.73	III
3	Scientists	10(40)	15(45)	04(8)	52(52)	145	1.45	IV
4	Progressive farmers	22(88)	11(33)	18(36)	46(46)	203	2.03	I
5	Others	00(0)	00(0)	00(0)	42(42)	42	0.42	V



**Table 5: Awareness about Soil Health Card (SHC) Scheme****N=100**

Sr. No	Statements	Awareness level (%)		
		Fully aware	Aware	Not aware
1.	Awareness about soil health card (SHC)	30.00	45.00	25.00
2.	SHC studies the health of soil.	44.00	32.00	24.00
3.	SHC schemes issue soil cards to farmers.	32.00	38.00	30.00
4.	SHC is a Govt. of India's scheme	36.00	32.00	32.00
5.	SHC helps to reduce the input cost	22.00	26.00	52.00
6.	Soil Health Card shows soil nutrient status.	24.00	28.00	48.00
7.	SHC contains the soil type information	32.00	30.00	38.00
8.	SHC contains the cropping pattern information	21.00	23.00	56.00
9.	SHC contains the crop sequence information	22.00	25.00	53.00
10.	SHC tells the information on fertilizer usage	34.00	26.00	40.00
11.	SHC advise on fertilizers dosage	24.00	22.00	54.00
12.	SHC helps the farmers for use of inorganic fertilizers	39.00	31.00	30.00
13.	SHC helps in maintaining soil fertility	42.00	32.00	26.00
14.	SHC increases productivity of crops	31.00	33.00	36.00
15.	SHC encourage judicious application of fertilizers	28.00	36.00	36.00
16.	SHC helps to diagnose soil-related constraints	23.00	33.00	44.00
17.	SHC identifies the requirements of different nutrients	24.00	46.00	30.00
18.	Awareness about the soil fertility map	22.00	28.00	50.00
19.	SHC is issued for 3 years	18.00	20.00	62.00
20.	Knowledge about mobile phone application for SHC	15.00	25.00	60.00
21.	Awareness about SHC Web portal	12.00	18.00	70.00
22.	Knowledge about the plans to distributing the SHC till 2017	22.00	24.00	54.00
23.	Knowledge about World Soil Day	5.00	12.00	83.00
24.	SHC tells about plantation of horticultural crops	12.00	16.00	72.00

**Table 6: Usage pattern of Soil Health Card in selection and management practices of different crops**

S. No.	Aspects	Percentage
1.	SHC helps in selection of crops (Kharif & Rabi)	62.00
2.	SHC helps in adoption of crop rotation	58.00
3.	SHC helps in future cropping pattern	56.00
4.	SHC provides the irrigation schedule	42.00
7.	SHC helps to improve the quality of produce	24.00
8.	SHC effects the water logging condition	26.00
9.	SHC helps to reduce the soil degradation	42.00
10.	SHC helps to maintain soil structure & texture	44.00
11.	SHC helps to increase the organic matter in soil	48.00
12.	SHC gives the idea of fertilizers usage pattern	42.00
13.	SHC provides the dose of farm yard manure (FYM)/compost	38.00
14.	SHC helps in timely management of fertilizers	42.00
15.	SHC helps to increase farm income by applying recommended fertilizers dosage at appropriate time	48.00
16.	SHC provides the dose of lime and Gypsum	28.00
17.	SHC provides information about crop grown suited to soil type	42.00

**REFERENCES:**

- Charel, J. M., Vejapara, V. P., Parmar, V. S. and Baria, N. (2018). Perception of Farmers about the Soil Health Card. Int. J. Curr. Microbiol. App. Sci.,7(2): 3233-3236.
- Dudi, A. and Meena, M.L. (2016). Awareness about cotton production technology of farmer in Western Rajasthan. Journal of Cotton Research and Development. 30(2): 310-312.

- Dwivedi, N. (2007). A study on factor affecting the adoption level of different category of soybean growers of Saikheda block of Narsinghpur district. M.Sc. (Ag.) Thesis, JNKVV, Jabalpur
- Dwivedi, B.S. and Meena, M.C. (2015).Soil Testing Service - Retrospect and Prospects. Indian Journal of Fertilisers. 11(10): 110-122.
- Patel, J.K. and Chauhan, N.B. (2012). Attitude of farmers towards soil health card(SHC) programme. Asian J. Soil Sci.7(1): 114-116.
- Reddy, A. Amarender. (2017) Impact Study of Soil Health Card Scheme, National Institute of Agricultural Extension Management (MANAGE), Hyderabad-500030, Pp.210.

