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Awareness on Soil Health Management Scheme by Farmers of Tumakuru District in Karnataka

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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

The present study was carried out in 23 Raitha Samparka Kendras inGubbi ,Kunigal, Madhugiri and Tumakuru taluks of Tumakuru district in Karnataka state to know the extent of awareness of farmers regarding Soil Health Management Scheme (SHMS). Thirty beneficiary farmers of SHMS were randomly selected from 12 RSKs for the study. A pre-tested schedule was used to collect relevant data from the respondents. The results revealed that half of the beneficiary farmers (50.00%) had more awareness about SHMS, whereas one-third (33.33%) and 16.67 per cent of the beneficiary farmers were awareness and less awareness regarding the SHMS, respectively. A vast majority of the farmers were aware of the objectives, interventions, mode of operation, selection criteria of beneficiaries and subsidy on various agricultural inputs pertaining to SHMS.A simple majority of the farmers (53.33%) had contacted Assistant Agricultural Officer for obtaining information on SHMS, while half of the farmers (50.00% each) had contacted Agricultural Officer and Agricultural Assistant for obtaining information regarding SHMS. The results of path analysis revealed that extension agency contact of farmers had direct and indirect effect on the extent of awareness on SHMS. The first, second and third largest indirect effect channelled through is extension agency contact (X9) in the case of five variables, mass media participation (X8) in the case of five variables and education (X1) in the case of three variables, respectively.

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1. 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 [1]. Soil Health Management Scheme (SHMS) is one of the most popular programme of National Mission for Sustainable Agriculture (NMSA) sponsored by Central government during the 12th five year plan. SHM aims at promoting Integrated Nutrient Management through judicious use of chemical fertilizers including secondary and micro nutrients in conjunction with organic manures and bio-fertilizers for improving soil health and its productivity. Fifty per cent subsidy is given to all category of farmers for purchase of organic manure and micronutrients.It is high time to know about the extent of awareness of beneficiary farmers regarding the Soil Health Management Scheme, In this backdrop, the present study was undertaken with the following specific objectives:

1. To know the extent of awareness of farmers on Soil Health Management Scheme
2. To analyze the extent of extension agency contact of farmers
3. To find out the direct, indirect and largest direct effects of profile characteristics of farmers on the extent of awareness on Soil Health Management Scheme

2. METHODOLOGY

The present study was conducted during 2017-2018 in Tumakuru district of Karnataka State. Tumakuru district is purposively selected for the study since it had the highest number of RaithaSamparkaKendras (50 Nos.) among the 30 districts of Karnataka state (748 Nos.).Tumakuru district comprises of ten taluks, having 50 Hoblis (sub- blocks) and 50 RSKs. Four taluks namely, Gubbi (6 Nos.), Kunigal (6 Nos.), Madhugiri (6 Nos.) and Tumakuru (6 Nos.) were purposively selected for the study, since these four taluks were having maximum number of RSKs among the ten taluks of Tumakuru district.Thirty beneficiary farmers of SHMS wererandomly selected from 12 RSKs for the study. The farmers who provided the required information voluntarily were personally interviewed using a pre-tested schedule. Ex-post-facto research design was adopted for the present study.

Awareness of farmers regarding Soil Health Management Scheme (dependent variable) is operationalized in the present study as 'the extent of farmer's ability to know about the objectives, interventions, mode of operation, selection criteria of beneficiaries, subsidy on various agricultural inputs etc., available under Soil Health Management Scheme'. A list of ten awareness statements on SHMSwere prepared covering aspects such as the objectives, interventions, mode of operation, selection criteria of beneficiaries, subsidy on various agricultural inputs etc., Each statement had two possible responses namely, 'Aware' and 'Not aware' with the score of 1 and 0, respectively. Minimum and maximum score one could get was 0 and 10, respectively. The score obtained for all the ten awareness statements was added to arrive at the total awareness score of the respondents. Later, the respondents were grouped into three categories namely, less aware, aware and more aware based on mean (7.55) and half standard deviation (1.88).

Category	Criteria	Awareness score
Less aware	< (Mean – ½ SD)	<6.61
Aware	(Mean± ½ SD)	6.61 -8.49
More aware	>(Mean + ½ SD)	>8.49

Information regarding 15 personal, socio-economic, psychological and communication characteristics (independent variables) of farmers were measured using a structured schedule with suitable scales. Of the 15 independent variables selected for the study, only nine independent variables {education (X_1), achievement motivation (X_2), management

orientation (X_3), scientific orientation (X_4), risk orientation (X_5) innovativeness (X_6), cosmopoliteness (X_7), mass media participation (X_8) and extension agency contact (X_9)} were having significant to highly significant association with the awareness level of farmers on SHMS. These nine independent variables were considered to find out the direct, indirect and largest direct effects on the extent of awareness of farmers on Soil Health Management Scheme.

The collected data was scored, tabulated and analyzed using frequency, percentage, mean, standard deviation and path analysis.

3. RESULTS AND DISCUSSION

3.1 Awareness of Farmers on Soil Health Management Scheme

It is observed from Table 1 that two-third of the farmers (66.67%) were 'not aware' of the statement 'SHM is a centrally sponsored scheme', whereas a greater majority of the farmers were 'aware' about the awareness statements like : Ten farmers are selected for conducting front line demonstrations by each soil testing laboratory (93.33%), field demonstration is carried out in one acre of farmers land under the strict supervision of extension personnel (93.33%), details about the beneficiaries, interventions implemented, budget incurred etc., in the village should be displayed at panchayat office/public place in the locality (93.33%), SHM promotes the reclamation of problem soils (acidic/saline/alkaline) through appropriate use of soil amendments (90.00%), one day farmers fair is conducted to demonstrate the usefulness of balanced and soil based fertilization practices (90.00%), SHM follow cluster approach for promoting balanced use of fertilizers and soil based fertilization practices (86.67%), panchayats are entrusted to oversee the day to day process of implementation of SHM (86.67%), organic manure inputs and micronutrients are provided at 50 per cent subsidy to the farmers (86.67%), and SHM promotes integrated nutrient management through judicious use of chemical fertilizers (83.33%).

The results in Table 1 also reveals that one-third of the farmers (33.33%) were 'aware' of the statement 'SHM is a centrally sponsored scheme', while less than one-fifth of the farmers were 'not aware' of the statements like: SHM promotes integrated nutrient management through judicious use of chemical fertilizers (16.67%), SHM follow cluster approach for promoting balanced use of fertilizers and soil based fertilization practices (13.33%), organic manure inputs and micronutrients are provided at 50 per cent subsidy to the beneficiary farmers (13.33%), panchayats are entrusted to oversee the day to day process of implementation of SHM (13.33%), SHM promotes the reclamation of problem soils (acidic/saline/alkaline) through appropriate use of soil amendments (10.00%), one day farmers fair is conducted to demonstrate the usefulness of balanced and soil based fertilization practices (10.00%), ten farmers are selected for conducting front line demonstrations by each soil testing laboratory (6.67%), field demonstration is carried out in one acre of farmers land under the strict supervision of extension personnel (6.67%) and details about the beneficiaries, interventions implemented, budget incurred *etc*., in the village should be displayed at panchayat office/public place in the locality (6.67%).

It can be inferred from the above results that a vast majority of the farmers were aware of the objectives, interventions, mode of operation, selection criteria of beneficiaries, subsidy on various agricultural inputs etc., of SHMS.

3.2 Overall Awareness of Farmers on Soil Health Management Scheme

The results in Table 2 reveals that half of the beneficiary farmers (50.00%) had more awareness about SHMS, whereas one-third (33.33%) and 16.67 per cent of the beneficiary farmers were awareness and less awareness regarding the SHMS, respectively. It can be concluded that a vast majority of the beneficiary farmers (88.33%) had awareness to more awareness about the objectives, interventions, mode of operation, selection criteria of beneficiaries, subsidy on various agricultural inputs etc., available under Soil Health Management Scheme. Regular participation of farmers in extension activities of RSKs, frequent contact with agricultural extension functionaries and propaganda about SHMS through mass media and display of information on SHMS at RSKs are the major reasons for a vast majority of the respondents (83.33%) for having medium to high level of overall awareness on SHMS. More or less similar findings were reported by Siddeswara [2], Vanitha [3] and Thirumoorthy and Geetha [4].

Table 1. Awareness of farmers on Soil Health Management Scheme (n=30)

Sl. No.	Awareness statements	Farmers			
		Aware		Not aware	
		No.	%	No.	%
1.	SHMS is a centrally sponsored scheme	10	33.33	20	66.67
2	SHMS follow cluster approach for promoting balanced use of fertilizers and soil based fertilization practices	26	86.67	04	13.33
3	SHMS promotes integrated nutrient management through judicious use of chemical fertilizers	25	83.33	05	16.67
4	SHMS promotes the reclamation of problem soils (acidic/saline/alkaline) through appropriate use of soil amendments	27	90.00	03	10.00
5	Ten farmers are selected for conducting front line demonstrations by each soil testing laboratory	28	93.33	02	06.67
6	Field demonstration is carried out in one acre of farmers land under the strict supervision of extension personnel	28	93.33	02	06.67
7	Organic manure inputs and micronutrients are provided at 50 per cent subsidy to the beneficiary farmers	26	86.67	04	13.33
8	One day farmers fair is conducted to demonstrate the usefulness of balanced and soil based fertilization practices	27	90.00	03	10.00
9	Panchayats are entrusted to oversee the day to day process of implementation of SHMS	26	86.67	04	13.33
10	Details about the beneficiaries, interventions implemented, budget incurred *etc*., in the village should be displayed at panchayat office/public place in the locality	28	93.33	02	06.67

Table 2. Overall awareness of farmers on Soil Health Management Scheme (n=30)

Sl. No.	Awareness category	Farmers	
		No.	%
1	Less aware (<6.61 score)	05	16.67
2	Aware (6.61-8.49)	10	33.33
3	More aware (>8.49 score)	15	50.00
Total		30	100.00
Mean			7.55
Standard deviation			1.88

A vast majority of farmers (83.33%) were aware of SHMS scheme. Farmers who are aware of SHMS scheme will obviously develop good perception towards SHMS Scheme and these farmers practicing judicious use of chemical fertilizers including secondary and micro nutrients in conjunction with organic manures and bio-fertilizers for improving soil health and its productivity.

3.3 Extension Agency Contact of Farmers

A bird eye view of Table 3 reveals that a simple majority of the farmers (53.33%) had contacted Assistant Agricultural Officer for obtaining information on SHMS, whilehalf of the farmers (50.00% each) had contacted Agricultural Officer and Agricultural Assistant for obtaining information regarding SHMS. Less than half of the farmers had contacted Farm scientist (33.33%), Assistant Director of Agriculture (6.66%) and Joint Director of Agriculture (3.33%) for obtaining information regarding SHMS. Each RSK is headed by an Agricultural Officer (Agricultural Graduate) duly supported by Assistant Agricultural Officers and Agricultural Assistants. Farmers can visit these RSKs personally and get the required information or they can also contact the RSKs over phone to obtain the information about improved practices in agriculture and agriculture development programmes. Hence, more number of farmers have contacted Agricultural Officer, Assistant Agricultural Officer and Agricultural Assistant for

obtaining information on SHMS. More over the above personnel are formal, accessible at village or taluk level, trustworthy and technically competent in agriculture and development programmes, hence farmers have contacted these agriculture extension personnel for getting information about SHMS.

The results in Table 4 also revealed that more number of farmers had high level of extension agency contact, whereas 26.66 per cent of the farmers had medium level of extension agency contact and the remaining number of farmers (23.34%) had low level of extension agency contact. It can be inferred that more than three-fourth of the farmers had medium to high level of extension agency contact. A larger number of farmers had contact the agricultural extension agency at Raitha Samparka Kendras to get information about the benefits of agricultural development programmes including SHMS. Similar findings were reported by Hiremath [5] and Madhushree [6].

3.4 Direct, Indirect and Largest Direct Effects of Profile Characteristics of Farmers on the Extent of Awareness on Soil Health Management Scheme

The path co-efficient of independent variables (personal, socio-economic, psychological and communication characteristics of farmers) with respect to their direct effects, total indirect effects and largest indirect effects channelled through other independent variables on the awareness level regarding SHMS are presented in Table 5.. In order to employ path analysis, nine socio-economic, psychological and communication characteristics of farmers which were found to be having significant to highly association with the awareness level of farmers on SHMS were considered for the research study. It is observed from Table 5 that all the nine independent variables selected for path analysis had positive direct effect on the extent of awareness of farmers on Soil Health Management Scheme.

Ranking variables based on their direct effect on awareness level of farmers regarding SHMS, variable such as extensionagency contact (X_9), mass media participation (X_8), education (X_1), innovativeness (X_6), achievement motivation (X_2) and scientific orientation (X_4) occupied first six ranks in that order, whilemanagement orientation (X_3), risk orientation (X_5) and cosmopoliteness (X_7) secured the last three ranks in the same order.

In respect of ranking variables based on their indirect effect on awareness level of farmers regarding SHMS, variables such as extension agency contact (X_9), education (X_1), mass media participation (X_8), achievement motivation (X_2), innovativeness (X_6) and scientific orientation (X_4) were ranked first six ranks followed by risk orientation (X_5), management orientation (X_3) and cosmopoliteness (X_7) occupying the last three ranks in the order of importance.

Table 3. Extension agency contact of farmers

(n=30)

Sl. No.	Particulars*	Farmers	
		No.	%
1	Joint Director of Agriculture	1	3.33
2	Assistant Director of Agriculture	2	6.66
3	Agricultural Officer	15	50.00
4	Assistant Agricultural Officer	16	53.33
5	Farm scientist	10	33.33
6	Agricultural Assistant	15	50.00

**Multiple response*

Table 4. Overall extension agency contact of farmers

(n=30)

Sl. No.	Awareness category	Farmers	
		No.	%
1	Low	07	23.34
2	Medium	08	26.66
3	High	15	50.00
Total		30	100.00

Table 5. Direct, indirect and largest direct effects of profile characteristics of farmers on the extent of awareness on Soil Health Management Scheme

(n=30)

Sl. No.	Characteristics	Direct effect	Rank	Total indirect effect	Rank	Three largest indirect effect channeled through
X1	Education	0.199	3	0.190	2	0.118 X9 0.102 X8 0.091 X1
X2	Achievement motivation	0.171	5	0.121	4	0.192 X9 0.119 X8 0.092 X1
X3	Management orientation	0.099	7	0.561	8	0.173 X9 0.169 X8 0.029 X3
X4	Scientific orientation	0.162	6	0.978	6	0.166 X9 0.161 X8 0.121 X5
X5	Risk orientation	0.060	8	0.812	7	0.992 X9 0.720 X8 0.120 X4
X6	Innovativeness	0.181	4	0.110	5	0.171 X8 0.151 X1 0.048 X3
X7	Cosmopoliteness	0.012	9	0.401	9	0.361 X8 0.301 X9 0.269 X1
X8	Mass media participation	0.220	2	0.122	3	0.068 X1 0.059 X9 0.041 X8
X9	Extension participation	0.222	1	0.192	1	0.123X1 0.099X9 0.081X8

Residual effect: 0.311

The first, second and third largest indirect effect channelled through is extension agency contact (X9) in the case of five variables, mass media participation (X8) in the case of five variables and education (X1) in the case of three variables, respectively. The total residual effect was found to be 0.311.

4. CONCLUSION

The study results revealed that half of the beneficiary farmers (50.00%) had more awareness about SHMS, whereas one-third (33.33%) and 16.67 per cent of the beneficiary farmers were awareness and less awareness regarding the SHMS, respectively. Further, education, mass media participation and extension agency contact have greatly influenced the farmers in creating awareness on Soil Health Management Scheme. Hence, the farmers should be in regular contact with the agricultural extension functionaries for deriving more benefits of SHMS. Further, the State Department of Agriculture and other concerned agencies should also popularize the SHMS through mass media (radio, newspaper, television etc.) and display the same at Raitha Samparka Kendras would help in creating awareness among farmers for taking full advantages of the Soil Health Management Scheme.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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