ASSOCIATION BETWEEN FARMERS' PERSONALITY TRAITS AND AWARENESS TOWARDS SOIL PARAMETERS

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Abstract: The present study was carried out to study the socio-economic profile and awareness level about soil parameters of respondents. Haryana is divided into two Agro-Climatic zones such as North Eastern Zone and South Western Zone. From each zone two districts will be selected purposively viz. Kurukshetra and Karnal from North-Eastern zone and Bhiwani and Rewari from South-Western zone. Total sample size of 240 respondents was selected for collecting the data. The majority of the respondents were middle age group, 90 per cent were literate from primary to graduate or above and maximum 49.17 percent respondents had medium Socio-economic status (SES). Majority of the respondents had low mass media exposure and extension contacts. Respondents had high awareness about soil texture, soil colour and crops which are suitable for their soil. Education and SES were found significantly correlated with awareness of respondents about soil parameters.

Keywords: Awareness level, Soil parameters, Correlation, Farmers

INTRODUCTION

Soil is a mixture of organic matter, minerals, gases, liquids and organism that together support life. Earth's body of soil is the pedosphere, which has four important functions: it is a medium for plant growth; it is a means of water storage, supply and purification; it is a modifier of Earth's atmosphere; it is a habitat for organisms; all of which, in turn, modify the soil. The mineral components of soil are sand, silt and clay, and their relative proportions determine a soil's texture. Properties that are influenced by soil texture include porosity, permeability, infiltration, shrink-swell rate, water-holding capacity, and susceptibility to erosion. At the next larger scale, soil structures called peds or more commonly soil aggregates. Soil structure often gives clues to its texture, organic matter content, biological activity, past soil evolution, human use, and the chemical and mineralogical conditions under which the soil formed. While texture is defined by the mineral component of a soil and is an innate property of the soil that does not change with agricultural activities, soil structure can be improved or destroyed by the choice and timing of farming practices. Soil temperature and colour are self-defining. Resistivity refers to the resistance to conduction of electric currents (Anonymous, 2018). Soil pH generally refers to the degree of soil acidity or alkalinity. The pH scale ranges from 0 to 14; a pH of 7 is considered neutral. If pH values are greater than 7, the solution is considered basic or alkaline; if they are below 7, the solution is acidic.

Soil quality is often referred to as "Soil Health" because of objectives similar to the monitoring and maintenance of human health. The soil quality concept emphasizes an ecological approach to land management. Management actions don't have simple, single effects in complex systems, such as soil. Management has multiple effects, both direct and indirect. For example, tillage is used to loosen surface soil, prepare the seedbed, and control weeds and pests. But tillage can also break up soil structure, speed the decomposition and loss of organic matter, increase the threat of erosion, destroy the habitat of helpful organisms, and cause compaction (Anonymous, 2011).

Soil quality assessment methods provide a framework for comparing management tradeoffs and deciding which management options provide the greatest good, whether for one's farming operation or at a watershed or regional scale.

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Among the different categories, lands under cultivation face the biggest problem followed by grazing land and pastures, forests, barren lands, and unculturable lands in decreasing order. A healthy resource base is essential to agriculture and the sector's ability to drive household and national economic development. In the coming years, most of the increase in population will occur in developing world and will account for about 85 per cent of the increase in demand for cereals and meat. Providing enough food for rapidly increasing population in developing countries like India is a continuing challenge for agricultural professionals. Due to limited availability of additional land for crop production, along with declining yield growth for major food crops has heightened concerns about agriculture's ability to feed its teeming population.

MATERIALS AND METHODS

The study was conducted in Haryana state. Haryana is divided into two Agro-Climatic zones such as North Eastern Zone and South Western Zone. From each zone two districts will be selected purposively viz. Kurukshetra and Karnal from North-Eastern zone and Bhiwani and Rewari from South-Western zone. Two blocks Thanesar and Babain from Kurukshetra; Karnal and Indri from Karnal; Siwani and Kairu from Bhiwani; and Khol and Bawal from Rewari will be selected purposively having highest nutrient deficiency and 30 respondents will be selected randomly from each block. Thus, a total of 240 farmers will be interviewed for this study.

The data was collected with the help of well-structured and pre-tested interview schedule. The responses were obtained on three-point continuum scale in case of awareness (Not aware, Aware and fully aware). Keeping in view the requirement of the study, frequency, mean, percentage, rank, correlation

coefficient and multiple regressions were calculated for the purpose of analysis and interpretation of data.

RESULTS AND DISCUSSION

Farmers' awareness towards soil parameters

Awareness is the state or ability to perceive, to feel, or to be conscious of events, objects or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. More broadly, it is the state or quality of being aware of something. This variable is being explored in terms of awareness about soil health management practices.

It is evident from the Table 1 that respondents had high awareness about 'soil texture' ranked 1st position with weighted mean score (WMS) 2.79, followed by 'soil colour' and 'crops which are suitable for your soil' ranked 2nd and 3rd position with WMS 2.01 and 1.80, respectively. Whereas, 'availability of nutrient in soil surface up to 6 inch and sub-surface soil' and 'soil fertility status' were ranked 4th and 5th position with WMS 1.50 and 1.40, respectively. Both 'aware about micro and major nutrients' and 'in every 3 years Zn should be applied in the field' ranked 6th position with WMS 1.29 (Fig. 1).

On the other hand, respondents had low awareness about 'organic matter (organic carbon) content of soil', 'pH of soil', 'the difference between soil structure and soil texture', 'effect of puddling on pH' and 'erosion promoting and controlling crops'. Difference between soil structure and soil texture was not known by respondents because these are technical terms which are not earlier discussed with farmers by anyone, they also not aware about the effect of puddling on pH because pH is a scientific term or if aware, they are not know that pH is related with availability of nutrients. Study got strength from the research findings of Mousavi, *et al.* (2009).

Table 1. Farmers' awareness towards soil parameters   (N=240)

S. No.	Statements	Fully aware (%)	Aware (%)	Not aware (%)	Total Weighted Score	Weighted Mean Score	Rank Order
1	Are you aware about soil colour?	49 (20.42%)	144 (60%)	47 (19.58%)	482	2.01	II
2	Do you know your soil texture (light or heavy)?	190 (79.17%)	50 (20.83%)	00 (0.00%)	670	2.79	I
3	Do you know about PH of your	0 (0.00%)	48	192	288	1.20	VIII

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	soil?		(20%)	(80%)			
4	Do you know the difference between soil structure and soil texture?	0 (0.00%)	0 (0.00%)	240 (100%)	240	1.00	IX
5	Do you know tillage/puddling change you soil structure?	24 (10%)	48 (20%)	168 (70%)	336	1.40	V
6	Are you aware about effect of puddling on PH?	0 (0.00%)	0 (0.00%)	240 (100%)	240	1.00	IX
7	Do you aware about the organic matter (organic carbon) content of soil?	0 (0.00%)	52 (21.67%)	188 (78.33%)	292	1.22	VII
8	Do you know the availability of nutrient for plants in surface (6 inch) and sub-surface soil?	25 (10.42%)	70 (29.17%)	145 (60.42%)	360	1.50	IV
9	Do you aware about crops which are suitable for your soil?	24 (10%)	144 (60%)	72 (30%)	432	1.80	III
10	Do you know your soil fertility status?	24 (10%)	48 (20%)	168 (70%)	336	1.40	V
11	Do you aware about micro and major nutrients?	0 (0.00%)	70 (29.17%)	170 (70.83%)	310	1.29	VI
12	Do you know in every 3 years Zn should be applied in the field?	0 (0.00%)	96 (40%)	144 (60%)	336	1.40	VI
13	Are you aware about erosion promoting and controlling crops?	0 (0.00%)	0 (0.00%)	240 (100%)	240	1.00	IX
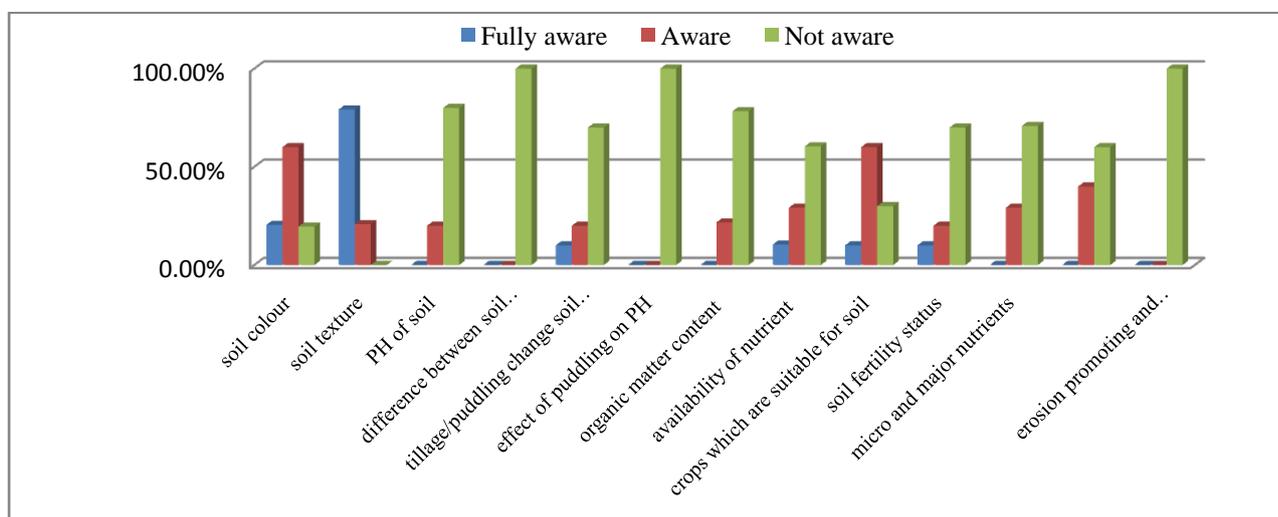
Fig.1. Farmers' awareness towards soil parameters

Relationship of respondents' personality traits with their awareness level about soil parameters

Table 2 showed that correlation coefficient between the different personality traits like education and SES with the awareness level had significant correlation at 0.05 level of probability. However, remaining traits namely, age, caste, land holding, farm inputs, farm equipments, irrigation, crop rotation, cropping pattern, agro-chemicals, SHC, mass media exposure, and extension contacts did not show any significant association with the awareness towards soil parameters (Fig. 2).

While in case of the partial regression coefficient, the farmers' SES, and extension contacts were found significant at 0.05 level of probability, whereas, age,

education, caste, land holding, farm inputs, farm equipments, irrigation, cropping system, crop rotation, agro-chemicals, SHC and MME did not significantly contribute to the awareness towards soil parameters. These finding were found to partially support by the reports of Rohilla (2018) and Rajashekar *et al.* (2017).

It was further revealed that all the independent variables jointly contributed 11.00 per cent variation in the awareness of the respondents regarding soil parameters when other factors were remaining constant. This implies that only 11.00 per cent of the variation in the dependent variable was due to these variables included in the study and remaining 89.00 per cent variations is due to other variables.

Table 2. Correlation and regression between personality traits and their awareness level

Sr. No.	Variables	Correlation Coefficient	Regression Coefficient	't' values
1	Age	0.077[NS]	0.007	0.429
2	Education	-0.162[*]	-0.199	-1.845

3	Caste	0.006[NS]	-0.111	-0.639
4	SES	0.197[**]	0.072	3.290*
5	Land Holding	-0.030[NS]	-0.027	-0.201
6	Farm Inputs	0.045[NS]	0.070	0.549
7	Farm Equipments	-0.024[NS]	-0.061	-0.580
8	Irrigation	-0.030[NS]	-0.256	-0.723
9	Cropping system	-0.047[NS]	-0.323	-0.710
10	Crop rotation	0.104[NS]	0.240	1.655
11	Agro- chemicals	0.092[NS]	0.517	1.590
12	SHC	0.049[NS]	0.096	0.652
13	MME	0.082[NS]	0.058	0.796
14	Ext. Contact	0.104[NS]	0.056	1.947*

Dependent variable- Awareness
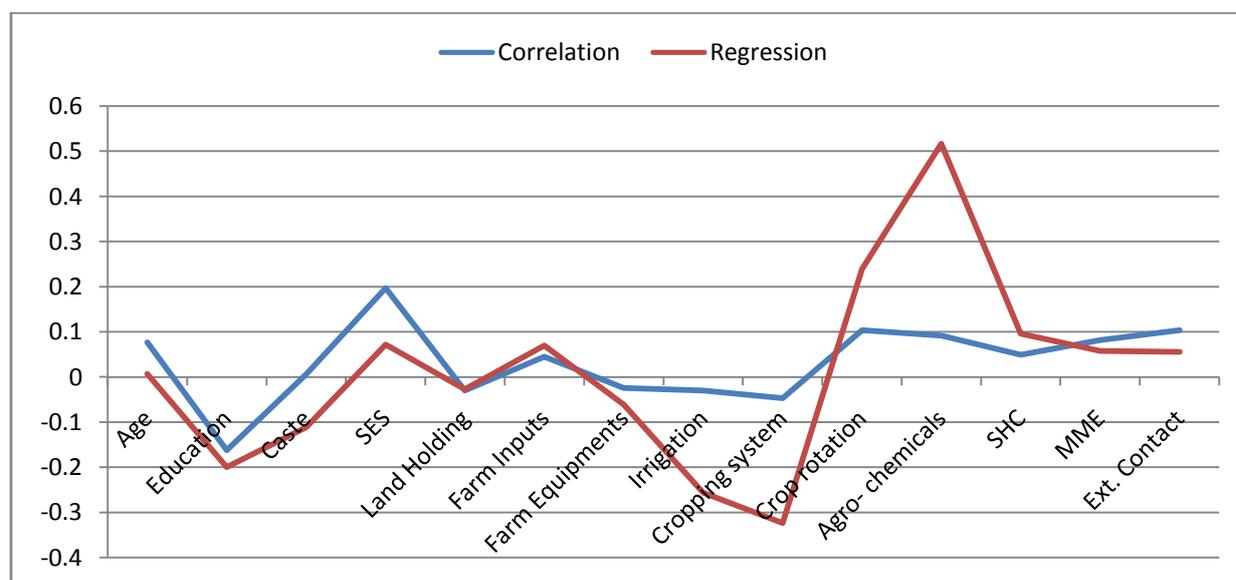*Significant at 0.05 levels
R^2=0.110

Fig.2. Correlation and regression between personality traits and their awareness level

CONCLUSION

The study revealed that there was a gap in awareness level of soil parameters. Increasing the awareness about soil parameters helps in management of soil for sustainable agriculture. Stagnation and decline in yield due to degradation of soil is one of the major constrains to current agriculture. Hence, to make the soil healthy, there is an immense need to motivate and encourage the farmers by organizing continuous trainings, lectures, campaigns and demonstrations about the soil parameters and properties.

REFERENCES

Anonymous (2018). https://en.wikipedia.org/wiki/ Soil#Physical_properties

Anonymous (2011). http://soilquality.org/assessment /assess_why.html

Mousavi, S. F., Moghadam, S. Y., Fard, B. M., Hemmat, A. and Yazdani, M. R. (2009). Effect of puddling intensity on physical properties of a silty clay soil under laboratory and field conditions. Paddy Water Environ. ,7:45–54.

Rajashekar, B., sudharani, V., Parveen, S.K.N. and Shivacharan, G. (2017). Knowledge of farmers about integrated weed management (IWM) practices in major crops. International Journal of Farm Sciences. 7(1): 33-36.

Rohilla, A.K. (2018). 'Smart agricultural practices: problems and prospects'. Ph.D. Thesis ccs hau, Hisar.