

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 3; March 2026; Page No. 163-165

Received: 09-01-2026
Accepted: 20-02-2026

Indexed Journal
Peer Reviewed Journal

Farmers perception towards use of soil health practices for crop production in Hingoli district of Maharashtra State

¹Shelke PP, ²Kharat Sainath P and ³Murai Atul M

¹Senior Scientist and Head, Krishi Vigyan Kendra, Tondapur, Kalamnuri, Hingoli, Maharashtra, India

²Subject Matter Specialist (Soil Science), Krishi Vigyan Kendra, Tondapur, Kalamnuri, Hingoli, Maharashtra, India

³Subject Matter Specialist (Agricultural Extension), Krishi Vigyan Kendra, Tondapur, Kalamnuri, Hingoli, Maharashtra, India

DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i3c.3341>

Corresponding Author: Shelke PP

Abstract

Soil is a thin, living layer of the earth's crust and a vital natural resource supporting agricultural production and human life. Soil fertility plays a fundamental role in determining crop productivity by supplying essential macro- and micronutrients to crops. However, continuous cultivation and imbalanced nutrient use have resulted in declining soil health, adversely affecting crop yields. Farmers' perception towards soil health practices is a key factor influencing the adoption of sustainable agricultural technologies. The present study was conducted during 2024-25 in Hingoli district of the Marathawada region of Maharashtra to assess farmers' perception towards the use of soil health practices for crop production. Sengaoon block was purposively selected where Krishi Vigyan Kendra, Hingoli implemented the Oilseed Model Village Programme through training and demonstrations. A total of 70 farmers from Hatala and Takoda villages were selected purposively and interviewed using a pre-tested structured schedule. The collected data were analysed using appropriate statistical tools. The results revealed that the majority (70.00%) of respondents possessed a medium level of perception regarding soil health practices, particularly soil testing. Most farmers agreed that soil testing is the first step towards scientific soil fertility management and sustainable crop production. The study highlights the importance of continuous extension support, training, and demonstrations in improving farmers' perception and adoption of soil health-based practices.

Keywords: Farmers perception, soil health practice, soil testing & crop production

Introduction

India is one of the leading agricultural countries in the world, with agriculture forming the backbone of its economy. Nearly 61.50% of the country's population depends on agriculture for livelihood. Soil, a living and dynamic natural resource, is central to agricultural sustainability as it provides nutrients, water, and a suitable environment for crop growth. It takes nearly 1,000 years to form one inch of topsoil, emphasizing the importance of soil conservation and management Chandra and Singh (2009) [4]. Soil is a natural resource, which supports the biotic life on the earth. Among several factors which influence the crop production potential, soil fertility is the fundamental factor. It is one of the important elements that is required for agriculture, as it provides various nutrients to crops. It includes primary nutrients like nitrogen (N), phosphorus (P) and potassium (K), secondary nutrients like Calcium (Ca), magnesium (Mg), and sulphur (S). Some micronutrients are also present in the soil that are very useful to plants. They include boron (B), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), zinc (Zn), nickel (Ni) and chloride (Cl). The proportion and quantity of macro and micro nutrients altogether refer to the soil health.

To overcome declining output resulting from decreasing soil fertility and productivity, farmers need to improve their production techniques. The decision to participate in new

agricultural technologies depends on farmer's perception which is a key determinant in influencing adoption (Negatu & Parikh, 1999; Adesina & Baidu-Forson, 1995) [6, 1]. Technology adoption is also influenced by perceived profitability, costs of the technology and clarity at which the new knowledge and information is communicated in a recipient population Boahene *et al* (1999) [3]. Farmers' perceptions regarding compatibility of sustainable practices with their farming systems have emerged as the best predictor of adoption of such practices Alonge and Martin (1995) [2]. Since perception refers to an individual's current appraisal of an object or program, assessing farmers' perceptions is an important means to evaluate their knowledge level on a particular issue Hikson and Keith (2000) [5]. People base their perceptions on past experience and knowledge thus; if a person has limited knowledge and experience about a technology then he cannot accurately perceive it or form an opinion on it. Hence, understanding farmers' perception towards soil health practices is essential for effective extension planning. Keeping these aspects in view, the present study entitled "Farmers' perception towards use of soil health practices for crop production in Hingoli District of Maharashtra State" was undertaken.

Methodology

The study was conducted during the year 2024-25 in

Hingoli district of the Marathwada region of Maharashtra State. The district comprises five blocks namely Hingoli, Kalamnuri, Sengaoon, Aundha Nagnath, and Vasmat. Among these, Sengaoon block was purposively selected as the Krishi Vigyan Kendra, Hingoli implemented the Oilseed Model Village Programme in this block. Hatala and Takoda villages of Sengaoon block were selected purposively where farmers had received training and demonstrations on soil health practices. Thus, a total of 70 farmers were selected

purposively as respondents for present study. Data were collected through a well-structured and pre-tested interview schedule covering socio-economic characteristics and perception towards soil health practices. Collected data were tabulated and analyzed using frequency, percentage and appropriate classification methods.

Results and Discussion

Table 1: Socio-economic profile of farmers

Sl. No.	Variable	Category	Frequency (No.)	Percentage (%)
1.	Age	Young (up to 35)	09	(12.85)
		Middle (36 to 54)	47	(67.14)
		Old (55 & above)	14	(20.00)
2.	Sex	Male	65	(92.85)
		Female	05	(07.14)
3.	Education	Can read only	09	(12.85)
		Middle	30	(42.85)
		High School	27	(38.57)
		Graduate	04	(05.71)
4.	Annual Income	Low (up to 43803/-)	14	(20.00)
		Medium (43804/- to 77853/-)	43	(61.42)
		High (77854/- & above)	13	(18.57)
5.	Source of Information	Low (up to 14)	19	(27.14)
		Medium (15 to 27)	38	(54.28)
		High (28 & above)	13	(18.57)
6.	Scientific Orientation	Low (up to 19)	15	(21.42)
		Medium (20 to 23)	43	(61.42)
		High (24 & above)	12	(17.14)
7.	Economic Motivation	Low (up to 17)	13	(18.57)
		Medium (18 to 22)	39	(55.71)
		High (23 & above)	18	(25.71)

The results indicated that 67.14 percent of the farmers belonged to the middle-age group 36-54 years. Regarding education, 42.85 percent of the respondents had education up to middle school level. A majority 61.42% of respondents belonged to the medium annual income category. More than half of the respondents 54.28% had a

medium level of sources of information, while 61.42% showed medium scientific orientation. Similarly, 55.71% of respondents exhibited medium economic motivation. These findings indicate that most farmers had moderate exposure to agricultural information and scientific practices, which influences their perception towards soil health practices.

Table 2: Statement wise perception of farmers regarding soil testing

Sl. No.	Statement	SA	A	UD	DA	SDA
1.	Soil testing is first step towards proper soil fertility management?	(59) 84.28	(03) 04.28	(04) 05.71	(00) 0.00	(04) 05.71
2.	Soil testing helps in practicing farming in scientific way	(08) 11.42	(11) 15.71	(42) 60.00	(08) 11.42	(01) 01.42
3.	Benefits of soil testing motivate nearby farmers to do soil testing	(43) 61.42	(12) 17.14	(11) 15.71	(03) 04.28	(01) 01.42
4.	Awareness campaigns conducted on benefits of soil testing in different villages motivate farmers to do soil testing	(07) 10.00	(08) 11.42	(30) 42.85	(23) 32.85	(02) 02.85
5.	Adopting of soil test recommendations helps to increase crop yield & get higher returns	(20) 28.57	(12) 17.14	(21) 30.00	(09) 12.85	(08) 11.42
6.	Soil testing is useful to adopt integrated nutrient management practices in crops by farmers.	(02) 02.85	(09) 12.85	(36) 51.42	(08) 11.42	(15) 21.42
7.	Soil testing need to be done once in every 2-3 years for crops.	(04) 05.71	(04) 05.71	(14) 20.00	(10) 14.28	(37) 52.85
8.	Soil testing is a valuable tool for farm development as it determines the inputs required for efficient economic production	(06) 08.57	(14) 20.00	(28) 40.00	(11) 15.71	(11) 15.71
9.	The technical information provided in soil testing report should be made easy in local terms.	(04) 05.71	(08) 11.42	(24) 34.28	(12) 17.14	(22) 31.42
10.	Collection of Soil sample as to be avoided in wet spots, areas near main bund, trees, dead furrows, manure heaps and irrigation channels	(03) 04.28	(16) 22.85	(24) 34.28	(09) 12.85	(18) 25.71
11.	Soil samples need to be collected by making 'V' shaped cut	(04) 05.71	(03) 04.28	(12) 17.14	(03) 04.28	(48) 68.57
12.	Soil testing can be useful & effective only if the recommendations are followed by farmers on a regular basis	(05) 07.14	(09) 12.85	(34) 48.57	(11) 15.71	(11) 15.71
13.	Problematic soils can be reclaimed by using suitable reclamation activities with the help of soil testing	(01) 01.42	(04) 05.71	(16) 22.85	(12) 17.14	(37) 52.85
14.	Application of fertilizers without lacking knowledge about nutrient needs of the soil may lead to over-fertilization & soil degradation	(11) 15.71	(05) 07.14	(23) 32.85	(25) 35.71	(06) 08.57

The statement-wise perception of farmers regarding soil testing is presented in Table 2. The findings revealed that 84.28 percent of the respondents strongly agreed that soil testing is the first step towards proper soil fertility management. About 61.42 percent agreed that the benefits of soil testing motivate nearby farmers to adopt soil testing.

Table 3: Overall perception of farmers regarding soil testing

Sl. No.	Category	Frequency (No.)	Percentage (%)
1.	Low (up to 38)	10	(14.28)
2.	Medium (39-45)	49	(70.00)
3.	High (46 & Above)	11	(15.71)

The overall perception of farmers regarding soil testing is presented in Table 3. The results showed that 70.00% of respondents had a medium level of perception regarding soil testing, while 15.71% & 14.28% of respondents had high and low levels of perception, respectively. These findings suggest that although farmers recognize the importance of soil testing, there remains scope for improving their understanding and confidence through continuous extension efforts.

Conclusion

The study on farmers' perception towards use of soil health practices for crop production in Hingoli district revealed important insights into farmers' awareness and attitudes towards soil health management. The farmers from Hatala and Takoda villages of Sengaon block demonstrated a generally favourable perception towards soil health practices, mainly due to continuous training, demonstrations, and awareness programmes conducted under the oilseed model village programme of Krishi Vigyan Kendra, Hingoli. The findings indicate that farmers increasingly recognize soil health as a foundation for sustainable crop production, improved productivity, and long-term soil fertility. The level of perception was closely associated with exposure to training, access to information, and ease of understanding soil test recommendations. Farmers with greater interaction with Krishi Vigyan Kendra, Hingoli activities perceived soil testing and soil health-based nutrient management as more economical, beneficial, and environmentally safe. The study further highlights the need for continuous follow-up, practical demonstrations, and handholding support to ensure effective adoption of soil health practices. While, promotion of regular soil testing, balanced nutrient application, micronutrient use, organic matter management, and corrective measures for problematic soils should be strengthened. Overall, the study concludes that strengthening extension interventions and enhancing farmers' knowledge are essential for promoting soil health-based agriculture and ensuring long-term agricultural sustainability in Hingoli district.

Overall, the Study Concludes that

- Farmers hold favourable perception towards soil health practices when scientific information is delivered effectively.
- Training and field demonstrations significantly improve perception and adoption of soil-based recommendations.
- Strengthening extension interventions can lead to better

soil management, reduced input cost, and improved crop productivity.

- Sustainable soil management becomes feasible when farmers clearly understand the economic and ecological benefits of maintaining soil health.

Thus, enhancing farmers' knowledge through continuous extension efforts is essential for promoting soil health-based agriculture and ensuring long-term productivity in Hingoli district.

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