



ASSESSING THE FACTORS INFLUENCING KNOWLEDGE AMONG FARMERS RELATED WITH ORGANIC FARMING IN HARYANA STATE

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ABSTRACT

The term "organic farming" refers to a broader practice than just not using synthetic chemicals in crop production. Organic farming emerged as a result of the deliberate actions of visionaries who set out to improve humanity's connection to the earth to the greatest extent feasible. Soil health and the agro-ecosystem as a whole are prioritized in order to sustain and boost agricultural output. The state of Haryana was the site of the current investigation. Fifty farmers who really use organic methods were selected at random. To that end, the study's sample consisted of 120 farmers in total. The results showed that over half of the farmers had an advanced understanding of organic farming methods, while just a small percentage had a basic understanding. By adopting organic practices, farmers can address the environmental challenges while ensuring the long-term viability and resilience of the state's agriculture sector. Promoting organic farming in Haryana is crucial for achieving sustainable development goals, safeguarding public health, and preserving the natural resources on which agriculture depends.

Keywords:Organic farming, Agriculture, Farmers, Knowledge,Management

I. INTRODUCTION

During the time of the Indus Valley Civilization, agriculture was established in the southern regions of India. Recent data shows that India is the world's second-largest producer of agricultural goods. The share of agriculture in India's GDP, however, is shrinking. Despite this, agriculture continues to be the country's primary economic driver and an important contributor to the country's social and economic progress. Therefore, agricultural progress, in which both men and women share the burden of farm work, is crucial to the country's progress. Organic farming relies heavily on byproducts from the growing process.

When it comes to maintaining soil productivity, fertility, and pest management in conditions of sustainable natural resources and a healthy environment, organic farming is a holistic production management system that favors the use of organic materials (crop residues, animal excreta, on and off farm organic wastes, growth regulators, biopesticides, etc.) and discourages the use of synthetically produced agro inputs. Indians have been



using organic farming techniques for centuries. Organic farming is a method of cultivating land and raising crops that uses organic waste, such as crop, animal, and farm waste and other biological material, along with beneficial microbes, to keep the soil alive and in good health while also benefiting the ecosystem and the environment as a whole. The use of synthetic fertilizers and pesticides is avoided in organic farming, resulting in food that is both healthy and newly harvested.

Organic farming is an agricultural approach that emphasizes the use of natural and sustainable methods to cultivate crops and raise livestock. It is a holistic system that aims to work in harmony with nature, minimizing the use of synthetic inputs such as chemical fertilizers, pesticides, and genetically modified organisms (GMOs). Instead, organic farming focuses on enhancing soil health, biodiversity, and ecological balance while producing safe and nutritious food.

The concept of organic farming has gained significant attention and recognition globally due to its potential to address various challenges faced by conventional agriculture, including soil degradation, water pollution, loss of biodiversity, and negative health impacts. Organic farming practices have been in existence for centuries, deeply rooted in traditional and indigenous agricultural systems. However, it was in the early 20th century, with the emergence of the organic agriculture movement, that the principles and practices of organic farming gained formal recognition. Organic farming has been embraced by farmers, consumers, and policymakers as a sustainable and environmentally friendly alternative to conventional agriculture. In recent years, there has been a growing demand for organic products, driven by increasing consumer awareness about the benefits of organic farming, concerns about food safety, and a desire to support sustainable agricultural practices.

Haryana, a state located in northern India, has been a significant player in India's agricultural landscape. Known as the "Granary of India," Haryana is known for its fertile soil, favorable climate, and abundant water resources, making it an ideal location for agriculture. However, like many other regions, Haryana has faced challenges related to intensive farming practices, chemical inputs, and unsustainable agricultural methods. Recognizing the need for a shift towards sustainable agriculture, Haryana has also embraced organic farming as a viable solution. The state government, in collaboration with various stakeholders, has taken several initiatives to promote and support organic farming practices. These efforts aim to enhance farmer livelihoods, protect the environment, and provide consumers with safe and nutritious food.



II. OBJECTIVES OF THE STUDY

For this study, main objectives of this study is given below: -

1. Assessing the current status of organic farming in Haryana
2. Discuss scenario of organic farming in different perspectives
3. Factors affecting farmers' knowledge towards organic farming.

III. REVIEW OF LITERATURE

Ashoka et al., (2023) There's a lot of history behind farming and agriculture. Many nations, both rich and poor, rely heavily on agriculture as their primary economic base. There are various natural processes that modern agriculture has altered. Some examples are the nutrient cycle, soil erosion, and carbon sequestration. Organic farming is an important strategy for reducing the negative ecological and environmental effects of sustainable development. Increased use of organic materials in agriculture has the potential to improve both environmental sustainability and food quality by preserving the environment's natural cycles of renewal. Organic agricultural practices sometimes forbid the use of synthetic inputs such chemical fertilizers, herbicides, antibiotics, and growth hormones in cattle. Integrating organic farming with cutting-edge technology is crucial for overcoming organic farming's drawbacks. Sustainable farming is on the rise as a result of novel techniques and perspectives that boost agricultural output and farmers' quality of life without negatively impacting the environment. That is to say, organic farming is consistent with the principles of Global Agriculture's emphasis on sustainability.

Ravita Rani et al., (2022) Fertilizers, insecticides, and other agricultural supplies were all made from plant and animal husbandry products in ancient India, demonstrating the widespread use of organic farming methods. However, in the 1960s, during the green revolution, things altered dramatically. Punjab, Haryana, and North Utter Pradesh were the primary areas of attention during the green revolution. Many issues, including declining soil fertility and soil toxicity, depleting water supplies, rising rates of human and animal illness, and accelerated climate change, have arisen as a result of the green revolution's emphasis on agricultural intensification. But these days, there is a growing interest in the alternative kind of agriculture, Organic Farming, due to rising concerns about environmental protection, health dangers linked with agrochemicals, and customer preferences for healthy food. There's more to organic farming than just avoiding synthetic chemicals like herbicides, fungicides, and fungicides, as well as GMOs and synthetic fertilizers. This research looked at the state of organic farming in Haryana right now. Haryana's many varied districts are each endowed with their own unique set of naturally occurring organic forms of nutrients, which will be immensely useful for organic agricultural development. There are a total of 660,500 ha of farmland in Haryana, of which 5,303 ha are certified as organic.



Roul, Chhabilendra et al., (2022) This research looks at the ecological sustainability of agricultural output in Punjab and Haryana, two of India's most productive states. Indicators on (i) soil condition and its management were included in our calculations of sustainability. Both (ii) biodiversity, environment, and climate change, and (iii) weather, climate, and water management are important. Secondary data were used to calculate an ecological sustainability index that combines three separate indicators. The environmental sustainability indexes place Haryana and Punjab somewhat in the middle. The two most depleted and most crucial aspects of sustainability are biodiversity and the environment. Traditional cropping patterns based on leguminous crops, which are vital to promoting soil health, are vanishing in these states. The nitrogen provided by legume crops aids in the breakdown and conversion of agricultural waste to soil-building organic matter, which in turn provides a rich store of carbon and microorganisms. To increase agricultural sustainability in these respects, both states should prioritize policy changes concerning pricing water and electricity and stimulating the implementation of micro irrigation and other modern irrigation methods.

Monu Devi (2019) When it comes to the success of the Green Revolution (GR) and industrial agriculture in increasing crop yields, look no farther than the state of Haryana, often known as the food basket of India. Haryana not only produces enough food grains to suit its own needs, but it also contributes more wheat to the Central Pool than any other state despite having just a relatively modest amount of land dedicated to agriculture. In the 2011-2012 fiscal year, it constituted 27.8% (or 69.24 lakh tonnes) of Central Pool wheat procurement. High-yielding wheat and rice varieties, the development of irrigation systems, the ingenuity of farmers, and a proactive state government all played roles in bringing this about. Despite the fact that agriculture's percentage of Haryana's GDP has dropped from 32.0% in 1999-2000 to 15% in 2013-14, the sector remains critically important, since over 80% of the state's population relies on it for subsistence. Haryana lies in the northwest of India, and its climate ranges from dry to semiarid, with an average annual rainfall of 455.0 millimeters. The 13 months from July to September account for around 70 percent of annual precipitation, with the remaining 20 percent falling between December and February. Its entire landmass of 4.42 m ha is 1.4% of the total landmass of the United States. Total arable land in the state is 3.8 million hectares (or 86% of the total land area), with 3.62 million hectares (or 96.2%) now being farmed. As a result, there is very little room for expanding agricultural land use. Increased cropping intensity, a shift to a more diverse cropping pattern, the development of higher yielding seed varieties, enhanced cultivation methods, improved postharvest technologies, etc. are all necessary to raise agricultural output.

RamphulOhlan (2014) The purpose of the research was to determine whether organic farming might be profitable in Haryana. The data contradict the claims of government



institutions (such as the National Centre of Organic Farming) and non-governmental organizations (NGOs) that organic farming has been widely adopted in Haryana. That is to say, organic farming is quite uncommon in Haryana. According to the data, organic farming techniques have a significant impact on agricultural yields in Haryana. Organic farming is promoted on a state level, although it is not economically feasible at a commercial scale. The research reveals a variety of obstacles that farmers face when trying to switch to organic methods.

S. K. Yadav et al., (2013) After gaining its independence, India's most pressing problem has been feeding its rapidly expanding population. As a result, farmers are using high-yielding cultivars and increasing their harvests via the use of irrigation, fertilizers, and pesticides. Though it has contributed to a food excess, the use of this mix of high-yielding production technologies has raised issues of soil health, environmental pollution, pesticide toxicity, and the long-term viability of agricultural production. This has led scientists and policymakers to reconsider farming methods that made more use of biological inputs than synthetic ones. However, it is questionable if organic farming on a wide scale would be able to supply enough food for India's massive population, despite the fact that it can give high-quality food without harming the soil's health or the environment. India is a major producer of certified organic food and medicine, including rice, pulses, honey, tea, spices, coffee, oilseeds, fruits, cereals, and their value-added goods. Cotton, clothing, cosmetics, functional foods, body care products, and related items are all examples of non-edible organic goods. This article examines the sustainable cultivation of various organic crops and goods in northern India.

IV. RESEARCH GAP

Organic farming is gaining significant attention worldwide due to its potential to address sustainability challenges in agriculture. This research aims to identify the research gaps concerning organic farming as a need for sustainable agriculture in the context of Haryana state, India. Haryana, known as the "Granary of India," faces various agricultural challenges such as soil degradation, water scarcity, chemical residue build-up, and declining farm incomes. Organic farming can offer potential solutions by promoting soil health, conserving water resources, reducing chemical inputs, and enhancing farmers' livelihoods. This study reviews existing literature on organic farming in Haryana and identifies gaps in research that require further exploration to promote its adoption and assess its long-term sustainability. A review of existing literature reveals limited research conducted specifically on the factors influencing knowledge among farmers related to organic farming in Haryana State. Previous studies have mainly focused on the adoption and economic aspects of organic farming, overlooking the determinants of knowledge acquisition. Therefore, there is a need for a comprehensive investigation that identifies the



factors influencing farmers' knowledge and understanding of organic farming practices in this particular context.

V. RESEARCH METHODOLOGY

Sample of the study

Haryana, in India, was the site of the research. 40 farmers who actually use organic methods were chosen at random from the selected three districts (Ambala, Hisar and Jhajjar) of Haryana for the study. That's why we used a sample size of 120 farmers for our research.

Data collection procedure

Farmers were given a series of questions to answer in order to gauge their level of understanding on a variety of topics related to organic farming, including the concept itself, the use of organic manures and crop residues, bio-fertilizers, vermicompost, weed management, pest-management, diversification (crop rotation, intercropping, trap cropping), and the safe storage of produce.

Scoring techniques

Those who answered that they had "full knowledge," "partial knowledge," and "no knowledge" were given scores of 2, 1, and 0 accordingly; the remaining respondents fell into the "no knowledge" category.

Data analysis

Totals were calculated based on the scores achieved for each question category. Each respondent's aggregate score was used to assign them to one of three knowledge groups: low, medium, or high.

There is an influence of knowledge level on organic farming practices by farmers in Haryana

Research hypothesis

H1: The knowledge level among farmers related to organic farming is higher than the average knowledge level among the general population.

H2: There is significant impact of demographic location (district) on organic farming knowledge of farmers.

VI. DATA ANALYSIS AND INTERPRETATION

Knowledge level of organic farming practices

The adoption or rejection of organic agricultural methods would depend on how well known these methods were. When learned information is gathered, it leads to new ways of thinking. The farmers' behavior has changed as a direct result of this. that is, the spread of knowledge regarding organic agricultural methods. So, research has been conducted to find out how much organic farmers really know about organic farming.

Table 1 Knowledge level of farmers about organic farming practices

| S. No. | Category of Knowledge | Score range | % of respondents |
|--------|-----------------------|-------------|------------------|
| 1. | Low | 28 – 45 | 15 |
| 2. | Medium | 46 – 62 | 39 |
| 3. | High | 63 – 79 | 46 |

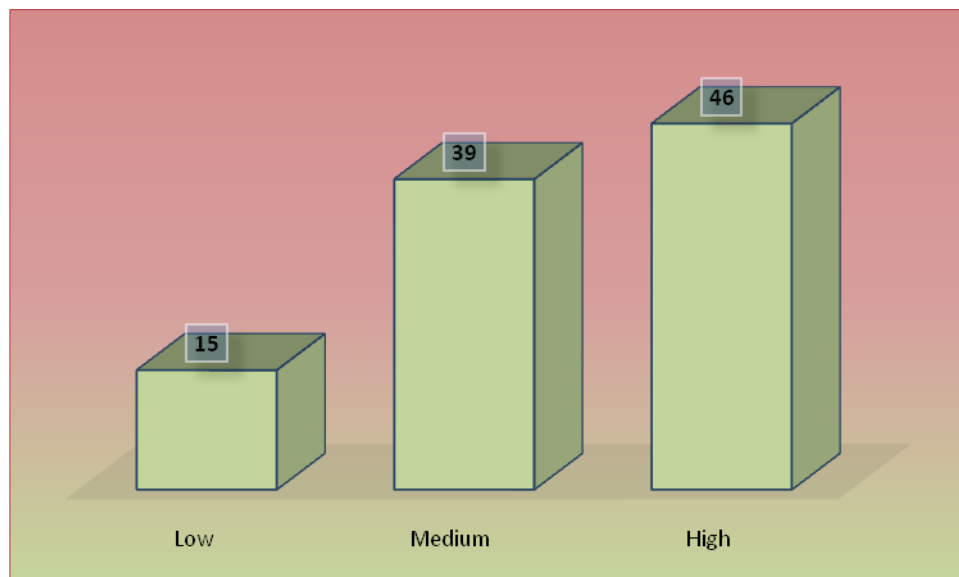


Figure 1: Graph showing Knowledge level of farmers about organic farming practices



Table 1 shows that there was no variation in the percentage of farmers who classified themselves as either having a medium or high degree of familiarity with organic farming methods. Based on the results of the survey, 46% of farmers were very knowledgeable about organic farming methods, while 39% were somewhat knowledgeable. Only 15% have even a rudimentary understanding of organic agricultural methods.

Distribution of organic farmers on the basis of the knowledge score

Respondents were divided into three groups based on how much they knew about various organic agricultural practices: low, medium, and high. The procedures were ranked based on the respondents' levels of understanding. The findings are shown in Table 2, and conclusions are derived as follows.

Table 2 Distribution of organic farmers on the basis of the knowledge score regarding organic farming practices

| S. No. | Organic farming practices | Category | Score range | Percentage | Mean Score | Knowledge percentage | Rank |
|--------|--|----------|-------------|------------|------------|----------------------|------|
| 1. | Knowledge about concept of organic farming | Low | 0-2 | 10.00 | 4.80 | 83.59 | I |
| | | Medium | 3-5 | - | | | |
| | | High | 6-8 | 90.00 | | | |
| 2. | Weed Management | Low | 0-3 | 15.00 | 7.35 | 65.62 | IV |
| | | Medium | 4-8 | 30.00 | | | |
| | | High | 9-12 | 55.00 | | | |
| 3. | Pest-Management | Low | 0-9 | 18.75 | 16.31 | 54.37 | VI |
| | | Medium | 10-20 | 41.25 | | | |
| | | High | 21-30 | 40.00 | | | |

| | | | | | | | |
|----|--|--------|-------|-------|------|-------|-----|
| 4. | Use of organic manures and crop residues | Low | 0-4 | 10.00 | 9.64 | 75.89 | II |
| | | Medium | 5-10 | 5.00 | | | |
| | | High | 11-14 | 85.00 | | | |
| 5. | Vermicompost | Low | 0-1 | 20.00 | 3.87 | 60.41 | V |
| | | Medium | 2-4 | 30.00 | | | |
| | | High | 5-6 | 50.00 | | | |
| 6. | Use of Bio-fertilizer | Low | 0-3 | 10.00 | 7.95 | 72.91 | III |
| | | Medium | 4-8 | 15.00 | | | |
| | | High | 9-12 | 75.00 | | | |

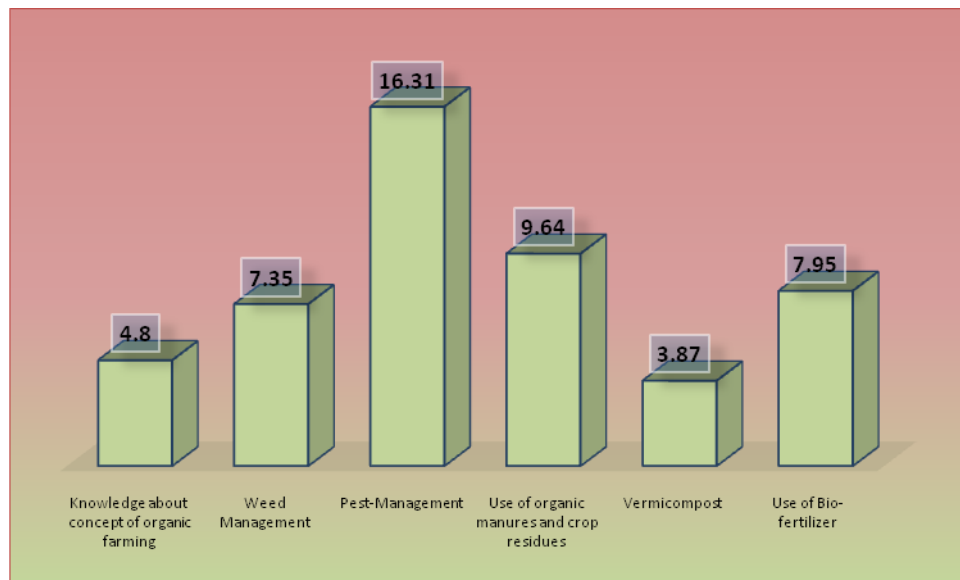


Figure 2: Graph showing mean scores of Organic farming practices



The majority of respondents (83.59 percent) were knowledgeable about organic farming in general, and their mean knowledge score for the six key organic farming methods was 4.80.

According to the data in the table, most respondents (90%) also had a solid grasp of the organic farming idea. Ten percent, however, know very little about it, and not a single respondent even claims to know a little bit about it.

Hypothesis testing

H1: The knowledge level among farmers related to organic farming is higher than the average knowledge level among the general population.

Table 2. Significant difference in knowledge level between organic and inorganic farmers

| Variable | Mean Values | | Mean score difference | Z value |
|-----------|-----------------------------------|---|-----------------------|---------|
| Knowledge | Have knowledge or organic farming | Don't have knowledge or organic farming | | |
| | 16.31 | 12.49 | 3.69 | 12.458 |

** - Significant at 1 per cent level

Table reveals that knowledge level have impact on farmers was found to be significantly different at 1 per cent level, which may be due to fact that organic farmers who had better education, extension orientation, mass media exposure, environmental orientation and belief in organic farming perform good in context of organic farming in Haryana. From the above table it is clear that the knowledge level among farmers related to organic farming is higher than the average knowledge level among the general population.

H2: There is significant impact of demographic location (district) on organic farming knowledge of farmers.



Table 3: Significant difference in knowledge level on the basis of demographic location of farmers.

| Farmer Group | Sample Size (n) | Mean Knowledge Score | Standard Deviation |
|--------------|-----------------|----------------------|--------------------|
| Ambala | 40 | 75 | 10 |
| Hisar | 40 | 68 | 12 |
| Jhajjar | 40 | 82 | 8 |

From the above table it is clear that there is significant difference in Knowledge score of organic farmers. Results show that farmers of hisar have highest knowledge score of farmers. So, the hypothesis stated that “There is significant impact of demographic location (district) on organic farming knowledge of farmers” is accepted.

VII. FINDINGS OF THE STUDY

Table 2 also reveals that the second highest percentage of respondents (75.89%) were knowledgeable about using organic manure and agricultural leftovers. The results showed that 85.0% of respondents had a very high degree of expertise. However, only 5% had a high degree of understanding regarding organic agricultural techniques including manure and crop residue, while 10% had just a medium level of expertise.

According to the results, a large proportion of people (73.91%) are aware of how to utilize bio fertilizer. Seventy-five percent of respondents were found to have a high degree of expertise, with another fifteen percent having a medium level of understanding. Ten percent of people polled had a very limited understanding of how bio fertilizers may be used in organic farming, nevertheless. There was an overall 65.6 percent proficiency in organic weed management. In addition, 65% of those surveyed had a high level of knowledge, while 29% had a medium level of knowledge, and 8% had a low level of knowledge. Fifteen percent of people surveyed knew little to nothing about weed control in the context of organic farming. The current survey found that out of six organic agricultural approaches, vermicomposting had the lowest level of familiarity, at 60.41 percent. Therefore, extension workers should make use of ongoing extension initiatives to get the word out to farmers about this particular topic.

Only 54.37% of people surveyed considered themselves to have a good understanding of pest management practices such cultural approaches, mechanical methods, biological control, diversity (including crop rotation, intercropping, trap cropping, and safe storage of products). A lack of government support for organic farming to this day has contributed to



this dismal level of education. It was shown that about the same percentage of respondents had medium (41.25%) and high (40.00%) levels of knowledge of pest control measures in organic farming, while just 18.75% had a poor level of understanding.

VIII. CONCLUSION

Organic farming practices are new to the farmers and hence, the knowledge levels are low in most of the practices. Based on the current knowledge level about organic farming in Haryana, it is evident that organic farming is gaining recognition and adoption in the state. The government of Haryana has implemented various policies and initiatives to support and promote organic farming practices. These efforts have resulted in the growth of organic farming and the establishment of organic farming clusters, which provide training, technical assistance, and market linkages to farmers. Overall, while there is still more to learn and achieve in the field of organic farming in Haryana, the existing knowledge and efforts demonstrate a positive trajectory towards sustainable agriculture in the state. With continued focus and support, organic farming has the potential to contribute significantly to the well-being of farmers, the environment, and society as a whole.

IX. SCOPE FOR FURTHER RESEARCH

- Conduct a longitudinal study to track the knowledge levels of farmers over time and analyze the factors that contribute to changes in their understanding of organic farming practices. This will provide a more comprehensive understanding of knowledge acquisition and retention among farmers.
- Compare the knowledge levels and factors influencing organic farming knowledge between farmers who have adopted organic farming practices and those who have not. This comparative analysis can reveal insights into the impact of practical experience on farmers' knowledge.
- Evaluate the effectiveness of existing farmer education and training programs focused on organic farming in Haryana State. Identify areas for improvement and develop targeted training modules that address the specific knowledge gaps and needs of farmers in the region.

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