**RESEARCH ARTICLE**

Journal of Extension Education
Vol. 34 No.2, 2022
DOI: https://doi.org/10.26725/JEE.2022.2.34.6823-6830

# An In-Depth Study of Farmers' Knowledge and Attitudes towards Organic Farming in Uttar Pradesh, India

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***ABSTRACT***

*Organic farming has the ability to reduce the adverse consequences of modern farming methods and to support rural development. This study attempts to investigate the farmers' knowledge and attitude towards organic agriculture where limited prior research had been conducted, in Mirzapur District of Uttar Pradesh, India. Out of 12 blocks in the district, two blocks namely Pahari and Manjhwa, were chosen purposively for the study. From each block two villages and from each village, 30 farmers were selected. A total of 120 respondents formed the sample. The results revealed that a majority of farmers were well aware of organic farming and have a favorable attitude toward organic farming. There exists an association between age, education & annual income and the factors influencing the attitude of farmers toward organic farming.*

***Keywords:*** *Attitude; Constraints; Eco-friendly; Knowledge; Pesticide; Technology; Uttar Pradesh*

## INTRODUCTION

Agriculture is a fundamental human activity. The food system is global, interdependent, and affected by natural and climate vagaries. However, this food system is also a key contributor to biodiversity loss, negatively affecting the fertility of soil and water quality and climate change (Samberg et al. 2016).

Organic farming is a method of agricultural production that aims to minimize the use of synthetic inputs such as pesticides, fertilizers, and genetically modified organisms. It emphasizes the use of natural and organic materials to maintain soil fertility, promote ecological balance, and produce healthy crops (Priyadharshini and Venkatapirabu, 2016). Organic farming practices promote sustainability by minimizing the use of synthetic inputs such as chemical fertilizers and pesticides. Farmers' knowledge and positive attitudes toward organic farming contribute to the adoption of sustainable agricultural practices, reducing the environmental impact of conventional farming (Biswas and Islam, 2018).This system of farming relies on building and maintaining soil health through practices such as crop rotation, composting, and the use of organic amendments. Farmers' knowledge of soil management techniques and their positive attitude toward organic farming can help improve soil fertility, structure, and overall health (Nair and Ravindran, 2015). Recent research has demonstrated that the adoption of environment-friendly production systems, such as organic farming has the potential to enhance environmental well-being, bolster

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**Received :** 18.07.2023 ; **Accepted :** 22.08.2023

the rural economy and improve community health. However, the expenses associated with agricultural inputs and the accessibility of such resources, alongside the knowledge of organic farming among smallholder farmers, can significantly impact their decision-making process and choices. It is important to note that farmers, as active participants in their own livelihoods, engage in continuous research, learning from their experiences and decisions. Farmers' knowledge about organic farming practices and their positive attitude towards it contributes to the production of healthier and safer food options, meeting the increasing demand for organic products among health-conscious consumers (Knowler and Bradshaw, 2007;Baumgart-Getz et al., 2012; Herath and Wijekoon 2013; Altenbuchner et al., 2014; Fatemi and Rezaei-Moghaddam, 2020).

According to research findings, the predominant focus within the Indian agricultural sector is on conventional farming, also referred to as inorganic farming. This emphasis is driven by the necessity to generate a substantial volume of food products to fulfill local consumption needs. Nonetheless, the demand for organic food items is progressively on the rise, both domestically and internationally. Consequently, it is imperative and opportune to investigate the perspectives of farmers regarding organic farming, particularly in regions of the country that exhibit significant potential for organic agriculture.

This research aims to assess the viewpoints held by farmers regarding organic agriculture in the rural setting of Mirzapur District in Uttar Pradesh. While the number of farmers exclusively practicing organic farming remains limited across the entire nation, securing an adequate cohort of organic farmers for this study is challenging. Consequently, respondents engaged in conventional farming were selected for participation. The study's specific objectives encompass discerning the socio-economic characteristics of the farmers, gauging the level of knowledge among farmers engaged in organic agriculture, appraising the attitudes of farmers towards organic farming, and scrutinizing the prevailing opportunities and obstacles pertaining to organic agriculture in these specific regions.

## METHODOLOGY

Mirzapur is situated within the parallels of 23.52° and 25.32° North latitude, as well as the longitudes of 82.7° and 83.33° East. The selection of this district in Uttar Pradesh, India, for the study was purposive due to its predominantly agrarian economy. Additionally, its proximity to the cities of Varanasi and Allahabad provides potential markets for the district's produce, thereby promoting agricultural diversification. Out of the twelve developmental blocks in the district, two blocks, namely Pahari and Manjhwa blocks have been purposively chosen due to their significant concentration of farmers practicing organic farming and provide a unique opportunity to study the dynamics, challenges, and benefits of organic farming on a larger scale. Two villages from each block were selected and a total of 30 farmers who were actively or partially engaged in organic farming were purposively selected for detailed interview. Thus, a total of 120 farmers were interviewed for the study between June 1, 2022 to May 31, 2023. The data were collected with the help of a pre-tested interview schedule. The farmers who were partially or completely involved in any of the organic farming activities or practices were considered as the population of the study. The selected respondents were interviewed personally with the help of a well-structured and pre-tested interview schedule in order to get relevant information and draw conclusions. From both villages, a total of 120 farmers were selected for the study. Data were classified, tabulated, and analyzed using appropriate statistical methods.

## FINDINGS AND DISCUSSION

### Socio-Economic Characteristics of Respondents

Date presented in Table 1 reveal that 61.67 percent of respondents were in the middle age group, followed by the old (20.83%) and young (17.50%) age groups. 25.83 percent were having education up to middle school followed by primary (22.50%) and 17.50 percent and 12.50 percent of respondents had education in high school and higher secondary. Only 8.33 percent of the respondents were identified as illiterate, while the remaining 6.67 percent possessed an educational background up to graduation or beyond.

**Table 1. Distribution of Respondents According to their Socio-economic Characteristics**

| Sl. No. | Categories | Frequency (n =120) | Percentage |
|---|---|---|---|
| 1 | **Age** | | |
| | Young age group (Up to 43 years) | 21 | 17.50 |
| | Middle age group (43 to 59 years) | 74 | 61.67 |
| | Old age group (Above 59 years) | 25 | 20.83 |
| 2 | **Education** | | |
| | Illiterate | 18 | 8.33 |
| | Primary education | 27 | 22.5 |
| | Middle Education | 31 | 25.83 |
| | High school | 21 | 17.50 |
| | Higher Secondary | 15 | 12.50 |
| | Graduate/ more | 8 | 6.67 |
| 3 | **Farm Size** | | |
| | Marginal farmers (less than 1 hectare) | 0 | 0 |
| | Small farmers (1 to 2 hectares) | 19 | 5.83 |
| | Semi-Medium farmers (2 to 4 hectares) | 58 | 48.33 |
| | Medium farmers (4-10 hectares) | 43 | 35.83 |
| | Large farmers (above 10 hectares) | 00 | 00 |
| 4 | **Annual Income** | | |
| | Low Income | 12 | 10.00 |
| | Medium income | 105 | 87.50 |
| | High income | 03 | 2.50 |

From Table 1 it is evident that 48.33 percent were having semi-medium size land holdings, followed by 35.82 percent had medium size and 15.85 percent had small size. Interestingly, no farmers fell into the marginal or large categories of land holdings. Specifically, none of the organic farmers had marginal-sized holdings, and similarly, none were classified as having large-sized land holdings among the surveyed respondents. It is inferred from the table that out of the total farmers, 87.50 percent were having a medium level of annual income, followed by 10 percent in the low-income category. Only 2.50 percent of the farmers belonged to the high-income group.

**Table 2. Sources of Information on Organic Farming**

| Sl. No. | Information Source | Frequency (n =120) | Percentage |
|---|---|---|---|
| 1 | Agricultural Extension programmes & activities | 36 | 30.0 |
| 2 | Friends and relatives | 24 | 20.0 |
| 3 | Newspapers and Magazines | 25 | 20.8 |
| 4 | Private agricultural organizations and NGO | 19 | 15.8 |
| 5 | Television and Radio | 16 | 13.3 |

The above table highlights that 30 percent of respondents gained knowledge about organic farming through agricultural extension programmes. 20 percent of farmers come to know about organic farming through their friends/ relatives and from newspapers/ magazines. Nineteen percent of the respondents gather information about organic farming from private agricultural organizations or NGOs, while an additional 16 percent acquire such knowledge through television and radio broadcasts.

**Table 3. Distribution of Respondents According to their Attitude toward Organic Farming.**

| Sl. No. | Categories | Frequency (n =120) | Percentage |
|---|---|---|---|
| 1 | Unfavorable | 23 | 19.17 |
| 2 | Favorable | 61 | 50.83 |
| 3 | Highly favorable | 36 | 30.00 |

Table 3 indicates that 50.83 percent were having a favorable attitude towards organic farming followed by highly favorable (30%), whereas 19.17 percent of the respondents were having an unfavorable attitude towards organic farming. Consistent with our findings, Pieniak et al. (2010), had observed that the majority of respondents held a favorable attitude towards organic farming. Several studies have documented the favorable reception of farmers toward organic farming (Singh and George, 2012). While many farmers have demonstrated a positive attitude toward organic farming, they are concerned regarding its feasibility (Eyinade and Akharume, 2018).

**Table 4. Distribution of Respondents Based on their Knowledge of Organic Farming Practices. (N= 120)**

| Sl. No. | Categories | Frequency | |
|---|---|---|---|
| | | Know | Don't Know |
| 1 | Knowledge of organic farming | 80 (66.67%) | 40 (33.33%) |
| 2 | Application of organic farming (on an actual farm) | 60 (50%) | 60 (50%) |
| 3 | Knowledge of vermi-composting | 13 (10.83%) | 107 (89.17%) |
| 4 | Organic input used/FYM/compost/bio-fertilizers / bio-pesticides | 60 (50%) | 60 (50%) |
| 5 | Green manuring crops | 11 (9.17%) | 109 (90.83%) |
| 6 | Advantages of organic farming | 75 (62.5%) | 45 (37.5%) |

| Sl. No. | Categories | Frequency | |
|---|---|---|---|
| | | Know | Don't Know |
| 7 | Preparation of organic compost | 55 (45.83%) | 65 (54.17%) |
| 8 | Crop rotation | 30 (25%) | 90 (75%) |
| 9 | Method of seed treatment | 40 (33.33%) | 80 (66.67%) |
| 10 | Methods used to control pests and diseases | 03 (2.5%) | 117 (97.50%) |
| 11 | Weeding practices used to control weed | 25 (20.83%) | 95 (79.17%) |

It is evident from Table 4 that more than half of the respondents (66.67%) were having knowledge of organic farming and its advantages (62.5%). Fifty percent of respondents had knowledge about the application of organic farming and organic input used. 45.83 percent had knowledge of the preparation of organic compost. One-fourth of farmers (33. 33%) had knowledge of the method of seed treatment and 25 percent of respondents know about crop rotation, one-fifth of the respondents (20.83%) had knowledge about weeding practices used to control weeds. Only 10.00 percent of respondents knew about vermin-compost and green manuring crops. The table also reveals that a significant majority of respondents (97.50%) lacked any knowledge about organic methods of pest control. In a comprehensive analysis of various studies (Stobbelaar et al, 2006; Gotschi, Vogel, & Lindenthal, 2007), it was observed that attitudes are influenced by a range of factors encompassing knowledge and socio-structural elements.

Undoubtedly, the knowledge possessed by farmers plays a crucial role in shaping their attitudes. Based on the preceding discussion, it is evident that the attitudes of farmers often fall short of satisfaction.

**Table 5. Factors influencing the Attitude of Farmers towards Organic Farming**

| Sl.No. | Variables | $\chi^2$ | Significant |
|---|---|---|---|
| 1 | Age and factors influencing the attitude of farmers | 7.46 | Significant* |
| 2 | Farm size and factors influencing the attitude of farmers | 2.43 | Not significant |
| 3 | Education and factors influencing the attitude of farmers | 14.65 | Significant* |
| 4 | Annual Income and factors influencing the attitude of farmers | 6.10 | Significant* |

*5% level of freedom

It can be inferred from Table 5 that there exists an association between age, education, annual income and the factors influencing the attitude of farmers towards organic farming. The present study is also supported by the research of Das et al. (2019) and Shaktidevi (2017).The level of education among farmers, their contact with extension media, and the agricultural training they have received exhibit a positive and significant relationship with organic agricultural practices (Rana et al., 2017).

**Table 6. Distribution of Respondents According to Constraints Faced by Farmers in the Adoption of Organic Farming.**

| Sl. No. | Categories | Frequency (n =120) | Percentage | Rank |
|---|---|---|---|---|
| **1** | Lack of knowledge about organic manure | 38 | 31.67 | III |
| **2** | Organic farming is a slow process and time-consuming | 56 | 46.67 | I |
| **3** | Lack of market facilities for organic produce | 42 | 35.00 | II |
| **4** | Low production | 29 | 24.17 | IV |
| **5** | Lack of awareness about the certification process | 10 | 8.33 | VII |
| **6** | Malpractices in organic farming by others | 10 | 8.33 | VII |
| **7** | Low availability of organic manure | 18 | 15.00 | VI |
| **8** | Low price of organic produce | 20 | 16.67 | V |

Table 6 shows the constraints reported by the respondents in the adoption of organic cultivation practices. It is evident from the data that the major constraints reported were that organic farming is a slow process and time-consuming (46.67%) followed by a lack of market facilities for organic produce (35.00%), lack of knowledge about organic manure (31.67), low production (24.17%), low price for organic produce (16.67%), low availability of organic manure (15.00%), malpractices in organic farming and lack of awareness about certification process (8.33%). According to Oyedele et al. (2018), a significant number of participants expressed their viewpoint that the production of organic fertilizers is intricate and laborious. They emphasized that obtaining organic fertilizer demands additional time and energy. Balachandran (2004) revealed that the primary issue raised by farmers was the lack of favorable marketing opportunities.

## CONCLUSION

The majority of respondents was knowledgeable about organic farming. By participating in numerous agricultural extension programmes and events, they had learned about organic farming. According to an analysis of the respondents' socio-economic characteristics, majority of them were in the age range of 43 to 59, had middle-level education, had small farms (2 to 5 hectares in size), and were in the middle-income group. The research study concluded that the majority of respondents had positive attitudes about organic farming. A farmer would be able to practice organic farming with enthusiasm based on their knowledge and positive outlook. The initial low price of organic products and the lack of a niche market were just two of the many economic and marketing difficulties they confronted. Accordingly, given the aforementioned findings, it can be concluded that increasing farmers' knowledge through

training will successfully enhance the adoption of organic farming practices, leveraging their already favorable attitude towards this agricultural strategy, efforts should be made altogether to bring organic farming into the mainstream and throw the spotlight on its connection with well-being. As a result, the scope and impact of organic farming may be increased. It endorses a well-being approach, and guarantees for sustainable food production, contributing to improving a healthier ecosystem and minimizing environmental pollution. It emphasizes how crucial it is to address farmers' worries and difficulties in order to promote the wider adoption of organic farming methods. The results can offer valuable insights to policymakers, extension services, and researchers for devising effective strategies that foster sustainable agriculture and advance the global adoption of organic farming practices.

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