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Socio-economic Status and Challenges in Organic Farming Adoption: A Case Study of Farmers in Hamirpur District, Uttar Pradesh, India

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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

Aims: 1. To study the socio-economic status of farmers. 2. To study the challenges faced by farmers in organic farming practice and suggest suitable measures to overcome the challenges faced by the farmers.

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Study Design: Ex-post facto research design was used for this study and was deemed suitable for this kind of study.

Place and Duration of Study: The study was carried out in Hamirpur District of Uttar Pradesh. The duration of study was from 2022 to 2024.

Methodology: The research was carried out in 12 villages (4 from each block) of Sarila, Sumerpur, and Muskara blocks, which are part of the Hamirpur district in the larger region of Uttar Pradesh. The 25 farmers from each of the 12 villages were selected randomly making a total of 300 farmers participating in the research. Frequency, Percentage, Mean Score and rank were the statistical tools that was used in the analysis.

Results: The study reveals a predominantly middle-aged (65.66%) farmers demographic. The farmer demographic was largely comprised of general category (41.7%) individuals who identify as Hindu and reside in sizable joint families. Most of the farmers reside in mixed-type houses. The majority of farmers exhibited high levels of social engagement and active participation in community activities. Most of the farmers had moderate resources and widely adopt dairy farming. According to the findings, "Organic farming is too labor intensive", "Lack of information regarding organic farming", "Difficulty in control of weeds, pests & diseases in organic farming", and "Undesirable behavior of conventional farmers" were the most crucial challenges that were faced by farmers. Addressing these challenges is essential for promoting sustainable agriculture, as it safeguards natural resources, enhances food security, and supports farmers' livelihoods. Effective solutions can lead to a resilient agricultural system that benefits both ecosystems and communities.

Conclusion: In conclusion, the study highlights the need for practical solutions to the challenges faced by the predominantly middle-aged farmer demographic. Organizing educational workshops on organic farming techniques can enhance knowledge and skills, while partnerships with agricultural institutions can provide vital resources and information. Establishing peer support networks will foster community collaboration, and advocating for financial incentives can encourage the transition to organic practices. By implementing these strategies, farmers can overcome barriers and contribute to a more sustainable agricultural system that enhances food security and supports livelihoods.

Keywords: Challenges; climate change; organic farming; soil health; sustainable agriculture.

1. INTRODUCTION

Organic farming, which has been expanding more quickly in India, can become a substitute technique to address crop productivity and the impending food demand. A form of agriculture, organic farming relies on various techniques such as vermicomposting, crop rotation, green manure, animal husbandry, bio-fertilizers, and biological pest control. Organic farming is a form of crop/plant cultivation using organic fertilizers which are eco-friendly fertilizers that improve the soil and support the life of other useful organisms in the soil. Maintaining long-term soil fertility and genetic diversity of the production system and its surroundings, including plant and wildlife, encouraging healthy use with proper care of water resources, creating a harmonious balance between crop production and animal husbandry, and minimizing all forms of pollution are among the major goals of organic farming.

2. REVIEW OF LITERATURE

Baskaur and Tyagi R. [1] examine the challenges and opportunities in organic farming, highlighting

issues such as limited access to information and the impact of socio-economic factors like age and caste on farmers' decisions. They propose strategies to enhance educational outreach and encourage collaboration among stakeholders. Their work emphasizes the need for targeted interventions to support the transition to organic practices, ultimately contributing valuable insights for sustainable agriculture.

Bhadu, Anooj [2] examines the key factors affecting the adoption of organic farming, identifying barriers such as lack of knowledge and limited access to resources. He emphasizes the need for targeted education and community engagement, advocating for tailored training programs and stronger policy support.

Prasanth et al. [3] identify key barriers to organic farming adoption, with 65% of farmers citing a lack of information and 52% noting limited financial resources. They found that 70% of respondents needed more training on organic practices, while 60% highlighted the influence of socio-economic factors like caste and family size on decision-making. The authors recommend

targeted educational programs and enhanced policy support to promote sustainable agricultural practices.

Desai and Sumangala [4] identify key barriers to organic farming adoption, with 68% of farmers reporting insufficient information and 55% citing financial constraints. They found that 72% of respondents needed more training on pest management. The authors emphasize the importance of community initiatives and recommend that 63% of farmers access resource-sharing programs to support the transition to organic practices.

Gupta and Shukla [5] investigate the profiles of organic farmers in India, focusing on the influence of age and education on adoption trends. Their study highlights that middle-aged farmers, with a combination of traditional knowledge and modern education, are more inclined to adopt organic practices compared to younger and older cohorts. This demographic's experience and openness to innovation play a vital role in the transition to organic farming. The authors emphasize the importance of tailored support and training programs for middle-aged farmers to enhance the growth of the organic sector in India

Kumar and Singh [6] investigate the impact of age on the adoption of organic farming in India, finding that middle-aged farmers are more inclined to adopt these practices due to their experience and openness to innovation. They note that younger and older farmers face unique barriers, such as resource limitations and different risk perceptions. The study highlights the need for targeted interventions to support these age groups and foster the growth of organic agriculture in India.

Ramesh et al. [7] state that the increased labor demands associated with organic practices—such as manual weeding and pest management—can be daunting, especially for those already facing labor shortages. This perception can deter potential adopters who may prefer the convenience of conventional farming methods.

Mishra et al. [8] examine how socioeconomic status affects the decision to adopt organic farming. Their findings indicate that farmers from higher socioeconomic backgrounds have better access to markets and resources, making it easier for them to transition to organic practices.

Conversely, lower-income farmers face significant barriers, including lack of access to capital and information.

3. RESEARCH METHODOLOGY

The study titled, "Socio-Economic Status and Challenges in Organic Farming Adoption: A Case Study of Farmers in Hamirpur District, Uttar Pradesh" was undertaken during 2022-2024 in Hamirpur district of Bundelkhand region of Uttar Pradesh. The study delved into the challenges faced by farmers and explored strategies to overcome them, offering a holistic perspective on the subject. Studying the challenges faced by farmers in organic agriculture is essential for promoting sustainability and enhancing food security. By identifying barriers, researchers can inform policies and support systems that improve the economic viability of organic practices, benefiting both farmers and communities. The research was carried out in 12 villages (4 from each block) of Sarila, Sumerpur, and Muskara blocks, which are part of the Hamirpur district in the larger region of Uttar Pradesh. Hamirpur was purposively chosen for this study because it has a lot of potential for organic farming. In light of these facts, the Uttar Pradesh government declared Hamirpur to be an Organic District in 2014, making it the first in the state to do so. The study recruited 25 farmers from each of the 12 villages, making a total of 300 farmers participating in the research. The statistical tools were used as frequency, percentage, mean, rank order etc.

4. RESULTS AND DISCUSSION

The Table 1 reveals the distribution of farmers according to their age that 65.66 per cent of farmers belonged to middle age group, followed by 19.33 per cent of young age group and 15.0 per cent of old age group respectively. The mean age of farmers is 47 years. The findings is in line with the findings of Gupta and Shukla (2023) [5]. Also the Table 1 reveals the distribution of farmers according to their caste, the 41.7 per cent of farmers belonged to general category, followed by 33.3 per cent of farmers belonged to other backward caste, while 16.7 per cent of farmers belonged to scheduled tribe caste and remaining 8.3 per cent of farmers belonged to scheduled caste category. From the overall view, it may be accomplished that most of the farmers belonged to general category in the research study area which is similar to the findings of Bhadu [2] findings. The distribution of farmers

according to religion, the maximum 89.0 per cent of farmers belonged to Hindu religion, followed by 8.0 per cent of farmers belonged to Sikh religion, 2.0 per cent of farmers who belonged to Muslim religion and minimum 1.0 per cent of farmers belonged to Christian religion. Thus, it can be inferred that most of the farmers followed the Hindu religion.

The Table 1 also reveals that the majority 72.0 per cent of farmers belonged to joint family and the remaining 28.0 per cent of farmers belonged to nuclear family. It may be inferred from beyond the outcome that almost three quarters of the farmers were living in joint family in the rural area. The maximum 36.7 per cent of farmers belonged to the family which had 6-8 members, followed by 34.0 per cent of farmers who had up to 6 members and only 29.3 per cent of farmers had 9 members and above in their family. Hence, it is concluded from the data that majority of farmers had 6-8 members in their family. The distribution of farmers according to their type of house, a maximum 49.0 per cent of farmers lived

in the mixed type of houses, followed by 30.0 per cent of farmers lived in kuchcha type of houses, and remaining 21.0 per cent of farmers lived in pucca house. Therefore, it may be concluded that almost fifty per cent of farmers lived in mixed type of houses.

Table 1 also indicates the distribution of farmers according to their overall material possession where majority (62.33%) of the farmers had medium level of material possession, followed by 25.33 per cent of farmers who had high level of material possession and the remaining 12.33 per cent had low level of material possession. Hence, it is concluded on the basis of above data that the majority of farmers had medium level of material possession included household material, farm power and agriculture implements. The distribution of farmers according to their milch animals that most of the farmers (60.66%) had highly adopted milch animals, followed by medium (24.66%) and low (14.66%) adoption of milch animals respectively, by the farmers in the research study area.

Table 1. Distribution of farmers according to their Socio-Economic Profilen = 300

S.No.	Profile	Frequency	Per cent
1	Age		
	Young (below 37)	58	19.33
	Middle Age (37 to 57)	197	65.66
	Old Age (Above 57)	45	15.0
2	Caste		
	Scheduled Caste	25	8.3
	Scheduled Tribe Caste	50	16.7
	Other Backward Caste	100	33.3
	General Caste	125	41.7
3	Religion		
	Hindu	267	89.0
	Muslim	6	2.0
	Christian	3	1.0
	Sikh	24	8.0
4	Family type		
	Nuclear family	84	28.0
	Joint family	216	72.0
5	Family Size		
	Up to 6 members	102	34.0
	6-8 members	110	36.7
	Above 9 members	88	29.3
6	House type		
	Kuchcha house	90	30.0
	Mixed house	147	49.0
	Pucca house	63	21.0
7	Material possession		
	Low (below 15.52419)	37	12.33
	Medium (15.52419 to 24.90241)	187	62.33

S.No.	Profile	Frequency	Per cent
	High (above 24.90241)	76	25.33
8	Milch Animals		
	Low (below .69149)	44	14.66
	Medium (.69149 to 2.84191)	74	24.66
	High (above 2.84191)	182	60.66

Table 2. Challenges faced by farmers regarding organic farming practicesn = 300

S.No.	Statement	Mean Value	Rank
1.	Lack of information regarding organic farming	2.58	I
2.	Lack of decision making	2.08	IV
3.	Difficulty in control of weeds, pests & diseases in organic farming	2.50	II
4.	Undesirable behavior of conventional farmers	2.42	III
5.	Adjacent farm conventional	1.75	V
6.	Organic farming is too labor intensive	2.58	I

The perusal of Table 2 shows the challenges faced by the farmers regarding organic farming practices. The 'lack of information regarding organic farming and it is too labor intensive' was the largest cruel challenges that come across by greater part of farmers with mean score value 2.58 and get rank I. The findings support the assertions of Krishnamurthy, et al. [9] & Ramesh et al. [7], who concluded that the major constraints expressed by the respondents were, high wages of labor and non-availability of labor. According to the table, majority of farmers expressed that they faced difficulty in controlling weeds, pests, and diseases in organic farming. Therefore, the challenge 'difficulty in control of weeds, pests & diseases in organic farming' was ranked as II with mean score value 2.50. Ghosh et al. [10] also indicates that organic farmers often face greater challenges in controlling these issues without synthetic chemicals, leading to lower yields and increased stress. The complexity of managing these challenges requires a deeper understanding of ecological principles and more intensive labor, which can be overwhelming for some farmers. The third major challenge faced by the farmers was 'undesirable behavior of conventional farmers' with mean score value 2.42 and get ranked as III. Other major constraints, in rank order, include 'lack of decision making' (IV) and 'adjacent farm conventional' (V), with the mean score 2.08 and 1.7, respectively [11-13].

5. CONCLUSION AND SUGGESTONS

Farmers encountered several obstacles when transitioning to organic farming, including 'lack of information regarding organic farming' and 'organic farming is too labor intensive' were the

extremely prevalent while 'undesirable behavior of conventional farmers' was noticeable but not overwhelming extent and 'adjacent farm conventional' had negligible amount. The socio-economic profile of farmers, including factors such as age, caste, religion, family size, and housing type, significantly influences the challenges faced in organic farming. Older farmers may struggle with adaptability, while marginalized castes might lack access to resources and information. Cultural beliefs can affect the acceptance of organic practices, and family dynamics may complicate decision-making.

- Establish educational programs and digital resources for comprehensive knowledge on organic practices.
- Develop decision-support tools and advisory services for effective evaluation of options.
- Promote integrated pest management (IPM) and training on sustainable practices like crop rotation and cover cropping.
- Facilitate dialogue between conventional and organic farmers to build understanding and collaboration.
- Implement buffer zones and guidelines to minimize pesticide drift and contamination risks.
- Invest in labor-saving technologies and promote cooperative farming models to share resources and reduce workloads

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image

generators have been used during writing or editing of this manuscript.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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