E-ISSN: 2618-0618
P-ISSN: 2618-060X

NAAS Rating (2025): 5.20
www.agronomyjournals.com
2025; SP-8(11): 300-304
Received: 19-09-2025
Accepted: 21-10-2025

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The paradox of sustainability: Understanding why the farmers of Punjab resist change to organic farming

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DOI: https://www.doi.org/10.33545/2618060X.2025.v8.i11Sd.4272

Abstract
Organic farming has emerged as an important constituent of sustainable agricultural development. In spite of increasing awareness and policy support, the adoption of organic farming methods among farmers in India remains limited. The present study investigates the socio-economic, institutional, and perceptual factors affecting the reluctance of farmers to adopt organic farming practices in Punjab State of India. A structured survey was undertaken in three districts, namely Fatehgarh Sahib, SAS Nagar, and Roopnagar, to assess the level of awareness, willingness to convert, and major perceived barriers to organic farming. Results indicated that while 81.7% of the respondents were aware of organic farming and its environmental advantages, only 11.7% were currently practicing organic farming. Economic non-viability, market uncertainty, and lack of assured buyers were reported as major deterrents by the majority. Education and assured marketing channels have been positively correlated with the willingness to adopt organic farming. The findings indicate that the gap between awareness and actual adoption can be bridged with appropriate interventions like assured market linkages, price incentives, and farmer training programs. The study thus emphasizes the need for integrated policy efforts to transform organic farming from a perceived risk into a viable livelihood opportunity.

Keywords: Organic farming, farmer perception, adoption barriers, sustainable agriculture, market access, Punjab, agricultural policy, awareness gap, economic viability, India

Introduction
Agriculture today stands at a crossroads one path leading toward sustainable practices such as organic farming, and the other continuing with conventional, chemical-intensive methods. Despite global advocacy for organic agriculture as a sustainable and health-conscious alternative, the adoption rate among farmers, particularly in developing nations like India, remains remarkably low (FAO, 2021; IFOAM, 2020) [6, 7].

Organic farming is celebrated for improving soil health, biodiversity, and long-term ecological balance (Reganold & Wachter, 2016) [1]. Studies by the Food and Agriculture Organization (FAO, 2021) [6] and IFOAM (2020) [7] highlight its role in achieving the UN Sustainable Development Goals (SDGs), particularly Goal 2 (Zero Hunger) and Goal 12 (Responsible Consumption and Production). However, in real-world farming communities, especially at the grassroots level, enthusiasm for conversion to organic remains limited (Scialabba & Müller-Lindenlauf, 2010) [2].

In India, the government has introduced several schemes such as the Paramparagat Krishi Vikas Yojana (PKVY) and the National Programme for Organic Production (NPOP) - to promote organic practices (Ministry of Agriculture, 2020). Yet, adoption continues to hover around a fraction of the total cultivated area, with states like Punjab and Haryana showing particularly low conversion rates (APEDA, 2022) [8].

At the district level, even where awareness exists, farmers often express hesitation due to economic risks, uncertain yield performance, market inaccessibility, and lack of technical support. Many view organic farming as a financially risky venture that demands long-term commitment without short-term gains.

Preliminary data collected from farmers across villages in the districts SAS Nagar, Roop Nagar and Fatehgarh Sahib region revealed that while a majority are aware of the term "organic

farming," fewer than one in ten have considered adopting it. Many cited immediate profit concerns, long transition periods, and lack of assured buyers as their primary deterrents' findings consistent with other Indian and international research.

This study seeks to understand these ground realities and analyze why, despite strong international and national advocacy, farmers remain reluctant to adopt organic practices. By comparing field level perceptions with findings from previous literature, this research aims to bridge the gap between policy optimism and on-field practicality.

Literature Review

Organic farming has emerged globally as a sustainable agricultural model, aiming to minimize environmental degradation and promote long-term soil health. However, despite international recognition and policy support, the actual adoption rates remain limited - particularly in developing countries where conventional agriculture dominates (FAO, 2021; IFOAM, 2020) [6, 7].

Global Perspective

At the global level, research consistently supports organic farming as an ecological and economically sustainable practice. Reganold and Wachter (2016) [1] observed that organic systems outperform conventional farming in biodiversity conservation and long-term soil fertility. Similarly, Scialabba and Müller-Lindenlauf (2010) [2] highlighted its potential in climate change mitigation by reducing greenhouse gas emissions.

However, studies such as De Ponti *et al*. (2012) [3] and Seufert *et al*. (2012) [4] demonstrated that organic yields can be 20-25% lower than conventional yields, making it less attractive for smallholders in yield-sensitive economies. Willer and Lernoud (2019) [5] reported that while organic land area has expanded globally, adoption remains heavily concentrated in Europe and North America, with Asia and Africa lagging.

Global literature suggests that the main deterrents include lack of infrastructure, certification barriers, and price uncertainty. In countries like Kenya and the Philippines, farmers' skepticism was linked to the absence of organized organic markets and government backed procurement systems.

National Perspective (India)

In India, organic farming has gained increasing policy attention since the early 2000s. The National Programme for Organic Production (NPOP) and the Paramparagat Krishi Vikas Yojana (PKVY) have been central to this movement (Ministry of Agriculture, 2020). Nevertheless, studies indicate that less than 2% of India's total agricultural land is under organic management (APEDA, 2022) [8].

Ramesh *et al*. and Narayanan identified several structural barriers: lack of financial incentives, weak institutional support, limited access to bio-inputs, and poor awareness about certification procedures. Gupta *et al*. found that even among educated farmers, reluctance often stems from perceptions of lower profitability and high risk during the conversion period.

Socio-economic factors also play a key role. Meena *et al*. and Kumari *et al*. emphasized that farmers prioritize short-term financial stability over long-term ecological benefits, especially in cash crop-dominated regions. In states like Rajasthan and Uttar Pradesh, awareness campaigns have improved knowledge, but actual behavioral change remains minimal.

State and District-Level Insights

Within Punjab and Haryana, known as India's "grain bowl," the chemical-intensive model of agriculture has become deeply entrenched. Singh and Grover (2020) reported that despite widespread awareness of soil degradation and declining fertility, fewer than 1% of farmers had experimented with organic farming. The reasons cited included market uncertainty, difficulty in managing pest outbreaks without synthetic inputs, and lack of assured minimum support prices for organic produce.

At the local level, studies like Sharma and Chauhan (2020) and Bhatia *et al*. (2018) have shown that while farmers acknowledge the long-term ecological benefits of organic methods, they view the transition as impractical without strong institutional support. In district-level surveys, respondents often expressed skepticism regarding consumer demand - many farmers believe that "organic" is a term relevant only to urban markets and not to their rural realities.

Emerging Gaps in Literature

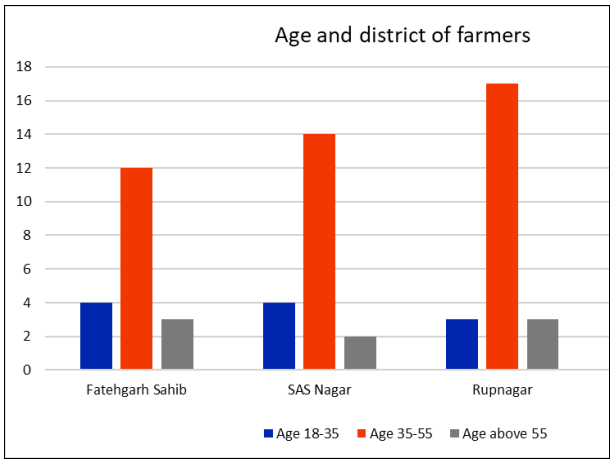
Across these studies, several gaps persist. While most research has focused on environmental or yield-based comparisons, farmer psychology, market trust, and peer influence remain underexplored. Few studies have analyzed how perception, generational mind-set, and local policy communication affect decision-making. Moreover, limited district-level data exist for regions like Punjab, Haryana, and Himachal Pradesh, where awareness is high, but adoption is low suggesting a potential mismatch between knowledge and action.

Hence, this study attempts to provide insights from grassroots-level data collected directly from farmers in the [Your District Name] region, comparing their perspectives with established global and national findings.

Methodology

Research Design

This study follows a descriptive and exploratory research design aimed at understanding farmers' perceptions, constraints, and attitudes toward adopting organic farming. A mixed-method approach was used combining quantitative data (survey responses) with qualitative insights (farmer interviews and field observations).



Study Area

The research was conducted in selected villages of mainly three districts namely - SAS Nagar, Rupnagar and Fatehgarh Sahib located in the Punjab region of India. This area was chosen for its agricultural significance and dominance of conventional farming systems. The district represents typical challenges of smallholder farmers in North India, such as declining soil

fertility, dependency on chemical inputs, and limited access to organic markets.

Sampling and Respondents

A total of 60 farmers were selected through random sampling across 7-8 villages (7-8 respondents per village). The sample included farmers of varying landholding sizes - marginal (<1 ha), small (1-2 ha), and medium (>2 ha).

Both male and female respondents were included to capture a broader perspective.

Data Collection Tools

Data were collected using a structured questionnaire containing both closed and open-ended questions. The survey included five major sections:

1. **Socio-economic profile** - age, education, landholding, income, family size
2. **Awareness and knowledge** - understanding of organic farming, exposure to training or schemes.
3. **Attitude and perception** - beliefs about productivity, soil health, pest control, and profitability.
4. Adoption constraints economic, institutional, technical, and marketing barriers.
5. Suggestions and willingness to adopt farmer opinions on what could encourage them to switch.

Data Analysis

Quantitative data were analyzed using descriptive statistics such as percentages, averages, and frequency distribution. Graphs and charts were used to visually represent trends in awareness, perception, and constraints.

Qualitative responses were summarized and thematically analyzed to highlight key reasons behind farmer hesitation.

Limitations

The study was confined to only three districts, and therefore, findings may not represent the entire state or national scenario. Additionally, since farmer responses were self-reported, they may include perception biases. However, comparisons with previous research help validate the observed trends.

Results and Discussion

This section presents the findings from farmer surveys conducted across selected villages of Rupnagar, SAS Nagar, and Fatehgarh in Punjab. The results are discussed in relation to previous studies to highlight similarities, differences, and emerging trends in farmer perception toward organic farming.

Socio-Economic Profile of Respondents

The surveyed farmers represented a diverse demographic. Around 45% were small farmers (1-2 ha), 33% were marginal farmers (<1 ha), and 22% were medium farmers (>2 ha).

Average age: 43 years

Average education level: Secondary (Class 10-12)

Average farming experience: 17 years

A majority (68%) relied primarily on agriculture as their main income source, while others supplemented it with dairy or wage labor. This pattern is consistent with findings from Ramesh *et al*. (2005) and Meena *et al*. (2020), who noted that education and landholding size significantly influence openness to adopting organic practices.

Awareness of Organic Farming

Out of the 60 respondents, 78% had heard of the term "organic farming," but only 12% claimed to have a clear understanding of its actual principles (e.g., certification, composting, or crop rotation).

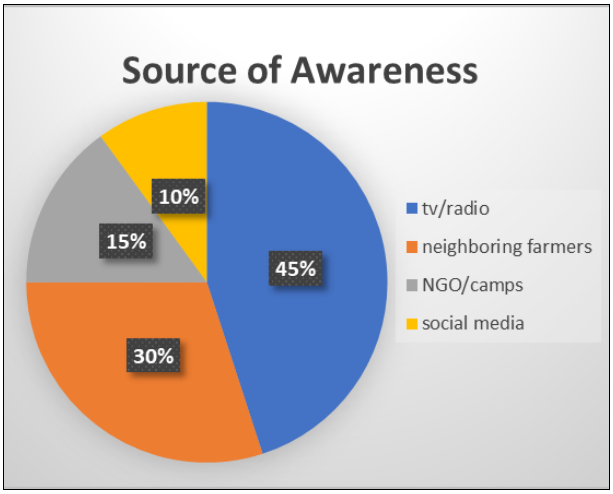
When asked about sources of awareness

45% mentioned government TV/radio programs

30% mentioned neighboring farmers

15% cited NGOs or training camps

10% learned from social media or online sources



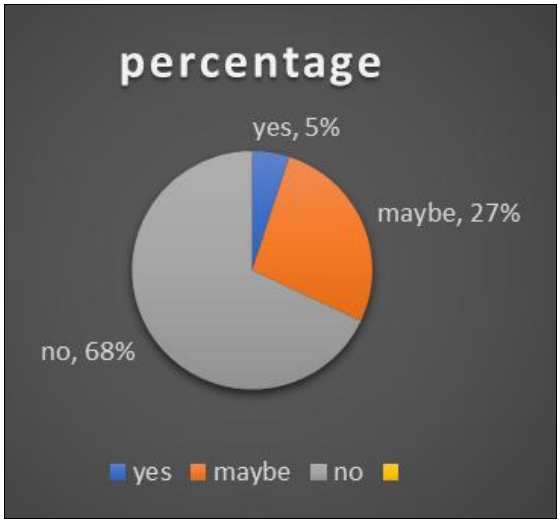
This aligns with Gupta *et al*. (2021) and Narayanan (2015), who found that awareness alone does not necessarily lead to adoption a gap often caused by poor access to training and field demonstrations.

Willingness to Adopt Organic Farming

Only 8% of respondents reported practicing any form of organic farming (mostly using homemade compost).

When asked if they were willing to convert fully to organic, the responses were:

Response	Percentage
Yes, immediately	5%
Maybe in future	27%
Not interested	68%

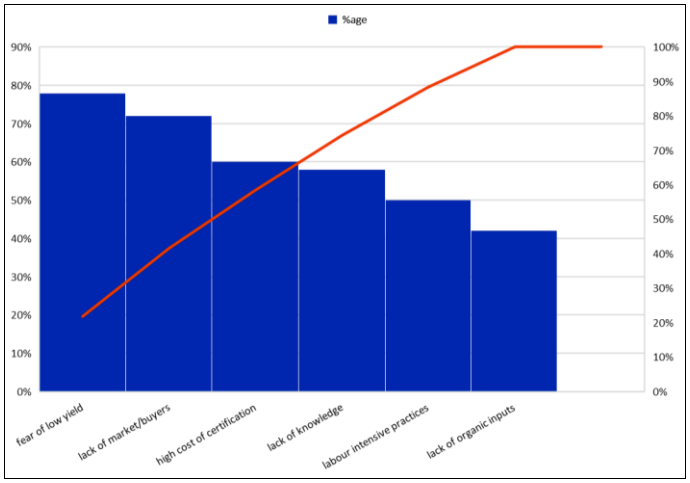


Farmers who were hesitant cited fear of yield loss and lack of market security as the major reasons. This is consistent with Singh & Grover (2020), who observed that fear of short-term profit loss is the single bi deterrent in Punjab.

Major Constraints in Adoption

Respondents ranked key challenges as follows:

Constraint% of Farmers Reporting
Fear of low yield 78%
Lack of assured market/buyers 72%
High cost of certification 60%
Lack of technical knowledge 58%
Labour-intensive practices 50%
Lack of organic inputs 42%

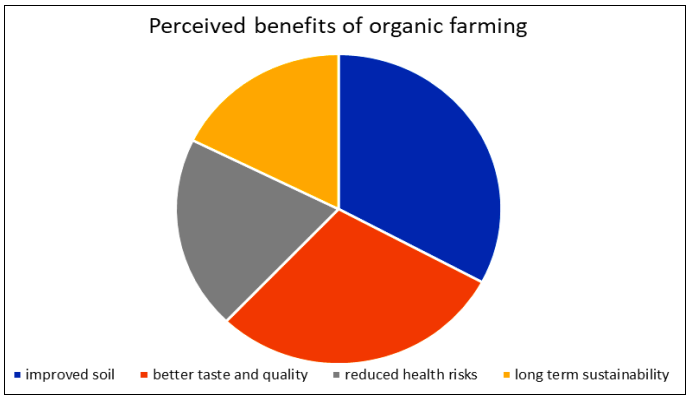


These findings closely match Kumari *et al*. (2019) and Sharma & Chauhan (2020), suggesting that farmers perceive organic farming as riskier and more demanding than conventional farming, especially in states dominated by chemical-intensive monocropping systems.

Perceived Benefits of Organic Farming

Despite resistance, farmers recognized several benefits of organic farming:

Improved soil fertility (65%)
Better taste and quality of produce (58%)
Reduced health risks (40%)
Long-term sustainability (35%)

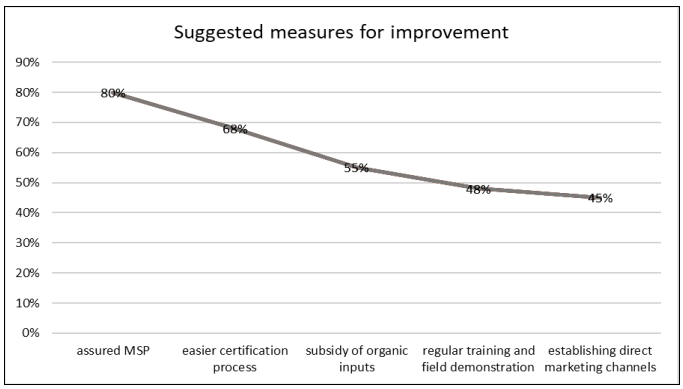


However, only 15% believed these benefits were immediate or economically rewarding.

4.6 Suggested Measures for Improvement

Farmers offered practical suggestions to make organic farming viable:

1. Assured minimum support price (MSP) for organic produce (80%)
2. Easier certification process (68%)
3. Subsidy for organic inputs (55%)
4. Regular training & field demonstrations (48%)
5. Establishing direct marketing channels (45%)



These align with FAO (2021) [6] and APEDA (2022) [8] recommendations for developing local organic value chains and improving farmer-consumer linkage.

Discussion

Overall, the findings indicate that while awareness and theoretical acceptance of organic farming are growing, economic insecurity and institutional gaps continue to suppress adoption. Farmers view organic farming as a "good idea trapped in bad economics."

The correlation between education and willingness to adopt suggests that targeted awareness campaigns and financial safeguards could significantly enhance adoption rates. Furthermore, as highlighted by Ramesh *et al*. (2005) and Narayanan (2015), without assured markets and visible profitability, policy incentives alone may not suffice.

This study therefore underscores the need for market-driven organic policies, local processing infrastructure, and better communication between extension agencies and farmers to bridge the gap between sustainability ideals and ground realities.

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