Perceptions of Conventional Integrated Farming System Farmers Towards Adoption of Organic Farming: A case study from Jabalpur

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ABSTRACT

A survey was conducted to analyze the perceptions of 120 smallholder farmers practicing conventional integrated rice-wheat-cattle farming in Jabalpur towards adopting organic farming practices. The findings revealed hesitancy among farmers to transition to organic methods. Only 11.66% of respondents expressed willingness to adopt organic crop farming given assistance, insurance for production loss, and access to premium markets. Key barriers were fears of yield reduction and lack of price incentives beyond minimum support price. Approximately 75.83% believed organic practices increase production costs. All respondents felt organic certification processes are cumbersome and costly. Ambiguity around organic market channels was a concern for 89.16%. However, 77.5% showed interest in adopting organic cattle rearing given proper information and facilitation, which completely lacked as per all respondents. The disparity in intentions reflects that crops are mainly grown for commercial sale, while milk is for household use. Profitability fears thus dominate crop decisions. The study highlights that smallholder integrated farmers are apprehensive about adopting organic cropping due to uncertainties over yields, profits, and markets. Targeted interventions in extension, insurance, supply chains, and certification can help address these concerns and encourage wider adoption of organic farming. The findings emphasize the need for localized strategies to enable safe transition pathways for smallholders motivated by sustainability rather than solely commercial aims. Further research should explore business models and policy frameworks tailored to the needs of subsistence-based integrated agricultural systems prevalent across India.

Organic farming has rapidly gained popularity in recent years, with global organic farmland increasing by over 50% between 2012 and 2018 (Willer et al., 2020). This growth reflects rising awareness of the environmental and health benefits of organic practices compared to conventional farming. Organic agriculture promotes soil health, biodiversity, and sustainability by prohibiting synthetic fertilizers, pesticides, and genetically modified organisms (GMOs) which can degrade ecosystems and harm human health (Reganold & Wachter, 2016). Studies have shown organic farms support 50% greater biodiversity, including birds, insects and soil organisms, compared to conventional farms (Schader *et al.*, 2012). Additionally, organic practices reduce greenhouse gas emissions and use of scarce water resources (Skinner *et al.*, 2019).

The adoption of organic farming practices has increased rapidly in recent years, as conventional agriculture proves environmentally unsustainable. Intensive use of synthetic fertilizers, pesticides, and genetically modified organisms (GMOs) in conventional farming disrupts ecosystems, degrades soil health, and threatens human health. In contrast, organic farming sustains biodiversity and regenerates soil fertility through natural techniques like crop rotation, biological pest control, and composting. By avoiding agrochemicals, organic methods protect water resources and reduce greenhouse gas emissions. Organic practices also confer economic benefits for

farmers and consumers. Organic crops often earn premium prices, while reductions in costly synthetic inputs can improve farmers' incomes over time. The holistic sustainability of organic agriculture makes it a vital solution for addressing the intertwined challenges of food production, environmental degradation, and rural livelihoods. Hence, the accelerating switch from conventional to organic represents a promising step toward a healthy and sustainable agricultural future.

India has joined this global shift, with over 677,000 organic producers in 2020 (Willer *et al.*, 2020). Smallholder farmers are transitioning to leverage organic farming's economic and ecological benefits. According to a study conducted in northern India, organic farming can be just as profitable as conventional farming, if not more so, while also being more environmentally friendly (Kumar et al., 2016). The study found that organic farmers achieved the same yields in cereals and pulses as conventional farmers, with considerably lower external inputs (Kumar et al., 2016). Additionally, organic basmati cultivation was 105% more profitable than cultivating ordinary rice under conventional management due to 45% lower production costs and higher sales prices (Kumar et al., 2016). Another study found that organic dairy farms realized both higher costs and higher gross and net returns than conventional dairy farms (Greene *et al.*, 2020).

Although organic farming is gaining popularity across India, smallholder farmers still face barriers to widespread adoption. Lack of financial support makes costly organic inputs inaccessible for many small farms. The higher prices and slower growth of organic seeds, combined with expensive storage requirements, also pose challenges. Farmers worry that organic practices will reduce yields and profits compared to conventional methods. With limited markets for organic produce, farmers fear an inability to sell and profit from their crops. Even if organic systems can match conventional incomes over time, small holders often cannot weather the transition period requiring significant up front investment. Together, these financial, informational, and market-access barriers fuel farmer reluctance about switching to organic agriculture. However, with the right technical guidance and policy supports, the long-term sustainability and profitability potential of organic practices could provide livelihood solutions for small holders while also restoring environmental health. India's future food security and rural development depend on overcoming existing obstacles through integrated programs enabling small farmers to reap the benefits of organic farming.

Understanding the perceptions of conventional smallholder farmers practicing integrated farming systems (IFS) is crucial for facilitating the transition to organic agriculture in India. Although organic farming offers sustainability and potential profitability, adoption rates remain low among small holders growing rice, wheat, and dairy. Identifying the main motivators and barriers influencing farmers' willingness to convert can inform policies and interventions to promote organic transition. Moreover studying the farmer's perceptions provides vital insight into obstacles limiting organic adoption like availability of inputs, access to information, and market access. Awareness of these constraints allows policymakers to develop targeted solutions through technical training programs, subsidized organic inputs, or market linkages. Such research also reveals potential benefits compelling farmers to “go organic,” including soil health, reduced costs, and premium prices, that can be leveraged in promotional messaging. By illuminating farmers' decision-making processes, perception studies enable tailored interventions facilitating voluntary, successful conversion to organic systems. Ultimately, the socioeconomic and environmental advantages of sustainable organic farming can only be realized in India if farmer views are understood and supportive systems established. The results will also provide insights to inform supportive policies and smooth the conversion process

RESEARCH METHODOLOGY

A stratified random sampling method was

used to select 120 farmers from six villages in Jabalpur district for this study. The sample was stratified by farming system - rice, wheat, and dairy - based on existing village records (villages were adopted by university under FFP project). A 95% confidence level and 5% margin of error determined the sample size needed from each stratum through proportional allocation. In-person interviews were conducted with farmers using a structured questionnaire designed to assess perceptions of organic farming.

Multiple validation methods ensured data reliability and validity. The questionnaire underwent pre-testing and experts reviewed it for content validity. It measured key perceptual constructs like perceived benefits and barriers through internally consistent scales (Cronbach's α = 0.81). Data accuracy was verified through completeness and consistency checks, correcting any errors.

Descriptive and inferential statistics analyzed the results. Measures of central tendency and dispersion like means and standard deviations summarized the data. Correlation and regression models examined relationships between variables. This analytical approach enabled robust interpretation of farmer perspectives for developing supportive organic farming policies.

RESULTS

Of the total 120 respondents, 96(80%) were males and 24(20%) were females. Table 1 presents the socio-demographic characteristics of the study participants

Table 1
Socio Demographic profile of the study (N=120)

S.No	Variable	Mean ±S.E
1	Age	48.51±0.757
2	Schooling years	8.53±0.330
3	income	175966±10183
4	Land holding (acres)	1.31±0.052

The awareness level of Farmers regarding organic farming is given in table: 2

Table 2
Awareness level of respondents towards organic farming (N=120)

S. No	Variable	N	%
1	Aware about organic farming	118	98.33
2	Aware about crop rotation and composting	120	100.00
3	Aware about benefits of organic farming to environment	89	74.17
4	Aware about benefits of organic farming to human health	112	93.33
5	Aware about organic certification process	49	40.83
6	Aware about organic products	51	42.50
7	Aware about premium price of organic products	45	37.50

None of the farmers were willing to transition to organic farming in the next two years. Only 11.66% (n=14) expressed potential interest in trying organic agriculture in the coming years if provided financial assistance, crop insurance, and training support. All farmers perceived that relying solely on organic fertilizers would reduce their production, productivity, and profitability. The majority (89.16%, n=107) believed they would be unable to obtain premium prices for organic produce and would need to sell at minimum support prices. Nearly three-quarters (75.83%, n=91) felt the higher costs of organic certification and mandatory processes would be unfeasible for their farms. Every farmer (cent percent) found the complexity of organic certification concerning,

fearing an inability to navigate the intricacies of the process. The uncertainty around outcomes along with the lack of observable benefits create cognitive dissonance, contributing to farmers' reluctance to adopt organic practices. The complexity of certification further deters adoption. Since complexity and observability are key innovation attributes (Rogers, 2003), efforts must be made to improve understanding and showcase organic farming results to facilitate wider adoption.

While no farmers were willing to transition crop cultivation to organic, over three-quarters (77.5%) expressed openness to adopting organic practices for cattle rearing if provided training. Specifically, households raising local cattle rather than buffalo for self-consumption milk were more inclined to go organic. In contrast, farmers selling milk commercially were reluctant to transition. The perceived health benefits and non-commercial use likely contributed to greater acceptance of organic among subsistence cattle farmers. These findings suggest profitability strongly influences willingness to convert to organic farming. When livelihoods were not dependent on sales, as with home dairy consumption, farmers seemed more amenable to embracing organic practices. However, they remained hesitant to risk the yields and incomes associated with conventionally grown rice and wheat that support farm profits.

The negative correlation between milk production and likelihood of transitioning rearing to organic further indicates lower commercial stakes allowed more openness to organic. This aligns with previous research highlighting perceived economic risks as a key barrier to adopting organic agriculture, especially for smallholder farmers (Kumar *et al.*, 2019). Profitability concerns and livelihood considerations can override positive environmental perceptions of organic farming (Vuletic *et al.*, 2022). Assurances around income stability appear crucial to encouraging conversion among subsistence farmers. Providing financial safety nets through crop insurance, guaranteed pricing, and direct income supports can help mitigate risks during the transitional period (Chouichom & Yamao, 2010). Building markets and value chains for organic produce may also incentivize adoption. Addressing profit-motivated obstacles will be critical for policy aimed at scaling sustainable organic practices.

CONCLUSION

This study of smallholder farmer perceptions provides vital insights into promoting India's transition to organic agriculture. The research reveals crucial obstacles of profitability, certification complexity, input availability, and knowledge gaps limiting organic adoption among conventional rice and wheat farmers. However, interest in organic cattle rearing hints at potential opportunities among non-commercial farmers. The findings suggest targeted policies like subsidized organic inputs, access to markets and price premiums, simplified certification, and extensive training can help farmers overcome barriers and reap sustainability benefits. Further farmer-centered research is key to understanding adoption decisions and informing support systems enabling voluntary, successful organic transitions. With persistent efforts to understand and address farmer concerns, India can harness organic agriculture's potential to sustainably enhance incomes, food security, ecosystem health, and rural livelihoods.

In conclusion, listening to farmer perspectives provides direction for policymakers aiming to facilitate the widespread adoption of ecologically beneficial organic farming practices. This study offers a foundation for continued dialogue and research to bridge the gap between conventional small holders and sustainable organic agriculture.

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