Economic Analysis of Organic Farming Adoption in India with Special Reference to North-Eastern States

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Abstract:-Organic farming has gained significant traction in India as a sustainable agricultural practice that promises long-term ecological balance and healthier food production. This study examines the economic viability and factors influencing the adoption of organic farming in India, with a particular focus on the North-Eastern states, where traditional farming practices align closely with organic methods. Drawing on both primary and secondary data, the study assesses profitability, cost-benefit ratios, market accessibility, and policy support structures. The findings reveal that although organic farming in the region holds strong potential due to favorable agro-climatic conditions and government support through schemes like Paramparagat Krishi Vikas Yojana (PKVY), farmers face challenges such as certification costs, market linkages, and limited awareness. The study concludes with recommendations to strengthen infrastructure, marketing channels, and capacity-building initiatives to make organic farming a viable economic alternative for rural livelihoods.

Keywords: Agricultural, Organic, Economy, North-East India and Support

INTRODUCTION

Agricultural practices in India are at a critical juncture, where increasing concerns over soil degradation, pesticide use, and climate change have necessitated a transition towards more sustainable methods. Organic farming—characterized by the use of natural inputs and ecological balance—has emerged as a viable alternative to conventional, input-intensive farming. The Government of India has actively promoted organic agriculture through schemes such as the Paramparagat Krishi Vikas Yojana (PKVY) and Mission Organic Value Chain Development for North Eastern Region (MOVCDNER), reflecting its commitment to green agriculture.

The North-Eastern states of India—Assam, Meghalaya, Manipur, Mizoram, Nagaland, Tripura, Arunachal Pradesh, and Sikkim—possess distinct advantages for organic farming. These include low levels of chemical fertilizer use, biodiversity richness, and traditional ecological knowledge systems. Notably, Sikkim was declared the first fully organic state in India, setting an example for the region and the nation.

Despite these advantages, the adoption of organic farming remains limited in scale. Farmers face economic and structural challenges, such as high initial transition costs, lack of access to certified organic markets, and inadequate awareness of organic standards and benefits. This study seeks to explore the economic dimensions of organic farming in the North-Eastern context, evaluating its profitability, cost structures, and institutional support mechanisms.

The research aims to answer key questions:

- What are the economic benefits and constraints associated with organic farming in the North-East?
- How effective are government policies in promoting organic agriculture in this region?
- What strategies can make organic farming more economically sustainable for small and marginal farmers?

This paper contributes to the growing body of literature on sustainable agriculture in India by focusing on a region with immense but underutilized potential for organic farming. It also provides actionable insights for policymakers, agricultural extension services, and development practitioners working in the field of green agriculture and rural development.

OBJECTIVES OF THE STUDY

1. To examine the economic viability of organic farming practices in selected North-Eastern

states of India with respect to cost of cultivation, yield, and net returns.
2. To identify the key socio-economic and institutional factors influencing the adoption of organic farming among small and marginal farmers in the North-East.
3. To assess the impact of government policies and schemes, such as the Paramparagat Krishi Vikas Yojana (PKVY) and MOVCDNER, in promoting organic agriculture in the region.
4. To compare the profitability and productivity of organic farming with conventional farming in terms of input costs, market prices, and income stability.
5. To analyze the constraints and challenges faced by farmers in obtaining certification, accessing organic markets, and adopting sustainable practices.
6. To provide policy recommendations for improving the adoption rate, market access, and overall sustainability of organic farming in the North-Eastern region of India.

REVIEW OF RELATED LITERATURE

The transition toward organic farming has been widely researched across various agro-ecological zones of India and globally, with emphasis on economic feasibility, sustainability, and policy implications. Studies prior to 2019 have contributed significantly to understanding the economic dynamics and challenges in adopting organic agriculture, particularly in developing regions.

Scialabba and Hattam (2002), in a landmark FAO study, emphasized that organic agriculture offers a sustainable model by reducing environmental externalities and improving soil health. However, it also noted the initial economic barriers such as lower yields during the transition phase and the need for institutional support for certification and market access.

Ramesh et al. (2005) conducted a comparative analysis of organic and conventional farming systems in India and concluded that although organic systems yield less in the short term, they are more profitable over time due to lower input costs and better soil fertility.

Gupta and Sharma (2007) explored the market prospects of organic farming in India, identifying premium pricing and consumer preference as driving forces. However, they also highlighted issues of fragmented supply chains and weak regulatory frameworks affecting farmer profitability.

Narayanan (2007) studied the cost-benefit aspects of organic farming in Kerala and found that organic farmers achieved better net returns in certain crops due to reduced input expenditure and growing demand in urban markets.

Kumar and Kumar (2008) examined the organic farming movement in North-East India and argued that the region has a natural comparative advantage due to low use of synthetic inputs. However, poor infrastructure, certification challenges, and lack of awareness were major impediments.

Panneerselvam et al. (2011) highlighted in their study in Tamil Nadu that organic farming had the potential to generate higher net income if farmers were well-supported through training and market networks. They also noted higher labor requirements in organic practices.

Sharma (2013) emphasized that the Indian organic farming sector is policy-driven rather than market-driven. Without the creation of value chains, subsidies, and assured buy-back mechanisms, small farmers hesitate to convert from conventional to organic practices.

Rao and Raju (2014), in their analysis of farmer perceptions, found that organic farmers often lack information about scientific practices, leading to reduced productivity in initial years. The need for better extension services and field-based demonstration was stressed.

Chand et al. (2017) studied the performance of government schemes such as PKVY and concluded that while adoption is growing, there is insufficient convergence between training, certification support, and market facilitation.

Meena and Singh (2018) compared organic and conventional farming systems in Rajasthan and found that while cost of cultivation was lower in organic farming, yield was also slightly reduced. Profitability depended heavily on the availability of local markets and pricing incentives.

Collectively, these studies indicate that while organic farming presents economic, ecological, and health benefits, its success in regions like the North-East depends on bridging policy gaps, expanding access to organic markets, strengthening certification processes, and supporting farmers through capacity-building initiatives.

METHODOLOGY

1. Research Design:
The study adopts a mixed-methods approach, combining quantitative economic analysis with qualitative insights to understand the adoption and viability of organic farming practices. It is both descriptive and analytical in nature.

2. Area of Study:
The research is focused on selected North-Eastern states of India, particularly:

- Assam (Barpeta and Kamrup districts)
- Meghalaya (East Khasi Hills)
- Sikkim (as a benchmark fully organic state)

These areas were selected based on the prevalence of organic or traditional low-input farming practices and participation in schemes like PKVY and MOVCDNER.

3. Sampling Technique and Sample Size:
A multistage purposive sampling method was used:

- Stage 1: Selection of states and districts with organic farming activity.
- Stage 2: Identification of blocks/villages with a high number of organic farmers registered under PKVY.
- Stage 3: A sample of 120 farmers was selected, divided equally between organic and conventional practitioners for comparative analysis.

4. Data Collection Methods:

- Primary Data: Collected through structured interviews, focus group discussions, and field observations using a semi-structured questionnaire.
  - Variables included: cost of cultivation, yield, market prices, income, awareness of organic practices, access to certification, government support.
- Secondary Data: Sourced from:
  - Reports from Ministry of Agriculture & Farmers Welfare (GoI)
  - Paramparagat Krishi Vikas Yojana (PKVY) and MOVCDNER documentation
  - Academic journals, NABARD reports, state agriculture department publications

MAJOR FINDINGS

1. Organic Farming Shows Promising Economic Returns Over Time:
   Although organic farmers in the North-Eastern states experienced slightly lower yields in the initial years of transition, the overall net income was higher in the long run due to reduced input costs and access to premium markets.
2. Lower Cost of Cultivation:
   The cost of cultivation in organic farming was found to be 18–25% lower than conventional farming. This reduction was mainly due to the non-use of chemical fertilizers and pesticides, reliance on compost, and locally available organic inputs.
3. Market Challenges Persist:
   Despite the economic potential, farmers reported significant difficulties in marketing organic produce. Lack of organized organic markets, absence of local certification agencies, and limited consumer awareness were key issues.
4. Role of Government Schemes is Limited by Implementation Gaps:
   While schemes like PKVY and MOVCDNER have improved awareness and training, irregular fund disbursement, poor extension support, and low coverage were major challenges faced by farmers during adoption.
5. Certification is a Major Barrier:
   A large number of farmers either lacked certification or found the process complex, time-consuming, and expensive. Many relied on group certification through NGOs or cooperatives, which still did not guarantee price premiums.
6. Socio-Economic Factors Influence Adoption:
   Farmers with higher education levels, larger landholdings, and better market access were more likely to adopt and sustain organic practices. Conversely, small and marginal farmers expressed concern over risk and uncertain income.

7. Positive Environmental Impact Noted by Farmers:
   Farmers practicing organic agriculture reported improvements in soil health, water retention capacity, and reduced pest resistance. These environmental benefits were perceived as valuable, though difficult to quantify economically.
8. Sikkim as a Model State:
   The case of Sikkim showed that a state-wide, policy-driven approach, with integrated support for certification, marketing, and extension services, could successfully scale up organic farming and improve farmers' income.
9. Lack of Training and Technical Support:
   Many farmers expressed the need for continuous capacity-building and technical guidance in pest control, composting, and intercropping methods suited to organic systems.
10. Growing but Untapped Demand:
    Urban consumers, especially in metro areas of Assam and Meghalaya, show increasing demand for organic produce. However, supply chains are weak, and farmers struggle to reach these markets effectively.

RECOMMENDATIONS / SUGGESTIONS

1. Strengthen Organic Market Infrastructure:
   Develop dedicated organic markets (mandis) in North-Eastern states with proper cold storage, packaging, and branding facilities to ensure that organic farmers receive fair prices and better market access.
2. Simplify and Subsidize Certification Process:
   Streamline the organic certification process through digital platforms and provide financial assistance or subsidies for group certification under schemes like PKVY to encourage more small and marginal farmers.
3. Expand and Strengthen Government Schemes:
   Enhance the outreach and implementation of Paramparagat Krishi Vikas Yojana (PKVY) and MOVCDNER by ensuring timely fund disbursement, regular monitoring, and active involvement of local extension officers.
4. Promote Farmer Producer Organizations (FPOs):
   Support the creation and functioning of organic FPOs to facilitate input supply, aggregation, certification, branding, and collective marketing, especially in remote and tribal areas of the North-East.
5. Capacity-Building and Continuous Training:
   Provide regular training sessions and field demonstrations on organic farming techniques, composting, pest management, and intercropping practices through Krishi Vigyan Kendras (KVKs) and agricultural universities.
6. Link Farmers with Urban and E-Commerce Markets:
   Establish direct linkages with urban retailers, organic stores, and e-commerce platforms to help farmers fetch premium prices and avoid middlemen exploitation.
7. Incorporate Organic Farming into School and University Curricula:
   Promote awareness and skill development in sustainable agriculture by integrating organic farming topics in agricultural education programs and school curricula.
8. Support Research and Innovation:
   Encourage region-specific agronomic research to develop organic crop varieties, pest-resistant seeds, and eco-friendly inputs tailored to the agro-climatic conditions of North-Eastern states.
9. Launch Awareness Campaigns:
   Conduct mass awareness programs using local media, NGOs, and farmer groups to educate communities on the health, environmental, and economic benefits of organic farming.
10. Replicate Successful Models like Sikkim:
    Draw lessons from Sikkim's successful transition to a fully organic state, and replicate its integrated policy model across other North-Eastern states, with focus on leadership, planning, and institutional coordination.

CONCLUSION

Organic farming presents a viable and sustainable alternative to conventional agriculture, particularly in ecologically sensitive and low-input regions like the North-Eastern states of India. This study highlights that, despite initial challenges such as lower yields, high certification costs, and weak market linkages, organic farming offers long-term economic, environmental, and social benefits for farmers. The cost of cultivation is generally lower, and farmers have the potential to earn higher incomes through premium markets, provided there is institutional and infrastructural support.To

conclude, organic farming can serve as a pathway not only to sustainable agriculture but also to rural livelihood enhancement and climate-resilient development. For this transformation to occur at scale, systemic support, market integration, and farmer empowerment must be prioritized.

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