

## Organic Farming for Sustainability: A Study in East Khasi Hills District of Meghalaya

\*<sup>1</sup> Gayatri Saikia and <sup>2</sup>Evangelene Kharakor

\*<sup>1</sup> Assistant Professor, Department of Rural Development, University of Science and Technology, Meghalaya, India.

<sup>2</sup> Independent Researcher, Department of Rural Development, University of Science and Technology, Meghalaya, India

### Article Info.

E-ISSN: **2583-6528**

Impact Factor (QJIF): **8.4**

Peer Reviewed Journal

Available online:

[www.alladvancejournal.com](http://www.alladvancejournal.com)

Received: 08/Dec/2025

Accepted: 06/Jan/2026

### \*Corresponding Author

**Gayatri Saikia**

Assistant Professor, Department of Rural Development, University of Science and Technology, Meghalaya, India.

### Abstract

Organic farming is a system which avoids or largely excludes the use of synthetic inputs such as fertilizers, pesticides, hormones, feed additives etc., and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection. Meghalaya is currently one of the lowest users of chemicals in agriculture, using only about 17 to 20 kg of chemicals per hectare of land, and that is mostly limited to solanaceous crops. This study seeks to investigate the feasibility and long-term sustainability of adopting organic farming practices in East Khasi Hills district of Meghalaya. Specifically, it will examine the effects of organic practices on crop diversity, role of organic farming practices in agriculture and farmers' perceptions towards sustainable agriculture. The farmers adopt different organic farming practices in their field, with 39% of the respondents solely rely on composting, and the remaining percentage use a combination of companion planting, and crop covering which aim for long term soil health, pest management and sustainability.

**Keywords:** Organic farming, Sustainability, Meghalaya, Organic practices, Farmers

### Introduction

The term "organic farming" was coined by Walter James (Lord Northbourne). "Organic Farming", is also recognized by other names, including "ecological farming", "biological farming", and "natural farming". Organic agriculture was implemented as a means of addressing the adverse impact inflicted upon the natural environment by the use of chemical and synthetic fertilizers. Organic agriculture denotes a recently adopted agricultural system that aims to reinstate soil fertility whilst simultaneously preserving and enhancing the ecological equilibrium (Tripathi *et al.* 2023). According to International Federation of Organic Agriculture Movements (IFOAM), "Organic Agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition fair relationships and a good quality of life for all involved". Total area under organic certification process (registered under National Program for Organic Production) is 3.56 million hectares

(2017-18). This includes 1.78 million hectares (50%) cultivable area and another 1.78 million hectares (50%) for wild harvest collection. Among all the states, Madhya Pradesh has covered largest area (5.67 lakhs hectare during 2017-18) under organic certification followed by Rajasthan, Maharashtra and Uttar Pradesh. During 2016, Sikkim has achieved a remarkable distinction of converting its entire cultivable land (more than 76,000 hectare) under organic certification. Nine states have drafted organic farming policies. Out of these, 4 states viz; Uttarakhand, Nagaland, Sikkim and Mizoram have declared their intention to go 100% organic. (Tripathi *et al.* 2023). According to the Meghalaya State Organic and Natural Farming Policy 2023, farming in Meghalaya is organic and natural by tradition and has been practiced by the local farmers and the farming communities for ages. Conventionally, shifting or slash-and-burn cultivation, which is commonly known as Jhum cultivation or Rep Shyrti (in Khasi) and A·ba·o·a (in Garo) is practiced by most farming communities in the state. Today, organic, and natural farming has evolved significantly as a

sector, and information about new methods of cultivation are available for adoption in the state. Farmers can take advantage of the latest insights on organic and natural farming and use these to maximize food production per unit of land, enable settled and sustainable farming, reduce input cost, meet the production needs of the state, and increase income. In 2015, the state discontinued subsidy on chemical fertilizers, plant protection chemicals and other chemicals used in agriculture. Several initiatives were undertaken by the State Government such as community seed banks and mass awareness campaigns which created precedence for future actions. The advent of low-cost organic farming methods such as Zero-Budget Natural Farming (ZBNF) has brought organic farming within the reach of small and marginal farmers. Since farming in Meghalaya is organic by tradition, it provides ample scope for scaling up to allow farmers to take advantage of the new and growing market opportunities (Meghalaya State Organic and Natural Farming Policy, 2023).

In recent years, there has been a significant shift in consumer preferences towards organic products, largely driven by an increased awareness of health benefits and environmental concerns. This trend is particularly notable in East Khasi Hills District, where a growing population of health-conscious individuals is seeking organic alternatives to conventionally grown agricultural products. However, despite this rising demand, the potential of organic farming remains largely unexplored in this region, as previous research efforts have predominantly focused on traditional farming practices. The

absence of empirical studies on organic farming in this particular area represents a critical gap, limiting local farmers' understanding of how sustainable practices might affect both crop yield and environmental quality in their unique ecosystem.

## Materials and Methods

**Research Design:** For this study, the data was collected through survey schedule consisting of both open-ended and close ended questions, interview method and face-to-face interaction. The study was conducted in Mylliem Block of East Khasi Hills District, in five villages-Umlyngka, Nongumlong, Pomlakrai, Sadew and Baniun. These villages were selected as most of the producers are engaged in organic farming practices. For this purpose, 20 respondents were randomly selected and interviewed from each village which makes a total of 100 respondents.

**Study Area:** The study was conducted in East Khasi Hills district, Meghalaya. East Khasi Hills is one of the 12(twelve) districts of the State of Meghalaya. The district occupies an area of 2748 sq. kms and it lies between 25°07' & 25°41' N Lat. and 91°21' & 92°09' E Long. bounded by Ri-Bhoi District on the North, Karbi Anglong District on the north east, Jaintia Hills District on the east, Bangladesh on the south and West Khasi Hills district on the west. As of 2011, the population was 8,24,059. The district consists of 11(eleven) Community and Rural Development blocks at present.



Fig 1: Map of East Khasi Hills District Meghalaya, India

**Data Analysis:** The collected data was analysed using SPSS in order to draw meaningful conclusions from the data.

## Results

This section presents a detailed analysis and interpretation of the primary data collected from organic farmers in the study

area. The analysis aims to identify the crop varieties, cropping pattern, farmers' perception, preferences, and challenges faced by them. The findings are presented through figures followed by concise interpretations to facilitate clarity and depth in understanding.

Table 1: Demographic profile of the respondents

Demography	Category	Percentage (%)
Age	20-30	17
	31-40	30
	41-50	24
	Above 51 years	29
Gender	Male	28
	Female	72
Education	Illiterate	32
	Primary	38
	Secondary	23
	Higher secondary	7
Occupation	Farmers	51
	Daily wage laborers	33
	Government employees	13

	Students	3
Income	Below 20,000	24
	20,001-30,000	54
	30,001-40,000	14
	Above 40,000	8
Land holding	Upto 1 acres	53
	1-2 acres	37
	More than 2 acres	10

Table 1 represents the demographic profile of the respondents. The age distribution reveals that majority of the respondents (30%) belonged to the age group of 31-40 years, followed by 29 % in the above 51 years category, while 24 % respondents belonged to 41-50 years of age and only 17 % respondents belonged to 20- 30 years of age. Regarding gender distribution, the data shows a significant gender imbalance, with females making up 72% of the population and males only 28%. In case of educational attainment, the majority of respondents had completed primary education (38%), indicating that basic literacy is common. Significant portions are illiterates (32%), suggesting a serious educational gap in the population. Secondary education is completed by 23%, showing some advancement beyond basic schooling, though still not a majority. Only 7% have reached higher secondary education, indicating that very few individuals pursue or complete advanced schooling. In case of occupational distribution, data shows that farmers (51%) is the most common occupation, followed by daily wage laborers (33%), government employees (13%) and students (3%). Regarding income, a large proportion (54%) of the respondents fell within the middle-income group and below. In terms of land holding, majority (53%) of the individuals own less than 1 acre of land. 37% of the population owns 1-2 acres and only 10% own more than 2 acres of land. The overall data reflects a scenario of land fragmentation, which is common in rural areas.

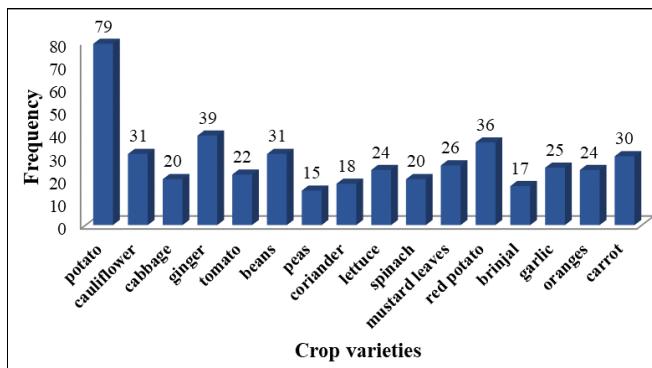


Fig 2: Crop variety

The above figure 2 shows that potato (79%) is the most frequently grown crop in the region followed by ginger (39%), red potato (36%), and cauliflower & beans (31%). Moderately frequent crops include carrot (30%), mustard leaves (26%), garlic (25%), lettuce (24%), and orange (24%). The less frequently cultivated crops are tomato (22%), spinach (20%), cabbage (20%), coriander (18%), brinjal (17%), peas (15%). The data consist of roots, herbs and fruits indicating diverse crop varieties in the region.

Table 2: Adoption of organic farming practices

S. No.	Organic practices	Percentage (%)
1.	Farmyard manure and compost	47
2.	Crop rotation	30
3.	Green manuring	9
4.	Vermicomposting	11
5.	Biological pest management	3

Table 2 shows that majority of the respondents (47%) use farmyard manure and compost, followed by crop rotation (30%), green manuring (9%) and vermicomposting (11%). Biological pest management practices such as neem-based formulations and biopesticides were adopted by only 3 percent of respondents. It shows the partial adoption of organic techniques among the farmers.

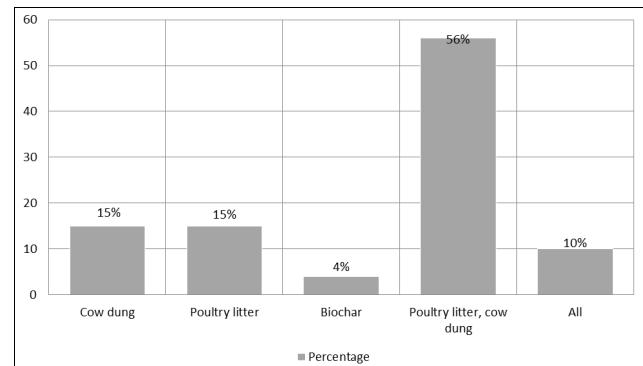


Fig 3: Usage of natural fertilizers

From the figure 4, the majority of respondents 56% prefer a combination of poultry litter and cow dung, indicating that combining organic fertilizers is a common practice, possibly for enhanced nutrient balance. 15% each rely solely on either cow dung or poultry litter. 10% of respondents use all available types, which may indicate an awareness of the benefits of a more comprehensive soil amendment approach. Only 4% combine biochar with poultry litter.

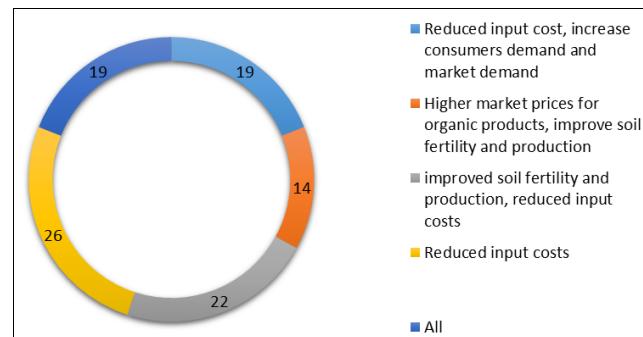


Fig 4: Benefits of organic farming

In the figure 5, the most commonly cited individual 26% benefit is reduced input costs, 22% of the respondents receive benefits in terms of improved soil fertility and production with reduced input costs, 19% in terms of reduced inputs costs, increase consumer and market demand, 14% in terms of higher market prices, improved soil fertility and production. The remaining 19% acknowledge all possible benefits-cost reduction, improved soil fertility, higher market demand, and better pricing.

## Discussion

The farmers adopt different organic farming practices, they also used natural fertilizers viz; cow dung, poultry litter and biochar. 56% use a combination of poultry litter and cow dung, 15% use only cow dung, 15% only poultry litter, only biochar 4% and 10% use a combination off all three. These fertilizers enhanced nutrients balance in the soil and promote plant growth. Farmers in the region of Meghalaya, extensively rely on rainfall for irrigation purposes as this region receives heavy amount of rainfall throughout the monsoon season. The farmers sell their products to the local markets near their villages, direct to consumers or to the supermarkets/retail shops. 42% of respondents sell their products solely to local markets, 35% combines with supermarket/retail shops, 14% combines with direct selling to consumers and 16% combines all three. The price of each product depends on the availability of the product in the market say, when the product is abundant then the price goes down and when the product is less the price goes up. Organic farming system provides certain benefits to the farmers as well to their land. It reduced the input costs, increase consumer demand, higher market price and improved soil fertility. It has also been found out that organic farming system contributes to better health for the farmers and consumers by reducing their exposure to certain chemicals like those used in conventional methods of farming. Besides these benefits, farmers also face few challenges related to organic farming system. This include low yield compared to conventional farming, lack of government support in this practice and the like. In order to tackle these challenges, the farmers are looking forward to certain supports like Government subsidies and incentives, training and awareness program, improved access to organic seeds and fertilizers, and better marketing and distribution network.

## Conclusion

The study of organic farming practices respondents reveals several important patterns and trends that are critical for understanding the current status and future potential of organic agriculture. The findings illustrate a farming community that emphasizes ecological sustainability, crop diversity, and the use of organic inputs. However, persistent challenges-such as limited dissemination of knowledge, ongoing dependency on external inputs, and inadequate long-term soil management-continue to restrict the full realization of organic farming's potential. There exists a solid foundation for promoting sustainable agriculture, but additional support in the form of farmer education, improved access to innovative techniques, and encouragement of seed sovereignty is essential to further progress. These steps will not only strengthen resilience and enhance productivity but also promote greater environmental responsibility.

In conclusion, while a substantial number of farmers have adopted key aspects of organic farming, the path toward widespread and comprehensive implementation remains

incomplete. Bridging this gap will require a multifaceted approach that combines education, infrastructure development, and strengthened market support. With these measures in place, organic agriculture can evolve into a more sustainable, profitable, and environmentally sound farming system-capable of meeting both present and future challenges.

## References

1. Ahmed N, Thakur M. Organic Farming: A Holistic Approach towards Sustainable fruit Production, *European Journal of Pharmaceutical and Medical Research*. 2015; 2(6):108-115.
2. Ashraf I. A review on organic farming for sustainable agricultural production. *Pure and Applied Biology*. 2016; 5(2):277-286.
3. Bhujel RR, Joshi HG. Understanding farmers' intention to adopt sustainable agriculture in Sikkim: The role of environmental consciousness and attitude. *Cogent Food and Agriculture*. 2023; 9(1):1-25.
4. Binta BA A, Barbier B. Economic and Environmental Performances of Organic Farming System Compared to Conventional Farming System: A Case Farm Model to Simulate the Horticultural Sector of the Niayes Region in Senegal. *Journal of Horticulture*. 2015; 02(04):1-10.
5. Buragohain U. Importance of Organic Farming in Economy with Special Reference to Sikkim. *International Journal of Recent Technology and Engineering (IJRTE)*. 2020l; 8(5):3635-3638.
6. Darjee DK. Exploring India's Organic Farming Movement with A Special Emphasis on the Northeastern States: An Exploratory Analysis. In *International Journal of All Research Education and Scientific Methods (IJARESM)*. 2023; 11(6):3038-3099.
7. Das S, Chatterjee A, Pal TK. Organic farming in India: A vision towards a healthy nation. In *Food Quality and Safety*. 2021; 4(2):69-76.
8. Dhiman V. Organic Farming for Sustainable Environment: Review of Existed Policies and Suggestions for Improvement. *International Journal of Research and Review*. 2020; 7(2):22-31.
9. Ghosh N. Organic Farming in the North-East Regions. Agriculture and a changing environment in North-Eastern India. Imprint Routledge India, 2013, 1:19.
10. Giovanni F, Amodio ML, Colelli G. Effect of organic production systems on quality and postharvest performance of horticultural produce. In *Horticulturae*. 2016; 2(2):1-7.
11. Gomiero T, Pimentel D, Paoletti MG. Environmental impact of different agricultural management practices: Conventional vs. Organic agriculture. In *Critical Reviews in Plant Sciences*. 2011; 30(1-2):95-124.
12. Hülsebusch C. Organic agriculture in the tropics and subtropics : current status and perspectives, 2007, 1-143.
13. Lesur-Dumoulin C, Malézieux E, Ben-Ari T, Langlais C, Makowski D. Lower average yields but similar yield variability in organic versus conventional horticulture. A meta-analysis. In *Agronomy for Sustainable Development*. 2017; 37(5):196-208.
14. Mazumdar DK, Roy KK. Economics of Organic Farming in India and North-East India. *Advances in Organic Farming*. Imprint Apple Academic Press. 2024; 1:14.
15. Meena RK, Meena R, Naik BSSS, Meena BL, Meena SC. Organic farming-concept, principles, goals & as a sustainable agriculture: A review. *International Journal of Chemical Studies*. 2020; 8(4):24-32.