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## RESEARCH REVIEW

## ASSESSMENT OF ORGANIC FARMING PRACTICES AND MARKET TRENDS IN NEPAL: A REVIEW

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## ARTICLE DETAILS

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## ABSTRACT

Organic farming has gained increasing attention as a sustainable agricultural practice, offering ecological, economic, and social benefits. In Nepal, the organic farming sector is experiencing growth, with the cultivated area expanding significantly from 2,448 hectares in 2021 to 25,776 hectares in 2022. This review critically examines the current practices, challenges, and market trends in organic farming in Nepal. Key crops such as coffee, tea, and large cardamom dominate the organic market, while traditional mountain crops remain underutilized and primarily self-labeled as organic. Despite Nepal's potential, the sector faces challenges, including low productivity, limited certification systems, high costs of inputs, inadequate government support, and underdeveloped market structures. Domestic consumers are price-sensitive, and the certification process adds to the premium cost of organic products, limiting affordability. However, opportunities lie in Nepal's diverse agro-ecological zones, growing consumer awareness, and increasing global demand for organic produce. This review provides insights into the sector's strengths and weaknesses and offers actionable recommendations, including policy reforms, investment in certification systems, subsidies for organic inputs, and the promotion of Nepalese organic products in global markets. These findings highlight the potential of organic farming to contribute to sustainable agriculture, biodiversity conservation, and economic development in Nepal.

## KEYWORDS

Organic farming, market, sustainable agriculture, challenges, policy reform

## 1. INTRODUCTION

Organic farming is a production system that fosters a sustainable relationship with the environment, promoting soil and human health. It relies on biodiversity, ecological processes, and natural cycles, substituting the use of chemical inputs, which have adverse effects on the environment (Dey et al., 2021). To enhance biodiversity, biological cycles, and agro-ecosystem health, organic farming employs various on-farm agronomic, biological, and mechanical methods such as crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives, and a biological system of nutrient mobilization and plant protection (Sannidi et al., 2022). Organic farming not only sustains soil health but also plays a significant role in biodiversity conservation, making it environmentally supportive, economically viable, and socially acceptable (Tamang et al., 2011). In recent years, the organic farming sector has witnessed significant growth, driven by increasing consumer awareness of the environmental and health benefits of organic produce. The demand for chemical-free, sustainably produced food has spurred a rise in the number of farmers adopting organic agricultural practices (Yadav et al., 2024). However, despite the global rise in organic food consumption, particularly in regions such as the United States and Europe, the organic sector in developing countries, including Nepal, faces considerable challenges. Organic farming in Nepal has a relatively short history, and the adoption of organic practices has been slow. The market for organic products remains underdeveloped, and reliable market statistics are scarce (Bhatta et al., 2008). The organic sector in Nepal is still in the "formative stage" of its product life cycle, with increasing urban consumer demand for certified organic products being a promising trend (Bhatta et al., 2008). This paper aims to assess the current practices and market trends in Nepal's organic farming sector, identifying the challenges and opportunities for its growth.

## 2. SCENARIO OF ORGANIC AGRICULTURE

## 2.1 Scenario of Organic Farming Around World and Asia

Organic agriculture is practiced in 188 countries, with over 96 million hectares of agricultural land managed by 4.5 million farmers. In 2022, organic farmland increased by 26.6% or 20.3 million hectares, accounting for 2% of total farmland. Oceania had the highest organic agricultural land, followed by Europe and Latin America. The share of organic land in the world was 2.0% in 2022, with Oceania having the highest organic share by region. The increase in organic agricultural land from 20 million hectares in 2000 to 20.3 million hectares in 2022 is more than five-fold.

Over 8.8 million hectares of agricultural land were under the management of 2.7 million producers in Asia in 2022. The majority of these producers were in India, where their numbers climbed by one million between 2021 and 2022, considerably contributing to the global expansion of organic farmers. India, with 4.73 million hectares, and China, with more than 2.90 million hectares, have emerged as the top countries in terms of organic agricultural land. (Willer et al., 2024).

## 2.2 Scenario of Organic Agriculture in Nepal

Nepal's organic agriculture sector has made notable strides in recent years, with a marked increase in the area under organic cultivation. From 2,448 hectares in 2021, the organic farming area expanded to 25,776 hectares in 2022, reflecting a substantial one-year growth of 23,238 hectares. Over the last decade, the sector has grown by 16,415 hectares, though it still accounts for only 0.6% of the nation's total agricultural land, a figure consistent with the global average. As of 2022, there are 178 certified organic producers in Nepal, supported by seven operational initiatives. Additionally, the country exported 347 metric tons of organic products to prominent markets such as the European Union and the United States (Willer et al., 2024).

Despite this growth, organic farming in Nepal remains constrained by various challenges. The country's agricultural landscape is primarily dominated by conventional farming practices, with increasing reliance on fertilizers and pesticides. National pesticide consumption has risen over the years, with average use reaching 0.396 kg of active ingredient (a.i.) per

hectare in 2014, which is higher than the 1995 figure but still below the global average. This increasing trend in pesticide use raises concerns about pesticide residues in food and the environment, highlighting the importance of transitioning toward organic farming (Acharya et al., 2020).

Organic agriculture gained attention in Nepal's policy framework with the 10th Five-Year Plan (2059/060-2063/064), but its focus has largely remained on export-oriented products such as coffee, tea, ginger, and large cardamom. However, the organic movement in Nepal has been slow, largely due to a lack of clear governmental vision and fragmented information flow from development initiatives. As of now, Nepal shares just 0.23% of the global organic agricultural land, with 9,361 hectares, out of which 804 hectares are dedicated to organic coffee production (Acharya et al., 2020).

While some Nepalese organic products like tea and coffee have been successfully certified and exported, the organic agriculture sector's growth has remained stagnant in recent years, with the organic land area increasing by just 1,167 hectares over the last decade, and the trend showing little change between 2014 and 2017 (FiBL, 2019). Despite these challenges, Nepal's organic agriculture sector holds significant potential for expansion, especially in international markets, with increased policy support and investment in organic certification systems.

### 3. PRINCIPLES OF ORGANIC FARMING

Organic agriculture is founded on the four tenets of the International Federation of Organic Agriculture Movements (IFOAM). The principles express the role that organic agriculture and its practitioners should play in improving global agriculture. They serve as guidelines for the future growth of organic agriculture.

- **Health:** Organic farming aims to benefit soil, plants, animals, humans, and the environment. This theory states that the health of individuals and communities is inextricably linked to the health of the ecosystem; healthy soils produce healthy foods, which nourish the health of animals and people.
- **Ecology:** Organic farming aims to maintain ecological balance and natural cycles to ensure sustainability. This principle focuses on the environmental balance achieved by organic agriculture. Organic management should be tailored to the local mission, ecosystem, culture, and scale.
- **Fair:** The fairness principle states that the interaction between organic farming and nature should be fair enough to ensure its long-term viability. This principle states that justice is maintained at every level of the production and delivery system of organic farming and its products.
- **Care:** The care concept states that organic farming responsibly protects the health of current and future generations, as well as the environment and biodiversity. It states that preventive measures and accountability are the most important considerations in organic agricultural management, development, and technology.

### 4. BENEFITS OF ORGANIC FARMING PRACTICES

The benefits of organic farming in broadways can be divided into four parts. These are as follows:

- **Economic Benefits:**
  - ✓ Reduces dependence on external inputs by using organic produce.
  - ✓ Enhances the biological and genetic potential of plants and animals.
  - ✓ Ensures sustainable long-term production levels.
  - ✓ Promotes profitable and efficient production through better management of soil, water, energy, and biological resources.
  - ✓ Organic crops are more resistant to diseases and pests.
- **Ecological Benefits:**
  - ✓ Organic farming consumes less energy than conventional farming, making it more environmentally friendly.
  - ✓ It preserves habitats and maintains biodiversity.
  - ✓ Organic farming emits much less CO<sub>2</sub> compared to other systems.
  - ✓ Helps prevent environmental degradation and can regenerate

degraded areas.

- **Social Benefits:**
  - ✓ Organic farming can be adopted on small farms, benefiting marginal farmers.
  - ✓ Reduces reliance on costly external inputs, especially for resource-poor farmers.
  - ✓ Contributes to community-level employment generation.
- **Soil Health Benefits:**
  - ✓ Organic fertilizers are complete plant food and help neutralize soil pH, unlike nitrogen fertilizers that make soil acidic.
  - ✓ Organic inputs, particularly manures, provide all necessary nutrients for plants.
  - ✓ Improves soil physical properties and enhances microbial activity, promoting soil aggregation.

## 5. ORGANIC FARMING AND MARKET TRENDS

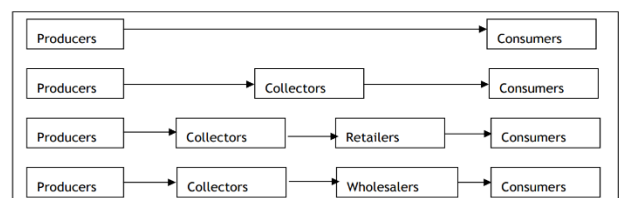
Organic farming has grown in popularity and demand over the last decade, spurred by the pressing need to develop long-term and sustainable farming approaches. However, worldwide and regional enforcement authorities heavily control organic cultivation. When done appropriately, research demonstrate that organic farming can produce higher yields than inorganic farming. During the projected period, investments in the organic agricultural business are expected to grow at an unprecedented rate. The market expansion is driven by increasing consumer awareness of the health benefits of organic products, changing purchasing behavior, and the popularity of non-GMO products. The market's substantial growth is attributed to increased accessibility of organic foods and beverages (Grand View Research, 2020).

### 5.1 Market Statistics on Organic Farming: GLOBAL

The global organic farming market is experiencing rapid growth and significant potential, with a market size estimated to reach USD 546.97 billion by 2032. The market is driven by the increasing demand for healthy, sustainable food options and growing awareness of the environmental benefits of organic farming. Regional trends show North America holding the largest market share, expected to grow at a CAGR of 13.3% between 2023 and 2030. Europe is projected to surpass USD 186 billion by 2032 with a CAGR of around 14%, while Asia Pacific is witnessing the fastest growth due to rising disposable incomes and concerns about food safety. Fruits and vegetables dominate the market, accounting for 42% of the global share in 2022. Despite challenges in organic production, meat, fish, and poultry are experiencing significant growth, holding a 21% market share in 2022 (Yadav et al., 2024).

### 5.2 Market Statistics on Organic Farming: NEPAL

The marketing of organic products in Nepal is growing, with supermarkets, farmers' markets, organic retail chains, and select restaurants in urban areas like Kathmandu serving as key distribution channels (Baral et al., 2020). Organic vegetables in the Kathmandu valley are sold directly through producers and through middlemen. Direct selling involves consumers buying from the farm gate, while middlemen collect and market the vegetables. The marketing channels commonly used for organic vegetables in the Kathmandu Valley are illustrated in Figure 1. These practices promote direct distribution and support between producers and consumers (Bhatta et al., 2009).



**Figure 1:** Common marketing channels for organic vegetables in the Kathmandu Valley (Bhatta et al., 2009).

Recently, online platforms have also emerged, connecting rural producers with urban consumers. Some traders export high-value agricultural products and medicinal herbs to international markets through organic certification. However, the domestic market remains underdeveloped, with many organic products sold without certification (Baral et al., 2020).

### 5.3 Key Organic Crops and Their Marketing in Nepal

The main organic products produced and marketed in Nepal are primarily cash crops (such as tea, coffee, large cardamom, ginger, fresh vegetables, honey, and herbal products). Organic certification of local underutilized mountain crops (e.g., beans, buckwheat, naked barley, cold-tolerant rice, millets, and amaranth) is particularly limited. Underutilized traditional crops are marketed as organic products informally not through formal certification process but mainly through self-labeling as organic products. Formal marketing and export of organic-certified products is mainly found for high value cash crops such as coffee, tea and cardamom (Gauchan et al., 2020). Jumla, Nepal's first "Organic district," banned agrochemical use in agricultural production in 2007 to boost profitability for farmers. However, due to administrative and legislative reasons, only apples are certified and sold as organic products, limiting the variety of products available.

#### 5.4 Affordability and Consumer Preferences for Organic Products

Organic commodities are inherently expensive, making them unaffordable for many consumers. The average Nepalese consumer is price-sensitive and often prioritizes cost over the perceived quality of organic products. Personal and family incomes significantly influence purchasing decisions (Bhatta et al., 2009).

#### 5.5 Willingness to Pay for Organic Products

A majority of consumers are willing to pay approximately five rupees more for unlabeled organic vegetables compared to conventional ones. However, the willingness decreases as the price premium increases (Bhatta et al., 2009).

#### 5.6 Impact of Certification on Pricing

The certification process for organic products is costly, making certified organic products more expensive. Higher-income groups, aware of the benefits and quality of organic products, are more willing to pay a premium for certified and labeled organic vegetables to ensure authenticity (Bhatta et al., 2009).

### 6. ORGANIC FARMING PRACTICES: POTENTIALS

Organic farming is gaining popularity among Nepalese farmers, particularly in low productivity areas, rain-fed zones, hilly areas, and mountain regions. Due to unavailability of timely fertilizers, farmers are using local nutrient sources for crop production (Acharya et al., 2020). During the past two decades, Nepal's agricultural sector's production has increased by 3.2 percent with the contribution of the agriculture sector (agriculture, forest, and fisheries) to GDP is estimated to be 26.98 percent (Economic survey, 2019).

Nepal's diverse topography, soil, and climatic conditions provide a strong foundation for organic farming, making it feasible across the country without major adjustments to traditional practices. Opportunities for organic seed production, vegetable farming, and fruit cultivation are abundant, supported by a direct market linkage with India and growing domestic consumer awareness of health and quality food products, particularly in urban and peri-urban areas. The National Agriculture Policy 2061 emphasizes organic farming and certification, offering a supportive framework for its growth. Grassroots initiatives by farmers have demonstrated awareness and capability, indicating the potential for scaling up commercial production. Organic farming's higher labor requirements also present significant opportunities to address unemployment and underemployment in Nepal, with diversified crop cycles mitigating seasonal job scarcity. Export potential remains strong, provided quality standards are maintained, while organic farms also align with Nepal's growing ecotourism appeal. Additionally, organic farming enhances biodiversity, protects ecosystems, and supports environmental sustainability, underscoring its long-term economic and ecological benefits for the country (Bhatta et al., 2009).

### 7. ORGANIC FARMING PRACTICES: CHALLENGES

- **Yield Constraints:** Organic farming typically results in 25-50% lower yields compared to conventional farming methods. This is largely due to limited nutrient availability, inadequate means of enhancing soil nutrient status, and challenges in controlling weeds. Organic farming may struggle to meet global food demand due to its lower yield potential, presenting a significant challenge for Nepal's organic sector (Timsina, 2018).
- **Lack of Organic Certification:** There is no government-backed certification system for organic farming in Nepal, which is a major hindrance to market development. Although private agencies offer certification, their efficiency and accuracy are often insufficient to compete with international standards, particularly for export

markets. The lack of certification limits consumer trust and hampers market growth (Hamzaoui-Essoussi and Zahaf, 2012).

- **Limited Government Support:** Government support for organic farming is minimal, especially in terms of investment incentives and subsidies, which are provided in many other countries. This lack of support, particularly during the conversion phase from conventional to organic farming, makes it difficult for farmers to sustain organic practices and scale up their production. Additionally, farmers often struggle with high certification costs (Bhatta et al., 2009).
- **Small-Scale Farming:** Many farmers in Nepal have small landholdings, making it uneconomical to practice large-scale commercial organic farming. The lack of sufficient land and capital, combined with the high cost of organic inputs, makes it difficult for small farmers to make organic farming financially viable (Bhatta et al., 2009).
- **High Input Costs:** Organic farming inputs, such as bio-pesticides, organic fertilizers, and compost, are more expensive and less accessible than chemical alternatives. For instance, while chemical fertilizers like urea are subsidized and available at a lower cost, organic alternatives like mustard cake are significantly more expensive, making organic farming less attractive for many farmers (Singh and Maharjan, 2017b).
- **Limited Access to Technology:** The lack of modern organic farming technologies, such as composting and vermiculture techniques, further limits productivity. Many farmers are not well-versed in the use of locally available bio-pesticides and bio-fertilizers, leading to inefficiency and lower yields (Bhatta et al., 2009).
- **Plant Protection Challenges:** Organic crop protection strategies (OCP) often rely on limited methods that only provide partial control of pests and weeds. These methods tend to be time-consuming, costly, and ineffective in some cases, resulting in lower yields and economic losses for farmers (Bellon and Pervern, 2014).
- **Market Access and Lack of Awareness:** There is a significant gap in consumer awareness about organic farming practices and products in Nepal. Additionally, marketing channels for organic products are underdeveloped, with many farmers relying on middlemen for distribution. This limits farmers' profits and undermines the potential for a well-organized organic market (Singh and Maharjan, 2017).
- **Transport and Logistics Issues:** Transporting organic food products and keeping them separate from non-organic produce adds logistical challenges. Companies that handle organic products must use separate machinery and equipment, increasing production costs significantly and complicating supply chains (Singh and Maharjan, 2017).
- **Political Instability:** The political situation in Nepal, characterized by frequent changes in government and a lack of consistent agricultural policies, poses a significant threat to the growth of the organic farming sector. Weak governance and a lack of policy continuity make it difficult for farmers to receive the support they need (Bhatta et al., 2009).
- **Competition from Other Countries:** Nepal faces competition from countries like India, where organic farming is heavily subsidized, and products are produced at a lower cost. This could lead to cheaper imported organic products entering the Nepali market, undermining local organic producers (Bhatta et al., 2009).
- **Lack of Long-Term Planning:** Organic farming requires a long-term commitment, typically involving a conversion period of up to three years. However, many farmers fail to conduct careful cost-benefit analyses or develop long-term plans for conversion, which can result in uncertainty and financial difficulties during the transition (Bhatta et al., 2009).

### 8. RECOMMENDATIONS FOR PROMOTING ORGANIC AGRICULTURE IN NEPAL

To promote the adoption of organic agriculture by farmers and establish it as a viable substitute for Nepal's traditional agricultural system, certain steps must be followed. Policy recommendations can help with this.

- **Establish a Strong Policy and Legal Framework:** Develop a comprehensive policy to regulate organic farming, focusing on inspection, certification, and branding to build consumer trust and



stimulate market growth (Baral et al., 2020).

- Create a Functional Institutional Framework: Implement a regulatory system at federal, provincial, and local levels to monitor and enforce organic standards (Baral et al., 2020).
- Increase Subsidies for Organic Inputs: Shift subsidies from synthetic agrochemicals to organic fertilizers and pesticides to make organic farming more affordable (Baral et al., 2020).
- Integrate Land Bank with Organic Agriculture: Promote organic farming through the Land Bank program by offering subsidies and support to farmers adopting organic practices (Baral et al., 2020).
- Enhance Research and Extension Services: Invest in research for organic farming and strengthen the collaboration between research, extension services, and farmers to introduce advanced organic technologies (Acharya et al., 2020; Baral et al., 2020).
- Promote Certification and Training: Encourage certification programs and provide training for farmers and certification bodies to meet international standards (Acharya et al., 2020).
- Increase Public Awareness: Launch information campaigns to educate the public on the benefits of organic farming and boost consumer demand for organic products (Acharya et al., 2020).
- Support Organic Agriculture Education: Establish organic agriculture institutions and integrate organic farming into school curriculums to train future generations of farmers (Acharya et al., 2020).
- Promote Organic Products Internationally: Promote Nepalese organic products at international fairs and through mass media to enhance exports and global market presence (Acharya et al., 2020).
- Develop Quality Control Labs and Organic Fertilizer Industries: Support the creation of accreditation labs and organic fertilizer industries to improve product quality and compliance with international standards (Acharya et al., 2020).

Implementing these recommendations can overcome existing challenges and foster the growth of organic agriculture in Nepal.

## 9. CONCLUSION

Nepal's organic agriculture sector has shown commendable growth, reflected in the increased area under organic cultivation and the rising export of organic products to international markets. However, despite these advancements, the sector faces significant challenges, including low yields, limited certification systems, lack of government support, and poor market access. To fully capitalize on the potential of organic farming, it is crucial to address these barriers through strategic policy interventions, including the establishment of a robust legal and institutional framework, increased subsidies for organic inputs, and the development of certification systems that meet international standards. Enhancing research, extension services, and public awareness will also be key to bridging the knowledge gap and encouraging farmers to adopt organic practices. Furthermore, promoting organic products internationally and supporting the creation of quality control labs and fertilizer industries will foster competitiveness and market expansion. By implementing these recommendations, Nepal can not only strengthen its domestic organic market but also enhance its position in the global organic food sector, contributing to the country's economic growth, environmental sustainability, and food security.

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