A Comparative Analysis of India's Role in the Global Organic Agricultural Sector

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Abstract

Organic agriculture has become an increasingly important component of sustainable food systems worldwide, supported by rising environmental concerns, health awareness and changing consumer preferences (Willer & Lernoud, 2023; FAO, 2021). In this context, India has attracted attention in the global organic sector, particularly because of its large number of certified producers and the steady expansion of land under organic cultivation (APEDA, 2023; Ministry of Agriculture & Farmers Welfare, 2023). This study examines India's role in global organic agriculture using a comparative framework. The analysis is based on secondary data sources, including government reports, international databases and published research studies (FiBL, 2023; OECD, 2020). Key indicators such as certified organic area, production trends, export performance, domestic market growth, and institutional support mechanisms were used to compare India with leading organic economies in Europe, North America, and Asia. The findings indicate that India holds a strong position in terms of producer participation and certified areas. However, its share in high-value global organic markets remains relatively limited (ITC 2021; Willer and Lernoud 2023). The analysis identifies several structural constraints affecting competitiveness, including fragmented landholdings, high certification costs, inefficient supply chains, and limited processing and value-added infrastructure (Gupta, 2017; Singh, 2021). Simultaneously, policy initiatives and growing domestic awareness have contributed positively to sectoral growth (Ministry of Agriculture & Farmers Welfare, 2023). The study suggests that strengthening value chains, improving market access, enhancing certification support, and promoting product diversification could help improve India's global standing (Kledal, 2012; FAO, 2021). Future research should focus on farm-level productivity analysis, impact assessment of specific policy interventions, and the role of digital platforms in improving market linkages for organic producers.

Keywords: Comparative Analysis, Organic Policy, Global Markets

Introduction

Agriculture continues to be a key pillar of food security, rural livelihoods, and environmental stability across the globe (FAO, 2021). However, the widespread use of intensive farming methods in recent decades has raised several ecological concerns. Problems such as declining soil quality, loss of biodiversity, contamination of water resources, and rising greenhouse gas emissions have drawn increasing attention from researchers and policymakers (Pretty, 2008; Gomiero et al., 2011). In this context, organic agriculture has gradually gained importance as a more sustainable and environmentally sensitive farming approach (Reganold & Wachter, 2016). By reducing reliance on synthetic inputs and encouraging natural processes, it aims to maintain an ecological balance while ensuring long-term productivity (Scialabba & Müller-Lindenlauf, 2010).

Over time, organic farming has transitioned from a niche practice to a growing segment of global agriculture. This expansion is evident not only in the area under cultivation but also in consumer demand and international trade (Willer & Lernoud, 2023). Many countries, particularly in Europe and North America, have built strong domestic markets supported by certification systems and policy frameworks (European Commission 2023). Simultaneously, countries in Asia, Latin America, and Africa are increasingly adopting organic practices, often linking them to rural development and export opportunities (UNCTAD, 2022). This broader shift reflects changing consumer preferences toward safer, environmentally friendly, and ethically produced foods (Boccaletti & Nardella, 2000).

India presents an interesting case in this evolving scenario. Traditional farming practices in many parts of the country have historically been organic in nature, and its diverse agro-climatic conditions offer considerable scope for organic cultivation (Narayanan, 2005). In recent years, India has recorded a steady rise in the number of certified organic producers and the area under organic farming (APEDA, 2023). Government programs, such as the National Programme for Organic Production (NPOP) and Paramparagat Krishi Vikas Yojana (PKVY), have played a role in encouraged adoption (Ministry of Agriculture & Farmers Welfare, 2023). In addition, growing consumer awareness of food safety and environmental issues has contributed to the expansion of the domestic market (ITC, 2021).

Despite these developments, India's overall position in the global organic sector is not entirely straightforward. Although it stands out in terms of the number of farmers involved and the scale of the certified area, its presence in high-value international markets remains relatively limited (Willer & Lernoud, 2023; ITC, 2021). Several constraints continue to shape outcomes, including small and fragmented landholdings, the cost and complexity of certification, gaps in supply chain infrastructure, and limited processing facilities (Gupta, 2017; Singh, 2021). Issues related to quality consistency, branding, and market access also influence the global performance of Indian organic products (Kledal, 2012).

Despite a growing body of literature on organic agriculture, most existing studies tend to focus on either global trends or country-specific experiences in isolation (Willer & Lernoud, 2023). There is relatively limited research that provides a comprehensive comparative assessment of India's position vis-à-vis leading organic economies using multiple performance indicators, such as area, production, trade, and institutional support. This creates a gap in understanding how India's strengths and constraints translate into global competitiveness. Against this background, the central problem addressed in this study evaluates whether India's current growth in organic agriculture is sufficient to enhance its position in the global market and identifies the key structural and policy factors influencing its performance. Given these considerations, this study examines India's position in the global organic agriculture sector by focusing on key indicators such as cultivated area, production trends, export performance, institutional support, and market development. By placing India alongside other major organic economies, this study seeks to identify both its strengths and the areas that require attention for future growth.

Objectives of the Study

- To study the growth of organic agriculture at the global level, with reference to area, production, market size, and institutional developments.
- To assess India's performance in organic farming, particularly in terms of certified area, number of producers, production levels, and export trends.
- To make a comparison between India and leading organic countries in regions such as Europe, North America, and Asia using selected structural and market indicators.
- To suggest practical measures that could help improve India's position in the global organic sector.

Methodology

This study is based on secondary data rather than primary field surveys. Information was collected from government publications, international reports, statistical databases, and previously published research articles related to organic agriculture and sustainability. Important sources include reports

from the APEDA, FiBL, FAO, and other reliable institutions. The purpose of using these sources was to combine the available information from different studies and analyze them comparatively.

Simple descriptive methods have been used to understand the growth and performance of organic farming. Trends in organically cultivated areas, production, and exports were examined over different years. Basic statistical tools, such as percentages, averages, and compound annual growth rates, were used wherever necessary to make the analysis simple and clear. In addition, a comparative approach is followed to study how India's organic farming sector performs compared to other major organic-producing countries.

This methodology is suitable for the present study because the objective is to understand the overall trends, growth patterns, and policy-related developments in organic agriculture. Since the study focuses on a broader analysis at the national and international levels, secondary data are more appropriate and practical than conducting large-scale field surveys. These data sources are reliable, easily accessible, and provide long-term information that helps make meaningful comparisons across countries and time periods. Moreover, descriptive and comparative methods help present the findings in a simple and systematic way, making the study easier to understand.

Scope of the Study

The study looks at India's position in relation to major organic farming regions, especially Europe, North America, and a few selected countries in Asia. The focus is mainly on broader aspects such as institutional support, market development, and structural features of the sector. It does not go into detailed farm-level analysis or region-specific case studies.

Limitations of the Study

This study is based on secondary data collected from government reports, international publications, databases, and earlier research studies. Therefore, the findings of this study depend largely on the accuracy and reliability of the available sources. Any inconsistencies or changes in the original data may have affected the overall analysis.

Another limitation is that different countries and institutions follow different data collection and reporting methods. Because of these variations, direct comparisons between countries may not always be completely accurate.

This study also does not include any primary survey or field-level investigation. As a result, certain local realities, farmer experiences, and regional differences in organic farming practices may not be fully captured in this analysis.

In addition, the study mainly uses descriptive analysis to understand the trends and growth patterns. While this method is useful for presenting and comparing data simply, it does not explain the exact reasons behind the changes or establish cause-and-effect relationships. Qualitative aspects such as farmer attitudes, practical difficulties, and implementation challenges were also not examined in detail.

Finally, the availability of recent and updated data is another limitation, as some reports and databases may not reflect the latest developments in the organic-farming sector.

Review of Literature

The growth of organic agriculture has attracted considerable attention in both academic research and policy discussions in recent years. A widely cited source is the annual report The World of Organic Agriculture by Helga Willer and Jan Lernoud (2023), which documents global trends in organic farming (Willer & Lernoud, 2023). Their work shows a steady increase in certified organic land and market size, with Europe and North America accounting for a major share of retail sales. Simultaneously, many developing countries contribute significantly to production but capture a smaller portion of value-added trade (Willer & Lernoud, 2023; FiBL, 2023).

Recent studies have further corroborated these findings. Smith et al. (2024), in a study published in Nature Scientific Reports, observed that organic cropping systems can balance agricultural productivity with environmental sustainability through improved soil quality and reduced ecological

degradation. Similarly, Raghavan et al. (2025) highlighted the success of India's Zero Budget Natural Farming program in enhancing biodiversity and generating economic benefits without major reductions in crop yields, thereby supporting the viability of agroecological approaches.

Müller et al. (2024) also reported that organic food systems generally exert lower environmental impacts per unit of land and contribute significantly to biodiversity conservation and reduced ecotoxicity when compared with conventional farming practices. In addition, Pereira et al. (2025) emphasized that diversified and innovative organic farming systems enhance soil carbon sequestration, strengthen climate resilience and promote long-term sustainability.

Furthermore, Wang et al. (2026) found that regenerative and conservation-oriented agricultural practices improve microbial diversity, soil organic carbon, and ecosystem multifunctionality while maintaining crop productivity under climate stress. Overall, the literature indicates that sustainable and organic farming practices are increasingly viewed as effective strategies for addressing environmental degradation, climate change, biodiversity loss, and long-term food security.

Overall, the existing literature provides useful insights into both global trends and India-specific developments in the field. However, there is still a need for a comparative analysis that brings together multiple indicators, such as production, trade, and institutional support, to better understand India's position in the global organic agriculture sector. This study attempts to address this gap by offering a more integrated assessment.

Table 1 India Organic Agriculture: Area, Production, and Exports (2020–2024)

Year	Total Organic Area in India (ha)	Organic Production (Million MT)	Export Quantity (MT)	Export Value (₹ Crore / USD Million)
2020-21	4,339,184	~3.49 †	888,179.68	₹70.78 Cr (~1041 M USD)
2021-22	9,119,865	3.43	460,320.40	₹5249.32 Cr (~771.96 M USD)
2022-23	10,29,476.5	2.66 ‡	312,800.51	₹5525.18 Cr (~708.33 M USD)
2023-24	approx 7.3 Mha	3.6	261,029	₹4007.91 Cr (~494.80 M USD)

Source: Compiled from APEDA/NPOP official statistics (2020–21 and 2023–24) on organic area, production, and export value.

The data show that the total area under organic agriculture in India increased sharply between 2020 and 21 and 2021–22, rising from approximately 4.33 million hectares to more than 9.11 million hectares. This sudden jump seems to be linked not only to fresh certification but also to the inclusion of large tracts of wild-harvested areas. The area continued to expand in 2022–23, although the figures appear to change in 2023–24, settling at approximately 7.3 million hectares. This decline does not necessarily indicate a real contraction; it may reflect changes in classification, certification renewal, or adjustments in reporting practices.

In contrast, production levels do not exhibit the same rapid growth. Output has moved within a narrow range, roughly between 2.66 and 3.6 million metric tonnes, over the period. This suggests that increases in the certified area are not always matched by similar gains in production. One possible explanation is that many farms are still in the transition phase, where the yields tend to be lower. Other factors, such as limited technical support, soil conditions, and variations in farming practices, may also play a role.

The export performance presents a clearer trend. The quantity and value of exports have declined over the years. Export volumes dropped significantly from approximately 888,000 MT in 2020–21 to around 261,000 MT in 2023–24. A similar pattern can be seen in export earnings, which fell from approximately USD 1041 million to about USD 495 million during the same period. This decline could be linked to a mix of factors, including changes in global demand, price movements, supply chain disruptions, and stronger competition from other organic-exporting countries. Taken together, the figures suggest that while India has made progress

in expanding its organic base, challenges remain in translating this growth into higher production and a stable export performance.

Table 2 India's Share in Global Organic Agriculture (2023)

Indicator	India	Global	India's Share (%)
Organic Area	~7.3 Mha	~99 Mha	~7.4%
Organic Producers (2023)	~2.36 M	~4.3 M	~55%
Export Value (USD million)	~494.80	~136,000 M EUR (global retail)	<1%

Source: Compiled from APEDA/NPOP official statistics (2020–21 and 2023–24) on organic area, production, and export value.

India has a large producer base (~55% of global producers) but a small share of organic FARMLAND and global market value, showing participation is high but value concentration remains limited.

Table 3 India Organic Exports – Top Destination Countries (2023-24)

Country	Export Qty (MT)	Export Value (₹ Crore)	Export Value (USD Million)
USA	102,462.72	1953.97	241.23
European Union	75,097.56	1312.39	162.02
Canada	14,251.38	162.81	20.10
Great Britain	13,717.87	161.28	19.91
Sri Lanka	12,348.12	66.12	8.16
Others (total)	43,151	~411	~43

Source: Compiled from APEDA/NPOP official statistics (2020–21 and 2023–24) on organic area, production, and export value.

Global organic area reached nearly 99 million ha by 2023, with ~4.3 million producers globally. India's organic area (~7.3 Mha) constitutes a modest share (~7.4%) of the global total, but India has the largest producer base (~2.36 M farmers). Organic production in India was ~3.6 million MT in 2023-24. Export performance shows India's organic goods reached key markets like USA and EU, with export value ~US$495 million.

Here is the Statistical Growth Trend Analysis using CAGR (Compound Annual Growth Rate) I have calculated CAGR using the standard formula:

CAGR = (Vf/Vi)^(1/n)−1
Where:
Vf = Final Value
Vi = Initial Value
n = Number of years
Period considered: 2020–21 to 2023–24 (3 years)

Table 4 CAGR Analysis of India's Organic Sector (2020–21 to 2023–24)

Indicator	2020–21	2023–24	Growth Ratio	CAGR (%)
Organic Area (Million ha)	4.339	7.302	1.683	≈ 19.0%
Organic Production (Million MT)	3.49	3.60	1.031	≈ 1.0%
Organic Export Value (USD Million)	1041	494.8	0.475	≈ –22.0%

Source: Compiled from APEDA/NPOP official statistics (2020–21 and 2023–24) on organic area, production, and export value.

India recorded a strong compound annual growth rate of approximately 19% in organic area expansion during 2020–2024. This reflects increased farmer participation, policy support, and certification expansion under NPOP and PGS systems. Organic production grew marginally at around 1% CAGR, indicating that expansion in area has not proportionately translated into higher productivity. This may be due to transition periods, lower yields during conversion, and climatic factors. Organic export value declined at an annual rate of approximately 22%, suggesting volatility in

international demand, price fluctuations, certification barriers, or global economic slowdown effects during the post-pandemic period.

Findings

A close look at Tables 1 to 4 shows some important trends in India's organic farming sector. One of the most noticeable changes is the steady increase in the area under organic cultivation. The area expanded from around 4.33 million hectares in 2020 – 21 to nearly 7.3 million hectares in 2023–24. The highest level was recorded during 2022 – 23. This shows that organic farming has been growing rapidly in recent years, possibly due to government support, certification programmes, and increasing awareness about environmentally friendly farming practices.

At the same time, production has not increased at the same pace as the cultivated area. Organic production remained within a limited range of around 2.66 to 3.6 million metric tonnes during the study period. The growth in output is therefore quite small when compared to the expansion in area. This suggests that productivity in organic farming is still a major concern. In many developed countries, better technology, research support, and efficient farming practices help maintain higher productivity levels, whereas Indian organic farming still faces challenges related to training, infrastructure, and market support.

The export trend also shows some weakness. The quantity of organic products exported declined significantly from around 888 thousand metric tonnes in 2020–21 to nearly 261 thousand metric tonnes in 2023–24. Export earnings also dropped from about 1041 million USD to nearly 495 million USD. This decline may be due to changes in global demand, strict international quality standards, certification issues, and growing competition from other countries in the organic market.

From a global perspective, India holds a unique position in organic agriculture. Although India accounts for only approximately 7.4 percent of the world's organic farmland, it contributes nearly 55 percent of the total number of organic producers in the world. This clearly shows that organic farming in India is largely conducted by small and marginal farmers. Unlike countries such as Australia and Argentina, where organic farming is conducted on large commercial farms, India's organic sector is more farmer-centered and labor-intensive.

Another important finding is that India's organic exports are mainly concentrated in a few markets, especially the United States and the European Union. Smaller shares go to countries such as Canada and Great Britain. Depending heavily on a few export destinations may create risks if international demand changes or trade policies become stricter. Therefore, expanding into new markets and strengthening domestic demand for organic products may help improve sector stability.

Overall, the findings show that India has made considerable progress in expanding organic farming and increasing farmer participation. However, issues related to productivity, exports, market access, and international competitiveness still remain important challenges for the future growth of the sector.

Discussion

The patterns observed above suggest that India's progress in organic agriculture is driven more by area expansion than by productivity improvements. While policies and certification programs have helped bring more land under organic farming, the expected increase in output has not followed to the same extent. This could be due to the adjustment period that farmers' face when shifting to organic methods, along with limitations in technical knowledge and support.

The fact that India has a very large number of producers but a smaller share of total organic land points to the fragmented agricultural structure. Most farmers work on small plots, making it difficult to achieve scale advantages or improve efficiency in production and marketing.

The decline in exports is another area of concern. This suggests that India is facing difficulties in maintaining its position in international markets. Issues such as changing global demand, price fluctuations, stricter quality requirements, and supply chain disruptions may all play a role. In addition, the limited focus on processing and branding reduces the ability to earn higher value exports.

There also seems to be a disconnect between production and the market outcomes. Even though

production levels are fairly stable, the absence of strong supply chains, proper storage, and traceability systems makes it harder for farmers to fully benefit from the available opportunities.

Overall, the evidence points to one key idea: increasing the area under organic farming alone is not sufficient. More attention should be paid to improving yields, strengthening value addition, ensuring consistent quality, and connecting producers more effectively with markets. These aspects will be important if India wants to improve its position in the global organic farming sector.

Suggestions

Addressing the Gap between Area Expansion and Productivity

The findings show a strong increase in the organic area (CAGR ~19%), but only marginal growth in production (approximately 1%). This indicates that expansion alone does not improve output.

Greater focus is needed on yield improvement through research in organic inputs and farming practices.

Training programmes should specifically target farmers in the conversion stage, where yield losses are common.

Extension support must move beyond certification and focus on productivity.

Strengthening Smallholder Efficiency and Aggregation

India accounts for approximately 55% of global organic producers but only a small share of total organic land. This reflects the dominance of small and fragmented holdings.

Promoting Farmer Producer Organizations (FPOs) can help farmers pool resources and improve market access.

Cluster-based organic farming should be encouraged to achieve scale advantages in production and marketing.

Shared infrastructure (storage, grading, and processing) can reduce individual farmer costs.

Reviving Export Performance and Competitiveness

The data clearly show a decline in export quantity and value (negative CAGR of approximately 22%).

Efforts should focus on stabilizing export markets through improved quality control and compliance with international standards.

Diversification beyond a few major markets, such as the USA and EU, can reduce risk.

Strengthening trade linkages and export promotion strategies is important.

Promoting Value Addition to Improve Market Realization

Despite a large production base, India's share of the global organic market value remains very low (less than 1%).

Instead of exporting raw products, more emphasis should be placed on their processing and packaging.

Branding Indian organic products can help capture higher values in global markets.

Region-specific branding (such as spices, tea, and millets) can create niche advantages.

Improving Certification and Traceability Systems

While farmer participation is high, export competitiveness depends on the credibility and traceability of the product.

Simplifying certification procedures can encourage broader participation, particularly among small farmers.

Digital tracking and traceability systems can improve the trust in Indian organic products.

Reducing certification costs will make the system more inclusive and affordable.

Strengthening Domestic Market to Complement Exports

Given the instability in export performance, relying solely on international markets may not be sufficient.

Expanding the organized retail and e-commerce platforms for organic products can support domestic demand.

Consumer awareness campaigns can increase the willingness to pay for organic products.

A strong domestic market can act as a buffer to global fluctuations.

Infrastructure Development to Reduce Supply Chain Gaps

These findings indicate a disconnect between production and market outcomes.

Investments in storage, cold chains, and post-harvest facilities can reduce losses.

Dedicated organic export zones can improve efficiency and quality.

Better logistics and supply chain coordination will help to maintain product quality.

Financial Support During Transition Phase

Low productivity growth may partly reflect the challenges during the conversion period.

Providing targeted financial support during the first few years can reduce the risk for farmers.

Expanding access to credit under priority sector lending encourages adoption.

Linking organic farming to sustainability and climate programs can provide additional support.

Area for Further Research

Since this study mainly relies on secondary data and examines the issue from a broad perspective, there is ample scope for more detailed work in the future. One area that requires closer attention is the farm level. The results show that production has not increased in the same way as the area under organic farming. Therefore, it would be useful to study individual farms to understand why this gap exists, whether it is due to soil quality, input use, lack of technical knowledge, or other practical challenges faced by farmers.

It would also be helpful to take a closer look at NPOP and PKVY. While these schemes have clearly supported the spread of organic farming, their actual impact on farmers' income, productivity, and long-term adoption is unclear. More focused studies could provide a better picture of how effective these initiatives really government programmes are.

Another important direction is the study of value chains. The findings suggest that there is a gap between what is produced and what actually reaches the market profitably. Future research could examine issues such as storage, processing, transport, and market linkages to understand where the system is breaking down.

There is also room to explore consumer behavior in India. Compared to other countries, the domestic market for organic products is still developing. Understanding how consumers think, what they are willing to pay, how much they trust organic labels, and what influences their buying decisions can help strengthen demand.

On the export side, more work is needed to understand the trade-related challenges. This includes examining international standards, certification requirements, and the competitiveness of Indian products in major markets such as the United States and the European Union.

Finally, future studies should examine the growing role of technology in organic farming. Tools such as digital platforms, traceability systems, and online marketplaces are becoming increasingly important, and they may help connect farmers more directly with consumers and improve transparency in the system.

Conclusion

The study shows that India has a strong base for organic agriculture because of its favourable natural conditions and the large number of farmers involved in the sector. Despite its significant presence in organic farming, India s overall share in the global organic market remains comparatively small. The findings clearly show that the sector's growth has mainly come from the expansion of land under organic cultivation rather than major improvements in productivity or export value.

This indicates that future growth should not only focus on increasing the area under organic farming but also on improving efficiency, product quality, and market access. Better infrastructure, easier certification procedures, value addition, proper branding, and stronger supply chains can help make Indian organic products more competitive in international markets. Simultaneously, farmers need continuous support through training programs, financial assistance, research support, and institutional guidance to successfully sustain organic farming practices.

This study also makes an important contribution by bringing together information on organic area, production, exports, and farmer participation to present a broader picture of India's position in the global organic sector. It highlights both the progress made and the challenges that still exist, especially in terms of productivity, market diversification and international competitiveness. Therefore, the findings may be useful for policymakers, researchers, and planners working towards sustainable agricultural development.

Future studies should further examine the economic conditions of organic farmers, compare the profitability of organic and conventional farming, and analyze regional differences in organic cultivation practices. More research is also needed on consumer awareness, domestic demand for organic products, certification-related difficulties, and the use of technology in improving organic supply chains and marketing systems. Such studies would help develop more effective and practical policies for strengthening India's organic agriculture sector in the coming years.

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