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An Analysis of Global Organic Farmland Leaders

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Abstract

Organic farming is one of the methods by which the world can target the global sustainable goals concerning production and consumption. Currently, organic farming is practiced in 188 countries worldwide, and 96.4 million hectares of agricultural land are under organic management. India ranks second in terms of total area under organic agricultural land and is a global leader concerning organic producers. During the period 2000-2020, India had the highest Compound Annual Growth Rates (CAGR) concerning organic agricultural land at 41 percent. This study analyses the growth rate of the global organic players namely, Australia, India, Argentina, China, and France, in terms of organic farmland area. During the period 2000-2020, India had the maximum hectare multiplier value being 957.80, while Australia (6.74), Argentina (1.55), and France (6.89) had a hectare multiplier value in single digit and China (60.88) hectare multiplier value in double digit. This paper also analyses the major reasons resulting in this expansion.

Keywords: Organic farming, organic farmland growth, factors influencing organic farmland growth.

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INTRODUCTION

Over the past two decades, there has been an exponential growth in the demand for organic products worldwide due to escalating consumer awareness of health, environmental sustainability, and ethical agricultural practices. Compared to conventional farming, organic farming is said to be more environmentally friendly and sustainable since it does not rely on artificial fertilizers, synthetic chemicals, or genetically modified organisms (GMOs) (Willer *et al*., 2020). Globally, organic agriculture is expanding as a result of this shift in consumer tastes, and several nations have implemented legislation and initiatives to support farmers in switching to organic methods.

Organic farming means farming with sustainability. It employs practices that undertake sustainable production at the same time enriching the soil. The advent of the green revolution has blessed humankind with food abundance but has brought the curse of environmental and health damage. The ill effects of chemically grown food are a matter of concern for all living beings and the planet. After the Green Revolution, there is an upsurge in the usage of fertilizers and chemicals. Contamination of the land, air, and water are its negative effects. Excessive use of these causes several negative effects, including degraded food and soil quality, altered pH of the soil, the residue that enters the food chain and deteriorates animal and human health, disruption of soil microorganisms, increased greenhouse gas emissions, etc (Savci 2012; Sharma and Singhvi 2017). Excessive fertilizer application results in deteriorating the quality of food, health, and environment. Considering the maladjustments that chemical-based farming has caused, organic farming has emerged as a sustainable alternative to correct these damages. Over the past few years, organic farming has gained popularity and is embraced both at national and global levels. Escalating people's consciousness for health and the environment are the key reasons for the success of the practice. The inception of the organic movement was mostly driven by social, ecological, and ideological philosophies but as the wave caught momentum over time the rules regulations, and bodies implementing them came into the picture which resulted in the commercialization of the practice. The original intentions for undertaking the practice became vague and it is mainly driven by economic endeavours by the economic units. Thus, the evolution of organic farming

can be seen in a way that previously it was practiced by the farmers mainly because of the passion of philosophy or concern for health but now the practice is mainly adopted with a market-oriented approach as organic products come with price premiums. Thus, over the past few years, there has been a growing interest in organic farming owing to its apparent potential to offer some solutions for the challenges facing the farming sector. The system of organic farming holds opportunities for enhancing food quality, preserving non-renewable resources, and safeguarding the environment. India has varied agroclimatic zones rendering enormous potential for producing a wide range of organic products. This offers an intriguing chance for organic producers to access the rapidly expanding home market coupled with the export market.

Objectives

The objectives of this paper are to present the current global status of organic farming, assess the growth of organic farming of the global organic farmland leaders during the period 2000-2020, and factors accelerating the expansion of organic farming in the global organic leaders. Accordingly, the study is divided into three sections. The first section depicts the present status of organic farming globally. The second section analyzes the growth of organic farming in major organic countries Australia, India, Argentina, China, and France. The third section analyses the reasons driving organic farming growth in these countries.

MATERIALS AND METHODOLOGY

The study analyses secondary data from FiBL reports and the website of organic farmland data of various countries and employs parameters like Compound Annual Growth Rate (CAGR) of organic area (both global and country-specific CAGR) and "hectare multiplier" which is computed by taking the 2020/2000 quotient (overall hectare multiplier), that is the 2020 hectares statistic divided by the statistics of 2000 for every nation. Segregated hectare multiplier is also calculated for two decades 2000-2010 and 2010-2020 for each country to compute decadal growth rates. For instance, a hectares-multiplier of 3.0 means the organic hectare has grown by 3 times in the 20 years, a multiplier of 1.00 means there is no change or growth in the organic area, and a hectare multiplier less than 1.00 means there is negative growth in organic hectares (Paull 2011).

Status of Global Organic Farmland Leaders

As per the FiBL report 20204, the World of Organic Agriculture Statistics & Emerging Trends 2024, 188 countries are engaging in organic farming with an organic area of 96.4 million ha. Australia possesses the greatest amount of organic agricultural land constituting 53.02 million ha. India acquires second position with an area of 4.73 million hectares, followed by Argentina (4.06 million ha.), China (2.90 million ha.), and France (2.88 million ha.). Eighty-two percent of the world's organic agricultural land comprising 79.3 million hectares, were located in the 10 countries with the largest organic agricultural regions. There are other organic regions, such as wild collection areas, in addition to the organic farmed land. Over 8.8 million hectares of agricultural land under the management of 2.7 million producers were found in Asia in 2022. The majority of these producers were found in India, where their population grew by one million between 2021 and 2022, greatly influencing the expansion of organic farming across the globe. The two largest countries in terms of organic agricultural land are China, with about 2.90 million hectares, and India, with 4.73 million hectares. These regions made up about 35 million hectares. India has the largest number of organic producers with 2,480,859 organic producers, followed by Uganda (404,246) and Thailand (121,540). Currently, the global organic market is valued at 134.8 billion euros and the United States captures the largest segment of this market at 58.6 billion euros followed by Germany (15.3 billion euros) and China (12.4 billion euros) (Willer, *et al*., 2024).

Despite being a global leader in terms of area and number of organic producers, there is a deficient demand for organic products in India. Furthermore, a lot of organicists believe that dry land in India has a lot of potential for organic agriculture because it is marginal terrain that is better suited to low-input farming systems that exploit biodiversity than intensive farming systems. Therefore, organic farming can significantly improve the ecological and economic well-being of the drylands as well as the health of the local population because of its emphasis on maintaining and enhancing soil health, avoidance of contaminants, and dependence on local labour and inputs (Bhardwaj, & Dhiman, 2019). Therefore, the government is focusing on promoting organic farming through various programs and policies. In 2000, organic farmland area accounted for 14.90 million hectares which was 0.3 percent of the global agricultural land which grew to 35.90 million hectares being 0.8 percent of global agricultural land. In the year 2020, organic farmland area accounted for 96.40 million hectares and its share in global agricultural land is 2 percent (Willer, *et al*., 2024).

Growth of Organic Farmland of the Global Organic Leaders

Table 1 depicts the organic farmland area in Australia, India, Argentina, China, and France and its share in the total agricultural area of these countries and their CAGR during the period 2000-2020. Since the beginning of 2000, Australia has been the global leader concerning organic farmland with 5.29 million hectares of land under organic farming. In 2000, the least organic farmland area under organic farming among the global organic players concerning organic farmland area was in India (2775 hectares). Australia consistently maintains the highest organic farmland area among all countries throughout the years. China and India have shown significant growth in organic farmland area over the

years, especially after 2010. France, Argentina, and China also show noticeable growth in organic farmland area, although not as pronounced as Australia, India, and China.

Table 1: Top five countries with respect to organic farmland (in million ha) and organic farmland as a share of their agricultural farmland

Year	Australia	India	Argentina	China	France
2000	**5.29 (1.16)**	**0.003 (0.00)**	**2.88 (2.24)**	**0.04 (0.01)**	**0.37** (1.24)
2001	5.29 (1.16)	0.04 (0.02)	2.90 (2.25)	0.30 (0.06)	0.42 (1.41)
2002	6.20 (1.39)	0.04 (0.02)	2.93 (2.27)	0.30 (0.06)	0.52 (1.75)
2003	11.25 (2.56)	0.07 (0.04)	2.91 (2.26)	0.30 (0.06)	0.55 (1.87)
2004	12.13 (3.07)	0.11 (0.06)	2.65 (2.04)	3.47 (0.66)	0.53 (1.81)
2005	11.77 (2.87)	0.19 (0.10)	2.68 (2.06)	2.30 (0.44)	0.55 (1.87)
2006	12.35 (3.02)	0.43 (0.24)	2.36 (1.81)	2.30 (0.44)	0.55 (1.89)
2007	11.99 (3.01)	1.03 (0.57)	2.78 (2.14)	1.55 (0.29)	0.56 (1.91)
2008	11.99 (3.08)	1.02 (0.57)	4.01 (3.15)	1.85 (0.35)	0.58 (2.01)
2009	12.00 (3.12)	1.18 (0.66)	4.33 (3.48)	1.85 (0.35)	0.68 (2.33)
2010	**12.00 (3.19)**	**0.78 (0.43)**	**4.17** (3.31)	**1.09 (0.21)**	**0.85 (2.92)**
2011	11.20 (2.83)	1.08 (0.60)	3.80 (3.03)	1.90 (0.36)	0.98 (3.38)
2012	11.20 (2.89)	0.50 (0.28)	3.64 (2.92)	1.90 (0.36)	1.03 (3.58)
2013	17.15 (4.61)	0.51 (0.28)	3.28 (2.67)	2.09 (0.40)	1.06 (3.69)
2014	22.69 (6.06)	0.72 (0.40)	3.06 (2.53)	1.93 (0.37)	1.12 (3.89)
2015	22.11 (6.35)	1.18 (0.66)	3.07 (2.55)	1.61 (0.31)	1.32 (4.60)
2016	27.15 (7.92)	1.49 (0.83)	3.01 (2.53)	2.28 (0.44)	1.54 (5.36)
2017	35.65 (9.59)	1.78 (0.99)	3.39 (2.88)	3.02 (0.58)	1.74 (6.08)
2018	35.69 (9.94)	1.94 (1.08)	3.63 (3.13)	3.14 (0.60)	2.04 (7.10)
2019	35.69 (9.85)	2.30 (1.28)	3.67 (3.15)	2.22 (0.43)	2.24 (7.83)
2020	**35.69 (10.03)**	**2.66 (1.49)**	**4.45** (3.78)	**2.44 (0.47)**	**2.55 (8.93)**
CAGR (%)	10	41	2	23	10

Source: FiBL statistics and World Bank database (compiled and computed by the author). Note: Values in parentheses depict the percent share of organic farmland in agricultural land of countries respectively.

During the period 2000-2020, the highest CAGR value was recorded in India (41 percent), followed by China (23 percent), Australia (10), France (10 percent) and Argentina (2 percent). India spots 2nd position concerning global organic farmland area and has a higher CAGR value than most of the global organic leaders. The data suggests a global trend towards an increasing area of organic farmland over the years, reflecting growing interest and adoption of organic farming practices. India and China, with their large agricultural sectors, show substantial potential for further growth in organic farming. France stands out as a leader in terms of the proportion of organic farmland, indicating a strong commitment to organic agriculture. Australia

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(9.59%), despite having significant organic farmland area, has a lower share of organic farmland compared to other countries, suggesting potential for further expansion or promotion of organic farming practices within its agricultural sector.

Figure 1 portrays there has been an upward trend in the organic farmland area for all the major global organic leaders mentioned above. Australia's journey of increase in organic farmland is exceptional, especially in the last decade when there was a point of inflection in the year 2013 when the country witnessed a 35 percent growth in organic area from the past year. Except for Australia, all other countries are moving upwards at almost the same pace. The percentage of organic farmland as a share of agricultural farmland varies across countries. India starts with negligible organic farmland as a share of agricultural land but shows a significant increase over the years. Australia and France consistently maintain a higher percentage of organic farmland compared to other countries, indicating a relatively strong presence of organic farming within their agricultural sector. China and Argentina show a gradual increase in the share of organic farmland, although the percentages remain relatively low compared to France.

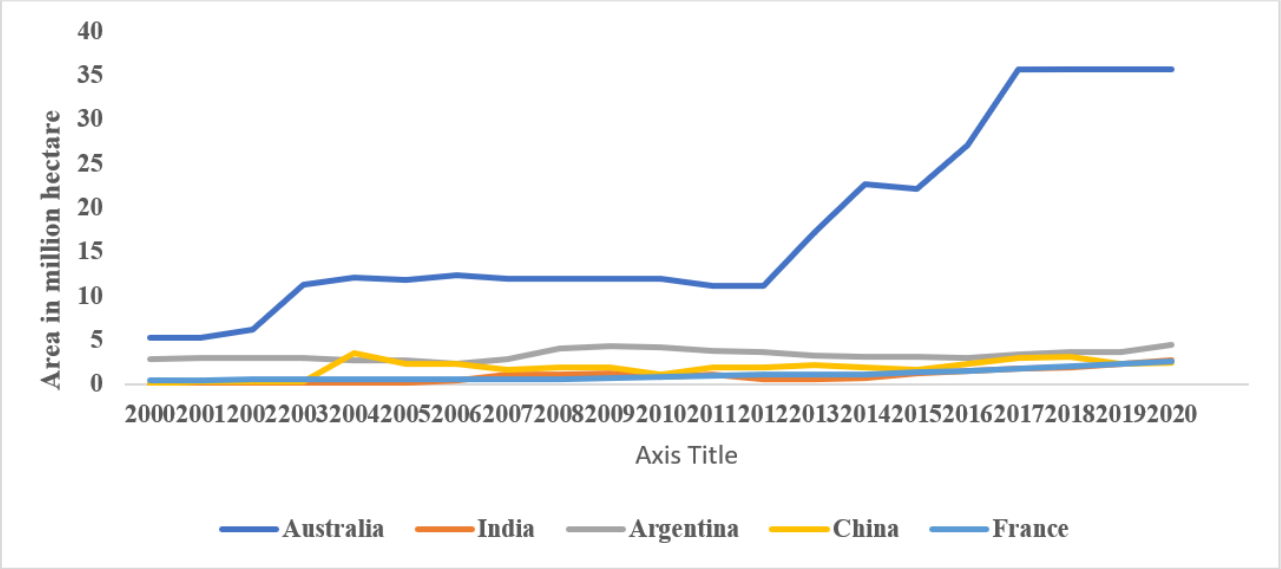

Figure 1: Organic farmland area of global organic leaders since 2000

Table 2 depicts the hectare multiplier of the global organic players of the world concerned farmland. During the period 2000-2010, the hectare multiplier of India was the highest 281.08, followed by China (27.25), France (2.29), Australia (2.27), and Argentina (1.45). This period is marked as a period of massive organic explosion when organic farmland began to expand rapidly, especially in India marked by high hectare multiplier values. During the period 2010-2020, the hectare multiplier values were highest in India (3.41), followed by France (3.01), Australia (2.97), China (2.34) and Argentina (1.07). During this decade, the values of hectare multiplier dropped as organic farmland area increased at a moderate rate in India and China. Hectare multiplier values more or less remained same for Australia, Argentina and France. Overall, in two decades, the organic farmland witnessed more than nine-hundred-fold increase in India.

Table 2: Hectare multiplier

Year	2000-2010 (2010/2000)	2010-2020 (2020/2010)	Overall (2000-2020) (2020/2000)
Australia	2.27	2.97	6.74
Argentina	1.45	1.07	1.55
France	2.29	3.01	6.89
China	27.25	2.34	60.88
India	281.08	3.41	**957.80**

Source: Computed by the author (hectare multiplier= organic farmland area of 2010/ organic farmland area of 2000)

Drivers of the Organic Farmland Growth of the Global Organic Leaders

Organic farmland area is expanding globally as the demand for organic products is increasing. In general, the income of the people, buying behaviour of consumers, and consideration for health are the predominant factors driving the expansion of organic market demand. Moreover, organic product demand is

higher in developed economies as compared to developing economies because organic products command higher prices and awareness (Mendon, Salins, & Aithal, 2018). Since the organic products markets are expanding it becomes essential to analyze the factors that drive the organic farming growth, especially of countries emerging as global organic leaders.

Australia

It's remarkable and astonishing how an individual country can account for more than half of the global organic farmland data. There has been some constancy seen in the growth of the organic farmland area of Australia during the period 2003 to 2012 as the trendline projects a flat line. As worldwide organic farmland developed, then, at that point, Australia's share retreated to a low of 32% from the years 2011 to 2014 and from there it ascended until it arrived at 51% of the global organic farmland area as of 2020 statistics.

The cause of Australia's advantage in terms of the total area of land-certified organic area can be attributed to the existence of extensive rangelands used for grazing. Moreover, the non-pastoral sectors like horticulture and broadacre (grains, oilseeds) account for more than half of the entire value of organic farming, change in the mindset and attitude of the public, an increasing number of corporate farms (apart from being situated in rangelands) are transitioning to organic farming practices, subsidized programs for organic farmers organized by governmental and non-governmental organizations, government support for the business due to the expansion of the organic market and higher export revenues etc. have been the main reason for escalating status of organic farming in Australia (Wheeler, 2011). This development and growth of organic farmland area is a result of ideology and market demand. The consumers' concern for health and pesticide-free food has upsurged the organic food demand. Australia's extraordinary growth in organics is an outcome of the massive conversion of large beef-producing properties to certified organic status. Furthermore, there is a considerable demand for organic beef in the export market especially in the USA, Asia, and Middle East (Paull, 2019).

India

Organic farming is flourishing in India due to the increasing interest of consumers in health and the environment and emerging market opportunities. This awareness is rising but is at a nascent stage and thus there are greater opportunities for organic farming to expand and explore in India (Mendon, Salins, and Aithal 2018; Bhardwaj and Dhiman 2019). Apart from health and environmental concerns, several government initiatives have led to the growth of organic farming in India (Mukherjee, Konar, and Ghosh 2022). The credit for the growth of organic food and beverage consumption in India can be attributed to the demographic dividend, enhanced purchasing power, and interest of the consumers in the health and environmental benefits of organic products. During the period 2020-2021, Indian organic product exports rose by 51 percent in terms of value and 39 percent in terms of volume as compared to 2019-20 (Chandra *et al*., 2020). Indian organic products can be characterized as export-oriented and domestically they have major markets among the high-income groups in urban areas. Indian organic product standards being par with organic standards of various international organisations, have captured a share in foreign markets (Chadha and Srivastava 2020).

Argentina

The organic movement in Argentina began with an objective of planet sustainability via social, economic, and technological actions where non-governmental organisations (NGOs) a key role in its expansion (Foguelman 2007). Organic farming in Argentina has undergone a notorious growth due to elevated concerns about food safety, health, and the environment. Argentina's organic products are majorly export-oriented and have little domestic demand. Affluent domestic consumers are willing to pay price premiums for organic products. Organic farming continues the growth momentum even without sufficient economic support or subsidies by the government. Non-financial support from various research institutions, universities, and government has a key role to play. Majorly international markets and price premiums are the crucial reason behind the growth of Argentina's organic farming (Casellas *et al*., 2006; Rodríguez *et al*., 2009).

China

China was 45th concerning global organic hectares in 2000 and rose to 2nd in the world in 2006 and has been increasing ever since. This growth of organic farming in China can be attributed to China's Organic Revolution. The organic revolution in China started in response to the dysfunction of the Green Revolution which resulted in environmental degradation, international resistance to Chinese-grown food, health issues faced by farmers and consumers resulting in poisoning and deaths, pesticide residue in food, etc. The active participation of the government played a key role by putting a limit on pesticide use, setting food safety standards and checking systems, promoting ecological agriculture, and various government programs like the Green Food Program (1990) and Organic Food Development Centre (OFDC), establishing certification agency, certified export zones, etc. (Paull 2008; Qiao *et al*., 2018). Not only the government but research institutions, universities, and foreign aid play active roles in the development of organic farming. Most of the organic products are sold in the country without price premiums and trade and exports remain key drivers for the growth of organic farming in China (Kledal *et al*., 2007). Chinese organic products have huge demand in the EU, US, and Japanese markets and at the same time, the domestic demand for organic products is also growing. Moreover, lower production costs and price

premiums also lead to the expansion of the organic movement in China (Qiao 2011). Apart from government support, the economic and environmental benefits of organic farming perceived by the farmers have further led to the expansion of organic farming in China (Xie *et al*., 2015).

France

The conversion to organic farming in France is influenced by a combination of policy, economic, technical, and social factors. Originally driven by ideological beliefs, the movement gained traction in the 1980s as policymakers recognized organic farming's potential to meet environmental and societal demands and manage food surpluses. The growth of organic farming in France is primarily driven by financial incentives from government subsidy programs, rising consumer demand for organic products, supportive policies and certification frameworks, and the development of a market organization that favours organic produce. Price premiums, risk perceptions related to yield variability, the educational level of farmers, the influence of neighbouring organic farmers and increased environmental awareness etc. have created a conducive environment for the expansion of organic farming in France (Madelrieux & Mornas 2012; Latruffe & Nauges 2014). Thus, Organic farming emerged in France in the form of a social movement. During the 1970's organic movement gained momentum due to a surge in environmental awareness. French organic consumers do not necessarily belong to the affluent class but are erudite and aware of the ill effects of chemically grown food and hence, prefer organic products over conventional. Moreover, there are supermarkets specially dedicated to organic farming. Thus, concern for high quantities of pesticides, animal health, an active role of associations working to highlight the importance of health and food, increasing consumer awareness, government encouraging conversion to organic farming through subsidies for the conversion period, well-established distribution channels, etc. pushed the growth of organic farming in the country (Mallette 2014; Darnhofer, d'Amico & Fouilleux 2019).

RESULTS AND CONCLUSION

Organic farming provides nutritious and safe food which is free from pesticide residue. The system maintains the health of all living beings and the environment at the same time contributes to economic growth (Das, Chatterjee, & Pal 2020). The emergence of the organic movement is a consequence of elevated consciousness for sustainability and health as an aftermath of the Green Revolution while domestic demand for pesticide-free healthy food and export orientation have been key drivers of organic farming growth among the global organic leaders. Globally, organic farming is gaining ground due to an intricate interaction of economic, policy-driven, and environmental factors. Leaders in the world now include Australia, India, Argentina, China, and France each with unique growth paths influenced by their regulatory frameworks, agricultural landscapes, and market needs.

Distribution channels play a crucial role in France's domestic expansion of organic farming. The role of non-financial support from research institutions, universities, and government has been of crucial importance in Argentina and China. In China and France, the government has an active role in promoting organic farming. Export orientation is a major driving factor in the growth of organic farming in Argentina and China. India has a CAGR of 41 percent respectively. Even though India spots 2nd position globally concerning organic farmland area but has a higher CAGR and hectare multiple value than most of the global organic farmland leaders. Along with this India has the largest number of organic producers in the world projecting further growth opportunities for organic farming in the country. Consumer awareness, export orientation, and institutional and governmental support are observed to be common drivers that foster the growth of organic in the global organic leaders. But organic markets both in India and at the global level are yet to flourish to their full potential. The emerging organic markets offer lucrative economic opportunities to producers to gain from untapped and unexplored organic markets and at the same time meet the global sustainability goal. In the year 2022, only 2 percent of global agricultural land is organic. The organic farmland area of Australia is 14.8 percent of their total agricultural land respectively. India’s organic farmland area is approximately 2 percent of its total agricultural area which indicates there is a vast area under chemical-led farming and India has a massive potential to expand its organic agricultural area. A strategic region-specific conversion rather than massive conversions at once can be done to further fuel the engine of organic farming in India**.**

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