

#MissionOrganics - The Organic Revolution of 2024

Abstract

Global Organic Solutions plans to sow and harvest 2 billion acres of certified organics, including 1 billion acres of hemp and 1 billion acres of various foods and plant-based medicines.

1. Introduction

1.1. Background of Global Organic Solutions

The organic industry has witnessed substantial global growth due to heightened consumer awareness of health and environmental concerns. With 120 countries engaging in the commercial production of certified organic foods, the organic food market is continuously expanding. Additionally, Asian governments are displaying interest in organic farming as a means to promote sustainable agriculture. However, Bangladesh is falling behind other Asian nations in the organic food sector due to the widespread use of chemical inputs by large-scale farmers. Despite this, a small group of farmers in Bangladesh are implementing organic cultivation methods with the assistance of NGOs to reduce production costs, decrease reliance on agro-chemicals, and enhance agricultural sustainability.

Organic farming embodies a comprehensive approach focused on agroecosystem health, soil fertility, and input reduction. The history of organic farming can be traced back to post-World War I Europe and has since experienced rapid growth on a global scale. Governments are providing subsidies to organic farmers and establishing legally binding standards to bolster consumer confidence in organic labeling.

The formulation of certification regulations for organic produce is overseen by both intergovernmental and nongovernmental organizations at the global and national levels. Adherence to these regulations is validated through product certification, and international equivalence agreements are aimed at simplifying the trade of organic products among countries.

The expansion of the organic industry is being driven by consumer consciousness regarding environmental issues, prompting consumers to favor environmentally safe products. Increased corporate investment in organic food production has resulted in notable advancements in the industry, leading to a growing market for organic foods.

Overall, the growth of the organic food industry reflects a shift towards more sustainable agricultural practices that prioritize environmental health and long-term resilience against future climatic disruptions. See references: (Singh & Gundala, 2021)^[1], (Bazaluk et al., 2020)^[2], (Sulser et al., 2006)^[3].

1.2. Purpose of the report

The intention of this report is to conduct a thorough analysis of the 2024 Organic Revolution,

with a focus on the objectives and goals of Global Organic Solutions. With the increasing awareness among consumers regarding health and environmental issues, the organic food industry has witnessed substantial global growth in recent years. The market for organic foods continues to expand rapidly, generating significant sales worldwide. Additionally, the potential of organic products to promote sustainable agriculture has garnered the attention of numerous countries.

This report aims to illuminate the significance and advantages of certified organics and outline strategies for large-scale cultivation and harvesting of organic products. It will also explore the cultivation of hemp for various purposes, as well as diverse foods and plant-based medicines. Furthermore, it will evaluate the environmental impact of large-scale organic farming and investigate sustainable agricultural practices.

An essential focus area of this report will be assessing the economic feasibility and market potential for organic products, highlighting consumer trends and demand for organic goods. Moreover, it will examine the role of technology in improving efficiency and productivity in organic farming, providing examples of innovative technologies utilized in this sector.

Another integral aspect of this report will be identifying the challenges faced by Global Organic Solutions and forecasting the future growth and impact of the organic revolution.

In summary, this report aims to offer a comprehensive overview of the 2024 Organic Revolution while addressing key elements such as environmental impact, economic implications, technological innovations, challenges, and future prospects. See references: (Singh & Gundala, 2021)^[1], (Bazaluk et al., 2020)^[2], (Sulser et al., 2006)^[5], (Blazquez-Soriano & Moreno-Perez, 2023)^[13], (grh, 2007, pages 1-5)^[16], (Search For Organics, 2023)^[17].

Organic food and non-food sales in the United States from 2008 to 2018 (in billion U.S. dollars)

Organic food and non-food sales in the U.S. 2008-2018

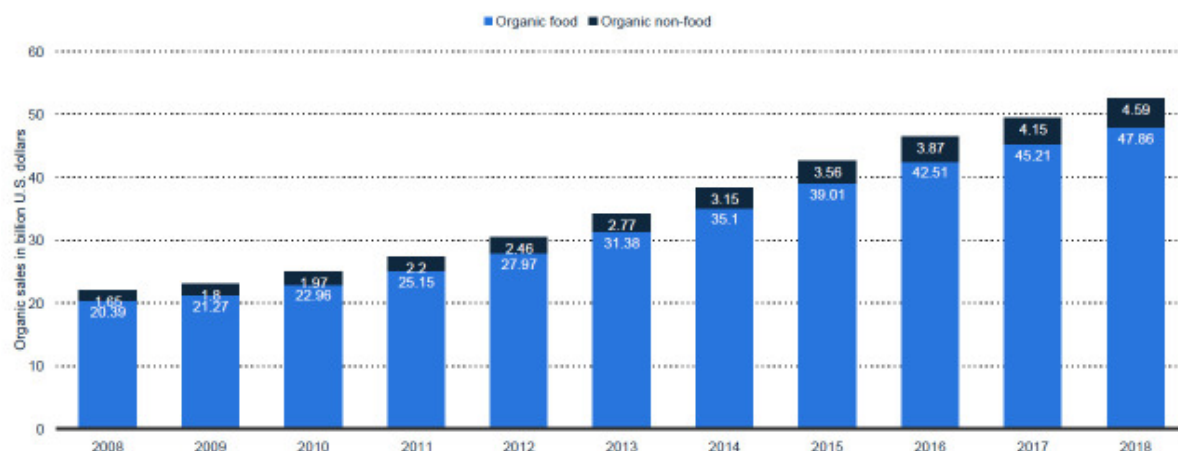


Figure 1: Organic food and non-food sales in the United States from 2008 to 2018 (in billions of US dollars). Source: Statista.com. (source: reference (Singh & Gundala, 2021)^[1])

2. The Organic Revolution of 2024

2.1. Overview of #MissionOrganics

The Organic Revolution of 2024 has led to a significant increase in sustainable agriculture practices, driven by concerns about climate change and environmental damage from intensive farming. This shift has resulted in more organic farms and a larger area of land being certified as organic, leading to reduced costs and narrowing the price gap between conventional and organic products. Young farmers have also been able to access abandoned land, further contributing to the growth of organic farming.

Government regulations and subsidies have made organic certification more attainable for farmers, while public procurement initiatives have increased consumer awareness and demand for organic products. The future of sustainable agriculture is tied to technological advancements that improve efficiency and productivity, with a focus on research and innovation in funding and support for conversion to organic farming expected to increase significantly by 2030.

Challenges such as potential price drops and globalisation-related issues are being addressed through public aid, and the economic feasibility and market potential for organic products are being assessed alongside consumer trends and demand. While there are uncertainties and debates about the impact of organic agriculture on global food security, strategic national plans and increased research projects hold significant potential for achieving sustainability through #VisionaryAgriculture. See references: (Organic Farming Market - Growth, Trends and Forecast (2024 - 2031), 2024)^[4], (Our achievements - IFOAM Organics Europe Publications, 2021)^[8], ((AGRI), 2023, pages 1-5)^[10], (Blazquez-Soriano & Moreno-Perez, 2023)^[13].

2.2. Objectives and goals of Global Organic Solutions

Global Organic Solutions is dedicated to revolutionizing the organic industry and promoting sustainable change in global agriculture through its #MissionOrganics initiative. The company aims to sow and harvest 2 billion acres of certified organics, cultivate 1 billion acres of hemp, and grow 1 billion acres of various foods and plant-based medicines.

Certified organics offer benefits such as enhanced soil health, reduced environmental impact, and healthier food choices. The company's strategies for large-scale sowing and harvesting of organics include regenerative agriculture practices, advanced crop rotation techniques, and precision farming technologies.

The cultivation of 1 billion acres of hemp aims to capitalize on the versatility of this crop for various industries, while the cultivation of various foods and plant-based medicines highlights their importance in modern society.

Global Organic Solutions is also focused on evaluating the environmental impact of large-scale organic farming, implementing sustainable practices, and assessing the economic feasibility and market potential for organic products. Technological innovations such as precision agriculture tools and blockchain technology are being leveraged to enhance efficiency and productivity within the organic industry.

Challenges such as transitioning conventional farmers to organic practices, addressing regulatory barriers to organic certification, and ensuring equitable access to resources for small-scale farmers are acknowledged by the company.

Looking ahead, the organic revolution is expected to continue expanding globally, driven by increased consumer awareness and ongoing research efforts focusing on soil health improvement through regenerative agriculture techniques. See references: (Organic Week 2024 | OTA, 2024)^[3], (A call to rev up the organic revolution, 2023)^[7], (Our achievements - IFOAM Organics Europe Publications, 2021)^[8], ((AGRI), 2023, pages 26-30)^[10].

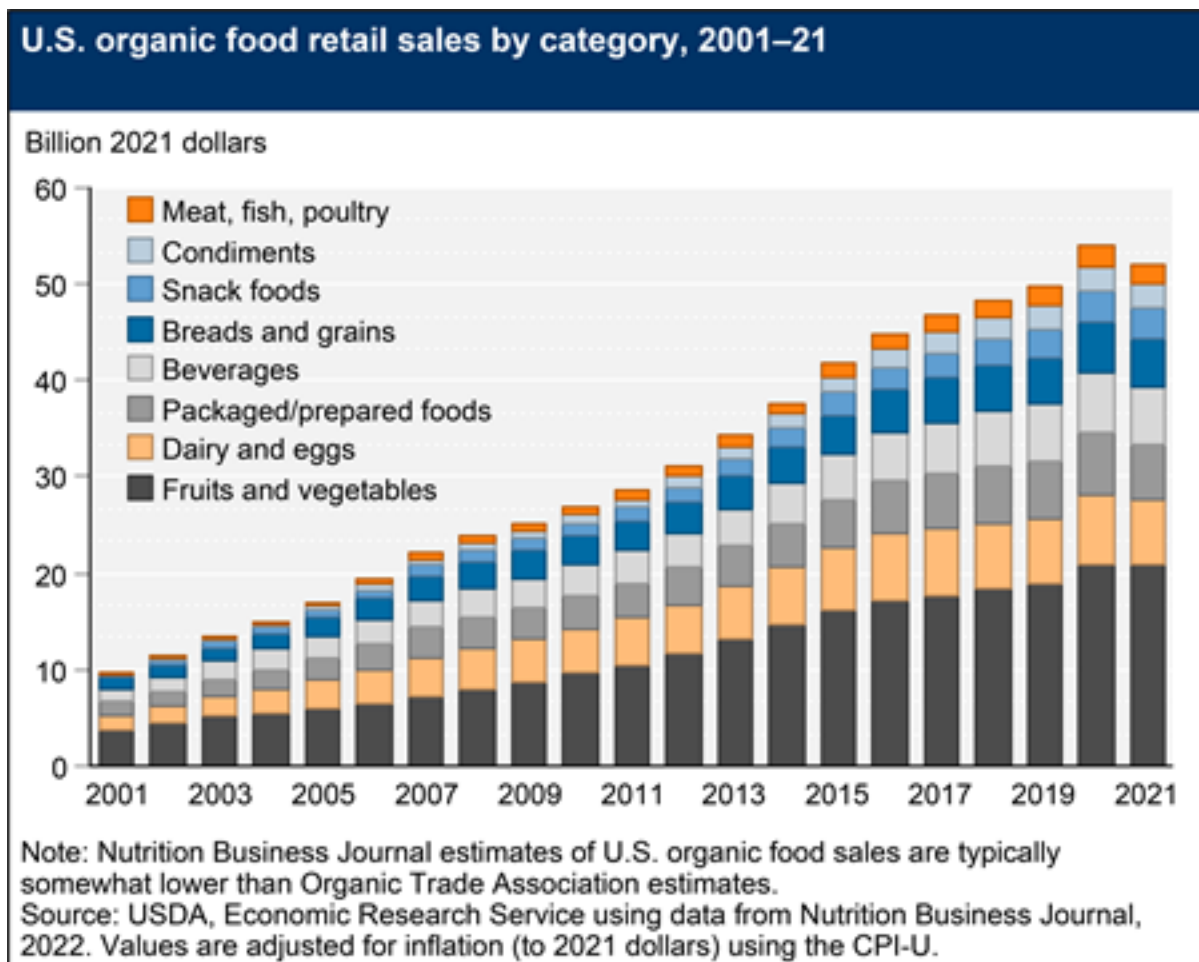


Figure 2: U.S. organic food retail sales by category, 1997-2020 (source: reference (USDA ERS - Organic Agriculture, 2024)^[25])

3. Sowing and Harvesting 2 Billion Acres of Certified Organics

3.1. Importance and benefits of certified organics

Certified organics have been integral to the growth of the global organic food market, with countries like Canada and the European Commission aiming to expand organic agricultural land. Non-certified organic agriculture has shown potential in low-income countries, aligning with the principles of organic farming and offering environmental benefits. Certified organics rely on natural methods and avoid synthetic chemicals and GMOs, resulting in higher nutrient levels and health benefits for consumers. Choosing certified organics also supports environmental sustainability by conserving water resources and promoting biodiversity. Consumer demand for certified organic products benefits individual health and empowers local farmers by creating opportunities for them to transition to organic farming methods. As the demand for certified

organics continues to grow globally, it reinforces the significance of these products in contributing to a healthy and sustainable future for both consumers and the environment. See references: (Bazaluk et al., 2020)^[2], (A call to rev up the organic revolution, 2023)^[7], (Organic farming in the EU: a decade of growth, 2023)^[11], (Teagasc, 2024)^[14], (grh, 2007, pages 26-30)^[16], (Organic Revolution: Empowering consumers for a healthy, sustainable living, 2023)^[19].

3.2. Strategies for sowing and harvesting organics on a large scale

Certified organic farming is crucial for large-scale cultivation, promoting natural fertilizers and reducing chemical inputs to mitigate soil erosion and preserve soil health. Embracing organic agriculture can address climate change and promote environmental sustainability. Cultivating 1 billion acres of hemp for various industries can support the organic revolution by providing sustainable raw materials. Diverse foods and plant-based medicines are essential for food security and public health, meeting the demand for natural healthcare alternatives. Prioritizing soil health, conserving biodiversity, and resource efficiency through sustainable practices is crucial for large-scale organic farming. Understanding consumer trends and demand for organic goods is vital for developing effective marketing strategies and creating economic opportunities for farmers. Technological innovations like precision agriculture and IoT-based monitoring systems enhance efficiency and productivity in organic farming. Challenges include access to resources for organic production and market barriers related to price competitiveness with conventional products. By implementing these strategies and proactively addressing challenges, Global Organic Solutions can pave the way for a successful organic revolution in 2024, promoting environmental sustainability, economic growth, and meeting consumer demands. See references: (Organic Farming Market - Growth, Trends and Forecast (2024 - 2031), 2024)^[4], (A call to rev up the organic revolution, 2023)^[7], (Organic agriculture: opportunities and challenges, 2013, pages 11-15)^[12], (Blazquez-Soriano & Moreno-Perez, 2023)^[13], (Marie Landry's - Spy Shop, 2023)^[18].

4. Cultivating 1 Billion Acres of Hemp for Various Uses

4.1. Understanding the versatility of hemp

Hemp plays a crucial role in the organic revolution of 2024, offering a wide range of environmental and economic benefits. It has the ability to break down harmful substances in the soil through phytoremediation and sequester carbon dioxide at twice the rate of forests, contributing significantly to climate mitigation efforts. Its rapid growth rate allows for multiple harvests per year, making it a highly sustainable crop.

In terms of economic potential, hemp has shown promise in replacing other oil and fiber-producing plants, yielding double the amount of oil compared to peanuts and four times as much fiber pulp as trees. It also offers a sustainable alternative to plastics and cotton, addressing challenges associated with plastic consumption and providing biodegradable materials. The versatile products derived from hemp have the potential to revolutionize various industries, including textiles, construction, biofuels, and cosmetics.

Additionally, hemp cultivation can empower communities by involving youth in agriculture and developing markets for organic products. By integrating local communities into the planting and maintenance of hemp crops, a sense of ownership and collaboration can be fostered, leading to long-term sustainability.

Overall, understanding the versatility of hemp is crucial in harnessing its full potential within the organic revolution of 2024, as it offers a wide range of environmental benefits such as phytoremediation and carbon sequestration, as well as economic opportunities through sustainable product development. Hemp stands as a critical component in achieving widespread adoption of truly sustainable farming systems rooted in organic principles. See references: (Farm Bill Primer: Selected Hemp Industry Issues, 2023)^[9], (Maes, 2023, pages 1-5)^[15], (HEMP, 2022, pages 16-20)^[20], ((EESI), 2024)^[24].

4.2. Different applications and industries using hemp products

Hemp is a highly versatile crop with a wide array of applications across different industries. One of the most notable uses of hemp is in textiles, where it can be utilized to produce robust and sustainable fabrics. In addition, hemp fibers can be incorporated into construction materials, such as hempcrete, providing a more eco-friendly alternative to traditional building materials. Hemp seeds also hold significant nutritional value and can be utilized in food products, including oils and protein supplements. Moreover, hemp has the potential to substitute petroleum-based plastics, offering a biodegradable option that can greatly reduce our dependency on non-renewable resources.

Beyond these practical applications, hemp also plays a crucial role in environmental sustainability. Hemp has been employed in phytoremediation, a process that involves utilizing plants to eliminate toxins from the soil. The extensive root system of hemp makes it particularly effective at absorbing heavy metals from contaminated soil. Additionally, the rapid growth rate of hemp allows it to sequester large quantities of carbon dioxide from the atmosphere, making it an important tool in climate mitigation efforts.

In conclusion, the versatility and sustainability of hemp make it an invaluable resource for various industries and environmental initiatives. As we transition into the Organic Revolution of 2024, the cultivation of 1 billion acres of hemp will not only contribute to the production of essential goods but also play a significant role in promoting environmental health and sustainability. See references: (Farm Bill Primer: Selected Hemp Industry Issues, 2023)^[9], (HEMP, 2022, pages 16-20)^[20], ((EESI), 2024)^[24].

5. Cultivating 1 Billion Acres of Various Foods and Plant-Based Medicines

5.1. The significance of plant-based foods and medicines in modern society

The importance of plant-based foods and medicines in today's society cannot be overstated. The movement towards plant-based diets and natural products is driven by an increasing

awareness of the environmental impact of traditional farming methods. The report from the EAT Lancet Commission emphasized the need to shift from animal to plant-based proteins in order to reduce greenhouse gas emissions, aligning with the goals of Global Organic Solutions. Furthermore, concerns about food safety and nutritional quality have led to a higher demand for organic and biological products, creating a more stable demand for these items.

The nutritional value of organic farming has sparked debates, with studies indicating that organic products contain higher levels of antioxidants and lower amounts of cadmium and pesticide residues. While the scientific community is divided on whether these differences are nutritionally significant, it is evident that organic foods offer potential health benefits.

Additionally, organic farming techniques support a healthier ecosystem and safer food supply through practices like Integrated Pest Management (IPM) and the use of renewable energy.

The market potential for organic products is growing as consumers increasingly choose organically grown foods due to their perceived health benefits and positive environmental impact. This trend presents economic opportunities for farmers and agribusinesses involved in organic production. However, it is important to address challenges such as lower yields associated with organic farming and conflicting claims about its benefits compared to conventional agriculture.

In conclusion, the importance of plant-based foods and medicines in modern society lies in their potential to promote environmental sustainability, improve consumer health, and create economic opportunities. By understanding these factors and implementing sustainable agricultural practices, Global Organic Solutions aims to drive the organic revolution forward into 2024. See references: (Maes, 2023, pages 6-9)^[15], (Search For Organics, 2023)^[17], (GWM, 2019, pages 36-40)^[21], (SUSTAINABLE DEVELOPMENT GOALS, 2019, pages 31-35)^[23].

5.2. Range of plants and their medicinal properties

The variety of plants cultivated for their medicinal properties is extensive and wide-ranging, providing numerous benefits for contemporary society. One such plant is hemp, which has garnered attention for its sustainability and adaptability. Hemp's rapid growth rate, capacity to capture atmospheric carbon dioxide, and minimal requirement for pesticides and water make it an excellent candidate for large-scale farming. It can be utilized in various sectors, including textiles, biofuels, plastics, construction materials, cosmetics, and food products. Hemp's potential to substitute petroleum-based materials and offer sustainable alternatives makes it a valuable plant with countless applications.

In addition to hemp, there are other plants that possess medicinal value and contribute to the organic revolution of 2024. These encompass various food crops and plant-based medicines that play a vital role in promoting health and well-being. The large-scale cultivation of these plants can have a significant impact on the availability of natural remedies and nutritious foods. Aside from their medicinal properties, these plants promote environmental sustainability by advocating organic farming practices. Their cultivation can aid in stabilizing soil nutrient profiles, reducing erosion, capturing carbon dioxide, and decreasing reliance on synthetic chemicals. By integrating these plants into extensive organic farming initiatives such as #MissionOrganics, Global Organic Solutions aims to meet consumer demand for organic products while championing environmental stewardship.

The diversity of plant-based medicines and foods presents distinctive opportunities for addressing global health challenges while advancing sustainable agricultural practices. By capitalizing on the benefits of certified organics and embracing the potential of versatile plants like hemp, the organic revolution of 2024 is set to transform modern agriculture and consumer choices. See references: (Marie Landry's - Spy Shop, 2023)^[18], ((EESI), 2024)^[24].

6. Environmental Impact and Sustainability Measures

6.1. Assessing the environmental impact of large-scale organic farming

Large-scale organic farming has a significant impact on the environment, with both advantages and challenges. It supports sustainable production by prioritizing soil fertility and ecological balance, leading to greater biodiversity and reduced greenhouse gas emissions. However, there are still challenges that need attention, such as the potential for regenerative agriculture to undermine organic farming. Despite this, organic agriculture tends to be more profitable and environmentally friendly than conventional methods.

There is also potential for organic farming to advance public health objectives by encouraging consumers to make healthier choices. Overall, while organic agriculture aligns with sustainability goals and promotes biodiversity, it is essential to address concerns related to greenwashing and misrepresentation of regenerative agricultural practices. See references: ((AGRI), 2023, pages 16-20)^[10], (Blazquez-Soriano & Moreno-Perez, 2023)^[13], (Maes, 2023, pages 6-9)^[15], (SUSTAINABLE DEVELOPMENT GOALS, 2019, pages 41-45)^[23].

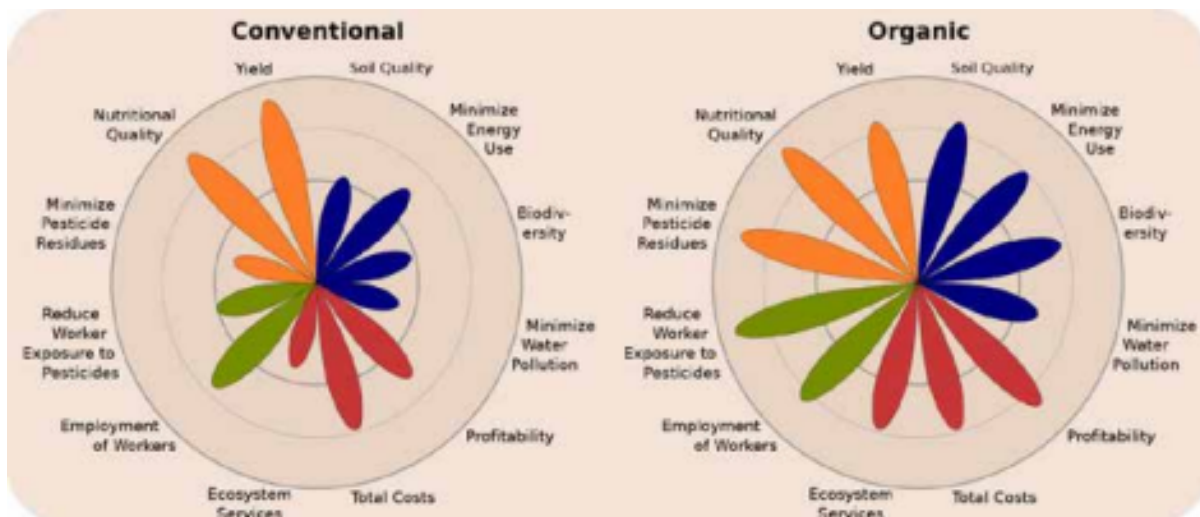


Figure 3: production (orange), environment (blue), economics (red) and social wellbeing (green) (source: reference (SUSTAINABLE DEVELOPMENT GOALS, 2019)^[23])



Figure 4: Official EU organic logo (source: reference (SUSTAINABLE DEVELOPMENT GOALS, 2019)^[23])

6.2. Implementing sustainable practices in agriculture

The organic revolution of 2024 places a strong emphasis on implementing sustainable practices in agriculture. This means focusing on outcomes like soil carbon and biodiversity, which can be valuable tools for farmers looking to improve their organic methods. Sustainable packaging and transportation methods in the organic sector also play a crucial role in reducing environmental impact.

Technology is another key aspect of sustainability in agriculture. By using software for data collection and analysis, organic food producers can make more informed decisions and enhance productivity. Additionally, technologies for accurate sowing and weed reduction can optimize harvests and cut down on labor costs, contributing to economic and environmental sustainability.

Promoting practical documentation tools for organic benefits can serve as a basis for payments for farm eco-services, incentivizing farmers to adopt sustainable practices. This will contribute to the overall success of the organic revolution by encouraging environmentally friendly farming practices.

When it comes to assessing the environmental impact, it is important to consider the potential consequences of large-scale organic farming. Recent studies have shown that the yield gap between organic and conventional farming systems is smaller than previously believed, suggesting that with proper management, large-scale organic farming can be both environmentally sustainable and able to meet global food demand.

In conclusion, implementing sustainable practices as part of the organic revolution of 2024 requires a holistic approach. By considering environmental impact, technological innovation, economic feasibility, and consumer demand, Global Organic Solutions can ensure that their objectives are both environmentally sound and economically viable. See references: (Bazaluk et al., 2020)^[2], (Maes, 2023, pages 6-9)^[15], (The Global Food System: Trends, impacts, and solutions, 2024)^[22].

Group	Example	Description
Organizational form	Creating cooperatives and clusters	Since major producers of organic food are small and medium enterprises (farms), uniting into cooperatives and creating clusters let them freely exchange innovations and experience, increase their export power and establish close contact

		among all participants in the organic market.
Production	Collecting and analyzing data	This is a vital component for efficient and profitable production; thus, using specifically designed software promotes collecting and analyzing a great scope of data whose assessment lets organic food producers make more weighed decisions about production.
	Technologies for organic weed reduction	Since the organic method of production requires bigger labor costs, which lead to an increase in organic food prices, there is a necessity to constantly search for new methods of growing process improvement and organic food production. Organic food producers regularly implement technologies such as cultivators for inter-row soil cultivation, mechanical weed reduction, etc.
	Technologies for accurate sowing	These are used in order to optimize harvests on the basis of received data and conditions.
	Internet of things (IoT)	The technology provides farmers with the data necessary for designing efficient planting schedules, which will further lead to crop capacity increases; improvements in produce quality; and decreases in exploitation costs, growing time and the use of energy.
Sustainable packaging	Zero-waste packaging	Packaging is an important part of organic goods, especially provided that goods demand is growing in the market. Since organic production is linked to ecological issues, packaging (plastic) makes consumers concerned. Therefore, many organic food producers are constantly searching for innovation in packaging. A zero-waste direction (that is, the complete renunciation of using plastic as a packaging material) is becoming increasingly popular among organic producers. Additionally, product descriptions and labeling are essential parts of packaging since they provide accurate and actual information to consumers (peculiarities of labeling usage are provided in regulatory documents that directly suggest rules of production, transportation, etc. of organic food and vary depending on the chosen standard system).
	Blockchain	Using blockchain encourages the creation of a transparent system of goods itineraries that considerably increases consumers' trust in products. Thus, the British Soil Association in cooperation with technology start-up Provenance developed a pilot technology that will enable consumers who possess Near-Field-Communication smartphones to receive the necessary information about organic food. In addition to food chain transparency assistance, the use of

		blockchain by food/industrial groups for facilitation of the direct sales process is a perspective; consumers can also save up to 30% on daily purchasing by buying directly from food producers. Food industry leaders, such as Walmart, Nestlé, Unilever and others in cooperation with IBM are actively implementing blockchain technology in order to support digital data protection and the promotion of food tracking (e.g., chicken, chocolate and bananas).
	Zero miles	The “zero miles” initiative and “100% produce” of local production have become widespread in Spain. The Casa Grande de Xanceda milk company, which produces organic yogurt, is a good example of their efficient implementation. The company has signed priority deals with local suppliers not only on produce delivery but also dealing with issues of farm maintenance and animals’ well-being.
	U-pick	Organic farms all over the world offer a service of organic food being collected by consumers.
Marketing	Green marketing	Despite the fact that organic food production has positive effects on the environment, the system of food delivery from producers to consumers is still an issue. Thus, organic companies resort to using such tools of green marketing as creating local points of sale where local consumers buy foods, thus reducing CO ₂ emissions into the atmosphere when transporting food from point A to point B. American company Buddha Teas, which sells various organic tea blends, is a good example of implementing “green” marketing. The company uses materials that have minimal negative effects on the environment and either decompose naturally or can be recycled for packaging production.

Table 1: Ecoinnovations in the organic sector by groups. (source: reference (Bazaluk et al., 2020)^[2])



[Chart 1](#): Organic yields compared to conventional yields for selected arable crops, average 2015-2020 (conventional yields = 100) 100 80 60 40 20 0 Wheat Maize IT AT DE FR PL
Source: EU FADN. 2020 data are preliminary. Data on organic maize yield not available for Poland because the sample size is too small. According to a review of meta-analyses commissioned by DG Agriculture and Rural Development to the Joint Research Centre 9, crop yields in organic production are 5-30% lower than in conventional production. Based on FADN data on farms specialised in arable crop production, the yield gap is particularly significant for common wheat, European Commission, iMAP (Integrated Modelling platform for Agro-economic and resource Policy analysis), (source: reference ((AGRI), 2023)^[10])

7. Economic Implications and Market Potential

7.1. Evaluating the economic feasibility and market potential for organic products

In recent years, the organic food market has seen remarkable growth, witnessing a surge in retail sales of over 128% in the past decade. The European market, particularly France, has shown substantial growth, making it the second-largest EU market for organic retail food sales. This increase in demand reflects a growing consumer consciousness about environmental issues and a willingness to invest in eco-friendly products. On average, each European spends approximately 84 euros per year on organic products, indicating a strong consumer base for these goods.

The economic feasibility and market potential for organic products are further strengthened by the fact that French organic producers receive a price premium for their goods. For instance, there was a 21% premium for wheat and a 28% premium for milk in 2020. Additionally, in 2020, 56.6% of the land under organic farming received specific CAP support in France, showing government commitment to supporting the growth of organic farming through various initiatives and funding.

Moreover, the global organic food market has witnessed dynamic growth, generating a turnover

of \$60 billion US dollars from organic products. This showcases the significant economic potential of the organic industry on a global scale. The rise in demand has also led to industry innovations and investments, further fueling its growth.

In summary, there is clear evidence of strong consumer demand and economic potential for organic products at both local and global levels. With increasing awareness about environmental issues and consumer willingness to invest in sustainable products, the future prospects for the organic revolution of 2024 appear promising. See references: (Bazaluk et al., 2020)^[2], (Organic action plan, 2024)^[6], ((AGRI), 2023, pages 11-15)^[10], (Organic farming in the EU: a decade of growth, 2023)^[11].

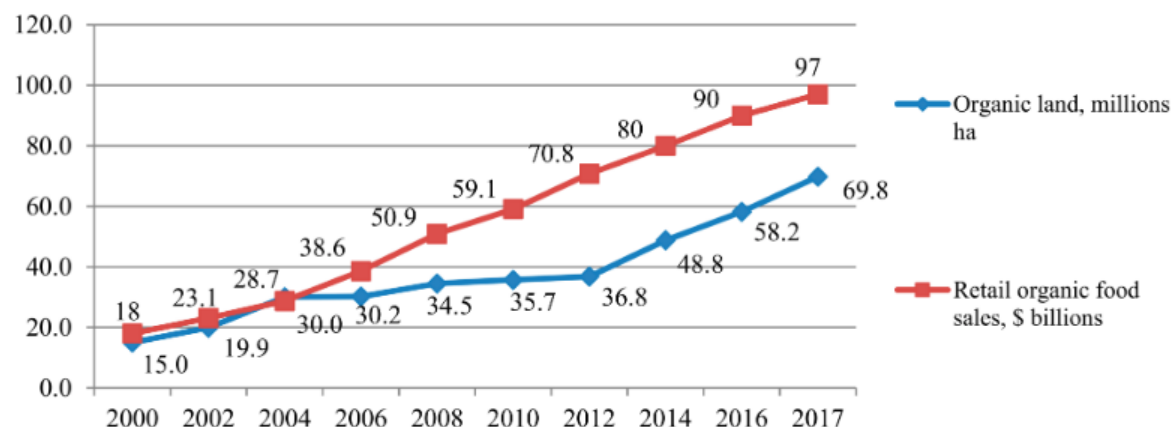


Figure 5: Retail sales of organic food and quantity of organic land in the world. Source: data from the International Federation of Organic Agriculture Movements (IFOAM) and Statista. (source: reference (Bazaluk et al., 2020)^[2])

Region	Index	2016	2017	2016–2017, %	2007–2017, %
Africa	The number of organic goods producers, millions	1.11	1.14	3.3	182.4
	Consumption, \$	-	-	-	-
Asia	The number of organic goods producers, millions	0.74	0.82	9.9	70.6
	Consumption, \$	1.92	2.34	21.87	-
Europe	The number of organic goods producers, millions	0.46	0.45	-1.4	73.7
	Consumption, \$	46.11	56.84	23.27	-
Latin America	The number of organic goods producers, millions	0.37	0.40	6.5	78.7
	Consumption, \$	1.47	1.47	-	-
North America	The number of organic goods producers, millions	0.027	0.026	-2.3	236.1

	Consumption, \$	132.21	134.59	1.78	-
Oceania	The number of organic goods producers, millions	0.018	0.019	3.2	13.0
	Consumption, \$	29.95	35.93	20.00	
The world	The number of organic goods producers, millions	2.73	2.86	4.7	105.3
	Consumption, \$	12.77	13.79	7.98	-

Table 2: Number of organic producers in the world and consumption by region. (source: reference (Bazaluk et al., 2020)^[2])

7.2. Analyzing consumer trends and demand for organic goods

The surge in consumer demand for organic products has been a notable trend in recent years, driven by a growing awareness of health and environmental issues. This increase in demand is evident in the United States, where consumers are willing to pay a premium for certified organic goods. Similarly, Europe has seen a substantial rise in retail sales of organic products, reaching 41 billion euros in 2019, indicating a significant shift towards organic consumption.

Consumer preference for organic goods is driven by various factors such as health concerns, environmental sustainability, and food safety. Research has shown that consumers are willing to pay more for organic products due to their perceived health benefits and desire to support sustainable agriculture practices. Furthermore, the rise in income levels has also contributed to the growing demand for organic goods, particularly among higher-income households.

Government support and policies promoting the transition from conventional farming to organic agriculture have played a pivotal role in driving consumer demand for organic goods. Subsidies and legal standards for organic certification have enhanced consumer trust in the authenticity of organic labeling, influencing their purchasing decisions.

The growth of the organic market extends beyond food products to include textiles, cosmetics, and personal care items, reflecting a broader consumer trend towards sustainable and eco-friendly consumption practices.

Overall, the rising consumer trends and demand for organic goods are propelled by health concerns, environmental sustainability, government support, and increased purchasing power. As these trends continue to develop, there is an expectation that the market potential for organic products will further expand in the future. See references: (Singh & Gundala, 2021)^[1], (Organic action plan, 2024)^[6].

Characteristic	N (%)	Characteristic	N (%)
Gender		Family Annual Income	
Male	291 (58)	Less than \$40,000	45 (9)
Female	211 (42)	\$40,001 to \$60,000	80 (16)
		\$60,001 to \$80,000	116 (23)

Age		\$80,001 to \$100,000	126 (25)
18–30 years	105 (21)	above \$100,000	135 (27)
31–40 years	186 (37)		
41–50 years	116 (23)	Family Size	
51–60 years	60 (12)	1–2	191 (38)
Above 60 years	35 (7)	3–4	186 (37)
		5 or more	125 (25)
Education			
High school	80 (16)	Occupation	
Undergraduate	141 (28)	Student	55 (11)
Graduate	176 (35)	Work full-time	186 (37)
Postgraduate/Ph.D.	105 (21)	Self-employed	171 (34)
		Retired	90 (18)

Table 3: Sociodemographic characteristics of respondents. (source: reference (Singh & Gundala, 2021)[\[4\]](#))

Predictor	Min	Max	Mean	SD	B	Regression Analysis			Collinearity	
						SE	t	Sig	TOL	VIF
HEC	1	5	4.23	1.03	0.37	0.06	6.14	.016	0.84	1.20
CK	1	5	3.84	1.12	0.47	0.13	5.27	.000	0.67	1.50
PSN	1	5	4.44	1.66	0.34	0.18	3.56	.015	0.51	1.96
PP	1	5	4.06	1.45	0.36	0.15	5.25	.001	0.43	2.30
AV	1	5	3.74	1.12	0.29	0.08	2.41	.117	0.49	2.04

Table 4: Results of multiple regression analysis on consumer attitudes. (source: reference (Singh & Gundala, 2021)[\[4\]](#))

Predictor	Step 1		Step 2		Step 3		Collinearity	
	β	t	B	T	B	T	TOL	VIF
HEC	0.27	4.28*	0.63	5.54*	0.22	5.44*	0.45	2.22
CK	0.35	3.25*	0.44	4.77*	0.43	4.22*	0.35	2.86
PSN	0.39	4.18*	0.34	2.33*	0.33	4.19*	0.41	2.44
PP	0.48	5.77*	0.55	5.21*	0.45	6.75*	0.39	2.56

AV	0.43	0.33 [*]	0.27	4.81 [*]	0.33	7.67 [*]	0.43	2.33
AT			0.46	5.23 [*]	0.24	5.39 [*]	0.49	2.04
PI					0.26	7.67 [*]	0.34	2.94
ΔR2	0.55		0.07		0.08			
ΔF	117.77		18.55		22.77			

Table 5: Results of purchase intention predictions using hierarchical regression analysis.
(source: reference (Singh & Gundala, 2021)^[4])

8. Technological Innovations in Organic Farming

8.1. Role of technology in enhancing efficiency and productivity

The upsurge in demand for organic products has been a significant trend in recent years, fueled by an increasing awareness of health and environmental concerns. This rise in consumer preference is evident in the United States, where buyers are willing to pay a premium for certified organic goods. Similarly, Europe has witnessed a substantial increase in retail sales of organic products, reaching 41 billion euros in 2019, indicating a notable shift towards organic consumption.

Consumers' inclination towards organic goods is driven by various factors such as health worries, environmental sustainability, and food safety. Studies have indicated that consumers are willing to pay more for organic products due to their perceived health advantages and desire to support sustainable farming practices. Furthermore, the growth in income levels has also contributed to the increasing demand for organic products, especially among higher-income households.

Government backing and policies promoting the transition from traditional farming to organic agriculture have played a pivotal role in driving consumer demand for organic goods. Subsidies and legal standards for organic certification have boosted consumer trust in the genuineness of organic labeling, impacting their purchasing decisions.

The expansion of the organic market goes beyond food products to encompass textiles, cosmetics, and personal care items, reflecting a broader trend among consumers towards sustainable and eco-friendly consumption practices.

In general, the upward consumer trends and demand for organic goods are driven by health concerns, environmental sustainability, government support, and increased purchasing power. With these trends continuing to evolve, there is an expectation that the market potential for organic products will further expand in the future. See references: (Our achievements - IFOAM Organics Europe Publications, 2021)^[8], ((AGRI), 2023, pages 26-30)^[10], (Blazquez-Soriano & Moreno-Perez, 2023)^[13], (SUSTAINABLE DEVELOPMENT GOALS, 2019, pages 41-45)^[23].

8.2. Examples of innovative technologies used in organic farming

Technological advancements have played a pivotal role in driving the progress of organic agriculture, leading to enhanced efficiency and output. An instance of this is the adoption of aeroponic systems, which have been utilized to facilitate high-yield crop production in a space-efficient manner. These systems are designed for easy assembly and can be powered by solar energy, ensuring sustainability while addressing energy challenges in farming operations.

Furthermore, comprehensive training programs focusing on organic farming techniques, aeroponics, and water conservation methods have been instrumental in equipping farmers with the requisite knowledge and skills for sustainable agricultural practices.

Moreover, the development of precise sowing technologies has enabled optimized harvests based on accurate data and environmental conditions. The incorporation of Internet of Things (IoT) technology has provided farmers with valuable data for creating efficient planting schedules, resulting in increased crop capacity, improved produce quality, and reduced operational costs. Sustainable packaging innovations like zero-waste packaging have also gained prominence in the realm of organic farming, addressing consumer concerns regarding environmental impact.

Furthermore, the utilization of blockchain technology has fostered transparency in the organic food supply chain, enhancing consumer trust in products. This has paved the way for direct sales processes and cost savings for consumers while supporting digital data protection and food tracking. Additionally, initiatives such as "zero miles" and "U-pick" services have further bolstered consumer engagement with organic products.

These instances highlight how technological innovations have transformed organic farming practices by promoting sustainability, productivity, transparency, and consumer engagement. See references: (Bazaluk et al., 2020)^[2], (Search For Organics, 2023)^[17], (Marie Landry's - Spy Shop, 2023)^[18].

9. Challenges and Future Outlook

9.1. Identifying challenges faced by Global Organic Solutions

The organic revolution of 2024 is a game-changing endeavor with the goal of revolutionizing worldwide agriculture and tackling significant environmental, economic, and social obstacles. Nevertheless, Global Organic Solutions encounters several notable hurdles as it works towards its aims. One key issue is the impact of global trade on organic products. Trade barriers, economic obstacles, and government subsidies for traditional agriculture create unfair competition for organic products from low-income nations. Moreover, the consistent standards in organic certification may not take into account cultural and natural conditions in different regions, impeding the potential expansion of organic farming.

Another obstacle identified is the necessity to bolster human and social capital within the organic movement. Relying excessively on external expertise and unresolved conflicts over trade-offs pose risks to the sustainable livelihoods of organic producers. Enhancing organic technologies to decrease biophysical risks and increase resilience against natural shocks and

trends is crucial for the long-term success of large-scale organic farming. Furthermore, addressing the complexities associated with regenerative agriculture practices is necessary. The lack of standardized definitions and practices in regenerative agriculture can lead to misunderstandings and misuse of sustainable farming methods. Aligning regenerative practices with established organic standards presents a unique set of challenges that require careful consideration.

In conclusion, Global Organic Solutions must navigate intricate trade dynamics, enhance human capital within the movement, improve technological capabilities for sustainable farming, and address issues related to regenerative agriculture practices to ensure the success of the organic revolution of 2024. See references: (Maes, 2023, pages 6-9)^[15], (grh, 2007, pages 31-35)^[16].

9.2. Predictions for the future growth and impact of the organic revolution

The organic revolution has a promising future with diverse and complex impacts. Consumer appetite for organic goods is growing due to a shift in attitudes towards health and sustainability, leading to projected sustained popularity. Technological advancements in organic farming could result in improved efficiency and productivity, contributing to the overall expansion of the organic sector. Investment in organic farming practices globally will have a significant impact on environmental sustainability and climate change mitigation, supporting biodiversity and healthier ecosystems. There are also promising economic implications, with opportunities for growth in domestic markets and new international trade opportunities. Overall, the outlook for the future of the organic revolution is positive, with forecasts pointing towards sustained consumer demand, technological progress, environmental benefits, and economic opportunities. It is likely that the impact of organics will continue to grow significantly in 2024 and beyond. See references: (Bazaluk et al., 2020)^[2], (A call to rev up the organic revolution, 2023)^[7], (Teagasc, 2024)^[14], (grh, 2007, pages 1-5)^[16].

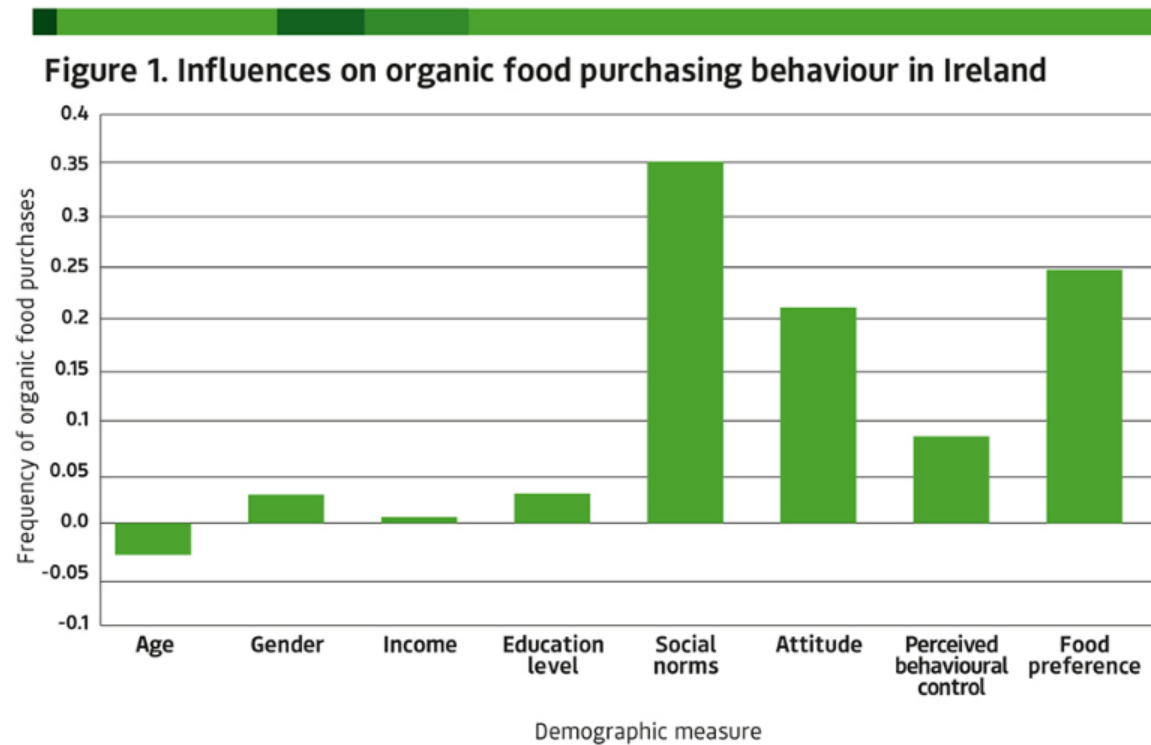


Figure 6: Influences on organic food purchasing behaviour in Ireland (source: reference (Teagasc, 2024)^[14])

Countries	Specifics
The USA	Tough competition in the market; developed institutional structure; generator of new tendencies in the global organic food market, which are promptly adopted by organic food consumers from other countries; 75% of organic food is exported to USMCA countries (Canada and Mexico); setting direct connections between large chain resellers and small and medium organic producers, creating collaborations that lead to exclusion of all resellers by creating own supply systems.
Germany	Favorable economic environment; imports of a large quantity of organic food from EU countries since demand considerably exceeds supply; developed European regional and national chain of supermarkets and organic shops, which have relatively big assortments of organic food.
France	Demand satisfaction of 70% due to own production, with the other 30% covered by imports from European countries; considerable price difference between organic and traditional goods, at 79%.
Italy	Fragmented and competitive market; about 5% of food exports of Italy are organic food; major trade partners of Italy are Germany, France, the Benelux countries, Scandinavian countries and the USA; active organic food consumers of Italy are educational establishments; Italian organic sector mainly produces plant-source products.
Spain	Organic sector of Spain is export-oriented, mainly towards Central European countries; 80% of Spanish products are imported by Germany, France and Great Britain; so-called

	"sustainable restaurants" are widespread in Spain; they prefer local organic food suppliers.
China	Export-oriented development direction of Chinese organic sector; countries that import organic food from China are the USA, European countries, Japan and others; over 80% of domestic market is controlled by hypermarkets and specialized shops; the growth of solvent population forms demand for ecologically safe food; the world e-commerce development driver.
India	Concentration of the largest number of organic producers; major countries importing organic food from India are the USA, Canada, Switzerland and Israel; annual growth of Indian organic food market is at 20%–30%; considerable development potential if domestic issues are solved: creating transparent certification process, strengthening national brands' role in the international market and state support of national producers; has the first 100% organic city.
Latin American countries	Important regional organic food supplier; the biggest quantities of organic land are located in Argentina, Brazil and Uruguay; 80% to 90% of produce is exported to the EU, the USA (about 70% of organic food imported to the USA is from Latin America) and Japan; exports cover a wide range of food, including bananas and coffee beans from Central America, Paraguayan and Brazilian sugar as well as Argentinean meat.
African countries	The largest quantity of organic areas, favorable climate and a lot of water bodies; organic food is mainly exported.

Table 6: Specifics of development of organic food markets. (source: reference (Bazaluk et al., 2020)^[2])

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