Organic agriculture as a sustainable approach to food security

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Abstract. The present article discusses the development of organic agriculture in the Russian Federation and abroad. Organic agriculture is a sustainable approach to agricultural land use and can contribute to producing sufficient amount of environmentally friendly agricultural products, while lessening environmental impacts from agricultural activities. The authors conclude on the importance of government support through legislation, action plans and funding for organic agriculture to be economically viable and contribute to producing sufficient amount of healthy food for future generations.

1 Introduction

As the organic market is evolving dynamically, governments around the world are setting standards for the production, processing and labelling of organic products in order to provide the population with healthier food [1]. The transition to a green economy, which is one of the main global trends of modern economic development, entails improving agricultural productivity, as well as protecting agricultural potential of countries around the world. To address pressing challenges of organic agriculture, namely national food security, conservation of agricultural potential and biodiversity, the Government of the Russian Federation adopted the Action Plan for the Development of Organic Production [2] in Russian regions. The main objectives of the plan include expanding organic agricultural land, applying new technologies, developing balanced pricing strategies. Russian rural areas are expected to benefit economically as new jobs are awaited [3].

2 Materials and methods

We carried out a search of academic publications on organic agriculture evolution, statistical data, regulatory frameworks and legislation, prospects and constraints faced by organic producers in Russia and abroad. In order to establish relationships and patterns in organic production in different countries, we completed a comparative analysis of the obtained data, summarised and simplified the data to help us evaluate the contribution organic agriculture can make to ensure sustainable development.

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3 Results and Discussion

Although the importance of soil fertility as well as the maintenance of agricultural diversity had been acknowledged for almost a century, the issues of water pollution, forest degradation, desertification, pollutants from conventional farming, soil erosion, and overuse of natural resources were only properly addressed in the early 1970s with the foundation of the International Federation of Organic Agricultural Movement (IFOAM). IFOAM was set up to promote environmentally friendly farming methods and stated that organic agriculture should follow the principles of health, ecology, fairness and care [4].The Common Objectives and Requirements of Organic Standards (the COROS) were developed to be applied in the international assessment of standards and regulations for organic production and processing. When comparing the principles proclaimed by IFOAM to the approaches approved in the Russian Federation, one can see the similarities between the principles of IFOAM and the requirements stated by the Russian government. For instance, the principle of care defined as the need to apply technologies reasonably in order to enhance productivity and keep health and well-being of the population is analogous to the Russian requirement to avoid deep ploughing and maintain soil fertility by crop rotation [2-4]. The principle of health, which is about the avoidance of fertilisers and pesticides, is comparable to the Russian requirement of banning Genetically Modified Organisms (GMO) and synthesised substances, namely herbicides, antibiotics, pheromones, repellents, and plant growth regulators [1,4,5].

In the 1970s and 1980s, the increased demand for organic products and, thus, the rise of the global trade boosted organic food production in the USA and Europe. The organic food consumption boom required the development of universal standards and regulations. Therefore, in 1982, the first standard for organic products was introduced in Denmark, followed by Germany and France. In 1990, the United States passed the Organic Food Act, part of an omnibus law known as the 1990 farm bill, and in 2001, the National Organic Program (NOP), was enacted to support the trade and promotion of organic products. In Europe, organic food movements, namely Demeter in Germany, Soil Association in England, Nature et Progrès in France, promoted consumption of locally grown food and a shift to responsible agriculture within the limits of nature [6-8]. The European Union Organic Certification, which sets objectives and principles of organics, was introduced in 2002.

According to the global organic statistics from 191 countries, organic farming continues to grow, with more than 76 million ha being organically managed [6]. To ensure sustainable development of organic farming, countries around the world introduce national policies and regulations to monitor the impact [4, 6]. In Europe, policies for regulating organic agricultural activities were designed to provide clear guidelines for organic farming, with the main objectives including the development of sustainable organic farming, preservation of natural ecosystems and support to farmers and rural populations. It is estimated that up to 75% of the global agricultural area is degraded. By 2050, global crop yields could be reduced by an average 10% [8]. For that reason, direct subsidies to the organic sector are allocated from the EU budget and from the national budgets of EU countries. While, in the USA, funding is provided to certified organic farms as a reimbursement of their NOP certification fees.

The largest global consumption of organic products (approximately 90%) occurs in North American and European countries [6]. According to the statistical data, in 2021, Denmark accounted for the highest organic market share (13%), while the market share of Austria reached 11%, followed closely by Sweden (10%) [6,8,9]. Almost 3.6 percent of the total agricultural land in Europe is organic. In Liechtenstein, almost 40% of agricultural land is devoted to organic farming, followed by Austria with 26.5% [6]. Geographical

proximity to Germany makes Austria an important exporter of organic produce to German markets, as currently organic farmland in Germany constitutes only about 11% of the total agricultural land with the target of 30% by 2030 [10].

Both an increased interest in organically-farmed products and government policies have recently fuelled organic farming's share in France. To foster this change, France is shifting from small organic farms to large-scale production [11,12]. In order to maintain consumer interest and promote more environmentally-friendly practices among farmers, High Environmental Value (HVE), which is a voluntary farm certification, was introduced. This certification is an official recognition of the environmental performance and ascertains that certified farms align with the principles of water and fertiliser use management, biodiversity conservation, as well as plant protection. In 2022, 8218 French farms were able to obtain the HVE certificate compared to 5399 farms in 2020 (an increase of 52%) [12]. The HVE certification, which enables certified farmers to label their products with the HVE logo, is a part of national strategy for 50% organic food and farming by 2030 [12,13]. However, higher prices on organic foods hinder the increase of their market share. Moreover, many consumers still choose in favour of locally produced foods since they tend to consider local foods to be fresher, more nutritious as they do not require long-haul transportation or extra packaging. Furthermore, when purchasing from local businesses, consumers support local economies [12]. Therefore, a continued conversion of agricultural land to organic farming and application of strategies for economically viable farming are aimed at reducing production costs and, consequently, retail prices. A growing number of French citizens are willing to transform their eating habits and consume more responsibly. According to the findings of the survey on organic food consumption, the majority of French citizens choose organic products because of health benefits, environment-related concerns, respectful treatment of animals, as well as support for local businesses (Table 1).

Table 1. Main reasons for organic products consumption in France

	What are your reasons for purchasing organic products?	Responses, in %
1.	Health consciousness	59
2.	Quality and taste	51
3.	Eco-friendly behaviour	45
4.	Animal welfare (safe and clean housing, proper nutrition)	34
5.	Broad availability of organic products in retail outlets	34
6.	Ethical and/or social reasons (fair remuneration of producers, good working conditions)	31
7.	Family traditions	15
8.	Birth of a child/grandchild	8
9.	Health-related reasons (allergies/special diets)	4
10.	Major family cornerstones (except having children)	4

Source: Agence Bio-Spirit Insight [12].

The Russian market of organic products has been increasing gradually over the last two decades [14-16]. According to the data collected by All-Russia People's Front, up to 58% of Russian consumers can afford and are willing to purchase expensive environmentally friendly products regularly, whereas in Moscow approximately 70% of consumers can afford organic products [16]. In 2022 and 2023, the Centre for the Study of Consumer Behaviour (a division of the Russian Quality Assurance Committee) conducted All-Russian surveys on consumer preferences, eating habits, and reasons for purchasing organic products (Table 2) [17,18].

Table 2. Surveys on organic products in Russia

	Define 'organic products'. 'Organic products are ___'	Responses, in %	Reasons for purchasing organic products. 'Organic products are ___'	Responses, in %
1.	natural	81	safer	67
2.	healthy	67	healthier	65
3.	environmentally friendly	67	more nutritious	23
4.	tastier	9	environmentally friendly	23

Source: The Centre for the Study of Consumer Behaviour [17,18]

The increasing demand for organic products has encouraged Russian organic production. Since up to 28 million ha of Russia's agricultural land have been unutilised for a long period of time, there is huge potential for organic farming (Table 3).

Table 3. Unutilised agricultural land

	Type of agricultural organisation	Unutilised agricultural land to total agricultural land, %		
		2006	**2016**	**2021**
1.	Large-scale agricultural businesses	7.0	5.2	3.6
2.	Small-scale agricultural businesses and agricultural entrepreneurs	10.4	3.6	1.4
3.	Privately-owned land	21.0	32.3	33.4

Source: Federal State Statistics Service [19].

Between 2013 and 2019, to regulate the Russian organic market, a number of support measures were put in place. Some laws directed to the support of green farming methods include the following:

2013 - The Russian National Organic Union was created to support Russian producers of organic products [15,21]. In 2023, the Russian National Organic Union merged with the Russian Union of Organic Farming to help strengthen the relationships with the legislative authorities;

2015 - The Russian National standard for organic products (GOST R 56508: 2015) was introduced. This standard applies to crops, seeds, planting materials, and aquaculture products and specifies the requirements for production, processing, labelling, transportation, and storage [15, 21];

2016 - The Russian National standard on voluntary certification (GOST R 57022: 2016) was developed to help legal entities and agricultural entrepreneurs ensure they comply with the requirements and are able to apply for a certificate of conformance to specification;

2018 - Federal Law No 280-FZ 'On organic products and amendments to certain legislative acts of the Russian Federation' was enacted. The law details the requirements for production of organic products and rational use of agricultural land, establishes the right to obtain state financial support, and introduces a Unified State Register of Organic Producers of Russia;

2019 - A special logo for organic products was adopted in order to prevent companies illegally labelling their conventional products as organic and tricking consumers into buying. Currently, 166 producers of organic products from 49 Russian regions are certified and allowed to use the logo on their products. Grain producers account for 30% of all certified producers, followed by producers of vegetables (18.3%) and livestock products (16%) [22];

2021 - The State program for effective land management (No 731) was approved to guide use and further development of land areas for planting;

2022 - The strategy for agriculture and fishery support was approved. Along with the important issues of sustainable resources management, this strategy addresses logistics and digitalisation;

2023 - The Action Plan for the Development of Organic Production was developed to bring together all stakeholders to exchange capacity and strengthen the organic movement in the Russian Federation with the main guiding principles of soil management, crop rotation, avoidance of fertilizers and pesticides, maintenance of agricultural diversity.

As can be noted, the Government of the Russian Federation has been diligently targeting the major constraints faced by the organic market, including the legislative framework, insufficient investments and infrastructure, the low capacity of the processing industry, consumer trust, and market surveillance [23].

4 Conclusion

The conversion to organic production is prudent since it will help maintain soil fertility, preserve biodiversity, and ensure food security. However, government financial support has to be provided for organic agriculture to be economically viable and contribute to producing sufficient amount of healthy food for future generations. The current focus on the domestic market with the introduction of food safety standards and transparent certification, building consumer awareness and overcoming confusion over dubious concepts, targeting rural areas with projects run at national and regional levels will help fulfil Russian domestic and export organic market potential.

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