Organic agriculture: problems and prospects of development

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Abstract. The global market of organic agriculture products shows a steady growth over the past 20 years. In the course of the analysis it was found that Russia, with a resource base, sustainable rural development, the presence of a system of legal and government regulation, has great potential and prospects to become one of the prominent players in this market. The authors have conducted a statistical analysis of market growth prospects based on the growth period from 2012 to 2022, using correlation analysis with peak smoothing using the Deductor software product. It is revealed that, all other things being equal, without external changes (increase in investment, number of manufacturers, etc.) the market has outlined a downward trend. This is due to a rather small number of certified manufacturers. With such a small number of certified producers, the market cannot show sustainable growth and enter the international economic arena. In addition, investment injections are needed, not only from private investors, but also from the state, as well as the application of various measures to stimulate market growth. The main difficulties, peculiarities and trends in the development of the Russian organics market to achieve a sustainable domestic market and export development are presented. On the basis of the study formulated measures of state support necessary for the development of organic agriculture production in Russia.

1 Introduction

In the current economic situation on the world market there are two main types of organic agriculture - pure and integrated. As of 2021, the main share is occupied by pure organic agriculture, which uses organic manure and biopesticides for crop management [3, 4].

Numerous socio-demographic, psychological and contextual studies show a growing consumer preference for organic food [5-7]. As of 2022, more than 190 countries in the world are practicing organic agriculture.

The main triggers for the growth of consumer preference for organics starting in 2020; are: the Covid-19 pandemic; increased food adulteration; increased incidence of cancer, diabetes in preschool and school-age children and general population health problems; concerns about climate change; and increased public awareness [8-10].

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All these factors orient consumers to care about the environment and their own health, and the products of organic agriculture are not only strictly controlled at all stages of production, but also labeled with special signs [11-13]. The organic market in the world and in Russia is developing rapidly. Today, the production of organic products is no longer an unpopular sphere of activity. More and more regions are actively involved in the work to support and develop this important area. It is important to note that the current trend towards the consumption of "organics" has a positive impact not only on the environment, but also on human health, and creates new incentives for producers of agricultural products [14-16].

Organic agriculture is a production system that improves the ecosystem, preserves fertile soils, protects human health, and, taking into account local conditions and relying on ecological cycles, preserves biodiversity, does not use components that can bring harm to the environment [17-19].

In the conditions of agricultural production, methods, techniques and technologies are applied, aimed at ensuring a favorable state of the environment, improving human health, preservation and restoration of soil fertility [20, 21].

Organic products are environmentally friendly agricultural products, raw materials and food, the production of which meets the requirements established by the legislation on organic products [22, 23].

Organic production assumes the naturalness of the grown products. Such production is designed to work with ecological systems minimally disturbing the natural balance of the land [24-26]. The impact of tillage in organic production is much less. Tillage accelerates erosion because the soil remains open for a long period of time and, if it has a low organic matter content, the structural stability of the soil is reduced. Organic farms use practices such as mulching, planting cover crops and intercropping to maintain soil cover for long periods of time [27-29]. The use of compost, mulch, manure and other organic fertilizers gives higher soil organic content on organic farms and helps to limit soil degradation and erosion [30, 31].

2 Materials and Methods

The discussion of the benefits and costs of organic agriculture represents a key area of many studies, including in the accounting process. It is worth noting that yields in organic systems are 8-25% lower than conventional. However, under unfavorable circumstances (e.g. drought, etc.), organics produce higher yields due to the water-holding capacity of organically cultivated soils and the diversity of crop rotations. Many researchers emphasize the direct correlation between organic farming and biodiversity, soil health, and lack of erosion. More efficient use of energy has been noted. Studies conducted at the Research Institute of Organic Agriculture in Switzerland show that the use of energy for the production of organic products is less resource-intensive and costly compared to chemicalized agriculture. Organic farming is more profitable due to high prices for final products and an ever-growing market. The number of consumers of organic food has increased more than 5 times in the last 15 years. Due to the principles and methods of management, the organic market is the most regulated sector in both agriculture and retail.

From the economic point of view it is worth noting the increase in investment in agricultural schools and farming systems for research and development in the field of organic agriculture, innovation activities, development of new drugs acceptable for use in organic agriculture, machinery, etc.

The global organic market has grown more than 7 times in the last 20 years (from 17.3 billion dollars in 2001 to 144 billion dollars in 2020) [32] and shows trends for further growth. The market showed the maximum growth in 2020 (according to IFOAM the

growth amounted to 14 billion euros) [32]. At the same time, 70% of the organic retail market is distributed among the 10 largest consumer countries (Fig. 1).

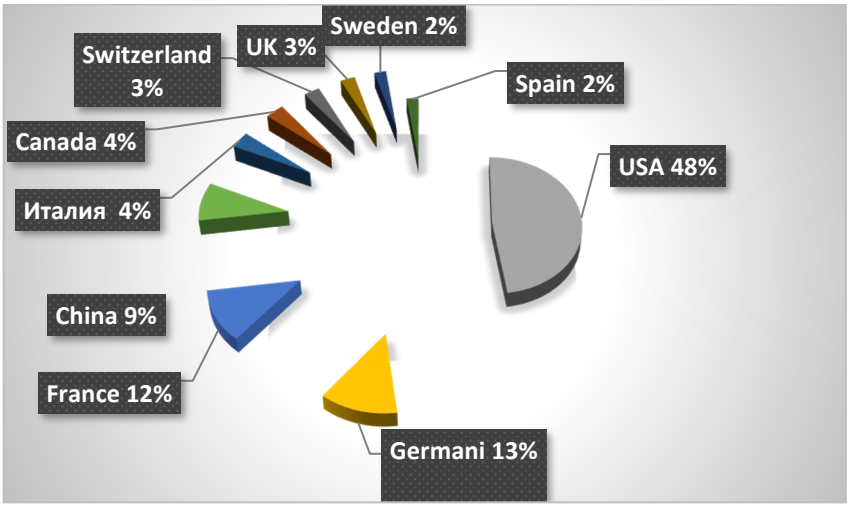

Fig. 1. Distribution of the organics retail market among the top 10 consumers (in % of total volume million euros) [32].

Based on the above data, it is evident that the North American region and the EU accounted for the highest market share in 2020. Europe leads in terms of organic products consumed per capita. However, Asia Pacific (Northeast Asia, China, Japan, etc.) is expected to show the highest growth rate in the coming years.

Since 2016, consumption in the EU has been growing faster than production. Therefore, countries such as India, Uganda, Ethiopia, Tanzania have been involved in organic farming.

This statistic is clearly illustrated by the number of certified producers in these countries (62%) compared to the EU, USA and other producing countries (38%) (Fig. 2). Here the leading position is held by India, with more than 1.3 million certified producers, the country aims to transfer some states to 100% production of exclusively organic products.

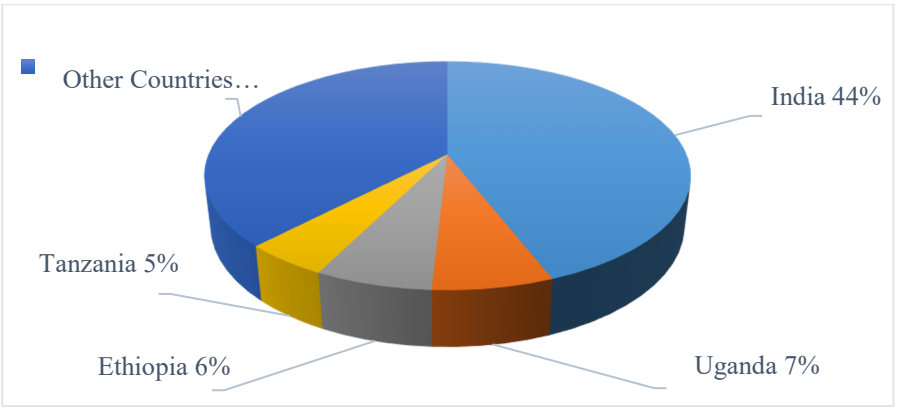

Fig. 2. Number of certified organic producers for 2020 in the world by region (% of total number of producers) [32].

However, it is worth noting that Australia, Argentina and Spain remain the leaders in the number of certified lands. In the period from 2020 to 2022, the area of such land has

increased 5 times, but still this figure does not exceed 1.5% of the total volume of agricultural land in the world. At the same time, the EU aims to give no less than 25% of land to organic farming by 2025, the number of certified land is actually equal to cultivated land, unlike the Russian Federation, which ranks 23rd in the number of certified land (3.9 thousand hectares - less than 0.2% of all agricultural land, for comparison in Australia - 37.5 million hectares) and 30% of these areas are either in the process of conversion or idle. It is worth considering, however, that more than 70% of certified land in Oceania is pasture, the cost of conversion to organic agriculture and the certification process is not comparable to arable land and perennial plantations.

As of 2022 in the world there are 46 standards of organic products, including 5 for groups of countries, 29 national. The most developed regulatory systems have been developed in the USA, Japan, Europe, Canada, India and China.

3 Results

Russia, with its resource base, sustainable rural development, legal and state regulation system, has a huge potential and prospects to become one of the prominent players in this market. Currently, the Russian Federation occupies 0.17% of the market.

This is largely due to the entry into force of the Federal Law "On Organic Products and Amendments to Certain Legislative Acts of the Russian Federation", government support measures and incentives for private investors.

Growth for the period from 2012 to 2022 amounted to about 37% and the formed forecast shows prospects for further growth. Russian organic wheat, green peas, soybeans and buckwheat are in steady demand in foreign markets. High potential is enjoyed by vegetable oil, organic vodka and poultry meat. Russia has the world's largest forests (1.2 billion hectares), which gives it the opportunity to start leading the market for organic wild fruits. And this is primarily berries, nuts, mushrooms, medicinal herbs. Currently, the international certificate in Russia have only 13 producers of organic wild fruits. And here the territorial location of producers - Karelia, Siberia, Buryatia - is also a determining factor.

It is worth noting the peculiarities and difficulties of development of the organic market in the Russian Federation:

- small volume of land certified for organics - as noted earlier less than 0.2% [32]. However, a positive trend is evident - in 2021, the Russian Federation was included in the 10 countries that showed the highest growth rate of certified organic farmland;
- costly transition period - rising costs during the conversion period and lower productivity is difficult for producers and affects the decision to switch to organic farming. It should be taken into account that the yield of organic farming is 8-25% lower than conventional farming, but under unfavorable circumstances, organic farming gives higher indicators, including due to the diversity of crop rotations, water-holding capacity of organically cultivated soils;
- shortage of qualified staff;
- increasing demand. In 2021, the organic market showed a demand growth of 13%. However, the demand for dairy products and vegetables grows more intensively, while meat showed an increase of only 3% [32]. Which once again reflects the high correlation between demand and the price of goods in the formation of consumer choice in the Russian Federation;
- a large share of imported organic products (up to 70%) [33];
- relatively small number of certified producers - as of 01.01.2023 in Russia there are 129 registered producers of organic products. For comparison, in India there are more than

1.3 million registered producers. The main share of the market is occupied by large producers;

- low percentage of consumers of organics - according to studies consumption is 1% of the population;
- zonality of production - large producers of organic products are located in close proximity to consumers. Most are located in the European part of Russia - Yaroslavl, Rostov, Moscow and Saratov regions, Krasnodar Krai;
- the need for additional state support. The adopted state programs to stimulate organic agriculture in the current situation are clearly insufficient. There is a need for an expanded program of investment and tax incentives, with information and educational support. As well as measures to popularize healthy lifestyles and consumption of organic products. For example, adopted at regional levels, the program of children's meals in schools with products of organic agriculture (eg, juices). In addition, we believe that it is necessary to consider as state support - subsidies for transportation costs, which will allow producers to expand markets for products, as well as reimbursement of part of the costs of organizations in the period of conversion;
- the need to expand R&D and technology development in the industry, including with the involvement of state support in the form of tasks for research institutes - in particular, this applies to quality domestic seed, development of biopreparations (only 10 organizations in Russia are engaged in such production), etc. in order to reduce dependence on imported goods as much as possible;
- the need to expand private investment - so Rosselkhozbank in the fall of 2021 created the fund "Organics", which finances projects to support producers of organic products;
- non-recognition of the certificate - the world does not recognize the Russian organic standard. Russian exporters of organic products are actually forced to undergo certification twice - in the Russian Federation, and then according to international standards;
- high cost of organic products, which is formed largely due to marketing margins and logistics costs;
- the need to separate fields - the fields occupied by conventional agriculture are often treated by spraying pesticides from airplanes, which can undermine efforts to bring organic areas into compliance, especially during the conversion period.

Despite all the difficulties, since 2012 the Russian market of organics shows stable growth. The authors conducted a statistical analysis of market growth prospects based on the growth period from 2012 to 2022, using correlation analysis with peak smoothing using the software product «Deductor».

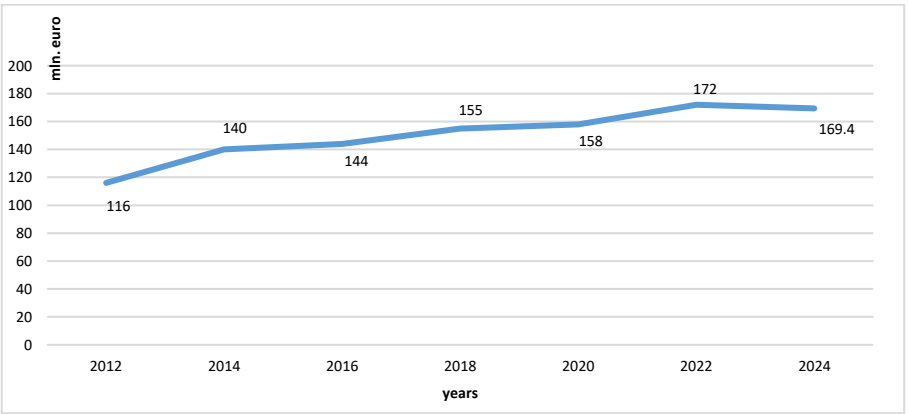

Fig. 3. Forecast for the development of the organic market in the Russian Federation, mln. euros.

First of all, in our opinion, this is due to a rather small number of certified manufacturers. As stated earlier, for 2021-2022 in the Russian Federation registered about 130 producers. These producers of organic products are predominantly small and medium-sized in terms of area, but the main share of production is occupied by large owners (from 1500 to 3000ha) and agroholdings. With such a number of certified producers, the market cannot show sustainable growth and entry into the international economic arena. One should not expect a sharp market growth when new contractors enter the market due to the long transition period (3 years) when starting work in the industry. Investment injections are needed, not only from private investors, but also from the state.

4 Discussion

The world experience of private investment in agriculture includes various forms and methods.

The main investors in organic agriculture in the United States, in the presence of government support programs, such as subsidizing the cost of certification, are private investors. Private investors include pension funds, universities, banks and firms.

Traditionally, the model of private investment in organic agriculture in the United States, for example, looks as follows - private investors buy land, pass certification for the production of organic products. Then they lease the land to farmers on a long-term basis. For their part, the lessee must improve the quality of the land, and the lessor does not set limits on the lease term. The main lever for the development of such a model of investment in organic agriculture is the long lease term. On the one hand, it is a pledge of stability for tenants with the possibility of accumulating finances for further development of the industry with the right to further purchase of the land plot, and for the investor - a guarantee of a sale transaction in the future. In fact, such an investment scheme contains features of leasing.

On the other hand, in the EU countries, realizing the need to support organic agriculture, have developed a number of state support programs. For example, in Germany, since the 1990s, a system of state investment in organic agriculture has been applied, which has two directions - direct payments (80% of allocated funds) and rural development (20%).

In order to receive a direct payment, the enterprise must adhere to the basic requirements for good agricultural practice. Particular attention is paid to "young" organic farmers, reducing barriers to entry for them. Most companies in Germany receive direct payments of between 150€ and 250€ per hectare.

Within the second direction of the European Agricultural Policy, state budget funds are allocated for rural development. Namely for organic farming and agrarian ecological programs.

Abroad, organic producers also receive premiums for the transition to organic production. This payment covers the losses of the producer during the transition period from conventional farming system to organic farming. In the transition period (2 years) the enterprise receives not only lower yields and as a consequence lower income with increasing costs, but also has to sell the products as a transitional product or even as a conventional one. That is, it cannot charge a higher price for organic products. Therefore, in Germany, higher premiums are paid during the transition period. Further, the company is assigned a premium for "maintaining" the organic farming principle (from year 3 for 5 years). In addition, an investment system (up to 25%) is applied for the construction of agricultural buildings.

It is worth considering the fact that even if there is a desire of producers in the Russian Federation to switch to a system of farming on the principles of organic farming, this requires financial capacity. And in the current economic conditions, even existing organic

production needs support not only for development, but also for further existence. At the same time in Russia there is no practice of direct financing of agricultural producers, no funds are allocated for ecology and animal protection. State support is provided in the form of allocating funds to regional budgets for the implementation of priority areas of development of organic agriculture [34, 35].

The development of organic agriculture requires comprehensive measures of state support to stimulate growth, incentivize farmers and ensure the sustainability of the sector [36-38]. The described measures can make a significant contribution to the development of organic agriculture:

- subsidizing the costs of the certification process [39, 40];
- subsidizing the interest rate of loans for the development of production;
- payment of bonuses for entering the industry, further work in the system of organic agriculture;
- targeted investments [41];
- preferential lending;
- preferential taxation;
- creation of information and analytical centers that allow enterprises of the industry to exchange information;
- development of modern market infrastructure using the latest innovative technologies;
- support and encouragement of educational programs in terms of training in the field of organic agriculture.

5 Conclusions

Summarizing the above, it is obvious that the intensive growth of the market of organic agricultural products of the Russian Federation, even in the conditions of sanctions pressure, has all the necessary potential to occupy a niche of at least 10-12% in this market. In addition, organic agriculture stimulates the development of regional economies, launches research and development activities, land involvement in production, restores ecosystems, has a beneficial effect on the health of the country's population. However, such market development requires not only private investment, but also large-scale government support. To achieve these goals, Russia must increase production, certify farmland, attract new producers to the industry, not only large ones, but prioritize small and medium-sized businesses

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