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4.1.1. Общее земледелие и растениеводство

ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ УВЕЛИЧЕНИЯ ПРОИЗВОДСТВА ОРГАНИЧЕСКОЙ ПРОДУКЦИИ

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В статье представлено состояние органического производства продукции в зарубежных странах и в России. Проанализированы причины низкого роста производства экологически безопасной продукции в нашей стране. Особое внимание уделено принципам осуществления защитных мероприятий в органических типах хозяйств. Отмечены необходимость государственной поддержки развития этого направления производства и сертификации таких предприятий

Ключевые слова: ОРГАНИЧЕСКАЯ ПРОДУКЦИЯ, ЭКОЛОГИЯ, ЗДОРОВОЕ ПИТАНИЕ, ДОЛГОЛЕТИЕ

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4.1.1. General agriculture and crop production

PROBLEMS AND PROSPECTS FOR INCREASING ORGANIC PRODUCTION

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This article presents the state of organic production in Russia and abroad. The reasons for the low growth of environmentally friendly production in our country are analyzed. Particular attention is paid to the principles of implementing protective measures in organic farms. The need for government support for the development of this production sector and the certification of such enterprises is highlighted

Keywords: ORGANIC PRODUCTS, ECOLOGY, HEALTHY NUTRITION, LONGEVITY

The global organic food market is experiencing record growth, having more than quintupled in the last ten years, from $20 billion to $90 billion. Experts estimate this trend will continue, with annual growth of 15-16%, and by 2025, organics could account for 20% of the total global agricultural market. The profitability of this sector is already comparable to such highly profitable businesses as arms exports.

The global organic land distribution is as follows: only 20% is arable land, while pastures account for approximately 70%, due to a simplified and

cost-effective certification process. Despite the United States' leading position in certified arable land, the main growth potential is concentrated in Russia, which has over 30 million hectares of fallow land. Currently, the share of certified land in the country is extremely small, amounting to only 0.1% of total farmland. Consequently, the transition to environmentally friendly agricultural production has become a critical national priority, as evidenced by the adoption of the corresponding "State Program for the Development of Agriculture and the Regulation of Agricultural Products, Raw Materials, and Food Markets."

The United States dominates the global organic market, accounting for 43% of the total. The European Union and China follow closely behind. However, when considering per capita consumption, the EU countries are the undisputed leaders. Global demand for organic products is growing rapidly: over the past 15 years, the number of regular consumers has increased at least fivefold, reaching approximately 700 million people.

The primary buyers of organic products remain affluent residents of developed countries. However, in 2016, Europe noted that demand for such products in the EU was growing faster than domestic production. This is forcing leading markets—Europe and the United States—to increasingly focus on developing countries as the most promising suppliers. It is no coincidence that today, India, Uganda, Ethiopia, and Mexico lead the world in certified organic producers. In total, there are more than 2.7 million such producers worldwide, cultivating over 58 million hectares of land.

Until 2014, the Russian market demonstrated robust growth, averaging 10% per year since 2010, after which a slight correction occurred in 2016. Despite positive dynamics in absolute terms, Russia's share of the global organic market remains extremely low, estimated at only 0.15% [1,2].

Currently, the domestic market's capacity is insignificant on a global scale, creating the risk of local production being replaced by imported

products. If this trend continues, import volumes could reach a level at which local organic production becomes economically unviable.

At the same time, Russia has significant potential for developing its organic sector. Key competitive advantages include vast territories with favorable environmental conditions, low pollution levels, developing transport logistics, and the availability of large tracts of pastureland.

In 2013, a group of companies (Agranta, Azbuka Vkusa, and others) founded the National Organic Union (NOS). The purpose of this association is to foster and sustainably develop the national organic market by providing a range of organizational, economic, legal, and social services.

According to NOS, organic consumption in Russia is steadily growing. To bring the market in line with growing demand, the number of certified enterprises must increase to 200-300 annually. Achieving this figure is a prerequisite for reaching the level of developed European countries within 8-10 years.

Currently, our sector is growing at a rate of only 4-5 new enterprises per year. At this rate, it would take approximately 500 years to saturate the market. The main reason for this is that 95% of investment in this sector is private. In contrast, in the US and European countries, governments actively support this sector, providing significant subsidies to farmers and making targeted investments in sector development.

The Russian organic market, with a market share of only 0.1%, is in its infancy. To achieve sustainable development, it needs to reach a share of 10-15%. A number of significant barriers stand in the way.

Key issues hindering demand:

1. Price barrier: Organic products in Russia are 200-300% more expensive than conventional products, making them inaccessible to most consumers.

2. Information vacuum: The population is poorly informed about the properties and benefits of organic products.

3. Trust in labeling: The proliferation of pseudo-organic products undermines trust in the entire segment.

4. Geography of demand: Consumption is concentrated in a few wealthy metropolitan areas with poor environmental conditions.

5. Institutional gaps: There is no developed standardization and control system that complies with international standards.

The situation is exacerbated by the lack of cooperation between producers, processors, retailers, and the scientific community, hindering the overall development of the sector.

Three key principles can be identified in global organic farming:

1. Maintaining soil fertility. This is achieved through complex crop rotations including legumes, plants with a strong root system, and catch crops, the application of organic fertilizers (compost and other organic matter), the creation of a closed nutrient cycle, and the complete elimination of synthetic mineral fertilizers.

2. Environmental and health concerns. This goal is achieved through the production of safe and nutritious products, the reduction of chemical pollution and the protection of biodiversity, the use of only approved biological products and a narrow range of traditional products (such as sulfur or Bordeaux mixture).

3. Resource conservation. The priority is the rational use of non-renewable energy sources and raw materials.

Standards for organic farming and food production vary from country to country. In the European Union, a single regulation, Regulation (EEC) No. 2041/91 "On organic farming and the labeling of agricultural products and foodstuffs," has been in effect since January 1, 1993. This document, adopted by the EU Council in 1991, establishes minimum requirements for cultivation

technologies, as well as monitoring mechanisms and financial support for farmers [3].

Organic production is regulated by the principles of the International Federation of Organic Agriculture (IFOAM) and national unions. These standards strictly stipulate the preservation of soil fertility and crop health, completely excluding the use of synthetic fertilizers and chemical pesticides.

The main components of organic farming are:

- introducing legumes into crop rotation as main or catch crops. Monoculture and rotation of grain crops are avoided, and a low proportion of grains in the crop structure is maintained;

- conducting primary (deep loosening, cultivation) and pre-sowing tillage to optimize the conditions for grain crop development and effectively suppress weeds;

- using varieties with increased competitiveness against weeds, reduced nitrogen requirements, and resistance to common diseases;

- sowing selected seeds with high germination rates, vigor, and viability. In addition to standard testing, seeds in organic farming undergo additional testing (e.g., a "cold test") for resistance to germination under stressful conditions;

- using organic fertilizers;

- adhering to recommended timing, seeding depth, and seeding rates to ensure uniform, healthy, and vigorous seedlings capable of withstanding adverse factors;

- regularly using mechanized measures (e.g., harrowing) to control weeds and maintain crop health;

- implementing a comprehensive preventative measure within an integrated crop protection system. If necessary, using only plant protection products approved by organic standards [4].

Existing measures create favorable conditions for plant protection. However, during epiphytotics or pest outbreaks (which are not uncommon even in organic farming), farmers cannot use chemicals, limiting their control options. As a result, yields in this sector are more dependent on weather and its impact on crops than in conventional agriculture.

As global practice shows, yields in organic farming are typically lower and less stable than in systems that employ integrated methods.

Profitability in organic grain production is achieved only through sales at higher prices or through government subsidies. This is because savings on chemicals and fertilizers are offset by increased labor costs. Furthermore, it is important to note that the high price of organic produce depends on its actual quality, which is not an automatic consequence of the chosen farming method. In organic farming, the key objective is to protect crops from weeds, diseases, and pests. Since the use of chemical pesticides is strictly limited, the emphasis shifts to preventative measures. The key factors are the careful selection of varieties, the selection of a suitable site, and a variety of crop rotations combining row crops and cereal crops, along with proper soil cultivation.

The central elements of the plant protection system in organic farming are:

Fundamental approach: Creating a balanced agroecosystem through:

- Improving soil fertility and health.

- Stimulating beneficial fauna (entomophages, parasites) and microflora (antagonists) for natural pest control.

- Creating habitats for beneficial organisms (edge biotopes) and enhancing the soil's antiphytopathogenic potential.

Direct measures:

- Priority is given to mechanical weed control methods.

- Non-chemical methods are used for disease protection [5].

Global experience shows that long-term organic farming changes the weed spectrum without significantly affecting the total number of species. However, weed coverage typically increases. While annual and biennial weeds are not problematic for organic farming, perennial rhizomatous and root-suckering weeds, primarily field thistle (Cirsium arvense) and creeping couch grass (Agropyron repens), pose a significant challenge.

Annual weed species such as bedstraw (Galium aparine), field foxtail (Alopecurus myosuroides), and common ryegrass (Apera spica-venti) are losing their importance in organic farming due to the lower proportion of cereals in the crop rotation and low levels of nitrogen fertilization. At the same time, the importance of other annual weeds is growing, including field mustard (Sinapis arvensis), vetch species (Vicia spp.), and pea grass (Lathyrus spp.).

In organic farming, where the use of herbicides is excluded, integrated weed control strategies are being developed that combine preventative and eradicative methods. This approach is commonly referred to as "weed management," the primary goal of which is to prevent the invasion of fields by weeds that reproduce both by seed and vegetatively.

Various soil cultivation methods play a key role in this. They are used both as direct measures to eradicate perennial weeds and as preventative measures—for example, by changing the distribution of seeds and vegetative reproductive organs in the soil.

Today, honest organic farms are facing a difficult time: their market has been flooded by large industrial enterprises that capitalize on the buzzwords "bio," "eco," and "organic." But it's important to understand: organic isn't just a pretty label, but a deeply thought-out system for organizing the entire process.

Although there are farmers today who operate organically and produce truly pure products, in most cases, consumers have no way to trace the entire

production cycle. Without information about the fertilizers, veterinary drugs, and processing methods used, it's impossible to confidently assert that a product meets strict organic standards. The only solution to this problem is a mandatory certification system and strict controls. Furthermore, for such products to be widely accepted in the market, it will take time for consumers to become accustomed to their new format.

Conclusion.

The Russian organic food market is still lagging behind its Western counterpart; for example, in the US, it has existed for about 60 years. However, the trend is changing: more and more people are becoming more aware of the quality of their diets and are adopting a healthy lifestyle. Consumers are beginning to realize a simple truth: investing in high-quality products today will help save on medications tomorrow.

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