

# New conditions for the formation of national food security

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**Abstract.** Russia's national food security is formed in the new conditions of interstate interaction in the markets of agro-industrial complex products. Historically, the country is the largest exporter of grain, the production of which forms the basis of the Russian agro-industrial complex. Grain production volumes are a new factor in modeling the country's food security and independence in the world agricultural markets. Growing volumes of grain exports from Russia ensure the profit of the industry's enterprises and sustainability of territorial development of the regions. The country is provided with basic foodstuffs of both plant and animal origin by 85-90%. At the same time there is still a problem of uneven distribution of production on the territory itself, there is still a problem with the shortage of processing and storage facilities, qualified specialists for work in rural areas. The emerging difficulties in logistics, supplies, market closures in 2022 were successfully overcome and new routes for the export of Russian food raw materials were formed.

## 1 Introduction

In the period of post-pandemic transition and aggravation of the geopolitical situation, values related to life and health of the population come to the fore. Therefore, the existing traditional challenges do not lose their relevance. One of such challenges is the issues of food security as a threat to the vital activity of man and the state. The problems of food security have reached another national level, which is enshrined in the relevant legislative acts. Together with the tasks facing the health care system, social sphere, education system and ecology, national food security provides a basis for the strategic development of the state in the geopolitical space.

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At present, Russia is one of the key participants of the global food market and the largest exporter of grain, so the country's position is quite stable and provided with real food resources, which provides a basis for building its own sovereignty and rules of behavior of the world on the markets. In fact, the production volumes of grain and leguminous crops have increased almost several times during the last years, which proves the efficiency of work of the enterprises of the agro-industrial complex industry. The dynamics of production volumes of the main types of agricultural products is presented in Table 1. [1]

**Table 1.** Production of main types of agricultural products, mln. tons.

	2016	2017	2018	2019	2020	2021	2022*	Growth rate, %
Grain	120.7	135.5	113.3	121.2	133.5	121.4	130.3	+7.9
Sugar beet	51.3	51.9	42.1	54.4	33.9	41.2	44.2	-13.8
Sunflower seeds	11	10.5	12.8	15.4	13.3	15.5	17.4	+58.2
Potatoes	22.5	21.7	22.4	22.1	19.6	18.2	18.8	-16.4
Livestock and poultry for slaughter	9.9	10.3	10.6	10.9	11.2	10.8	11.1	+12.1
Milk	29.8	30.2	30.6	31.4	32.2	32.3	33.4	+12
Eggs, bln. pcs.	34.5	35.9	36.2	36.2	36.3	44.9	47	+36.2
*preliminary data, excluding data on 4 new federal subjects								

According to Table 1, we can observe positive dynamics of production of such products as cereals (7.9%), sunflower (58.2%), livestock and poultry for slaughter (+12.1%), milk (+12%), eggs (+36.2%). At the same time, 2 categories of products showed a decrease in growth: sugar beet (-13.8%), potatoes (-16.4%), which is associated with overproduction and market saturation of these categories of vegetables.

Thus, Russia is fully provided with the main strategic goods (cereals, sunflower, eggs, milk, meat and poultry), which creates the basis for food independence and the use of these resources to build a foreign economic policy with a number of countries of the Eurasian continent [2].

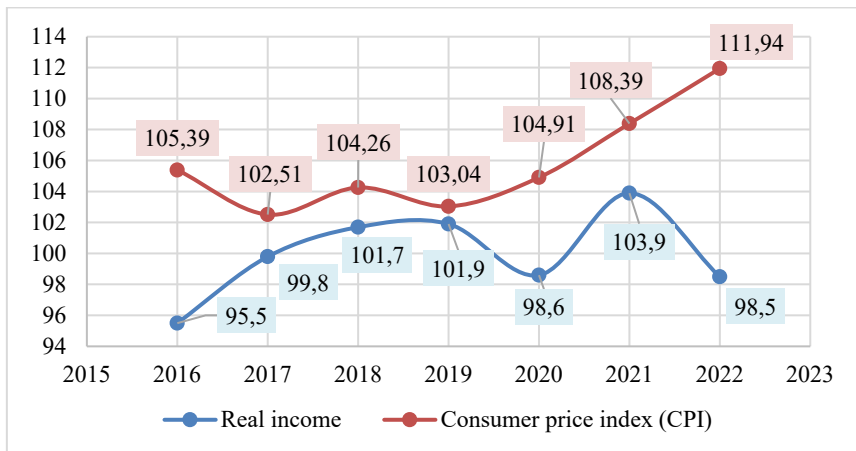
## 2 Results and discussion

In 2023 the national food security of Russia faces 2 global challenges of modern realities: deterioration of the environmental situation in the world (degradation and depletion of agricultural land, climate change, environmental pollution), disruptions in the resource supply of agro-industrial complex sectors (disruption of supplies of seed material and veterinary drugs, dependence on imported technologies and equipment, lack of qualified personnel). These are the main problems to be dealt with in the subsequent periods of the Food Security Doctrine implementation in order to maintain the achieved results and production indicators.

Today, food raw material supply is almost fully achieved, except for some exotic products that cannot be grown in Russia. Therefore, we are not talking today about the physical availability of food. Today a new problem is actualized - economic availability of quality food products for the population.

As an example, we can compare the averaged indicators of the dynamics of real incomes of the population for the last 7 years with the dynamics of consumer price growth for the same period - a rather pessimistic picture emerges. (Figure 1).

The indices of income dynamics and CPI presented in Figure 1 prove the fact that inflation outpaces the growth of real incomes of the population for the whole analyzed time period.



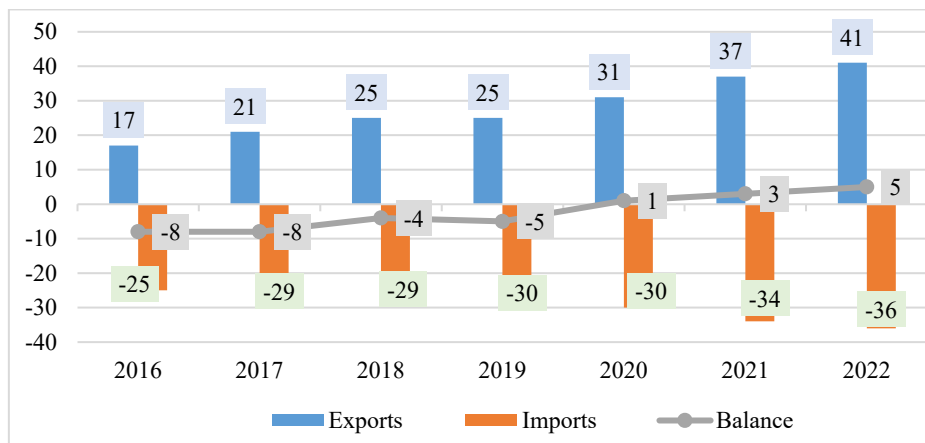
**Fig. 1.** Dynamics of growth rates of real incomes and CPI according to Federal State Statistics Service data, %.

Constant crises and inflationary spirals provoke the growth of commodity producers' prices, which eventually affects the retail price of the finished product. At the same time, real incomes of the population do not grow at such a rate, which stimulates the revision of the consumer basket in favor of cheaper products with the addition of vegetable substitutes for quality natural raw materials. In this regard, the problem of "hidden" hunger appears in food security, i.e., the lack of complete and balanced diets in terms of quantity of consumption of quality products [3, 4]. As a rule, this problem is inherent in low-income countries with a large number of food products with cheap substitutes of natural plant and animal raw materials.

In developed countries, another problem is emerging - the increase in obese people with high calorie intake. Therefore, today the very concept of food security is shifting towards food security (physical, economic, qualitative) within the framework of the implementation of sustainable development principles along the entire food chain [5]. The strongest effect of such distortions in nutrition is on socially vulnerable segments of the population, as unhealthy and empty diets provoke the growth of alimentary-dependent diseases (obesity, diabetes mellitus, anorexia, GI diseases, blood diseases).

In the new economic conditions, when export of agro-industrial complex products comes to the forefront for the last 7 years, Russia plans to increase the volume of agricultural products supplies to partner countries (Figure 2).

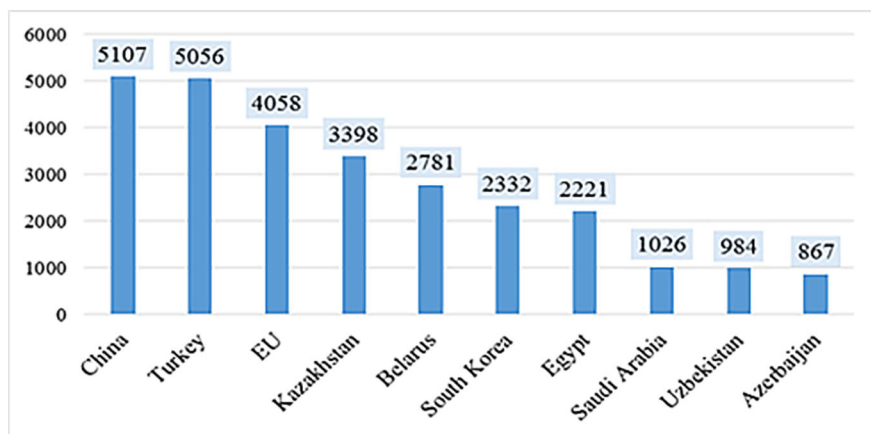
As shown in Figure 2, export volumes are growing, while import volumes have been falling from year to year for the last 7 years. The trade balance is positive, which proves the country's food independence from imported products and raw materials. The main drivers of growth in export supplies to other countries were oil and fat products, grain and its processed products, and poultry meat. Since 2022, Russia, under the pressure of the EU and US sanctions barriers, has opened up new promising food markets in Asia, the Middle East and Africa, and strengthened trade relations with China and Kazakhstan. Positive export forecasts are expected by the end of 2023, while the very structure of supplies may change towards more deeply processed products.



**Fig. 2.** Volumes of foreign trade turnover of agro-industrial complex products, billion dollars. [6].

The geography of supplies of Russian products is constantly expanding due to the markets of countries that were previously inactive - Latin American countries, Bangladesh, Oman, Vietnam. Previously, the geography of supplies was limited by transportation and logistics factors, which were actually zeroed out in 2022, which necessitated the search for new directions and partners. Thanks to a reliable and stable agricultural production base, high quality of the products Russia was able to successfully get out of the trade blockade and establish new sales channels for raw materials and food produced [7, 8, 9].

Today the country is a key and reliable supplier of agricultural products to countries that do not have the resources to produce them [10]. Possessing a vast land fund (55% of all chernozems), water reserves (20% of all fresh water), forests, mineral fertilizers (25 million tons per year), the country continues to build up its agro-potential in the changing environmental, economic and political environment. Russian raw materials and products were supplied to 158 countries in 2022. The main exporters of Russian agro-industrial complex products in 2022 are presented in Figure 3.



**Fig. 3.** Top 10 largest buyers of Russian food [8, 9].

Restraining factors of supplies remain such as limited capacity of seaports and terminals, insufficiently developed transportation network, but these barriers continue to be eliminated for the future development of trade relations. At the same time, food supplies will be carried out precisely in the partner countries with which cooperation agreements have been signed

to strengthen partnership relations and act as a tool of foreign economic management. Let us note some trends that may change the structure of markets in the future [11].

First, the number of foreign trailers engaged in wholesale purchases of grain in Russia has decreased in the food markets. One of the largest grain traders, Cargill, has expressed its intentions to leave the market in 2022, to be replaced by Russia's Uralchem.

Secondly, the logistics of agro-transportation should also take into account the specialization of Russian regions in the production of various types of agricultural products. Thus, given the fact that the largest grain producers are located in southern regions, it is more economical to transport grain through the ports of the Azov-Black Sea basin. These ports have the most developed infrastructure, which makes it possible to promptly export grain to the main buyers. At the same time, agricultural products from the Urals region and Siberia should be shipped through the ports of the Caspian and Pacific basins to diversify risks and closer cooperation with buyers from Asia and the East.

Thirdly, in order to provide guarantees to agricultural producers, a system of cargo insurance during transportation should be developed.

It can be noted that the domestic agro-industrial complex is not just increasing the rate of agricultural production over the last 7 years, but is striving to switch to processing of raw materials for supply to the markets of finished products. At the same time, a significant part of raw materials is exported due to the current lack of necessary infrastructure for storage and complete processing [12, 13].

Assessment of the situation with regard to the production of raw materials and products in the context of the main sectors of the agro-industrial complex gives us an idea of the problems and directions of development of each sector. In general, all sectors together form positive dynamics of food supply, but there are certain nuances. Let us consider some sectors in more detail.

The grain sector today processes only 2% of all grain produced in Russia. This is a large and strategically important segment for the country, but building plants requires expertise, access to technology and investment resources. It also requires a complete study of the markets and their volumes to formulate a strategy for the development of this industry.

The meat sector has grown mainly due to pork and chicken products, which are produced continuously, including for export [14]. The meat market is already saturated with these types of meat, so industrial sheep breeding and turkey breeding are beginning to develop. But still, there is a deficit of beef in the amount of 200 thousand tons per year. It is obvious that this industry today requires state support to expand the number of livestock.

The fish sector is formed both by catching wild fish and seafood (5 million tons per year) and by developing pond farms and artificial breeding of valuable aquaculture breeds. The main problem of the sector is the lack of domestic planting material and technologies for breeding and processing of finished products. The growing demand for salmon fish breeds and seafood in the context of reduced imports makes it necessary to search for areas of development of this sector and additional investment resources [15, 16].

The dairy sector continues to maintain production volumes due to intensification of milk production technologies on farms. A big problem is the reduction in the number of dairy cattle in dairy production facilities. The Holstein-Friesian breed of dairy cattle put into industrial production has formed import dependence of Russian dairy production, which in the conditions of sanctions restrictions creates difficulties in the purchase and importation of young stock for the restoration of the dairy herd. Therefore, it is necessary to strengthen breeding work with domestic breeds of dairy cattle and more actively use these breeds in industrial milk production. A separate issue is related to milk processing. Cheese production has been developing in recent years, but other types of production of finished dairy products are still insufficient.

Sectoral analysis of agricultural production has shown that, in general, the task of providing food for the country's domestic needs has been solved, which makes it possible to expand agro-export as an additional channel of profit for agricultural producers.

### 3 Conclusion

Summarizing the analysis of the situation in the agro-industrial complex in the new conditions of formation of national priorities of food supply and growth of production of raw materials and products, it can be noted that in general the sector coped with the new challenges and continues to develop dynamically. Additional sanctions restrictions associated with the disruption of logistics routes and marketing channels, food blockade, change of partners and suppliers have been overcome and new schemes of communication interactions in new food markets have been built.

The high import dependence of the domestic agro-industrial complex on the supply of seeds, technologies and equipment served as an additional incentive for the activation of investment projects in the country to develop domestic production and breeding. Additional state subsidies to agricultural producers were a necessary measure of support in the conditions of reduced supplies and border closures, refusal of European buyers from their commitments. The new picture of food supply and agro-export of Russian products reflects the current realities of global economic balance and cooperation.

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