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FOOD SECURITY: PROBLEMS AND PROSPECTS IN RUSSIA

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Abstract

The growth in agricultural and food production has not completely solved the problem of food security in Russia. Consumption of certain food products (milk, vegetables, fruits) is below rational consumption standards. A significant proportion of food provision is imported products. Since the imposition of international sanctions and the counter-embargo, imports have declined. For 2013-2017, imports of food and agricultural raw materials declined from USD 43.3 bln to USD 28.8 bln, or by 33.5%. The proportion of imports in the formation of food resources is about 25%. An indicator, characterizing food security is the level of self-sufficiency of the country in basic agricultural products. In recent years, this indicator is growing, but for some types of products (fruits, milk, and vegetables) it is not high enough. The authors reveal the risks in the food security sphere and offer measures to minimize them. In solving the food problem, important is import substitution based on increasing the proportion of domestic resources in the production of agricultural products and food (seeds of sugar beet, sunflower, vegetable crops, breeding animals, breeding eggs, veterinary drugs, machinery, and equipment). Particularly acute is the problem of food security in the production and consumption of fruits, vegetables, and milk. The solution to this problem can be achieved by the improvement of state support, the concentration of production in agricultural organizations and peasant (farmer) households, where there are favorable conditions for the innovative development of these industries, as well as the organization of agricultural products storage and processing in the places of its production, and the creation of consumer cooperatives.

Key words**:** *food security, economic and physical availability of food, imports, level of self-sufficiency, import substitution, agricultural policy, Russia*

INTRODUCTION

In the context of international sanctions and the retaliatory embargo, the food security of Russia is an urgent problem. Food security implies food independence, as well as physical and economic accessibility of food [2].

Physical accessibility of food means its trouble-free admission to places of consumption in volumes and the range corresponding to the demand and standards established for consumers. In Russia, the percentage of availability of basic food products in retail trade is high (over 80%), so there are no problems with the physical availability of food.

Economic access to food is characterized by the possibility of purchasing food products by different groups of the population in the standard size in the food market at the prevailing level of prices and incomes, as well as through their receipt from farms, private farms, and garden plots (bypassing market channels). In Russia there are 18.7 mln private subsidiary farms with a total area of about 10 mln hectares; about 90 mln people provide themselves with potatoes from this source, 60 mln – with vegetables, and 30 mln people – with milk and meat. At the same time, a significant part of the country's population (about 20 mln people) are below the poverty line and are unable to purchase food products that meet the quality and range of physiological standards [8].

In order to increase the economic availability of food products, the state should take measures to increase the effective public demand of the population, reduce poverty and support the neediest segments of the

population. In order to increase the physical accessibility of food products, it is necessary to develop interregional integration in the sphere of food markets, increase the transport accessibility of certain regions for the food supply of their population, and create conditions for the development of market infrastructure.

Food independence is a sustainable domestic production of food products in volumes not less than the established standards of its proportion in the commodity resources. The share of most food products in the total volume of commodity resources exceeds the threshold level; only for milk and food salt, it is below the normative level.

MATERIALS AND METHODS

Monographic, statistical and economic, computational and constructive, abstract and logical, as well as other methods, were used when conducting present research. The statistical and economic method allows characterizing comprehensively the studied phenomenon by means of mass digital data. Therefore, it was used for the analysis of a condition and tendencies of agro-industrial complex development, and the efficiency of its performance. The monographic method allows studying the individual units of the total population, which are quite typical for the characteristics of the phenomenon under study. This method was used to study the activities of commodity producers with high economic results. The calculation and constructive method allows determining the ways of solving the problem for the future. It was used to substantiate the development of certain sectors of agriculture for the future in order to solve the food problem.

RESULTS AND DISCUSSIONS

Food security is characterized by the level of the provision of population with environmentally friendly and healthy food of domestic production at scientifically sound standards and affordable prices. However, in Russia, the consumption of certain food products is lower than the dietary intake levels (Table 1).

In 2017, the consumption of milk and dairy products per capita amounted to 231 kg, or was below the dietary intake level by 28.9%, of fruit – 59 kg, or was by 41.0% lower, of vegetables, and cucurbits – 107 kg, or was by 23.6% less than the norm. The population of Russia consumes bread products much more than the norm (117 kg at a norm of 96 kg), potatoes (96 kg at a norm of 90 kg), and sugar (39 kg at a norm of 24 kg).

Table 1. Food consumption in Russia (kg per capita)

Foodstuffs	Dietary intake levels **	2013	2014	2015	2016	2017
Meat and meat products	73	75	74	73	74	75
Milk and dairy products	325	248	244	239	236	231
Eggs	260	269	269	269	273	279
Sugar	24	40	40	39	39	39
Vegetable oil	12	13,7	13,8	13,6	13,7	13,9
Potatoes	90	111	111	112	113	96
Vegetables and cucurbits	140	109	111	111	112	107
Fruits	100	64	64	61	62	59
Bread products	96	118	118	118	117	117

Source: Data of Rosstat; Order of the Ministry of Health of the Russian Federation No 614 of 19.08.2016.

A significant proportion in the consumer basket of Russians is occupied by imported products. Import of some agricultural products and finished food products tended to grow. Imports of cattle meat, dairy products, fruits, and vegetables were growing at a particularly rapid pace. Overall, imports of food and agricultural raw materials increased from USD 7.4 bln to USD 28.8 bln between 2000 and 2016, or by 3.9 times.

However, in recent years, after the imposition of sanctions and the implementation of import substitution measures, the volume of imports decreased (Table 2). During 2013-2017, imports of meat and meat products decreased from 2,480 to 1,103 thousand tons, or by 55.5%, of milk and dairy products – from 9,445 to 7,129 thousand tons, or by 24.5%, of vegetables and cucurbits – from 2,817 to 2,670 thousand tons, or by 5.3%, and of fruits – from 7,201 to 6,677 thousand tons, or by 7.3%. Imports of potatoes increased from 749

to 1,500 thousand tons, or twice, of eggs – from 1,206 to 1,226 mln pieces, or by 1.7%.
In 2017, as compared to 2013, the volume of imports of agricultural products and food decreased by $ 14.5 billion (34%). The share of these goods in Russia's import structure amounted to 12.7%.

Table 2. Import of basic food products to Russia, thousand tons

Foodstuffs	2013	2014	2015	2016	2017
Meat and meat products	2,480	1,952	1,360	1,246	1,103
Milk and dairy products	9,445	9,155	7,917	7,544	7,129
Eggs, mln pcs.	1,206	1,235	1,236	1,238	1,226
Potatoes	749	1,045	928	737	1,500
Vegetables and cucurbits	2,817	2,992	2,636	2,321	2,670
Fruits	7,201	6,680	6,511	6,518	6,677

Source: Rosstat data.

In the structure of agricultural imports in value terms, the following prevail: fruits and nuts (16.2%, including citrus fruits – 4.1%, and bananas – 4.0%), meat and meat products (9.3%, including beef – 4.3%, and pork – 2.8%), milk and dairy products (8.3%, including cheeses and cottage cheese – 3.2%), vegetables (6.2%), and the products of vegetables and fruits processing (4.1%).
The proportion of imports in the formation of the country's food resources is about 25%. In the commodity resources of milk powder and cream, the proportion of imports is 52.7%, beef – 40.9%, cheese – 27.3%, and animal oil – 24.2%. According to the standards adopted by authoritative international organizations, to ensure food security of the country, it is necessary that the import of food in the total volume of its consumption took no more than 20%. In Russia, this standard is higher, which creates a real threat of loss of food independence.

Table 3. Import of basic food products to Russia, thousand tons

Foodstuffs	2013	2014	2015	2016	2017
Meat	78.5	82.8	88.8	90.7	93.3
Milk	77.5	78.6	80.4	81.2	82.0
Eggs, pcs.	98.0	97.6	98.2	98.6	98.8
Potatoes	99.4	101.1	105.1	97.3	87.0
Vegetables and cucurbits	88.2	90.2	93.7	94.6	85.9
Fruits	33.0	33.6	32.9	39.9	36.6

Source: Rosstat data.

An important indicator of food security is the level of self-sufficiency in basic agricultural products (Table 3).
In 2017, the level of self-sufficiency in meat was 93.3%, milk – 82.0%, eggs – 98.8%, potatoes – 87.0%, vegetables and cucurbits – 85.9%, and fruit – 36.6%. In recent years, this figure has been growing for all types of products, with the exception of potatoes, vegetables, cucurbits, as well as cattle meat. Despite the positive trends in the development of agriculture, in the coming years, Russia will not be able to provide fully the country's population with fruit, milk, and meat of cattle based on in-house production.
Food security Doctrine of the Russian Federation provides for the following risks of its implementation:
-macroeconomic, due to the decrease in the investment attractiveness of agro-industrial production and the competitiveness of domestic products;
-technological, caused by lagging behind advanced countries in the level of technological development of the domestic production base;
-agroecological, due to adverse climatic changes, as well as the consequences of natural and man-made emergencies;
-foreign trade, caused by fluctuations in market conditions, and the application of state support measures in foreign countries.
The following threats can be added to the above risks:
-the increasing dependence of agriculture on soil and climatic conditions with inefficient regulation of the domestic agro-food market, the remaining monopoly of producers of material and technical resources;
-deformation of intersectoral economic relations, the disintegration of individual sectors of agriculture, unstable and low profitability of many agricultural producers;
-high dependence of the country on imports of food and agricultural raw materials, machinery and equipment, seeds of individual crops, planting material, breeding products, veterinary drugs, plant protection products, and technologies;

-the imperfection of land policy and land relations, leading to inefficient use of land in agricultural production [1].

Considering measures to neutralize threats to food security of the country, one should note the improvement of state regulation to overcome the following problems: low effective demand for food products; price imbalances in the markets of agricultural products, material and technical resources for its production; low level of innovation and investment activity; reduction of artificial competitive advantages of foreign products in the market, etc. Analysis of the agriculture functioning confirms the increasing impact of these threats on the industry state and dynamics. In terms of economic risks, the most significant is the reduction of investments in fixed assets aimed at the development of agriculture.

In turn, the decline in investment has affected the technical and technological renewal of the agricultural sector. In 2017, the production of tractors for agriculture amounted to only 7.3 thousand vehicles (in 1990 – 214 thousand vehicles). As a result, the park of agricultural organizations has more than 50% of imported tractors. The situation is similar with other types of machinery and equipment for agriculture. For example, the production of seeders amounted to 8.7 and 51.1 thousand pieces, respectively, while of combine harvesters – 7.6 and 65.7 thousand pieces. This situation leads to one significant risk – the inability of agricultural producers to effectively carry out production activities.

The natural potential of the country allows for increasing the production of agricultural products and solving the food problem. Russia has 9% of the world's productive arable land, more than 50% of chernozems, and 20% of freshwater. Each inhabitant of the country accounts for almost one hectare of farmland, which is much more than the world average. However, almost 18 mln hectares of agricultural land were abandoned. Having such resources, Russia can fully ensure its food security [10].

The Doctrine defines the main directions of agricultural policy in the field of food security, which are as follows:

-increasing soil fertility and productivity, expanding sown area due to unused arable land, reconstructing and constructing reclamation systems;

-providing accelerated development of animal husbandry;

-creating new technologies of deep and complex processing of raw materials, as well as agricultural products storage and transportation methods;

-developing the scientific potential of agro-industrial complex;

-increasing the pace of structural and technological modernization of the agro-industrial complex, as well as the reproduction of natural and ecological potential;

-developing the training and advanced training system for personnel capable of implementing the tasks of the innovative model of the agro-industrial complex development;

-improving regulation mechanisms of the agricultural products and food market;

-using protective measures to reduce agricultural and food imports;

-reducing the dependence of domestic agricultural production on imports of technology, machinery, equipment, and other resources.

The most important factor in achieving the lost food security is import substitution, i.e. partial or complete replacement of imported goods with domestic ones. Import substitution does not imply complete abandonment of imports, because this would lead to a violation of existing trade relations and the agri-food market functioning principles.

Import substitution is an economic strategy of the state aimed at protecting national priorities of socio-economic development and their implementation based on the support of the national manufacturer. With the proper level of state support, import substitution will become an incentive for the development and protection of national agro-industrial production. The problem of import substitution can be solved only on the basis of the innovative development of agribusiness sectors [7].

One important area of import substitution is increasing the proportion of domestic resources in the production of agricultural products and food. In the field of agriculture, this applies to the predominance of imported seeds when sowing crops such as sugar beet, sunflower, vegetable crops, while in livestock – breeding animals, breeding eggs in poultry husbandry, veterinary drugs, as well as machinery and equipment used in agriculture and food industry.

The solution to the problem of import substitution requires significant investments, including financial ones, and largely depends on the resource provision of the state program on agriculture. The duration of import substitution varies for individual agricultural products and depends on a number of factors, both economic and technological. While for products such as pork and poultry, the import substitution problem is practically solved, for other products, such as vegetables, fruits, the cattle meat, and dairy products it will take a long time. So, according to estimations, if the dairy herd recovery process will be due to the growth of in-house livestock, the full provision of the population with domestic dairy products can be reached in 12-14 years. The situation is even more complicated with regard to the production of cattle meat. The increase in the production of basic vegetable crops is largely constrained by the low growth rate of irrigated land, while of fruit crops – by their high capital intensity.

Particularly acute is the problem of food security in fruits, vegetables, and milk production and consumption.

The achieved level of fruit production does not fully meet the needs of the population in these products. The proportion of imported fruits in the Russian food basket is almost 75%. During the period under review, domestic consumption of fruits increased from 6,501 to 8,770 thousand tons, or by 34.9% due to both the growth of their imports and the increase in domestic production.

It is possible to solve the problem of providing the population with fruits through increasing their domestic production and ensuring the import of fruits not grown in the country. Import of fruits which cannot be produced in the Russian Federation (bananas, citrus fruits, dates, figs, pineapples, etc.) amounts to about 3 mln tons, including citrus fruits – 1.5 mln tons, and bananas – 1.3 mln tons.

Import of fruits that can be grown in Russia (apples, pears, plums, cherries, strawberries, etc.) reaches 3.5 mln tons. Therefore, these products in the fruit market can be replaced by domestic ones.

To solve the problem of providing the population with fruit and berry products on the basis of import substitution, it is necessary to increase the gross fruit harvest by 3.4 mln tons, including fruits and berries – by 3.1 mln tons, or almost twice compared to the achieved level of production. At that, the area of orchards and berries should be increased from 517 to 690 thousand hectares, including those at the fertile age – from 405 to 560 thousand hectares [5].

The State program for the development of agriculture and regulation of agricultural products, raw materials, and food markets for 2013-2020 provides increase in the area of laying orchards and berry fields to 77.8 thousand hectares [3]. Indicators of the State Program for the laying of fruit and berry plantations are overfulfilled (for 2013-2017, 61.5 thousand hectares were actually planted at a plan of 44.0 thousand hectares), but their area is reducing. This is because the number of logged-of orchards and berry fields prevails over newly created ones. The implementation of the state program will not solve the food problem in terms of fruit supply. To achieve the planned volumes of fruit production, it is necessary to increase the area of annual planting of orchards and berries almost twice and bring it to 18-20 thousand hectares. The main direction of increasing fruit production is bringing horticulture to an innovative path of development, as well as the laying new intensive gardens [4, 6].

To meet consumer demand in vegetable products, it is necessary to increase the production of vegetables, and cucurbits from 15.4 to 23.2 mln tons, or by 50.6%, including field vegetables – from 16.4 to 18.1 mln tons, or by 10.4%, indoor vegetables – from 1.7 to

2.9 mln tons, or 1.7 times, cucurbits – from 1.7 to 2.2 mln tons, or by 29.4%.

The State program for the agriculture development and regulation of agricultural product, raw materials, and food market for 2013-2020 provides for the solution of this problem through the development of vegetable production in agricultural organizations and peasant farms. It is planned to increase the production of field vegetables in this category of farms to 5.2 mln tons, or by 14.0% compared to 2017; indoor vegetables – up to 1.4 mln tons, or by 81.6% that will provide import substitution of vegetables in the off-season period to 768.6 thousand tons. In order to provide the population with fresh vegetables in the off-season period, it is necessary to build more than 1.5 thousand hectares of modern energy-saving greenhouses and modernize about 1.0 thousand hectares of old ones [9].

To solve the import substitution problem in the milk and dairy products market, it is necessary to increase the number of cows by 1.4 mln heads, or by 17.5%, while to meet the consumer demand of the population in these products – by 3.4 mln heads and bring the number of cows to 11.4 mln heads.

The support measures provided for in the State program for the development of agriculture and regulation of agricultural products, raw materials, and food markets for 2013-2020 are aimed at increasing production and investment attractiveness of dairy cattle, equalizing the seasonality of milk production, the cattle growth, including cows, creating conditions for cattle breeding reproduction, stimulating the increase in the marketability of milk in all forms of economic management. The measures taken by the state made it possible to stabilize the production of milk, while not increasing the production of milk and dairy products.

It is possible to increase milk production based only on the development of dairy cattle breeding in agricultural organizations and peasant farms. It is in this category of farms that favorable conditions for the innovative development of the industry are created.

Solving the problem of food security strongly depends on the organization of agricultural products storage and processing in the places of their production, since most of the species (vegetables, fruits, berries, etc.) are perishable and low-transportable products. The development of agro-industrial integration, providing for the combination of production, storage, and processing in a single technological process allows the rational use of all grown products by reducing losses and maintaining quality at all stages of the reproductive process.

Households produce 32.5% of agricultural products. They are the main producers of certain kind of products. Thus, the proportion of produced honey amounts to 94%, of sheep and goats for slaughter– to 69.8%, of potatoes – to 68.7%, of fruits and berries – to 65.8%, of cattle for slaughter – to 56.2%, of vegetables – to 55.7%, of wool – to 47.2%, and of milk – to 40.2%. In this category of farms, the production marketability level is very low. For example, the level of marketability of vegetable production is just 15.9%, of potatoes – 17.1%, of fruit – 18.7%. In households, the losses of grown products are very high due to difficulties with the products sale.

Creation of consumer cooperatives will contribute to the rational use of products in households and increase the level of their marketability. Cooperatives will be engaged in the procurement and sale of agricultural products, as well as the supply of households with material resources (seeds, fertilizers, etc.).

CONCLUSIONS

The state agrarian policy has allowed for an increase in the production of many types of products. However, a significant proportion of food provision is imported products. The share of imports is especially high in the formation of commodity resources for fruits, vegetables and milk. Therefore, import substitution by increasing the proportion of domestic resources (seeds of sugar beet, sunflower, vegetable crops, breeding animals, breeding eggs, veterinary drugs, machinery) is important in solving the food problem.

The solution of this problem will be facilitated by the improvement of state regulation, the concentration of production in agricultural organizations and peasant farms, where there are favorable conditions for the innovative development of these industry sectors, as well as the organization of storage and processing of agricultural products in the places of their production, and the creation of consumer cooperatives.

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