

Research Article

Agriculture as State Food Security Indicator

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ABSTRACT.

The development of food security is a key element of state policy, which for the most part is the basis for key benchmark determination of the country agrarian policy. The country food security directly depends on the development state of economy main artery - agriculture. Many problems are solved with successful agr management; the degree of various risks is reduced. However, it is necessary not only to take into account the state of agrarian industries in order to enhance food security. It is important to take into account the complex nature of food security development and the processes taking place along with it, which is determined by two main aspects. The first aspect is considered to be the physical accessibility of food to population, which directly depends on the agro-industrial sector state. The second aspect is the socio-economic accessibility of the regional population. This aspect is influenced by a large number of factors, including the population income and expenditure, the culture of nutrition and traditions, the state of economy, the degree of state influence on the state and stability of domestic food market operation.

Key words: agriculture, agro-industrial complex, food, physical accessibility, socio-economic accessibility.

INTRODUCTION

In Russian Federation (hereinafter RF), food security as a socio-economic term was cited in the primary basic document of RF Food Security Doctrine [1].

However, along with the generally accepted definition of this concept, a number of Russian and foreign scientists put forward new definitions over time, each of which has the right to exist in a certain period of time.

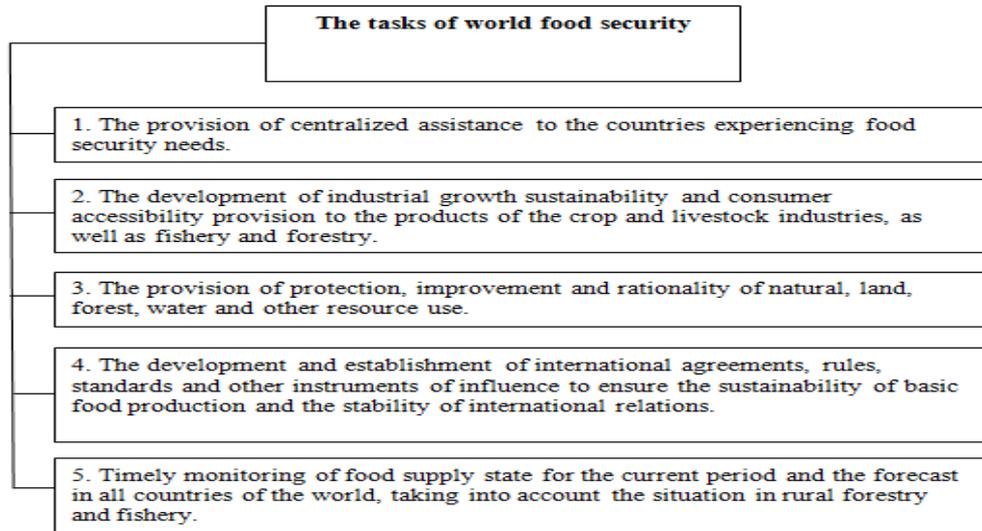
In this case, you should still refer to the official version of the object under study. So, in RF Food Security Doctrine this definition reads as follows: "... this is the state of Russian Federation economy, which ensures food independence, guarantees physical and economic accessibility of food products for the country population that meet the requirements of

technical regulations necessary for an active, healthy lifestyle" [1]. Certainly, this definition is very capacious and sufficiently fully reflects the essence and significance of RF food security, and is supported by law in the meantime. It is also important to emphasize that this definition reveals and takes into account the need to implement the course of import substitution and, in fact, provides for the restrictions on food import and export in order to stabilize domestic food markets [2].

The only unjust thing in the author's opinion is that this definition is not focused on the importance of the agro-industrial complex (hereinafter the AIC) of the country and its regions and agriculture directly, as the basis for the the state food security development.

It is a well-known fact that AIC is the combination, or more precisely, a systematic interaction between the most important sectors of economy, capable of meeting the primary needs of society, thereby ensuring food security and guaranteeing the nation health. The country agriculture is the closest one in relation with food security and independence. This slogan is ensured by the fact that food security cannot be

There is a practice that many issues related to food security in the world and the need for its government regulation and support are dealt by the International Food and Agriculture Organization (FAO) of the United Nations. This organization identified the main tasks of food security provision in the countries in order to eliminate hunger, which takes place in a number of countries (Fig. 1) [5].



formed by itself and strengthened at the expense of political structure and socio-economic structure only, since this role is entirely played by agriculture, where an intermediate or finished product is produced that is able to ensure food independence and security in the country [3].

It is generally accepted in all countries of the world that the level of agriculture development mirrors the state of food security. This is the main indicative and evaluative criterion. Consequently, food security can be under great threat of security if agricultural regulation is subordinated to chaotic market mechanisms, which, at least, is typical of the Russian market with its established institutional structure [4].

It is advisable to note that agriculture is the industry dependent on many factors, which is primarily due to natural disasters, the seasonal nature of production, low and long payback of investments in fixed assets, and so on.

In this regard, food security is the consequence of the multifunctional nature of agriculture, which requires mandatory ongoing state support and regulation.

Figure 1. The tasks of world food security provision [5]

According to the experience of foreign countries with a developed economy, including agriculture, the country food security is primarily related to the domestic provision of the country population with basic foodstuffs (meat, milk, bread, vegetables, potatoes, eggs, etc.) due to own production account at the level of 80-100% [6]. The calculation of food market ensuring and saturation indicator is carried out in Russia according to the recommended rational norms of basic foodstuff consumption per person during a year. The standards recommended by the United Nations World Health Organization (WHO UN) are used abroad. Since 2010 RF Ministry of Health and Social Development has developed and used the norms somewhat different from those recommended by WHO for such calculations.

Such a settlement and appraisal approach allows us to control and regulate internal production, determine export opportunities and the need to import agricultural raw materials and food.

Along with all the above mentioned, one should focus on the importance of state financial support to farmers. In Russia, this important point is weakly regarded by the authorities, which is confirmed by the fact of one of the lowest levels of financial support for agricultural producers in comparison with the developed countries of the world [7].

According to M.L. Vartanova, food security assumes a stable state of economy and the branches of the agro-industrial sector, including agriculture, due to which the domestic needs for food among the population can be fully satisfied, regardless of various kinds of factors, threats and risks influence. In this case, the main role in food security provision belongs to the state [8].

Study methods

In our opinion the problem of food security should be considered in two aspect order, the essence of which is the following one:

The first aspect. The study of physical accessibility for basic types of food among the country population. The methodical aspect consists in physical volume of agricultural raw material and food production determination, as well as in their uninterrupted supply to processing and to a final consumer as a finished food product. It is also advisable to include the logistic movement of food in the state between differentiated by agriculture and processing industry development degree and level within the framework of this aspect.

The second aspect. The study of the socio-economic availability of food within the country and its regions. The method of this aspect is that the situation of population incomes and expenditures should be monitored regularly and in a timely manner, the information on the expenditures of the population for food is especially important.

Third aspect. The study of import dependence. Here, the technique is formed on the way to the share of imported agricultural raw material and imported food determination. However, such a calculation must be performed along with the assessment of import supply necessity. Virtually no country (no matter how it is developed) can do without imports. This is explained by the

elementary principles of market relations and the rules of international trade.

They should also clearly define the number of principles that must be followed within the formation of state policy in the field of food security.

First, this is the constant availability of food. The complexity of this principle lies in the fact that food independence is not an artificially created state of the country. It does not have an absolute character and is very dependent on unpredictable climatic factors. Consequently, in order to ensure the availability of food, it is necessary to strive to increase internal production, also paying a close attention to the quality of production, and at the same time build up reserves that can be directed to various needs, including the provision of socially important facilities and segments. Secondly, it is the stability of food supplies to domestic food markets. Human physiology provides for the regular consumption of food, so the state should attend to regular and stable food supplies to domestic markets through its own production, as well as through imports. Some foreign experts believe that food security provision is out of the risk zone when domestic food supplies reach the level of 70-80%. Also, according to expert estimates, Russia has the potential to achieve this level of food security. Thirdly, it is the efficiency of food use. The essence of this principle lies in the system approach to production, transportation, storage and processing. Fourth, it is the availability of food. The main types of food must be in physical and socio-economic accessibility or in purchasing power for the country population [9].

The compliance with the above mentioned principles should form the basis for a sustainable development of agriculture and the processing sectors of the country agro-industrial complex.

RESEARCH RESULTS

In 2017, Russian Federation was the first one in the world in the production of sugar beet (51.9 million tons); It took the 3rd place in potato production (21.7 million tons); 4th place in the production of grain and leguminous crops (135.5 million tons); 5th place in meat production (10.3

million tons); 6th place in milk production (30.2 million tons) [10].

It should be noted that RF agriculture is mainly represented as three main organizational and legal forms, and in particular, agricultural organizations (hereinafter referred to as AO); peasant farms (PF) and population households (PH). In Russia, the role of each legal form of management changes its importance over time. Thus, for example, in the 90-ies of the 20th

century, the role of a small agricultural enterprise lost some of its strength, but in the early 2000-ies it gained popularity again. To the contrary, they tolerated changes in terms of private farm value. Farming enterprises with a cumulative total since the beginning of the transition period to the market acquire their significance, which is not unfounded (Table 1) [11].

Table 1 – The share of agricultural product main types in the context of organizational and legal forms of management, 2000 - 2017, %

Main agricultural products	Agricultural organizations (AO)			Private farms (PF)			Population households (PH)		
	2000	2010	2017	2000	2010	2017	2000	2010	2017
Grain	90,8	77,0	70,1	8,4	21,9	29,1	0,8	1,1	0,8
Sugar beet	94,5	88,7	88,2	4,9	10,9	11,6	0,6	0,4	0,2
Potato	7,5	12,0	19,5	1,3	6,3	11,6	91,2	81,7	68,9
Vegetables	22,9	18,8	25,6	2,4	12,9	19,0	74,7	68,3	55,4
Livestock and poultry (in slaughter weight)	40,2	60,6	77,9	1,8	2,9	3,0	58,0	36,5	19,1
Milk	47,3	45,4	51,9	1,8	4,7	7,9	50,9	49,9	40,2
Eggs	70,8	76,8	80,1	0,4	0,8	1,1	28,8	22,4	18,8

* Compiled by the author according to Rosstat data

Thus, the characteristic presented in relation to the organizational and legal forms of economic entities in RF agriculture is fully confirmed by the figures reflected in table 1. At the same time, an important point should be emphasized that, in fact, over the course of difficult economic and organizational time for the agriculture of Russia, there has been a certain division of labor, which can be characterized as follows. Thus, the production of grains, oilseeds and sugar beets, as well as poultry and pig farming, was concentrated in agricultural organizations. Farmers are mainly oriented on the production of grain, cattle, sheep and vegetables. A large proportion of potatoes, vegetables, fruits and berries, as well as about half of the total milk yield, is produced on private farms.

Such an agrarian structure of Russia has no analogues in the world, at least among developed countries. The main goal of all economic entities is to meet the food needs of the regional population or in general.

At the beginning of the 21st century, it was possible to observe the increase of food consumption by population (Fig. 1).

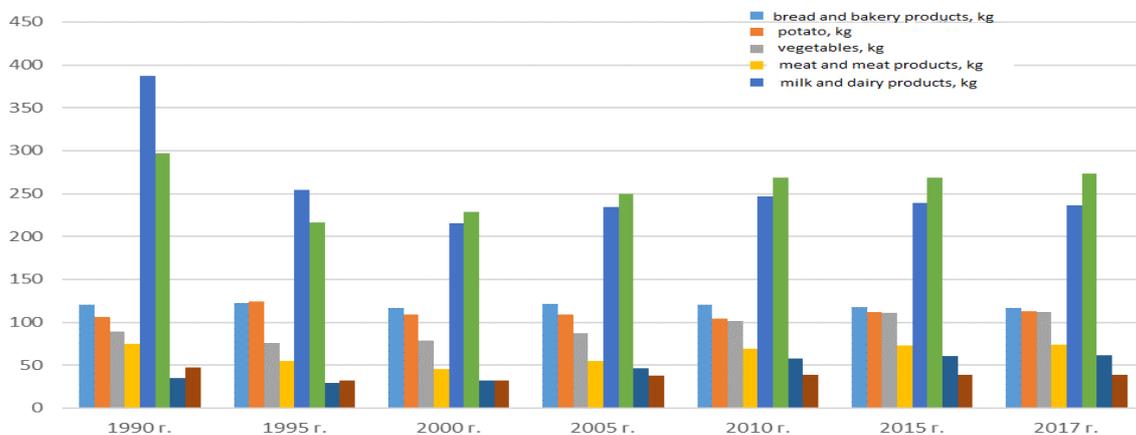


Figure 1. The level of main types of food consumption by population of Russia during the period 1990 - 2017, kg per capita in a year

Thus, the data of Figure 1 allows us to correlate the available statistical data on the consumption of main types of foodstuffs with the current consumption standards established in Russian Federation during 2010 in conjunction with RF Doctrine on Food Security. Of course, the required level of consumption has not yet been reached for the current period of time, in particular for such types of food as fruits (the consumption makes 62% from the norm), milk (72.6%) and vegetables (80%). But these figures are not the evidence of food shortages in domestic food markets. This is more indicative of purchase power and food culture level, i.e. of socio-economic accessibility. This is confirmed by the fact that a high-calorie carbohydrate type of nutrition prevails in Russia. So, judging by the diagram data, it can be seen that the population of Russia consumes bread products (121.9% of the required volume), potatoes (125.6%), sugar (162.5%) and vegetable oil (114.2 %) [12].

In general, if the country population spends less than one-third of its own income on food, this indicates an average level of food availability; a high level is achieved when food expenditures exceed one third, but no more than 50%; a critical level occurs in the case of 50% of food expenses or more. Let's analyze this situation of the socio-economic availability of food to the population according to the actual statistical data in the context of the last 37 years (Fig. 2).

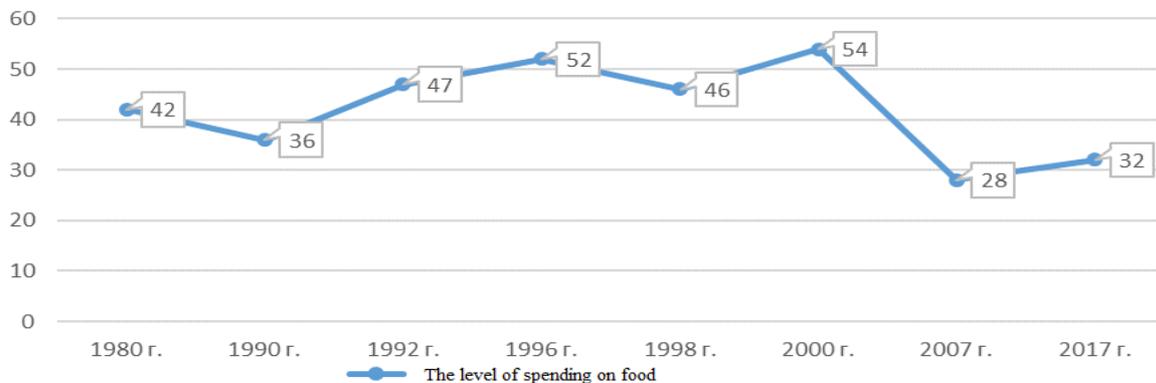


Figure 2. Socio-economic availability of food in terms of consumer spending on food, %

Analyzing the population expenditures on food, it should be noted that the present is characterized by an average level of food availability for the population of the country. The peak of critical food availability was from the mid-1990-ies to 2002. During this period, the expenses often exceeded 50%. Figures 1 and 2 do not reflect some of the phenomena occurring in the food market of Russia, in particular, we talk about the large influx and the consumption of imported food from 1990 to 2010, which reached 50% for some types of food, which was the catastrophe both for agriculture and for the state of food security in Russian Federation.

In 2010, with the adoption of the Doctrine for Food Security, the state set certain tasks to import substitution and production level increase concerning the main types of agricultural raw materials and food. Along with the Doctrine of RF Food Security, they started to develop actively the programs for agriculture and market for agricultural raw materials and food and implement them at the federal and regional level since 2008. The production results showed that Russian agriculture is still quite viable and can reach the government-defined targets concerning the production level (Table 2).

Table 2 - The assessment of the target achievement within the RF Doctrine of Food Security for the production of main types of agricultural raw materials and food

Main type of food	Target criterion of RF Food Security Doctrine, % (no less than)	Actual value			Target criterion achievement level, %
		2010	2015	2017	
Grain	95	122	145	146	153
Potato	95	101	105	106	112
Milk and dairy products	90	81	81	82	91
Meat and meat products	85	72	89	91	107

Sugar	80	58	83	92	115
Vegetable oil	80	95	127	138	173

Thus, it can be stated that the guidelines set by the Doctrine are fulfilled in almost all types of food, with the exception of milk. Experts note that the problem of milk production missing volumes lies in the fact that the material and technical base for the production of feed, in particular concentrated one, is poorly developed in Russia. Practically there are no own domestic technologies for their production. Also, during the transition to market relations, stock breeding lost itself and practically had no state support. In the majority of functioning farms, the dairy herd is represented by the black-and-white breed. The average level of milk production in Russia is based on 5,000-6,000 kg of milk per head, while in a number of developed countries where dairy cattle is developed, the milk yield per head can reach up to 15,000 kg a year.

CONCLUSIONS

In general, it should be noted that the multidimensional nature of food security development boils down to two main criteria characterizing it: physical and socio-economic accessibility.

In this regard, it should be noted that socio-economic accessibility often does not depend on the state of the economy agrarian sector, if we are not talking about the population living and working in rural areas. The general format of measures contributing to this criterion strengthening should be reduced to population general well-being increase in terms of life quality level. Consequently, it is advisable to carry out regulatory measures in labor market, where the nature and the complexity of labor must correspond to a personal level of specialization and qualification. Labor should have an appropriate remuneration, but at the same time, wage growth rates should not exceed the growth rates of labor productivity. It is also important to expand the possibilities of population income development, not focusing only on wages and so on.

In terms of physical accessibility, an active state policy aimed at import substitution should be

continued. It is necessary to expand the possibilities of international cooperation and, consequently, exercise control over the food export and import. One of the priorities should be the strengthening and the update of the material and technical base of the most important production sites in the agro-industrial complex of the country. The state should also increase the volume of state support to farmers, mastering other areas unrelated to agricultural production according to the rules of WTO, of which Russia is a member.

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