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Assessment of the problems in food industry development of the of the Russian Federation and ways of their solutions

La apreciación de los problemas del desarrollo de la industria alimenticia de la Federación Rusa y la vía de sus decisión

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ABSTRACT:
The relevance of the research topic is determined by the fact that food industry plays an important role in the modern Russian economy; its share in the country's total industrial production is comparable to such sectors as metallurgy and the fuel industry. In recent years, due to the influence of international sanctions, the food industry has been paying even more attention to the implementation of the national policy of import substitution. At the same time, there are a number of serious problems in the development of the food industry of the Russian Federation. The purpose of this article was not only the identification and generalization of the above problems, but also the rationale for problem solving. The leading scientific method of research was the method of quantitative and qualitative analysis, as well as comparative economic analysis. As a result of the conducted studies, based on the analysis of available statistical data, several of the most important problems in the development of the food industry in Russia were formulated. The approach proposed by the authors of the article is novel and represents the most probable ways to increase the efficiency of the development of the food industry of the Russian Federation within the framework of the national policy of import substitution aimed at ensuring the country's food security. The article may be of interest to the federal and regional government for the development of the food industry, specialists and managers of enterprises in this sector, and can also be used by Russian educational organizations engaged in training personnel for the food industry.
Keywords: Food industry, food security, agro-industrial complex, national policy of import substitution, Russian Federation

RESUMEN:
La actualidad del tema de la investigación es condicionada que en la economía moderna rusa el papel importante es jugado con la industria alimenticia, su parte en general el volumen de la producción industrial del país es comparativa a tales ramas, como la metalurgia y la industria de combustibles. En los últimos años a consecuencia de la influencia de las sanciones internacionales de la industria alimenticia empezaba a prestar aún más atención en los límites de la realización de la política nacional de sustitución de importaciones. Al mismo tiempo, hay una serie de los problemas serios en el desarrollo de la industria alimenticia de la Federación Rusa. El objetivo de la preparación del artículo dado se hacía no sólo la revelación y la generalización de los problemas arriba indicados, sino también la argumentación de las vías de la superación. El método principal científico de la investigación había un método cuantitativo y el análisis cualitativo, también el análisis relativamente económico. Como resultado de las investigaciones pasadas en base al análisis de los datos estadísticos eran formulados algunos problemas más importantes del desarrollo de la industria alimenticia de Rusia. El enfoque propuesto por los autores del artículo es novedoso y representa las formas más probables de aumentar la eficiencia del desarrollo de la industria alimentaria de la Federación de Rusia en el marco de la política nacional de sustitución de importaciones destinada a garantizar la seguridad alimentaria del país. El artículo puede representar interés para los órganos de la dirección federal y regional por el desarrollo de la industria alimenticia, los especialistas y los dirigentes de las empresas de la rama dada, también pueden ser usados por las organizaciones rusas de instrucción que se ocupan de la capacitación de cuadros para la industria alimenticia.
Palabras clave: La industria alimenticia, la seguridad de alimentación, el complejo agrícola, la política nacional de sustitución de importaciones, la Federación Rusa

1. Introduction

In the modern Russian economy, an important role is played by the food industry; its share in the total volume of industrial production of the country is more than 12%, which is comparable with such industries as metallurgy and the fuel industry (FAO, IFAD and WFP, 2015). The share of food products in the structure of retail trade turnover is close to 50% (International Centre for Trade and Sustainable Development (ICTSD) and FAO, 2013). Food and recycling industry is formed by 32 industries in which as more than 1.176 million were employed at more than 43 thousand enterprises in 2016 (Russia in Figures 2017, 2017). Undoubtedly, the food-processing complex should contribute to the development of Russia's innovative economy.

The aim of the given research is to analyze the current state of the food and processing industry in a comprehensive way, to identify the most significant problems that impede its transition to an innovative development path, and to find possible solutions to these problems.

2. Methods and Materials

For the implementing the present work we used methods of questioning, expert estimations, ordering and generalization, mathematical modeling and forecasting, decision-making. At the preliminary stage, there was a group of experts from among the authoritative scientists - Leading staff of research organizations of the Russian Academy of Agricultural Sciences (RAAS). Based on their assessments, 8 key industries of the food processing complex were identified, for which the main quantitative indicators were collected and processed. At the final stage of the study, experts developed practical recommendations for the development and modernization of the food industry.

3. Results

Due to the volume of analyzed data tit is given as a structure in the following order: 1) basic indicators of the functioning and dynamics of key industries development; 2) the state of technical equipment of key industries and the problems of modernization of the equipment fleet; 3) innovative products produced by key industries and their export potential; 4) prospects for the development of key industries.

3.1. Basic indicators of key branches activities in food and food-processing industry

Table 1 presents the main quantitative data on the 8 key branches of the food industry identified by experts. Additionally, indicators of crop production sub-sectors are provided, which are important suppliers of raw materials for the food industry. Their products appear in the Doctrine of Food Security and in rational norms of food consumption (Table 2).

Table 1
Main indicators of key branches of the food industry (enlarged)

№	Industry	Products, unit of measure	Volumes of production in 2016	Average annual growth rate in 2012-2016.g.,rel. units	The threshold value of the share of domestic products in the domestic market in accordance with the Doctrine of Food Security	The actual value of the share of domestic products in the domestic market in 2016	Recommended annual per capita consumption in accordance with the norms of rationality, kg	The actual annual per capita consumption, in 2016
1	Meat industry	The mass of slaughter animals, thousand tons	7018, 0	1,10	85%	89.7%	70-75 (meat and meat products)	74
2	Dairy industry -Nosta	Milk in farms of all categories, mln. tons	30, 8	1,00	90%	81.5%	320-340 (in terms of milk)	236
3	Grain howling subcomplex	Grain crops-gross million. tons	120, 7	1,09	95%	99.2%	Set in terms of flour (line 4)	---
4	Flour-and-cereals	Flour from cereals,	9,7	0,99	Fits for grainsubcomplex (line	---	95-105 (in terms of flour)	117

	industry	million tons			3)			
5	Bakery industry	Bakery products of all types, mln .tons	6,5	0,99	Fits for grain subcomplex (line 3)	---	It is set in terms of flour (line 4)	---
6th	Beet Sugar Industry	Sugar white beetroot hard, thousand tons	5772,0	1,04	80%	88,7%	24-28	39
7th	Starch and syrupcleavage	Starch, thousand tons	225,8	1,04	Cannot be determined	92,0%	Cannot be determined	---
		Starch syrup, thousand tons	463,3	1,06	Cannot be determined	100%		
8	Fat and oil industry	Vegetable oil unrefined thousand tons	5148,0	1,05	80%	83,6%	10-12	13,7

Table 2

Supply of RF products sub-sectors of crop production (selectively)

№ п/п	**Type of raw material**	**The threshold value of the share of domestic products in the domestic market in accordance with the Doctrine of Food Security**	**The actual value of the share of domestic products in the domestic market in 2016.**	**Recommendedannual per capita consumption in accordance with rational norms, kg**	**The actual annual per capita consumption, in 2016**
1	Potatoes	95%	97,7%	95-100	113
2	Vegetables and melons	Not is established	94,6%	120-140	112
3	Fruits and berries	Not is established	43,6%	90-100	62

As can be seen from the data in Table 2, of the three food products selected, the Russian Food Security Doctrine only potatoes field had a threshold for the share of domestic products in the Russian market, and by the end of 2016 this goal was achieved. High results for 2016 were also achieved in the production of vegetables and melons - almost 95% of this production is produced by Russian agricultural enterprises. The most difficult situation with the production of fruits and berries - they are produced in Russia less than 50% of the total number of products sold in the Russian market in 2016. Therefore, the production of fruits and berries should be given special attention in the framework of the concept of food security in the coming years.

Table 1,2 materials allow the following preliminary conclusions to be drawn:

1. The import substitution policy initiated in 2014 had a positive impact on the state of the agro industrial complex and the food industry, as evidenced by stable growth rates in almost all key sectors, at a level of 4-10% per year. The insignificant decrease in the volume of production of the flour-grinding and bakery industry is explained not by the problems of supplying raw materials, but by a drop in demand for manufactured products in connection with the popularization of healthy nutrition principles in the Russian Federation. It can be seen that consumption of the production of these industries exceeds the rational norms by 17%, line 4.

2. Criteria for the Food Security Doctrine have been met for all items except milk. Zero growth rates in this industry indicate serious systemic problems. The per capita consumption of such an important product lags behind the recommended rational norms by 29% (table 1, line 2).

3. In other respects, the agro-industrial complex and the food industry provide average consumption at the level of recommended norms, incl. on such indispensable products as meat (protein component of the diet) and vegetable oil (an essential component of any low cholesterol diet). However, a negative factor is the excess consumption of sugar, 1.5 times higher than the rational one (Table 1, line 6). In addition, the consumption of potatoes is excessive - 16% higher than the recommended norms (Table 2, line 1). All together with high volumes of consumption of bread products creates risks of development of alimentary diseases, first of all - associated with excess body weight (hypertension, diabetes, etc.).

4. Production of vegetable growing and fruit growing (table 2, lines 2, 3) plays an important role in the formation of a healthy diet, as a source of fiber and vitamins. Russian manufacturer's vegetables and melons cultures mostly satisfy domestic demand (Table 2, line 2), but their consumption is at a level of 86% of the recommended norms. This may indicate the absence of effective commodity-distribution chains "from field to table", including wholesale distribution centers (ORC) of agricultural products. Due to the climatic features of most of the RF subjects, fruits and berries are not produced in sufficient quantities, self-sufficiency does not reach 45% (table 2, line 3), respectively, the deficit of this product is traditionally overcome by significant imports (in 2016 - 4.2 million, m).

Let us turn to the consideration of export and import operations of the Russian Federation, focusing on the spheres of the agro-industrial complex and the food industry. The structure of the foreign trade balance of the Russian Federation according to the Federal Customs Service of Russia (FCS of the Russian Federation) is presented in Table 3.

Table 3
The main foreign trade balance of the Russian Federation
according to the Federal Customs Service

№ п /п	Indicators	Export	Import	Import / Export Ratio
1	Total amount, bln. USD	287,600	183,600	0,64
2	The growth rate in 2012-2014 years, rel. units	0,86	0,87	1,01
3	Including food products and agricultural raw materials, billion US dollars	17,000	24,900	1,46
4	The growth rate in 2012-2014 years, rel. units	1,00	0,88	0,88
5	The ratio of the indices of lines 3 and 1,rel. units	0,06	0,14	2,28
6	Wheat and meslin, billions of US dollars	4,216	0,089	0,02
7	Other cereals, billion US dollars	n/d	0,502	---
8	Meat of animals and poultry fresh and frozen, billion US dollars	n/d	2,082.6	---
9	Products and tinned meat, $ billion	n/d	0,065	---
10	Milk and products of its processing, billion US dollars	n/d	884,5	---
11	Vegetable oil, bln. USD	n/d	0,005	---
12	White sugar and raw sugar, bln. USD	n/d	0,254	---
13	Citrus	n/d	1161,8	---

Table data show that the trade balance of the Russian Federation remains positive (+104 billion US dollars), due to the fact that exports are more than 1.5 times higher than imports. The growth rates of imports and exports in 2012-2016 approximately coincided. The reason for the decrease in the first indicator is the implementation of the import substitution policy, second is the weakening of the ruble. In the structure of imports, food products account for 2.3 times greater than in the structure of exports (Official site of the Federal Customs Service of the Russian Federation). Despite the undoubted success of import – substituting measures, which resulted in a faster decline in food imports relative to exports, the trade balance in the food sector is negative (-7.9 billion US dollars). Noticeable success in exporting agricultural and food products Russia was able to achieve only by wheat, which provides 25% of total food exports. The structure of food

imports is dominated by meat and dairy products, which account for 12%, as well as citrus - 5%. It should be noted that the FCS data give significant discrepancies with estimates of alternative sources. So, according to the materials of the information center Aftershock, the share of products of various types in the structure of food imports is: meat and dairy products - 28%, fruit and vegetable production - 26%, fat and oil products - 13%, grain sub complex, flour-cereal, starch- treacle and bakery industry - 6% (The official site of the information center Aftershock).At the same time, the geographical structure of food imports in 2016 was as follows: 31% - Western countries, 20% - CIS countries, 19% - BRICS countries, 15% - Latin American countries. It is worth mentioning that Russia remains one of the world's largest food importers. Despite the fact that in recent years, Russia has entered the top 6 exporters of agricultural products, and the grain has come first, the main problem is the prevalence of raw materials in the sales list (The State of Agricultural Commodity Markets 2015–16.). To improve the trade balance, the country must master the production of products with high added value and obtained through deep processing and enter with them on the world market (Maltseva, 2012).

Speaking about the prospects for the development and modernization of the food industry it is necessary to consider the following:

1) The raw material base of the industry is agro-industrial complex (AIC), which is also a key element of the implementation for the Doctrine of product security of the country (On Approving the Doctrine of Food Security of the Russian Federation). Due to the activation of the agro-industrial complex, provided with the policy of import substitution, the Russian Federation (RF) was able to reduce food imports by more than 40% in 2014-2016. There is no doubt that the problems of these industries need to be considered in their mutual relations.

2) Produced goods must meet the modern quality and safety requirements formulated by the RF State Policy in the field of healthy nutrition of the population (Fundamentals of the state policy of the Russian Federation in the field of healthy nutrition for the population until 2020). The joint development of the agro-industrial complex and the food industry should ensure that Russian citizens consume food with the developed Ministry of Health and Social Development rational consumption norms that correspond to the principles of a healthy lifestyle (About the statement of recommendations on the rational norms of consumption of food products, meeting the modern requirements of a healthy diet).

3) Hydrocarbon raw materials occupy a dominant position in the structure of RF exports. Despite the fact that in recent years, the production of agro industrial complex has seriously competed with hydrocarbons, it is also exported primarily in raw form - in 2016 grain and oil sunflowers provided about 60% of food exports (9.5 of 15.1 billion US dollars). Moreover, in the world market the products of deep processing of grain (bioethanol, lysine, organic acids, enzymes, etc.) and other types of agricultural products are in high demand. The prospects for engaging in a corresponding market niche for harmonizing the foreign trade balance for the Russian Federation are quite real.

4) To carry out deep processing, industries must be provided with modern technological equipment that guarantees energy saving, ecological purity, preservation of nutritional and biological value of processed products. Therefore the task of improving the sectoral engineering industry, as well as the development of innovative technological processes, is becoming topical.

5) The development of raw materials and industrial base should be complemented by the creation of corresponding commodity infrastructure for minimizing losses, high-quality logistics and which agrees with the pricing mechanisms. This approach also implies the improvement of organizational and managerial processes in the industry, incl. - based on development of cooperation, implementation of cluster initiatives, etc.

4. Discussion

Earlier, the authors of the article repeatedly considered the problems connected with ensuring the development of the food industry and various directions for implementing the policy of import substitution (Petrovskaya et al., 2016; Lubnina et al., 2016; Larionova et al., 2017; Rodinova et al., 2017). The results of this study represent a continuation and further development in the study of modern problems of the Russian food industry in the face of economic sanctions that have been effective against the Russian Federation since 2014. During these years, the Russian food industry has undergone significant changes, which is reflected in this article. At the same time, there were a number of unsolved problems, which are summarized here along with substantiated ways to solve them.

Unlike previously published works by Russian and other specialists in the field of food industry development (Achterbosch, Berkum, & Meijerink, 2014; Arias et al., 2013; Arkhipov, 2008; Bai, 2008; Clapp, 2015; Dorward, Kydd & Morrison, 2004; Fan, Gulati & Thorat, 2007; Morrison & Sarris, 2015; Murphy, Burch & Clapp, 2012; Swinnen, 2015), the results of this study represent an integrated approach to assessing the development problems of the Russian food industry, and it also contains new approaches to solving the identified problems.

5. Conclusion

The proposals and recommendations formulated in this article can be used by federal and regional authorities in developing a strategy and policy for the development of the food industry at an appropriate level,

identifying key areas for improving the organization of this industry and providing it with government support within the national food security policy.

In addition, the materials of the article can be used by management and specialists of food industry enterprises when developing a strategy, determining priority directions for transforming the activities of these enterprises.

In addition, the materials of the article are recommended to be used in training specialists with higher education in Russian universities, when studying disciplines related to the prospects for the development of the food industry

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