
Food Security of Russia in the Context of Import Substitution

Galina Mikhailovna Zinchuk¹, Marina Yegorovna Anokhina², Alexey Vladimirovich Yashkin³, Svetlana Arkadievna Petrovskaya⁴

Abstract:

The article analyses the conditions for ensuring food security of Russia with account for the factors of import substitution and policy implementation.

It describes the theoretical approaches in research of problem of food security. The authors define the need in modern conditions of self-sustainment of the country's basic foodstuffs. The changes in food import volumes and agricultural products production evaluated.

The problems of agricultural production highlighted. Particular emphasis is given to calculating demand in food resources with respect to factual food products consumption of various population groups. Defined main groups of food, which is not ensured rational consumption. The article offers a set of measures aimed at conducting food import and substitution policy without jeopardizing the country's food security.

Keywords: *food security, import substitution policy, agro-industrial complex, food resources, food consumption*

JEL Classification: *Q13, Q17, Q18*

¹ *Plekhanov Russian University of Economics, 117997 Russian Federation, Moscow, Stremyanny lane, 36, corresponding author..*

² *Plekhanov Russian University of Economics, 117997 Russian Federation, Moscow, Stremyanny lane, 36.*

³ *Plekhanov Russian University of Economics, 117997 Russian Federation, Moscow, Stremyanny lane, 36.*

⁴ *Plekhanov Russian University of Economics, 117997 Russian Federation, Moscow, Stremyanny lane, 36.*

1. Introduction

Adequate provision of food supply has been of utmost importance in the history of mankind. However, food shortage combined with the annual population growth is still registered at the global level (Godfray *et al.*, 2010). Given the stable decrease of the global hunger index, it is still very high and constituted 34.8 % in 2016. The share of undernourished global population over the period of 2014-2016 made up 26.8 %. The highest rate registered in Central African Republic and other African countries south of the Sahara Desert. Among emerging economies, Russia occupies 24th place with the relatively low index of 6.8, but it is higher than that of the neighboring countries, such as Belarus and Ukraine (Grebmer *et al.*, 2016).

The present level of food security in the Russian Federation indicates not a very sustainable situation. According to the global country index of food security of the Economist Intelligence Unit, Russia is on the 43rd place at 63.8, between China and Belarus, whereas complete security stands at 100.0. Among 26 European countries, Russia is on the 23rd place, the three lowest positions occupied by Bulgaria, Serbia and Ukraine. The statistics show that no country has achieved complete food security. Even the USA, occupying the top of the rating with the index of 89.0, cannot consider immune (The Global Food Security Index, 2016).

Recent approaches with new biotechnologies used in economically developed countries have not resulted in complete eradication of food shortage. Genetically modified (GM) products have posed more questions than solutions (Freedman, 2013). Many experts and producers presented evidence that their experience of growing and consuming GM products had shown that such agricultural technology did not lead to yield increase. What is more, they caused uncontrollable use of pesticides in attempt to maintain agricultural productivity (Yermakova, 2014; Borisova *et al.*, 2015; Tyaglov *et al.*, 2017; Polychronidou *et al.*, 2014).

Current climatic, economic, social, demographic and political conditions exacerbate agricultural problems in Russia and stipulate the need for food security provision through reaching maximum level of food sovereignty. The negative impact of global factors, worsening international relations with the introduction of sanctions against the Russian Federation and retaliatory food embargo have led to intensive development of import substitution agricultural policy. The necessity of such activities dictates by the aim of encouraging the development of Russian of rural areas and agrarian sector. They characterized at present by steady trend of population outflow and labor shortage, the downtrend in the living standards, low productivity level and low production potential.

Given the objective necessity of intensive development of import substitution agricultural policy, nonexistence of sustainable mechanism of its implementation can cause considerable harm to food security and lower the competition levels on the domestic market. This will lead to deterioration of food products quality, increase in

their price and decrease in their economic accessibility. It should be noted that import substitution by using internally produced food products is closely linked to increase in agricultural production volumes, which under the industrial mode of agrarian sector means growth of the farmland area.

This can result in degradation of natural environment due to deforestation, use of nitrogen fertilizers and intensive use of clean water. Agriculture also considered one of the main sources of atmospheric pollution. Consequently, the intensive development of import substitution agricultural policy requires new technological solutions to ensure the preservation of natural environment and competitiveness levels on the agricultural market.

The issues of Russian food security and food import substitution and policy have studied by a number of prominent Russian economists: Altukhov (2016), Ushachev (2015), Golubev (2015), Kliukach (2015) and others. However, the sheer scope of these issues means that several aspects are still insufficiently developed.

The present research focused on substantiating scientific and practical recommendations for implementing the food import substitution and policy in Russia aimed at ensuring the country's food sovereignty. This presupposes the necessity to find solutions for the following conceptual tasks:

- to assess the degree of self-sufficiency of the country's food supplies;
- to develop methodology of evaluating real demand in food resources with account for differentiated levels of food consumption by various groups of population;
- to substantiate measures for agrarian sector development.

2. Methodology and methods of research

The research based on the writers' understanding of the concept of food security, which formulated basing on the undertaken research into the issue.

The issue of food security has risen by the English cleric and scholar T. Malthus in 1798. In his "Essay on the Principle of Population", he wrote that nature laws invariably stipulate further misbalance between the population growth rates and increase in subsistence means. Due to natural decline in land fertility the means for subsistence cannot increase faster than in arithmetic progression, while the population growth happens in geometric progression (Malthus, 1798). A new development of Malthus ideas was in the middle of the 20th century. The neomalthusians argued that it was impossible to provide the increasing world population with food supplies, which gave rise to the problem of food threat.

At present, there is no unified approach to defining food security. The term itself first introduced at the World Food Conference convened by the Food and Agriculture Organization of the UN in 1974 due to state of the acute food deficiency.

The meaning of this term formulated only in The Rome Declaration on world food security, adopted in 1996 in Rome at the World Summit on food supply issues. According to this document, food security is understood as the country's economy level, which guarantees physical and economic access for the country and each citizen to food products and clear water.

Other food products of high quality in large volumes that will be essential and sufficient for physical and social development of an individual ensuring healthy life and expanding reproduction of the population (Rozhkova and Pachulia, 2011; Serebryakova *et al.*, 2016; Breckova, 2016).

In Russia researchers started to look more closely into the issues of food security at the beginning of the 1990-s. Given the state of economy at that period most researchers narrowed down the understanding of food security to quantitative values in self-sufficiency of the country's food supplies (Anderson, 2009). In the course of the subsequent food market saturation more attention was paid to food economic accessibility provision, with particular emphasis on interrelated social stability and justification of increased food import levels as measures to develop competition and reduce prices.

In the Food Security Doctrine of the Russian Federation approved by Act № 120 of the RF President dated 30.01.2010, the RF food security is understood as the country's economy level which ensures the RF food sovereignty, guarantees physical and economic access for each citizen to food products which satisfy the safety norms and dietary intake levels to lead an active and healthy life (R.F. On approving the RF Food Security Doctrine, 2010). This definition in broad terms fully accounts for all constituting features of food security.

However, we believe that it primarily identifies the concept of the country's food sovereignty. While these two categories are closely interrelated, there are fundamental differences between them. The undertaken analysis of the essence of the food security concept resulted in the number of conclusions that constituted the basis for the present research.

Firstly, the natural need in food, the fulfillment of which guarantees to an individual physical existence and survival as a biological species, calls for exploring food security in a simplified way at a mundane level. The physical access to food and food quality should ensure natural and active life of an individual, without any threats to continuous provision with food in essential quantity and adequate quality. This does not have to be domestic produce only. For example, the self-provision with food resources of the Russian northern regions is not feasible in principle due to the objective factors.

Secondly, given the social nature of an individual, it is necessary to consider food security at the society level. This leads to identifying food security as not only

guaranteeing food to population, but also as a factor of socio-economic, environmental, political and even cultural development.

Thirdly, the specified in the Food Security Doctrine of the Russian Federation necessity to calculate the level of food security basing on rational norms of food consumption does not reflect the reality. In real life, the food purchasing patterns of people invariably characterized by irrationality. American psychologist R. Cialdini in his book “Influence: The Psychology of Persuasion” draws attention to the fact that each customer has their own “psychological reactive resistance”. This means an extent of loosing free will when a person starts resisting it subconsciously (intuitively and not always to one’s advantage).

For example, when deficit or something else restricts our access to an object, we try to resist this and want to acquire this object much more than earlier and take certain steps towards owning our object of desire (Cialdini, 2009). So in fact, to ensure food security the volume of food resources should to a certain degree exceed the rational norms of food consumption.

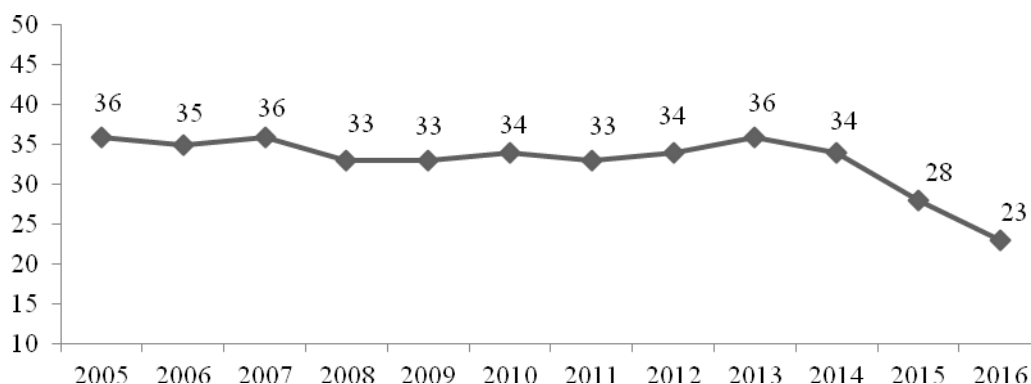
There is evidence that the most influential factors determining volumes of food consumption in Russia are the following: household composition, parental status in a family, average per capita disposable income, permanent residency (urban or rural residency).

The current research was conducted based on general academic methods (analysis, synthesis, generalization, etc.) and specialized ones (statistical analysis, graphical method, comparative analysis, etc.). The research informed by official data of the Federal Statistics Service characterizing levels of agricultural production and food processing industry development, agricultural labour supply, available material and land resources, volume and structure of food imports, food consumption levels of the population. This gave opportunity to reveal trends in agrarian sector, determine the strategic pathways and the level of the country’s food self-sufficiency.

3. Results

Under the current conditions of continuing sanctions for Russia, to ensure the country’s food resources self-sufficiency is one of the prerequisites for maintaining social, economic and political sustainability. It should note that the measures undertaken at the state level to encourage food import substitution have rendered positive results. There is a marked decrease in the share of food imports in the total sales volumes on the domestic market (Figure 1).

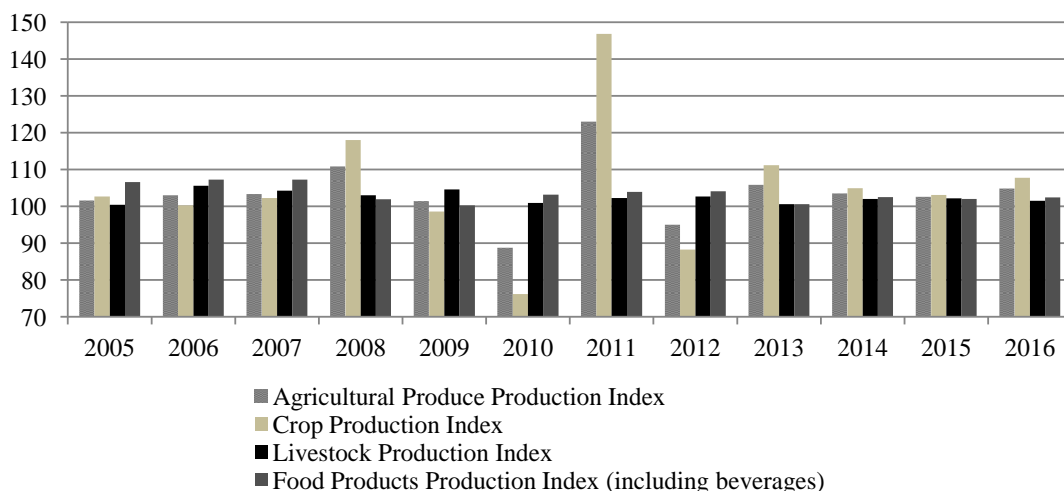
Figure 1. Share of imported food products in food retail, in percentages



Source: The official website of the Federal State Statistics Service of the Russian Federation

The considerable decrease in food imports in 2015 and 2016 is balanced with the corresponding growth in domestic production of agricultural and food processing industries (Figure 2).

Figure 2. Dynamics of agricultural production and food industry in the Russian Federation (in comparable prices, in percentages to the previous year)



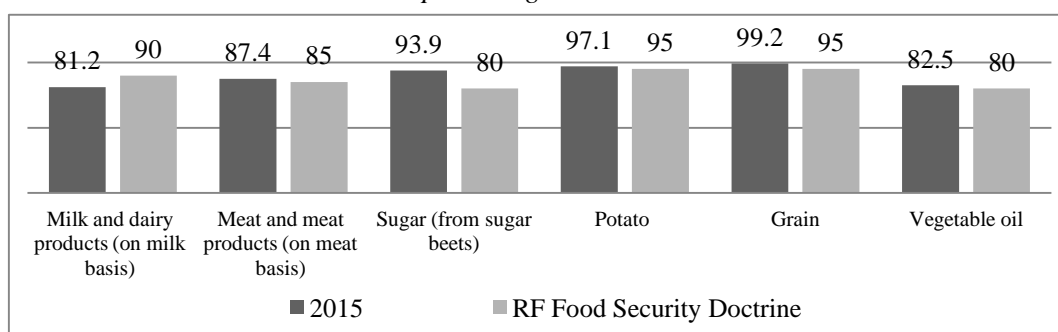
Source: The official website of the Federal State Statistics Service of the Russian Federation.

However, such positive results in value terms are not always accompanied by the real growth in physical units. For example, in 2015 in comparison to 2014 according to the data of the Federal State Statistics Service (Rosstat) there was a decrease in production in physical units of such food products as stuffed sausage (by 21,000 tons), smoked sausage (by 13,000 tons), canned meat (by 100 million nominal cans),

canned fish (by 1 million nominal cans), unrefined vegetable oil (by 321,000 tons), fruit and vegetable juice (by 706 million nominal cans), milk and cream in solid forms (by 25,000 tons), grain and miller bran (by 94,000 tons), bread and flour products (by 17,000 tons), flour confectionary goods (by 15,000 tons).

Even though in 2015 there were reached threshold values of food sovereignty, indicated by the RF Food Security Doctrine for nearly all main types of food resources except for milk and dairy products (Figure 3), it is too early to speak about stability on the domestic food markets. According to the Russia's Federal Customs Service the volume of food imports in 2017 began to grow again.

Figure 3. Relative share of domestic produce in the total volume of resources, in percentages



Source: Development of the Russian AIC within the framework of food security provision.

Federal state budgetary organization “Specialized Accounting Center in agro-industrial complex” reports that during January and February of 2017 there were imported into Russia food products and agricultural raw materials valued at 4,058.5 mln US dollars, which indicates the growth by 17.3% compared to a similar period of 2016. The physical volumes of imports increased for several categories: poultry meat - by 26.2%, fresh and frozen fish – by 13.3%, dry milk – by 38.9%, butter – by 17.6%, sunflower oil –8.5 times, meat products and canned meat – by 13.0%. The trend remained for March and April of 2017. A particularly marked growth is noticeable for meat and dairy products imports.

For example, over the period of January - April 2017 dried whole milk import made up 5.6 thousand tons, which is 2.5 times more than the figures for the corresponding period in 2016 (R.F., A review of the Russian agrarian market, 2016).

The current state of affairs clearly shows that to maintain the positive trends of the period of 2014-2016 in building up domestic agricultural production it is no longer enough to continue working along the lines of the present directions of the state agro-industrial policy. It is obvious now that there should be introduced changes in administrative economic mechanism of strategic management of the Russia's food security based on encouraging implementation of new technologies in agro-

industrial production. This will help decrease the costs and ensure competitiveness of the produced agricultural products. There is evidence that at present even a bigger problem poses the dependence of the Russian agrarian sector on the imported agricultural machinery, technologies of processing agricultural raw material, seed grain and breeding cattle. Thus, the statistics for 2016 show that the share of imported farm tractors constituted 67.3 %, the areas planted with imported vegetable seeds made up 46%, with corn – 55%, with sunflower seeds – 62%, with sugar beets – 83% , while the pedigree rearers of milk cattle import reaches 27%.

Still problematic is the situation with depreciation of fixed assets. At the end of the 2015 this indicator was at 41.6 %, which creates considerable risks for the agro-industrial complex and decreases competitiveness of the produced goods. To address the risks and introduce changes there must be significant investments. Under the conditions of economic instability and foreign sanctions, though, the state has fewer opportunities to increase or at least to keep the financing of the agrarian sector at the present level. As for the private investors, this sector has always had a low level of attractiveness to them being strongly affected by climatic risks and relatively long period of pay back.

The current credit policy for the agrarian production with state subsidies to reimburse a part of expenses for paying off interest on loans does not help agricultural enterprises to fully pay out their debts. The volumes of investment lending to agro-industrial enterprises are decreasing. What is more, only highly profitable enterprises can have access to credit lines, but the share of such enterprises is no bigger than 30 %. According to the Rosstat data in 2015 loss-making enterprises made up 18.7 % of the agricultural producers. The devaluation of ruble caused yet another increase in prices for agricultural machinery, fertilizers, fuels and lubricants. One more important factor to consider is the change in demand trends on the food market. In order to ensure food security it is important to have stable rate of import substitution. The Rosstat data indicate annual increase in sales volumes of food products. In 2016 food product sales accounted for 12 trillion rubles, with the growth of 2.3 % to 2015. In 2015 the corresponding increase made up 8.5 % to 2014. However, the rise in sales was mostly due to rise in food prices, while average per capita consumption of meat, milk and fish decreased. For example, in 2015 the decrease in comparison with 2014 was the following: meat – by 1.4 %; milk - by 2 %; fish by 13%.

4. Discussion

Consumption figures change and differ from the rational norms of consumption per person depending on composition of a household. For example, consumption of meat, vegetables and fruit in families of 5 and more members is twice lower than in the household of one. The variance of factual food products consumption from rational norms in relation to the composition of households in 2015 is presented in Table 1.

Table 1 - The variance of factual food products consumption from rational norms in relation to the composition of households in 2015

Food product description	Rational norms, kg	Variance in households, %				
		One person	2 people	3 people	4 people	5 and more people
Bread and bread products	96.0	+45.4	+13.8	-6.7	-16.6	-9.2
Potato	90.0	-7.6	-25.9	-36.4	-43.1	-46.2
Vegetables and gourds	140.0	+9.3	-15.6	-32.3	-42.9	-46.4
Fruits and berries	100.0	+15.8	-13.2	-24.9	-33.9	-42.0
Meat and meat products	73.0	+68.8	+37.1	+16.7	-0.5	-13.7
Milk and dairy products	325.0	+30.3	-3.9	-21.8	-31.4	-36.7
Eggs, number	260	+34.6	-0.8	-19.2	-30.8	-40.0
Fish and fish products	22.0	+66.4	+25.5	-1.4	-19.1	-27.3
Sugar and confectionery	24.0	+93.8	+51.7	+24.6	+11.7	+7.5
Vegetable oil and other fats	12.0	+42.5	+5.8	-16.7	-30.8	-30.8

The data indicate that in the households of one person the most entries have positive dynamics and exceed the rational norms, while in the households with 3 and more members the factual food consumption is 30-40% lower than the science-based norms. These findings confirm that to calculate the volume of domestic food products production which will ensure the food security one should take into account not only the forecast figures of country's population, but also the anticipated household characteristics, particularly those which affect an increase in consumption in relation to rational norms.

The conducted calculations showed that according to the data on food products consumption in 2015 and composition of households there was registered a variance for most types of food products, except potato, between the dietary intake levels as per rational norms and real consumption figures (Table 2). As can be seen in the table the most significant deviations are for such products as sugar, meat and fish. The calculations show that while monitoring food security and when forecasting required volumes of food resources for its provision in future it is necessary to carry out a more detailed analysis of all related factors.

In order to raise the efficiency of import substitution policy and to raise the level of food security of the country there should be realized a set of measures based on implementing balanced approach in managing economic growth of the agro-industrial complex in its quantitative and qualitative aspects, growth factors, opportunities of using growth factors determinators and conditions, which were presented in the previous papers of the present research team (Anokhina, 2016). The key factor in ensuring AIC growth, import substitution and food security in Russia is to increase the competitiveness of agrarian areas of the country and placing

particular emphasis on their social development (Zinchuk, 2016; Kormishkina, and Semenova, 2016; Kuznetsov *et al.*, 2016).

Table 2 - Absolute and relative deviation of required food volumes to rational norms of consumption

Food product description	Food products volumes as per rational norms	Required factual food products volumes	Absolute deviation of required food volumes to rational norms of consumption, in thousand tons	Relative deviation of required food volumes to rational norms of consumption, %
Bread and bread products, th. tons	13532.17	14554.27	1022.10	+7.6
Potato, th. tons	12686.41	12686.41	0	0
Vegetables and gourds, th. tons	19734.41	19916.65	182.24	+1.0
Fruits and berries, th. tons	14096.01	14317.50	221.49	+1.6
Meat and meat products, th. tons	10290.09	12286.98	1996.89	+19.4
Milk and dairy products, th.tons	45812.02	47192.87	1380.85	+3.0
Eggs, mln.	36649.62	37911.31	1262.25	+3.4
Fish and fish products, th. tons	3101.12	3480.11	379.01	+12.2
Sugar and confectionery, th. tons	3383.04	4439.64	1056.60	+31.2
Vegetable oil and other fats, th. tons	1691.52	1784.81	93.29	+5.5

5. Conclusion

The research allowed the authors to substantiate the measures for development of agricultural sector of the country on the basis of an assessment of the degree of self-sufficiency Russia food resources, taking into account the differentiation of food consumption in different population groups. The essential measures will comprise the following:

- to provide physical and economic access to credit resources for agricultural producers, to develop the variety of offered credit types and agricultural credit consumer cooperation;
- to modernize the system of agro-insurance expanding the range of insured events;
- to optimize the system of taxation for agro-industrial complex, which will encourage the activities of producers with high import share and the producers of

- agricultural machinery;
- to reduce the disparity of prices for resources used in agricultural production and the produced agricultural products including the measure of establishing guaranteed by the state minimal purchase prices for food resources.

6. Acknowledgments

The given study was performed within the framework of the research pertaining to the core part of the Government Order. Project # 1.9544.2017/БЧ of the Ministry of Education and Science of the Russian Federation.

References:

- Altukhov A.I., Drokin V.V. and Zhuravlev A.S. 2016. From the Food Sovereignty Ensuring Strategy to the Strategy of Improving the Agro-Food Complex Competitiveness. *Economy of the region*, 12(3), 852–864.
- Anderson K. (Ed.) 2009. Distortions to agricultural incentives. A global perspective, 1955-2007, The IBRD. London: Palgrave Macmillan.
- Anokhina M.Y., Zinchuk G.M. and Petrovskaya S.A. 2016. The development of the concept of economic growth of the agro-industrial complex. *Journal of Internet Banking and Commerce*, July 2016, (S4), 005.
- Borisova, O., Abramova, L. Zageeva, L., Popkova, E., Morozova, I. and Litvinova, T. 2015. Role of Agricultural Clusters in Provision of Food Security. *European Research Studies Journal*, 18(3), 287-298.
- Breckova, P. 2016. SMEs Export Activities in the Czech Republic and Export Risk Insuring. *European Research Studies Journal*, 19(1), 84-92.
- Cialdini, R.B. 2009. *Influence: Science and Practice*. Boston, MA: Pearson Education.
- Development of the Russian AIC within the framework of food security provision. https://iep.ru/files/Gaidarovskie_chtenia/2016/kaluga/gorbatov_05.12.16.pdf
- Development of the Russian AIC within the framework of food security provision. https://iep.ru/files/Gaidarovskie_chtenia/2016/kaluga/gorbatov_05.12.16.pdf.
- Freedman, D.H. 2013. The truth about Genetically Modified Food. www.scientificamerican.com
- Godfray, H.C.J., Beddington J.R., Crute I.R. and Haddad, L. 2010. The challenge of feeding 9 billion people. *Science*, 327 (5967), 812-818.
- Golubev, A.V. 2015. AIC development on the basis of the Russian innovations as the condition of import substitution. *Economy of agricultural and processing enterprises*, 2, 42-47.
- Grebmer, K., Bernstein, J., Nabarro, D. and Towey, O. 2016. 2016 Global hunger index: Getting to zero hunger. <http://www.ifpri.org/publication/2016-global-hunger-index-getting-zero-hunger>.
- Kliukach, V.A., Avarsky, N.D., Osipov, A.N. and Seregin, S.N. 2015. Anti-Russian sanctions and import substitution: new opportunities for increase in production of the Russian AIC produce. Import substitution in Russian AIC: problems and perspectives, Moscow: FSFRI “Russian Research Institute of the Agricultural Economy” (FSFRI VNIESH), 81- 98.

- Kormishkina, L.A. and Semenova, N.N. 2016. Monitoring of Food Security in the Russian Federation: Methodology and Assessment. *European Research Studies Journal*, 19(3) Part A, 185-202.
- Kuznetsov, N.G., Kuznetsov, V.V. and Soldatova, Y.I. 2016. Internal and External Factors of Food Security Policy in Russia. *European Research Studies Journal*, 19(2), 86-99.
- Malthus, T.R. 1798. *An Essay on the Principle of Population*. In *Oxford World's Classics* reprint.
- Polychronidou, P., Petasakis, I., Florou, G., Karasavoglou, A. 2014. Consuming Foods and Household Products in Greece: A Statistical Analysis. *International Journal of Economics and Business Administration*, 2(2), 99-110.
- R.F. A review of the Russian agrarian market. <http://www.specagro.ru/#/analytics/287>
- R.F. The Act #120 of the RF President as of 30.01.2010 "On approving the RF Food Security Doctrine. http://www.consultant.ru/document/cons_doc_LAW_96953/
- Rozhkova, L.P., Pachulia, N.N. 2011. On means of state regulation in ensuring food security in Russia". Key issues in improving legislation and jurisdiction: proceedings of the international conference. Ufa, 2 February 2011. Ed: A.V. Ragulin, M.S. Shaykhullin. Ufa, 286 – 290.
- Serebryakova, N.A., Semenenko, V.S., Grishchenko, V.N. and Ulchenko, Y.T. 2016. Competitive Potential of Trade Organization: Theoretical and Methodological Foundations of Formation and Realization. *European Research Studies Journal*, 19(2), 3-11.
- The official website of the Federal State Statistics Service of the Russian Federation, <http://www.gks.ru/>
- The official website of the Federal State Statistics Service of the Russian Federation, <http://www.gks.ru/>.
- Tyaglov, G.S., Kushnarenko, V.T., Khokhlov, A.A. and Qeropyan, A.M. 2017. The Development of Cluster Relations within the State and Business Structures in Terms of Strategy of Non-Primary Sector Import-Substitution. *European Research Studies Journal*, 20(1), 198-207.
- Ushachev, I.G. 2015. Russian agrarian sector under the conditions of sanctions: problems and opportunities". The paper presented at the Moscow Economic Forum, 25 March 2015. Moscow: FSFRI "Russian Research Institute of the Agricultural Economy" (FSFRI VNIIESH).
- Yermakova, I.W. 2014. Forum on food security. Free press <http://svpressa.ru/society/article/95270/>
- Zinchuk, G.M., Anokhina, M.Y., Petrovskaya, S.A. 2016. Competitive Potential of the Russian Agrarian Areas under the Conditions of Sanctions. *Journal of Internet Banking and Commerce*, 21(3), 21-224