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EDITED BY

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REVIEWED BY

Marian Butu,
National Institute of Research and
Development for Biological Sciences
(NIRDBS), Romania
Zlati Monica Laura,
Dunarea de Jos University, Romania

*CORRESPONDENCE

Ekaterina A. Iashina
✉ eanifontova@rgau-msha.ru

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Analysis of the dynamics of food security in the countries of the Eurasian Economic Union

Ekaterina A. Iashina*, Lyudmila V. Evgrafova,
Gulnara K. Dzhancharova, Anna V. Ukolova and Elena V. Kovaleva

Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, Moscow, Russia

The research aims to analyze the integration of agricultural and food markets in the context of food security of the Eurasian Economic Union (EAEU). The research is based on the methodology of export and import of agri-food products by the EAEU countries of the World Trade Center. The analysis of food security of the EAEU was carried out by the methods of descriptive statistics and related disciplines (econometrics, multidimensional statistical methods, mathematical modeling) and the index approach. It was noted that increasing production volumes and joint international and Russian trade communications will help increase the macro-micro level of self-sufficiency in the key range of food products for both the EAEU states and the population in particular.

KEYWORDS

demand balance, EAEU, supply balance, food security, agricultural products, market

1. Introduction

Striving for economic integration has been a key aspect of politics in the post-Soviet region. After several initiatives, the real achievement was the creation of the Customs Union (CU) between Belarus, Kazakhstan, and Russia in 2010. This was followed by the launch of the Common Economic Space (CES) in 2012, which eventually led to the formation of the Eurasian Economic Union (EAEU) in 2015; Armenia and Kyrgyzstan also joined it. The EAEU aim is economic integration in which not only mutual trade in goods is liberalized, but also the development of a common market is carried out by harmonizing internal regulatory requirements and other non-tariff barriers. Such an ambitious project has a tangible and fundamental impact on the economies of member states, including food production and trade (Götz et al., 2022).

The food trading system and global agri-food chains have become vital to world nutrition and food security. Agricultural product trade is growing in volume and value every year (Eurasian Economic Union, 2021b). In this context, the question arises of whether food security is threatened by dependence on food imports, together with the emergence of a trade deficit. Ensuring an adequate food supply is one of the most important issues of global and national economic security (Baskov et al., 2019; Eurasian Economic Commission, 2022a; Eurasian Economic Commission., 2022b). In 2023, the world food market may face quite strong pressure caused by the impact of the COVID-19 pandemic and the political situation in the production and supply of food and agricultural products (Devereux et al., 2020). The United Nations (UN) predicts unprecedented food shortages along with rising prices and warns that the World Food Program budget may not be able to cope with the growing problem of food insecurity, which may threaten even those countries where it has long been fought (United Nations, 2022).

The emergence of food security as a key component of the EAEU food policy and political priority is important as it affects domestic food production and how the EAEU interacts with the international agri-food market. The EAEU food and agricultural policy today prioritizes reducing dependence on food imports. In essence, the modern EAEU food policy includes three sub-policies, each of which is at the protectionist end of the trade strategy continuum. They are as follows: (1) multi-aspect trend of food security, including a decrease in dependence on imported food; food sustainability in the traditional sense, referring to norms consumption and nutrition; food safety; product tracking; reliability of labeling; (2) food self-sufficiency, which refers to efforts to increase agricultural production to meet domestic needs for certain basic commodities; and (3) import substitution policy, which implies an attempt to replace imports with domestic production (where possible). Consumers often face higher food prices since imported goods are replaced with domestically produced goods (Dragneva, 2022). The Treaty on the EAEU provides for a coordinated agricultural policy to optimize production volumes, meet the needs of the agricultural market, and increase the export of agricultural products and food.

Food problems primarily affect the population of developing and undeveloped countries. However, residents of countries with advanced economies are also forced to bear additional costs for food and utilities, which entails a decrease in their standard of living. According to preliminary data from the EAEU, at the beginning of November, in January–September 2022, compared to the same period in 2021, the production of agricultural goods of all groups increased by a total of 5.4% in total. At the same time, the growth was observed in all union countries: in Kazakhstan—by 6.9%, Kyrgyzstan—by 6.5%, Russia—by 5.2%, Belarus—by 4.9%, and Armenia—by 0.5%. The EAEU will be fully provided with grain for 2023 (Borodenko, 2023).

Currently, the dependence of the EAEU on imports of certain categories of meat products exceeds 40%, milk and dairy products—26% (Cheong et al., 2018; Arskiy, 2020; Eurasian Economic Commission, 2022a). During disruptions in production chains associated with the pandemic and the political situation, dependence on foreign suppliers may increase significantly. Therefore, one of the main security concerns for the EAEU is how to reduce dependence on food imports and, thus, reduce the vulnerability of food supplies. In the proposed study, we consider the main problems in the areas of production and food supply in the EAEU for 2014–2022, which is the scientific novelty of the research.

2. Materials and methods

The research aims to analyze the integration of agri-food markets in the EAEU in the context of food security.

The following are the research objectives:

Describe the specifics of food security;

Investigate the dynamics of food security of the EAEU;

Formulate the prospects for food security of the EAEU.

To achieve the stated aim, we applied the following research methodology. A comprehensive qualitative analysis of the information was conducted using the methods of descriptive statistics, namely linear grouping, a summary of big data, and the

calculation of generalizing characteristics of the food security of the EAEU countries. We analyzed the time frames, built multivariate average indicators, grouped and revised big data, and calculated the generalizing characteristics.

The modeling method helped to identify the main trends and characteristics of quantitative and structural changes in the agri-food sector of the EAEU. The study is based on the data of the World Trade Center on the export and import of agri-food products by the EAEU countries (Baskov et al., 2019; Eurasian Economic Commission, 2021b; Eurasian Economic Union, 2021b; United Nations, 2022) in accordance with the Trade Import and Export Classification (TRIEC).

The EAEU Commodity Nomenclature of Foreign Economic Activity (EAEU CN of FEA) is a classifier of goods used by customs authorities and participants in foreign economic activity (FEA) for customs operations (Eurasian Economic Commission (EEC), 2021).

We studied the materials of the World Bank (Eurasian Economic Commission (EEC), 2020; Eurasianet, 2020; World Bank, 2022). Cereal was taken as the basis for mutual trade in groceries and agricultural raw materials. The research object was cereals as the basis for mutual trade in groceries and agricultural raw materials.

The choice of the research object is related to the fact that perhaps the best example of the new role of the NPP in the international agri-food trade system is its transformation into a major grain exporter. During the 2019/2020 agricultural year, the EAEU took the leading position in wheat exports for five of the past six years and was on track to lead again in the 2020/2021 agricultural year with the second-largest harvest in post-Soviet history (USDA, 2022).

The agriculture of the EAEU countries was analyzed based on the indicative method. The main indicators of the analysis of food security are the following:

- Land under cereal production (ha) [LCP]. The LCP indicator reflects the area given over to the cultivation of cereals—the total area harvested, although some countries report only cropped or sown areas. Cereals include wheat, rice, corn, barley, oats, rye, millet, sorghum, buckwheat, and mixed grains. Cereal production data refers to crops collected only for dry cereal. Cereals harvested for hay or harvested for food, feed, or silage, as well as those used for grazing livestock, are excluded (data for 2022);
- Rural population (% of total population). The indicator reflects the difference between total population and the urban population (data for 2022);
- Agriculture, forestry, and fishing, value added (% of GDP). The indicator reflects forestry, hunting and fishing, and crop and livestock production. Value added is the net output of the sector after adding up all results and subtracting intermediate inputs and raw materials. It is calculated without deductions for the depreciation of finished assets or the depletion and degradation of natural resources (data for 2022);
- Cereal yield (kg per hectare) [CY]. It reflects the cereal yield, measured in kilograms per hectare of harvested land, including wheat, rice, corn, barley, oats, rye, millet, sorghum, buckwheat, and mixed grains. Cereal production data refers to

crops collected only for dry cereal. Cereals harvested for hay or harvested for food, feed, or silage, as well as those used for grazing livestock, are excluded (data for 2022);

- Food security is assessed based on the materials of The Economist Intelligence Unit Limited (2019–2022) - Food Security Index [FSI] (Overall score, Baseline index). The FSI indicator reflects the overall national food security level, considering international comparisons;
- Food quality & safety [FQS] reflects food standards, the availability of trace elements (nutrition, benefits), and food safety, including the possibility of its safe storage;
- Food availability [Fav] reflects the average food availability, agricultural infrastructure, and food loss, which determine the availability of food for the general population in quantitative terms (scarcity risk);
- Food affordability [Faf] reflects the financing of food security programs by the state, access to financing for farmers, the standard of living of the population, and the mass affordability of food at a price.

For each rating (index, sub-index), the consolidated position of the EAEU is calculated as a weighted average of the positions (indices, sub-indices) of the EAEU countries in proportion to the contribution of a member state to the total GDP of the integration association.

The methodological limitation was the lack of complete data for the period under review; therefore, we only used the sample data.

2.1. Dynamics of food security of the EAEU

Based on the above indicators, the EAEU food security indicators for 2023 were modeled (Table 1).

Table 1 shows that Belarus has the highest LCP is in Russia (79,948.0 thou. ha), and Armenia has the lowest index—222.7 thou. ha. The FSI index in Belarus is high (71.90), and low in Kazakhstan (68.30). The higher CY is also in Belarus, and Kazakhstan has the lowest index. Several indicators of the EAEU countries were formulated, taking into account economic and political risks. With regard to the EAEU, we note that in 2022, despite the pandemic, the countries improved their rating in The Economist (Economist, 2022). list. Belarus took 23rd place (in 2021–36), Russia—24th (in 2021–23), and Kazakhstan—32nd (in 2021–41). For 2014–2020, the EAEU entered the rating of countries with a high increase in food security indicators. In Russia, the FSI in 2020 increased by 10.7 percentage points compared to 2014, in Belarus—by 8 percentage points, in Kazakhstan—by 7.4 percentage points.

Further, it is advisable to analyze the summary indicators of cereal production of the EAEU based on time frames (Osadchaya and Vartanova, 2018; Prosekov and Ivanova, 2018). It is among the strategic products for ensuring food security that cereal occupies the main place (Table 2). Cereal is an indispensable raw material for the production of bread, bakery, pasta, and grains. Cereal is also the basis of nutrition for the population.

One should note that the mutual exchange of food products of the EAEU countries is described by a steady upward trend. Grain exports in 2014 amounted to 2,104.3 thousand tons; in

2022—2,705.11 thousand tons; grain imports in 2014 amounted to 910.4 thousand tons; in 2022—674.28 thousand tons.

Until 2020, in the farms of all categories of the EAEU Member States, the production of agricultural products amounted to 119.5 billion US dollars, having increased by 2.1% compared to January–December 2019 in constant prices (in 2019, compared to 2018, there was an increase by 3.5%) (Eurasian Economic Commission, 2021a,b). A slight increase in exports and imports in the EAEU countries is planned in 2023, which is associated with the presence of internal and external risks.

2.2. Food security prospects in the EAEU

According to the forecast data of the Member States for the EAEU, the gross production of the agro-industrial economy is expected to increase by 2.1% (120.5 billion US dollars) in 2022 compared to the level of 2019. These calculations focus on the exchange rates of national currencies against the US dollar for 2020 (Eurasian Economic Union, 2022).

There is no doubt that the increase in production volumes and mutual international and domestic trade relations will help a favorable increase in the macro-micro level of self-sufficiency of both states and the population with the main range of food products. Table 3 presents a forecast scenario for the development of key indicators of food security in the EAEU.

According to Table 3, the number of people employed in agriculture (average annual value) (thou. people) in 2023 will amount to 5,937.24, and in 2030—5,029.71. Agricultural products in farms of all categories (at current prices) in 2023 will be 131,535.14 million dollars; in 2030—155,034.57 million dollars. Mutual trade in agricultural goods—EXPORT (groups 01–24 TRIEC of EAEU)—in 2023 will be 10,477.01 million dollars, and in 2030—11,962.9 million dollars. Mutual trade in agricultural goods—IMPORT (groups 01–24 (EAEU CN of FEA)—in 2023 will be 10,477.01 million dollars, and in 2030—11,962.9 million dollars.

The euro-asian union can fully satisfy the internal demand for the following macro segments: from 2020—with “pork,” “mutton,” “vegetable oil,” “egg,” “corn,” “sugar” through the production of its own products. The Union will be able to achieve almost complete self-sufficiency in vegetable and gourd crops in the forecast period. Thus, the level of self-sufficiency of the Union in 2022 in the segment “poultry meat” was forecasted at the level of 98.6%, “milk”—97.8%, “beef”—92.5%, “potatoes”—98.7%, “fruits”—47.0% (Eurasian Economic Union, 2021b).

The implementation of the export resource is becoming a key parameter for the transformation of agri-food markets, along with meeting the domestic needs of states. For the conglomerate under consideration—the EAEU—there is a generalized forecast of an increase in exports concerning previous years for most types of marketable products. Considering the above said, one should pay close attention to the following problematic trends.

The problem of non-optimal diversification of exports of member states. The EAEU member states mainly supply agricultural raw materials to the markets of the countries. The total segment of the supply of agricultural raw materials is ~61.6% (2020); in 2019, it was about 70.0%. The products of processing of

TABLE 1 Big data modeling for digital monitoring of agriculture and food security in 2022.

	LCP, thou. ha	FSI, points	FQS, points	FAv, points	CY	FAf, points
Armenia	222.7	60.2	59.2	49.1	12.9	64.7
Belarus	5,959.6	71.90	80.2	62.9	29.8	76.0
Kazakhstan	22,582.30	68.30	68.3	57.7	10.4	77.5
Kyrgyzstan	1,223.60	54.3	59.2	47.4	22.5	68.3
Russia	79,948.00	70.90	71.9	63.1	26.7	79.9

CY, centners per hectare of harvested area.

TABLE 2 Export and import of cereal in the EAEU countries for 2014–2022, thousand tons.

Indicators	2014	2015	2016	2017	2018	2019	2020	2021	2022 <i>frcst</i>
Export	2,104.3	1,410.8	1,811.3	1,639.6	1,945.45	2,236.63	1,935.22	2,684.47	2,705.11
Armenia	394.2	383.9	338.8	240.9	326.35	444.6	424.2	537.5	565.2
Belarus	184.8	81.5	72.8	324.1	629.7	882.7	297.1	720.0	710.0
Kazakhstan	106.3	126.8	79.3	79.7	143.9	434.72	641.9	519.2	533.3
Kyrgyzstan	487.1	94.1	253.1	249.8	213.0	192.3	193.0	220.79	227.49
Russia	931.9	724.5	1 067.3	745.1	632.5	282.32	379.02	686.98	669.12
Import	910.4	544.6	566.6	749.4	558.4	413.6	311.9	714.53	674.28
Armenia	198.6	144.1	134.0	11.9	24.9	60.7	22.7	56.3	51.1
Belarus	163.6	75.8	61.4	161.5	47.0	316.5	114.0	247.6	242.6
Kazakhstan	52.3	20.2	29.8	17.4	29.8	4.3	8.0	9.2	12.9
Kyrgyzstan	5.3	2.8	0.7	5.8	2.4	7.0	4.7	6.0	6.7
Russia	490.6	301.7	340.7	552.8	454.3	25.1	162.5	395.43	360.98

frcst, forecast, official data has not been published.

agricultural raw materials amounted to 36.6% in 2020 and 25.2% in 2019, respectively, of the total value. This fact may indicate the need to increase the presence of member states in the external market for products with high added value. The problem of non-optimal diversification of exports is directly related to the low share of mutual trade. About 30% of the total value of exports of the member states has been supplied to the Union’s joint market over the past 5 years.

A problematic trend in the food security of the EAEU is also a large share of foreign supplies to the domestic market for the consumption of the fruit and vegetable segment. In 2019, the share of imports in the consumption of the fruit and vegetable segment in the subgroup “vegetable melons” (including agricultural products of their processing) was about 10%. The subgroup “fruits and berries” (which also includes marketable products for their processing) accounted for approximately 56%. The decrease in the percentage of foreign deliveries in these segments of the commodity market largely depended on the improvement of the demanded infrastructure for storage, processing, and bringing agricultural products to the consumer.

The problematic trend in maintaining the food security of the EAEU is the insufficient level of self-sufficiency at the end of 2019. According to statistics for some individual positions of agricultural products, one can note a low level of provision with own production. In particular, problems are noted in the subgroup “poultry meat” in Armenia (22.1%), Kyrgyzstan (22.7%),

and Kazakhstan (57.6%). For vegetable oils, a low level of self-sufficiency was noted in Armenia (1.5%) and Kyrgyzstan (16.0%) (Eurasian Economic Union, 2021a). Thus, it is advisable, along with increasing mutual deliveries, to consider the possibility of increasing our own production.

Experts predict an increase in exports abroad by about 23.2% to 407.4 thou. tons of the “meat-containing products” segment. Export of the “game meat” subgroup will show growth dynamics up to 316.5 thou. tons (~1.7 times). The export of the subgroup “meat products from beef” can grow to 38.8 thou. tons (~1.6 times). Export of the subgroup of goods “pork-containing meat products” abroad may increase by 1.4 times to 56.0 thou. tons. Exports of the subgroup of goods “sugar and sugar-containing products” may grow to 716.2 thou. tons (~1.8 times). The export of the commodity subgroup “grain and grain crops” may also increase to 54.7 million tons, about 22.7%. Growth is projected 2.6 times to 1.4 million tons of exports of the dairy products segment. Vegetable melons, as well as food products from the processing of vegetable melons, can grow up to 410.2 thou. tons—by about 21.4%. Exports of the “potato” subgroup, as well as vegetable processing products, will increase to 974.3 thou. tons—by about 6.9% (Garcia et al., 2020; Eurasian Economic Union, 2021a).

There may be a decrease in import deliveries of some products to the territory of the Union in the future mutual trade. For example, in the “beef” segment, a decrease may occur by 7.7%

TABLE 3 Forecast of the dynamics of segments related to food security of the EAEU, million US dollars.

Indicator	2023	2024	2025	2026	2027	2028	2029	2030
Number of people employed in agriculture (annual average) (thou. people)								
Total	5,937.24	5,788.18	5,646.44	5,512.95	5,385.34	561.93	5,143.68	5,029.71
Agricultural production in farms of all categories (in current prices)								
Total	131,535.14	134,807.06	138,226.68	141,465.01	144,751.78	148,116.92	151,563.28	155,034.57
Gross production per person employed in agriculture (labor productivity) (US dollars)								
Total	22,154.27	23,290.07	24,480.33	25,660.5	26,878.85	28,148.78	29,465.91	30,823.75
Export of agricultural products to third countries (groups 01–24 TRIEC EAEU)								
Total	31,054.74	31,305.86	31,640.07	34,051.9	34,637.11	34,924.12	35,216.15	35,502.24
Import of agricultural products from third countries (groups 01–24 TRIEC EAEU)								
Total	30,014.39	29,810.15	29,542.74	29,278.87	29,013.65	28,804.97	28,593.04	28,378.6
Mutual trade in agricultural goods—EXPORT (groups 01–24 TRIEC EAEU)								
Total	10,477.01	10,710.62	10,950.49	11,179.27	11,371.89	11,567.75	11,761.03	11,962.9
Mutual trade in agricultural goods—IMPORT (groups 01–24 TRIEC EAEU)								
Total	10,477.01	10,710.62	10,950.49	11,179.27	11,371.89	11,567.75	11,761.03	11,962.9

(up to 282.9 thou. tons), in the “pork” segment—by about 5.9% (up to 95.8 thou. tons), and a decrease in segment “mutton” can be 16.2% (up to 2.0 thou. tons). The decrease in import of the “milk and dairy products” segment may amount to –28.7% (up to 1.9 million tons). The “sugar” segment may decrease by 1.8 times (up to 48.0 thou. tons). The decrease in the segments “potatoes and products of its processing” may amount to –7.7% (up to 621.2 thou. tons). The decrease in imports in the “egg and egg products” segments may amount to –23.4% (up to 831.0 million units).

In the medium term, in the main agri-food markets of the Union, it will be possible to note a progressive trend of increasing production, developing mutual trade in agricultural products, and increasing export potential (Briones Alonso et al., 2018; Arskiy, 2020; Khudzhatov and Arsky, 2020).

3. Conclusion

The problems of the EAEU are often attributed to insufficient integration or the degree of commitment of member states to create a reliable institutional regime to eliminate internal obstacles to trade. The “Strategic Directions for Developing the Eurasian Economic Integration until 2025” reflects this problem, which refers to the importance of completing the creation of a common market and improving the regulatory regime of the EAEU. However, it is doubtful that these problems can be solved without a radical change in the institutional structure of the Union, even if the plans and programs continue to spread.

The research aim, which involves the analysis of the integration of agri-food markets in the EAEU in the context of food security, has been achieved. The tasks related to describing the specifics of food security and studying its dynamics and prospects have also been solved. Based on the indicative method and modeling, we analyzed the issues of food trade; for each country, they are

solved by studying (1) trade balances for certain categories of agricultural products and (2) the total trade deficit of the country. The research revealed methodological limitations associated with the lack of complete statistical data on the development of some EAEU countries (Armenia, Kyrgyzstan). We found that the overall balance of trading activities concerning agricultural products is constantly positive. Simultaneously, the interaction of the EAEU member states on food security issues is defined as one of the areas of cooperation in the EAEU. However, we believe that it is not enough. In the context of an unstable global economic situation and non-partner behavior of a number of foreign states, it is advisable to improve the mechanisms for ensuring collective food security at the EAEU level, including by managing part of agricultural resources without violating the state and food sovereignty of the EAEU countries. Shortly, the EAEU should take further measures at the supranational, national, and regional levels to unify the legislation of the EAEU member states in the areas of food security.

We believe that the differentiation of imports of agri-food products from the EAEU countries and agricultural imports from developing countries is fundamentally important in assessing the current state of food security, especially when building an effective single economic space. The risks associated with currency fluctuations or political restrictions in food supplies from the EAEU countries are lower than similar threats during transportation from developing countries. The criteria for food independence should be softened in relation to the import of agricultural products from the EAEU countries. The criteria approach will reduce the occurrence of conflicts in trade in agricultural products between the EAEU countries and will also allow focusing efforts on (1) solving the problem of food insufficiency for a significant part of the population and (2) reducing dependence on supplies from developing countries. It is necessary to increase the capacity of domestic markets for agricultural products and thereby minimize the risks of destructive competition between producers of the EAEU countries.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships

References

- Arskiy, A. (2020). Problems of forming a comprehensive forecast of the dynamics of Russia's foreign trade activity, taking into account the aspect of the COVID-19 pandemic. *Marketing i Logistika*. 31, 5–9.
- Baskov, V., Baskov, S., Kalyan, S., and Yarovitsyn, A. (2019). Current aspects of food security. *Academician*. 3, 4–17.
- Borodenko, M. (2023). *The Food Crisis Will not Affect the EAEU Countries*. Moscow: IA-CENTR.
- Briones Alonso, E., Cockx, L., and Swinnen, J. (2018). Culture and food security. *Global Food Sec.* 17, 113–127. doi: 10.1016/j.gfs.2018.02.002
- Cheong, J., Kwak, D. W., and Tang, K. K. (2018). The trade effects of tariffs and non-tariff changes of preferential trade agreements. *Econ Modell.* 70, 370–382. doi: 10.1016/j.econmod.2017.08.011
- Devereux, C., Béné, C., and Hoddinott, J. (2020). Conceptualising COVID-19's impacts on household food security. *Food Sec.* 12, 769–772. doi: 10.1007/s12571-020-01085-0
- Dragneva, R. (2022). "Chapter 8: Russia's agri-food trade within the Eurasian Economic Union," in *Russia's Role in the Contemporary International Agri-Food Trade System*. Palgrave Advances in Bioeconomy: Economics and Policies, eds S. K. Wegren and F. Nilssen (pp. 225–251). Cham: Palgrave Macmillan. doi: 10.1007/978-3-030-77451-6_9
- Economist (2022). The World Ahead 2022. Available online at: <https://www.economist.com/the-world-ahead-2022> (accessed November 2, 2022).
- Eurasian Economic Commission (2021a). *Agro-Industrial Complex*. Available online at: <https://agro.eaeunion.org/Pages/default.aspx> (accessed November 3, 2022).
- Eurasian Economic Commission (2021b). *Key socio-economic indicators of the Eurasian Economic Union*. Available online at: http://www.eurasiancommission.org/ru/act/integr_i_makroec/dep_stat/econstat/Documents/Analytics/indicators2020_11.pdf (accessed November 3, 2022).
- Eurasian Economic Commission (2022a). *EEC forecasts increase in agrifood in dollar terms by 12.2% in 2021 for whole Union*. Available online at: <http://www.eurasiancommission.org/en/nae/news/Pages/2020-10-09-3.aspx> (accessed November 2, 2022).
- Eurasian Economic Commission (2022b). *Foreign Trade in Goods*. Statistics of the Eurasian Economic Union. Moscow: Eurasian Economic Commission.
- Eurasian Economic Commission (EEC) (2020). The EEC Council agreed on 28 more points of the draft Strategy-25'. Available online at: <http://www.eurasiancommission.org/ru/nae/news/Pages/01-10-2020-3.aspx> (accessed October 1, 2020).
- Eurasian Economic Commission (EEC) (2021). The unified commodity nomenclature for foreign economic activity of the Eurasian Economic Union and the unified customs tariff of the Eurasian Economic Union. Available online at: <https://eec.eaeunion.org/commission/departments/catr/ett/> (accessed November 2, 2022).
- Eurasian Economic Union (2021a). Common Customs Tariff of the EAEU. Available online at: <https://docs.eaeunion.org/en-us/> (accessed November 3, 2022).
- Eurasian Economic Union (2021b). The Concept of Collective Food Security of the EAEU Member States. Available online at: https://docs.eaeunion.org/pd/ru-ru/0123907/pd_28062019_att.pdf (accessed November 3, 2022).
- Eurasian Economic Union (2022). *System of Analysis and Macroeconomic Forecasting of the Eurasian Economic Union*. Available online at: http://www.eurasiancommission.org/ru/act/integr_i_makroec/dep_makroec_pol/расследования/Документы/EEC_Model_RUS.pdf (accessed November 3, 2022).
- Eurasianet (2020). Here's looking at EAEU #4: Belarus backs itself into trade corner. Available online at: <https://eurasianet.org/heres-looking-at-eaeu-4-belarus-backs-itself-into-trade-corner> (accessed September 3, 2020).
- Garcia, S., Osburn, B., and Jay-Russell, M. (2020). One health for food safety, food security, and sustainable food production. *Front. Sustain. Food Sys.* 4, 1. doi: 10.3389/fsufs.2020.00001
- Götz, L., Heigermoser, M., and Jaghdani, T. J. (2022). "Chapter 4: Russia's food security and impact on agri-food trade," in eds Wegren S. K., and Nilssen F. *Russia's Role in the Contemporary International Agri-Food Trade System*. Palgrave Advances in Bioeconomy: Economics and Policies (pp. 115–137). Cham: Palgrave Macmillan. doi: 10.1007/978-3-030-77451-6_5
- Khudzhatov, M., and Arskiy, A. (2020). "Technical equipment of agricultural production: The effects for food security," in *Handbook of Research on Globalized Agricultural Trade and New Challenges for Food Security*, eds K. Erokhin and T. Gao (pp. 105–128). Hershey: IGI Global. doi: 10.4018/978-1-7998-1042-1.ch006
- Osadchaya, G., and Vartanova, M. (2018). The problems of ensuring food security of the EEU and the ways of their solution. *J. Int. Econ. Affairs* 8, 363–380. doi: 10.18334/eo.8.3.39318
- Prosekov, A., and Ivanova, S. (2018). Food security: the challenge of the present. *Geoforum*. 91, 73–77. doi: 10.1016/j.geoforum.2018.02.030
- United Nations (2022). *Global Issues. Food*. Available online at: <https://www.un.org/ru/global-issues/food> (accessed November 2, 2022).
- USDA (2022). *Wheat Data*. U.S. Department of agriculture. Economic Research Service. Available online at: <https://www.ers.usda.gov/data-products/wheat-data/> (accessed November 3, 2022).
- World Bank (2022). *Annual report. Helping Countries Adapt to a Changing World*. Available online at: <https://www.vsemirnyjbank.org/ru/about/annual-report#anchor-annual> (accessed November 1, 2022).

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