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# Efficient use of Russia's natural resources: agricultural production, export and import

S V Senotrusova<sup>1</sup>, V G Svinukhov<sup>2</sup>, E V Vavilova<sup>2</sup>, V V Zhoglitcheva<sup>2</sup>

<sup>1</sup>Lomonosov Moscow State University, GSP-1, Leninskie Gory, Moscow, 119991, Russia

<sup>2</sup>Plekhanov Russian University of Economics, Stremyanny lane 36, 117997 Moscow, Russia

svetlsen@mail.ru, customs\_fgu@mail.ru, alena.elena86@mail.ru, inmar2000@mail.ru, alena.elena86@mail.ru

**Abstract.** The paper provides assessment of the geographical focus, volumes and cost of import of vegetable products under 0702 Foreign Economic Activity Commodity Nomenclature (FEACN) code under the embargo conditions. To make such assessment, the foreign trade statistics and data, provided by the RF Customs Service were used. At the end of 2017, the import of tomatoes of 0702 FEACN commodity code reduced relative to 2015 in monetary terms by 17.4%, and in weight terms - by 22.5%, and versus 2013 import of tomatoes reduced by 49.5% (down to 558.7 million U.S. Dollars), on a weight basis import reduced by 40.8% (down to 515.8 thousand tons). The completed analysis shows that geographic focus and supply volumes have changed significantly. If in 2013, the main suppliers were Turkey (450,8 million U.S. Dollars), China (105,5 million U.S. Dollars), the Netherlands (101,9 million U.S. Dollars), Morocco (101,3 million U.S. Dollars), Spain (109,9 million U.S. Dollars), Belarus (42,1 million U.S. Dollars), Ukraine (41,2 million U.S. Dollars), Azerbaijan (41,0 million U.S. Dollars), in 2017, the main suppliers became such countries as Azerbaijan (155.1 million U.S. Dollars), China (135,1 million U.S. Dollars), Morocco (132,4 million U.S. Dollars).

## 1. Introduction

Currently import of some food items to Russia is regulated by the Decree of the Russian Federation President dated August 6, 2014 № 560 "On the application of certain special economic measures to ensure the security of the Russian Federation." The decree prohibits import of some agricultural commodities. The list of agricultural products, prohibited for import into the Russian Federation, includes commodities under 07 FEACN EAEU (Eurasian Economic Union) (vegetables, edible roots and tuber crops) (table.1).

**Table 1.** Product item group 07 FEACN EAEU

FEACN of the EAEU	Product Name
0701	potatoes, fresh Or chilled
0702	Tomatoes, fresh or chilled
0703	onions, shallots, garlic, leek and other bulbous vegetables, fresh or chilled
0704	Cabbages, cauliflower, kohlrabi, Kale and similar edible brassicas, fresh or chilled
FEACN of the EAEU	Product Name
0705	lettuce (lactucasativa) and chicory (cichorium spp), fresh or chilled
0706	Carrots, turnips, salad beetroot, salsify, celeriac, radishes and other similar edible roots, fresh or chilled



0707	Cucumbers and gherkins, fresh or chilled
0708	Leguminous vegetables, shelled or unshelled, fresh or chilled
0709	Other vegetables, fresh or chilled
0710	Frozen (raw or boiled in water or steamed) vegetables
0711	Canned for short-term storage (e.g., sulfur dioxide, in brine, sulfur water or other temporarily preserving solution), but in this form unsuitable for direct consumption vegetables
0712	Dried, whole, cut, sliced, broken or in powder, but not further prepared vegetables
0713	leguminous vegetables dried, hulled, peeled or unpeeled, chopped or uncooked
0714	Manioc, arrowroot, salep, artichokes or topinambour, sweet potatoes or yams, and similar roots and tubers with high starch or inulin, fresh, chilled, frozen or dried, whole or sliced or in the form of pellets; sago

## 2. Materials, methods and organization of research

Commodities of 07 FEACN group (vegetables, edible roots and tuber crops) are one of the significant items of the Russian food import, together with dairy and fish products [1-11]. In 2014 the country ranked 5th in the list of major importers of vegetables and some edible roots and tubers (2.95 billion U.S. dollars), in 2015 - 10th place (1.89 billion U.S. dollars), and in 2016 Russia was located on the 12th place (1.39 billion U.S. dollars). However, in 2017, Russia ranked 9th among the countries of the world in terms of the value of import of the group 07 (1.8 billion U.S. dollars) and in terms of the value of its exports - 16 place (0.5 billion U.S. dollars). The first positions of this products import in 2017 were taken by such countries as the USA (14.2% of world imports), Germany (9.0%), the UK (6.5%), Canada (5.6%) and India (4.7%) (table. 2).

**Table 2.** The cost of import and export of 07 FEACN EAEU group in the context of the world's leading countries at the end of 2017

Import, billion U.S. dollars		Export, billion U.S. dollars	
USA	10.3	China	10.5
Germany	5.9	Netherlands	7.3
United Kingdom	4.3	Spain	6.8
India	4.0	Mexico	6.6
France	3.3	USA	4.8
Canada	3.1	Canada	4.5
Netherlands	2.6	Belgium	2.6
Japan	2.5	Australia	2.4
Russia	1.8	Russia	0.5

If global import of 07 FEACN group products is analyzed, it may be noted that in all countries there has been a slight decrease in imports of vegetables since 2014. However, Russia from 2014 to 2016 reduced the import of vegetables in value terms by 52%, but later in 2017 slightly increased import. Among the main counteragents of Russian vegetable import in 2017 were China, Turkey, Israel, Egypt and Morocco, their share was up to 72.7% [10]. It should be noted that the agricultural sector is the most socially significant and climate-dependent, vegetable production is quite labor-

intensive, and prime cost is affected by temperature, humidity, soil structure and a number of other natural factors, so few countries can become large and efficient exporters of large volumes of vegetable products. In 2017, the top five global exporters were China (about 13% of world exports), Spain (13.2%), the Netherlands (12.2%), Mexico (10.1%) and Canada (7.2%). These countries account for a large share of the global food export.

### 3. Results and their consideration

Analyzing foreign trade statistic data, we should note that Russia is the largest importer of agricultural produce. However, recently the structure of countries-exporters in Russia substantially changed, in connection with “food” embargo. The question is which countries came to the Russian market of agricultural commodities and what is the volume of their supplied products. To analyze import of vegetable produce in the Russian Federation and export from it, foreign trade customs statistics data, and international trade statistics data was used. At the same time, it is impossible not to investigate the issue of Russian export of vegetable products. Among the countries that import Russian vegetables are Turkey, India, Ukraine and Pakistan. Their share is up to 77% (cost) and about 70% (volume) of Russian goods 07 FEACN codes. In 2015 versus 2014, there was a dramatic growth of vegetable export from the Russian Federation to the Ukraine. According to foreign trade statistics data, export from Russia increased by 51 times (in terms of value) (table.3).

**Table 3.** Importers of Russian vegetables (group 07 FEACN EAEU) (mln. U.S. dollars /thousand tons)

Countries	2014	2015	2016	2017
Total	246.2/679	402.9/1196	478.1/1332	404.5/1562
Turkey	113.9/344.2	173.0/516.1	200.6/513.0	191.2/585.8
India	-	55.3/139.9	51.8/122.3	54.6/220.3
Ukraine	0.4/0.2	25.6/197.1	25.5/216.7	35.6/227.2
Pakistan	8.6/24.8	22.1/59.7	35.9/79.8	29.3/83.5
Belarus	3.0/2.6	3.3/3.6	4.1/5.3	5.5/8.9
Italy	22.1/70.7	-	-	10.3/42.1

Dynamics of the Russian export of vegetables and tuber crops is uneven. Until 2012, there was a moderate stable growth. Then, in 2013 and 2014, the cost of vegetable produce export reduced versus 2012 by approximately 92 million U.S. dollars. Nevertheless, in the following years the cost of export products and their volumes started growing. In 2016 versus 2014 the cost of export increased by 232 million U.S. dollars. In 2017 versus the previous year, the export of vegetables increased on a weight basis by another 15%. At the same time, Russia ranked 16th in the list of countries exporting goods of 0701-0714 FEACN codes.

Among the main products of the vegetable group of Russian exports are the following:

\* dried, shelled, peeled or unpeeled, chopped or uncooked legumes (FEACN code -0713), which amounted to 80% of the export of vegetables and root crops in 2017. As the analysis showed, under

this commodity code is exported most of the vegetables from Russia, such as beans, chickpeas, peas, lentils and other legumes;

\* other fresh and chilled vegetables (item code -0709), which amounted to 9% of the export of vegetables and root crops in 2017;

\* fresh or chilled potatoes (item code – 0701), which amounted to 4% of the export of vegetables and root crops in 2017;

\* exports of the remaining goods of the group of 07 amounted to about 1% or less of the total exports of vegetables and root crops.

Meanwhile, it should be noted that import of vegetable products in Russia since 2013 has reduced by approximately 1.1 billion U.S. dollars, which is about 44 %. The largest drop was in 2015-2016. One of the factors for import cost reduction is ruble depreciation (table. 4).

**Table 4.** Exporters of vegetable products to Russia (group 07 FEACN EAEU) (mln. U.S. dollars / thousand tons)

Countries	2014	2015	2016	2017
TOTAL	2959/3380	1913/2618	1401/1816	1794/2470
China	466.8/556.6	441.3/503.8	380.6/386.8	488.1/543.7
Morocco	131.2/107.0	105.2/81.9	174.5/133.2	143.7/109.5
Israel	277.1/334.7	189.4/246.6	156.3/183.8	181.1/195.9
Belarus	154.5/233.2	155.4/376.9	145.3/327.6	175.6/373.4
Azerbaijan	104.9/125.5	91.3/119.3	125.6/156.3	207/4/256/7
Iran	117.4/120.3	114.2/128.9	104.0/99.1	119/9/117/4
Egypt	213.2/379.7	165.9/380.2	91.1/229.4	179/6/454/9
Turkey	597.3/557.5	434.6/468.4	29.1/36.7	55/6/97/8
Uzbekistan	23.1/19.5	18.5/27.2	27.4/35.7	34/7/51/1
India	37.5/63.6	27.1/40.3	23.2/34.8	26/7/39/9
Armenia	5.8/6.6	9.4/14.1	21.8/38.5	15/2/27/9

For the last several years, the structure of exporting countries has changed dramatically. Supplies of goods were reoriented from EU countries to EEU. For example, Belarus increased import of vegetable produce in the Russian Federation by 4.3 times; Armenia increased supplies by 25 times. The volume of vegetables import from Azerbaijan has nearly doubled. However, export from France reduced considerably, by 53 times, Poland reduced export from 234 million U.S. dollars down to 106 thousand U.S. dollars, i.e. by 2210 times. The Netherlands, which was one of the main suppliers of vegetables until 2014, actually stopped export. Thus, the main suppliers of vegetable products are China (22% of the volume of supplies, and 27% of the cost), Egypt (18% of the volume, 10% of the cost), Belarus (15% of the volume, 10% of the cost), Azerbaijan (10% of the volume, 12% of the cost).

Currently Russia cannot fully provide population with certain types of its vegetable products; therefore, import still plays an important role. In Russia, there is a lack of equipped warehouses to store perishable goods. Annually some part of a crop becomes spoiled. Climatic conditions of Russia

do not allow sustainable growth of produce all year round, therefore, since November to May one can see drastic drop in offers on the counters.

For detailed investigation of embargo impact at formation of the Russian vegetable market, a certain type of products was chosen under 0702 FEACN EEU commodity code (fresh or chilled tomatoes). The market of tomatoes (0702 FEACN) is one of the main by volume of vegetable sales in the Russian Federation, in 2014 Russia was the third in the list of the largest importers (11.4% of the global import), inferior only to the USA (22%) and Germany (15.9%).

On the Russian market, the volume of domestic tomatoes production is continuously increasing. While in 2013 the production was at the level of 199.2 thousand tons, in 2016 production reached the value of 290.2 thousand tons. This is approximately 56% of the volume of imported goods. Meanwhile, for the last years the volume of tomato import into Russia has been demonstrating a sustainable trend towards reduction (table 5). In 2013 855.9 thousand tons were imported for the amount of 1104.4 million U.S. dollars, while in 2017 - only 515.8 thousand tons for the amount of 558.7 million U.S. dollars. The reason for such situation is the course laid towards import substitution, which is also supported by depreciation of the ruble in respect to other currencies. On the other hand, Russian manufacturers of agricultural goods are unable to provide greenhouse produce to the country in the off-season. As a result, imports still play a significant role in the tomato market in Russia.

Prior to embargo introduction in 2013 the products under this code were imported in different volumes (thousand tons) by Turkey (39.2%), China (9.4 %), the Netherlands (8.6 %), Morocco (8.3 %), Spain (8.2 %), Belarus (5.5%), the Ukraine (5.5%), Azerbaijan (5.5%) and other countries in insignificant volumes. In 2013 Russia imported 855.9 thousand tons tomatoes for 1104.4 million U.S. dollars. Following the results of 2017, import of tomatoes of 0702 FEACN commodity code reduced versus 2015 in monetary terms by 17.4%, and on a weight basis - reduced by 22.5%, and versus 2013 import of tomatoes reduced by 49.5% (down to 558.7 million U.S. dollars), on a weight basis import reduced by 40.8% (down to 515.8 thousand tons). Geographical focus of supplies has changed. Whereas in 2013 the main suppliers were Turkey (450.8 million U.S. dollars), China (105.5 million U.S. Dollars), the Netherlands (101.9 million U.S. dollars), Morocco (101.3 million U.S. Dollars), Spain (109.9 million U.S. Dollars). Belarus (42.1 million U.S. Dollars), Ukraine (41.2 million U.S. Dollars), Azerbaijan (41.0 million U.S. Dollars). In 2017, the main suppliers were such countries as Azerbaijan (155.1 million U.S. Dollars), China (135.1 million U.S. Dollars), Morocco (132.4 million U.S. Dollars) (table.5).

**Table 5.** Dynamics of import of vegetables (group 07 FEACN EAEU) to Russia (million U.S. Dollars/thousand tons)

Country	2013	2014	2015	2016	2017
Uzbekistan	5.8/3.6	1.7/0.9	1.4/1.5	3.9/5.1	7.1/14.2
Armenia	0.3/0.2	0.2/0.1	0.6/0.7	17.6/30.9	12.2/23.1
Ukraine	41.2/46.8	42.,0/43.3	0	0	0
Turkey	450.8/337.0	439.2/365.5	333.7/346.7	0	2.2/1.6
Poland	52.5/46.2	25.1/21.3	0	0	0
Netherlands	101.9/73.6	73.1/53.7	0	0	0
Morocco	101.3/71.0	111.3/78.1	97.6/66.5	164.9/126.4	132.4/107.5
China	105.5/81.0	119.8/90.8	113.7/86.4	105.5/86.4	135.6/109.0
Spain	109.9/70.3	73.0/45.8	0	0	0
Belarus	42.1/47.1	66.1/68.4	38.9/92.0	64.0/75.9	55.2/51.1

Azerbaijan	41.0/46.4	52.8/55.2	57.3/47.1	91.9/98.1	155.1/157.0
Iran	0.6/0.5	0.4/0.3	2.7/2.3	8.9/6.9	12.5/9.2
Total	1104.4/855.9	1044.7/847.1	676.4/665.5	490.4/461.5	558.7/515.8

Therefore, after Turkish tomatoes had left the Russian market in the beginning of 2016, their share was divided among traditional importers: Azerbaijan - the country became the leader by volume of tomatoes import in 2017, having almost tripled import versus 2013 up to 157.0 thousand tons; the second place by volumes of import was taken by China, having increased import to 109.0 thousand tons; and the third place was occupied by Morocco with import volumes of 107.5 thousand tons. It should be noted that Armenia has significantly increased supplies, being one of the top five tomatoes suppliers, however, and its export volumes equal to around 23.1 thousand tons.

According to forecasts of the Ministry of Agriculture of the Russian Federation, in order to fully satisfy the demand of Russia for greenhouse vegetables, it is necessary to launch more than 2 thousand hectares of greenhouses, to increase production up to 1.7-1.8 million tons, which can be achieved by 2020.

If we analyze the cost of imported tomatoes from non-CIS countries, the cheapest are the ones supplied from Morocco and China. Their cost in 2013 equaled to 1.43 and 1.30 U.S. dollars per kg, and in 2017 - 1.23 and 1.24 U.S. Dollars per kg, accordingly. For the last years the cost of 1 kg of tomatoes from Uzbekistan and Armenia was at the level of 0.90-0.50 U.S. Dollars per kg (table.6).

**Table 6.** The declared value of 1 kg of tomatoes imported to Russia (U.S. Dollars per kg)

Country	2013	2014	2015	2016	2017
Uzbekistan	0.87	1.73	0.90	0.75	0.50
Armenia	1.27	1.62	0.81	0.57	0.53
Ukraine	0.88	0.97	0	0	0
Turkey	1.35	1.20	0.96	0	1.31
Poland	1.14	1.18	0	0	0
Netherlands	1.38	1.36	0	0	0
Morocco	1.43	1.42	1.46	1.30	1.23
China	1.30	1.32	1.32	1.22	1.24
Spain	1.56	1.59	0	0	0
Belarus	0.89	0.97	0.42	0.84	1.08
Azerbaijan	0.88	0.96	1.21	0.94	0.99
Iran	1.25	1.22	1.13	1.28	1.36
Total	1.29	1.23	1.02	1.06	1.08

Source: authors' calculations

#### 4. Conclusions

Therefore, the Russian “economic” embargo noticeably influenced volumes and cost of vegetable supplies to Russia. The volume of deliveries in 2017 decreased significantly compared to 2013. Prior to the embargo in 2013, the import of tomatoes in different volumes (thousand tons) was carried out by the Turkey (39.2%), China (9.4 %), Netherlands (8.6 %), Morocco (8.3 %), Spain (8.2 %), Belarus

(5.5%), Ukraine (5.5%), Azerbaijan (5.5 %). In 2017, the main suppliers were such countries as Azerbaijan (us \$ 155.1 million), China (135.1 million U.S. Dollars), Morocco (132.4 million U.S. Dollars).

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