

Development Trends of the Russian Fruit and Berry Market

Mukhametzyanov R.R.

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

Zaretskaya A.S.

Yaroslav-the-Wise Novgorod State University,
Veliky Novgorod, Russia,
Anastasiya.Zaretskaya@novsu.ru

Agirbov Y.I.

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

Ibiev G.Z.

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

Storozhev D.V.

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

Abstract—The main purpose of this study is to identify trends in the development of the Russian market of fruit and berry products in different periods during 1990-2019, including in terms of its saturation due to imports and own production, as well as changes in demand and its consumption from side of the population. After the collapse of the USSR, Russia liberalized foreign trade in agricultural products, including fruits, berries and nuts. As a result, in the 1990s, due to imports, the range of fruit and berry products improved, fruits, berries and nuts that were previously physically inaccessible to the bulk of the population appeared, but the parameters of the corresponding Russian market varied within 2-3 million tons, which is primarily due to the low payable demand of the inhabitants of our country during this period. At the beginning of the 20th century in Russia, up to 2014, due to the increase in income and the resulting growth in demand, there was a positive trend towards an increase in the physical volume of the market for fruit and berry products. At the same time, imports were growing at a faster pace, but domestic production was gradually recovering after the fall in the 90s of the last century. The consumption of fruits, berries and nuts in our country has also increased. As a result of sanctions from the United States, the EU and a number of other countries, Russia announced contracts, including in relation to the import of fruit and berry products from these countries, and also began to pursue an import substitution policy, purposefully developing its own production of fruits and berries. In the past few years in our country, there has been a stagnation in retail sales of fresh fruit and berry products, a decrease in its imports with a simultaneous increase in gross harvests in the territory of the state. The results of the study can be used to further discussion of this problem in order to find compromises regarding the degree of import substitution in the Russian

market for fruits, berries, nuts, differentiation of their imports, as well as measures to protect domestic producers in the event of the lifting of sanctions and counter-sanctions.

Keywords—fruit and berry products, the Russian market, demand, supply, import substitution

I. INTRODUCTION

In an open economy, the agri-food market of any country, including Russia, is saturated with two sources: domestic production and imports. In the context of globalization and foreign economic liberalization, the undoubted advantage of international trade is the possibility of supplying the market of a particular state with those types of agricultural products that are produced in insufficient volumes for the most complete quantitative and qualitative provision of the population's needs, or are not created in the country at all [1].

After the collapse of the socialist economic system, when practically all the states of the world began to develop within the framework of the market model of the economy, international trade in agricultural products, including fruit and berry products, began to increase both in physical and value terms [2]. However, an excessive enthusiasm for imports can negatively affect the development of domestic sectors of the agrarian sector, which, within the framework of the complication of the geopolitical situation, leads to significant economic costs associated with their restoration. In this regard, the agriculture of our country as a whole, as well as its individual branches, must produce the corresponding types of products in the required volumes prescribed in the current

Doctrine of Food Security of the Russian Federation [3].

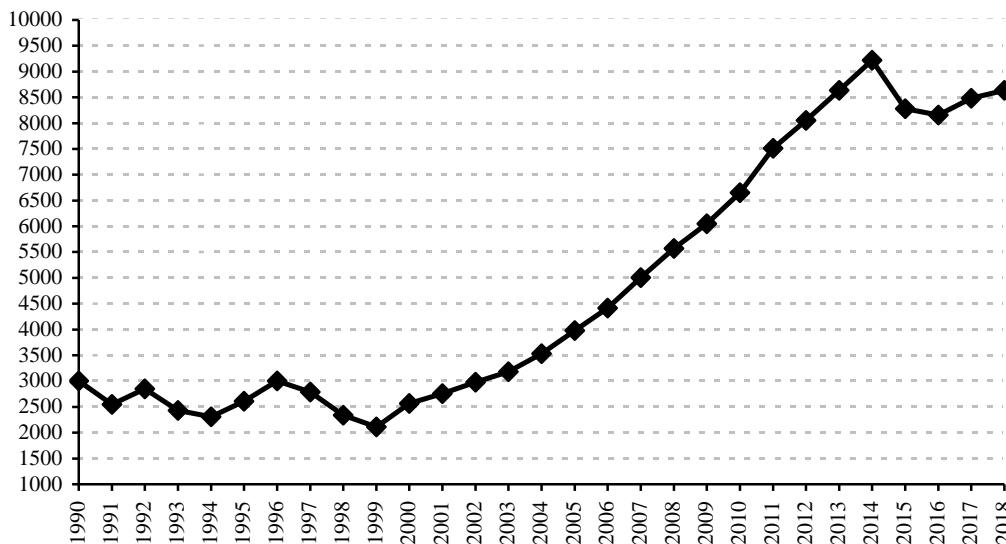
The supply of a sufficient amount of domestic food products, in many respects the standard of living of the rural population and, as a consequence, the economic availability of food depend on the efficient functioning of the agrarian sector [4]. The production of fruits, berries and nuts in many countries of the world is an important component of their national agrarian economy. Some of these states not only meet the needs of their own population for these types of products, but also supply them to the world market. As a result, the residents of importing countries receive a variety of assortments of physically and economically accessible fruit and berry products, and the population of exporting countries – the corresponding income and payback of their activities.

In addition, fruits, berries and nuts are important components in the diet of a modern person. As studies of many scientists show, their consumption in accordance with the recommended norms contributes to the preservation of health, physical and mental activity of the population [5]. According to the current recommendations, the average Russian should consume 100 kg of fresh fruit, including apples – 50 kg, or about 7.33 million tons for the entire population of the Russian Federation, while the achieved level

is two-thirds of the recommended parameters [6].

II. DISCUSSION AND RESULTS

On an industrial scale, a wide range of fruits, berries and nuts are cultivated in many countries of the world, which have more favorable natural and climatic conditions compared to Russia. In addition, some of these states are located in the southern hemisphere of the planet, which makes it possible to reduce the traditional seasonality of supplies of fresh fruit and berry products to the domestic market. In the 1990s, many fruits, berries and nuts in significantly increased volumes and assortments began to be supplied to our country from other countries of the world. Gradually, fruit and berry products became more physically and economically available for the average Russian consumer, especially urban residents. As a result, annual retail sales of fresh fruit increased by the end of the first decade of the 20th century to 6.6 million tons, and in 2014 reached the maximum volume of 9.2 million tons [7] (Fig. 1). At the same time, demand increased due to an increase in consumer income, and supply – due to an increase in the supply of foreign fruits, berries and nuts. As a result, Russia became one of the largest global importers of fruit and berry products, including such a traditional fruit for the country as apples, it was in first place in the world [8].



Source: compiled by the authors based on [7]

Fig. 1. Retail sales of fresh fruit in Russia, thousand tons

From the point of view of some theories of international trade, the country should focus on the production of those types of products, including plant and animal origin, according to the production conditions of which it has undoubted climatic or socio-economic advantages over other states. It is understood that as a result, due to specialization and concentration, the total costs per unit of goods will be minimal, which will make it possible to be more competitive both in the local and global markets, and to take a corresponding position within the international division of labor.

However, such theoretical concepts are often refuted by practice, namely, geopolitical changes and discriminatory actions by some states against others. In particular, Russia was forced to respond to sanctions from the United States, the EU and a number of other countries, with its own counter-actions,

including with respect to the import of fruit and berry products from these states, and also began to pursue a policy of import substitution, purposefully – gradually developing its own production of fruits and berries.

As foreign experts note, Poland was a traditional exporter of fresh apples to Russia (and earlier to the Soviet Union). Indeed, in 2013, it supplied about 600.0 thousand tons of apples to our country, which was about half of the total export of these products from Poland. In the European Union, Poland has become the largest apple producer, ahead of Italy [9]. But after the introduction of sanctions by the EU and the ensuing Russian counter-sanctions, Polish producers lost the opportunity to directly supply apples to our market with all the subsequent socio-economic consequences for this industry.

In order to reveal the problem we have declared, we are

examining changes in the balance of resources and the use of fruits and berries in the Russian Federation for 1990–2019 (Table I). We highlighted the extreme years of this period in

order to compare them, and also calculated the average indicators for every five years from 1991 to 2015, and in 2016–2019 in four years.

TABLE I. BALANCE OF RESOURCES AND USE OF FRUITS AND BERRIES IN THE RUSSIAN FEDERATION, THOUSAND TONS

Indicators	1990	Average per year						2019	2019 to 1990, %
		1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2019		
Resources									
Stocks at the beginning of the year	1633.0	1220.8	1130.0	1298.6	1557.1	2251.2	1956.9	2044.6	25.2
Production	2997.0	2847.2	2751.6	2762.8	2577.6	3075.7	3765.2	4178.5	39.4
Import	2520.0	2580.0	2434.4	3870.8	5961.9	6889.5	6578.1	6424.3	154.9
Total resources	7150.0	6648.0	6316.0	7932.2	10096.7	12216.3	12300.2	12647.4	76.9
Import in % of resources	35.2	38.8	38.5	48.8	59.0	56.4	53.5	50.8	15.6
Using									
Manufacturing consumption	214.0	406.2	573.2	607.6	801.8	935.9	1171/8	1270.0	493.5
Losses	416.0	190.0	53.8	61.2	94.3	102.2	82.5	67.3	-83.8
Export	20.0	23.2	40.4	113.4	98.8	109.7	217.3	254.1	1170.5
Personal consumption	5032.0	4922.6	4469.0	5778.2	7496.3	8780.5	8865.0	9053.2	79.9
End of year stocks	1468.0	1106.0	1179.6	1371.8	1605.5	2288.1	1963.7	2002.8	36.4
Personal consumption in % of resources	70.4	74.0	70.8	72.8	74.2	71.9	72.1	71.6	1.2

Source: calculated and compiled by the authors based on [7]

The data indicate that for such items as the production and personal consumption of fruit and berry products, there were significant gaps in some of the five-year periods, however, by 2019, compared to 1990, in general, there was a significant increase by 39.4 and 79.9%, respectively. The import of fruits and berries increased at a higher rate, but in recent years it has decreased, which affected the decrease in its share of all resources. Also for 1990–2019 production consumption (5.9 times) and exports (12.7 times) increased significantly, losses decreased. Thus, in general, the trends are very positive, even despite the increase in the share of imports from 35.2% in 1990 to 50.8% in 2019.

Let us analyze the change in the gross harvests of different types of fruit and berry products in all categories of farms in the Russian Federation (Table II). It can be seen that the production of fruits of pome and stone crops, as well as berries and grapes is of the greatest importance in our country. The gross harvests of the first of the listed, among which apples occupy the main place, in 2019 amounted to 2179.3 thousand tons, which is 31.6% higher than in 1990 (1655.9 thousand tons). An even greater increase for the analyzed period occurred in stone fruit and berry crops: 65.0% and 100.9%, respectively. At the same time, the production of wine hail in our country in all categories of farms grew by only 10.7%.

TABLE II. CHANGE IN GROSS HARVESTS OF FRUIT AND BERRY PRODUCTS IN ALL CATEGORIES OF FARMS IN THE RUSSIAN FEDERATION, THOUSAND TONS

Type of fruit and berry products	1990	Average per year						2019	2019 to 1990, %
		1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2019		
Pome fruit	1655.9	1477.1	1453.1	1337.0	1164.8	1438.3	1856.0	2179.3	31.6
Stone fruits	361.9	472.0	409.0	426.9	414.0	497.1	586.5	597.1	65.0
Nuts	15.550	8.758	8.539	5.650	10.752	15.350	19.594	19.686	26.6
Subtropical fruits	1.280	1.148	0.869	1.218	1.840	1.919	1.988	2.014	57.4
Citrus fruits	0.570	0.436	0.118	0.135	0.090	0.102	0.076	0.075	-86.9
Berries	349.3	457.4	610.9	710.8	695.4	671.8	679.7	701.8	100.9
Grapes	612.3	430.2	269.0	283.6	294.3	452.5	621.8	678.0	10.7
Total	2996.8	2847.0	2751.5	2765.2	2581.2	3077.0	3765.6	4178.0	39.4

Source: calculated and compiled by the authors based on [7]

As a result, despite the decrease in the gross harvest of fruit and berry products in Russia in the 90s of the last century and in the first decade of the 21st century, for 2011–2019 it was managed to increase the volume of own production of

fruits and berries up to 4178.0 thousand tons, which is 39.4% more compared to 1990.

In order to determine which categories of farms

contributed to the achievement of these parameters, let us investigate in more detail the change in gross harvests of fruit

and berry products in agricultural organizations (Table III) and in households of the Russian Federation (Table IV).

TABLE III. CHANGE IN GROSS HARVESTS OF FRUIT AND BERRY PRODUCTS IN AGRICULTURAL ORGANIZATIONS OF THE RUSSIAN FEDERATION, THOUSAND TONS

Type of fruit and berry products	1990	Average per year						2019 r.	2019 to 1990, %
		1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2019		
Pome fruit	1016.9	592.6	393.8	408.4	396.3	536.1	829.7	918.2	-9.7
Stone fruits	112.4	76.9	33.9	25.4	17.7	30.6	41.8	34.3	-69.5
Nuts	1.010	0.730	0.356	0.237	0.201	0.289	0.323	0.270	-73.3
Subtropical fruits	0.150	0.110	0.098	0.159	0.132	0.020	0.168	0.173	15.3
Citrus fruits	0.160	0.140	0.019	0.022	0.015	0.019	0.020	0.016	-89.9
Berries	49.2	26.0	12.4	10.5	8.3	8.0	8.7	9.3	-81.1
Grapes	536.7	360.7	239.1	231.2	208.7	316.6	429.3	470.4	-12.4
Total	1716.6	1057.2	679.7	675.9	631.4	891.6	1310.0	1432.6	-16.5
In % to all categories of farms	57.3	37.1	24.7	24.4	24.5	29.0	34.8	34.3	-23.0

Source: calculated and compiled by the authors based on [7]

As you can see, the production of fruits and berries in the large-scale commodity sector in 1990 was significantly higher than in 2019. None of the designated large groups of fruit and berry products it was not yet managed to achieve the same volumes that were observed in Russia in 1990. However, we can notice that the largest drop in gross harvests of fruits and

berries in agricultural organizations was recorded in 2006-2010. It was during this period that our country came to the fore even in the import of apples, traditional for Russia. In 2011-2019 we are witnessing a significant increase in the production of fruit and berry products in this category of farms.

TABLE IV. CHANGE IN GROSS HARVESTS OF FRUIT AND BERRY PRODUCTS IN THE FARMS OF THE POPULATION OF THE RUSSIAN FEDERATION, THOUSAND TONS

Type of fruit and berry products	1990	Average per year						2019	2019 to 1990, %
		1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2019		
Pome fruit	639.0	881.9	1056.9	922.3	743.1	859.2	907.9	1070.2	67.5
Stone fruits	249.5	394.2	373.4	398.0	388.3	456.7	527.3	544.4	118.2
Nuts	14.550	8.010	8.125	5.387	10.283	14.983	18.681	19.358	33.0
Subtropical fruits	1.130	1.038	0.771	1.051	1/663	1.898	1.819	1.841	62.9
Citrus fruits	0.410	0.298	0.109	0.113	0.075	0.083	0.056	0.058	-85.8
Berries	300.1	431.3	598.2	699.4	685.8	657.0	664.3	683.1	127.6
Grapes	75.5	67.5	27.9	49.8	79.6	123.6	167.7	173.6	129.8
Total	1280.3	1784.2	2065.4	2076.0	1908.8	2113.4	2287.7	2492.6	94.7
In % to all categories of farms	42.7	62.7	75.1	75.1	73.9	68.7	60.8	59.7	16.9

Source: calculated and compiled by the authors based on [7]

Let us analyze the change in the gross harvests of different types of fruit and berry products in the farms of the population of the Russian Federation (Table IV). The data indicate that the production of pome fruits in this category of farms in 2019 (639.0 thousand tons) increased by 76.5% compared to 1990 (1070.2 thousand tons), stone fruit by 118.2% (from 249.5 to 544.4 thousand tons), berries by 127.6% (from 300.1 to 683.1 thousand tons), grapes by 129.8% (from 75.5 to 173.6 thousand tons). In aggregate, for all types of fruit and berry products, the increase in gross harvest amounted to 94.7%, and the share of households in the total volume of fruit and berry production in all categories of farms in 2019 was at the level of 59.7%.

In many countries of the world, including Russia, the main

bearer of demand for fruits, berries and nuts are residents of cities, especially megalopolises, who have significantly higher incomes and less interest in meeting their needs for fruit and berry products due to their own production on household plots [10]. In turn, the rural population of our country continues to meet their needs for fruit and berry products through their own production.

In this regard, we believe that one of the conditions for increasing the efficiency of the Russian market of fruit and berry products is the formation of a constant and significant demand for fruits, berries, nuts and products of their processing, mainly produced in Russia. This, inter alia, is interconnected with the increase in the population's ability to pay, the level of which largely depends on the efficiency of the

functioning of the entire economy of the country [11].

In addition to income, demand also depends on the price of the product. As a rule, in countries with a lower level of it, lower prices are set for local products. We see confirmation of this in the studies of a number of foreign specialists. In particular, based on a study of the situation in several cities in different countries, they note that the average price per kilogram of apples ranged from \$ 1.43 in Kathmandu to \$ 6.96 in Ad-dis Ababa, while the average price per kilogram of bananas ranged from \$ 0.46 in Kathmandu to \$ 2.84 in Brooklyn [12].

The price in specific national markets depends on many factors, among which, on the supply side, natural and climatic conditions take the first place. As noted by our foreign colleagues, the first results show that weather events were the most frequent events affecting export volumes and consumer demand, thereby confirming that they often play a role in determining prices [13]. Regarding imported goods, we can say that fluctuations in the national currency exchange rates also affect the establishment of prices for a particular type of fruit and berry products in the country's domestic market. In particular, foreign scientists attest to this. In their opinion, the results of empirical analysis show that in the short term, the strengthening of the yuan against the Russian rubles will lead to a decrease in the export of Chinese apples to Russia, but in the long term will lead to an increase [14].

In addition to increasing incomes of the population, an important factor in increasing their demand for fruit and berry products of Russian production is the active policy of the state to stimulate its consumption, including at the expense of budgetary funds. According to some experts, in September 2007 the EU undertook a reform of the fruit and vegetable market, one of the main goals of which was to reverse the decline in fruit and vegetable consumption among young people. After the approval of this reform, the European Council proposed to the European Commission a proposal for the development of the School Fruit Program [15]. Its main meaning was the slogan "5 per day", that is, 5 servings of fruits and vegetables (at least 80 grams each), which must be eaten every day by each student. After conducting research on this topic, foreign authors testify that the results of the program show an increase in the consumption of fruits and vegetables due to an increase in availability, impact and awareness, rather than actual changes in preferences [16].

There is a similar program in the field of school nutrition in the United States. International experts note that the Fresh Fruit and Vegetable Program (FFVP) provides funding to distribute free fresh fruits and vegetables to school students. The FFVP program causes an economically significant reduction in the obesity outcome of participating children [17]. That is, increasing the consumption of fruits and vegetables has a positive effect on the child's body.

A similar positive experience in stimulating the consumption of fresh fruit and berry products at the expense of the state budget can be applied in our country, but at the same time it should be envisaged that in the process of preparing and implementing this program, the preferential use of fruits and berries of Russian production is planned. This, undoubtedly, will be a good incentive for domestic subjects of the agrarian sector, primarily agricultural organizations, to

increase the volume of gross collections of the corresponding types of products.

We believe that, given the significant positions of Russia in the world, as well as in order to ensure food independence, physical and economic accessibility of food, more attention should be paid to the saturation of the national market with fruit and berry products through its own producer and diversification supplies from abroad [18]. However, we understand that it is economically impractical to grow in our country those types of fruits, berries and nuts that, due to their biological characteristics, do not correspond to the natural and climatic conditions of Russia. However, when it comes to the traditional types of fruit and berry products for the country, it is necessary to pursue a purposeful policy of stimulating its production and consumption.

However, do not forget that the sanctions of the European Union may be lifted, then the Russian counter-sanctions will also be revised. Therefore, today it is necessary to think over how we will protect the domestic producer of fruit and berry products. As an option, you can propose a wider use of technical, sanitary and phytosanitary rules and standards. The experience of their use and impact on countries, both exporters and importers, can be found in periodicals. In particular, some aspects of this problem are reflected in a number of scientific studies of our foreign colleagues [19-21].

III. CONCLUSION

Thus, our study of the Russian market of fruit and berry products for 1990-2019 allows us to identify the following main trends in its development:

1) The production of fruits and berries in the Russian Federation increased from 2997.0 thousand tons in 1990 to 4178.5 thousand tons in 2019 that is, almost 1.4 times, but their import from other countries increased was at a higher pace: from 2520.0 to 6424.3 thousand tons for the same period. As a result, the annual resources of fruit and berry products from 7150.0 thousand tons in 1990 reached the level of 12647.4 thousand tons in 2019, while the share of imports in them increased from 35.2% to 50,8%. The result was an increase in the industrial consumption of fruits and berries in our country from 214.0 thousand tons in 1990 to 1270.0 thousand tons in 2019, and personal consumption from 5032.0 to 9053.2 thousand tons which is a positive fact.

2) The current state of the Russian production of fruit and berry products in the context of categories of farms is characterized by the fact that over the past thirty years there has been a reduction in the share of large-scale agricultural organizations and the role of the personal sector in its volume obtained both in absolute and relative terms [22]. As before, some fruits and berries are produced and consumed within households, which negatively affects the parameters of the respective markets, which are less than the consumption of fruit and berry products. This is partly due to the fact that the incomes of a significant part of the population of Russia, especially the rural ones, do not allow a full-fledged demand for these goods.

3) The biological characteristics of most types of fruit and berry crops predetermine the specialization and concentration of their production in countries with more favorable natural and climatic conditions in comparison with Russia. In this

regard, the supply of fruit and berry products on the domestic market is formed mainly due to their import supplies. However, taking into account the sanctions policy pursued by a number of developed countries of the world, Russia is forced to diversify foreign supplies of fruits, berries and nuts, as well as increase its own production of these types of products.

4) In the context of the integration processes in the post-Soviet space and the formation of a single economic space within the EAEU, it is necessary to increase mutual trade in fruit and berry products within this association. For Russia, taking into account its maximum market volume, this is especially important in relation to those fruits, berries and nuts that are economically feasible to grow on an industrial scale in more favorable climatic conditions than in our country [23].

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