Assessment of the export potential of Russian soybeans

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Abstract. Swot analysis and development trends of the market for soybeans and its derivative products in Russia and all over the world are presented in the article. The main tasks of Food Security Doctrine of the Russian Federation are reflected, which influence the further development of foreign trade policy of the country's agro-industrial complex and the realization of the export potential of soybeans. The key players in the global soybean market were noted, occupying leading positions in the import and export of soybeans. The results of the analysis of the structure and geography of the export of Russian soybeans are presented and an assessment of the export potential of Russia in the soybean grain market from 2015 to 2019 with the calculation of the main indicative values such as: export quota, coefficients of international competitiveness and coverage of imports by exports and others, is given. The problems in the context of the internal and external soybean markets that hinder the implementation of the existing potential, as well as the ways to solve them, thanks to the implementation of which it will be possible to increase the production and export of Russian soybeans to international markets up to the planned targets of the federal project “Export of agricultural products” by 2024, have been identified.

1. Introduction
One of the main tasks of ensuring the food security of the Russian Federation, regardless of the dynamically changing external and internal situation, is the implementation of the export potential, taking into account the priority of the country's self-sufficiency in domestic agricultural products, raw materials and food, as well as taking into account the need to ensure food security within the Eurasian Economic Union. In this regard, Russia annually increases the production of the main export-oriented agricultural products in order to overcome the negative balance of foreign trade and form export potential [1]. In this respect, soybeans have a huge potential for growth in production and sales markets. The demand for soybeans in the world is due to its wide range of applications and great economic value. It plays a strategic role in the economy of a number of countries, both America, which has become the main producer and exporter of soybeans, and the countries of Asia-Pacific region, which are the main consumers of this valuable high-protein crop.

2. Materials and methods
The theoretical and methodological basis was the work of domestic and foreign authors on the assessment of the export potential of the agro-industrial complex. In the course of the research, calculation, analytical, economic-statistical, abstract-logical and monographic methods were used.
Materials from the State Statistics Service and the Ministry of Agriculture, the Federal Customs Service of Russia, and the US Department of Agriculture are used in the article.

3. Results and discussion
Assessment of the export potential of individual sectors of the agro-industrial complex is a tool for enhancing existing and potential competitive advantages. That’s why the assessment of the world soybean market as one of the most dynamically growing agro-industrial complex markets and the study of the export potential of the soybean subcomplex of Russia are extremely important and relevant at the present stage of economic development.

According to the federal project “Export of agricultural products” by 2024, Russia must increase the volume of export of agricultural products to $45 billion, which is 1.8 times more than in 2019. A promising direction in terms of export is to increase the supply of soybeans to Chinese market [2]. In recent years, there has been a significant increase in the supply of Russian agricultural products to the PRC, so in 2018 the growth of Russian exports under this item exceeded 51%, in 2019 it exceeded 12%, and the share in the total volume of exports to China amounted to 5.9%. The PRC is a country with a rapidly growing consumer demand [3, 4]. Since 2015, Russia and China have been actively working on the issue of opening markets for various food products, which resulted in the signing of relevant intergovernmental agreements [5]. As a result, deliveries of confectionery and meat products, grains and oilseeds, seafood, and vegetable oil to the PRC increased most significantly. The share of soybeans and soybean oil in the total export of food products in 2017-2019 was 7-8% and 5-6%, respectively.

According to the Federal Customs Service of the Russian Federation, in 2019 the volume of soybeans exported by Russia amounted to 893.9 thousand tons worth more than $270 million, including 714.1 thousand tons to the People's Republic of China for the amount of $206.0 million.

The main exporters of soybeans in the international market are currently Brazil, the United States and Argentina, accounting for 90% of the world's total exports of soybeans and its derivative products. If the US is dominated by soybean exports, Argentina is the main exporter of soybean meal, and Brazil is the main exporter of soybean oil. At the same time, China has always been the main sales market for these countries. In 2019 alone, the volume of imported soybeans to the People's Republic of China reached 89 million tons, providing the country's domestic production of more than 18 million tons (table 1). In addition, other countries in the Asia-Pacific region, as well as the European Union, Central America and the Middle East, import large amounts of soybean. In total, these countries have imported 62.5 million tons of soybeans, which is about 40% of the total market share of soybeans [6].

| **Table 1. Export and import of soybeans in the world, million tons.** |
|----------------|---|---|---|---|---|
| **Country**    | **2015** | **2016** | **2017** | **2018** | **2019** |
| Export         |         |         |         |         |         |
| Brazil         | 54.4    | 63.1    | 76.1    | 74.6    | 78.5    |
| USA            | 52.9    | 59.0    | 58.1    | 47.6    | 48.3    |
| Argentina      | 9.9     | 7.0     | 2.1     | 9.1     | 8.2     |
| Paraguay       | 5.0     | 5.5     | 6.0     | 4.9     | 5.9     |
| Canada         | 4.2     | 4.6     | 4.9     | 5.3     | 4.3     |
| Others         | 5.8     | 7.7     | 5.9     | 6.8     | 6.3     |
| Total          | 132.2   | 146.9   | 153.1   | 148.3   | 151.5   |
| Import         |         |         |         |         |         |
| China          | 83.2    | 93.5    | 94.1    | 82.5    | 89.0    |
| European Union (EU) | 15.1 | 13.4 | 14.6 | 15.0 | 15.1 |
| Mexico         | 4.1     | 4.1     | 4.9     | 5.9     | 6.0     |
| Japan          | 3.2     | 3.2     | 3.3     | 3.3     | 3.4     |
| Thailand       | 2.8     | 3.1     | 2.5     | 3.2     | 3.4     |
| Taiwan         | 2.5     | 2.6     | 2.7     | 2.6     | 2.9     |
| Indonesia      | 2.3     | 2.6     | 2.5     | 2.6     | 2.9     |
| Turkey         | 2.3     | 2.3     | 2.8     | 2.4     | 2.8     |
Russia, along with other countries, also imports a significant amount of soybeans. According to the Federal Customs Service of Russia, the volumes of soybeans imported into the territory of the Russian Federation from 2015 to 2019 annually amounted to 2.2-2.3 million tons [2]. In 2019, Brazil (939.3 thousand tons), Paraguay (823.1 thousand tons) and Argentina (89.0 thousand tons) were the main countries exporting soybeans to the Russian Federation. Soybeans are imported mainly through the ports of the Kaliningrad region (99.9% of the total), where the main processing facilities are located. As for seed material, the indicator of imports of soybean seeds in 2019 was at the level of 1.5 thousand tons (for comparison, in 2018, the indicator of imports of soybean seeds was 1.2 thousand tons; in 2017, the indicator of imports of soybean seeds was 1.1 thousand tons) [7, 8]. Canada, China and France remain the main exporters of seed soybeans to Russia.

Prospects for the development of the Russian soybean market are directly related to the possibilities of its integration into the world market. The International Grains Council predicts that due to strong growth in global soybean production in recent years, it is likely to slow down, and over the next three years will grow at a slow pace (1.5-2.0% on average), reaching 390 million tons by 2023. And the high demand for feed will be the key to the annual growth of demand for soybeans.

The United States Department of Agriculture (USDA) predicts an increase in global soybean production to 341.7 million tons in 2020. Growth relative to 2019 is expected due to harvests in Argentina and Brazil in the amount of 54 and 126 million tons, respectively. In addition, USDA experts suggest an increase in world soybean exports to 151.88 million tons, consumption to 350.07 million tons and an increase in ending stocks by 3.58 million tons.

Nevertheless, the forecasted conjuncture of the world soybean market is favorable for a possible increase in the export potential of Russia, therefore, in recent years, there has been a tendency to increase the volume of Russian soybean exports abroad. Most of the exported soybeans are in the Far Eastern Federal District, followed by the Central and Siberian Federal Districts, the rest of the regions account for less than 5% (table 2). But, if in 2015 the share of the Far Eastern Federal District accounted for 98.8% of soybeans shipped abroad, by 2019 it decreased to 79.2%. The reason for the decrease was the increase in the volume of soybean production in the Central Federal District and the Siberian Federal District and, accordingly, export increased by 10.2 and 5.2 percentage points.

| Region | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------|------|------|------|------|------|
| CFD    | 0.2% | 3.4% | 7.5% | 1.1% | 10.4%|
| NWFD   | -    | 0.5% | 0.3% | 8.1% | 0.5% |
| SFD    | 0.1% | 1.5% | 6.2% | 0.1% | 0.4% |
| VFD    | -    | -    | 0.1% | 2.2% |      |
| UFD    | 0.1% | 0.3% | 0.1% | -    | 0.1% |
| SFO    | 0.8% | 2.2% | 5.6% | 3.8% | 6.0% |
| FEFD   | 98.8%| 90.7%| 79.1%| 86.7%| 79.2%|
| NCFD   | -    | 1.4% | 1.2% | 0.1% | 1.2% |

Balance of foreign trade turnover of soybeans and its derivative products for 2015-2019 clearly demonstrates the strengthening of the position of the Russian Federation in the world soybean market (table 3). The positive dynamics for soybean meal is provided due to a significant decrease in import volumes from 532.7 thousand tons in 2015 to 220.3 thousand tons in 2019, and for soybean oil due to an increase in exports from 438.0 thousand tons in 2015 to 601.3 thousand tons in 2019. As for soy
flour, in this direction Russia can be conditionally called a net exporter, since the export indicator in physical terms is more than 10 times higher than the import of the product. The increase in the volume of soybean exports over 5 years has reduced the negative trade balance by 38% or $ 310.4 million. The most difficult situation is with seed soybeans, the negative foreign trade turnover of which is due to the unfavorable price situation for domestic and imported seeds. So, in 2019, with relatively equal volumes of import and export of seed material of 1.5 and 1.6 thousand tons, their value in US dollars was 3.6 and 1.4 million dollars, respectively.

| Table 3. Foreign trade balance of soybean derivative products in Russia, mln USD. |
|---------------------------------|--------|--------|--------|--------|--------|
| Indicators                     | 2015   | 2016   | 2017   | 2018   | 2019   |
| Soybean                        | -820.5 | -844.3 | -797.0 | -701.5 | -510.1 |
| Soybean seeds                  | -2.0   | -1.1   | -0.7   | -1.7   | -2.2   |
| Soybean meal                   | -56.5  | 75.5   | 83.6   | 82.1   | 98.5   |
| Soybean oil                    | 303.6  | 343.9  | 390.2  | 381.9  | 365.8  |
| Soy flour                      | 2.1    | 1.8    | 1.4    | 1.6    | 1.4    |

The export potential of the soybean industry is an important component of the overall economic potential of the country, which shows the ability to manufacture products that are competitive in world markets and export them in sufficient volumes at world prices.

To assess the existing export potential of the soybean industry in Russia, we calculated the following indicators: export quota, import capacity of export, industry export ratio of the country, coefficient of international competitiveness and the country's share in the world soybean export market for the period from 2015 to 2019 (table 4) [9, 10].

| Table 4. Indicators of the export potential of Russia in the soybean market. |
|---------------------------------|--------|--------|--------|--------|--------|
| Indicator                       | 2015   | 2016   | 2017   | 2018   | 2019   |
| Export quota, %                 | 13     | 13     | 13     | 22     | 19     |
| Import capacity of export       | 0.16   | 0.19   | 0.23   | 0.44   | 0.44   |
| Sectoral export ratio of the country, % | 0.03 | 0.05 | 0.05 | 0.06 | 0.06 |
| Coefficient of international competitiveness | -0.72 | -0.68 | -0.62 | -0.39 | -0.39 |
| Country's share in the world soybean export market, % | 0.29 | 0.29 | 0.34 | 0.64 | 0.59 |

The export potential of Russia on the world soybean market can be characterized as low, but with a tendency to growth, as evidenced by the increase in all indicators over the calculation period.

The increase in the export quota from 13 to 22% indicates the growing participation of the country in the international division of labor in the world soybean market and the growth of the competitiveness of manufactured products. The main reasons for the increase in soybean exports from the Russian Federation are environmental friendliness of the Far Eastern genetically unmodified soybeans; zeroing of the export customs duty on September 1, 2015 (previously the rate on the export of soybeans was 6.67%); the advantage of the geographical position of the Amur region, as the main region of the country, in relation to China and the volatility of the ruble in relation to major world currencies, including the Chinese yuan.

The negative value of the coefficient of international competitiveness, together with a low coefficient of coverage of imports by exports, indicates insufficient foreign trade self-sufficiency of the country and a significant excess of imports over exports, which in turn can negatively affect the food security of the country. The share of soybeans in all-Russian exports is less than 1%, and the share occupied by the Russian Federation in the world soybean export market also does not exceed 1%, but in moving fashion for the period under review, there is a 2-fold increase in these indicators.
Currently, Russia is for the most part a net importer of soybeans, but at the same time demonstrates significant opportunities to increase export volumes. However, the implementation of the existing potential is constrained by a number of problems in the context of the domestic and foreign soybean markets:

- The inaccessibility of credit resources for agricultural producers due to their high cost, an inflexible tax system and other internal reasons restrain the growth of soybean exports.
- Undeveloped market infrastructure, primarily logistics, does not allow organizing a competent distribution of soybean export flows in promising areas.
- Difficult climatic conditions with a short frost-free period in most of the growing regions of the Russian Federation do not allow fully realizing the genetic potential of soybean varieties in terms of productivity and obtaining high yields and, as a result, limiting its price competitiveness in relation to North American, Latin American and Western European countries.
- Limited geography of stable soybean exports within the Asia-Pacific region.
- Dominance in the structure of exports of products with low added value (soybean raw materials).

It should be noted that motivation for Russian soybean exporters is the weak exchange rate of the national currency, and such an advantage cannot be permanent and reliable. The main advantage of Russian soybeans on the world market should be high quality compared to foreign competitors. To realize this advantage, Russia has all the prerequisites: the availability of land resources and relatively favorable soil and climatic conditions for the cultivation of soybeans, a developed scientific and educational base, energy, water and labor resources, access to major transport routes, etc.

4. Conclusion
Analysis of the world market, structure and geography of supplies of Russian soybeans and its derivative products made it possible to establish that Russia is well-placed to increase export volumes and its share in the world indicator. With an active state policy and systematic support of domestic producers, the development of raw material zones and the construction of production facilities for deep processing of soybeans, it is possible to increase exports by 2024 to the planned targets of the federal project “Export of agricultural products”. At the same time, the efforts of the heads of the agro-industrial complex and soybean producers should be aimed at meeting the needs of the domestic market, for which it is necessary to establish special railway rates for the transportation of soybeans from the Far East region to the central part of Russia. At the same time, it is advisable to increase export volumes due to deep derivative products with high added value.

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