

Development of the Grain Market Export Potential



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Abstract: Research Objectives. The article analyses the world grain market to assess the competitiveness of grain crops produced in the Russian Federation, which makes it possible to substantiate the development directions of the Russian grain market export potential. **Methods.** The article uses the methods of systemic, structural and logical research, the analytical method, comparison, generalisation, economic and statistical method. Each of the methods was used based on its functionality. **Results Achieved.** The article defines the place of the Russian Federation grain market in the world circulation system of grain and its processed products, reveals the characteristic features of the international grain market, analyses the international grain market development factors, which makes it possible to identify trends in its development. The export potential of the Russian grain market is investigated, which allows offering a number of directions for its further development in the medium term. **Practical relevance, applicability of results.** The authors propose directions for the development of the grain market export potential, based on an in-depth analysis of the competitiveness of Russian grain industry products. The implementation of these proposals will allow the Russian Federation to strengthen the position of a large wheat producer in the world market.

Keywords: agri-food complex, export potential, grain market, government policy, grain and leguminous crops, assessment.

I. INTRODUCTION

Realizing the export potential involves solving a wide range of issues related to the functioning of not only the country's grain economy, but also the entire agri-food complex [1-2]. The effective use of material, labour and financial resources allows countries and regions to produce and sell agricultural products in world markets in order to increase food security, maintain sustainable development and generate additional income [3-5].

A special role in the development of the export potential of

the grain market belongs to the state, which affects the grain industry through the formation and implementation of a multidisciplinary state regulatory policy through an interconnected and coordinated system of economic, organisational, innovative, legal and other types of activities, it creates a set of effective and transparent instruments for its regulation [6-8].

It should be noted that grain farming is one of the few sectors of agricultural production with a relatively quick payback. Increasing its effectiveness is largely possible directly within the grain industry itself due to technology compliance, improved crop rotation, and production specialization [9-10]. Cereals are a highly liquid product on the foreign market, while, unlike hydrocarbons, they are an annually renewable resource.

The agri-food market is characterized by a relatively stable and steadily growing demand and supply for grain crops and their processed products. In the agri-food market, there is a flexibility in economic relations with a constant regulation mechanism in the national and regional markets between participants, in terms of price, volume, assortment and quality in the exchange process at all stages of the movement from producer to consumer [11-12].

In the course of the research, the goal was set - to study the state of the world grain market, identify problems of the grain crops competitiveness and determine directions for expanding the grain market export potential for domestic producers.

II. PROPOSED METHODOLOGY

A. General description

Domestic scientists have given the most comprehensive, substantive and systematic investigation to the problems of the agro-industrial complex, including the grain-product subcomplex, making a significant contribution to the development of this area of agricultural economics. Well-known Russian economists devoted their work to the issues of the world food and grain markets [13-15].

Speaking of the need to develop global competition in the food market, Nechaev V.I. notes in his writings that "the development of global economic competition is accompanied by increased geopolitical rivalry, including that for control of raw materials, energy, water and food resources.

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These circumstances require an increase in food production on a new qualitative basis, toughening environmental requirements, and at the same time create new opportunities for national food producers to form the Food Net innovation market in Russia: problems of sustainable agricultural growth” [16]. At the same time, many important theoretical, methodological, and scientific and practical aspects of the functioning and development of the grain product subcomplex have not been fully studied and remain the subject of debate both in Russia and in the world community. The relevance of these problems has determined the choice of topic and setting goals and objectives of the study.

B. Algorithm

The article uses the methods of systemic, structural and logical research, the analytical method, comparison, generalisation, economic and statistical method. Each of the methods was used based on its functionality.

It should be noted that among all segments of the agri-food market a special place is occupied by the market of grain and leguminous crops that is the largest segment dealing with up to 50% of the total agricultural production. Grain market has a special influence on the nature of reproduction processes in both global and national economies [17-19].

In the process of the research, we have identified the following characteristic features of the international grain market:

- grain is a strategic product, the availability of which determines the political and economic stability in the country and the world;
- grain supply is directly affected by weather conditions, which causes sharp fluctuations in its production by years and countries;
- not the whole volume of grain produced goes into the sphere of commodity circulation - a certain part of it remains with the producer for on-farm consumption;
- the demand for bread and bread products is not very elastic, i.e. price increases practically do not lead to a decrease in their consumption, or it even increases due to a decrease in demand for more expensive types of food of meat and vegetable groups;
- the country's grain-food economy is characterized by a high demand for capital (production, storage, processing with relatively low capital productivity due to seasonality of work, expensive agricultural machinery and instability of weather-dependent production);
- collision of inelastic arrays in the consumer market - grain production and grain-related products market - makes grain and those products prices unstable, so the price mechanism fails to be a regulator of supply and demand;
- grain market has a cyclical mode of development, where the rise in business activity may be followed by its reduction or decline;
- the unique features of grain as a commodity - its universal ability for long-term storage and transportation, uniformity, divisibility, interchangeability - provide it with a

capacious sales market and priority in the formation of regional food funds.

The above specific features of the grain market allow us to conclude that the grain market is a backbone for the agri-food market system as a whole, so the development of its export potential requires adequate measures. It should be noted that the process of formation and implementation of export potential, first of all, depends on the state foreign trade policy, which includes a system of measures to support producers and sellers [20-21].

Grain market is the largest global market for agricultural raw materials. Cereals traded on the grain market include: wheat, barley, oats, rice, corn, buckwheat, peas. Despite the large area of grain cultivation in the world, the world grain market is controlled by five major countries - exporters of grain crops. Among them, the USA, Argentina, Australia, countries of Western Europe and Canada. These countries export more than 85% of the total world grain trade. The USA has been the largest grain exporter over the past few years. The share of this country in world grain trade is about 30%. The share of Canada is 18%, that of Australia - 15%, EU countries - 15%, Argentina - 11%. In recent years, the countries of the largest grain exporters have included Russia and Ukraine, whose shares in 2018 amounted to about 10% (IndexMundi. Wheat Daily Price) [22].

Grain market is the basis of food security of the country to a large extent ensurig it through the formation of commodity-money relations to regulate grain production, its marketing, consumption, to form economic and commercial relations between the subjects of the grain market. The development of the world market is influenced by many factors, including the climatic conditions of countries, productivity, oil prices, import volume. In addition to the gradual and consistent increase in global demand for grain, market factors influence global prices and, ultimately, the country's food security.

III. RESULT ANALYSIS

To study the way the factors differentially affect the grain market, it is necessary to analyse the development of the international grain market in order to identify trends in its development, using a uniquely compiled dataset characteristic of significant areas of grain production [23]. The dynamics and structure of the world grain market are presented in Table 1.

Table 1. The dynamics of world grain exports, million tons

Countries	2010.	2014.	2015	2016	2017	2017 in % by 2010
USA	81.4	79.6	72.3	90.9	92.1	113.1
EU	23.6	32.2	38.5	51.2	52.6	222.9
Argentina	20.3	25.2	21.9	39.9	38.9	191.6
Russia	21.4	18.6	30.3	34.2	39.2	183.2
Canada	21.4	21.8	28.0	24.7	25.7	120.1
Ukraine	20.2	9.5	32.3	24.7	32.2	168.3
Australia	18.9	19.3	23.3	23.0	24.1	127.5
Other	48.9	72.3	75.2	94.9	99.3	203.1
Total	256.1	278.5	313.8	393	405.9	158.5



The analysis of Table 1 characterizes the stable growth of the world grain market. The increase in grain production and export volumes is shown by the EU-28 countries, almost 2.5 times, Argentina - 91.6%, Russia - 83.2% and Ukraine -

68.3% (World Trade Organisation) [24].

The structure of grain exporters is presented in Figure 1.

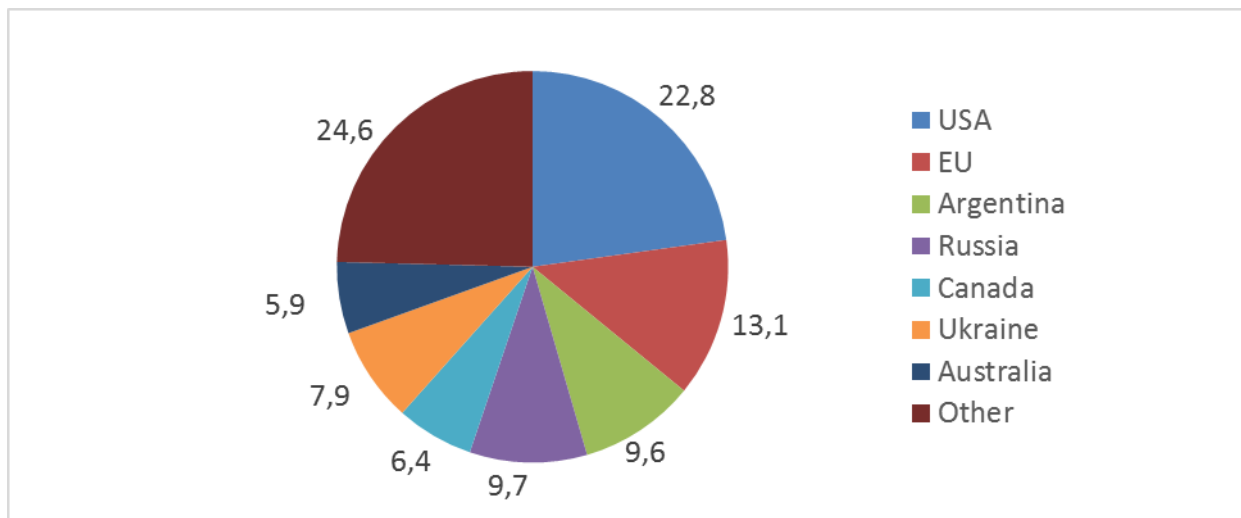


Fig.1. Structure of grain exporting countries, 2017, %

The world grain market largely depends not only on agricultural production, but also on its global consumption, development of trade, warehouse and transport infrastructure. An increase in stocks and a decrease in consumption can lead to a significant reduction in prices and an increase in the supply volume, which will make grain production

unprofitable. Moreover, the lack of infrastructure will not allow producers to store, transport and distribute grain. Thus, an analysis of world production cannot be carried out without an analysis of world stocks, consumption and trade (Table 2).

Table 2. Production, supply and consumption of grain in the world, million tons

Indicators	2015/2016	2016/2017	2017/2018	2018/2019	2019 \ 2020 (forecast)	
					March	June
Production	2587.0	2664.1	2703.3	2652.5	2722.2	2684.7
Supply	3349.7	3454.7	3536.0	3525.0	3575.1	3539.6
Consumption	2553.5	2619.4	2657.1	2680.6	2722.4	2706.8
Trade	393.0	405.9	421.9	408.5	413.2	414.4
End of year stocks	790.6	832.7	872.5	854.9	847.2	829.3
Global indicator of stocks and consumption volume ratio,%	30.2	31.3	32.5	31.6	30.1	29.7
The ratio of major exporters' stocks to their use,%	17.7	17.1	16.0	18.6	18.0	17.6

An analysis of the data presented in table 2 allows us to say that during the period under study there was an annual increase in production, supply, consumption and stocks, with the growth in supply outstripping the growth in production by 1.9 percentage points, and the growth in consumption outstripping the growth in production and supply by 2.2 and 0.3 percentage points, respectively. The volume of grain offered on the world market increased by 5.4% and, according to forecast data, will reach 414.4 million tons by the 2019/20 marketing year. However, having analyzed the annual growth index, we can say that in the 2016/17 and 2017/18 marketing years, the growth of supply and trade outstripped the growth of production, which affected the growth of carry-over grain

stocks. The 2018/19 marketing year was not successful, which is characterized by a slight decrease in growth rates. Such a tendency can lead to overstocking of grain and a decrease in both world market prices and the efficiency of national production [25].

Despite this, the share of stock and consumption volumes characterizing the availability of food remains at the level of 29.7-30.0%, and grain stocks of leading exporters make up about 17% of their consumption.

Wheat forms the dynamics of production and export of grain. Parameters of the global wheat market are presented in table 3.

Table 3. Production, supply and consumption of wheat, million tons

Indicators	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020 (forecast)	
					March	June
Production	736.8	761.4	760.0	730.4	767.0	769.5
Supply	962.5	1002.6	1022.4	1012.3	1035.2	1037.9
Consumption	715.5	735.7	738.5	746.4	756.9	755.0

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Trade	167.3	176.9	177.1	168.4	173.5	174.0
End of year stocks	241.3	262.4	281.9	268.4	278.0	280.8
Global indicator of stocks and consumption volume ratio,%	32.8	35.5	37.8	35.6	32.2	36.6
The ratio of major exporters' stocks to their use,%	20.6	18.5	14.9	20.1	18.7	19.1

Bread and bakery products are included in the diet of the population in almost all countries, so consumption is growing significantly and its growth exceeds production growth. The share of world stocks in the structure of consumption is much higher, and exporting countries accumulate almost 20% of world stocks.

Cereals are used not only for making bread, but also for livestock feed, it all depends on the quality of the raw materials produced. In some countries, depending on the

climatic conditions, it is not possible to improve the quality of grain (gluten, vitreousness, weed seed, etc.); therefore, low-quality grain is used for feeding cattle. Feed grain is intended for feeding farm animals. It has high nutritional properties and is the basis for a balanced diet of poultry, pigs, cattle and other species. Feed crops include oats, corn, wheat, millet, barley, soy, etc. The parameters of the global feed crop market are presented in Table 4.

Table 4. Production, supply and consumption of feed crops, million tons.

Indicators	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020 (forecast)	
					March	June
Production	1354.9	1397.9	1433.4	1405.3	1438.3	1398.5
Supply	1720.1	1778.1	1833.6	1821.9	1842.5	1804.4
Consumption	1340.2	1381.1	1411.3	1423.5	1447.0	1433.7
Trade	184.3	180.7	196.5	193.5	190.8	191.7
End of year stocks	380.2	400.2	416.6	405.8	390.5	369.4
Global indicator of stocks and consumption volume ratio,%	27.5	28.4	29.3	28.3	25.7	24.6
The ratio of major exporters' stocks to their use,%	12.8	14.1	15.0	14.9	14.2	12.3

The world market for feed crops is characterized by a large volume of production, supply and consumption of feed, as it completely depends on the level of development of the livestock industry in the world. The share of stocks in the structure of consumption is 25-27%, which characterizes the significant stability of world livestock. Countries - exporters

of feed grain can provide 12-14% of its global demand per year.

An important factor in the development of the global grain market is world prices. The dynamics of prices for red strong wheat FOB Gulf of Mexico is presented in Figure 2.

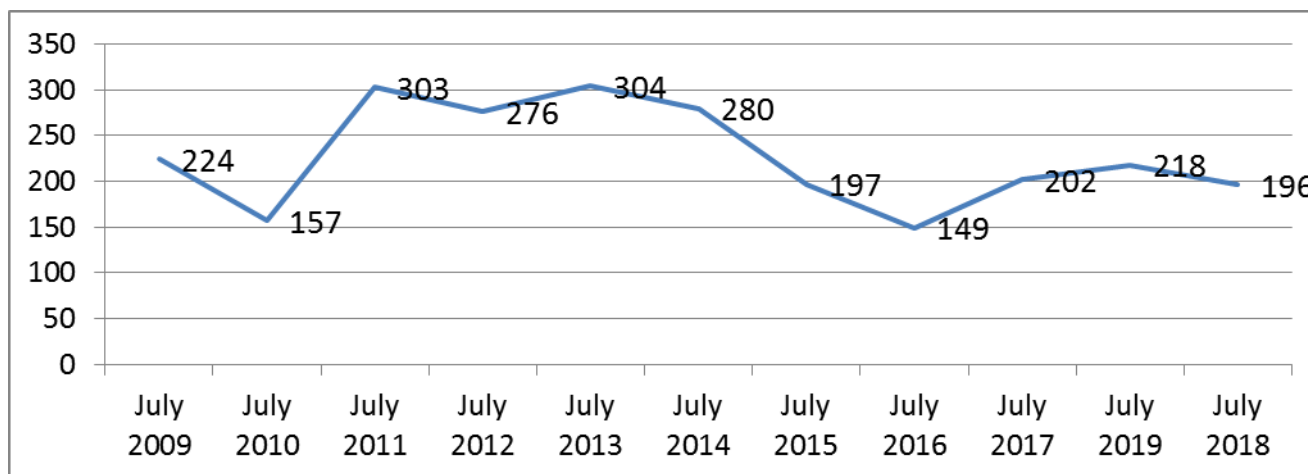


Fig. 2. Dynamics of average world wheat prices, USD / ton

The main wheat trade on the world market is through global commodity exchanges (Chicago Mercantile Exchange, Kansas City Commodity Exchange, Minneapolis Grain Exchange, London Commodity Exchange, Paris Commodity Exchange), where prices can change depending on many factors over the course of one day. Considering the graph of exchange prices, you can see the maximum and minimum values in the form of candles and other indicators of exchange statistics. In July 2019, the price of wheat is 196.21 US dollars per ton. Wheat of the Black Sea region (Russia, Ukraine, Romania and Kazakhstan) is trading at a lower price of

150-160 US dollars per ton.

In Russia, crops are cultivated in almost all regions and occupy about 60% of the total sown area of the country, and the average yield reaches 30 centners / hectare. Considering the sanctions imposed by Western countries against Russia, grain producers increasingly began to enter the world market with their products. Since 2017, Russia has entered the second revenge on wheat exports, which allows it to increase its export potential. The dynamics of grain production is presented in Figure 3.

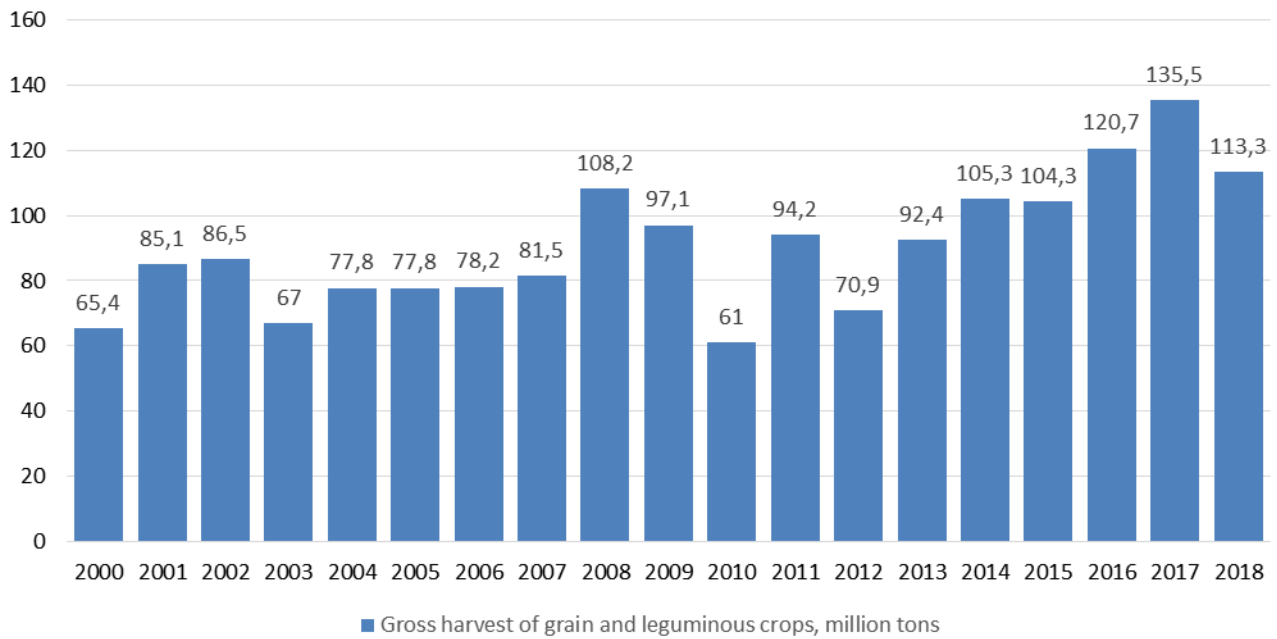


Fig. 3. Gross harvest of grain and leguminous crops (in weight after refinement), mln tons

During the period under study, the gross harvest of grain and leguminous crops in Russia increased almost 2 times and amounted to 113.3 million tons. It should be noted that after long stagnation and instability from 2000 to 2013, the gross harvest had a tendency to increase and in 2017 reached its maximum of 135.5 million tons. The positive trend was influenced not only by favorable climatic conditions, but also by the introduction of innovative technologies and state support.

An important component of the export potential of the grain market is the sown area and productivity. The dynamics of grain sown areas in Russia is shown in Figure 4. The grain sown area is 79,634 thousand ha, with the share of wheat in crops being 34.2%, barley - 10.4%, buckwheat - 1.3%, corn - 3,0%. The dynamics of the grain sown area characterizes the stable growth since 2012, which is a factor in the development of the export potential of the grain industry.

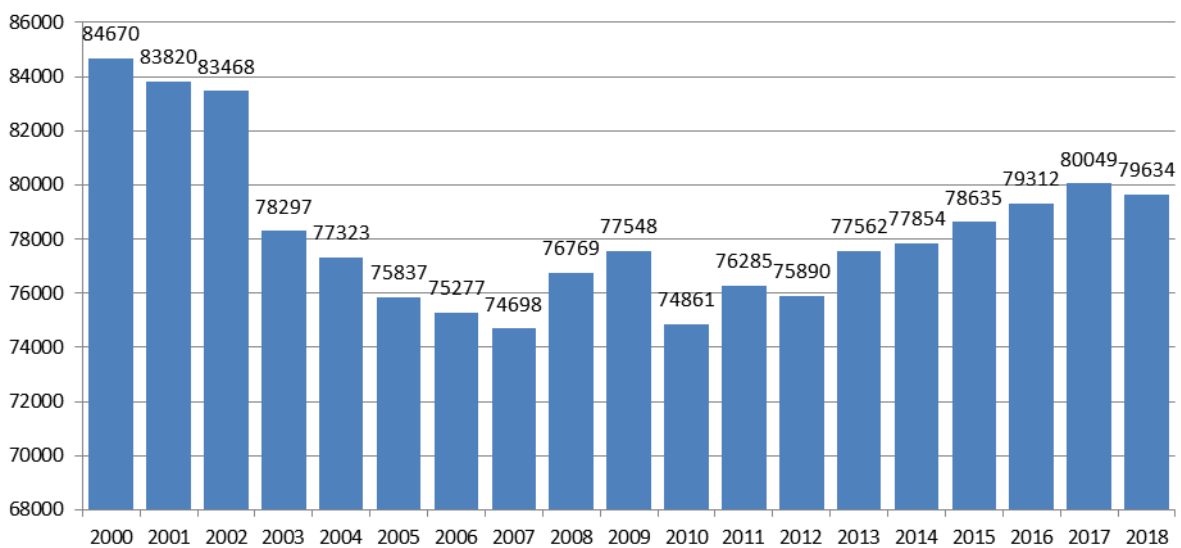


Fig. 4. Dynamics of total grain sown areas in Russia, thousand hectares

Export potential significantly depends on the yield, which is the result of the use of innovative technologies in the country's grain industry. An analysis of the grain and leguminous crops production in Russia has shown that under favorable climatic

conditions, grain can be grown throughout the country, and both the area of crops and the yield have a steady upward trend, which is to provide the grain industry with a powerful incentive to enter world markets (Figure 5).

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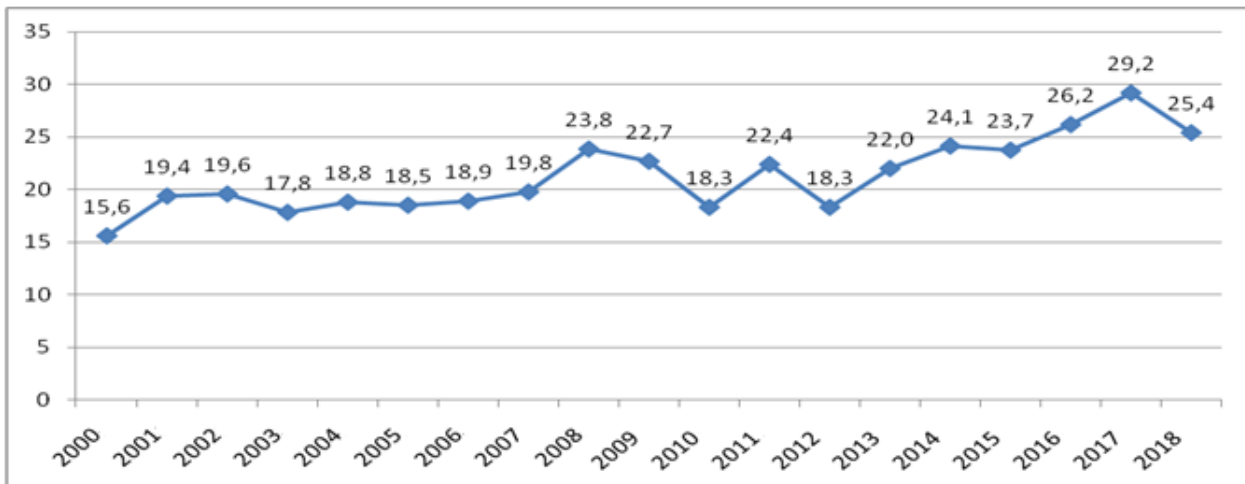


Fig. 5. Dynamics of the yield of grain and leguminous crops in Russia, centner / hectare

The main objective of the development of the agricultural grain industry is to increase export volumes, which will not only strengthen the food security of the Russian Federation, but also provide the necessary level of income.

At present, Russia occupies the third place in wheat exports with an indicator of 30.1 million tons, which is 5.0% higher than the indicator of the last 2017/18 marketing year. The main share of grain exports is winter wheat - 80%, the rest is

barley and corn. The price for Russian class 4 wheat has made 220 to 240 US dollars per ton.

Analysis of statistical data shows a steady increase in exports of wheat by 45.8%, barley by 41.3%, oats by 45.7%, corn by 50.2%, rice by 115.9%, as well as other grain crops. It should be noted that in 2017, grain exports reached a historic maximum and amounted to over 43 million tons (Figure 6).

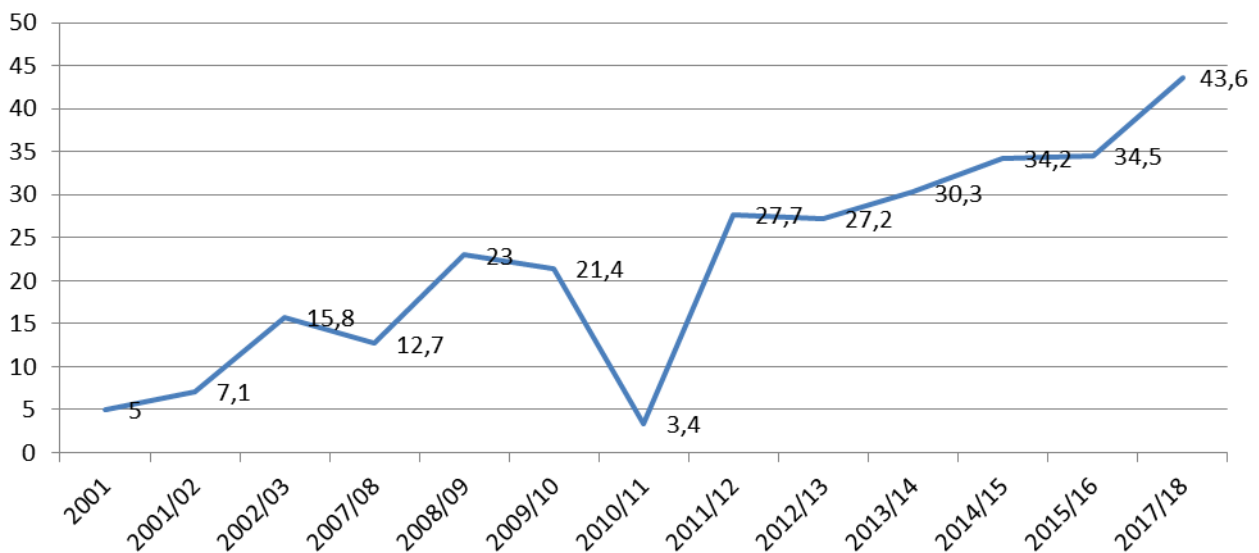


Fig. 6. Export of Russian grain, million tons

The factors that have influenced the rapid growth of grain exports from Russia are as follows:

Factor 1 – a large crop of wheat (85.9 million tons), corn (13.2 million tons) and barley (20.6 million tons) in 2017;

Factor 2 – introduction of preferential tariffs for the transport of grain by rail from remote grain producing regions of the Central Federal District, the Urals, Siberia to the ports of Novorossiysk, Tuapse, Port Kavkaz and Nakhodka;

Factor 3 – the growth of state support for agriculture, provided for by the State program for the period of years 2013 to 2020;

Factor 4 – increase in export prices for Russian grain;

Factor 5 – development of export infrastructure. The capacity of Russian ports is more than 5 million tons of grain per month, which helps to avoid overstocking, spoiling of products and ensures timely fulfillment of contracts.

Since 2010, Russian grain has been exported to many countries around the world. The main buyers are traditionally the countries of North Africa and the Middle East - Saudi Arabia, Iran, Tunisia, Morocco, and Egypt. Subsequently, Italy, Spain, Greece, and Israel have joined them. The largest buyer of Russian grain is Egypt, which in recent years has increased imports by 30% and bought more than 8.5 million tons from Russian producers. Turkey has increased grain imports from Russia by 31%, which amounts to 7123 thousand tons. In recent years, Iran has shown interest in Russian wheat and barley. In the 2017/18 marketing year, Iran bought 2,461 thousand tons of Russian grain, which is 57% more than in previous years.

Saudi Arabia occupies the fourth place among the largest importers, having acquired 2117 thousand tons of grain over the past year, which is 80% higher than last year.

Among the importer countries, Sudan, Lebanon, Nigeria, Indonesia, and Azerbaijan have shown good dynamics

IV. CONCLUSION

The study has yielded the following results and conclusions:

- 1) the study has shown that an important factor in the development of the Russian economy is its grain market export potential;
- 2) cereal production in Russia is a competitive business and is a priority in the development of agricultural exports in the medium term;
- 3) the development of the Russian grain market export potential is based on an increase in the yield of grain crops, an increase in the quality of products and the development of export logistics.

The authors believe that for the development of grain exports from Russia to the world market the following is necessary:

- updating the material and technical base of grain-producing industries, introducing innovative resource-saving technologies, developing export infrastructure, and increasing labour productivity in the industry;
- improving the regulatory framework of the agro-industrial complex in terms of the development of grain producing and grain processing companies;
- using foreign experience for export development;
- active promotion of grain products in partner regions of the world (Near and Middle East, South and Southeast Asia);
- ensuring harmonisation of technical regulations of the Russian Federation and the EU, which will facilitate the access of domestic producers to neighboring markets.

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