Ensuring Sustainable Development of the Agro-industrial Complex of the Republic of Bashkortostan

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Abstract: The article examines the economic aspects of the state of the agro-industrial complex on the example of the Bashkortostan Republic. There is a tendency of reducing domestic production in a number of socially significant agricultural products of animal husbandry and crop production. Experts note Russia's high dependence on food imports. The growth rate of imported food products is significantly ahead of the growth rate of domestic production. Import substitution is a vital factor in restoring the country's food independence and ensuring Russia's economic security. Currently, the level of food security in Russia is critical. Processing enterprises of the food industry are not provided with high-quality raw materials of domestic production. In Russia, an extremely important task is to increase the level of food security through the production of domestic safe food products based on animal husbandry, poultry and crop production. Ensuring the food security of the country is aimed at satisfying the population of the country with food in an amount sufficient to maintain the normal process of life. The study is an analysis of the existing problems associated with ensuring food security and sustainable development of enterprises in the agro industrial complex of the region. The Republic of Bashkortostan, having a favorable geographical location, attractive conditions for agricultural production, is significantly inferior in terms of the efficiency of the organization and production of agricultural products.

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1 INTRODUCTION

The dynamic development of the national economy cannot be imagined without the intensive development of agriculture and the entireagro industrial complex (AIC), which is the basis for the implementation of the country's Food Security Strategy.

Increase in level of food supply is relevant and important for each region of the country and is inseparably linked with the general development of agriculture and agro-industrial complex (agrarian and industrial complex) of each territorial subject of the Russian Federation. Continuous monitoring allows us to identify risks in the development of agriculture and the regulation of markets for agricultural products, raw materials and food in the republic. All this made it necessary to study these issues and was reflected in the chosen topic.

The mechanism for ensuring food security is aimed at satisfying the population of the country with food in an amount that is sufficient to maintain a normal life process. An important indicator of ensuring food security is the share of domestic food in the total consumption in the country. Food security in Russia is considered to be achieved if the annual own production of vital food products provides at least 80% of the annual needs of the population. In Russia, dependence on food imports remains high (Bayguzina et al., 2019). The dynamics of food imports still significantly exceeds the dynamics of growth in domestic food production.

The problem of food safety for consumers has also become especially acute recently, which is caused by an increasing the supply of substandard, falsified and hazardous products to the food market. The likelihood of an embargo on imports of food and raw materials for its production due to economic, political

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and other circumstances should also be taken into account. Therefore, import substitution is a vital factor of restoring the country's food independence, one of the most important strategies for economic development and economic security of Russia. Import substitution in Russia is an important tool of state regulation aimed at ensuring the protection of the interests of domestic agricultural producers of goods and the formation of an effective agricultural market. Import substitution lags behind in a number of goods, including dairy products.

The production of domestic food products cannot be considered independent if it is based on the using of imported agricultural raw materials, imported feed and imported ingredients for the manufacture of compound feed. According to this factor, the level of food security in Russia should be as regarded as critical because it is lower than 60%.

Experts note that food security in Russia is not ensured for beef meat, as well as for dairy products. Consumption of essential foodstuffs by the Russia population does not meet rational standards for vegetables and melons, fruits and berries, milk and dairy products.

The basis of the country's food security is the stable functioning of agricultural enterprises and their economic security. The issues of ensuring the economic security of the agro industrial complex as an obligatory element of the food security and national security of the country are relevant and timely.

2 RESEARCH METHODOIOGY

Consideration of the current state of agriculture was carried out on the methodology based on the statistical research in agriculture, using indicators, which reflect the agricultural products production, resource provision for the production and sale of agricultural products, crop yields, etc. Statistical methods in agriculture take into account the peculiarities of the social-economic and technological nature of the reproductive processes taking place in it. The use of the statistical apparatus in analytical research in agriculture made it possible to identify the processes that are actually occurring in this sector of the economy, and development trends.

3 RESEARCH RESULTS

The constituent entities of the Russian Federation and municipalities solve the problem of food security in the format of using the resources of the economic space of their own territory.

The agro-industrial complex has a particular importance in the economy of the Bashkortostan Republicand isthe one of the main economic complexes that determine the reproductive processes and conditions for maintaining the life of the region. The level of production of the main types of agricultural products in the Bashkortostan Republic tends to increase, which is reflected in Table 1.

Table 1: Dynamics of the main indicators of the agro-industrial complex of the Bashkortostan Republic.

Indicators	2017	2018	2019	2020	2020 to 2019, %
Gross agricultural output, billion rubles	157	155	161	177	109.9
Agricultural production index, %	103.8	98.2	101.6	103.6	102.0

The volume of gross agricultural output of the republic, despite the pandemic and economic difficulties, in 2020 increased by 9.9%. At present, the republic's agriculture forms more than 7% of the gross regional product (Official website of the Government of the Bashkortostan Republic, 2020). The problem of food shortages for a growing population can be solved by increasing agricultural production in the regions.

According to the results of 2020, the volume of gross agricultural products in the region exceeded 177 billion rubles. The trend of the agricultural production index is steadily rising (Figure 1).

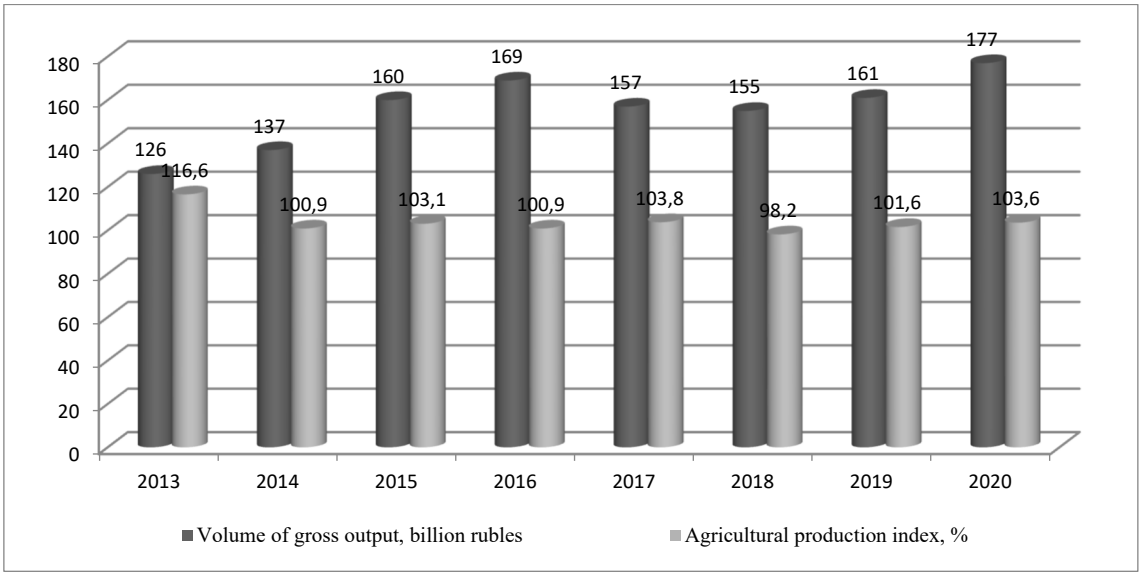

Figure 1: Dynamics of indicators of agro-industrial complex of the Republic of Bashkortostan.

The Republic of Bashkortostan is the largest manufacturer of livestock products. In 2020, the breeding base of animal husbandry of the republic was represented by a regional information and breeding center, a milk quality control laboratory, cattle breeding farms of five breeds: black-moth, black-moth Holstein, Simmental, Bestuzhev, and Ayrshire. Table 2 presents data of the number of farm animals in farms of various forms of ownership, which indicate the dynamics of the growth of cattle by 3% in comparison with 2019. A decrease in the number of livestock in pigs is observedby 6.8%, horses – by 6.9%, what is associated with the shortage of working capital of agricultural producers, who are forced to sell their livestock in order to pay urgent debts on loans, wages, taxes, as well as to prepare for spring field work.

Table 2: Livestock of farm animals in the Bashkortostan Republic, thousand heads (Official website of the Ministry of Agriculture of the Bashkortostan Republic).

Indicators	2017	2018	2019	2020
Cattle	1028.8	975.2	940.3	968.5
including cows	397.0	394.4	396.1	395.5
Pigs	468.1	429.3	504.3	470.2
Sheep and goats	820.9	762.0	674.8	705.1
Poultry	10197.9	10166.6	10677.3	12794.7
Horses	112.0	112.3	119.5	111.2
Bee colonies, thousand pieces	335.9	325.5	299.8	378.5

Analysis of the production of basic livestock products in the region shows the dynamics of growth in meat, including beef, pork, lamb and poultry (Table 3). However, for such important items of food products as milk and eggs, in 2020 there was a significant reduction in production, respectively, by 12.8% and 15.8%. The production of honey, as a historically national product in the republic, also decreased by 8.5%. Since 2017, the production of wool in the republic has been reduced. If 2085 tons of wool were produced in 2017, then in 2020 – 1869 tons or less by 10%.

Table 3: Production of basic livestock products in the Republic of Bashkortostan (thousand tons).

	2017	2018	2019	2020
Livestock and poultry for slaughter (in live weight)	409.1	400.1	403.2	662.8
cattle	189.6	186.3	192.1	193.6
pigs	96.1	96.0	92.0	95.7
sheep and goats	25.9	25.5	22.9	23.0
poultry	86.8	81.5	86.8	87.2
Milk	1609.6	1623.9	1641.1	1431.8
Eggs, million pieces	1063.8	1038.6	1040.3	876.0
Honey, tons	5390	5461	5500	5030
Wool (physical weight), tons	2085	2087	1849	1869

One of the reasons for the reduction in the production of milk and eggs in the republic, which are

socially significant food products of the population, is a decrease in the productivity of livestock and poultry because of violations of technological, agricultural and breeding measures. In particular, according to Table 4, it can be seen that in 2020 the average annual milk yield per cow decreased by 15.9%, the average annual egg production of chickens fell by 2.1%.

Table 4: Productivity of livestock and poultry in agricultural organizations.

	2017	2018	2019	2020
Average annual milk yield per cow, kg	4963	5262	5469	4600
Average annual egg production of laying hens, pcs	295	296	296	290
Average annual shearing of wool per sheep (in physical weight), kg	2.2	2.0	2.4	2.2

There are six agro-climatic zones in Bashkortostan, from hot and arid (Trans Ural) to cold and humid (mountain-forest zone) conditions taking into account for the agricultural technologies selected for the production of agricultural products (Ajupov et al., 2018). The Republic of Bashkortostan belongs to the zone of risky agriculture, the risk of unforeseen circumstances of a natural nature is constantly present. Growth points in crop production are crops such as rye, barley, wheat, oats and buckwheat (Table 5).

In 2020, there is a decrease in the yield of potatoes, vegetables, sunflowers, legumes and a number of other crops, which is due to non-compliance with the agricultural technology system, which provides highly productive varietiesfor the selection, tillage, the use of fertilizers (organic, mineral), the quality of sowing, plant protection, post-harvest processing, storage of products (Kurbanaeva, 2018).

Table 5: Yield of agricultural crops, centners per hectare of area (Official website of Rosstat of Russia).

	2017	2018	2019	2020
Grain (in weight after processing)	21.8	18.6	19.8	22.8
rye	20.5	20.4	19.6	24.0
wheat	22.7	19.6	20.2	23.4
barley	24.3	18.9	21.2	21.7
oats	21.3	16.4	17.3	17.9
millet	15.7	14.0	12.4	13.7
buckwheat	10.3	9.7	11.2	12.4
legumes	18.6	15.2	17.3	16.2
Sugar beet (factory)	310.4	317.5	381.3	450.2
Sunflower seeds	11.9	14.5	14.3	13.9
Potatoes	123.2	166.4	176.1	168.4
Vegetables	209.8	226.4	218.6	215.1
Corn for silage, green forage and haylage	187.9	200.8	230.9	221.5
Fodder root crops (including sugar beets for livestock feed)	218.6	209.9	211.4	207.6
Hay of perennial grasses	21.1	18.2	17.3	19.1

As a result, the harvest of sugar beet in the republic decreased by 35.0%, potatoes - by 18.0%, sunflower - 14.9%, vegetables - 4.5%, corn - 1.2%. Up to 20% of grain is lost during the harvesting phase due to the low efficiency of outdated equipment (Table 6).

Table 6: Gross harvest of agricultural crops in the Republic of Bashkortostan, thousand tons.

Indicators	2017	2018	2019	2020
Grain (in weight after processing)	3783	3059	3247	4010
rye	318	345	230	388
wheat	1843	1436	1464	1868
barley	912	744	938	993
triticale	35	30	13	27
oats	367	246	276	262
millet	4	2	6	5
buckwheat	129	80	63	68
corn for grain	57	37	65	56
legumes	118	139	192	193
Sugar beet (factory)	1590	1426	1802	1171
Sunflower seeds	274	324	356	303
Potatoes	649	852	852	699
Vegetables	301	313	290	277
Corn for silage, green fodder and haylage	1413	1314	1302	1287
Fodder root crops (including sugar beet for livestock feed)	44	29	30	32
Hay of perennial grasses	767	620	549	614
Hay of annual grasses	87	76	75	83

The study of the dynamics of production of certain types of crop production in the Republic of Bashkortostan provides the basis for conclusions on

the need for additional measures in relation to agricultural products, for which there is a deterioration in indicators.

Modern fodder production is the most large-scale and multifunctional branch of agriculture, it plays a crucial role not only in animal husbandry, but also in the management of agricultural land. The development of agriculture and ensuring the country's food security largely depend on the level of scientific and technological progress in fodder production. In the structure of costs for the production of livestock products, 50-70% are the costs of feed; therefore, the profitability of animal husbandry directly depends on their cost (Bulatjva, 2018). As follows from table 5, the production of corn for silage decreased by 4.1%, fodder root crops - by 1.8%.

The main condition for increasing the economic efficiency of production, as well as the dynamic development of agriculture in the Republic of Bashkortostan is the creation of a decent material and technical base.

It should be noted that investments in 2020 for the renewal and replenishment of agricultural machinery increased after a long period of reduction in investments in the modernization of agricultural production in the region (Table 7).

Table 7: Purchase of agricultural machinery in the Republic of Bashkortostan.

Year	Quantity, units		Investment amount, billion rubles
	Total	Including imported equipment	
2013	3721	405	4.6
2014	2620	301	4.1
2015	2145	202	2.8
2016	2185	176	3.5
2017	2230	272	4.0
2018	1961	233	4.2
2019	2700	357	6.5
2020	2606	364	7.7

In 2020, the amount of investments for the purchase of agricultural machinery in the republic amounted to 7.7 billion rubles, which is higher than the amount of investments in 2019 by 1.2 billion rubles, or 18%. Subsidies from the republic's budget amounted to 1.5 billion rubles, or almost a quarter of the direct costs of the agricultural sector for the purchase of agricultural machinery.

In 2020, agricultural producers of the Republic of Bashkortostan purchased more than 2.6 thousand units of machinery and equipment (Figure 2). The share of imported agricultural machinery purchased was only 14%. Mainly purchased equipment for the agro-industrial complex of domestic production. The technical park of the region was replenished with grain harvesters, tractors of various classes, tillage and sowing machines and other equipment.

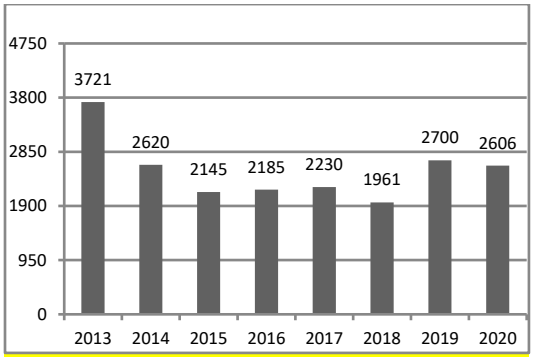

Figure 2: Purchase of agricultural machinery in the Republic Bashkortostan, number of units.

Under leasing agreements, agricultural equipment worth 2.3 billion rubles was purchased in the republic, including through the Rosagroleasing organization - by 1.7 billion rubles. The company "Rosagroleasing" delivered 503 units of equipment to the republic. Small business entities issued transactions for the purchase of equipment in the amount of more than 400 million rubles, for which they purchased 200 units of equipment. State support for agricultural producers is expanding. State support funds are allocated within the framework of the national project "Creation of a system of support for farmers and the development of rural cooperation," implemented in the region for the second year.

The state program for the development and support of agricultural sectors of the region includes dairy husbandry, crop production, meat breeding; ensuring processing, storage and delivery of manufactured products; promotion of investment activities, modernization of agro-industrial complex facilities. Technical and technological modernization of the agro-industrial complex is one of the priority areas of industry development in the Republic of Bashkortostan.

4 DISCUSSION OF THE RESULTS

To assess and monitor the situation with the development of the agro-industrial complex in the regions, a rating was developed by the Institute for Integrated Strategic Research (ICSI), which allows tracking the dynamics of indicators in agriculture

(Loginov, 2019). The rating allows you to assess the state of the agro-industrial complex in individual regions and the scale of imbalances based on an integral indicator, which takes into account a set of factors that affect productivity and effectively of industry. Table 8 shows the first twenty regions of Russia.

Table 8: Rating of the efficiency of functioning of the agro-industrial complex of Russian regions for 2020 (Official website of the news "RBC.ru").

Rating	Subject of the Russian Federation	Integral rating	Rating	Subject of the Russian Federation	Integral rating
1	Krasnodar region	100.00	11	Tula region	65.78
2	Moscow city	89.06	12	Lipetsk region	65.17
3	Voronezh region	84.00	13	Bryansk region	62.72
4	Republic of Tatarstan	77.66	14	Kaluga Region	60.79
5	Belgorod region	73.65	15	Irkutsk region	59.50
6	Rostov region	73.18	16	Volgograd region	59.04
7	Samara Region	70.50	17	Stavropol Territory	58.31
8	Moscow region	69.83	18	Republic of Bashkortostan	57.18
9	Kaliningrad region	68.30	19	Republic of Chuvashia	56.76
10	Kursk region	66.86	20	Penza region	56.45

The leaders of the rating, occupying the first three places, were Krasnodar territory, the Moscow city and the Voronezh Region. Consequently, the first alarming conclusion is that the Republic of Bashkortostan, which has significant agricultural potential, did not even enterthe top ten of the rating. Although the republic differs from many constituent entities of Russia in favorable natural and climatic conditions, developed infrastructure, effective mechanisms of state support and support for investment projects, fertile lands. The export volumes of agricultural products of the Republic of Bashkortostan also remain low (Table 9). The total volume of exports of agricultural products from the republic in 2020 amounted to only 148.6 million US dollars (Official website of the Government of the Bashkortostan Republic, 2020).

Table 9: Main indicators of export of agricultural products of the regions in 2020.

By types of products	Export, million USD			
	Krasnodar Territory	Moscow	Voronezh Region	Republic of Bashkortostan
Fat and oil products	403.0	113.1	136.4	78.9
Cereals	1662.5	2055.6	138.7	16.7
Fish and seafood	1.7	61.5	0.3	-
Meat and dairy products	35.7	124.9	5.8	4.3
Food and processing industry products	209.8	574.0	123.5	24.8
Other agricultural products	220.5	408.9	60.9	23.8
Grand total	2533.2	3338.0	465.5	148.6

5 CONCLUSION

Thus, the problem of agricultural production is one of the main ones in the social-economic development and strengthening of the food security of the country and regions. The Bashkortostan Republic having a favorable geographical position, attractive natural resources and conditions for agricultural production, is inferior in terms of the efficiency of organization and production of agricultural products. Food processing enterprises are not sufficiently provided with quality raw materials of domestic production, produced according to Russian standards and supplied for processing that based on competitive prices. In terms of the level of processing of agricultural products, the republic is only in sixth place in the Volga Federal District.

A significant reserve for improving the performance of the agricultural market is contained in the improvement of the warehouse and logistics link in the region, the unsatisfactory state of which leads to losses of about 15% of agricultural products on the way from producers to consumers, while in Europe and the USA these losses amount to only 1-2%.

It is necessary to develop investment projects in the agro-industrial complex in strategic directions for the region: deep grain processing and the development of the processing industry, import substitution, increasing export volumes through the expansion of preferential lending to export-oriented agro-industrial enterprises, subsidizing part of the product's transporting costs,providing partially reimbursement for certification. State support should provide stimulation and attraction of investments in the development of not only large agricultural holdings, but also small forms of business - farms and cooperatives.

The increase in the level of food supply of the region directly depends not only on the constant monitoring of the development of agriculture and the regulation of markets for agricultural products, raw materials and food in the republic, but also on the determination of strategic directions for the development of agriculture and agriculture, as well as on the implementation of targeted programs and investment investments in modern projects.

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