

Export potential of organic production in the providing financial and economic safety of the state

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Abstract. The agricultural sector has been one of the dynamically developing sectors of the economy for a number of years. The volume of Russian exports of organic products in 2020 amounted to 1% of the total volume of exported products. In terms of the size of agricultural land suitable for the production of organic products, Russia ranks fourth in the world, in terms of exports of organic products, Russia is in the twenty-first place. The purpose of the study is to develop a set of recommendations to improve the efficiency of production and export of organic products of the agricultural sector of the economy within the framework of ensuring the economic security of the state. The federal-level project “Export of agricultural products” provides for an increase in the export of organic products with high added value. The program of effective involvement in the turnover of agricultural lands and the development of the reclamation complex for 2022-2031 justifies the involvement in the turnover of 13.2 million hectares of unused land. On average, over 10 years of effective implementation of the state program for the involvement of agricultural lands in the turnover and the development of the reclamation complex of the Russian Federation, the costs of the organic component will amount to 9 billion roubles./year to 11 billion roubles/year, revenue from grain sales – 347 billion roubles /year, profit varies from 274 billion roubles./year to 276 billion roubles/year. The proposed measures to increase the export potential of organic products of the Russian Federation contribute to the growth of total budget revenues from the export of organic products by 1.3%, non-oil and gas revenues – by 4.3%.

1 Introduction

The national security of Russia, which is the prerogative of the development of the state, largely depends on the status of the economic sector, the trends of its ontogenesis. The financial and economic component should be attributed to the basic fundamental element of national security, on which the material, financial support and dynamics of the development

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of other components depend. Financial and economic security, in turn, being a component of many elements, is a heuristic system designed to facilitate the solution of multi-criteria tasks in the field of food supply, development of the technical and technological base, energy, information, and other spheres. Food security is a fundamental element of economic security, since the citizens of a country should at any time have physical and economic access to safe food in sufficient quantities to lead an active and healthy lifestyle.

Official statistics data for recent years indicate an increase in the volume of exports of agricultural sector products. According to the Federal Customs Service of Russia, in 2018-2019, an increase in exports of agricultural products was recorded by 20% compared to 2017, the value of this indicator amounted to \$ 21.6 billion and \$ 25.7 billion, respectively. The volume of exports of agricultural products in 2020 amounted to 30.7 billion dollars [1].

Being one of the dynamically developing branches of the national economy, the agricultural sector demonstrates an increase in the production of basic types of products from year to year. Full self-sufficiency has been achieved for the main types of agricultural sector products and the task of import substitution in the context of food security of the state has been completed [2].

The largest volume in the share of exports is occupied by products with low added value. Grain is a good example is the largest export position. In terms of grain exports, Russia occupies a leading position; in 2020 it accounted for 33% of all food supplies abroad. The volume of exports of cereals and cereals significantly exceeds their share in the volume of exports of grain processing products.

The federal project "Export of agricultural products", one of five federal projects approved within the framework of the national project "International cooperation and export", sets the task of producing and exporting products of the agricultural sector of the economy with high added value [3].

One of the most demanded in the export potential is organic products of the agricultural sector. Organic products produced according to the principles of biological (ecological, organic) agriculture represent the products of the agricultural sector obtained without the use of artificial (synthetic) fertilizers, feed additives, genetically modified organisms. The production process is based on the use of organic fertilizers, pest and weed control, scientifically based crop rotations, minimal processing of arable land with heavy machinery, and other ecological techniques [4, 5].

Currently, agricultural lands occupy 403.2 million hectares, which is 23.6% of the total land area, 104.4 million hectares are occupied by reserve lands, which is 6.1%.

At the state level, a programme has been developed for the effective involvement in the turnover of agricultural land and the development of a reclamation complex for the period from 2022 to 2031. The state program sets an ambitious task - to involve 13.2 million hectares of unused land in the turnover. Synthetic chemical fertilizers have not been used on these lands for 20 years or more. This fact makes it possible to use the introduced lands in the production of organic products of plant and animal origin [3].

According to the statistics of the European Commission, the volume of Russian exports of organic products in 2020 amounted to 1% of the total volume of exported products. In terms of the size of agricultural land suitable for the production of organic products, Russia ranks fourth in the world, in terms of the export of organic products, Russia is in the twenty-first place. Thus, the potential of production, domestic use, as well as export of organic products of the agricultural sector is significant [6].

The purpose of the study is to develop a set of recommendations to improve the efficiency of production and export of organic products of the agricultural sector of the economy in the framework of ensuring the economic security of the state.

2 Research methodology

The methodological apparatus of the research is based on monographic, statistical-economic and abstract-logical methods. The study and generalisation of the works of leading domestic and foreign scientists devoted to financial and economic security, food security of the state, production of organic products, customs export procedures were carried out.

When analysing the technological processes of production and application of organic fertilizers, as well as identifying priority areas for their use, a computational and constructive research method was applied. When developing forecast scenarios for the production and export of organic products, the method of correlation and regression analysis and the method of forecast scenarios were used. Methods of economic and mathematical modelling are used in the development of a set of models that contribute to improving the efficiency of technological processes of production and application of fertilizers at various levels of their implementation.

Methods of production of organic livestock products are based on loose content, refusal to use synthetic feeds, food additives and hormonal preparations. Organic waste from the livestock industry is the basis of a closed production cycle for obtaining organic products.

3 Research results

According to the Moscow Institute of Organic Agriculture, there are about 40 million hectares of fertile land in the Russian Federation, on which fertilizers have not been used for a long time. The specified amount of land is more than the areas used for the cultivation of organic products worldwide. According to the forecasts of specialists of the Institute of Organic Agriculture, the introduction of additional fertile lands into organic production will allow Russia to occupy up to 20% of the volume of all exported products in the export niche of the world market of organic products by 2025.

Compliance with the principles and methods of production and sale of organic products is important at this stage. Here, the task of providing agricultural land with organic fertilizers comes first [6].

The raw materials for the production of organic fertilizers are organic waste of livestock. The last 30 years of livestock development have been marked by a reduction in the number of farm animals (see Table 1). The most significant rates of reduction in the number of animals in sheep and goat breeding - 92%, the number of horses decreased by 89%, cattle – by 83%. The rate of reduction in the number of pigs was 25%, poultry – 7% [7].

Table 1. Livestock in agricultural organisations of the Russian Federation, ths. Heads.

Indicator	Period (year) under analysis							Changes	
	1990	1995	2000	2005	2010	2015	2020	ths. heads	%%
Cattle	47177	27725	16509	11064	9257	8448	8124	-39053	-83
Cows	15322	10455	6487	4282	3713	3387	3271	-12051	-79
Pigs	31238	14714	8518	7316	10816	17602	23311	-7927	-25
Sheep and goats	42101	13508	4580	4281	4427	4347	3238	-38863	-92
Horses	2344	1524	742	464	396	311	251	-2093	-89
Poultry	465269	259865	205151	241335	348045	445048	432474	-32795	-7

In the production and processing of organic animal waste, they are divided into groups depending on the technological process of waste collection at the animal husbandry facility and consistency (see Table 2).

Table 2. Production of organic waste and fertilizers in the Russian Federation.

Type of organic waste/fertilizers	Period (year) under analysis							Changes	
	1990	1995	2000	2005	2010	2015	2020	ths. tons	%%
Organic waste production, ths. tons									
solid waste	558929	308503	176778	120564	102437	93863	88369	-470560	-84
semi-liquid waste	503258	294887	178817	126474	115144	113222	109167	-394092	-78
liquid waste	114018	53705	31091	26705	39479	64247	85086	-28932	-25
Organic fertilizers production, ths. tons									
SCOF	637312	362034	213357	148223	130548	124251	118521	-518791	-81
LCOF	449376	238807	137158	99043	100941	120565	138108	-311268	-69
COC	462957	261444	157431	114884	115967	133102	145690	-317268	-69

Designations: SCOF – solid concentrated organic fertilizers; LCOF – liquid concentrated organic fertilizers; COC – concentrated organic compost

The data in table 2 indicate a reduction in the production of organic waste and organic fertilizers by all types. As an example, a concentrated form of organic fertilizers is considered, which allows them to be applied with a dose of 1-4 t/ha (versus 40-60 t/ha when using traditional fertilizers). In this regard, the availability of organic fertilizers for agricultural crops is decreasing similarly to the decrease in the number of animals and the volume of production of organic waste and fertilizers.

The data on the actual fertilization of sown areas since 2010 demonstrate a steady growth dynamic. In 2010, the share of the area fertilized with organic fertilizers in the entire sown area was 7.5%, in 2020, 9.4%. The application of organic fertilizers per hectare of sown area is increasing: from 1.1 tons in 2010 to 1.6 tons in 2020. However, the values of the considered indicators are insignificant for restoring and increasing the fertility of agricultural soils, as well as for obtaining high-quality environmentally safer products, organic products of the agricultural sector [7].

In the situation of processing the full volume of organic waste received in 2020, the level of organo-sufficiency with the use of solid concentrated organic fertilizers increased to 37.06% with full compliance with the application doses, that is, with the prospect of full restoration and improvement of soil fertility. That is, more than 1/3 of agricultural lands would receive organic fertilizers of appropriate quality and in full.

In the production of liquid concentrated organic fertilizers with the processing of the full volume of organic waste, the level of organic availability was 43.19%, in the production of concentrated organic compost, 45.56%.

The most significant item of production and export of products of the agro-industrial complex are grain crops. In 2020, the export of agricultural products amounted to \$22993.55 million, of which \$8210.30 million accounted for the export of wheat grain.

The collected grain is subject to declaration. Mandatory document for wheat, cucumbers, barley, oats, etc. is a declaration of grain compliance with Technical regulations (Figure 1). Technical regulations of the Customs Union TR CU 015/2011 "On Grain Safety" indicate that the form of grain conformity assessment is state control over its processing, storage, transportation, sale and disposal [8]. First of all, it is necessary to verify the quality of the declared grain. Experts check grain according to the following indicators: organolep-

tic parameters of grain (colour, shape, etc.), humidity, content of harmful substances, indicators of infection with pests, fungi, smut, etc., indicators of toxic elements, pesticides, mycotoxins, etc. [9]

The declaration of conformity of grain must be registered in the State Register. At the same time, the labelling rules are observed (the EAC mark is applied to consumer packaging or accompanying documentation if grain is transported in bulk). The validity period of declarations is determined by the chosen scheme: for example, for mass-produced grain, up to 3 years.

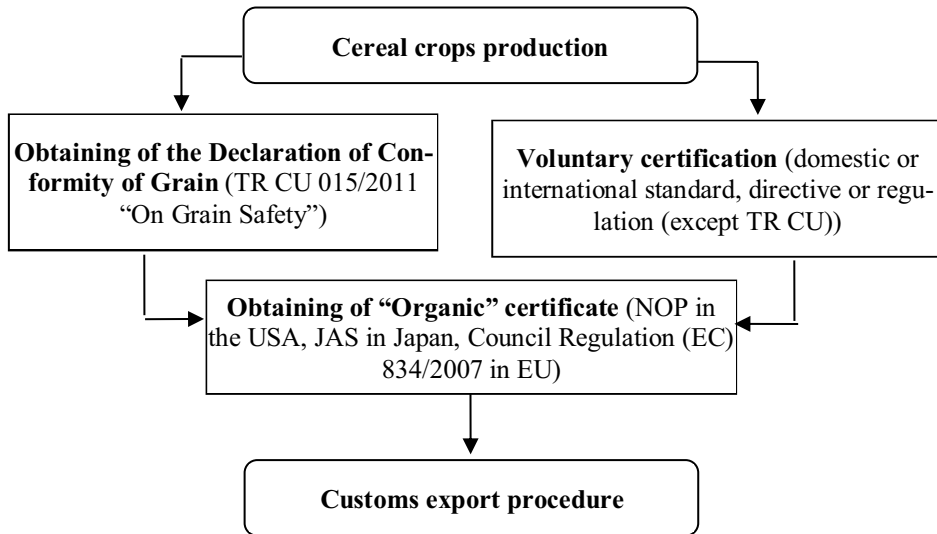


Fig. 1. The enlarged scheme for the production and export of organic products with an indication of the regulatory framework for the implementation of processes.

The next step in the procedure of registration of organic products is certification. The certificate for grain is issued only in addition to the declaration. Certification is provided for the export of grain products, participation in a tender, state order, conclusion of a long-term contract. The certificate is issued according to a domestic or international standard, directive or regulation (except TR CU).

When declaring grain products, the agricultural producer has the right to choose a laboratory for evaluating grain samples, and is personally responsible for the document provided. The certificate for grain enjoys great confidence in the market, because the certification body that conducted the tests is responsible for it [10, 11].

The export of grain products to the USA, Japan or the countries of the European Union in the "organic" category is possible only if there is a certificate establishing compliance with interstate or national standards. For example, for exports to America, certification is carried out through the national organic program of the USA (NOP), to Japan, certification is carried out by means of the national Organic Standards of Japan (JAS), to the countries of the European Union, on the basis of the regulation on organic production, Council Regulation (EC) 834/2007 [12, 13].

The customs procedure of export takes into account not only the direct movement of goods across the customs border - export, but also the procedure of temporary export of goods and processing outside the customs territories of the Russian Federation. The customs procedure of export provides for the placement of goods under the conditions:

- export customs duties have been paid, if there are no benefits for the payment of export customs duties;
- prohibitions and restrictions have been observed;
- a certificate of origin of goods has been submitted regarding the goods included in the consolidated list of goods formed by the Customs Union Commission in accordance with international treaties of the member states of the Customs Union regulating the application of export customs duties against third countries.

According to the Customs Code of the Eurasian Economic Union, Article 139 “Content and Application of the Customs Procedure of Export”, goods placed under the customs procedure of export and actually exported from the customs territory of the Customs Union lose the status of goods of the Customs Union.

Thus, in order to pass the customs procedure of export in order to move organic products across the customs border of the Customs Union, it is necessary to fulfil a number of requirements: pay export duties, comply with the norms on prohibitions and restrictions, and provide all necessary documents to the customs authority within the time limits set for this.

4 Discussion and conclusion

The implementation of the state program for the effective putting into circulation of agricultural land and the development of the reclamation complex of the Russian Federation provides for the commissioning of 13.2 million hectares of agricultural land in the period from 2022 to 2031. Using a scenario approach within the framework of long-term planning, we will justify the efficiency of production and export of organic cereals. To do this, we will determine the costs and revenue from the production and export of organic wheat on the acreage put into circulation (Table 3).

Table 3. Efficiency of production and export of organic grains within the framework of the implementation of the state program for the effective involvement of agricultural lands in the turnover and the development of the reclamation complex of the Russian Federation.

Indicator	Period of implementation of the state program per year										Average value
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
The areas put into circulation, mln. hcts	1	3	4	5	7	8	9	11	12	13	-
Gross output of grain, mln. tons	4	8	12	16	20	24	28	32	36	40	20
Revenue from grain sales, bln. roubles	69	139	208	278	347	416	486	555	625	694	347
The cost of grain according to traditional technology, bln. roubles	13	25	38	50	63	75	88	100	113	125	63
The cost of the organic component, bln. roubles											
when using SCOF	10	10	10	10	10	10	10	10	10	10	10
when using LOF	9	9	9	9	9	9	9	9	9	9	9
when using COC	11	11	11	11	11	11	11	11	11	11	11

Profit from the sale of grain, bln. roubles											
Cultivation with SCOF	47	104	161	218	275	332	389	445	502	559	275
Cultivation with LOF	48	105	162	219	276	333	389	446	503	560	276
Cultivation with COC	46	103	160	217	274	331	388	445	501	558	274

The phased introduction of agricultural land into circulation provides for an increase in the costs of using organic fertilizers with a prolonged effect, only in part of the newly introduced soils. The gross yield of grain is calculated by the average crop yield in the Russian Federation at the level of 30.3 c/ha. It is worth noting that the cultivation of agricultural crops in the mode of organic production provides for an increase in yield to an average of 50-60 kg / ha.

The cost of grain cultivation according to traditional cultivation technology is accepted at the level of 8 877,2 – 9 478,7 rub/ha. The proceeds from the sale of grain are calculated at \$ 238/ton within the framework of export prices prevailing for the period spring-summer 2021.

According to the results of the first year of implementation of the state program, with the introduction of 1.32 million hectares of agricultural land, the costs of cultivating grain with the use of solid concentrated organic fertilizers will amount to 22.25 billion roubles. In 2031, the last year of the implementation of the state program, with the commissioning of 13.2 million hectares of land, the total costs of tillage and cultivation of grain crops in organic production mode will amount to 134.85 billion roubles. When using liquid concentrated fertilizers, the costs of the first year of the state program implementation will amount to 21.34 billion roubles, the costs of the last year are equal to 133.93 billion roubles, when using concentrated organic compost, the costs of grain cultivation in the first year of the program implementation will amount to 23.18 billion roubles, according to the results of the last year of the program implementation, the costs will amount to 135.78 billion roubles. Revenue from the sale of organic grain products for export is increasing from 69 billion roubles in 2022 to 694 billion roubles in 2031. The profit from the export of organic grain products in 2022 will be from 46 billion roubles to 48 billion roubles (depending on the organic fertilizers used), in 2031 the profit will range from 558 billion roubles to 560 billion roubles.

The conducted research showed a high export potential, the state, and prospects of organic production of agricultural sector products. The importance of this direction was noted by the entry into force of the Law on Organic Products from January 1, 2020 (Federal Law No. 280-FZ of August 3, 2018). In the Russian Federation, significant areas of agricultural land have prerequisites for their use in organic production. The problem lies in the proper organisation of a full cycle of technological processes in compliance with the requirements of standards.

In Russia, an action plan is being implemented to create a modern industry for the production of environmentally friendly food products, which involves, among other things, the development of the concept of a Russian brand of environmentally friendly products for its promotion and greater recognition in the domestic and foreign markets [14, 15].

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