

УДК 332.1

DOI: 10.26140/anie-2019-0802-0012

ЗЕРНОВОЙ ПОТЕНЦИАЛ КРАСНОЯРСКОГО КРАЯ

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Арзуманян Мисак Спартакевич, кандидат экономических наук, доцент кафедры
«Государственное, муниципальное управление и кадровая политика» ИЭиУ АПК

Шмелева Жанна Николаевна, кандидат философских наук, доцент,
доцент кафедры «Иностранный язык» ЦМСиБ

*Красноярский государственный аграрный университет
(660049, Россия, Красноярск, пр. Мира, 90, e-mail: shmelevazhanna@mail.ru)*

Аннотация. С античных времен выращивание зерновых культур являлось важнейшей составляющей экономики. В древности от урожайности зависела численность населения, ее прирост, социальная стабильность регионов и государств. Государственная поддержка зернопродуктового подкомплекса АПК смягчает неблагоприятные явления рынка и способствует расширенному воспроизводству зерна. Однако проблема эффективного функционирования зернопроизводящих хозяйств Красноярского края заключается не столько в наращивании объемов производства, сколько в соблюдении рациональных пропорций производства продовольственного и фуражного зерна, а также в грамотном территориальном размещении производства. Для оценки эффективности деятельности зернопродуктового подкомплекса АПК региона недостаточно использовать общеизвестные показатели, которые на региональном уровне не решают поставленной задачи, для полноценного анализа их предлагается дополнить коэффициентами зерновой: самообеспеченности, ликвидности, зависимости, устойчивости. Оптимальная схема размещения заказов посредством закрепления поставщиков зернопродукции к ее потребителям является результатом целесообразной территориальной координации структуры зерновых культур, перераспределения объемов производства зерна и их размещения по макрорайонам и муниципальным районам края. Назрела необходимость приведения в соответствие с современной потребностью транспортных потоков зерна и зернопродуктов от ее производителей к потребителям. Определение степени влияния природно-климатических условий на результаты деятельности зернопроизводящих хозяйств является необходимым условием для дальнейшего обоснования необходимого объема и размещения производства зерна. Объективным результативным признаком является средняя урожайность зерновых культур по каждому из макрорайонов, обладающих высоким удельным весом производства зерна в экономике. В качестве независимых переменных (факторов) выбраны: теплообеспеченность, влагообеспеченность и удельный вес чернозёмов в структуре пашни. Предлагается также изменить подход к предоставлению зернопроизводителям государственной поддержки. Сегодня она дифференцирована по множеству направлений. Разумным предложением является переход на «эффективный контракт» с государством, с гарантированным уровнем государственной помощи на единицу объема произведенной продукции.

Ключевые слова: зерно, урожайность, продовольственный потенциал, зернопродуктовый подкомплекс АПК, рациональное размещение производства зерна, оптимальная схема зернопотоков, эффективная государственная поддержка, зерновая самообеспеченность, зерновая устойчивость, Красноярский край.

GRAIN POTENTIAL OF THE KRASNOYARSK TERRITORY

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Arzumanyan Misak Spartakovich, candidate of economic sciences, docent of the department
of «State, municipal management and personnel policy»

Shmeleva Zhanna Nickolaevna, candidate of philosophical sciences, associate professor,
docent of the department of «Foreign Language»

*Krasnoyarsk State Agrarian University
(660049, Russia, Krasnoyarsk, pr. Mira 90, e-mail: shmelevazhanna@mail.ru)*

Abstract. Since ancient times, the cultivation of grain crops has been an important component of the economy. In ancient times, the yield depended on the population, its growth, social stability of regions and states. State support of grain products sub-complex in AIC mitigates the adverse effects of the market and contributes to the expanded reproduction of grain. However, the problem of effective functioning of grain-producing farms of the Krasnoyarsk territory is aimed at not only increasing of production volumes, but at complying with the rational proportions of food and feed grain production, as well as in the competent territorial location of production. In order to assess the effectiveness of grain products sub-complex in agro-industrial complex of the region it is not enough to use well-known indicators that do not solve the problem at the regional level. It is offered to complement them with such indicators as grain coefficients: self-sufficiency, liquidity, dependence, stability for the comprehensive analysis. The optimal scheme of placing orders by fixing suppliers of grain products to its consumers is the result of appropriate territorial coordination of the structure of grain crops, redistribution of grain production volumes and their placement in macro-districts and municipal districts of the region. There is a need to bring in line with the modern needs the transport flows of grain and grain products from producers to consumers. Determination of the influence degree of natural and climatic conditions on the results of grain-producing farms activities is a necessary condition for further justification of the required volume and location of grain production. An objective effective feature is the average yield of grain crops in each of the macro-districts with a high share of grain production in the economy. We chose heat, moisture and proportion of chernozems in the structure of arable land as independent variables (factors). It is also proposed to change the approach to the provision of state support to grain producers. Today it is differentiated in many directions. A reasonable proposal is to transfer to an “effective contract” with the state, with a guaranteed level of state aid per unit of output.

Keywords: grain, productivity, food potential, grain-product sub-complex of agro-industrial complex, rational placement of grain production, optimal scheme of grain flows, effective state support, grain self-sufficiency, grain stability, Krasnoyarsk territory.

Statement of the problem in general and its connection with important scientific and practical tasks. Grain is a strategic resource: the prices of bread, dairy products, meat, and eggs depend on it [1]. Grain production of the Russian Federation is the basis of the food complex and provides about 10 million working places. In modern conditions, with

the active state support of agriculture and the international environment, grain production has been actively developed, and grain has become one of the export potentials of the country. According to the Doctrine of food security of the Russian Federation, grain is a food product for which the minimum value of provision is 95 %, which is the highest

value among other types of food. This emphasizes the priority of grain, the guarantee of food security of the country [2].

In market conditions, the implementation of planned models of relations regulation between producers, suppliers and buyers of grain in the region was ineffective: in many cases, there are no scientific approaches to the placement of grain crops and substantiation of the volume of demand for grain in the domestic market, the mechanisms of relations regulation between grain producers and grain processors are not improved, the efficiency of the grain sub-complex is reduced and the food potential of the region as a whole is not increased.

Diversification of state support areas does not allow to accumulate them to achieve specific goals and solve problems. The most solvent subjects of agricultural production have been the priority recipients of budgetary funds recently. The dispersion of state budget funds in many areas reduces the efficiency of their use. For the state it is economically more profitable to invest in large projects of grain production and grain processing.

Grain is an important element of the country's food potential. On the one hand, it is the basis for the production of food (flour, bread, cereals, pasta), on the other hand it is an ingredient in the food industry (semi-finished products, sauces, drinks), and thirdly it is the feed basis for livestock. Each of these three industries includes a number of sub-sectors. *The purpose of the article* is to prove and evaluate the priority role and importance of grain products in ensuring the food potential of the Krasnoyarsk territory as a strategic resource, to propose measures for the rational use of grain products, improving state support, assessing its economic efficiency.

Analysis of recent studies and publications where aspects of the problem are shown. Due to natural and climatic conditions, which include the provision of heat, moisture, soil fertility, grain production on the territory of Russia is placed unevenly. In the production of grain among the economic regions of Russia, the decisive role belongs to 5 regions: Central black earth, North Caucasus, Volga, Ural and West Siberian. The main producers of grain are: areas (Rostov, Novosibirsk, Omsk, Volgograd, Orel, Orenburg) and territories (Altai, Stavropol, Krasnodar).

Land, water and other resources of our country allow to produce grain in large volumes. Historically, for a rich harvest, the low yield of grain crops in many regions of the Russian state (in comparison with European countries) was compensated by a larger area of arable land. Russia has all the conditions for expanded grain production: one fifth of all agricultural land on the planet (9% of arable land and half of all black soil), 20% of fresh water reserves. In 2016, Russia became a leader in the world grain market, surpassing the American grain leaders (the USA, Canada, Argentina), as well as Asian (China, India), and supplying the world market with 33,9 million tons of grain. And in 2017, Russia again topped the list of the largest wheat exporters in the world, selling 32,8 of 85,8 million tons of gross wheat harvest.

In the regional agro-industrial complex, grain production in increasing volumes ceases to be a criterion of economic efficiency. The actual function of the grain products sub-complex of the region is now compliance with the balance of production, consumption, export and import of products. The complex efficiency of functioning of the regional grain-product sub-complex is achieved by the qualitative state of each level of the grain-product sub-complex of the country: federal, regional, district and the individual economic entities.

For each of these levels, reference indicators for assessing the effectiveness of its activities are proposed [3]; they are based on common indicators that need to be supplemented by grain coefficients: self-sufficiency, liquidity, dependence, stability of the grain-producing region (state).

The results of the analytical part of the study [4,] [5], proposals for the placement of grain crops in the territory of the region, the current placement of grain processing enterprises – does not correspond to the prospects of placing

crops in the macro-regions of the territory – they continue to be built only in the southern part of the grain granary of the region. There is a need to bring in line with the modern need for transport flows of grain and grain products from its producers to consumers of municipal districts of the region.

The state assists in the formation, establishment and development of the grain market, regulates relations in trade and procurement operations with grain. Its efforts are aimed at stabilization of the current state and improvement of coordination mechanisms of participants' actions in the market of grain and grain products, raw materials and food: smoothing of seasonal fluctuations of prices for grain and products of its processing, implementation of the mechanism of customs and tariff regulation of their import, development of standards for grain and grain products, increase in the share of domestic cereal products in the structure of retail trade [6], [7].

The result of the actions coordination of the Ministry of agriculture of the Russian Federation with the Russian academy of agricultural sciences was the development of the main contours of the state regulation system at all stages of production, storage, processing and sale of socially important products of the grain group, as well as forage [8], [9], [10], [11].

At the regional level, the grain policy is implemented on the basis of federal (national) goals and objectives, the need to provide the population with grain and grain products, livestock with feed, trade organization with distribution and sales.

The federal level of the state is the guarantor of food security, but the regions that are able to produce more by their natural and climatic conditions than the local population consumes, growing crops for the national market and for export, implement the task of providing food to the population of the country. The task of the federal level of the state is to ensure the conditions and infrastructure for interregional exchange and export operations.

In turn, the region (subject of the Federation) is an interconnected set of areas that are part of its composition by climatic, geographical characteristics or political, national characteristics. Therefore, the districts are able to provide themselves with food to varying degrees, since the level of their food potential is different.

The different degree of concentration of food resources and reserves in the regions leads to different approaches of regional governments to the management of this process. Its main goal is to ensure the development of industries, to fill the reserve fund and to achieve effective demand of the population. There are a large number of options and directions for sustainable development of grain sub-complex depending on the initial state of development of grain production, its processing and prospects for increasing intraregional demand for products.

However, this diversity does not allow to regulate a systematic approach to decision-making and presenting them in generalized forms. The tasks of the state to ensure the food potential of the region should be compared and evaluated with the possibilities of grain production and, on this basis, to group the regions of the Russian Federation on the grain market into the following:

- regions, the population and livestock of which are provided with grain products of own production (flour, grits, bran and mixed fodder) in the sufficient degree. They have the potential of grain products sub-complex and increase of export, actively participate in inter-regional grain supplies. They should implement policies aimed at increasing export potential with access to foreign markets without compromising the development of grain production to meet the needs of their population and economy;

- regions with average (moderate) grain potential. The state needs to focus on import substitution and creation of conditions for increasing exports to private economic entities of grain processing;

- regions that in the future are able to provide consumer

demand for grain products through import from outside the region. Since these regions at this point in time alone cannot meet the grain demand of its population, the state should send funds to the region to ensure consumer demand, taking into account the development of the territory, the level of use of grain products by the population of the regions, the consumption of grain processing industries [12].

The grain industry in the structure of agro-industrial production of the Krasnoyarsk territory has a dominant position in many respects: the volume of gross output, the number of employees, the cost of fixed assets. Annually in the region from 1990 to 2018, the gross grain harvest in the dynamics ranged from 1,8 to 2,7 million tons [13], [14].

Presentation of the main research material with full justification of the scientific results. Using the information [15], the authors in [16] conducted a correlation and regression analysis, the task of which was to determine the degree of influence of natural and climatic conditions on the results of grain production, which is a necessary condition for further substantiation of the necessary volume and location of grain production. An objective effective feature is the average yield of grain crops in each of the macro-districts with a high share of grain production in the economy. We chose heat, moisture and the proportion of chernozems in the structure of arable land as independent variables (factors).

The correlation coefficient in percentage terms was: 78,9; 21,0; 91,6, respectively. The coefficient of determination took the following values: 0,62; 0,04; 0,84, respectively. The factor of "heat supply" has a strong influence on the yield, the factor of "moisture supply" does not practically affect the yield, the relationship of the factor "the proportion of black soil in the structure of arable land" is close to functional.

The approach to the provision of state support to grain producers also needs to be changed. Today it is differentiated in many directions. The authors [17] are convinced that the amount of state aid should be "total, integrated" and not divided into many components, which, due to their "segmentation" cover only a separate group of costs, and the rest, more significant – have to pay the producer from own funds. And when receiving a "total" subsidy payment, the grain producer at its discretion would be able to distribute it to achieve a specific goal related to the intensive development of production.

Budget funds allocated for compensation of part of expenses associated with the production of agricultural products, should be distributed more rationally and with foresight. This can be achieved by linking the size of state aid and the level of effectiveness of its recipients. At the same time, "basic assistance" as the "initial" value of state aid is possible. And then, depending on the success of the rural producer, the effectiveness of the use of funds received from the state, and hence the ability to be competitive – will depend on the "rate of increment" of this amount. A reasonable proposal is to move to an "effective contract" with the state, with a guaranteed level of state aid per unit of output.

During the calculations, it was determined that the amount of subsidies due to grain producers of the Krasnoyarsk territory should be 10,3 billion rubles, is 2,6 times higher than the actual level of state support (4 billion rubles).

The cost of 1 ton of grain in 2015 in the province amounted to little more than 7 thousand rubles, while the total cost of production was 16,4 billion rubles. In 2016, in the volume of grain production of 2,3 million tons, the amount of subsidies per 1 thousand tons of grain amounted to 1720 thousand rubles, and profitability subsidies – 19,4 % (the ratio of the amount of subsidies to the cost of production of grain was 24,4 %). This means that for every ruble of costs in grain production there are 19,4 kopecks of state aid (total, not only aimed at compensating the costs associated with grain).

The author [18] analyzed the grouping of regions in the Siberian Federal district according to the criteria:

- self-sufficiency in grain per capita: in excess of sufficient (territory: Altai; region: Omsk); in insufficient (territories: Krasnoyarsk, Trans-Baikal; regions: Novosibirsk,

Irkutsk, Kemerovo, Tomsk; republics: Khakassia, Buryatia, Tuva, Altai Republic);

- liquidity for grain production: highly liquid (territories: Krasnoyarsk, Altai; regions: Novosibirsk, Omsk); moderately liquid (territory: Trans-Baikal; regions: Irkutsk, Kemerovo, Tomsk; Republic: Buryatia, Khakassia); non-liquid (republics: Altai, Tuva);

- sustainability in the provision of population with grain: sufficient (territory: Altai; region: Omsk); insufficient (territory: Krasnoyarsk; region: Novosibirsk; republic: Khakassia); critical (territory: Trans-Baikal; regions: Irkutsk, Kemerovo, Tomsk; republics: Altai, Tyva, Buryatia).

Only 36 of the 44 districts of the region are suitable for agriculture due to natural and climatic conditions.

In the work [19] the authors proposed an algorithm for determining the potential of municipal districts of the region for further placement of food and feed grain production on the basis of the principle of rationality.

The research allowed to determine the aggregated values of food and fodder potential of the areas. We selected the optimal, better than others intended for the production of food grains (according to highest rating): Berezovskiy, Uyarskiy, Emelianovskiy, Achinsk, Nazarovo, Rybinsk, Uzhurskiy; and for production of feed grain: Nazarovskiy, Berezovskiy, Uzhurskiy, Kansk, Achinsk, Sukhobuzimskiy, Novoselovskiy.

The author [20] determined the optimal scheme of placing orders by securing suppliers of grain products to its consumers, which is the result of appropriate territorial coordination of the structure of grain crops, redistribution of grain production and their placement in macro-districts and municipal districts of the region. There is a need to bring in line with the modern need for transport flows of grain and grain products from its producers to consumers. The total regional demand for grain is 2,4 million tons. The analysis and the solution allowed to determine the supply volume of each of the companies: OJSC "Krasnoyarsk Miller" – 540 thousand tons of grain to consumers living in macro-districts: North, Priamurskiy, South in the ratio of 1,4:1,3:1; "Kanskiy Complex of Bread Products" – 230 thousand tons of grain to consumers living in the Central macro-district; "Kanskiy Bread Enterprise" – 310 thousand tons of grain to consumers residing in the Western and Eastern macro-districts in the ratio of 10:1; "Achinsk Braed Product" – 930 thousand tons of grain to consumers, living in the Western and Central micro-districts in the ratio of 1:17; "Minusinsk flourmill" – 380 thousand tons of grain-consumers living in the southern and Eastern macro-districts in the ratio of 1:5.

In conclusion, it should be mentioned that the level of grain production in the Krasnoyarsk territory is high. The state, structure and organization of management of grain products sub-complex of the Krasnoyarsk territory are comparable with the mission to ensure and increase the food potential of the agro-industrial complex of the region. The main effective tool for their solution is the long-term state support of the crop industry, grain processors. The authors justified the recommendations on the solution of actual problems of state regulation of grain products sub-complex, namely – on the dispersion of state support in many areas, the lack of its connection with the effectiveness of its recipients, due attention to the rational placement of grain production, ensuring a balance between supply and demand of grain and grain products in the local market.

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Статья поступила в редакцию 27.03.2019

Статья принята к публикации 27.05.2019