Improving State Regulation of Agricultural Production

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Abstract

The authors present the analysis of the theoretical foundations of state regulation of agricultural production, clarify the role of state regulation of the agricultural sector of the economy in ensuring food security in Russia, analyze the status and development trends of agricultural production in the Krasnodar Territory. The authors developed recommendations for improving the state regulation system of agricultural production, identified intra-production factors to ensure import substitution of food products, and gave recommendations for their use. The authors propose also a developed classification of state policy types in the field of agricultural production regulation (protectionist, moderate, and market-oriented).

Key-words: State Regulation, Agricultural Production, Food Security, State Support, Import-Substitution.

1. Introduction

The agricultural sector is an important part of the economy, which ensures the economic growth of the country. It is the agricultural sector that accounts for the production of a vital group of products, the provision of necessary jobs for the population, and the development of rural areas. Agriculture affects several indicators, including per capita income and life expectancy, and is a donor to many sectors of the economy.

Krasnodar Territory, as one of the most developed agro-industrial regions of the Russian Federation, has always played a significant role in ensuring the country's food security. However, in contemporary conditions, the increase in both the gross volume and the efficiency of agricultural
production and the agro-industrial complex of the region, in general, is becoming more and more relevant, which is associated with the imposition of economic sanctions against the Russian Federation and the adoption of retaliatory measures, which were designated as the import substitution policy.

In the developed countries of the world, agriculture everywhere takes advantage of various types of state assistance, ranging from direct subsidies and grants to "unrelated" types of support. Therefore, improving the competitiveness of agricultural production in the Krasnodar Territory and the Russian Federation in general in new economic conditions requires forming updated tools for regulating the industry, which would give the maximum effect on each invested ruble of budget funds.

The global nature of the tasks to be solved, as well as the specifics of agriculture as an industry of major social importance and subject to a significant number of different risks, actualizes the problem of improving the effectiveness of state regulation and support for agricultural production in the Krasnodar Territory.

2. Materials and Methods

The research is aimed at developing the areas of improving the state regulation of agricultural production. The research objectives are defined as follows:

- to analyze the theoretical foundations of state regulation of agricultural production and to study the best practices of state regulation of agricultural production in foreign countries;
- to analyze the role of state regulation of agricultural production in ensuring food security in Russia;
- to analyze the status and development trends of agricultural production in the Krasnodar Territory;
- to analyze the state support system for agricultural production in the Krasnodar Territory;
- to consider various development scenarios of agricultural production in the Krasnodar Territory;
- to develop recommendations for improving the state regulation system of agricultural production;
to identify the intraproductive factors of ensuring import substitution of food products and to give recommendations on their use.

The theoretical and methodological basis of the study was fundamental research and development in the field of state regulation of the economy in general and agriculture in particular, legislative and regulatory acts of the Russian Federation and the Krasnodar Territory on the issues of state regulation of the industry.

Research on the state regulation nature, role, and principles of the national economy, including agricultural sectors, has been conducted by J. K. Galbraith [6], J. M. Keynes [7], L. R. Klein [8], A. B. Laffer [9], R. Lucas [10], A. Marshall [11], A. C. Pigou [12], D. Ricardo [13], J. A. Schumpeter [15], P. A. Samuelson [14], R. M. Solow [16], M. Friedman [2], etc. To date, the state regulation of agricultural production is considered by various authors based on several different approaches. Thus, adherents of economic schools mainly approach the issue from the property aspect, focusing on economic methods of influencing agricultural production. On the other hand, representatives of the legal sciences, on the contrary, take legal methods of influencing agriculture as the basis of state regulation. The authors of the present study believe that the predominant focus on certain methods of regulating agricultural production as the main ones does not correspond to the present-day developments of state administration. This opinion is confirmed by the research of most contemporary economists, who consider state regulation as a set of organizational, economic, legal, and other management methods that have a complex impact on agricultural production. Despite the high interest on the part of the scientific community in the issues of state regulation of agricultural production, in the context of the development of import substitution policy, the need to improve food security, it is long past time to carry out further research in the development of mechanisms for state regulation of agricultural production.

3. Results and Discussions

3.1 The role of state regulation of agricultural production in ensuring food security in Russia

State regulation of agricultural production is a system of measures of state influence on market processes in the agricultural sector of an organizational, economic, and legal nature to stabilize and develop agricultural production. The agricultural sector accounts for the production of a vital group of products, provides jobs necessary for the population, and rural development [3].
Practice shows that the successful development of agricultural production is impossible without the active role of state structures. The priority task of state bodies is to increase the industry competitiveness through the adoption of state regulation measures, considering the specific features of the agricultural sector. These features include:

1. Land is the main means of production in agriculture.
2. The working period does not coincide with the production process in agriculture.
3. The seasonal nature of agricultural production leads to an uneven distribution of the need for labor throughout the year.
4. Agriculture is characterized by territorial dispersion, especially in the context of extensive management.
5. Uncontrolled natural-climatic and natural-biological factors largely determine the results of agricultural labor, which leads to instability of agricultural markets.
6. Changes in the demand for agricultural products on the part of the population make it impossible for enterprises to respond quickly. The volume of agricultural production cannot be increased relatively quickly within a single season and in certain areas and types of products – during several seasons or even years.
7. It is also important to note that the products produced by the agro-industrial complex are socially significant, that is, the shortage of these products automatically creates serious problems.

These conditions require the state to undertake certain interventions at least at a minimum level, regardless of the socio-economic formation, the level of economic development, and political strings.

The present study clarifies the essence of the category of "state regulation of agricultural production" based on the analysis of contemporary interpretations. This term is understood as a system of state measures on market processes in the agricultural sector of an organizational, economic, and legal nature to stabilize and develop agricultural production.

It should be noted that the category of "state regulation of agricultural production" should not be completely identified with state support, which is part of state regulation. Measures of state support for agriculture are aimed, at the same time, at protectionism of domestic holdings operating in the agro-industrial complex, while on the other hand, at reducing or shrinking barriers that do not allow Russian agro-industrial enterprises to enter the world market. An important task is to maintain the demand for domestic agricultural products, which allows maintaining the price level and
providing an economic synergistic effect, i.e. saving jobs, maintaining effective demand, and make the territories economically attractive.

The authors clarified the classification of methods of state regulation of agricultural production. The method of state regulation is understood as a method of cognition and transformation of an object based on certain rules and theoretical principles, a system of ways of influencing subjects. Thus, according to the organizational and institutional basis, it is customary to distinguish:

- administrative and legal methods of regulating agricultural production which include laws and other normative legal acts that regulate economic activities in agriculture;
- economic methods of regulating agricultural production (called also direct action regulators) which involve the provision by the state of budgetary and extra-budgetary support of agricultural producers, the implementation of socio-economic programs, investment projects, and other forms of financial assistance in the agricultural sector;
- indirect economic regulators which represent various aspects of the country's state policy that influence agricultural production development through its relationship with other economic sectors;
- organizational methods which involve the creation of organizational structures that facilitate the regulation and support of agricultural production.

All methods have their advantages and disadvantages. Thus, administrative and legal methods allow regulating the activities of economic entities in the agricultural sector and define equal functioning conditions for all enterprises. At the same time, excessive regulation can lead to a lack of flexibility for enterprises. Economic methods affect the most important incentives and are the most effective, however, require significant financial investments from the state.

Thus, among the methods of state regulation of agricultural production, there are no unsuitable or inefficient ones. These methods should be selected according to the current problems and the agricultural market condition in the country and the world.

Methods of state regulation of agricultural production are characterized by a wide range of tools.

In terms of target feature, methods of state regulation can be divided into:

1. Methods of supporting the producers’ income, which include various types of state assistance in cases of crop losses and other natural disasters.
2. Price intervention that regulates the level of prices for agricultural products (supporting domestic prices, assigning quotas, regulating the volume of imports and exports of agricultural products).

3. Reimbursement of producers' expenses for the purchase of agricultural production facilities.

4. Promoting the development of production infrastructure (developing transport and logistics infrastructure, etc.).

It should be noted that most researchers tend to believe that of all the presented methods of agricultural production state regulation, the use of economic state regulation methods in a market economy is more preferable [4, 5]. At that, direct state subsidies and grants can be allocated to finance the following areas:

- direct financing of the agricultural enterprise;
- land reclamation and support for the land reclamation system operation;
- construction and modernization of the processing and food industry enterprises for integrated development of the agro-industrial complex of the region;
- socio-economic development of rural areas: housing construction, construction of transport and logistics infrastructure, as well as improvement of social infrastructure.

Among the indirect methods of state support, the following are distinguished: tax policy and budget policy; depreciation policy; concessional lending, as well as the use of leasing; risks insurance of agricultural producers; public-private partnership; supporting investment and innovation; environmental policy; suppressing the protectionism of certain groups of agricultural producers and ensuring a fair distribution of state aid and budget investments, etc.

The model of state regulation of agricultural production is a complex mechanism that combines various methods and tools of state regulation, directly or indirectly affecting the performance of economic entities in the agricultural sector (Fig. 1).
3.2 System of state regulation tools for the agro-industrial complex

The authors clarified the classification of state regulation methods of agricultural production which was divided depending on organizational and institutional characteristics, purpose, sources of financing, method of influence, and affectivity period.
The system of tools used for state regulation of the agro-industrial complex can be represented as shown in Fig. 2. The region's leadership most prefers financial and economic methods of supporting agricultural producers. The most important tasks of state support for the agro-industrial complex can be identified as follows:

- ensuring a high level of profitability of individual sectors of the agro-industrial complex not only through state support but also by stimulating effective demand;
- development of antimonopoly regulation of the proportions of intra- and inter-industry exchange;
- increasing the competitiveness of agricultural production enterprises;
- increasing the real earnings of the population employed in the agro-industrial complex, and systematic development of rural areas.

![Fig. 2 - State regulation tools of the agro-industrial complex](image-url)
The state policy types in the field of agricultural production regulation are shown in Table 1.

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<th>Title</th>
<th>Protectionist</th>
<th>Moderate</th>
<th>Market-oriented</th>
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**Essence**
- Protectionist: Providing large amounts of direct state support to agricultural producers, a high level of state involvement in the performance of the agro-industrial complex
- Moderate: Combining direct government support measures with Green Box programs
- Market-oriented: Promoting preferentially domestic demand for agricultural products, as well as creating favorable conditions for the development of the industry through research, consulting services, and other Green Box activities. At the same time, the volume of direct state support for agricultural producers is quite low

**Counties**
- EU, Indonesia, Turkey
- China
- USA, Brazil

**Advantages**
- Protectionist: Improving the competitiveness of the country's agricultural products on the international market, increasing the agricultural product export, and developing agricultural areas. The EU also pays special attention to protecting the environment and improving the environmental safety of agricultural products
- Moderate: Ensuring food security, providing export expansion and cooperation in the field of agriculture
- Market-oriented: Creating favorable market conditions for the development of agricultural production based on long-term programs, supporting a competitive environment in the agricultural sector, focusing on efficient agricultural production

**Disadvantages**
- Protectionist: Agricultural producers are too dependent on state aid, which reduces their effectiveness and competitiveness, especially in cases of budget shortfalls
- Moderate: Unbalanced agricultural production, the possibility of focusing on state support for certain agricultural production sectors with lack of assistance in other areas
- Market-oriented: Weak correlation between the volume of agricultural production and the level of direct state support due to its insignificant share in the total income of agricultural producers, which can threaten food security
3.3 Analysis of the agricultural production development trends in the Krasnodar Territory

The Krasnodar Territory is one of the most developed agro-industrial regions of Russia which plays a significant role in ensuring the country's food security. The dynamics of the state support financing volumes for the agro-industrial complex in the Krasnodar Territory are shown in Fig. 3.

The analysis of agricultural production in the region has shown that the industry has been successfully developing over the past years, and the volume of agricultural production is growing. Thus, in 2019, farms of all categories have produced 1.3 times more products compared to 2015.

Assessing the effectiveness of the state support provided to agricultural producers in the Krasnodar Territory can be made by reviewing the financial performance of agricultural enterprises in the region. Also, the outcomes of state support measures for agricultural producers can be judged by the information concerning the level of profitability of agricultural organizations, shown in Fig. 4. The profitability of agricultural enterprises in the region has increased since the beginning of the state support program implementation in 2013. The highest level of profitability was observed in 2015 when the financing of state support measures was at a very high level. As the volume of state aid to agricultural producers declined, the efficiency of the activities of agricultural enterprises also decreased.
The fact that there is no systematic approach to solving the identified development problems of the agro-industrial complex of the region should be attributed to shortcomings of state support of the regional agricultural sector. In general, state support is limited to direct budget allocations. At the same time, the following negative aspects should be also noted:

- the introduction of changes in federal legislation during the fiscal year, which entails changes in regional legislation, and negatively affects the implementation of the state program;
- insufficient level of support in enterprises staffing in the agro-industrial complex, both in terms of measures to stop the decline in the number of employees in the industry, and to improve their qualification level;
- inefficient state support measures in animal husbandry, because in the most important sectors, such as dairy and meat cattle breeding, livestock population and production volumes are reduced despite the support provided;
- the state provides insufficient support of the pig husbandry, which requires particular attention because of some negative factors, which reduced the pig stock by 2.5 times compared to that of 2010;
• state support measures do not provide a subsidy of the cost of acquisition of mineral fertilizers, water for irrigation, and for the delivery of goods from producers to consumers, which is quite important to maintain high profitability of agricultural production;

• low levels of funding for research and innovation activities in the agro-industrial complex;

• reduced support for small-scale farming, lack of a systematic program aimed at increasing the share of agricultural organizations and peasant (farm) economies in the production of agricultural products, especially in the field of animal husbandry;

• insufficient state support measures for developing transport and logistics infrastructure [17];

• an insufficiently effective system of control over the expenditure of subsidies allocated to agricultural producers.

• The authors also assessed the risks of developing agricultural production in the Krasnodar Territory and compiled a risk registry.

• When analyzing the development of agricultural production in the Krasnodar Territory, one should not forget about the possible threats and risks associated with the industry development in the light of the implementation of the import substitution policy. The presented registry of possible risks for the agricultural production development in the Krasnodar Territory is developed based on the expert assessment method and indicates the probability of risks, as well as their impact on the implementation of strategic plans for the industry development (Table 2).
Multiplying the values of the probability and impact of each of the risks, the authors of the work obtained a risk rating that reflects the degree of each risk danger.

Risk assessment method

the probability of risk occurrence (P) is estimated in points from 0.1 to 0.9, where 0.1 is the lowest probability of risk occurrence, 0.9 is the highest probability of risk occurrence.

the impact of risk (I) is estimated in points from 0.1 to 0.9, where 0.1 – minor consequences of the risk for the agricultural production development of, 0.9 – catastrophic consequences of the risk.
the risk rating is calculated using the following formula: \( R = P \times I \) (1)

Based on the presented estimates, it can be argued that the most significant risks that threaten the implementation of the agro-industrial complex development strategy in general and agricultural production, in particular, are the risks of staffing the industry, associated with a reduction in the rural population and a decrease in the attractiveness of labor at agricultural enterprises; the risks of insufficient development of industrial infrastructure, the risks of lack of funding for stable performance, development and launching new agricultural enterprises in the region; as well as the risks related to the difficulties in the modernization of fixed assets of agricultural producers.

3.4 Directions for improving the mechanism of state regulation of agricultural production in the Krasnodar Territory

The authors developed the mechanism of state regulation of agricultural production in the Krasnodar Territory.

The authors suggest using the following mechanism of state regulation in the region (Fig. 5). The proposed mechanism is based on the green agribusiness cluster with deep intelligent processing. It is within this cluster that various types of state support for agricultural producers are provided, which should account for the largest amount of budget funding. Besides, in the proposed mechanism of state regulation, a significant role is assigned to building relationships with concerned parties (investors, credit and insurance organizations, research institutes, and manufacturers of agricultural machinery). Indirect support for agricultural production in the Krasnodar Territory should be provided through the sustainable development of agricultural lands, taking measures necessary to improve the industry staffing, as well as the development of the domestic food market and the implementation of the policy of promoting agricultural products of the region having standard quality status.
Note that the authors of the study propose to increase the amount of budget funding necessary for implementing all areas of state support. The point is that the conducted analysis of the correlation between the amount of state financing of the agro-industrial complex and the index of physical volume of agricultural products has shown a direct positive relationship between the factors under study, and the multiple correlation coefficient equaled 0.89, which, according to the Chaddock scale, means a high relationship between the factors under consideration.

The increase in the efficiency of individual agricultural producers of the region, the increase in the gross volume of agricultural production at each of the enterprises will allow achieving the goals of the import substitution policy by using internal reserves of enterprises.
It is suggested to use the algorithm for providing management consulting services for an agricultural producer, shown in Fig. 6. This mechanism can become the basic one for agricultural enterprises in the industry. Management consulting in the field of agriculture will represent a set of measures for producers of the agro-industrial complex who need state support. The analysis of the enterprise performance involves considering indicators taken from accounting documents, such as the profitability of production, capital productivity, capital intensiveness, the absolute economic effect in basic prices, and the calculation of economic efficiency using the basic values of the economic effect. In addition to quantitative indicators, one can use also qualitative indicators of compliance of the agricultural enterprises' operations in all functional areas with the sustainability standards for a given set of exogenous and endogenous variables.

Fig. 6 - The algorithm for conducting management consulting for agricultural producers by the State Budgetary Institution of the Krasnodar Territory “Kuban Agricultural Information Consulting Center”

- Conclusion of a contract for management consulting
- Conducting an analysis of the enterprise performance efficiency in various functional areas by ICC specialists
- Identifying problematic aspects in the enterprise performance
- Searching for internal reserves to improve the enterprise performance
- Drawing up a plan of measures to improve the performance efficiency, and providing recommendations for their financing
- Providing the consulting during the implementation of measures
The identification of problems in the course of the analysis should be inextricably linked with the search for reserves to improve the efficiency of companies, both internal and external. Internal reserves may be associated with identified problems in the management system, as well as the availability of current assets to cover additional costs. External financing sources include borrowed funds, loans, leasing, and, possibly, considering the peculiarities of agricultural production, the targeted state financing, interest-free loans, and direct investments from state funds.

Developing an action plan to improve the economic efficiency of the agro-industrial complex enterprise is based on the existing planning procedures at enterprises, the analysis of business processes, and the financial capabilities of the enterprise. When developing a plan, it is important to take into account the various types of risks that arise in agriculture, their consideration in the planned indicators, as well as in assessing the effectiveness of the planned measures. Consulting during the plan implementation is part of the corporate quality management process, and takes place in full compliance with the Deming methodology for providing feedback in the management system. The PDCA cycle involves a return to the initial state and its consistent continuous improvement. Thus, conducting management consulting in the field of agricultural production will ensure a systematic increase in the efficiency of agricultural production, improvement of the industry competitiveness, the formation of stable inter-institutional relations, and the development of the infrastructure of state regulation in the agro-industrial complex.

The advantage of the proposed management consulting service based on the Kuban Agricultural Information Consulting Center is that due to working with many industry organizations in the region, over time, this Center will accumulate an extensive knowledge base regarding typical problems of industrial enterprises and the most effective methods of their solutions, which will be confirmed by practical experience. Thus, this will allow mobilizing domestic factors of increasing the efficiency of agricultural production in the region to solve the import substitution problem.

In general, the proposed comprehensive measures to improve state support for agricultural production in the Krasnodar Territory and to activate the internal factors of agricultural producers’ performance efficiency should eventually lead to the following outcomes:

1) in the field of agricultural production and food security:

   ensuring the growth of the effectiveness of the regional state policy in the field of import substitution;

   providing residents of the region and the country with high-quality and safe food;
increasing the volume and proportion of non-primary exports due to the export development of food products of deep processing;

ensuring the stable development of the agro-industrial complex of the region based on the investment and innovation mechanism;

2) in the economic sector:
increasing tax revenues and fees to the various level budgets;
increasing investment attractiveness of the Krasnodar Territory both in the agricultural sector and in related areas;

3) in the social sector:
improving the situation with the staffing of agricultural production;
improving the level of income and living quality of the rural population.

4. Conclusions

The conducted research allows drawing the following important conclusions.

State regulation of agricultural production is a system of measures of state influence on market processes in the agricultural sector of an organizational, economic, and legal nature aimed at stabilizing and developing agricultural production. The need for state regulation of agricultural production arises from the peculiarities of the industry and the crucial role of agriculture in ensuring the country's food security, as well as due to low competitiveness and productivity, and the price disparity between the prices on agricultural products and industrial goods. In the state regulation of agricultural production, various tools can be used, which can be divided depending on organizational and institutional characteristics, purpose, sources of financing, method of influence, and affectivity period.

The authors of the study present a model of state regulation of agricultural production, which combines the goals of regulatory impact (supporting agricultural producers, sustainable development of agriculture and agricultural regions, as well as ensuring food security and their corresponding methods and tools). At that, the authors propose to distinguish state regulation methods, such as administrative-legal, financial-economic, information-methodological, program-targeted, and methods of regulating material flows and production activities.
The types of the state policy in the agricultural production regulation were highlighted as follows: protectionist, characterized by the allocation of significant amounts of direct state support to agricultural producers and a high level of involvement of state structures in the industry operation; moderate, in which direct state support measures are combined with Green Box programs; market-oriented, consisting in stimulating domestic demand for agricultural products, and implementing main measures of the Green Box with a small level of budget subsidies and grants.

The conducted analysis of development trends of the agricultural production in the Krasnodar Territory has shown fluctuations in the index of the physical production of agricultural products in recent years (which did not fall below 100%) with a simultaneous sustainable growth in production volumes in monetary terms, which indicates a constant increase in the physical volume of agricultural products. The article assesses the agricultural production effectiveness in the Krasnodar Territory, where the crop production sector remains a priority. Comparing the crop yield indicators of agricultural enterprises and peasant (farm) economies has shown that the former has achieved higher yields of all crops, except for open-ground vegetables. At that, successful development in recent years should be noted concerning the crop production sector – both the yield and the gross harvest of most cultivated crops have increased (except only rice, barley, and melon food crops).

The authors presented the analysis of the existing system of state regulation of agricultural production in the Krasnodar Territory and developed the main measures to improve the state regulation of agricultural production in the context of import substitution. The presented analysis of exogenous and endogenous factors contributing to import substitution of food products allowed suggesting implementing management consulting services by the Kuban Agricultural Information Consulting Center aimed at providing systematic assistance to agricultural producers in the region to improve efficiency using existing internal management reserves.

Thus, the developed mechanism of state regulation of agricultural production of the Krasnodar Territory in the context of import substitution can be used to improve measures and support areas for agricultural producers in the region. Recommendations concerning the use of intra-production factors to ensure import substitution can be applied by the agricultural enterprise executives in the course of improving their performance efficiency.
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