

CDSSES 2020**IV International Scientific Conference "Competitiveness and the development of socio-economic systems" dedicated to the memory of Alexander Tatarkin****NEW AND INHERITED FEATURES OF AGRICULTURAL PRODUCTION IN RUSSIA**

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(a) Central Economics and Mathematics Institute RAS, 47, Nakhimovsky Pr., Moscow, Russia,
saharow.a@yandex.ru**Abstract**

The research proposes the concept of highly efficient agricultural production development in Russia regarding socio-ecological and economic guidelines. The nature and reasons for the main changes in the conditions and results of management for 1995 - 2019 are revealed. The research result consists of proposals for improving the principles and practices of state support for low-profit farms. Its recommended addition should consist of: direct financing by the state and large capital for the acquisition and development of high-performance production and management technologies; in the development of the technology market at the inter-farm, inter-regional and inter-country levels; in the creation of regional services for information and consulting support of enterprises, helping them to navigate in the conjuncture of agricultural markets, in the trends of regional development of the economy, social sphere, and ecology. The expected general results of national economic significance, accompanying the positive dynamics of agricultural development, are taken into account, such as a decrease in inflation, replenishment of the budget from an increase in tax revenues due to an increase in agricultural production and export of its products, balanced use of labor resources, land and water resources, organic diversification of production in the real sector, equipping remote areas, greening production.

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1. Introduction

Scientific and technological renewal of agricultural production in Russia, the related improvement of management practices, and the economy's organization are the main prerequisites for strengthening the agricultural sector's economy.

Among external regulators of the coordination of the interests of the commodity producer and the consumer, there could be a change in goals and, accordingly, in the practice of state support for agricultural labor. The essence of this change is the implementation of two principles of sponsoring production activities.

The first is targeted financing to develop highly efficient scientific and technological developments by enterprises, creating information and consulting centers within the district administrations serving agricultural enterprises.

The second is the creation of direct dependence of the amount of additional financing of low-profit farms on the medium-term (for 2 to 3 years) indicators of their activities, especially such as an increase in sales, a decrease in prices, compliance with environmental standards, participation in inter-farm cooperation and in the development of a regional industrial and social infrastructure.

Such a principle of external support for agricultural producers will differ significantly from the currently practiced, which puts its volume in proportion only to the available capacities of unprofitable industries (the number of low-productive livestock, the area of low-profit plant products, etc.), and does not depend on the final results of management and participation in socially useful activities of general district importance.

The main argument in favor of the recommended changes is the need to control the efficiency and usefulness of the use of public funds in the sector of the economy, whose products have always been and will remain one of the vital and irreplaceable.

2. Problem Statement

A significant problem to be solved in scientific research is to identify the potential for accelerated and balanced development of agricultural production in Russia. Related to this problem is the need to concretize the reasons for an agricultural economy's low economic efficiency, which is of vital importance.

The dynamics of economic development of most branches of material production shows significant fluctuations over time. Agriculture is no exception in this process. Determining the causes of these changes, their significance in comparison is an essential and challenging scientific research task. Without its solution, it is impossible to identify clear directions for the economy's accelerated and balanced development, including the agricultural economy.

3. Research Questions

The issues addressed in this study include:

- Comparative analysis of economic conditions and results for two periods: 1995 - 2007. and 2008 - 2019. Based on the results of the analysis, the negative characteristics of agricultural production that have survived from the previous periods of development of agricultural production in Russia have been revealed, such as low economic efficiency of agricultural labor and, accordingly, low remuneration; unfavorable conditions of farming and living in rural areas, irrational distribution of employment between urban and rural areas; lack of connection between the amount of assistance provided by the state to agriculture and the public utility of its production activities.

Among the new (2008 - 2020) conditions and results of management, both positive changes (an increase in the competitiveness of farms, especially large ones - agricultural holdings), and negative ones - the displacement of agricultural producers by more profitable types of farming were identified. Especially - near cities and in areas with comfortable recreational characteristics.

- Formulation of possible measures to improve the economic efficiency of agricultural production in Russia. Among them: conducting the practice of rewarding farms that adhere to socially useful directions in their activities. In addition, the state should help them in the development of high-tech methods of production and provide information on the markets for food, means of production, labor.

- Conducting a cross-country analysis of the conditions of agricultural labor and its results in the countries of the European Union and Russia.

4. Purpose of the Study

The aim of the study is to improve the scientific concept of the highly efficient development of agricultural production in Russia in terms of socio-ecological and economic guidelines, with a preliminary identification of the nature and causes of the main changes in the conditions and results of management for the period 1995 - 2019.

5. Research Methods

The system analysis methods of the predicted results of reforming the state support practice of enterprises producing agricultural products were used.

The principles of quantitative comparison of the conditions and economic results of farming in the countries of the European Union and in Russia were applied using the methods of tabular analysis.

An algorithm for calculating the elasticity coefficients was used to describe the profit functions characterizing the relative changes in the production result per unit of change in the studied factors - production conditions.

The principles and methods of sociological surveys were used to assess the representativeness of the surveyed sample in the information field available for data analysis.

6. Findings

6.1. Visible changes in the development of agricultural production (1995 - 2019)

The most noticeable distinction between the periods of agricultural development in the Russian Federation from 1995 to 2019 should be considered the decision to ban the import of food products from a large number of countries that had supplied these products earlier for many years. The consequences of this decision are the complete absence of competition for domestic producers in the domestic market and, as a consequence, the opportunity to increase wholesale and retail prices for food on it (by 16% on average for 2015-2019 compared to the period of 2010-2014) (Ajzinova, 2019). Also - the impoverishment of its range, a decrease in the share of environmentally friendly products. At the same time, the total volume of agricultural products in grain equivalent (Krylatyh & Belova, 2018) did not increase so noticeably: on average for 2014 - 2018 it was 4% higher than the average level of 1999 -2013; production in energy equivalent increased by 2% during this period.

A less unambiguous phenomenon in assessing the results is the change in the structure of economic and legal categories of agricultural enterprises. It was noticeable from about 1995-1997 and was characterized by the emergence of large agricultural corporations among commodity producers (Krylatyh & Belova, 2018). At present, agricultural holdings occupy 63% (90 million hectares) of all agricultural land (143 million hectares). Farms occupy 25% (40 million hectares) of agricultural land (with many of them supplying products to agricultural holdings for processing and further sale). Personal subsidiary farms and others, respectively - 9% (13 million hectares) . Therefore, the predominance of agricultural holding products in the domestic and foreign markets is explainable - 71% of the total volume. Simultaneously, the average retail price of their products is 1.3 times cheaper than farm products.

The negative side of agricultural holdings' predominance is significant environmental violations associated with the high level of intensification and concentration of their production inherent in large economic entities (Cherednichenko, 2017; Schwab et al., 2015). The total area of disturbed lands that have lost their economic value or harm the environment is more than 6 million hectares. According to calculations carried out at the institutes of the Russian Academy of Sciences (NIIAPiI, CEMI), most of these losses - up to 84% are observed on the lands of agricultural holdings. The pollution of water sources shows a noticeable difference between farms and agricultural holdings. In the latter, the concentration of harmful substances is 3.7 times higher (Cherednichenko, 2017); (Dovgat'ko et al., 2016); (Marimin et al., 2017).

A notable negative sign of recent years has been the decline in the total area of productive agricultural land. Abandonment and underutilization due to poverty of farms in the regions of the non-black earth zone is 19% of the used area on average for 1995 -2019.

In some perspective, there may be a significant increase in food demand, and therefore the need to expand agricultural land due to adverse climatic changes, and, accordingly, a decrease in yields, population growth (Stephenson & Wenzel, 2017). And even - with the likelihood of increasing demand for exported Russian agricultural products. However, it will not be easy, or even impossible, to make up for the loss of productive land, in cases where it was sold to non-agricultural users - for housing and industrial construction, recreational, sports and recreational facilities, hunting and fishing bases, etc. The

active dynamics of this process should be regarded as a threat to the country's food security, which is part of general economic security (Denisov, 2019; Ksenofontov et al., 2017; Stephenson & Wenzel, 2017).

The situation is especially aggravated by the withdrawal from agriculture of the most economically efficient, based on the results of the use of land near cities, bringing users of any economic specialization high incomes due to differential rent by location (Table 1).

Table 1. Significance and compliance of actual indicators with the high level of territory development in the Russian Federation (%)¹

Detailed conditions (external factors of production)	The coefficient of elasticity of the profit function	Compliance of actual indicators with high level of territory development
Supply of external energy to farms	0.3	7.0
Provision of the territory with paved roads per 1000 sq. km	0.8	12.0
The proximity of the main consumer of products in the domestic market	0.8	14.0
Share of products sold at the place of production	0.2	3.0

Agricultural enterprises are also interested in using these lands. However, their products' low profitability compared with other economic entities makes them uncompetitive in the acquisition, usage, and preservation of these lands. Therefore, the current situation can also be attributed to adverse changes in the development of agricultural production.

6.2. Inherited characteristics of agricultural production

Along with the noted new economic conditions, mostly external and negative for agricultural enterprises, severe objective difficulties and shortcomings in their activities have remained from the previous periods (Uzun & Lerman, 2017). As before, the share of high-performance new production technologies capable of maximizing its economic efficiency and social utility in the interests of the consumer is still low (Baldwin, 2016). According to the data of the agriculture departments of the regional and district administrations of the Ministry of Agriculture and Food (2007 -2018) in the Kaluga, Smolensk, Tver, Kostroma, Vladimir, Yaroslavl regions, the share of farms that have entirely switched to high-performance technologies in crop and livestock production is only 7% (mainly - highly specialized farms) of their total number. Enterprises that have partially mastered modern, highly productive technologies for the production and processing of products account for 13.

¹ Calculated according to the agriculture departments of regional and district administrations of the Ministry of Agriculture of the Russian Federation, 2007 - 2015.

The need to improve the quality of production management and its organization is associated with solving scientific and technological development. Their low indicators for Russia, in comparison with industrialized countries, are inherited from the pre-reform period.

The most significant of them, i.e. those that have the greatest impact on the final results of management, are shown in Table 2. (For Russia, the calculation was carried out for the farms of the named regions of the non-chernozem zone of the European part).

Table 2. Indicators of the quality of management and organization of production by country (average for 2008 – 2018)

Countries	Delay in sowing and harvesting dates (in %% to the optimal time)	Livestock mortality (in %% to the average annual number)	Crop losses, including spoilage when overstocking (in %% of the standing crop)	Shares of elite livestock breeds in the total number of livestock (%)	Shares of elite crop varieties (%% to the total arable land)
Russia	23.0	9.5	14.1	8.0	9.5
Germany	4.0	1.3	2.2	76.5	81.3
Great Britain	2.6	4.4	3.7	66.4	76.6
Ireland	6.3	2.8	8.4	50.8	60.5
Denmark	5.8	3.0	1.6	73.6	67.7
Sweden	10.1	5.7	3.5	68.1	78.0
Belgium	3.5	4.6	6.9	57.1	85.4
The Netherlands	3.5	4.6	7.5	53.3	76.5

(Denisov, 2019)

The extremely unfavorable balance of labor resources in these regions is a traditional, well-known and intractable problem associated with the difference in natural conditions of the northern, eastern and southern agricultural regions, with the difference in the provision of farms with financial resources and means of production, with its dispersion. There is a lack of their resources in some (as a result of going to cities) and redundancy in others; underdevelopment of the labor market, which aggravates the imbalances in its location. Meanwhile, in agriculture, the share of direct labor costs (on average in Russia) is approximately 18% of the total current production costs. (The same indicator on average for the branches

of the real sector is within 5-7%). This shows the importance of this resource for the agricultural industry. For now, it surpasses the demand for material means of production purchased from outside.

For agriculture, an invariable feature is its low economic efficiency compared to most industries in the field of material production. On average for 2010-2018 the profitability of agricultural production was 3.8%, while for the real sector as a whole - 12.7%, manufacturing - 7.6%; transport - 6.8%; extraction of minerals - 35.8%. For the same sectors of the economy, the excess of the average wages compared to agriculture is 48%; 57%; 51%; 63%²

The above-mentioned adverse external conditions for agricultural production force the state to protect agricultural labor from these unfavorable factors. These are well-known: subsidizing low-profit types of production, providing soft loans, commodity interventions to maintain the price level in good years, reducing fiscal burdens, etc. However, this system of economic support is not entirely satisfactory, sufficient and needs to be improved. The amount of allocated financial support is proportional to the available capacities of unprofitable industries - livestock and crop area. But it does not depend in any way on the quality of the organization of the economy and its results - the average long-term yield, livestock productivity, sales prices on the domestic and interregional markets. As a result, enterprises (one group according to production conditions) that irrationally use support means that overstate sales prices receive equal additional financial resources as farms with a high production organization and socially useful focus. With this principle of equalizing distribution of support funds, there are no incentives to increase the economy's economic efficiency and its compliance with the needs of the consumer, the interest in maintaining low-profit production prevails. Attempts to expand them to obtain additional material benefits are limited by the possibility of selling excess products of one type.

6.3. Possible incentives for the positive dynamics of the development of agricultural production

One of the possible effective options to stimulate cost-effective and at the same time, socially useful production could be the provision of support funds in proportion to the efforts of farms that ensure precisely these results. Such results should be considered: average long-term (not in one year), exceeding the average district level of sales of products (1 ha per 1 employee), lower sales prices, compliance with environmental standards.

In addition, assistance should not be limited to these traditional means of support, the participation of the state in the acquisition and development of modern highly efficient production technologies by farms, in market organizations within the country and in cross-country interactions could be much more important (Baldwin, 2016). Currently, such technologies are not available for most enterprises.

The assistance should also be provided to develop the district's general arrangement and farms' infrastructure. First of all, it is the construction of roads, the development of the product market, the necessary means of production; Construction of housing and social infrastructure (Connell, 2018). Currently, these areas of development are more in demand than solutions to purely industrial problems.

An important component of the named program of reforming the state's general paternalistic policy in relation to the agrarian segment of the economy should be the creation of regional information

² Calculated according to Rosstat data (2010 - 2018).

and consulting services for enterprises, specialists, and managers working in administrative centers (Golova & Suhovej, 2018). First of all, its activities should be aimed at informing enterprises about the possibilities of organized technology markets (Skvorcov et al., 2018), participation in them; to provide organizational and legal assistance in entering the technology market. Besides, this assistance should be in the form of providing expert advice to help farm managers make the right economic decisions to develop their production, optimize employment, taking into account the possibilities of using regional and interregional labor markets, and on measures to improve living conditions in rural areas (Keisner et al., 2016).

These measures should essentially become a catalyst for the positive development of agricultural production itself and the residential areas of its location.

7. Conclusion

Like other types of material production, the agrarian economy is forced to satisfy the needs of internal development (maximizing profits) and the population's interests as the primary recipient of its products (saturation of the food market, lowering sales prices). This requirement for the balance of economic results gives the right to social control and regulation of agricultural production development. An effective measure of such regulation could be the improvement of society's paternalistic efforts in the person of the state in relation to the agrarian economy, expressed in material encouragement of socially useful activities of enterprises. The essence of such an award, the basics of its technical implementation, was set out in this report's text. An effective measure of such regulation could be the improvement of society's paternalistic efforts in the state concerning the agrarian economy, expressed in material encouragement of enterprises' socially useful activities. The essence of such an award, the basics of its technical implementation, was set out in this report's text.

The state support of the agricultural economy worldwide and in Russia is carried out not only due to its weak competitiveness and is not a free action that does not expect dividends from this for the final result. The main result should be ensuring the country's food security. It includes:

- full satisfaction of the current needs of residents for food and a guarantee of its preservation in the future;
- creation of a strategic stock of food that is sufficient in volume and reliable in storage;
- protection from unfavorable events in foreign markets and increasing the competitiveness of exports of domestic products;
- implementation of measures to compensate for damage in agriculture from climatic anomalies, large-scale pandemics and epizootics among animals.

Food security is known to be part of the country's economic security. The accompanying goals in providing agriculture assistance are the most organic and balanced employment in agricultural areas. The partial positive impact is taken on several important national economic development indicators, such as reducing inflation in the consumer sector, additional revenues to regional and federal budgets from taxes on agricultural production growth, and food exports. This will also indirectly affect the positive dynamics of diversification of production in the real sector by reducing dependence on energy industries.

The recommendations, which deal with a number of important aspects of agricultural production development, will contribute to it with the active interaction of rural producers with the vertical management system of economic regulation at the regional and federal levels.

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