State Support for Innovative Development in Russia to Achieve Sustainable Development of Agricultural Sector

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Abstract: The purpose of the study is to determine the sufficiency of measures to support and stimulate innovation in the agricultural sector of Russia to ensure its sustainable development. To determine the information base, a search was used by keywords using general scientific research methods, as well as their expert selection, analysis, comparison and systematization was performed. To identify regulatory legal acts that govern innovation activities, a keyword search was used, the keywords were selected by an expert method. The identified documents were textual and logical analyzed and structuring by a graphical method to facilitate further analysis were performed. Analysis revealed that there are no separate programs aimed at the growth of innovative activity in the agricultural sector, but support is provided for by the activities of state programs and national projects. A number of national projects and programs are being implemented that are focused on achieving national goals, scientific and technological development, development of territories, and stimulation of innovative and entrepreneurial initiatives. Support measures under these programs and projects contribute to the development of innovation activities and the organization of highly productive, efficient and resource-saving agricultural production. Because stimulation of innovation activities in many countries is a factor that determines the global competitiveness of national economies, the sustainable development of the agricultural sector and the introduction of resource-saving techniques taking into account environmental protection, study of potential measures to support innovation in the industry is both timely, and relevant and will contribute to the growth of innovation activity. The novelty of the study lies in the analysis of support measures within the framework of programs and national projects for the presence of activities that provide support for innovation in agriculture, as well as the development of territories and scientific and technological progress, upgrading of production and forcing the entrepreneurial initiative.

1 INTRODUCTION

The rapid development of science and technology, global competition for ideas and means of their implementation currently determine the economic policy of the leading countries while orienting them towards stimulating innovation initiatives and attracting private investment in breakthrough technological areas (Kuzmin, 2021).

A model of the predominant use of foreign equipment, techniques and breeding achievements has developed in the Russian Federation, which indicates insufficient innovative activity in the agricultural sector.

The Strategy for the Development of the agricultural and fishery sectors of the Russian Federation for the period up to 2030 (further referred to as the Strategy) has been approved, which takes into account the need to ensure an integrated approach to achieving the national goals (Decree No. 474) outlined in the Decree of the President of the Russian Federation titled «On the national development goals of the Russian Federation for the period up to 2030», such as accelerating technological and innovative development, ensuring accelerated digitalization of production, creating a highly productive export-oriented sector in the agribusiness that develops based on up-to-date innovative techniques (Decree No. 474). The Agency

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for Strategic Initiatives, together with the business community, presented a roadmap for the development of the FoodNet food market in September 2017. The roadmap provides that the Russian companies should occupy more than 5% of the global market in five priority segments by 2035. These segments are smart agriculture, accelerated breeding, accessible organics, new sources of raw materials (biomass of algae, insects, etc., pseudo cereals, etc.) and personalized nutrition (The concept of the roadmap).

The government is making significant efforts to stimulate innovation activities: work has been carried out on state strategic planning that directs innovation activities in the most promising areas; an infrastructural support has been organized that assists enterprises at all stages of the life cycle of innovative projects and developing products of an intersectoral nature (IT technologies, biotechnologies, engineering, etc.).

The main program document stimulating innovation activities for the agricultural sector is the Federal Scientific and Technical Program for the Development of Agriculture for 2017-2030 (FSTP), whose tasks are, among other things, to create conditions for the development of scientific / scientific and engineering activities and obtain the results necessary for the creation of techniques, as well as the creation and implementation of techniques (Decree No. 996). The scientific and engineering development of the agricultural sector, first of all, involves the engineering and process renewal of economic entities and the introduction of knowledge-intensive forms of labor organization, management, marketing, etc. (Sandu, 2021).

Since the development of the agricultural sector based on knowledge and innovation is the only way to achieve national goals, the analysis of measures to support and stimulate innovation activities in the agricultural sector, as well as generalization of information on support measures implemented within the framework of state programs and national projects that contribute to the implementation of conditions for the development of innovation activities and the organization of highly productive, efficient and resource-saving agricultural production are relevant (Kharitonov, 2021, National Science project, Vasilchenko, 2020).

Stimulation of innovation activities as the main factor in the development of the agricultural sector, as well as the study of aspects that affect innovation activities, are reflected in many papers of domestic scientists, including those of A.V. Golubev (problems of innovative development of Russian agriculture), E.V. Orlova (analysis of innovative development of the agricultural sector in Russia), A.V.Bogoviz (investment development issues), and V.N. Kuzmin (stimulating innovation activity) (Golubev, 2021, Orlova, 2020, Bogoviz, 2018, Kuzmin, 2021). Main factors of scientific and technical development and basis for forecasting the innovative development of the agricultural sector are investigated in the works (Bogoviz, 2020, Vasilchenko, 2020). Despite the great role of these papers for understanding various aspects of innovative activities and its stimulation, no analysis of measures and tools for stimulating innovation activity that can be used by manufacturers from non-industry programs and national projects has been performed yet. Generalization and systematization of information in this area have not been performed too.

2 MATERIALS AND METHODS

The purpose of the study is to analyze them and determine their sufficiency to ensure the sustainable development of agriculture. The subject of the study is the support measures implemented within the framework of state programs and projects that stimulate innovation activities in the agricultural sector.

The following are the objectives of the study:

1. Analyze the definition of “sustainable development of the agricultural sector”;

2. Formulate problematic issues of state support for the innovative transformation of the agricultural sector;

3. Describe the trajectories of state support to agriculture for the modernization of the agricultural sector.

The information basis of the study was the regulatory legal acts (Decree No. 474, Decree No. 996), the official data from the Russian Federal State Statistics Service (Russian Federal State Statistics), and papers of leading scientists in the field of research (Bogoviz A., Golubev A., Kuzmin V., Orlova N., Sandu I., et al.). The study used the “appeal to authorities” method - generalization of the opinions of authors who had previously studied this topic. A. Z. Anokhina analyzed the issues of innovative evolution of the agricultural sector as a factor of competitiveness and identified key problems, trends, and prospects (Anokhina, 2020). In their research, A. V. Golubev identified new challenges to Russian agriculture (Golubev, 2021). The work of E. E. Kharitonov determined the role of innovations in agriculture development, using Russia as an example (Koutsouris, 2020). I. S. Sandu identified the main incentives for the scientific and technical evolution of Russian agro-industrial enterprises (Sandu, 2021).

The analysis of legal documents on state support of the agricultural sector used theoretical studies, including scientific approaches to ascent from the abstract to the concrete and a logical method. The study applied generalized (versatile) approaches to characterize the sustainable development of the agricultural sector. Such general scientific empirical methods as participant observation, thought experiment, and intellectual description were used in designing the economic situation of regions over the past ten years. The proposed research includes general logical methods: analysis, synthesis, abstraction, generalization, modeling, and analogy. The logical rules of analysis provide these methods for identifying and organizing the necessary documents.

When searching for legal information on web portals and analyzing existing regulatory legal acts in the field of promoting innovation, the author used the selection method for key terms: “innovation activity,” “research work,” “entrepreneurship,” “regulation of innovation,” etc. The expert method helped select legal documents stimulating innovation and entrepreneurship over the past ten years. These methods were compared textually and logically and systematized using a graphical method; after, the conclusions were drawn. Such a choice of scientific approaches is due to the fact that legislative and regulatory documents are freely available on electronic resources and portals, accessible for detailed analysis, comparison, and systematization. The considered methods were used in the order of mention.

3 RESULTS AND DISCUSSION

The significance of the innovative development of the agricultural sector in the short and long term is reflected in the State Program for the Development of Agriculture and the Regulation of Agricultural Products, Raw Materials and Food Markets (further referred to as the State Program), the Strategy, the FSTP, Science National Project and other regulations and strategic documents (Decree No. 717, Decree No. 996, Decree No. 474, National Science project). Strategic guidelines are determined by the Forecast of the long-term socio-economic development of the Russian Federation for the period up to 2030, which includes the section titled «Development of science, technology and innovation», the Forecast of the scientific and technical development of the agricultural sector of the Russian Federation for the period up to 2030, etc. (Decree No. 717).

Current vectors of scientific and engineering development of the agricultural sector are determined by the FSTP, which stimulates the creation of innovations, supports advanced research and the creation of scientific collaborations, as well as the creation of infrastructure for them. Within the framework of the FSTP, it is planned to implement a number of subprograms structured by key segments of crop production, animal husbandry, aquaculture, animal health and feed production, mechanization, etc., in the areas of which there is a high degree of import dependence (Anokhina, 2020, Bogoviz, 2020).

The ongoing Science Project, which, within the framework of the priorities of scientific and engineering development, is designed to ensure entry into the top five countries of the world in the field of scientific research and development (National Science project).

The specified national goals and strategic objectives of the country's development, including Russia's entry into the top five largest global economies, ensuring the accelerated introduction of digital technology and the creation of a highly productive export-oriented sector in basic industries, have been instrumentally embodied in the form of a list of national projects. Among the twelve areas of Russia's strategic development, half are focused on supporting the scientific, technological and innovation track in such national projects as Education, Science, Small and Medium Enterprises, Digital Economy, Labor Productivity and Employment Support, and International Cooperation and export (Troshin, 2019, Korolkova, 2020).

Currently, Russia does not have separate programs for stimulating innovation activities in the agricultural sector. However, support for innovation activities is provided by a number of state programs and national projects. Their certificates have been analyzed for the presence of projects and programs that provide for activities to support the innovation activities, as well as the development of rural areas and scientific and engineering progress, which form a favorable environment for innovation activities in the agricultural sector in the short term. It has been revealed that activities to support innovation activities are provided for by a number of state programs and national projects through subprograms, departmental programs, departmental target programs and federal projects to be implemented within framework of the state programs and national projects (table 1).

Table 1: State programs to support innovation in the agricultural sector.

State programs and projects		Subprograms for the development of rural areas and scientific and engineering progress in the agricultural sector
National Project: Small and Medium Enterprises (SMEs)and Support for Individual Entrepreneurial Initiatives		Federal Project: Creation of a support system for farmers and development of rural cooperation
		Federal Project: Improving the conditions for doing business
		Federal Project: Expanding access of SMEs to financial resources and concessional financing
		Federal Project: Acceleration of SMEs
		Federal Project: Promoting entrepreneurship
		Departmental Target Program: Ensuring state monitoring of rural areas
		Departmental Target Program: Modern look of rural areas
		Departmental Program: Development of transport infrastructure in rural areas
		Departmental Program: Development of engineering infrastructure in rural areas
		Departmental Program: Improvement of rural areas
		Departmental Program: Promoting rural employment
		Departmental Program: Development of housing construction in rural areas and improving the level of improvement of households
State program	Subprogram: Development of agricultural sector branches	Stimulating the renewal of the agricultural machinery fleet
		Departmental Program: Development of agricultural sector branches
		Departmental Program: Stimulation of investment activity in the agricultural sector
		Departmental Program: Technical upgrading of agricultural sector
		Federal Project: Export of agricultural products
		Federal Project: Creation of a support system for farmers and development of rural cooperation
		Support for SMEs in the agricultural sector of the federal project Acceleration of small and medium-sized businesses
	Subprogram: Providing conditions for the development of the agricultural sector	Departmental Program: Digital agriculture
		Departmental Target Program: Sustainable development of rural areas
		Departmental Program: Development of Russian reclamation sector
		Departmental Target Program: Ensuring the general conditions for the functioning of the agricultural sector branches
		Departmental Target Program: Scientific and engineering support for the development of agricultural sector
		Departmental Target Program: Organization of veterinary and phytosanitary supervision
FSTP: Subprograms to be implemented		Development of selection and seed production of potatoes in the Russian Federation Development of selection and seed production of sugar beet in the Russian Federation Creation of a domestic competitive crosses of meat chickens in order to obtain broilers Development of the production of feed and feed additives for animals Development of selection and seed production of oilseeds in the Russian Federation Improving the genetic potential of beef cattle Development of viticulture, including nursery Improving the genetic potential of dairy cattle Development of selection and seed production of industrial crops Selection and seed production of vegetable crops Development of selection and processing of grain crops Development of nursery and horticulture Development of selection and seed production of corn
FSTP: Subprograms to be drafted		Agricultural machinery and equipment Development of technologies for the production of medicines for veterinary use
National Project:International cooperation and export		Federal Project: Export of agricultural products
Federal Scientific and Technical Program for the Development of Genetic Technologies for 2019 - 2027		Biosecurity and Technological Independence
		Genetic technologies for the development of agriculture
		Genetic technologies for industrial microbiology

State Program: Economic development and innovative economy	Subprogram: Investment climate
	Subprogram: Development of small and medium business
	Subprogram: Stimulating innovation

Source: Compiled by the author

The analysis revealed a large number of projects and subprograms that provide for measures to support innovation activities, access to infrastructure, financial, scientific and engineering support.

The previous stage of state policy stimulated, through the Strategy for Innovative Development of the Russian Federation for the period up to 2020, the creation of an innovative environment that provided market participants with conditions for the development and implementation of innovations, and financed fundamental science and new developments. At the present stage, the role of the state becomes even more significant, since it has the ability to influence the degree of infrastructure development, the demand for innovation, financing, competencies and the culture of innovative entrepreneurship. The active position of the state in stimulating the innovation activities can significantly accelerate the pace of development of certain industries, including the agricultural sector (Russian Federation. Support, Marinchenko, 2023. Stimulation). Within the framework of the developed strategy for the development of the industry, the state has the opportunity to finance strategically important projects and fundamental research, as well as to ensure the demand for innovation through the state order, support through the sharing of financial responsibility for the success of research, stimulation of the innovation activities of universities, research institutes and companies, replication of innovations for innovations, stimulation involvement in the innovation activity system of companies, in which the state is a shareholder through corporate governance tools, etc. (Strategy for the development).

In recent years, there has been a positive trend towards an increase in spending on innovative activities of organizations and investments in business development, the total share of these sources has increased. There is also a positive trend associated with increasing expenses from the own funds of organizations and investments from businesses. The total share of these sources has increased from 45,6% to 63,0% in 2018-2022, which indicates their increased innovation activities (Russian Federal State Statistics).

It should be noted the growing influence of large integrator companies that take control of an increasing share of food systems and are able to achieve a high effect in achieving economic, environmental, social and other key goals and form global value chains.

In addition, in Russia until 2021, there were more than 40 different corporations, funds, and banks that had been established to support the innovation activities and more than 200 regional organizations that had been established in the form of support funds, regional venture funds, business incubators, etc., which, based on their functions, also supported the innovation activities and acted as development institutions (Marinchenko, 2023. Stimulation). Currently, development institutes are in a state of reorganization; upon completion of which the system of development institutions will represent a single national development institution at VEB.RF, a State Development Corporation, and 12 sectoral development institutions. As part of the reform, a system of seamless integration of state support measures has been formed, which provides end-to-end acceleration of the startup acceleration process from the establishment to launching products on the market or receiving investments. NTI Platform, a Russian Direct Investment Fund, as well as Innovation Promotion Fund, Skolkovo, Fund for Infrastructure and Educational Programs, subsidiaries of VEB.RF, also provide significant support to the innovation activities based on the mechanism of project financing of investment projects as per syndicated credit (loan) agreements using the state support measures (Bogoviz, 2020, Marinchenko, 2023. Stimulation).

The target institutions for the development and promotion of innovation activities in the agricultural sector are Rosagroleasing and Russian Agricultural Bank, which provide modernization of production and long-term and short-term investments, as well as stimulate the development of cooperation, small forms of business and rural areas. Export development is supported on a systematic basis by Russian Export Center, which provides Russian exporters with a wide range of financial and non-financial support measures within the framework of International Cooperation and Export National Project and Export of Agro-Industrial Products Federal Project. Financial, infrastructural, property, legal, methodological and other support for small businesses, cooperatives and farmers is provided by Corporation MSP (Novozhenina, 2021, Marinchenko, 2024).

The study of aspects that affect innovation activities, are reflected in many papers of domestic scientists (Kharitonov, 2021,Vasilchenko, 2020), at the same time, studies that analyze and systematize non-sectoral state programs for the presence of support measures (for example, the Federal Scientific and Technical Program for the Development of Genetic Technologies and Economic Development and Innovative Economy) that can be used in the interests of agriculture have not been discovered. As for 'Nauka' National Project, since science and education are key elements of progressive innovative development (Rodionova, 2019, Troshin, 2019), their development in the interests of the agricultural sector is given great attention, which is consistent with the data obtained (Marinchenko, 2023. Methodological approaches, Marinchenko, 2024).

A study of support measures within the framework of the FSTP has confirmed the great potential for stimulating innovative activities within the framework of this program; this confirms the previous research results in the papers (Marinchenko, 2023. Stimulation, Marinchenko, 2023. Improving the infrastructure).

The analysis has revealed a large number of activities of programs and projects within the framework of which the state provides support for innovation activities, for the same purposes there are funds and development institutions that form a system of seamless integration of state support measures and through acceleration of the process of accelerating projects, whose activities are aimed at achieving national goals.

4 CONCLUSIONS

Stimulation of innovative activities based on scientific and engineering development is a factor that determines the global competitiveness of national economies and industries. National goals are outlined, including the acceleration of technological development, the strengthening of innovative activity, the creation of highly productive industries, etc. To achieve them, national projects and programs are being implemented, which are aimed, among other things, at stimulating innovative and entrepreneurial initiatives. There is currently no sectoral program to stimulate innovation in the agricultural sector, but support is provided for by the activities of state programs and national projects. An analysis of their certificates has showed the presence of a large number of activities that provide support for innovation, infrastructure development of territories, modernization of production and stimulate innovative and entrepreneurial initiative.

The development of the agricultural sector based on knowledge and innovation is a condition for the industry to achieve national goals. Within the framework of state programs and national projects, it is possible to create conditions for the development of innovation activities and the organization of highly productive, efficient and resource-saving agricultural production. The state provides various measures and support tools for this.

Further research in this area is promising, so it will reveal practical examples of the use of 'non-industry' programs in the innovative activities of enterprises and determine their effectiveness for the development and stimulation of innovative activities in the agricultural sector.

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