

State regulation of breeding and seed production in the Russian Federation: economic and regulatory aspects

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Abstract. The sustainability of agricultural production and its efficiency depend on the quality of the seeds used, as well as on the rational organization of breeding and seed production in the country. Seed production allows the replacement of previously used crop varieties with new, more productive ones. The issues addressed in the article are part of a set of problems related to the state regulation of crop breeding and seed production in the Russian Federation. To create the necessary conditions for sustainable development of agriculture, the state can use various tools. To ensure sustainable development of the industry, the optimal amount of government intervention in market mechanisms must be determined.

Keywords: state regulation, breeding and seed production, crops, agriculture

1. Introduction

Research and production activities in the field of plant breeding and seed production of crops are a less resource-intensive and more efficient direction in the intensification of the crop industry.

Seed crops, as the main part of crop production, is an intermediate link between science (selection) and production. Rational organization of the seed production allows to replace cultivated crop varieties with new, more productive ones, as well as to produce a “variety update,” i.e. fully replacing those varieties (after 3-4 years) that lose their economic and biological qualities. It is proved that the high-yielding varieties and hybrids of agricultural crops can provide a yield increase from 50 to 70% [3].

In this regard, the selection and seed production of agricultural crops needs state regulation. General rules and procedures for the functioning of the seed market for its subjects (producers and consumers of seeds) and the executive authorities are determined by the state. Government regulation is effective if it acquires the force of law. The theoretical aspects of state regulation of agriculture in the framework of classical and physiocratic schools were recently reviewed in the pages of the collection [5], these aspects remain relevant for domestic agricultural production.

Moreover, the development of the organizational-economic mechanism in the field of crop breeding and seed production in the context of globalization of the world economy objectively needs state support and strengthening of corrective government measures.

2. Materials and Methods

The purpose of the study is to analyze the measures applied in the field of plant breeding and seed production in the Russian Federation. In the course of the research, methods of analysis and generalization of economic and legal information on the issues of state regulation of breeding and seed production were used.

3. Results

In the course of the implementation of the *State Program for the Development of Agriculture and Regulation of Agricultural Products, Raw Materials and Food Markets for 2013-2020*, a number of activities aimed at developing seed production are carried out. This state program was approved by the Decree of the Government of the Russian Federation dated July 14, 2012 No. 717.

Since 2015, part of the direct costs incurred for the creation and (or) modernization of the objects of the AIC has been constantly reimbursed, including in those seed breeding centers engaged in the production and sale of high-quality seed material.

Since 2019, the reimbursement of part of the direct costs incurred for the creation and (or) modernization of the plant breeding and seed centers in crop production has been provided for improving the competitiveness of agricultural products in the domestic and foreign markets.

Starting from 2016, a subsidy to provide unrelated support for reimbursement of the cost of carrying out a complex of agrotechnological works per 1 hectare of sown area for the production of vegetable seeds and the production of seed potatoes has been provided. Since 2017, this subsidy has been extended to the production of corn seeds, sugar beets, sunflower.

In 2019, agricultural producers who used seeds of agricultural crops, varieties or hybrids, included into the State Register of Breeding Achievements and approved for use in accordance with their varietal and sowing qualities GOST R 52325-2005, were able to receive subsidies. This is due to the fact that, despite government support for elite seed production and the decline in the proportion of seeding of mass reproductions (in 2018, this figure was about 27%), about 16% of the seeds of spring grain and leguminous crops of unbranded and not included into the State Register of Breeding Achievements were approved for use were sown. Also, about 5% of substandard seeds were sown for spring sowing in 2018. The Order of the Ministry of Agriculture of Russia of January 24, 2017 No. 24 "On approval of the lists of directions for the targeted use of preferential short-term loans and preferential investment loans" provided for the possibility of obtaining preferential short-term loans for the purchase of seeds, as well as preferential investment loans for a period of 2 to 8 years, for the construction, reconstruction, and modernization of the seed breeding centers.

The support of elite seed production, carried out within the framework of the "single" subsidy, is intended for scientific organizations, professional educational organizations, higher education educational organizations engaged in the production of agricultural products, their primary and subsequent (industrial) processing in the process of scientific, technical and (or) educational activities.

One of the key objectives of the *Federal Scientific and Technical Program for the Development of Agriculture for 2017-2025* (FSTP) is to ensure a steady growth in agricultural production based on the use of seeds of new domestic varieties.

For the production of original and elite seeds of agricultural crops that are highly dependent on foreign-made seeds, the subprograms were developed to develop the breeding and seed farming of potatoes, sugar beets, corn, oilseeds, and vegetable crops, as well as the development of farming and horticulture in the Russian Federation.

The state economic policy in the field of import substitution is designed for the long term and implies the growth of Russian high-tech production with the subsequent output of Russian products to export markets.

As part of these sub-programs, the following is planned:

- We plan to create 12 new domestic competitive potato varieties, produce and sell 18 thousand tons of seed potatoes of domestic breeding elite category, in order to reach 25% of the domestic consumption of seed potatoes of the elite category of domestic production by 2025.

- We plan to create at least 8 new domestic competitive sugar beet hybrids of domestic breeding and increase the share of seeds produced under the subprogramme to 20% in the total amount of sown seeds.

According to the proposals of the Ministry of Science and Higher Education of the Russian Federation on the improvement of legislation in plant breeding and seed production in the framework of participation in the meeting of the Committee of the Council of the Federation on Agrarian-Food Policy and Environmental Management of March 14, 2019, the following changes should be made:

1. In accordance with paragraph 2.6 of the passport of the Federal project *Development of an Advanced Infrastructure for Research and Development in the Russian Federation*, at least 35 seed breeding and breeding centers in the field of agriculture must be established before December 31, 2021, including with participation from the world-class genomic research centers.

In order to stabilize and streamline the process of creating and operating Scientific Centers, the normative consolidation of the basic principles for the creation and functioning of scientific seed breeding and breeding centers is necessary.

Issues related to the creation goals, general criteria, and principles to which these Scientific Centers must comply, the order of creation and operation, including the issues of material and technical equipment, personnel requirements, technological solutions aimed at removing new breeding forms should be regulated legally.

2. In order to implement the Federal Law of December 28, 2017 No. 424-FZ *On Amendments to Articles 5 and 6 of the Federal Law "On the Development of Agriculture*, normative legal acts must be adopted that would provide subsidies to budgetary scientific institutions that carry out the selection and primary seed production of agricultural crops. Subsidies should be provided to these institutions as agricultural producers for reimbursement of expenses incurred at their own expense for seed production activities, as well as for applying special tax regimes to them.

3. Production, testing of new crops and elites should be allowed only to the originators of such varieties or their authorized representatives in the presence of official representatives of local certification bodies.

4. As part of the digital economy, a transparent information system reflecting the movement of seeds in the market should be created with the assistance of the State Variety Commission, the Russian Agricultural Center, originating agencies, and seed farms in the form of search programs that allow information to be systematized.

5. For the involvement of scientific institutions in the implementation of the most important national economic tasks, the adoption of measures to eliminate legal obstacles to their participation in state development and support programs is necessary. Additional changes to the Land Code of the Russian Federation in terms of providing scientific organizations with a priority (without participation in tenders) of the right of targeted lease of agricultural land for use in research and development purposes are necessary. Also, changes are necessary in terms of the transfer of these lands to the sublease created by economic societies, namely experimental production farms or unitary enterprises being transformed into economic societies. Either the adoption of the Decree of the Government of the Russian Federation is necessary, in which the law enforcement practice of targeted implementation of the provisions of Federal laws would be formulated.

6. In connection with the development of the Federal Law on Organic Farming, breeding programs to increase crop productivity under conditions of reducing pesticide load, minimizing mineral fertilizers, and obtaining environmentally friendly products should be included in scientific research of institutions.

7. Among the complex of measures aimed at creating and introducing until 2026 the competitive domestic technologies based on the latest achievements of science in Decree No. 350, measures for the production of original and elite seeds, breeding products (material) are determined in the areas dependent on seeds or breeding products (material) with foreign production. The FSTP is developed and approved to implement the Decree.

For the implementation of the FSTP, aimed at creating scientific and (or) scientific and technical results and products for the AIC, a large work is underway to formulate Integrated plans for scientific research, which today are a tool to increase the effectiveness of basic and exploratory research and accelerate the implementation of the resulting developments in real economic sector.

In 2019, a total of 12 FSTP subprograms are planned for implementation. They were reviewed by the Council for its implementation in accordance with the “road map” and approved by the Ministry of Education and Science of the Russian Federation, the Ministry of Agriculture of Russia and the Federal State Institution “Russian Academy of Sciences.” The subprograms for crop production include integrated research plans for the development of plant breeding and seed production of cereals, maize, industrial crops, oilseeds, vegetables, and the development of viticulture, including farming, feed production, and animal feed additives.

According to the director of the Department of Coordination of Organizations in the Field of Agricultural Sciences of the Ministry of Education and Science of Russia V. A. Bagirov, taking into account the pledged funds for the implementation of the three subprograms in the amount of 250 million rubles approved in 2018, the funding in the amount of not less than 1.5 billion rubles is necessary for the execution of the remaining 12 subprograms of the FSTP planned for 2019 [2]. According to him, this amount of funding for the subprograms is calculated taking into account the need for state support of individual scientific and educational institutions subordinated to the Ministry of Education and Science of the Russian Federation for the implementation of full-scale work under the relevant subprograms.

4. Discussion

The goal of state regulation of crop breeding and seed production is the creation of relatively equal economic conditions for all participants in the process, which contributes to the innovation and investment development of the subsector. At the same time, the institutional organization and self-organization of the system, its institutional structure and organizational mechanisms of the respective development institutions occupy a special place. Indicative planning and forecasting of seed production, focused on consumption in Russia and the countries of the EAEU, should become elements of its organizational and economic mechanism. This requires the development of marketing management in breeding and seed production of crops at various levels.

Attraction of extrabudgetary sources of financing in breeding and seed production depends on their investment attractiveness, which is based on the mechanism of insuring weather risks for improving the sustainability of the production of varietal seeds and hybrids.

The mechanisms of the breeding and seed complex are associated with the activities of non-profit partnerships that can participate in the following events: (a) developing indicative regional seed production plans; (b) protecting the economic interests of seed producers; (c) organizing control over the quality of seed material; (d) creating a center for the quality assessment and certification of seeds at regional branches of the Rosselkhoz Center; (e) combating digital technologies with gray seed markets.

Developing the export of Russian seeds of agricultural crops requires a unified approach to the assessment of the varietal and sowing qualities of seeds that meet international requirements. At the same time, simplified rules for passing through customs control and registration in the state registers of the EAEU member countries should be developed with the aim of expanding seed sales in its economic area. The participation of the Russian Federation in international seed organizations with the most authoritative and internationally recognized certificates for varietal and sowing qualities of seeds should be extended. In addition, the accreditation system of domestic testing laboratories should be improved based on the harmonization of its methods in accordance with international standards.

5. Conclusion

The issues addressed in the article are part of a set of problems related to the state regulation of crop breeding and seed production in the Russian Federation. To create the necessary conditions for the sustainable development of agriculture, the state can use various tools. To ensure sustainable

development of the industry, the optimal amount of government intervention in market mechanisms must be determined. To take into account the economic interests of all subjects of the breeding system, seed production and consumers, the state should improve the regulatory framework, conduct a competent innovation and investment policy, carry out activities on testing, registering and protecting breeding achievements, monitoring seed quality, training and retraining of personnel. In the future, we can expect that state regulation of breeding and seed production in Russia will have a positive impact on the economic development of the sub-sector, the sustainability of agricultural production, and the preservation of the diversity of biological resources.

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