Ecological organization of grain production based on an innovative approach

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Abstract. The prevalence of an innovative type of development based on environmental component is confirmed by the presence in the Strategy and Concept of Sustainable Development of Russia, the Concept of Sustainable Development of Rural Areas, the National Assessment of the progress of the Russian Federation in the transition to sustainable development. However, in Russia there is a lack of sufficient understanding of the role of innovation in solving environmental problems, and the system of innovation policy measures noticeably lags behind developed countries, and even some developing countries. Currently, the situation with solving environmental problems based on an innovative approach in Russia remains extremely acute. The modern innovative orientation of the world development makes it necessary to revise the content of the strategy in Russia in order not to lose its place in the world and take a more significant position there. Intensive development of grain production in the first half of the twentieth century became an objective condition for the transition of most grain-producing countries to innovative and progressive management schemes. The formed vector of ecological production based on an innovative approach in the organization of grain farming has provided significant results.

1 Introduction

Considering the architecture of innovative approaches in the logic of their concepts and methods, it is important to note that the development of this scientific direction today corresponds to the current trend of finding solutions to empirical problems based on a set of theoretical knowledge. The emergence of new directions, one of which are innovations, determines the formation of a new level of empirical crystallization based on taking into account the industry specifics of management.

This circumstance allows us to talk about the possibility of applying an innovative approach to the formation of grain production, which allows us to overcome the disunity of existing approaches, to more fully take into account the impact of natural and climatic, agrotechnical and organizational and economic factors.

The objective necessity of using innovative tools in solving the problem of ecological organization of grain production is due to the lack of a certain concept at present, according to which it would be possible to analyze in detail the volumes and proportions of inter-farm

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production and distribution of grain, to assess the level of optimality of its organizational and functional structure in terms of socio-economic development goals.

The proposed innovative approach will allow to realize the following advantages in the ecological organization of grain production: reduction of infrastructure and transaction costs of grain production; providing additional profit to participants of the grain market by improving the quality of services provided at all stages of the logistics chain of production and expanding the scale of sales of grain resources; increasing competitiveness.

As an object of research, grain production is characterized by a complex hierarchical structure and is formed due to the influence of a wide range of diverse phenomena and factors (climatic, organizational, political, social, economic), which allows us to consider it as a complex of elements in everyday interaction, characterized by their high activity and ability to adapt and form a developed infrastructure.

The dominant role in ensuring food security ecological production of grain resources plays a role in Russia. On the one hand, the production of grain resources is the basic branch of agriculture and the economy of the Russian Federation as a whole.

The high level of production of grain resources is the raw material base for the development of industries with great innovative potential and knowledge intensity: production of bread and bakery products, starch products and sweeteners; animal husbandry; production of biopolymers; production of biofuels.

On the other hand, the reproductive development of grain resources production is based on combining the results of the successful functioning of a number of industries that are an indicator of the formation of the entire national economic complex: mechanical engineering; fertilizer production; a cluster of innovative technologies aimed at ensuring crop yield growth.

In the conditions of growing social needs in the production and consumption of environmentally safe and high-quality food, the imperatives of achieving a high level of competitiveness of grain resources on the world market is the ecological organization of grain production, the practical implementation of which requires the widespread use of innovative approaches.

2 Materials and methods

The ecological and economic directions of the development of agriculture in general, and grain production in particular, are presented in the works of Glazyev S.Yu. [4], Vazirov A.K.[11], Vinogradova E.G. [12], Vorobyov N.N., Potapova A.N.[13].

The features of innovative approaches in the modern economy are described in the works of domestic and foreign scientists, among which it can be noted Anisimov Yu.P. [2], Zhuravlev Yu.V, Dokholyan S.V., Eminova E.M. [5], Dalgatova I.D., Denisenko I.F., Tovanchova E.N., Deev V.A. [6].

The features and conceptual problems of modern market development of agriculture in general and the grain industry, in particular, are revealed in the works of Larionov V. G., Nekrasov R. V., Bezrukova T. I [8], Dementieva A. A.[9].

Increasing the efficiency and sustainability of innovative development of grain production in modern ecological and economic conditions is largely constrained due to the lack of sufficient justification of the methodology and methodology of its management. The applied scientific developments are mainly fragmentary in nature, and do not take into account the totality of factors and conditions of functioning and development of grain production in their dialectical interrelation and interaction.

The application of the results of this work will contribute to the solution of an important national economic task of building mechanisms for the development of the ecological organization of grain production, as well as its investment and innovation support, allowing
to create new conditions and opportunities for increasing the volume of grain exports, leveling economic costs of grain overproduction, optimization of costs associated with its physical distribution.

3 Results and Discussion

From the practical side, the general goal of the ecological organization of grain production based on an innovative approach is to determine the methods of organization and management of grain production, including the introduction of a system of organization of agriculture based on the principles of ecological and safe innovative nature management, stimulating the growth of grain production.

Thus, the reproduction of soil fertility of agricultural land resources will be ensured, as well as the opportunity to create conditions for the cultivation of ecological grain that is competitive in the foreign market. In general, the fundamental principles of the ecological organization of grain production based on an innovative approach are: grain production should be based on the rational use of resource potential; the development of the grain industry should be based on the cultivation of environmentally friendly grain resources; the introduction of innovations and modernization of the material and technical base of grain farming should be carried out on the basis of reducing the anthropogenic load on the resource and natural potential; provision of conditions for the application of innovative methods of grain production.

The main thing is that the ecological organization of grain production based on the innovative approach of Russia is characterized by a set of certain competitive advantages, the most significant of which are favorable natural and climatic conditions that ensure the growth of production of food grade grain that meets the requirements of high quality, as well as a significant share of arable land in the total amount of agricultural land occupied in crop production. In addition, there are some disadvantages, among which should be noted mainly a decrease in the level of fertility of agricultural land, a decrease in grain yields, which ultimately leads to an increase in the cost of grain production.

The ecological organization of grain production based on innovative approaches is predetermined by a number of objective reasons. Firstly, as the industrialization of agriculture increases, the transition of its material and technical base to an industrial basis, the differentiation of the agrarian sphere occurs. Secondly, such processes as the social division of labor, the increase in the number of separate industries, enterprises determine the interdependence of the elements of the economic structure from each other, from their provision with material, financial and labor resources, as well as from the supply of means of production.

Improving the efficiency and sustainability of the ecological organization of grain production can be achieved by updating the technical and technological base and increasing the innovative level of work in grain production. According to research, the volume of expenditures on such items as the operation and renovation of the agricultural machinery fleet is about 40-60% of the total production costs. Hence, it can be concluded that the technical equipment and innovative renewal of grain production is one of the priority factors ensuring the efficiency of the grain industry.

It is known from the works of domestic scientists that "the load on agricultural machinery in the country on average is more than twice as high as the standard. This situation leads to a delay in the harvesting period and, in general, timely technological operations, and as a result, losses amounting, according to expert estimates, to 25-45% of the grown crop, its low grade." [3]
According to world statistics, Russia is among the rest of the countries with an area under conservation agriculture of about 1 million hectares (although according to statistics of the Ministry of Agriculture of Russia, this area is 16 million hectares).

The economic conditions prevailing in Russia during the reform period have become a barrier to the development of innovations in grain production. The key performance indicators of the functioning and development of grain production, characterizing the level of development of expanded reproduction are at a low level. The increase in the level of efficiency as one of the factors of ensuring the sustainability of production determines the need to expand innovative tools for the production of grain resources. The transfer of production and logistics functions and operations of the grain industry to an innovative, scientifically based system of functioning will ensure: improving the efficiency of logistics functions and operations of grain production; maintaining production and logistics processes at a high technological level in accordance with the requirements of the current competitive environment.

Grouping of factors of ecological organization of grain production based on an innovative approach: increasing globalization; global crisis (economic, environmental, demographic, agroinflation); frequency of natural and man-made disasters; growing shortage of resources (oil, water, food); the need to solve the problem of ensuring food security; the need to strengthen Russia's geopolitical position on the global commodity markets; reduction of grain production in Russia in the conditions of market transformations.

At the same time, it is important to note the specifics of structural communications in the ecological organization of grain production based on an innovative approach. The nature of the structural communications of the components of grain production is expressed in the following [7].

Ecological organization of grain production on the basis of innovative approaches determines the formation of such a mechanism for managing the development of grain production, which will ensure an adequate response of the system to permanent changes in the external and internal grain market.

Practical experience shows a direct proportional relationship between the level of development of the export direction of grain distribution and the effective functioning of the entire complex of related branches of agriculture.

This circumstance is due to the fact that grain exports are the dominant factor in ensuring self-financing of agricultural producers, and the share of grain exports is determined by the specifics of the economic potential of the country as a whole, the availability of reserves mineral resources, the general level of economic and innovative development, etc.

On the practical side, the ecological balance in the development of grain production can be ensured as a result of mastering the methods of conducting production, including systems of organization of agriculture on the principles of rational nature management, ensuring the reproduction of soil fertility.

According to research, today the rates of degradation of agricultural land, reduction of soil fertility are significantly ahead of the pace of measures for the greening of agriculture. In this regard, it is important to conclude that the problem of reproduction in the grain industry should be solved not only from the standpoint of agronomy, but also be of an economic nature, which will increase the productivity of agricultural land and sustainable production dynamics. Thus, the management of grain production on an ecological basis using innovations it will provide a high level of profitability due to a rational approach to its organization while reducing costs and environmental burden.
4 Conclusion

Summing up, we note that in ensuring sustainable development and increasing the competitiveness of grain production, the system of grain farming based on the use of innovative mechanisms plays an important role, which is a modern way of managing the development of the agricultural sector of the economy of grain-growing countries.

Methodological foundations for the introduction of environmental principles and the functioning of the grain industry based on innovations should be based on the development of interrelated functions, interaction of managerial organizational, economic, technical and technological measures aimed at ensuring an increase in the efficiency and sustainability of the functioning of the logistics system of grain production, which will contribute to the reproduction of soil fertility of agricultural land resources, the formation of conditions for the production of ecological grain products that are competitive in the foreign market.

The success of innovation in grain production is ensured by the creation of organizational and economic conditions for enterprises to master a new way of managing. In this context, it is necessary to develop recommendations, expand the information base, revealing the features of the ecological method of grain farming and the definition of economic factors that stimulate the development of the use of innovative mechanisms in economic practice.

In addition, no less important functions of the organization of grain production on an innovative approach are such as: creating conditions for the organization and functioning of a balanced market of grain products and grain processing products; increasing the competitiveness of grain production in general and on the world market; the most intensive use of production potential; reducing the level of losses in the chain of commodity movement "production — storage — distribution — processing — commercial turnover of grain".

References

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