MODELING OF PRODUCTION PROCESSES IN AGRICULTURE

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ANNOTATION

Economic and mathematical modeling is an integral part of any research in the field of economics. The rapid development of mathematical analysis, operations research, probability theory, and mathematical statistics has contributed to the formation of various economic models.

INTRODUCTION

The agricultural sector is one of the most complex economies. Production and processing of agricultural products in this area is carried out through the interdependence of biological, technological, organizational and economic processes. The agricultural sector is closely linked with other sectors of the agro-industrial complex. The ultimate goal of the agricultural sector is to achieve sustainable growth in the production of quality agricultural products in accordance with the Food Program, reliable supply of the country with food and agricultural raw materials. One of the main directions of the implementation of the food program is the balanced development of all sectors of the agro-industrial complex, improvement of production management, planning and economic incentives. The use of economic-mathematical methods and computers in the implementation of such tasks opens up production opportunities, allows for a deeper and more accurate development of complex economic problems of the agro-industrial complex, in particular, the analysis, planning and management of agricultural production.

In many research institutes and universities of the country specializing in agriculture, it is carried out through the development of economic and mathematical methods in the practice of planning and managing the future prospects of the agricultural sector.

In agriculture, economic and mathematical methods are used in three main areas:

• development and solution of economic and mathematical problems of on-farm analysis and planning;

• development and solution of economic and mathematical problems at the level of individual relations of agro-industrial associations and agro-industrial complex;

• development and solution of economic and mathematical problems of analysis and planning of the industry.

The main method of research is the method of modeling economic processes in agriculture, which in recent years has identified a set of different techniques that are widely used in science and practice.

Through modeling, we understand the process of building models, using them to study the operation of various natural objects.

In the most general sense, a model is a conditional image, a diagram of an object of study. The concept of "model" is related to the similarity between two objects, one of which can be considered as the original and the other as its model. The degree to which a model fits the modeling object may vary. The model is an important tool of scientific abstraction, allowing to highlight the most important features of the object being studied in the research process.

Mathematical modeling is a universal and effective tool for understanding the internal laws inherent in events and processes. Mathematical modeling allows to study the quantitative relationships and interdependencies of the modeled system and to improve its further development and performance. But for modeling to become an effective tool of cognition, it is necessary to correctly construct a mathematical model that is consistent with the system being studied. A mathematical model is a system of mathematical formulas, inequalities, or equations that more or less accurately describe the events and processes that take place in the original.

Among the various systems, the most complex are economic systems, which can be described correctly, only the quantitative relationship between individual factors and the degree of their impact on each other and on the final production results should be well understood. Therefore, the model should more or less accurately reflect the real processes and interactions of the economic system and the constraints placed on it by external conditions. The model must be based on reliable data.

The art of modeling is to study the qualitative nature of an event in depth, to represent it in a mathematical quantitative form, to preserve the basic features of the event, and to highlight the insignificant.

Other methods, such as the method of scientific experiments, are also used to study the economic processes taking place in the national economy of the country. However, experience shows that developing an economic-mathematical model is cheaper and faster.

Its computerized solution does not depend on the specific conditions of the economy, its territorial remoteness, other external factors, and can be solved until objective, reasonable practical results are obtained. It should be noted that ready-made standard (basic) models that have been experimentally tested and give high efficiency can be used. Such models are typically linear software models. If no solution is found to any problem with a particular economic model, an original model is created, which then goes through all the necessary steps, practical tests, and only then is it recommended to produce it.

Information is needed to develop a model (digital model) with certain digital characteristics, part of which is a reference, which is related to the modeling object and is included in the model or used to calculate feasibility (nutritional value of feed, sowing rate, comparable and purchased) . prices). The remaining data are variable in nature and have been developed in relation to this agricultural enterprise (crop yield, animal productivity).

Solving the problem of optimization of production and industrial structure in general and analyzing the optimal solution obtained will allow to identify the least spent resources in the economy, determine the direction of their efficient use, optimize the composition of feed production and crop areas, identify structural changes and development prospects.

Thus, the deepening of specialization and the optimization of industry and industrial structure will increase the production of branded products, overall profitability and production efficiency.

CONCLUSION

The use of economic and mathematical methods and models is not a guide to action, but only helps to optimize management decisions, which in turn accelerates the effort to achieve production efficiency and consequently maximizes revenue.

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