ADVANCED SIMULATION MODEL OF AGRICULTURAL ACTIVITY DEVELOPMENT

Raximov Anvar Norimovich
University Of Economics And Pedagogy Head Of The Department "Economics (By Networks And Sectors)", Assoc
Ergashov Yashnarbek Istamovich
Karshi International University Teacher Of The "Economics And Engineering" Department

Abstract. *The theoretical aspects of the factors influencing the prospective development of the agricultural holdings are highlighted. The search for and implementation of new approaches, models and methods for the development of agricultural activities is widely described. Factors affecting the development of agricultural activity have been studied.*

Key words: *Agriculture, agrarian network, modernization, econometric model, modeling apparatus, growth rate, correlational, harmonic, spectral, cluster.*

INTRODUCTION

To ensure the sustainable development of agriculture in the world, to determine optimal ratios of efficient use of resources, to have optimal solutions using econometric methods in the development of production and organization of management, to develop future forecast indicators of agricultural production special importance is attached to the scientific research work on ensuring the food safety of the population based on the output. In the conducted research work, it is becoming a priority to use quantitative methods to determine the priority directions of development, to reduce the resource volume of the product based on the strengthening of the application of innovative technologies to the process of managing the production of agricultural products.

In the establishment of new Uzbekistan, special attention is paid to modern methods of agricultural management, ensuring food safety with the introduction of new technologies at the stages of product production, and the welfare of the peasant population. In the strategy of actions on the main direction of the development of the Republic of Uzbekistan, "Modernization and rapid development of agriculture, in particular, deepening of structural changes and consistent development of agricultural production, further strengthening of the country's food security, A number of tasks have been set, such as expanding

the production of environmentally friendly products, significantly increasing the export potential of the agricultural sector.

Taking into account the complexity of the agricultural production process, modeling it based on the "black box" principle makes it a research object free of existing complexity.

The fact that a large share of agricultural products is directed to direct consumption requires its structural safety. The subtle aspect of the matter is that the realization of manufactured products as a commodity requires compliance with the requirements of certain standards. The econometric modeling apparatus makes it possible to determine the laws of stability of the product in the market economy based on quantitative changes and to determine the necessary changes in demand in advance.

Analysis and discussion of results (main part). In the following years, the reform of the agricultural economy of our country, in particular, the improvement of the state management system in the field, the wide introduction of market relations, the strengthening of the legal basis of relations between the entities that grow, process and sell agricultural products, attract investments in the field, specific works are being carried out to introduce resource-saving technologies and to provide producers of agricultural products with modern techniques.

To achieve this goal, the following tasks are defined:

- improvement of the mechanisms of providing food to the population in need of social protection, as well as integration of producers of agricultural products with social facilities;
- introduction of the system of state intervention purchases in the cultivation of spiked grain, gradual abandonment of the mechanism of state regulation of prices of agricultural and food products, and introduction of the mechanism of purchase of spiked grain at market prices based on the plan;
- development of a long-term program to promote the culture of clean food consumption;
- introduction of a food safety assessment system based on internationally recognized methodologies and best practices and continuous monitoring;
- development of network programs to popularize the production of socially important products;
- to carry out research aimed at increasing productivity in animal husbandry, sustainable growth of fish and poultry meat, as well as milk production.

It is known that peasant farms are leading in agricultural production. If we look at the rate of production of agricultural products, the production of

grain crops, dairy products and cattle hides, and the growth rate of the number of sheep and goats farms, meat production and the growth rate of the number of poultry is high in agricultural enterprises, and the growth rate of the production of other agricultural products is low in agricultural enterprises observed. If we look at the cross-section of regions, the highest share of agricultural holdings in the gross regional product is in Surkhandarya (69.3%), Navoi (68.0%), Bukhara (68.4%), Namangan (68.0%) regions, the highest share of agricultural enterprises - Samarkand (42.5%), Syrdarya (40.9%), the share of agricultural enterprises in Tashkent (4.3 %), it was observed that it is the highest in Navoi (3.1%) regions.

If we look at the productivity of land use, although Kashkadarya (13.6%), Jizzakh (10.3%) and Samarkand (10.1%) regions have the most cultivated area, but from 1 hectare of land area income is high in Navoi (39,813.0 thousand soums), Andijan (33,889.9 thousand soums) and Tashkent (28,091.7 thousand soums) regions[6].

Many factors affect the formation and development of marketing of fruit and vegetable products processing enterprises, in particular agricultural products. They can be divided into the following groups:

a) natural and climatic conditions;

b) material-technical and scientific-technological conditions;

c) organizational and economic conditions;

g) social conditions.

Each factor consists of several signs that are integrally connected with each other in their functional tasks.

Since Uzbekistan is one of the sunny countries, it is considered a favorable region for vegetable growing, horticulture and viticulture, and many types of fruits, grapes and vegetables that are in high demand in the world market are grown in our country. If the enterprises producing fruit, vegetables and grape products operate in the relevant segments of the market, the competitiveness of their products will increase.

These forms of farming in the production of agricultural products are most promising in regions with developed infrastructure and mountain areas specializing in vegetable growing, horticulture and viticulture. Because they provide a rational combination of land use and networks. They allow the development of processing enterprises based on their raw material base and the rational use of existing labor resources, thus solving important social problems in densely populated regions.

[6] Mukhamedieva D.T. Statisticheskoe modelirovanie v selskom hozyyastve s primenieniem teorii nechetkih mnojestv.Tashkent: Institut cybernetiki NTTs "Sovremennye informatsionnye tehnologii". 2016.–200 p

1- table

View of the population's need for agricultural products

Product type	Annual need per person (kg)	Annual need (thousand tons)	Annual production (2022, thousand tons)	Current annual production (2024, thousand tons)
Potatoes	56.8	152 374.3	146 746	147 393
Carrot	32.2	372 158.2	377 089	379 460
Fruits and berries	103.2	78 259.5	71 367	71 439
Grapes	16.9	62 423.5	57 899	55 295
Police	29.4	87 825.1	91 873	92 029
Meat	49.2	387 628.0	301 633	308 947
Milk	158.0	1 135 627.0	1 230 460	1 254 149
Eggs (thousands)	121.0	345 363.2	355 367	361 668

In the future, it is necessary to solve the following tasks in order to further develop peasant and homestead farms and have a strong position in the agricultural economy:

- improving the procedure for calculating the products grown on farms, i.e. increasing the level of accuracy of information;
- to encourage the establishment of private branches specializing in providing services and supplies to farmers in rural areas;
- establishment of enterprises specializing in cooperative purchase, storage, preparation and processing of livestock products grown on farms;
- to strengthen the provision of material and technical resources for the activities of agricultural enterprises, including the development and

introduction of a system for the purchase of material and technical means on the basis of leasing;

- it is necessary to improve the method of accounting for the formation of income and expenses of agricultural holdings. Today, it is very important to create an effective and simple reporting system for statistical and economic analysis of agricultural activities.

- development of agricultural holdings, including the expansion of scientific practical and fundamental research works aimed at improving the system of criteria and indicators for evaluating their activity.

Conclusions. As a result of the above interactions, farming systems appear. A farming system can be defined as a combination of elements in identifiable proportions that produce identifiable agricultural products of an expected standard in expected quantities over a predetermined period of time. Table 1 offers a comparison of the components of two extreme farming systems. shows that in most cases the components of two systems are opposite ends of the component spectrum. Therefore, the amount of production in any system depends mainly on the type of system, even though it is produced per unit of area. the nature of the work necessary to obtain the correct assessment of the cultivated crop. The panel below compares the yield estimation approaches that correspond to pre-independence and post-independence foreign agribusinesses. to estimate the production of a farm of similar size (about 1 million ha).

Offers. Ensuring a stable increase in the volume of agricultural products requires the following:

- development of a long-term program to promote a healthy consumer culture;

- introduction of a food safety assessment system based on internationally recognized methodologies and best practices and continuous monitoring;

- development of network programs to intensify the production of socially important products;

- conducting research aimed at increasing productivity in animal husbandry, sustainable intensification of fish and poultry meat, as well as milk production.

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