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MODERN FACTORS OF MODELING THE DEVELOPMENT OF PRODUCTION OF FARMS AND DEHKAN FARMS IN UZBEKISTAN

G.Shadmanova - Professor of the department "Information technology" of the "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University

Abstract

In this work, the factors influencing the efficiency of the activities of farmers and dehkan farms are identified and classified, their analysis is carried out, and an assessment of the effectiveness of the use of land resources allocated to them by farms is assumed. The author studies various research methods that can be used to solve the tasks set for the development of farmers and dehkan farms, and also justifies the use of econometric modeling, which allows to detect and quantify patterns hidden in a mass of randomness.

Keywords: *Farming and dehkan farms, factors, profit maximization, interconnection, modeling, land plot, econometric models, forecasting.*

Introduction. In order to increase the income of the population by increasing the production of products in household farms, saturating the domestic market with food products, creating a system of guaranteed purchase of products produced on household lands, as well as the development of cooperative relations between the owners of household lands and producers in each district, a decree of the President of the Republic of Uzbekistan dated December 16 was approved .In 2021, No. PP-54 'On additional measures to improve the efficiency of the use of household lands and financial support for entrepreneurial initiatives of the population'[1].

The document provides for the allocation of land on the basis of reasonable calculations to limited liability companies "Tomorka Hizmati" for the construction of greenhouses, cold storage facilities and livestock complexes for the organization of guaranteed supply of seedlings and seeds to the household lands of the population on a systematic basis. According to the Decree of the President of the Republic of Uzbekistan dated October 9, 2017 No.UP-5199 "On measures to radically improve the system of protection of the rights and legitimate interests of farmers, dehkan farms and owners of household lands, effective use of agricultural acreage", the necessary measures are being taken to organize multidisciplinary farms, create the necessary conditions for them, protect the rights and the legitimate interests of farmers and dehkans[2].

Farming and dehkan farms are one of the new forms of management in the agro-industrial complex. They show a sense of ownership, economic independence in the production of products and the distribution of proceeds from their sale. In modern conditions, there are prerequisites for increasing their efficiency and competitiveness, due, on the one hand, to the need to develop agricultural production, increase the volume of agricultural products to solve the country's food problem, on the other hand, to increase the level and expansion of forms of state incentives for agricultural producers [3].

As a result of the reforms carried out, the volume of agricultural products of Uzbekistan in 2023 amounted to 426.3 trillion sums. This figure increased by 4.1% compared to 2022.

According to the Statistics Agency, in 2023 the total volume of agricultural, forestry and fisheries products (services) amounted to 426.3 trillion sums.

This figure increased by 4.1% compared to 2022.

The volume of agricultural products grown in 2023:

- Grain production — 8.4 million tons.
- Potatoes — 3.6 million tons.
- Vegetables — 11.6 million tons.
- Melon crops — 2.4 million tons.
- Fruits and berries — 3.1 million tons.
- Grapes — 1.7 million tons.

Materials and methods. Increasing the efficiency of the activities of farms and dehkan farms based on the rational use of available resources is the basis for the successful functioning of each farm. In market conditions, the objective function of business entities is to maximize profits. In agriculture, the level of profit, as in other sectors of the economy, is influenced by many factors.

However, in agriculture, they are mainly formed under the influence of weather conditions. Therefore, it is advisable to consider the relationship and interdependence in a complex of factors affecting the level of profit, which, in our opinion, is the main condition for evaluating the effectiveness of farms and dehkan farms in market conditions. Taking this into account, we have analyzed the factors that directly or indirectly affect the efficiency of farms. All factors affecting the production process are divided into manageable and uncontrollable (natural and climatic) factors, as well as uncertainty factors related to the market environment. The controlled factors affecting the efficiency of production of the farm are divided into on-farm and external. As practice shows, the size of the farm's land plot, their fertility, location and water availability are the main factors determining the level of crop yield in the farm and, accordingly, the quality and volume of production. Therefore, when determining the prospects for the development of farms, it is important to take into account these factors in modeling. First of all, this is due to the determination of the optimal (rational) size of the land use of the farm, which actually affect the level of efficiency of the use of labor and other production resources. Thus, the further development of farms and dehkan farms in market conditions depends on several interrelated factors:

The first is the size of the farm's land plot, which affects its performance indicators.

The second is the volume and structure of production, which depend on the level of crop yield, the size of land use, as well as market demand for products produced by farms. In this regard, maximizing the income (profit) of a farm with limited production resources involves evaluating the effectiveness of the use of land resources allocated to them by farmers and dehkan farms. Various research methods can be used to implement these tasks.

The main ones are the method of comparing analogues, economic and statistical, computational and constructive, and econometric methods. When using the method of comparing analogues, the experience of advanced farms operating in similar natural and economic conditions and having the same specialization with the farm, through which the optimal size is determined, is studied. To obtain a more reasonable result, it is advisable to use the data obtained by econometric methods in the study. Econometric modeling based on the methods of probability theory and mathematical statistics makes it possible to detect and quantify patterns hidden in a mass of randomness. And although every model is a simplified reflection of reality, econometric models, due to their quantitative certainty, serve not only as a tool for analyzing previous development, but also as an important forecasting tool [4]. The construction of the model and its use for analysis go through the following stages: specification (selection) of variable models; selection of information in the form of dynamic series and spatial samples; analysis and selection of the most significant factors-arguments by methods of mathematical statistics; choosing the mathematical form of the relationship between the result and the factors of the arguments; determining the parameters of the model based on the available information by methods of mathematical statistics; checking the adequacy of the model and statistical hypotheses; analysis and refinement of models.

The specification of the model variables consists in the choice of a meter for a dependent value, the selection of argument factors and the selection of indicators for their measurement [5]. The choice of a meter for a dependent variable is made in accordance with the economic content of the models and is further considered in relation to specific models. The selection of the factors-arguments for the construction of the model is carried out in two stages.

At the first stage, a preliminary selection of factors is made based on the professional knowledge of the researcher, at the second stage, the number of selected factors is specified based on formal methods, for example, correlation regression or variance analysis. The main purpose of professional factor analysis is to establish a set or list of those factors that can have a significant impact on the change in the dependent variable. The following requirements apply to the source information in any form. The information must be reliable and sufficiently representative, homogeneous and have a certain quantitative expression. Time series should correctly reflect the dynamics of the phenomenon and therefore consist of homogeneous comparable quantities. This comparability is achieved as a result of the same principle of forming the equation of a series in different time intervals. The levels of the dynamic series should be expressed in the same units, and the methodology for calculating them for all time periods covered by the series should be the same [6]. To solve the problems of analysis and forecasting, these methods are used to sample data on the results of economic activity of all (or most) farms and dehkan farms of a certain production type located in the region (territory) under consideration. With the help of statistical groupings, the influence of land use area on the relative performance indicators of farms (profitability, output of gross and marketable products, gross income and profit per 1 ha of farmland, etc.) is analyzed.

Conclusions. The land holdings of farms in which these indicators are higher are recognized as optimal. The established organizational, economic and economic mechanisms of farming and dehkan farming contribute to the practical implementation of efficiency growth factors and ensure the diversification of farm production and assortment changes, as well as accelerating the turnover of funds and cash and optimizing the size of land use and specialization of the farm.

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