ACADEMIC RESEARCH IN EDUCATIONAL SCIENCES VOLUME 2 | ISSUE 6 | 2021
ISSN: 2181-1385
Scientific Journal Impact Factor (SJIF) 2021: 5.723
DOI: 10.24411/2181-1385-2021-01116

PROBLEMS OF MATHEMATICAL MODELING IN THE CULTIVATION OF AGRICULTURAL PRODUCTS

B. A. Qulmatova
senior teacher, Andijan Institute of Agriculture and Agrotechnology

D. A. Buranova
assistant, Andijan Institute of Agriculture and Agrotechnology

ABSTRACT

This article discusses the problem of mathematical modeling in the cultivation of agricultural products, as well as the need for the use of automated systems in agriculture.

Keywords: Digitization, automated systems, information technology, mathematical modeling, vehicles, automation, economic reform, agriculture, animal husbandry, economic management, economic analysis, water resources.

INTRODUCTION

The flow of information has been steadily increasing in recent years. Studies show that a manager spends 29% of his or her working time on intellectual work and uses the rest inefficiently. Information that is the result of a large amount of processing is needed to make a management decision. Due to the growing flow of information and as an element of a complex management mechanism, the employee of the institution does not have time to prepare and make strategic decisions.

In a market economy, in a complex and rapidly changing environment, management needs to use convenient and efficient information systems and technologies. Because that's what makes the job easier, allows you to plan your time better.

METHODS

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated 17.12.2020 No 794 "On measures to develop the system of digitization in the agro-industrial complex and agriculture of the Republic of Uzbekistan."

The priorities of digitization of the agricultural sector are:

• Introduction of departmental and interdepartmental information systems for efficient use of agricultural land, water resources and crop monitoring;

ISSN: 2181-1385
Scientific Journal Impact Factor (SJIF) 2021: 5.723
DOI: 10.24411/2181-1385-2021-01116

• Transfer of services provided by organizations in the agro-industrial complex, including public services, in full electronic form;

• implementation of targeted projects on the basis of PPP conditions for the introduction of modern ICT in agriculture;

• Introduction of technologies for online control of water use in reservoirs and irrigation systems;

• Improving the system of water resources management, accounting of water use and water consumption and the formation of a database;

• Assisting enterprises in implementing business startup projects and commercializing the results of innovative projects.

RESULTS

As a result of economic reforms in agriculture, the form of management changed, and the land went to its real owner - the farmer. Under these conditions, the previously existing economic relations have changed radically. With this in mind, the agro-industrial complex, the agricultural production sector should use information technology in an integral and broad sense, and organize production on its basis. It is necessary to choose a cost-effective form of step-by-step in the cultivation of products based on agro-technical factors, technological processes, economic management, economic analysis, economic forecasting, mathematical models, economic balances using information technology and systems.

In order to organize production in agriculture in a market economy, it is necessary to create a database based on the results obtained from the database. The analyzed results should be analyzed by analyzing the processes performed at each technological stage and managing the implementation of the most optimal and efficient state on the basis of economic analysis. It is expedient to analyze the economic efficiency of each technological process, the final economic indicators, compare them on the basis of economic models and use what is found to be acceptable.

The task of management is to achieve the goal of growing the product mentioned above. Each grower of agricultural products organizes his reserves (new knowledge, skills, economic, technical, technological skills, etc.).

DISCUSSION

The solution of these problems is first of all by analyzing the cultivation of agricultural products on the basis of mathematical models, paying attention to a

ISSN: 2181-1385
Scientific Journal Impact Factor (SJIF) 2021: 5.723
DOI: 10.24411/2181-1385-2021-01116

number of parameters shown in the model, and increasing productivity by managing the most important, ie systems of impact on yield.

1. Mathematical modeling of agricultural production.
2. Mathematical models.
3. Stationary mathematical models.
4. Dynamic models.
5. Adoption of mathematical models in relation to the system of measurement in the cultivation of agricultural crops.
6. Mathematical models in the process of growing crops.

It is necessary to organize production in the agricultural production sectors on the basis of the integral and broad use of information technology. It is necessary to choose a cost-effective form of step-by-step in the cultivation of products based on agro-technical factors, technological processes, economic management, economic analysis, economic forecasting, mathematical models, economic balances using information technology and systems.

In order to organize production in agriculture in a market economy, it is necessary to create a database based on the results obtained from the database. The analyzed results should be analyzed by analyzing the processes performed at each technological stage and managing the implementation of the most optimal and efficient state on the basis of economic analysis.

After the reform of the above forms of management in agriculture, the production of products will be better in terms of quality, quantity, abundance and demand, cost-effective, and control will be based on information technology. That is, based on models, forecasts, and analyzes.

Each grower of agricultural products organizes his reserves (new knowledge, skills, economic, technical, technological skills, etc.).

As the work is carried out according to the plan, all results should be recorded, analyzed and interpreted so that they can be used to monitor the progress of the work.

Due to the rapid development and complexity of modern technology, the radical transformation of various enterprises and organizations, the complexity of communication between them, the processing and analysis of data, has become the basis for a truly objective management of management issues. One of the main and new factors in the effective use of management methods and tools in agriculture is automated control systems.

The principles of automated control systems are mainly to accelerate the production of agricultural products, maximize profits through the efficient use of

ISSN: 2181-1385
Scientific Journal Impact Factor (SJIF) 2021: 5.723
DOI: 10.24411/2181-1385-2021-01116

available resources. The use of ABT in agriculture is to increase production efficiency. It consists of optimization in solving management problems.

It is expedient to introduce an automated management system in the management of farms, the production of ABT. This requires a comprehensive solution to the following issues of agriculture.

• rational combination of organizational staff and computer;

• software (mathematical models, algorithms, operating systems and interoperability and interoperability of ADP);

• information support (data bank, information systems, their replenishment and updating);

• maintenance (computer systems and networks, Internet, multimedia, necessary hardware).

CONCLUSION

Agriculture requires a special emphasis on technical means in an automated management system. Take, for example, automated control systems used in agriculture in developed countries, such as the United Kingdom, the United States, Japan, China and others.

Due to the fact that agriculture has become mainly a producer, manager, seller and developer of the enterprise, it is necessary to develop and recommend an automated management system in agriculture in the form of modules, problem-solving AMSs.

REFERENCES

1. Б.Қулматова. Д.Буранова.“Автоматлаштирилган офис технологиялари (Automated office technologies)”. Global Congress of Contemporary Study virtual conference 2020 Multidisciplinary International Scientif c Conference Pune, M.S, India www.econferenceglobe.com. November 7 th, 2020

2. Б.Қулматова. Д.Буранова. “Таълим жараёнида электрон таълим ва ананавий таълимнинг интеграцияси”. НамДУ илмий ахборотномаси. 2020 йил 2-сон. 366-373 бет.

3. Н.Каримов, Б.А.Қулматова, Д.Буранова. “Ақлли қишлоқ хўжалигини юритишда рақамли технологияларнинг жорий этиш масалалари”. «The XXI Century Skills for Professional Activity» International Scientific-Practical Conference. TASHKENT, UZBEKISTAN 2021, MARCH 15.

4. Б.Қулматова, З.Запаров, Д.Буранова, “Способы защити от интернет-

ISSN: 2181-1385
Scientific Journal Impact Factor (SJIF) 2021: 5.723
DOI: 10.24411/2181-1385-2021-01116

мошенничеств". Научно-методический журнал "Academy". Россия. 2019 декабрь.

5. Б.Қулматова, Д.Буранова, "Требования к созданию электронных образовательных ресурсов и технологии их использования". Научно-методический журнал, "Academy". Россия. 2019.

6. Н.Каримов, Б.А.Қулматова, Д.Буранова. "Қишлоқ хўжалигида рақамли технологияларнинг жорий этиш масалалари". Academic research in educational sciences volume 2 | issue 3 | 2021.

7. Toshpulatov, D., Nosirov, B., & Khalmatov, T. (2021). Gradual Implementation of Smart Management Principles in The Higher Education System of Uzbekistan. *International Journal on Economics, Finance and Sustainable Development*, *3*(1). 22-29.

8. ST Iskandarov, DS Toshpolatov Assessment of Economic Efficiency of Vegetable Production in Greenhouses. *International Journal of Progressive Sciences and Technologies*, 2020, 22(2), 251-257