

Improvement of the organizational and economic mechanism for managing the quality of greenhouse products

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Abstract. The need to provide the population with quality and environmentally friendly food is an important task. To solve it, it is necessary to analyze the main organizational and economic mechanisms that affect the activities of the sector in order to increase the efficiency of greenhouse production. It should be noted that the greenhouse is a more complex organizational structure, so its creation requires more material resources. However, like any organization, the greenhouse industry needs a well-organized mechanism for cost-effectiveness. The research aims to study and formalize the organizational-economic mechanism and optimize the level of quality and volume of production of greenhouse products using the production function. The study of the organizational and economic mechanism of greenhouse. When studying the structure and economics of the mechanism of greenhouse facilities, we used general scientific research methods such as analysis, synthesis, inductive, monographic research, abstract-logic, and others. An analysis is needed of the nature and form of the management mechanism and the economy to increase the quality and volume efficiency of production in the greenhouses of the republic. The basis for this is to improve the use of factors of production. The production function obtained from the study describes each organizational-economic mechanism, as well as their overall impact on the result of the activity, which allows the best redistribution of financial, labor, and technological resources. Possible ways to improve the implementation of several measures to ensure the most effective operation in the field of quality management, as well as in greenhouses, as in other sectors of the economy.

1 Introduction

Greenhouse products play a special role in meeting the needs of the population to provide natural, organic vegetable products based on consumption norms throughout the year. The industry forms the stability of the mechanism for the development of the agro-industrial

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complex of the republic. The competitiveness and sustainability of the greenhouse economy are determined by the efficiency of organizational and economic structures. An analysis of the state of these technologies shows that many issues have not been solved. Obsolescence of greenhouse structures, obsolete technologies, energy tariffs, constant growth in imports of vegetable products, sales, low level of innovation of enterprises, modernization, insufficient government attention to the industry, and lack of support take greenhouse areas out of economic circulation and reduce gross production.

Using scientific methods, it is necessary to substantiate the priorities of development dynamics and the adaptation of organizational and economic measures in the vegetable growing industry in modern conditions with the membership of the Republic of Uzbekistan in the WTO based on a comprehensive solution to existing problems.

The economy is constantly developing at a rapid pace, and in view of this, various branches of the economy of states must develop along with it.

Increase in intensity occurring in the process of creating agricultural products with the participation of global integration in agricultural enterprises, accession to the WTO, and a number of other reasons, has undergone many changes in the field of agricultural products.

All these processes were necessary in order to improve the technology to ensure production efficiency and further sales of products.

Factors that constantly hinder the development and improvement of the agricultural industry, and increase the profitability of organizations, include limited resources and ever-increasing costs.

As we know, the West, namely the United States of America, is a model in the organization and the progress of the agro-industrial complex [2].

Product quality is the basis for meeting the production and personal needs of people, and this determines its unique economic and social significance. Financial instability during the transition period of the economy has weakened the security of consumers of agricultural products entering the Uzbekistan food markets. The economic crisis and the problem of quality deterioration also affected the vegetable growing industry.

The production of greenhouse products does not provide year-round solvent demand of the population for vegetables.

In addition, the increased content of toxic elements in protected ground vegetables due to the constant use of pesticides causes consumer prejudice against such products.

The quality of vegetables, unlike other types of agricultural products, is a mobile category: it is formed in the production process but is subject to a significant decrease in the circulation process.

Losses of vegetable products are the result of low-quality production as a result of planting varieties and hybrids that are unstable to environmental influences, poorly stored varieties and hybrids, untimely work on caring for plants, fertilizing and protecting against diseases and pests, and harvesting.

The decline in the quality of protected ground vegetables in recent years has also been largely affected by poor organization of logistics, marketing of products and labor incentives, as well as low intra-company quality control of material and technical resources, labor and final products.

Thus, the lack of an end-to-end quality management mechanism in greenhouse vegetable growing is the main reason for the low efficiency of this industry.

The issues of quality management of agricultural products are developed in the works of Uzbek and foreign scientists: for example, the regulatory and theoretical aspects of improving the effectiveness of quality management are reflected in the works of (V. Andrianov, I. A. Abdulragimov) [1; 2] on the study of regulatory and theoretical aspects of improving the effectiveness of quality management, A. Bolobov [4] on the study of имеющийся experience in improving the quality and efficiency of agricultural products, to determine the quality

indicators and methodology for determining the costs, impact and effectiveness of quality management of vegetable products - (T. Nurimbetov et. al., S. R. Umarov et. al) [9; 13]. To assess the production and consumption of vegetables in Uzbekistan, to determine the need to increase the production and improve the quality of vegetables grown in greenhouses. Views of scientists on the study of the mechanism of influence of scientific, technical, organizational, economic, and social factors on improving product quality and efficiency of vegetable growing (Y. Khaustova et al.) [7] on the substantiation of reserves to increase the efficiency of production and sale of vegetable products, unfortunately, the issues of cost-effectiveness of vegetable quality management in the local literature are not widely covered. These fragments will cover our research in more detail in the Analysis and Discussion section.

2 Materials and methods

The research aims to study the organizational-economic mechanism for improving the quality and efficiency of greenhouse products in the Republic of Uzbekistan and optimize the production of these products using the production function.

The stated aim determined the following objectives of the research:

- To examine the content of the organizational-economic mechanism of greenhouse farms, using analysis, synthesis, inductive, monographic research, abstract-logical, and other methods;
- To design methodology for studying the organizational and economic path of development of greenhouse organizations.

The tasks included substantiating the feasibility of using quality management in the vegetable greenhouse system in the country, reviewing current approaches to cost management to improve economic efficiency and visualizing the management mechanism. Methodological techniques included a review of the literature due to the vastness and complexity of the systematization of sources. The retrospective analysis also changed, which considered the main theoretical work on the organizational and economic mechanism of greenhouse farms; the main existing schools and directions, and the main works of representatives of leading economic schools were studied. The literature analysis of sources is used at the initial stage of the study during the initial acquaintance with the literature. We used the literature to clarify, confirm, and refute the study results. An analytical review of sources made it possible to determine the level of novelty of scientific work.

3 Results and discussion

We relied on the main approaches of researchers to the definition of the organizational and economic mechanism [10]. We argued that this definition includes a system of elements that uses the relationship between them and the means of state and market control in achieving goals.

The practical significance of the research includes the possibility of increasing the efficiency of the production and financial activities of enterprises producing vegetables in greenhouses, as well as the environmental and food security of the population through the proposed measures in the field of product quality management (Table 1).

Table 1. Import, gross harvest, deficit, consumption of protected ground vegetables in the Republic of Uzbekistan 2016-2020.

Years	Gross harvest, thousand tons	Deficit, thousand tons	Import, thousand tons	Consumption, kg/person
2016	811	1093	742	5.5
2017	922	986	852	6.3
2018	1082	827	933	7.4
2019	1273	635	878	8.7
2020	1400	505	890	9.6

Source: [8].

Regarding the relevance of the topic, below we present the results of a study on growing vegetables in greenhouses in the Republic of Uzbekistan.

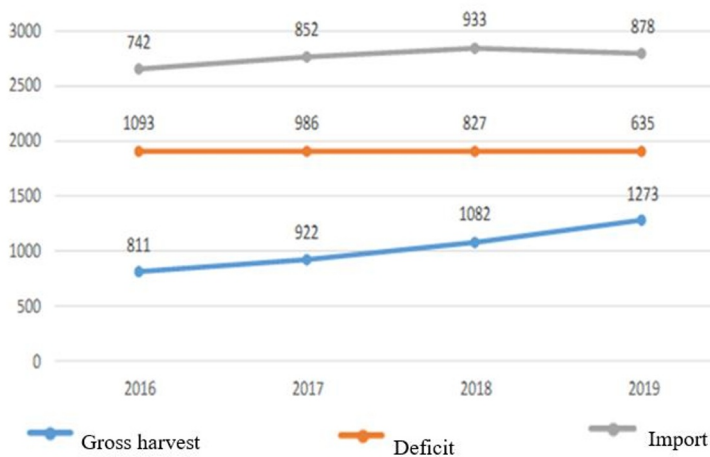


Fig. 1. Dynamics of changes in the main indicators in the production of greenhouse vegetables (thousand tons). Source: [8].

Researchers have proven that the efficiency of an enterprise directly depends on the quality of cost management, however, many agricultural organizations actively criticize this statement.

They say it does not work in practice.

We believe that it is determined by the fact that when looking for a direction, the administration proceeds from an increase in V production and the rationality of resources which is relegated to the 2-nd plan.

All this is because agro-industrial complexes are gradually losing their effectiveness and losing competition, giving way in the market to more advanced and new organizations.

To date, the first place is taken by the efficiency of resource use, minimizing costs to maximize profits.

In today's world, due to high competition in the global agricultural market, the company does not have wide opportunities to influence the price of products.

It is for this that it is necessary to develop a new modernized system for рационализации of resources. Fig. 2 shows a diagram that allows one to visually illustrate the system of development of the control mechanism.

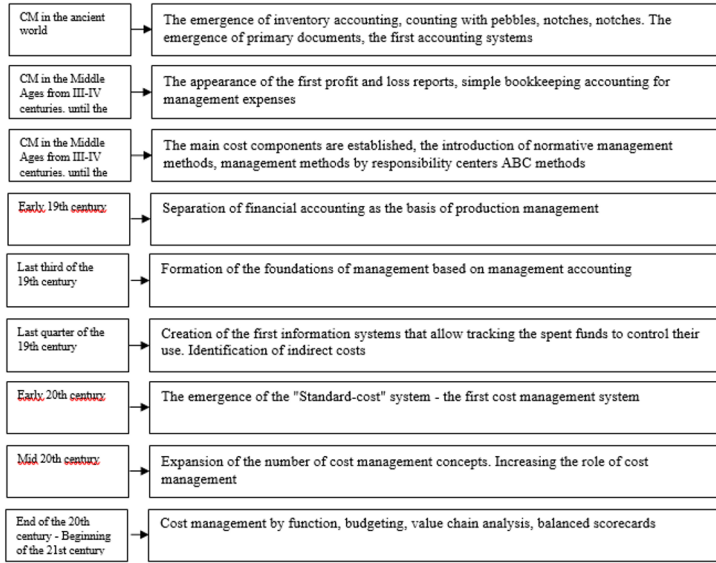


Fig. 2. Scheme of development of the control mechanism. *Source:* Compiled by the authors.

At the same time, it is worth reviewing the current approaches to cost management and orienting our economic policy towards resource saving and the most efficient level of costs without loss of quality.

These factors did not arise out of nowhere, they are a consequence of the general transformation of society, as well as changes in the agro-industrial complex in the economy.

To date, it is no secret that agriculture is beginning to yield in the economies of various countries, including the Republic of Uzbekistan.

However, this does not change the fact that the need for a quality product is constantly growing [5].

That is why the agricultural complex at the moment includes not only sectoral, but also sub-sectoral complexes [1], the cost management algorithm is shown in Fig. 3.

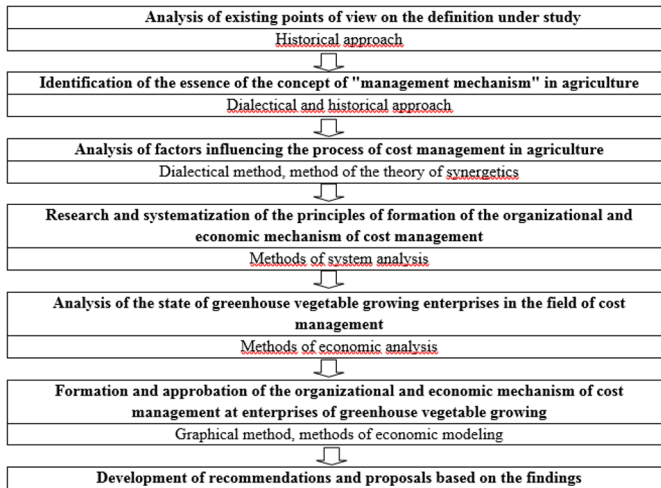


Fig. 3. Cost management algorithm. *Source:* Compiled by the authors.

One of such sub-complexes is the cultivation of products under the protected soil system.

One of the advantages of this technology is that the company has the opportunity to influence the factors and create its own biosphere, in which the products will grow, under the most comfortable conditions for it.

Growing in a protected ground system, and specifically in greenhouse complexes, has a number of features that affect the design of any system, including the production and economic activities of enterprises.

In my opinion, it would be advisable to divide the features of the functioning and cultivation of products in greenhouses into 2 categories, general features, and specific features (Fig. 4).

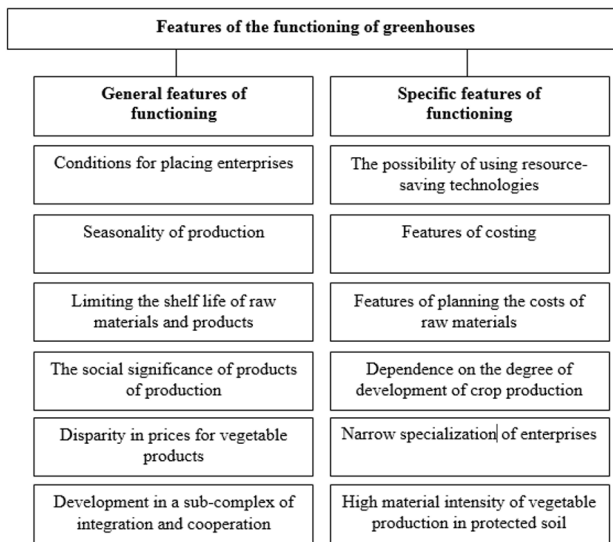


Fig. 4. Functioning of greenhouse farms. *Source:* Compiled by the authors.

If the general features of functioning are intuitive, then with specific features everything is a little more complicated. They usually include:

- Use of resource-saving technologies. It lies in the fact that the used soils, which can further reduce the efficiency of the enterprise, can be used in the cultivation of another product;
- Narrow specialization. To organize a greenhouse economy, one must have a certain qualification. Use of highly specialized technologies. This is due to certain features of the storage and processing of products grown in this way [9];
- High level of material consumption. The organization of a technical economy requires material costs.

That is why raw materials must be stored using high-quality technology or transported over short distances so that the products do not lose their presentation.

The operating cost management mechanism of the enterprise is shown (Fig. 5).

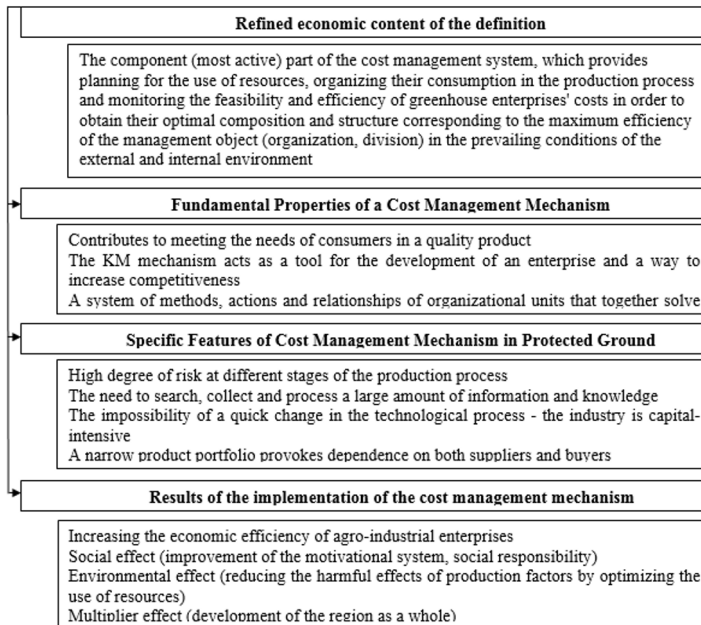


Fig. 5. Enterprise cost management mechanism. *Source:* Compiled by the authors.

For any enterprise to function, especially such a high-class and specific one as a greenhouse facility, a rational complex for cost control is needed [14]. It is the level of efficiency of the cost management mechanism that shows that the enterprise solves complex problems associated with the use of resources.

Cost management mechanism. This is a system of processes that initiate control systems aimed at obtaining a response from a subsystem that ensures the maximum efficiency of the operation of control objects.

This concept is as generalized as possible, but since the greenhouse industry is quite complex in construction, it acquires new elements.

The figure shows a block diagram of the cost management mechanism in the greenhouse subsystem [3].

The specific principles of the mechanism for managing the costs of agricultural products in greenhouses, on the one hand, indicate that all the rules for functioning are the same, and on the other hand, that the mechanism for managing greenhouses is specific.

As in other sectors of the economy, in the field of greenhouse management, for the most efficient functioning, it is possible to apply some measures that improve the mechanism for managing product quality:

1. Improving the system of employee motivation. To form technologies that conserve resources as much as possible and optimize their consumption. For this, 2 parts of wages are reduced - salary and bonus part. As a rule, the most effective model is considered when the bonus part of the salary takes into account certain indicators:

- Labor efficiency;
- Technological losses;
- Underloads of products;
- Discipline;
- Compliance with labor protection standards.

But the fact is that such an organization allows one to increase the volume of production

[12], and statistics tell us that the uncontrolled growth of greenhouse products will lead to an abundance of crops, which will lead to large losses and reduced profits.

2. Introduction of a new system of accounting and auditing and development of a new system of depreciation policy. The bottom line is that today most greenhouse organizations use the linear depreciation method. They are convenient for accounting and carry a uniform load, but this leads to the fact that at the end of the operation of fixed assets. Accumulated depreciation amounts have no purchasing power. And once again remind of the need to change this situation [18, 19]. I believe that in order to develop the most effective depreciation policy, it is necessary to review the depreciation system every quarter. The depreciation system should include the transfer of the entire cost of fixed assets, taking into account innovation, that is, the reimbursement should not concern real fixed assets. Deductions should be accrued depending on the price of new innovative mechanisms that will replace fixed assets already in use when they fail [6; 8].

3. Improving the inventory management policy. The fact is that the production reserves of an organization in the field of greenhouses are formed according to some scientifically based standards. In view of this, the formed annual production plans allow the organization to develop new plans for the purchase of raw materials and determine the size of reserve stocks, as well as predict the impact of the future price on the amount of material costs.

Especially in Central Asia, financial instability during the economic transition has weakened the security of consumers of agricultural products entering food markets. The anthropogenic situation, the shortage of drinking water, the need for innovative ecotechnologies, the economic crisis and the problem of deteriorating quality have also affected the vegetable sector [18, 19]. Growing greenhouse products does not meet the demand of the population for vegetables throughout the year. In addition, the increase in toxic elements in vegetables due to the constant use of pesticides leads to a misconception of consumers about such products.

The quality of vegetables, unlike other agricultural products, is a portable category: it is formed during production, but significantly decreases during circulation. Deterioration of vegetable products is caused by the planting of varieties and hybrids that are not resistant to environmental influences, planting of poorly preserved varieties and hybrids, care of plants, fertilization and protection from diseases and pests, failure to carry out timely harvesting. The decline in the quality of protected crushed vegetables in recent years has been largely due to poor logistics, poor organization of sales and labor incentives, as well as poor quality control of material and technical resources, labor, and finished products within the enterprise.

According to S. Tkachenko et al., the concept of "mechanism" is borrowed from the technical field. It implies the device of the machine, its functioning, and the implementation of actions [12, 17]. There are analogies in economics: the occurrence of a phenomenon causes a coupled reaction of the elements of the system. A. Durmanov et al. propose to consider economic mechanisms as a polynomial system that naturally regulates the accumulation and distribution of capital [6, 16].

The concept of a mechanism is voluminous and multi-valued. In the theory of economics, I. S. Berezin identifies a fairly large number of mechanisms [5]: economics, organization, legal relations, control, personnel, finance, etc.

In the papers of Soviet economists on works, I. S. Berezin used the concept of "economic mechanism"; it characterizes the principle of the structure of society and includes the listed mechanisms [3].

We share the opinion of researchers on the hierarchy of mechanisms, where the elements are not isolated but demonstrate horizontal and vertical connections between themselves and form one system. O. I. Shvyreva puts forward the theory of the mechanisms that create a family and include mechanisms of a lower order, being at the same time a structure of a higher order [11, 15].

Based on the stated above, the process of studying mechanisms should have complex, systematic, and permanent content.

4 Conclusion

The conducted research allowed us to conclude the need to introduce the following organizational and economic mechanisms:

- Improving the system of employee motivation. To form technologies that conserve resources as much as possible and optimize their consumption;
- Introduction of a new system of accounting and auditing and development of a new system of depreciation policy;
- Improving the inventory management policy.

Thus, the lack of an end-to-end quality management mechanism in greenhouse vegetable growing is the main reason for the low efficiency of this sector. The positive results obtained during our study recommended the development of proposals to improve the quality sustainability and efficiency of agricultural production, industries, and sectors. In the future, we plan to introduce our scientific results in untested areas of the country.

The implementation of these organizational and economic cost management mechanisms will make it possible to create a system most effectively for the production of sales of products and will also lead to improvement under the branches of production, in the field of greenhouses. Which, in turn, will solve the main problem that emerges in the way of these organizations: ensuring the year-round needs of the population in the field of agricultural products.

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