



Development And Transformation Of Agriculture In The Process Of Economic Modernization

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ABSTRACT

In the article, one of the important directions of increasing competitiveness in the international food market not only at the level of countries, but also in the activities of economic sectors and economic entities, is the importance of the concepts of modernization of production through the introduction of innovative techniques and technologies and the development of relations between economic entities in accordance with market requirements. and its impact on the agriculture of our republic was studied

Key words: Food security, agro-industrial complex, competitiveness, investment, driven economy, labor resources, staffs, natural environment, innovation, crop productivity, agricultural transformation.

Introduction

In particular, when developing the concept of competitiveness of the agro-industrial complex, the development stages of the national economy and their specific directions, goals and tasks should be taken into account. In this regard, for example, based on the theory of competitiveness, the development status (rating) of the world's countries is divided into the following three levels by the World Economic Forum:

- "factor driven economy" (Factor driven Economy). This stage is characteristic of relatively weakly developed countries, for which the main factors of production (land, raw materials, unskilled labor) are the main conditions of macroeconomic growth;

- "investment stage" (Investment-driven-Economy). This stage is characteristic of countries that have achieved average income due to ensuring economic growth and competitiveness by attracting investments, using modern technologies in domestic production;

"innovation stage" (Innovation-driven Economy). This stage belongs to countries with a high speed and level of development, which have moved from the status of a technology importing country to an innovative technology creating economy¹.

In the evaluation of the development and transformation of agriculture in the process of modernization of the economy, diversification of production, improvement of land and water relations, creation of a favorable agribusiness environment and support for the development of high

¹ The Global Competitiveness Report 2001-2002, Executive Summary: Competitiveness and Stages of Economic Development, Michael E. Porter, Jeffrey D. Sachs, John W. McArthur.



value chains, cooperative relations, wide introduction of market mechanisms and information and communication technologies in the network, and the human factor it should be recognized that improvement plays an important role as a priority direction for the development of the national economy, including the agricultural sector. Especially in the conditions of increased competition in the world food market, the development of the added value chain is an important factor in ensuring the competitiveness of agriculture. Already "the high costs of delivering products from the field to the final consumer, i.e. harvesting, transportation, storage, processing, packaging and certification, reduce the profits received by agricultural producers"².

In our opinion, it is necessary to take into account several processes when analyzing quantitative and qualitative indicators of agricultural production. In particular, factors such as geographical location of producers, skills and experience of workers, size of cultivated area and level of use of machinery and technology (Figure 1).

² Decree of the President of the Republic of Uzbekistan dated October 23, 2019 No. PF-5853 "On approval of the strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030".

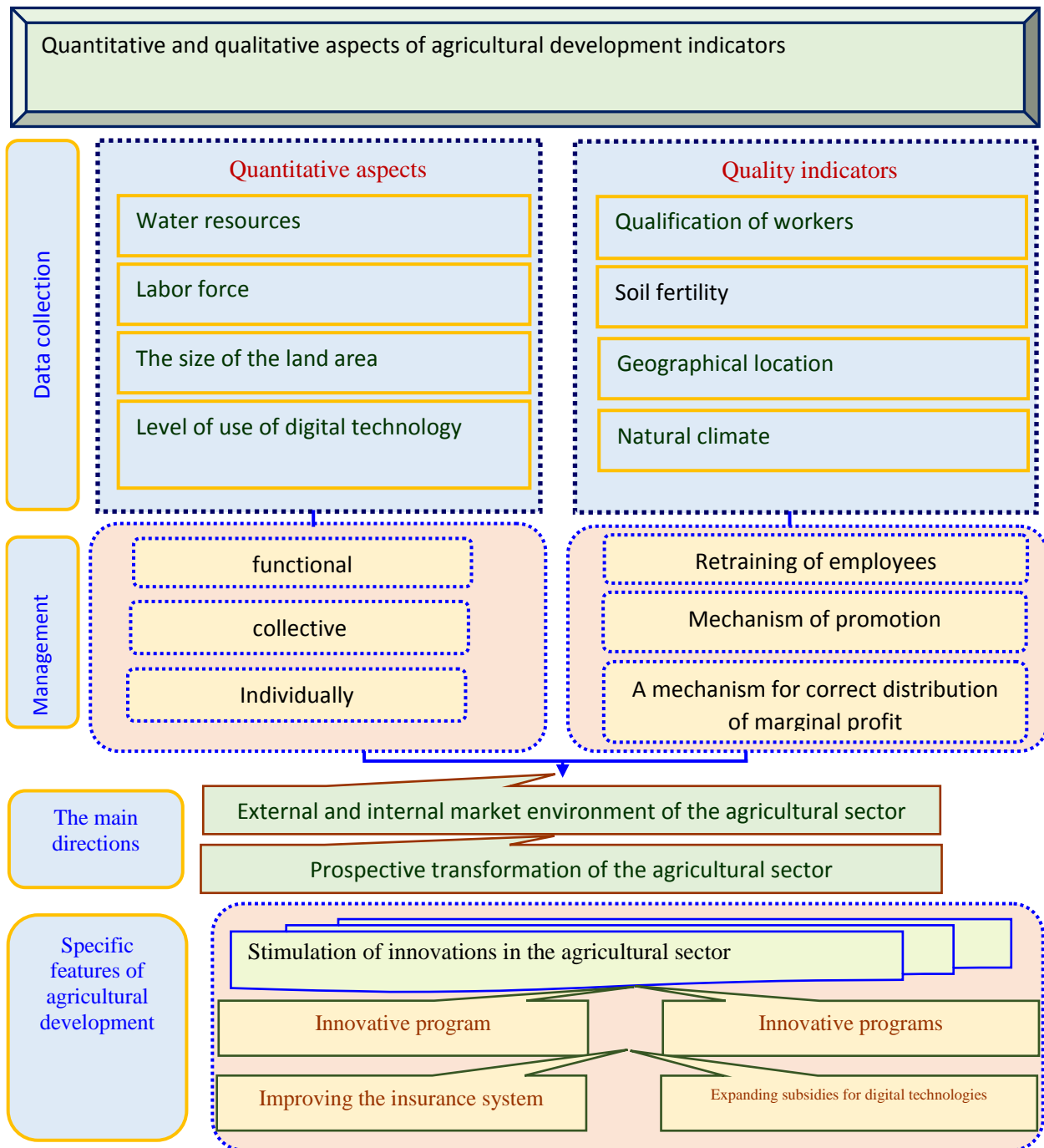


Figure 1. Quantitative and qualitative aspects of agricultural development indicators.

The priority tasks that will determine the above-mentioned promising directions, solve existing problems and, most importantly, ensure the achievement of the set goal, should include:

- ensuring the competitiveness of the economy based on the innovative development of ASM and its branches, taking into account the prospective factors of the rational distribution of production forces, and developing measures for its implementation (clusters, high-value specialized zones, etc.);
- stimulation of innovation and investment activities, organization of large-scale high-tech and



high-tech, cost-effective volume production, creation of industry clusters, development of complexes and centers that meet world requirements and real material production sectors of the economy;

- developing measures to increase the potential of the agrarian food market and developing its infrastructure, accelerating trade turnover, improving and increasing the efficiency of technical and technological means and methods of transporting agricultural products, creating wholesale trade, marketing and logistics centers;

- development of organic agriculture in the process of gradual transition to the formation of "green economy", etc.

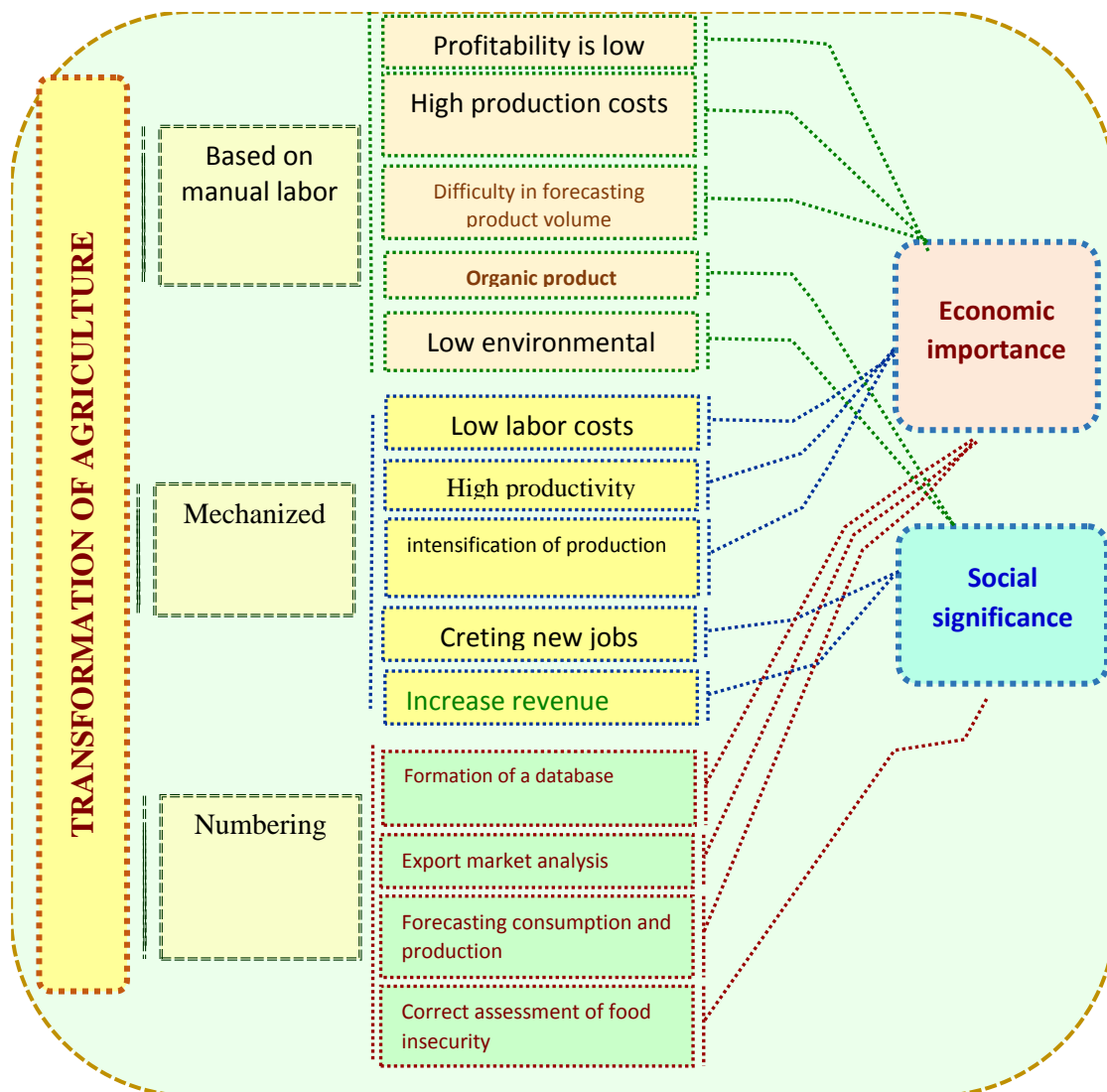
At the same time, it is necessary to pay special attention to its specific features when predicting the development of agricultural industries. Because the geographical location of the regions, natural and climatic conditions and the uncertainty (risk) in it have a significant impact on the stability of agricultural development and the reliability of the obtained results. Because its effect primarily increases the potential nature of crop yields, production costs and profitability.

In addition, changes in crop yields directly affect not only agricultural products, but also livestock productivity. For these reasons, in our opinion, focusing only on the agricultural sector in determining the volume of agricultural production reduces the probability of achieving the expected results, and therefore, it is necessary to take into account the interdependence of all sectors in the development of the agrarian sector. Because "the probable nature of crop yield and the influence of this parameter on the volume of production of agricultural and livestock products require additional efforts by agricultural producers to maintain stable economic relations with consumers of raw materials and food market"³.

One of the distinctive features of scientific forecasting of changes in the volume of production in agriculture is the development of land resources, including agricultural lands, which are considered the main means of production and the subject of labor, their location in regions and different productivity factors (salinity level, availability of water, underground water level, etc.). "Regular improvement of arable land melioration creates opportunities to create additional opportunities in the future, to bring the yield of crops to the standard level." (Figure 2).

The transformation of agriculture mainly consists of 3 major stages, which include the early manual labor (1800-1900), the mechanized (1900-2000) and the current (2000) digitization.

³ Abulkosimov Kh.P., Abulkosimov M.Kh. Factors of ensuring food safety in Uzbekistan.-T.: Economy and finance. - No. 8, 2015. - 19 p.



2. picture. Social and economic significance of agricultural transformation.

Therefore, the justification of programs for setting the perspective in the agricultural sector requires taking into account the factor of the competitive market as a result of the influence of the supply and demand mechanism. Due to the fact that their tendency to change, in turn, affects the prices, the activities of product (goods) producers require regular analysis of the dynamics of growth or decline in the level of profitability. In addition, it is important to correctly assess the level of risk, especially in agriculture. Because this industry is directly related to nature, the risk is high compared to other industries. Therefore, according to the researches of P. Cooke, "the effect of natural and economic uncertainty factors should be aimed at justifying several possible scenarios for the development of the predicted object." This, in turn, implies an increase in the scope and number of tasks to be solved. In our opinion, the selection of the most optimal scenario includes taking into account the system of selected priorities for the development of agricultural sectors, as well as the assessment of risks and resource opportunities.

According to the research, economic-mathematical methods and models are of priority in the development of programs for determining the prospects of agricultural development, and the following features should be taken into account when using them, namely:

- such a relative technological demand is characteristic for the agrarian sector, which requires



producers of food products and agricultural raw materials to be engaged in the reproduction of labor objects and means of production, albeit partially, but constantly. A positive solution to this issue, in turn, ensures the reliability of the parameters obtained based on the use of mathematical modeling methods.

Thus, the prospecting program should be considered as a system of research aimed at clarifying the trends in the development of economic relations and finding optimal solutions for achieving these development goals. The main task of this is, on the one hand, to determine the promising directions of development of the studied field in the near or long future, and on the other hand, to help optimize the current and long-term planning and regulation of the field or enterprise. In this, the main principles, that is, the appropriateness of the specified purpose, logic, consistency, the correct selection of factors, their interdependence, and the degree of accuracy, play an important role as the initial rules for the development and justification of programs and measures for the development of the object or subject under study (Table 1).

Table 1

Methodological principles of the analysis of agricultural development in conditions of uncertainty

№	Principles	Composition and main functions
1	Multiple options	Multivariate analysis requires development and the most optimal option is selected from among the development scenarios.
2	Systematic	It includes the creation of a system of indicators, methods and models that correspond to the purpose and content of a specific object, allowing to create a complete picture of its development.
3	Continuity	Forecasts for different periods and stages should be developed and linked to each other (long-term, medium-term and short-term).
4	Complexity	The result of each analysis requires focusing on the main goals and directions of resource development.
5	Optimality	To ensure the development of the network, it is necessary to choose the most effective option among all options.
6	Motivation	Ensuring the interest of participants in the process of forecasting in the implementation of development goals.

Also, in the study of the field of knowledge related to the use of economic-mathematical methods and the selection of the most optimal ones, it is necessary to divide them into types of modeling such as extrapolation and the method of least squares. These methods are based on the economic-mathematical theory, and in addition to ensuring the reliability and accuracy of the obtained parameters, they significantly reduce the time of their implementation and allow for information processing, analysis, and methodical-practical evaluation of the results.

In particular, the extrapolation method is one of the important forecasting methods, which makes it possible to comprehensively analyze the existing indicators of the past periods and stages (at least 5-8 years) and develop the prospective parameters of the object or subject based on them.



Currently, within the framework of this method, it is known that there are many equations, which occupy an important place in terms of determining the trends of processes, providing information necessary for linear evaluation of the dependence and quadratic dependence of the phenomenon.

Modeling of economic processes in the conditions of competition in the market economy, especially in the food market, has its own characteristics. First, there is always risk and uncertainty in the market; secondly, limited resources; thirdly, the existence of competition between producers and consumers under the influence of supply and demand ratios for types of goods; fourthly, the need to anticipate the future state of economic indicators, etc. Therefore, in this case, it is important to consider and evaluate the influence of endogenous and exogenous factors.

In order to analyze and evaluate the level of inter-sectoral change of GDP, according to our recommendation, it is appropriate to use the following econometric model, namely:

$$Y = f(x_1, x_2, \dots, x_n), \quad (1.2).$$

here Y – the main endogenous indicator;

- x_1, x_2, \dots, x_n – indicators of exogenous factors affecting the level of the final endogenous indicator obtained.

The results obtained using this formula are used to develop deterministic and stochastic models of the business processes of the national economy, industries and enterprises, as well as economic models that can systematically control these processes in terms of quality and quantity, to develop advice, recommendations and optimal management decisions based on the research conducted for the effective management of the object under study. allows. After all, "determining the volume of production of agricultural products in the agro-industrial complex is a special scientific research that determines possible directions, results of the development of objects and events, as well as the perspective of the development of the object." First of all, the goal of the development of the economic system is determined, and possible future situations are determined. Its results are used as an information base for the development of the most optimal development options and complex programs, which are selected as effective.

In particular, in order to determine the volume of production related to the prospects of agricultural development and to put them into practice, economic models are created that assume the combination of not only factors and problems affecting the increase of profitability, but also interrelated and influencing factors such as the capacity of personnel in the field, the level of mechanization and the use of chemical agents. Today, due to the purposeful use of modern information technology tools in the calculation of these models, the level of accuracy and reliability of the obtained results creates the basis for the effective implementation of the assigned tasks.

However, the correct assessment of any production volume requires first a deep analysis of the current situation, and based on its results, the stages of development of the object or subject under study, the existing problems and the factors that do not produce the expected results and determining the reasons for this, not only in the following years, but also in the actual development indicators enables analysis. In this respect, the analysis of agricultural development trends and directions at a realistic level creates unique difficulties. Because, as already mentioned, the development of production processes in agricultural industries depends not only on natural and climatic factors, but also on quality and timely execution of agrotechnical activities, use of quality seeds, fertilizers suitable for crop types and varieties in the required



amount and proportion, amount of precipitation, ripening and harvesting of crops. deadlines, etc. depends on factors.

It is known that more than half of the yield of most agricultural crops is accounted for by mineral fertilizers and, therefore, it is important to calculate the exact amount and proportions of mineral fertilizers applied to cultivated areas. Already, there is a strong correlation between the amount of fertilizer applied to cropland and yield indicators. From the point of view of science, relationships that change the average value of one factor to another are considered statistical or correlational relationships, and they mainly represent a mathematical model of multi-factor economic processes in the form of production functions. Therefore, it is necessary to determine the interrelationship of productivity, productivity, cost and a large number of factors that affect them in the form of mathematical functions in agricultural sectors. In particular, in most scientific sources, the multifactor linear correlation-regression model is generally expressed by the following formula, i.e.:

$$Y = a_0 + a_1X_1 + a_2X_2 + \dots + a_nX_n \quad \text{или} \quad Y = a_0 + \sum_{i=1}^n a_i X_i,$$

In this:

Y - involuntary variable criterion indicator (for example, yield, productivity, GDP, gross yield, cost, profitability, etc.);

a_0 – arbitrary variable free number;

a_1, a_2, \dots, a_n – the number of arbitrary factors selected for the model;

X_1, X_2, \dots, X_n – type of independent factors included in the model.

Therefore, multifactor linear correlation analysis models are a set of methods of mathematical statistics, which are widely used to quantitatively express the degree of correlation between the factors of the studied phenomena. Various functions are used as a deterministic basis in economic modeling methods, which are selected based on the characteristics of periodic changes of the studied process. However, the main complexity of this approach is explained by the fact that groups of approximation (Latin closest, connection) functions are very sensitive to each other. Approximation is important from the point of view of expanding the possibilities of studying the quantitative and qualitative properties of the object in relation. In addition, the choice of a certain type of deterministic basis is associated with certain difficulties and a certain level of subjective problems if there is no scientifically based information about the process. For example, the COVID-19 pandemic has forced countries to review their food supply systems and implement appropriate measures. Various bans, restrictions and quarantines have complicated food supply chains as well as increased consumer spending and reduced purchasing power.

The development rate of the agrarian sector of the People's Republic of China, which is considered the world's leader in the production of agricultural and food products, decreased by 3.2% in January-March 2020 due to the pandemic to 1.02 trillion. yuan (about 42.82 billion), industry - by 9.6%, 7.36 trillion. up to yuan (\$1.04 trillion), service sector - by 5.2%, 12.27 trillion. yuan (\$1.73 trillion)⁴.

In general, the analysis of the reforms carried out in the development of agriculture shows that "in the conditions of the pandemic, the implementation of a set of measures, including state

⁴ The Straits Times. 2020. 50% wage offset for food and beverage firms to cope with coronavirus outbreak [онлайн]. [По состоянию на 15 апреля 2020 года]. www.straitstimes.com/politics/covid-19-50-per-cent-wage-off-set-for-food-and-beverage-firms



support, is one of the important tasks for the stable operation of this sector." From this point of view, based on the study of world experience, the following can be included as organizational and economic factors affecting the development of agriculture in the analyzed period:

1

2. Organization of an integrated added value chain. Today, food markets are being transformed into well-developed and conveniently integrated value-added chains like supermarkets. They bring together farmers, processors, retailers and consumers in a complex relationship to provide valuable information and, where necessary, funding, define and enforce sanitary and phytosanitary standards, share risks, and support funding for research and innovation.

It is known that the costs of collection, transportation, storage, processing, packaging and certification during the delivery of products to final consumers are the reasons that reduce the profit of producers of agricultural products (goods). The low level of development of the food industry limits the possibilities of increasing the volume of production of products with high added value. For these reasons, the requirements to expand the scope of economically produced goods (products) and provide quality guarantees become an objective necessity.

3. Expansion of foreign markets and acquisition of segments. Studying the demand for products that are produced in our country or that can be produced in foreign countries, developing a strategy for entering and competing in the market segments of such goods will have a positive effect on expanding the amount and type of exported goods and the geography of countries. In this regard, in order to ensure the competitiveness of our national products in the world markets, the following, including: helping exporting enterprises to reduce the costs of production and sale of products, introducing them to the changes in the foreign market situation, the results of scientific research on prospective markets, competitors, developing transport and communication systems, new reducing transport costs by opening transport lanes, etc. implementation of measures is of great importance.

4. Changes in climate factors. To date, meteorological factors have not been sufficiently taken into account in the analysis of the impact on agricultural production. Weather and climate are among the biggest risk factors affecting agricultural productivity and management. "Indicators of climate change (variability), drought, and other climate-related events have a direct impact on the quantity and quality of agricultural products. In some cases, climate change (variability) has a negative impact on agricultural production, especially when the creation of new technologies, the introduction of innovations and their adaptation are not enough to counter the negative effects of changing environmental conditions⁵.

In summary, the correct assessment of the perspective is considered the basis for making scientifically based acceptable decisions, increasing the scientific level and efficiency of planning one or another activity, developing short, medium and long-term concepts and their targeted

⁵ Baydikov V.M., Ermolova L.S. Ekologiya i selskoe hozyaystvo Germanii //Vestnik Rossiyskoy akademii selskohozyaystvennykh nauk.- 2002.-№4.-S.85-89., Ulanova E.S. Methody otsenki agrometeorologicheskikh usulii i prognozov uroжайnosti zernovykh kultur. L.: Hydrometeoizdat, 2008., Muinov D. Pokaseteli izmereniya "green" economy in Uzbekistan s uchetom international experience. Materialy X Forum of economists. Pod obschey redaktsiyey d.e.n., prof. Akhmedova T.M. Tashkent. IFMR, 2018.- 100 p.



implementation, systematic analysis and, based on its results, the object (perspective development of the subject) serves as a means of supporting the development of programs and road maps, ensuring their scientific basis and putting them into practice.

References.

1. The Global Competitiveness Report 2001-2002, Executive Summary: Competitiveness and Stages of Economic Development, Michael E. Porter, Jeffrey D. Sachs, John W. McArthur
2. Decree of the President of the Republic of Uzbekistan dated October 23, 2019 No. PF-5853 "On approval of the strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030".
3. Abulkosimov Kh.P., Abulkosimov M.Kh. Factors of ensuring food safety in Uzbekistan.-T.: Economy and finance. - No. 8, 2015. - 19 p.
4. The Straits Times. 2020. 50% wage offset for food and beverage firms to cope with coronavirus outbreak [онлайн]. [По состоянию на 15 апреля 2020 года]. www.straitstimes.com/politics/covid-19-50-per-cent-wage-off-set-for-food-and-beverage-firms.
5. BEKZOD Djurayev Assessment of the Economic Stability of Small Farms in the Development of Pasture Livestock. <http://journals.academiczone.net/index.php/ijfe/article/view/706>