

## Optimizing Cost-Effectiveness in Fruit and Vegetable Agro-Clusters

**Nosirov Bahodirjon, Yuldasheva Hafizaxon**

Andijan Institute of Agriculture and Agrotechnologies

**ABSTRACT:** Improving the economic efficiency of agriculture till optimal level is one of the most important tasks of Uzbekistan's economy today. Because agriculture is one of the main sectors of our economy. This issue is in the focus of attention of the Uzbekistan's government today. In particular, diversification of agricultural production, improvement of land and water relations in the sector, creation of a favorable agribusiness environment and high value chain, support for the development of cooperative relations, the widespread introduction of market mechanisms, information and communication technologies, as well as the effective use of scientific advances.

**KEYWORD:** Fruit and vegetable growing, agriculture, agro-cluster, economic efficiency, optimal level, Uzbekistan, Izboskan, farming.

It is known that the current natural and climatic conditions in Uzbekistan allow for the sustainable development of agricultural products, especially fruits and vegetables. The President and the Government of the Republic of Uzbekistan pay great attention to the development of fruit and vegetable growing as a priority in the transition to market relations. The fact that a significant part of the country's foreign exchange earnings is formed through the sale of fruits and vegetables in foreign markets also indicates the priority of radical reform and rapid development of the industry. In particular, a number of decrees and resolutions have been adopted in recent years. These include the Decree PF-5388 of the President of the Republic of Uzbekistan dated March 29, 2018 "On additional measures for the accelerated development of fruit and vegetable growing in the Republic of Uzbekistan" and the Decree PF-5853 dated October 23, 2019 "On approval of the Strategy for the development of the economy for 2020-2030" and additional measures to improve the efficiency of export of fruits and vegetables to foreign markets Decree PQ-3978 dated October 17, 2018, Decree PQ-4239 dated March 14, 2019, "On measures to develop agricultural cooperation in the field of fruit and vegetables."

The main goal of agricultural reforms is to ensure food security by stabilizing the food supply of the population, increase the welfare of the population by providing economic benefits from all activities. Over the past period, various forms of property-based management have emerged in the industry, and the most effective of them are still operating today. Most of the agricultural products are grown by the non-governmental sector - farmers and private landowners.

Improving the economic efficiency of agriculture till optimal level is one of the most important tasks of Uzbekistan's economy today. Because agriculture is one of the main sectors of our economy. This

issue is in the focus of attention of the Uzbekistan's government today. In particular, diversification of agricultural production, improvement of land and water relations in the sector, creation of a favorable agribusiness environment and high value chain, support for the development of cooperative relations, the widespread introduction of market mechanisms, information and communication technologies, as well as the effective use of scientific advances.

It is known that the fruit and vegetable industry plays an important role in providing the population of our country with food products. On this basis, in order to further improve the activities of farms growing fruits and vegetables in agriculture, on December 11, 2019, the President of the Republic of Uzbekistan signed a decree PQ-4549 "On further development of the fruit and vegetable and viticulture sector, the creation of value chains" was adopted. At the same time, "... the lack of systematic effective market mechanisms in the field, especially in the development of fruit and vegetable growing and viticulture, and the lack of a scientific approach lead to the underutilization of the existing potential of the industry. It is estimated that 1 hectare of land can earn 7 times more in grapes, 6 times more in cherries, and 5 times more in walnuts than cotton.

In his Address to the Oliy Majlis on the most important priorities for the country's development on January 24, 2020, President Mirziyoyev said: - Increasing the volume of food production and creating a "continuous chain from field to store." Based on the foregoing, it is very important to further improve the activities of fruit farms in agriculture, increase their production and apply the most innovative methods of growing fruit, increase economic efficiency and increase the importance of improving the quality of fruit growing. This makes it possible to process raw materials grown in clusters and deliver them to the consumer in the form of finished products.

The main purpose of the study is to develop proposals and recommendations for improving the economic efficiency of farms specializing in horticulture till optimal level. The monograph on this issue was conducted on horticultural farms of "Izboskan agroexpo" agro-cluster of Izbaskan district.

At present, the population in our country should grow at least 330-400 g per capita per day or 115-120 kg per year, including 15 kg of grapes and 10 kg of berries. However, today the population produces 94 kg of fruit per capita per year, including 12 kg of grapes. This figure is 120-230 kilograms in countries such as the United States, Italy, Spain and France.

Uzbekistan has favorable natural conditions for growing fruits and grapes. Here it is possible to get a very high yield in accordance with the rules of agrotechnics. Fruit growing in the country is constantly growing.

The establishment of orchards around major cities and industrial centers through the specialization of farms has fully justified itself and made it possible to grow abundant fruit. Such farms achieve high productivity and low production costs. Concentration of fruit and grape growing in specialized farms is a necessary condition for improving the system of production of these products.

The effectiveness of horticulture is also that most of them bear fruit for many (15-20 to 40-50) years. The roots are vigorously deep, drought-resistant, soil fertility is relatively low, and grows on uneven ground.

The production and processing of horticultural products is labor-intensive and lucrative. Intensive horticulture will increase the efficiency of using the potential of labor, land, water and other resources. Uzbekistan has recently been paying close attention to the development of intensive fruit growing. Introduction of improved methods of organization of fruit growing, mechanization and automation of production processes, including harvesting and processing of marketable products, agro-technical methods (including low-yield grafts) and protection of plants from diseases and pests

measures, other methods that increase the productivity of gardens. In today's industrialized orchards, the most promising are the ones grown on low-growing shrubs, and especially on weak and strong-growing shrubs with flattened (fan-shaped) branches. Intensive horticulture requires advanced agricultural techniques (water-nutrient regime, special shaping and pruning of fruit trees) and mechanization of production processes.

Today, more than 80 types of agricultural products grown in our country are exported to 66 countries around the world. In 2010, cotton fiber accounted for 11.3 percent of exports, but by 2018, the figure had dropped to 1.6 percent. According to the results of 2020, 9945.5 thousand tons of vegetables and 2739.6 thousand tons of fruits and berries were grown in the country, of which Andijan region has the highest number of 1588.2 and 633.9 thousand tons, respectively.

“Izboskan agroexpo” agro-cluster was established on December 18, 2019 by the decision of the mayor of Izbaskan district No. 3112, and all land plots are located in the area of Kuyganyor mahalla of Izbaskan district (headed by Khalikov Omadjon). The total land area of the cluster is 316.1 hectares and includes 40 farms, of which 19 are engaged in horticulture and 21 are engaged in vegetable growing. In particular, the area under vegetables is 88.0 hectares, potatoes - 47.9 hectares, melons - 37.2 hectares, orchards - 138.0 hectares, vineyards - 5.0 hectares. The agro-cluster also specializes in the processing of fruits and vegetables, with a processing capacity of 1,000 tons per year. In 2020, 300.0 tons of processed products were delivered to the domestic market, respectively, and the remaining 700.0 tons were exported to Kazakhstan, Kyrgyzstan and Russia. It has refrigerators with a capacity of 500 tons for storage of products and 3 tractors TTZ-100.

The “Izboskan agroexpo” agro-cluster includes farms in Gulkirov and Nishonboy Jorayev area. Farms carry out timely irrigation and land reclamation activities. New, more efficient techniques and advanced technologies have been introduced to reduce the cost of growing crops on farms. Farms pay special attention to the effective protection of plants from diseases and pests during the growing process. This is due to the fact that in recent years, rapid climate change has created unfavorable conditions for the normal growth and development of agricultural crops, as well as favorable conditions for the rapid development of pests and diseases. The farms in the agro-cluster have sufficient annual temperatures and precipitation for agricultural crops, and the fields meet the requirements for fruit and grape growing.

Table 1. Products grown in the "Izboskan agroexpo" agro-cluster in 2020 (tons)

| No | Product Name | Quantity |
|----|--------------|----------|
| 1  | Fruit        | 521,0    |
| 2  | Grapes       | 32,0     |
| 3  | Vegetables   | 2015,0   |
| 4  | Melons       | 600,0    |
| 5  | Potato       | 750,0    |

The climate and natural conditions in the farms of this agro-cluster are very favorable for the cultivation of agricultural crops. The arable lands of “Izboskan agroexpo” agro-cluster are fertile and the soil is black-gray, which is rich in chemical elements and humus. The reclamation of farm lands in the cluster is in good condition, in particular, in Izbaskan district in 2020, 120.0 km of collector networks were mechanically cleaned. In 2021, it is planned to mechanically clean 103.0 km of collector networks. In this cluster area, the groundwater level is not saline at a depth of 2-3 meters. The farm lands are well supplied with irrigation water and there is a certain shortage of water during

the summer months. The economic performance of each farm depends on the size of its arable land and the composition of its crops.

Uzbekistan has recently been paying close attention to the development of intensive fruit growing. Introduction of improved methods of organization of fruit growing, mechanization and automation of production processes, including harvesting and processing of marketable products, agro-technical methods (including low-yield grafts) and protection of plants from diseases and pests measures, other methods that increase the productivity of gardens. In today's industrialized horticulture, orchards grown on low-growing stems, and especially on weak and strong-growing stems, with flattened branches, are the most promising. Intensive horticulture requires advanced agricultural techniques (water-nutrient regime, special shaping and pruning of fruit trees) and mechanization of production processes. In general, the ongoing economic reforms in the industry provide an opportunity to address the following socio-economic issues:

- in economic terms, fruits and vegetables account for 32.2% of total agricultural production (8.7% of GDP) and are one of the main sources of income in rural areas. It has a direct impact on the development of a number of industries. It also plays a key role in the country's agricultural exports;
- in the social sphere - the effectiveness of sustainable development of fruit and vegetable production has a direct impact not only on the living standards of the rural population, but also on improving the social welfare of the entire population of the country.

Ultimately, the ultimate goal of these reforms is to ensure food security in the country, the positive results of economic reforms in all aspects of the development of the new Uzbekistan, as well as the increase in living standards.

The economic growth of the fruit and vegetable sector should be achieved not by further expanding the use of available domestic resources, but by introducing a system of competitive production cooperation and clusters that meet the modern requirements in terms of product quality.

The issue of increasing the volume and quality of products grown on farms specializing in the cultivation of fruits and vegetables in agriculture is a complex process, it is important to set up encouraging management activities. Therefore, a thorough and in-depth analysis of the results of economic activity on the basis of the reported data is the basis for identifying all the factors that led to its success or failure and the likelihood of their recurrence in the future and taking action on them. This means that every expert and farmer must be well versed in the analysis. Good knowledge of analysis is the key to success. In this regard, in order to determine the extent to which the quality of agricultural products affects the economic efficiency, based on the study of the state of production and the use of available resources in farms specializing in fruit growing in Izbaskan district, farms specializing in fruit growing in the reporting period. We have thoroughly studied the activities of the last three years on the basis of economic indicators.

We analyze the economic performance of horticultural farms in the “Izboskan agroexpo” agro-cluster.

“Ismoilov Rahimjon Orzusi” Horticultural Farm was established in 1999 in the Nishonboy Juraev area of Izbaskan district, Toshkechik mahalla. The farm specializes in fruit growing, which combines new forms of management, land ownership and use, adaptation of management systems to market relations, improvement of crop structure in line with market demand, producers and service providers, as well as products. the contractual organization of relations between buyers serves as a basis for ensuring economic stability.

Table 2. Information about the equipment of the horticultural farm "Ismailov Rahimjon orzusi" in Izbaskan district

| No    | Fixed Asset Type  | Amount | Balance Value, thousand soum | Share, % | Working capacity |
|-------|-------------------|--------|------------------------------|----------|------------------|
| 1.    | TTZ-80            | 1      | 30000,0                      | 79.0     | good             |
| 2.    | Trailer PTS-4-793 | 1      | 8000,0                       | 21.0     | good             |
| Total |                   |        | Total                        | 38000,0  |                  |

The land leased to the Ismailov Rahimjon Orzusi horticultural farm in Izbaskan district covers 20.4 hectares and is mainly intended for apple growing. It has 19.3 hectares of gardens and 1.1 hectares of roads, ditches and buildings. The farm's land plot is rated with an average soil quality score of 56, and consists of 2 large 12.0 ha and 6.3 ha irrigation cards. The reclamation condition of the farm lands is good, the groundwater level is 1.5-2.0 meters deep and not saline. The level of profitability of the Ismailov Rahimjon Orzusi horticultural farm, which is the final indicator of economic efficiency analyzed on the basis of production costs and gross output, has increased from 11.5% to 15.7% in the last 3 years.

Sanjarbek Horticultural Farm, which analyzes the economic indicators for 2018-2020, is located in the Nishanboy Juraev area of the Izbaskan district, in the Karayantak area, and was established in 1999 on the basis of a tender. The land leased to Sanjarbek is 5.6 hectares, mainly for apples. There are mainly 5.4 hectares of orchards and 0.2 hectares of roads, canals, ditches and buildings.

Today, in the process of radical structural changes in the agricultural sector, much attention is paid to the organization and improvement of rural infrastructure. The horticulture farm uses a variety of service infrastructure facilities set up in the district during the growing season. The horticultural farm is supplied with water through the Toshkechik irrigation network of the Izbaskan Water Consumers Association. The close proximity of the farm to the highway allows the farm's produce to be transported to storage and processing facilities without being destroyed. The economy has improved over the past three years, but is still far below optimal.

Elyorbek Horticultural Farm in Izbaskan District was established in 1999 in Nishanboy Jorayev area, Karayantak. The land leased to Elyorbek is 9.6 hectares, including a garden and 0.6 hectares of roads, ditches and buildings. The average land quality of the farm is 55 points and consists of 2 irrigation maps.

The Elyorbek horticultural farm uses a variety of service infrastructure facilities set up in the district to grow its produce. The close proximity of the farm to the highway allows the farm's produce to be transported to storage and processing facilities without being destroyed. The Chirtaksoy Irrigation Network of the Izbaskan Water Consumers Association is supplied with water. The close proximity of the farm to the highway allows the farm's produce to be transported to storage and processing facilities without being destroyed.

The economic efficiency of the private horticultural farm "Elyorbek" for the last three years was analyzed. Over the last three years, the economic efficiency of fruit growing on the farm has improved slightly. This can be seen in a number of indicators of farm productivity.

The level of efficiency, which is the final indicator of economic efficiency in farming, has increased from 7.1% to 27.1% or 20.1% in the last three years. The level of economic efficiency achieved on the farm is still very low, and it is necessary to take measures to increase it to at least 45-50%. Only



then will the farm have the financial resources needed to carry out expanded reproduction of fruit growing.

The issue of increasing the volume and quality of products grown on farms specializing in the cultivation of fruits and vegetables in agriculture is a complex process, it is important to establish management activities that encourage the production of quality products. Therefore, a thorough and in-depth analysis of the results of economic activity on the basis of the reported data is the basis for identifying all the factors that led to its success or failure and the likelihood of their recurrence in the future and taking action on them.

A number of measures are recommended to maximize economic efficiency by sustainably developing the fruit and vegetable sector.

- Development and implementation of measures to modernize, modernize the fruit and vegetable sector, to ensure the competitiveness of products that give a strong impetus to the sustainable development of the industry;
- Ensuring food security, improving the mechanism of state support and management of the agricultural sector as a result of increasing dependence of the world consumer market on imports;
- Special attention should be paid to the use of advanced methods of irrigation based on innovative technologies, in particular, the widespread introduction of drip irrigation, due to the limited availability of irrigated land due to the annual shortage of water resources;
- In-depth analysis of the economic and technological, legal and other opportunities and achievements of farmers and agricultural enterprises among the factors influencing the sustainable development of fruit and vegetable growing, and the use of existing scientific and innovative opportunities through the elimination of identified shortcomings;
- Adoption of programs to replace the imported fruits and vegetables in order to meet the needs of the population through the full and effective use of our domestic potential, etc.

The analysis of the experience of developed countries in the cultivation, storage, processing and export of fruits and vegetables also shows the need to develop cooperation and clusters of producers of these products.

It is necessary to take measures to introduce large-scale foreign investment in the production and processing of agricultural products in the agro-cluster "Izboskan agroexpo" in Izbaskan district.

**Conclusion.** Analysis of economic performance of farms specializing in fruit growing in the agro-cluster "Izboskan agroexpo" Izboskan district for the last three years, the state of production in horticultural farms specializing in fruit growing, the efficiency of use of arable land, the use of existing means of production and data on the quality of farm produce require the development of a serious action plan to maximize economic efficiency. According to the results of the last three years, the economic efficiency of private horticultural farms "Elyorbek", "Sanjarbek", "Ismoilov Rahimjon Orzusi" specializing in fruit growing was analyzed and found to be below the optimal level. It is necessary to take measures to strengthen the economic efficiency of these farms in the cluster, to prevent its decline, but to increase it.

It is advisable to pay special attention to the effective protection of fruit trees from diseases and pests. This is due to the fact that in recent years, rapid climate change has created unfavorable conditions for the normal growth and development of rural fruit trees, as well as favorable conditions for the rapid development of pests and diseases.

The natural-climatic conditions of the cluster are very favorable for the development of beekeeping. Therefore, the implementation of this measure, firstly, stimulates the production of honey, and secondly, provides effective pollination of fruit flowers.

Irrigation and reclamation of farm lands should be carried out in a timely and quality manner. It is necessary to introduce new, efficient techniques and advanced technologies that will reduce the cost of growing crops on the farm.

Particular attention should be paid to the avoidance of excessive costs in the process of cultivation and, most importantly, the rational and efficient use of land, which is the main means of production.

Successful implementation of the above measures in the cluster will create opportunities to further improve its cost-effectiveness.

## References

1. Resolution of the President of the Republic of Uzbekistan PF-5388 of March 29, 2018 "On additional measures for the accelerated development of fruit and vegetable growing in the Republic of Uzbekistan"
2. Decree of the President of the Republic of Uzbekistan No. PF-5853 of October 23, 2019 "On approval of the Strategy of agricultural development of the Republic of Uzbekistan for 2020-2030"
3. Resolution of the President of the Republic of Uzbekistan dated October 17, 2018 PQ-3978 "On additional measures to increase the efficiency of export of fruits and vegetables"
4. Resolution of the President of the Republic of Uzbekistan PQ-4239 of March 14, 2019 "On measures to develop agricultural cooperation in the field of fruit and vegetables"
5. Statistical and financial reports of private horticultural farms "Elyorbek", "Sanjarbek", "Ismailov Rahimjon orzusi" in the agro-cluster "Izboskan agroexpo", Andijan region, Izbaskan district for 2018-2020.
6. O.Shermatov, B.Nosirov, R.Imomov, M.Qobulova. Problems of effective usage of lands in agriculture for ensuring food security. South Asian Journal of Marketing & Management research, ISSN: 2249-877X. 10 (4), p. 71-76. <https://saarj.com/wp-content/uploads/special-issue/sajmmr/2020/SAJMMR-APRIL-2020-SPECIAL-ISSUE.pdf>
7. Nosirov B.Z., Abduvasikov A.A. The evolution of agricultural markets of Uzbekistan. Conference materials of D.A.Tsenov Economics Academy in Svishtov, Bulgaria. October 4-5, 2019.
8. Б.Носиров, Н.Сафина. Роль инноваций в устойчивом развитии фермерских хозяйств. Молодой ученый. Международный научный журнал. №18 (152), май 2017, часть II. стр. 164-166. ISSN 2072-0297. <https://moluch.ru/archive/152/43123/>
9. Nosirov B., Rakhmonova B. Organization of production of walnuts in an industrial volumes. International online conference ECLSS Economics and Social sciences. Proceeding book. June 28-29, 2020. Istanbul, Turkey. P. 59-67. <http://eclss.org/publicationsfordoi/istanbulonline.pdf>
10. Б.Носиров, Б.Рахмонова. Ўзбекистонда ёнғоқ ишлаб чиқаришининг ташкилий-иқтисодий асосларини такомиллаштириш йўллари. Иқтисодиётда инновациялар. №10 (2020). 173-181-бет. ISSN 2181-9491. DOI <http://dx.doi.org/10.26739/2181-9491-2020-10-23>

11. Nosirov B.Z., Ergashev A.A., Islamova D.T. Development prospects of food markets in Andijan province. // THEORIA: педагогика, экономика, право. 2020. №1 (1). URL: <https://theoria.apni.ru/article/17-development-prospects-of-food-markets>
12. *B.Nosirov, Sh.Abdullaev, H.Yuldasheva.* Relevance of development of multiple-profile farms. International journal for innovative Engineering and Management Research (IJIEMR). 2021. Volume 10, Issue 03, Pages: 516-521. ISSN 2456-5083. <https://ijiemr.org/public/uploads/paper/638741617019191.pdf>
13. *B.Nosirov, B.Rahmonova, D.Islamova, Sh.Yoqubov.* The role of increasing the economic efficiency of potato production in food supply of the population of Uzbekistan. Journal of Xi'an University of Architecture & Technology. Volume XIII, Issue 5, 2021. P. 560-567. ISSN: 1006-7930. <https://www.xajzkjdx.cn/gallery/58-may2021.pdf>
14. *B.Nosirov, Sh.Tulakov.* Opportunities to increase land efficiency in farming. Innovative Technologica: Methodical Research Journal (IT). ISSN: 2776-0987. Volume 2, Issue 5, May, 2021. 175-179. <https://it.academiascience.org/index.php/it/article/view/84>