

# The role of fruit-vegetable cluster-cooperative in providing food security in the Republic of Uzbekistan

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**Abstract.** In this research paper, the economic importance of the fruit-vegetable cluster-cooperative and its role in providing the country's population with food is based on its relevance. The primary objective of the research is to provide industrial enterprises with raw materials through the use of the cluster cooperation system in harvesting fruits and vegetables products. In the conducted scientific research, scientifically based suggestions were given on mechanisms of state support for the growers of fruits and vegetables in the Republic of Uzbekistan, as well as the state regulation and organization of agrocluster. Simultaneously, the profitable indicators of fruits and vegetables growers were analyzed on the basis of cluster cooperation, and the rate of growth for fruits and vegetables cluster cooperation “Panji Kishmishzorlari” in Kitab district, Kashkadarya region of the country in 2010-2020. The analyses and data are retrieved from the fact that the growth is 130.9%, and the cultivated area has increased by 156.8% for this object. As a result of the stable growth of the cluster-cooperation of fruits and vegetables products of our country, proposals and recommendations have been developed to ensure food safety and provide the population with ecologically clean products by improving the fruits and vegetables industry. At present, practical proposals have been made for the foundation and expansion of fruits and vegetables cooperation in the field of vegetable growing as well as fruits and vegetables growing. This scientific research work reveals how to improve the scientific level of farmers and peasant farms and effective using the experiences of non-native countries in the expansion of fruit-vegetable cluster-cooperation. As a result of this, the issues of putting the commodities on the market through economic stimulation of fruits and vegetables producers and expansion of the market infrastructure and learning experience from scientific research institutes were highlighted. Ways of to upsurge the economic competence of fruits and vegetables cultivation, ways to develop fruits and vegetables cluster cooperation in the future are scientifically based.

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## 1 Introduction

The upcoming expansion of the economy of the Republic of Uzbekistan, including the sector of fruits and vegetables, it is directly concerned to the proceedings of globalization and integration into the world economy, and this integration causes the problem of international competition. The tightening of domestic demand in the country puts fruits and vegetables producers in a more difficult position. As a result, product suppliers compete with non-native competitors in two ways: to maintain their positions in home market and to enter a new non-native market.

In the Republic of Uzbekistan, fruits and vegetables are mainly grown in the private sector, and farms and farms, today an increase in the quantity of large-scale horticultural enterprises leads to upsurged competition between private farms of the horticultural industry own 75-85 percent of them. In such a system, there are a large number of vegetable products that ripen seasonally and in many cases inconvenient for transportation. In order for small farmers and farms to participate in competition, it is vital for them to join the cluster cooperation.

Decree of the President of the Republic of Uzbekistan on October 23, 2019 #PD-5853 "On approval of the Strategy for the Expansion of Agriculture of the Republic of Uzbekistan for 2020-2030" [1], as well as the Presidential resolution PR-4239 on "Measures for the expansion of agricultural cooperation in the field of fruits and vegetables production" dated March 14, 2019 [2] provides for the creation of specialized cooperatives on the basis of farms and peasant farms operating in regions with developed fruits and vegetables production and increasing their efficiency.

Also, Presidential Resolution #PR-4549 dated December 11, 2019 "On additional measures for the further expansion of the fruits and vegetables and viticulture industry and the creation of a value chain in the industry" [3] on production, storage, processing, etc. is the need to introduce advanced technologies in the field of sales and stimulate the expansion of cluster cooperation between manufacturers of these products and improve their efficiency.

On this occasion, in the application of the tasks defined in other regulatory legal documents related to this activity, in order to reinforce the country's food security, improve the standards of food products, create conditions for improving the system of trade in products, organizing production in agriculture and cluster production of products - organization, based on the proposition of cooperation, is becoming more widespread in the world.

## 2 Materials and methods

As a result of the conducted scientific research, proposals and recommendations were made regarding the issues of fruits and vegetables cluster expansion and increasing their efficiency. Systematic approach, abstract-logical thinking, comparison, factor analysis and comparative analysis methods were used in the research process.

## 3 Results

Based on the decision of the President of the Republic of Uzbekistan "On additional measures to further develop the fruit-vegetable and viticulture industry and create a value-added chain in the sector", according to calculations based on the effective use of the cluster-cooperation system in the expansion of fruit-vegetable and viticulture, one hectare

of this was determined that there is a possibility of getting 7 times more income than grapes, 6 times more than cherries, and 5 times more than walnuts compared to raw cotton.

According to the decision of the President of the Republic of Uzbekistan dated March 14, 2019 “On measures to develop agricultural cooperation in the field of fruits and vegetables production” #PQ-4239: organization of cluster cooperatives for cultivation, processing and export of fruits and vegetables and grape products and selected from among processing and exporting organizations, based on their experience and capabilities, in which, first of all, unused capacities for storage and processing of products will be used must be lowered.

The concept of a cluster was introduced for the first time by M. Porter, who introduced the cluster with the essence of “a rhombus of national competitive advantages” in relation to industries and companies. Along with a number of familiar concepts that represent a cluster, i.e. “...geographically adjacent companies and related organizations, in the same field and with common activities and complementary groups”, the following concepts are presented [4].

Many non-native scientists, in particular, Russian economist A. V. Chayanov, describe the economic essence of cooperation as a relationship that ensures the common economic interests of economic entities that combine their activities independently. The economist mentioned that the main attention here should be focused not on property, but on serving the interests of integration into cooperative relations.

According to A. V. Chayanov, “Capital is not the boss in a cooperative, but rather a servant. It is emphasized that the cooperation should help the farmer not only to ensure profit, but also to improve his knowledge and skills” [5].

It is obvious that the basis of the important economic essence of cooperation is the principle of free subjects to join the cooperation, democracy in the management of cooperative relations, and the principle of economic justice in the distribution of the profit obtained as a result of cooperation. Even today, in the tariff given by A. V. Chayanov to the essence of the agricultural cooperation, the cooperative's producers of small goods in agriculture, without losing their status as an independent economic entity with their own balance sheet, together more the fact that it is a question of cooperation for the sake of economic competence has not lost its importance. Among economists, the economic essence of cooperation has been given different rates. For example, I. N. Buzdalov, “Cooperation is the joint activity of various economic entities, which combines personal, collective and social interests, and stimulates the creative work of individuals. At the same time, together with the social guarantee of a person, it provides social protection” [6].

Cluster cooperatives of fruits and vegetables products differ from other cooperatives in that producers of agricultural products form them.

Comprehensive measures are being taken in our country aimed at actively attracting funds from international financial institutions to improve the fruits and vegetables industry, including a significant increase in the acreage of fruits and vegetables, storage and processing capacities, and the expansion of this sector is being implemented.

Also, M. I. Tugan-Baranovsky [7] focused on the forms of cooperation and the social aspects of the cooperation process and interpreted it as a social movement, while A. V. Chayanov researched the economic aspects of cooperation in his work, focusing on small producers of goods. and the economic and social nature of cooperation is interpreted from the point of view of that time.

It is obvious that the material and technical base of small individual farmers' farms is very weak, and the low level of marketability of products has led to the fact that farms operate more as social subjects than economic ones and is an obstacle to the process of cooperation. According to R. Kh. Ergashev, an economist studying the general problems of fruits and vegetables cooperatives in Uzbekistan, agricultural cooperatives are organized by

producers of agricultural goods to meet their economic and other needs. the system of agricultural cooperatives and their partners. "Agricultural cooperative is one of the organizational and legal forms of running an economy. It involves meeting the material and other requirements of cooperative members by producers of agricultural goods. In our opinion, the tariff "[8] refers to cooperative production and other economic activities based on the integration of share contributions" [8].

According to the analysis, the volume of vegetable cultivation in the republic increased in 2005-2020. For all types of farms. Instead of 137.7 thous. The average yield increased from 215.8 q to 301.6 q, and the overall increase was 140.6%. As a result, instead of 2971.6 thousand tons in 2005, the total volume of the harvested crop will amount to 6650.3 thousand tons in 2020. Gross growth was more than 2.2 times.

The trend of gross growth in the republic in the field of vegetable growing is proportionally observed in the Kashkadarya region. For example, in 2005 the total area of growing vegetables in the region was 28.1 thousand hectares, and by 2020 it increased by 38.1 thousand hectares or 128.8%, and the volume of gross output grown from 549.3 thousand tons to 810.3 thousand tons. per ton or increased by 142.0 percent. High growth rates of gross output occurred due to faster growth in crop yields than growth in sown areas. The yield of vegetable crops in the region compared to the all-Russian indicator in the studied years was in different proportions; mainly after 2005 it decreased by 29.5%.

In coordinating the activities of enterprises for the production, processing and storage of fruits and vegetables, the trade sector is the closest link to the consumer and is constantly aware of changes in market demand for products. A cluster-cooperative system should be created that places an order with the manufacturer and delivers the product to the buyer in a freshly cut or processed quality product.

Therefore, fruits and vegetables achieve certain results in today's production, storage and processing of cluster cooperatives.

The creation of a fruits and vegetables cluster of cooperation should be carried out at the expense of economic support within the framework of cooperation.

At the end of 2019, the cluster-cooperative "Panji kishmishzorlari" of the Kitab district, whose socio-economic activity was studied, reached 75.1 centners of productivity in horticulture and viticulture and 87.3 centners in 2020 (Table 1).

**Table 1.** Economic indicators of the cluster-cooperative "Panji Kishmishzorlari" of the Kitob district of the Kashkadarya region.

| Types of crops | Total area of land (crops), (ha) |      | Harvested area, (ha) |      | Average yield, (c. ha) |       | Gross assembly quantity, (tons) |       | Gross harvest in 2010 compared to 2020, (%) |
|----------------|----------------------------------|------|----------------------|------|------------------------|-------|---------------------------------|-------|---|
|                | 2010                             | 2020 | 2010                 | 2020 | 2010                   | 2020  | 2010                            | 2020  |   |
| Gardens        | 2380                             | 3757 | 1679                 | 3129 | 75.1                   | 87.3  | 12606                           | 27325 | 216.76                                      |
| Grapes         | 4780                             | 4419 | 2545                 | 3810 | 67.1                   | 97.2  | 17068                           | 37035 | 216.99                                      |
| Vegetables     | 1773                             | 1456 | 1773                 | 1456 | 256.4                  | 289.0 | 45455                           | 62948 | 138.48                                      |
| Potatoes       | 1953                             | 1149 | 1953                 | 1149 | 116.1                  | 203.1 | 22681                           | 32123 | 141.63                                      |
| Corn           | 7617                             | 5306 | 7617                 | 5306 | 42.5                   | 38.3  | 32356                           | 20344 | 62.88                                       |

In 2019, GREEN ATR KLAUSTER in Yakkabog district achieved an average yield of 81.6 centners in horticulture and viticulture, and by 2020 this figure reached an average of 113.7 centners. were grown in 2020.

The results achieved over the past 10 years in vegetable growing are also positive: in 2010, 42,747 tons of products were grown with a yield of 210.3 centners; by 2020, 46,970 tons of products were grown with a yield of 254.5 centners. In this GREEN ATR KLAUSTER, potato cultivation in 2020 increased by 140.36% compared to 2010, instead of 21,063 tons of potatoes in 2010, 26,565 tons of potatoes grown in 2020.

If we analyze the indicators of economic competence of clusters-cooperatives in the field of fruits and vegetables production in Kashkadarya region, then in 2010, 10,421 tons of crops harvested from the orchards of GREEN ATR KLAŠTER, and the average yield of orchards was 81.6 centners. By 2020, the yield amounted to 113.7 centners, the volume of grown products - 22193 tons (Table 2).

**Table 2.** Economic indicators of “GREEN ATR KLAŠTER” in Yakkabog district of Kashkadarya region.

| Types of crops | Total area of land (crops), (ha) |       | Harvested area, (ha) |       | Average yield, (c. ha) |       | Gross assembly quantity, (tons) |       | Gross harvest in 2010 compared to 2020, (%) |
|----------------|----------------------------------|-------|----------------------|-------|------------------------|-------|---------------------------------|-------|---|
|                | 2010                             | 2020  | 2010                 | 2020  | 2010                   | 2020  | 2010                            | 2020  |   |
| Gardens        | 1247                             | 3102  | 1158                 | 1951  | 81.6                   | 113.7 | 10421                           | 22193 | 212.96                                      |
| Grapes         | 1019                             | 614   | 970                  | 612   | 120.5                  | 136.6 | 11687                           | 8356  | 71.50                                       |
| Vegetables     | 2033                             | 1241  | 2033                 | 1241  | 210.3                  | 254.5 | 42747                           | 46970 | 109.88                                      |
| Potatoes       | 1489                             | 754   | 1489                 | 754   | 141.5                  | 260.5 | 21063                           | 29565 | 140.36                                      |
| Corn           | 9960                             | 11577 | 9960                 | 11577 | 60.8                   | 36.5  | 60584                           | 42330 | 69.87                                       |

In particular, the share of vegetable crops in 2000 was 4.5% of the total sown area, and by 2018 it was 7.3%. This will create an opportunity to make wider use of the region's opportunities for the expansion of vegetable growing. At the same time, the increase in the number of harvested fruits in orchards is an important factor accelerating the return on investment in the horticultural industry.

In Uzbekistan, the relations between the participants of fruits and vegetables cluster cooperatives - producing, processing and exporting organizations are regulated by product supply contracts, and at the expense of advance funds allocated in advance for the purchased products, the producers are provided with seeds, seedlings, mineral fertilizers, fuel and lubricants. and providing other resources, providing agrotechnical and agrochemical services, giving recommendations on the use of new innovative technologies, providing information and consulting services.

Fruits and vegetables cooperative is a system of agricultural cooperatives and their partners established by producers of agricultural goods to meet their economic and other needs.

Economist R.H. Husanov researched the economic content and nature of cooperation in his scientific works, “The main attention was focused on the producers of small goods, and he thought about the socio-economic content of cooperation from the point of view of that time.” [ 9].

In the course of research, several scientists gave their opinions on the economic nature of cooperation. For example, it is given by A.I.Allakhverdiyev who defines it as “Agricultural cooperation is a form of joint economic activity of producers of agricultural products in one or more interdependent processes of labor and production. It provides results and economic benefits that would be difficult to achieve individually.” [10].

They help to upsurge the competitiveness of the manufacturer due to the increase in labor productivity due to the increase in product quality and the level of mechanization, the use of waste-free and cost-effective technologies. [11].

Currently, Russian economists, in particular T. Abovoy, emphasize that the Law of the Russian Federation “On Agricultural Cooperation” does not clearly indicate the differences between production cooperatives and consumer cooperatives. [12].

However, this process has also reduced the market competitiveness of small farms in certain areas. For this reason, small farms (farmers, processors, transporters and entities of the trade network) began to unite into “Production and trade cooperatives” [13].

In their works, the issues of economic competence of fruits and vegetables products were considered in detail, the methods of evaluating the level of efficiency, directions and

ways of increasing it were studied. However, despite the discussion of many problems, scientists have not been able to agree on the organizational and economic basis of fruits and vegetables cooperation. A more in-depth study of the problem of cooperation of fruits and vegetables products requires a comprehensive economic assessment of the expansion reserves of fruits and vegetables processing and storage enterprises and rational scientific and innovative approaches to the organizational and economic foundations of cooperation of fruits and vegetables products.

Increasing the productivity of fruits and vegetables farming is one of the main directions in ensuring economic competence and is manifested as a result of a number of important activities carried out at the country level and at the level of an economic entity. Among the most important such activities are the popularization of breeding work, the foundation of logistics for economic entities, the timely and high-quality implementation of agrotechnical measures, the placement of crops, taking into account soil conditions and climate characteristics.

Stimulation of cooperative relations between the participants of fruits and vegetables clusters is carried out by their financial support, providing the producers with working capital through processing and exporting organizations that are parties to the tripartite agreement, establishing new gardens, vineyards and greenhouses, storing products and on lending of up to 20 billion soums allocated by native commercial banks for the establishment of processing units.

The interest rate coming over the re-funding rate of the Central Bank of the Republic of Uzbekistan, but not exceeding than eight percentage points, was provided as compensation or a guarantee like the amount of fifty percent of the debts amount at the expenses of the state fund in order to support the business activities.

Subsidies have been allocated to the participants of fruits and vegetables clusters to cover a part of the costs of purchasing intensive seedlings (small and semi-small) and cuttings grown in local conditions.

## 4 Discussion

Scientifically substantiated proposals and recommendations for the expansion of fruits and vegetables cluster-cooperation cooperation:

- Restoration of unproductive and low-yielding orchards and vineyards.
- Creation of a system for growing intensive fruit trees and vine seedlings suitable for soil and climatic conditions, and their further sale to business entities.
- Encouragement of authors and organizers of new varieties of fruits and vegetables, protection of business entities involved in seed production and nursery, creation of a mechanism for certification of seedlings and seedlings.
- Taking measures to import into the territory of the republic varieties of vegetables and fruits that are in high demand on the world market and suitable for the soil and climatic conditions of the republic, from countries with developed seed production.
- Creation of high-yielding, frost-resistant and seedless varieties of vegetables and fruits, introduction of promising varieties.
- Expansion of a methodology aimed at improving the nursery system in fruits and vegetables growing.
- In order to improve agro technical measures in fruits and vegetables growing, localize the production of special equipment used in vineyards in the republic and introduce a system of long-term lease on preferential terms.
- Ensure the creation of new orchards and vineyards based on pure varieties and virus-free seedlings.

- Ensuring the production of quality products through the introduction of modern agro technical measures in fruits and vegetables farms.
- The main directions of expansion of the fruits and vegetables industry are defined as follows:
- Determination of optimal areas in favorable regions for specialization in fruits and vegetables growing.
- Expansion of viticulture as a national culture based on the national culture of agriculture and the values of our people, formed over the centuries.
- Creation of a value chain in the field by growing fruits and vegetables on large areas in a cluster and cooperative method, promoting the storage, sorting and processing of grapes.
- Expansion of exports by creating national brands of fruits and vegetables varieties and entering new markets.
- In the fruits and vegetables direction, “the best grape variety”, “the best intensive vineyard”, “the best local grape variety”, “the best wine product”, “the best vegetable variety”, “the best intensive vegetable”, “the best for creating a republican examination competition, held in nominations such as "vegetable variety"”.
- Availability of infrastructure facilities necessary for its functioning (on the rights of ownership or use or full ownership), as well as qualified personnel and other means, as well as financial stability.
- Develop a scientific school of fruits and vegetables technology in order to grow fruits and vegetables products on a scientific basis, create new productive, seedless varieties, and establish a comprehensive integration of science and production.
- Based on the soil and climatic conditions of the regions, create a full cycle of growing vegetables and fruits, drying, packaging, processing, production of finished products and exports, create viticulture and vegetable clusters.
- Business plan or feasibility study for the implementation of investment projects for growing, packaging, sorting, processing and introducing resource-saving technologies.
- Infrastructure facilities necessary for its operation (on the rights of ownership or use or full ownership), as well as the availability of qualified personnel and other means and financial stability.

## 5 Conclusion

In order to upsurge the effectiveness of fruits and vegetables cluster-cooperative enterprises, it was determined that they should be formed based on product quality and organizational and economic foundations, as well as the introduction of marketing and logistics innovations. Nowadays, in our country, more than forty percent of raw materials for the fruits and vegetables sector are lost due to the non-efficient logistics and transportation system and the insufficiency of centralized supply of local raw materials to the canning industry. The level of using the new techniques and technologies is between 50 to 60 percent which creates a very good opportunity for innovation in the sphere of optimizing technological output chains.

The analysis show that it is expectable to use the below given factors to upsurge the competence of fruits and vegetables cluster-cooperative enterprises: technical and technological (introduction of waste-free and low-waste food technologies, increasing the level of automation of technological processes, expansion of fruits and vegetables growing enterprises increasing production efficiency, ensuring the safety of fruits and vegetables, introducing new types of finished products - channels)

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