

## Organization and Development of Fruit and Vegetable Clusters

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### Abstract

*This article highlights the development of clusters in the fruit and vegetable sector and ways to use them effectively, as well as the establishment of a cluster system for fruit and vegetable processing, production of finished products, providing the country with quality fruits and vegetables, economic factors influencing the export potential of the industry.*

**Keywords:** *fruit and vegetable products, agrocluster, cluster, fruit and vegetable cluster.*

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**INTRODUCTION.** Over the last few years, Uzbekistan has been paying a close attention to issues such as maintaining the position of agricultural products, including fruits and vegetables in the domestic market, expanding the volume and geography of exports by increasing their competitiveness in world markets. Important tasks have been set to “deepen structural changes and continuous development of agricultural production, further strengthen the country's food security, expand the production of environmentally friendly products, significantly increase the export potential of the agricultural sector” [1]. Effective implementation of these tasks requires the development of scientific proposals and practical recommendations for fruit and vegetable agro-clusters in a highly competitive environment.

However, the fact that the norms governing the development of clusters in the fruit and vegetable sector are set out in various pieces of legislation poses certain difficulties in their practical application. There is a need to combine all the norms in this area into a single normative legal document. That is why we are in need to consider the development of clusters in the fruit and vegetable industry and its most important fundamentally new aspects.

In the Republic of Uzbekistan, fruits and vegetables are mainly grown in the private sector, 70-80 percent of which is accounted for by farmers, but today the increase in the number of large businesses in the field of horticulture leads to increased competition between the private sector. In the fruit and vegetable sector, the clusters take the form of a commercial organization voluntarily established by agricultural producers such as farmers, dehqan farms and owners of private farms.

Resolutions of the President of the Republic of Uzbekistan No. PR-5200 “On additional measures to introduce a cluster system of viticulture development, state support for the introduction of advanced technologies in the industry” dated June 28, 2021 [2] and No. PD-52 “On measures to support the fruit and vegetable sector, further development of the cluster and cooperation system in

the industry” dated December 15, 2021 [3] define the tasks in other normative legal acts related to fruit and vegetable growing.

**LITERATURE REVIEW.** The development of the fruit and vegetable cluster is covered in the scientific work of many foreign, CIS and Uzbek scientists.

Economic problems in the development of fruit and vegetable production and the development of clusters and integration processes in agriculture are reflected in the works of foreign economists such as T. Buzina [4], N. Kuznetsova et al [5], I. Minakov [6], V. Volodin [7], L. Antonenko [8] and other economic scientists in the field of agriculture. Scientific solutions aimed at developing cluster relations in the conditions of agricultural production of the Republic are among the scientific developments of a number of agrarian economists such as Q. Choriyev [9], T. Farmonov [10], N. Khushmatov [11] and R. Kh. Ergashev [12]. However, the fact that the above work has been done at different times, and now the deepening of reforms in the organization of clusters and cooperatives in the industry requires a comprehensive and complex approach to research in the field of sales of fruits and vegetables.

**RESEARCH METHODOLOGY.** As a result of the research, suggestions and recommendations were made on the development of fruit and vegetable clusters and increase their efficiency. The research process used a systematic approach, abstract-logical thinking, comparison, factor analysis and comparative analysis.

**ANALYSIS AND RESULTS.** Further development of fruits and vegetables, fruit and vegetable growing, and its processing, establishment of a cluster system for the production of finished products, providing the republic with quality fruits and vegetables with the widespread introduction of effective mechanisms for regulating the sales market, strengthening the export potential of the industry as well as increasing the investment attractiveness of our country are very important for the development of the sector.

The area under vegetables in the country is 189. 7 thousand hectares, fruits and berries - 271. 6 thousand hectares (of which 103. 6 hectares are productive vineyards), vineyards - 114. 5 thousand hectares. 69. 7 thousand hectares or 61% of the country's vineyards are farms, 39. 1 thousand hectares or 34% are dehkan farms. The average yield of vineyards in all categories of farms in 2014-2017 was 138. 2 quintals per hectare, on farms - 110. 3 quintals. The share of farms in the total yield of grapes grown in the Republic of Uzbekistan is 46-53%

Due to the insufficient use of modern agricultural technologies in horticulture and vegetable growing in many regions of the Republic of Uzbekistan, the yield of fruit and vegetable crops remains very low. We have come to understand the concept of company or collective farm when we say cooperative in agriculture. In fact, it can only apply to certain aspects of cooperative farmers' activities. This requires the creation of specialized cooperatives and clusters with a wide range of opportunities for the creation of orchards and reconstruction of old ones, the establishment of intensive orchards, further expansion of fruit and vegetable processing in order to increase the volume of fruit and vegetable production and export in the country.

As a result of expanding the export potential of our country, the development of new markets, the export of fruits and vegetables is being carried out. In the field of agriculture, the transition to a new system, a cluster-cooperative system, which has justified itself in the world experience, is a serious focus on the development of their activities. As a result of ongoing reforms in this area, a

total of 47 clusters specializing in fruit and vegetables have been established in the country, which have been allocated 13.5 thousand hectares of land. The clusters have refrigerated warehouses with a capacity of 15.9 thousand tons, 7810 tons of sorting, 800 tons of calibration, 4 modern laboratories, 119.8 thousand tons of fruit and vegetable processing, 23201 tons of fruit and vegetable sorting and packing shops, 1046 permanent, 1.085 seasonal jobs were created. In Kashkadarya region in "Shakhrisabz meva-sabzavot agrofirma" LLC 70 hectares and 9 people, in Yakkabag district fruit and vegetable private enterprise "Darmon farma" 1048 hectares and 40 people and in Kamashi district "Kamashi tamorqa xizmati" fruit and vegetable LLC 70 hectares of land and 9 permanent jobs were created.

The main purpose of creating fruit and vegetable clusters in our country are:

- ensuring the rapid and effective development of fruit and vegetable growing;
- expansion of production of high quality and competitive finished fruit and vegetable products;
- expanding the production of high quality and competitive finished fruit and vegetable products.

Our country has the potential to increase fruit and vegetable exports to \$ 2.5 billion in 2020, and \$ 5 billion in 2021-2023. In order to fully achieve the above and to ensure the competitiveness of the fruit and vegetable industry of our country, we need to:

- properly select crops and varieties;
- increase productivity and income by at least two to three times;
- prevent wasting;
- store products;
- solve logistics issues;
- properly organize exports.

Today, in the development of the fruit and vegetable cluster system in our country, it is necessary to pay attention to the following, in particular:

- implementation of contracts in the establishment of a fruit and vegetable cluster for the cultivation, processing and export of fruit and vegetables;
- selection from among processing and exporting organizations, based on their experience and capabilities, including the commissioning of underutilized storage and processing facilities;
- affiliation of fruit and vegetable growers to the fruit and vegetable cluster, through voluntary supply contracts concluded between them and processing and exporting organizations and the district khokimiyat;
- fruit and vegetable cluster cooperatives - the regulation of relations between producers, processors and exporters through product supply contracts.

In the future we need to take the following measures to grow fruits and vegetables and create a fruit and vegetable cluster:

- Allocation of loans to farmers, dehqan farms and other producers for the production of fruits and vegetables for a period of 12 months with a grace period of 6 months at a rate of 14% per annum (including 2% bank margin) up to 50% of the value of the crop

- Fruit and vegetable processors, storage and exporters will be provided with a 12-month "revolver" loan at the rate of 14% per annum (including 2% bank margin) to replenish working capital required for the purchase of agricultural products. At the same time, it is not allowed to repay other loans of clusters and cooperatives received from commercial banks at the expense of this loan.
- Fruit and vegetable clusters (cooperatives) and farms have an export contract, which covers 50% of the insurance premium paid when using the fruit and vegetable risk insurance service, but not more than 1% of the insurance money. In this case, the insurance money may not be less than 70% of the value of the product insured against risk;
- Involvement of qualified agronomists, entomologists, laboratory specialists from abroad in fruit and vegetable clusters (cooperatives)
- It is recommended to establish gardens and vineyards for fruit and vegetable clusters attached to the clusters, to conduct training seminars on fruit and vegetable production;
- Introduce a system that connects the producer-cluster-manufacturing enterprise-processor and exporter.
- In order to integrate the processes of production, processing, storage, service and sale (export) of fruits and vegetables in Uzbekistan, to develop the activities of clusters, to ensure food security and increase exports, fruit and vegetable clusters will be established in 2022 ( Table 1).

#	Name of regions	The total number of clusters to be formed	Forming clusters (by months)			Available capacities		Projects to be implemented			Implementation of projects (by months)								
			January	February	March	Autumn	Number	Capacity, tons	Value, mln soums	сентябрь			ноябрь			декабрь			
										number	capacity, tons	value, mln soums	number	capacity, tons	value, mln soums	number	capacity, tons	value, mln soums	
1.	The Republic of Karakalpakstan	9	4	5		7	5500	22386	3	3000	12036				4	2500	10350		
2.	Andijan Province					7	6200	5350	2	1700	1750	1	500	1000	4	4000	2600		

3.	Bukhara Province	11	6	5		3	4100	6	12200	44050	2	4000	22700	2	1200	7000	2	7000	14350
4.	Jizzakh Province	2	2					1	4000	1900	1	4000	1900						
5.	Kashkardarya Province							4	4100	15220	2	1300	1020				2	2800	14200
6.	Navoi Province	5	3		2	1	2200	1	1000	53500	1	1000	53500						
7.	Namangan Province							3	14100	503000	1	2500	8400				2	11600	494600
8.	Samarkand Province							5	18500	74800	2	4500	59300				3	14000	15500
9.	Surkhandarya Province	3		2	1	1	1500	14	67000	445670	7	28000	196170	3	26000	103000	4	13000	146500
10.	Syrdarya Province	1		1				3	9000	5000	1	8000	1000				2	1000	4000
11.	Tashkent Province	13		10	3	4	76000	10	67000	137440	4	44000	91800	1	1000	9240	5	22000	36400
12.	Fergana Province							5	3400	29000	3	2400	3000				2	1000	26000
13.	Khorezm Province							3	3600	23050	2	2100	19950				1	1500	3100
	<b>Total:</b>	<b>44</b>	<b>11</b>	<b>22</b>	<b>11</b>	<b>9</b>	<b>83800</b>	<b>69</b>	<b>215600</b>	<b>1360366</b>	<b>31</b>	<b>106500</b>	<b>472526</b>	<b>7</b>	<b>28700</b>	<b>120240</b>	<b>31</b>	<b>80400</b>	<b>767600</b>

## APPENDIX 2

To the Resolution of the President of the Republic of Uzbekistan dated December 15, 2021 No. PP-52

**Establishment of fruit and vegetable clusters in the Republic of Uzbekistan Investment projects for the organization of refrigerated tanks in 2022 [14].**

#	Name of regions	Total plan for 2022		Including:					
				Quarter II		Quarter III		Quarter IV	
		number	thousand tons	number	thousand tons	number	thousand tons	number	thousand tons
1.	The Republic of Karakalpakstan	5	2,6					5	2,6
2.	Andijan Province	7	10,2					7	10,2
3.	Bukhara Province	4	3,5			1	1	3	2,5
4.	Jizzakh Province	6	5,6			2	1,4	4	4,2
5.	Kashkadarya Province	3	2,6					3	2,6
6.	Navoi Province	5	7					5	7
7.	Namangan Province	12	12,2					12	12,2
8.	Samarkand Province	3	3					3	3
9.	Surkhandarya Province	13	14,1	4	4,6	4	4,2	5	5,3
10.	Syrdarya Province	2	1,7	1	1	1	0,7		
11.	Tashkent Province	4	6,1	2	3,7	2	2,4		
12.	Fergana Province	6	6,8	3	3,3	2	2	1	1,5
13.	Khorezm Province	3	2,6			1	1	2	1,6
<b>Total</b>		<b>73</b>	<b>78</b>	<b>10</b>	<b>12,6</b>	<b>13</b>	<b>12,7</b>	<b>50</b>	<b>52,7</b>

**Science-based compilation and recommendations for the development of fruit and vegetable clusters:**

- renovation of inefficient and low-yielding orchards and vineyards
- creation of a system of intensive planting of fruit trees and vines in accordance with soil and climatic conditions and their further sale to businesses;
- encouragement of authors and organizers of new varieties of fruits and vegetables, protection of business entities engaged in seed and seedling production, creation of a mechanism for certification of seedlings and saplings;
- taking measures to import fruit and vegetable varieties that are in high demand on the world market, suitable for the soil and climatic conditions of the republic, from developed countries to the territory of the republic;
- creation of high-yielding, frost-resistant and seedless varieties of fruits and vegetables, introduction of its promising varieties;
- development of procedures aimed at improving the system of planting in fruit and vegetable growing;
- in order to improve agro-technical measures in fruit and vegetable growing, the localization of the production of special equipment used in vineyards in the country and the introduction of a system of long-term leasing on preferential terms;
- ensuring the creation of new gardens and vineyards on the basis of pure varieties and virus-free seedlings;
- Ensuring the production of quality products in fruit and vegetable farms with the implementation of modern agro-technical measures.

**CONCLUSION AND RECOMMENDATIONS.** The main directions of fruit and vegetable development are outlined below:

- identification of the most favorable areas in areas suitable for specialization in fruit and vegetable growing;
- development of grape growing as a national culture, based on the centuries-old national agricultural culture and values of our people;
- creation of value chain in the field through the cultivation of fruits and vegetables in large areas, in clusters and cooperatives, encouraging the storage, sorting and processing of grapes;
- expansion of exports by creating national brands of fruit and vegetable varieties and entering new markets;
- establish of a republican contest in the field of fruits and vegetables in nominations such as "Best grape variety", "Best intensive vineyard", "Best local grape variety", "Best wine product", "Best vegetable variety", "Best intensive vegetable", "Best vegetable variety";
- business plan or feasibility study for the implementation of investment projects for the introduction of fruit and vegetable growing, packaging, sorting, processing and resource-saving technologies;

- availability and financial stability of the necessary infrastructure facilities (on the basis of ownership or use or full ownership), as well as qualified personnel and other means;
- development of a fruit and vegetable scientific school for the purpose of scientifically based fruit and vegetable growing, creation of new high-yielding, seedless varieties, and establishment of integrated integration of science and production;
- establishment of viticulture and vegetable clusters in order to create a complete cycle of fruit and vegetable growing, drying, packaging, processing, production and export of fruits and vegetables, depending on the soil and climatic conditions of the regions;
- business plan or feasibility study for the implementation of investment projects for the introduction of fruit and vegetable growing, packaging, sorting, processing and resource-saving technologies;
- availability of necessary infrastructure facilities (on the basis of ownership or use or full ownership), as well as qualified personnel and other means, as well as financial stability.

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