

The Role, Significance and Need For Clustering of Fruits and Vegetables In Ensuring Food Security

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Abstract. The article highlights the role, importance of fruit and vegetable production and the need for clustering in ensuring food security. Definitions and approaches of economists and industry experts to the concept of food insecurity are studied. In order to improve the provision of food safety, proposals and recommendations have been developed for the development of fruit and vegetable growing and the organization of a cluster system.

Keywords: food security, agriculture, fruit and vegetable products, fruits and berries, grapes, vegetables.

Introduction

The President of the Republic of Uzbekistan, Sh. M. Mirziyoev, in his address to the Oliy Majlis on December 28, 2018, stated that "the purpose of agricultural reforms is to increase the welfare of the people by ensuring food security, along with economic benefits" [2].

Recently, the reforms implemented in our republic are aimed at growing safe food products and strengthening the country's position in the world.

At this point, in our opinion, it is appropriate to dwell in more detail on the concept of food safety and its provision.

"Food security is a state of the economy in which, on the one hand, regardless of the fluctuations of world markets, the stable supply of food products to the population is guaranteed, in quantities corresponding to scientifically based indicators, and on the other hand, conditions are created to satisfy consumption at the level of medical standards" [6].

Economists D.N.Saidova, I.B.Rustamova, Sh.A.Tursunov agreeing to the same definition "Food security - stable provision of food products to the population in scientifically based parameters (offer) regardless of the state of world markets the state of the economy in which conditions are created to maintain consumption at the level of guaranteed and medical standards" [7].

In our opinion, the definition of food security as a "state of the economy" in these definitions is somewhat controversial, and the authors have not sufficiently taken into account the place of food security in the national economy.

According to the definition of the FAO organization: "food security means that all people have the physical, economic and social opportunities to have enough safe and nutritious food to meet their nutritional needs and personal preferences and to maintain an active and healthy life" [8].

The conclusion that emerges from these definitions is that the participants of the summit have formed sufficient conclusions regarding the provision of food security on a global scale. It is intended to

systematically ensure the availability of food reserves in accordance with the growing demand for food of the world's population.

It follows that each country needs to create a national system of food security in its economy.

Results. When creating a national food safety system, it is necessary to develop its specific directions and ensure safety based on them. In the economic literature, food security is mainly focused on three main areas (Figure).

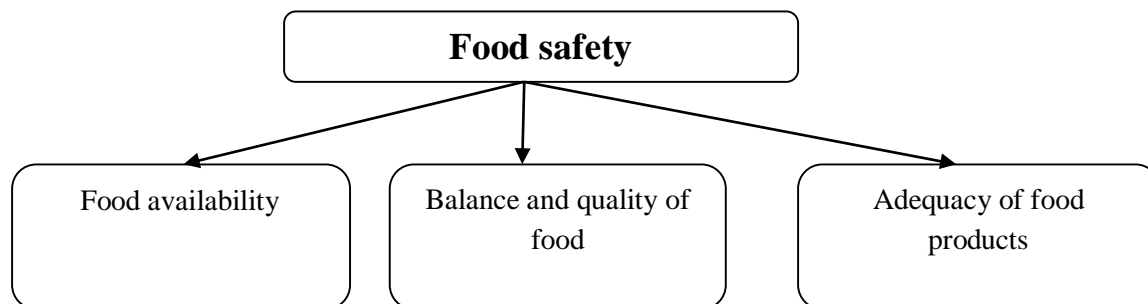


Figure 1. Guidelines for ensuring food safety

The first direction in ensuring food security in the national economy is to ensure the availability of food products in the required amount.

Of course, the introduction of a certain system cannot be implemented without first forming its legal framework. In this regard, it is noteworthy that the Law of the Republic of Uzbekistan "On the quality and safety of food products" [1] and a number of government decisions were adopted in our country.

The following definitions are given in Article 2 of the Law of the Republic of Uzbekistan "On the Quality and Safety of Food Products", which is the main legal document for ensuring food safety in our republic. "Food product quality is a set of criteria that determine the consumption properties of a food product and ensure its safety for human life and health" [1].

"Food product safety" means compliance of food product with sanitary, veterinary, veterinary-sanitary, phytosanitary rules and regulations. The fact that a number of government decisions were subsequently adopted on the basis of these norms established by the law shows that the legal basis for ensuring food safety in our country has been created and that it is being updated in accordance with the development of time.

Increasing the export of fruit and vegetable products by attracting the world's exporters for consumption in our country is the main demand for the producers of these products today.

Land and water resources are limited in agriculture, and according to the forecast of the World Resources Institute, by 2040, Uzbekistan will become one of the 33 countries where water is very scarce. If strict measures are not taken, by 2050 the yield of cotton and grain in the Syrdarya basin will decrease by 11-13% and 5-7%, respectively; It is expected to decrease by 13-23% and 10-14% in the Amudarya basin. This reduction in productivity has serious implications for both food security and the balance of payments, which reiterates the need for more sustainable management of water resources and the transition to less water-intensive crop production technologies.

Therefore, a number of regulatory legal documents were adopted in our Republic to implement these reforms. Appendix 1 of Decree No. PF-60 of the President of the Republic of Uzbekistan dated January 28, 2022 "On the development strategy of New Uzbekistan for the years 2022-2026" on the issues of increasing the weight of products grown in the republic and increasing the export potential of the agricultural sector. department of priority areas of provision - goal "Through intensive development of agriculture on a scientific basis, to increase the income of peasants and farmers by at least 2 times, to bring the annual growth of agriculture to at least 5%" [3].

In accordance with this, ensuring the availability of food products, including agricultural products in the necessary volume, requires increasing the volume of food products and optimizing their production structure, based on the forecasted demand estimates and the optimal vision of the population.

Analyses. Today, we can see that the production volume of fruit and vegetable products is also increasing. We present the indicators of fruit and vegetable and grape cultivated areas in the Republic for the years 2016-2021 in the table below (Table 1).

Table 1

Land areas allocated for fruit and vegetable production in Uzbekistan

Indicators	Years					
	2016	2017	2018	2019	2020	2021
Fruits and berries						
Cultivated area, thousand ha	279,6	271,6	319,2	336,6	337,2	
farms	172,0	159,0	172,8	172,4	173,1	
Grape products						
Cultivated area, thousand ha	131,2	114,5	113,3	120,2	122,1	
farms	85,4	69,7	67,1	71,0	74,2	
Vegetable products						
Cultivated area, thousand ha	206,0	189,7	219,0	220,0	221,3	
farms	75,3	55,0	60,9	53,7	54,7	

The table shows that as a result of the reforms implemented in the fruit and vegetable sector in our country, the amount of land devoted to fruit and vegetable growing has increased.

Table 2

About products grown on fruit and vegetable farms in the republic (thousand tons)

τ/p	Product type	2016 year	2017 year	2018 year	2019 year	2020 year	2021 year
1	Potatoes	2 789,5	2 793,7	2 911,9	3 089,7	3 143,8	3 292,3
2	Vegetable	10 184,0	10 219,9	9 760,3	10 215,1	10 431,4	10 859,3
3	Police	2 044,9	2 031,0	1 837,0	2 068,7	2 134,4	2 281,1
4	Fruits are berries	2 612,9	2 614,9	2 706,2	2 752,7	2 812,6	2 852,5
5	Grapes	1 613,1	1 625,5	1 589,8	1 603,3	1 606,9	1 695,1
6	Total	19 244,4	19 285,0	18 805,2	19 729,5	20 129,1	20980,3

The analysis of table data shows that when considering the ratio of 2021 data to 2016 data, potatoes increased by 502.8 thousand tons, vegetables by 675.3 thousand tons, oranges by 236.2 thousand tons, fruits by 239.6 thousand tons, and grapes by 82 thousand tons. Compared to 2016, the total increased by 1735.9 thousand tons in 2021. So, fruit and vegetable products have grown over the years.

In our republic, attention is being paid to the implementation of market relations that have passed foreign experience and are considered important in the development of the economy. One of them is clustering, which is being implemented today in many areas of our economy.

Clustering is a group of enterprises and organizations that are concentrated in one area to fulfill a given task, they are interconnected and in competition, and it is a process of mutual integration of labor forces.

Experiences of developed countries on clustering, presented in a number of foreign sources, focus on the importance of clusters, like free economic zones, in ensuring socio-economic growth, increasing investment attractiveness and producing competitive products. Many countries of the world have made good use of clustering in the formation and management of innovation-based economy and thereby achieved economic development.

Based on this, it became necessary to use cluster methods in the development of agriculture in our country. In this regard, the Decree of the President of the Republic of Uzbekistan "On additional measures for the rapid development of fruit and vegetable growing in the Republic of Uzbekistan" [4] was adopted.

The decree envisages the formation of an added value chain based on the principle of "seed-planting-product cultivation-preparation-storage-processing-loading on transport-delivery to the market" between agricultural producers, agricultural preparation organizations, processors, exporters. the cluster method of organizing the production of fruit and vegetable products, i.e. fruit and vegetable clusters, has been widely introduced.

In order to ensure the implementation of the decree, "seed-planting-product cultivation-preparation-storage-processing-loading on transport-delivery to the market" works are being carried out by optimizing and diversifying farms specializing in fruit and vegetable growing. In this regard, fruit and vegetable clusters were established in 2020 and 2021, and we can see the areas of land allocated to them and the analysis of the products grown (Tables 3-4).

Currently, there are many problems related to logistics and adequate supply of cold storage for fruits and vegetables in order to increase the competitiveness of agricultural products in order to grow exportable products and prevent them from perishing during delivery to customers.

Therefore, through the adoption of the Decision of the Cabinet of Ministers of the Republic of Uzbekistan "On approval of the regulation on the procedure for the export of fruit and vegetable products", the ways of exporting fruits and vegetables abroad have been clearly defined, and the opportunities to increase the income of economic entities are wider.

Table 5 shows the geography of export of fruit and vegetable products in the republic in 2018-2021

Table 5

Geography of export of fruit and vegetable products in the republic

T/P	State name	Export of fruit and vegetable products, thousand tons, y				Fruit and vegetable products export value mln. dollar, \$, y			
		2018	2019	2020	2021	2018	2019	2020	2021
1.	Kazakhstan	589,1	556,4	625,1	631,6	392,3	283,0	251,4	196,5
2.	Russia	238,9	245,1	355,2	396,0	166,3	160,6	255,4	291,8
3.	Kyrgyzstan	89,9	127,0	136,8	131,9	80,3	320,0	181,1	116,7
4.	China	66,9	55,3	90,8	130,7	46,2	48,5	70,1	111,7
5.	Pakistan	29,8	76,2	48,5	32,3	22,2	78,8	75,5	63,3
6.	Afghanistan	73,4	45,5	67,9	34,3	53,2	57,5	49,4	26,9
7.	Turkey	23,5	65,2	14,4	15,2	25,1	101,8	19,4	22,5
8.	Ukraine	15,1	56,3	27,5	31,2	9,0	37,3	15,3	15,2
9.	Iran	13,0	16,2	3,0	12,3	10,0	12,4	2,7	11,7
10	Iraq	6,1	20,5	23,5	3,9	6,2	12,3	10,2	5,2
11	Turkmenistan	11,6	27,5	21,5	27,7	5,7	9,7	10,7	9,9
12	Belarus	8,5	14,3	13,4	15,0	7,7	10,6	10,4	11,0
13	UAE	9,5	8,5	3,1	5,3	7,5	9,5	4,4	7,3
14	Azerbaijan	4,3	6,5	5,4	9,7	4,9	7,3	6,2	11,6
15	Tajikistan	5,8	21,0	17,3	8,1	3,6	13,5	10,6	4,6
16	Germany	2,7	2,9	3,0	4,4	5,6	6,6	6,3	9,3
17	Vietnam	22,5	0,5	0,2	0,1	14,6	0,3	0,2	0,1
18	Georgia	4,9	10,0	8,7	7,3	3,2	4,4	5,5	5,0
19	Latvia	6,2	7,6	4,9	5,9	4,6	3,6	2,4	3,2
20	others	18,3	46,0	14,7	18,8	17,7	30,0	21,3	33,8

As a result of this adopted decree, there was a need to attract new innovations, study foreign experience and put them into practice in farms. For this reason, clusters have been established and the projects implemented with them have achieved several achievements. Now there is a need to increase their number. The Decision [5] of the President of the Republic of Uzbekistan "On measures for state support of the fruit and vegetable industry, further development of the cluster and cooperation system in the network" was adopted.

In the decision, the goals of mutual integration of the processes of production, processing and storage of fruit and vegetable products, as well as provision of services for product cultivation and organization of product export, establishment and development of cluster activities, increase in the production of food products and increase the volume of their export defined.

In 2022-2023, we can see the increase in the number of clusters and the projects to be implemented in the table below (Table 6)

Table 6**Activities for fruit and vegetable development in the republic**

Indicators	2020 y.	2021 y.	2022 y.	2023 y.	growth (+/-)
Number of clusters					+159
Combined land area (thousand ha)		113,5	197	303	+224,2
Land area allocated to the cluster (thousand ha)		30,5	58	90	+71,7
Number of attached farms		9 868	12 350	15 600	+7 749
Land area of farms (thousand ha)		87	110	185	+124,5
Raised investment (\$ mln.)		128	155	205	+205
Processing capacities (thousand tons)					
Coverage of processing steps (%)		15	25	35	+26
Jobs created (thousands)					
Export volume (\$ million)		75	250	500	+427

Today, there are the following problems in the field of fruit and vegetable processing:

- financial issues (36 %) (extending the loan term, lowering the interest rate, providing collateral, reducing the tax burden, insufficient working capital);
- development of infrastructure (20 %) (access to electricity and natural gas lines, continuous supply of natural gas, drinking water;
- raw material base (11%) (continuous product supply, lack of industrial varieties);
- other issues (36 %) (non-fulfillment of product supply contract terms, lack of personnel).

Eliminating these problems is important in ensuring food safety and developing fruit and vegetable production.

Discussion

Based on the provided information, it can be concluded that the production volume of fruit and vegetable products in Uzbekistan has been increasing over the years. The cultivated areas for fruits and berries, grape products, and vegetable products have shown a consistent growth trend from 2016 to 2021.

This increase in land allocation for fruit and vegetable production can be attributed to the reforms implemented in the sector.

Table 2 provides data on the products grown on fruit and vegetable farms in the republic, measured in thousand tons. The analysis of the data shows that there has been a significant increase in the production of various products compared to 2016. Potatoes increased by 502.8 thousand tons, vegetables by 675.3 thousand tons, oranges by 236.2 thousand tons, fruits by 239.6 thousand tons, and grapes by 82 thousand tons. The total production of all products increased by 1735.9 thousand tons in 2021 compared to 2016.

To further promote the development of the fruit and vegetable sector, the government of Uzbekistan has taken measures to implement clustering in agriculture. Clustering involves the concentration of enterprises and organizations in a specific area to achieve a common goal, fostering interconnectivity and competition among them. The aim is to create an added value chain, encompassing various stages from seed to market delivery, by integrating agricultural producers, preparation organizations, processors, and exporters.

The introduction of fruit and vegetable clusters aims to enhance the efficiency and competitiveness of the sector. By adopting cluster methods, Uzbekistan seeks to capitalize on the experiences of developed countries, which have successfully utilized clustering to drive economic growth and attract investments. The implementation of clustering in agriculture is expected to contribute to the rapid development of fruit and vegetable production in Uzbekistan.

In conclusion, the increase in land allocation and the growth in production volume indicate the positive trajectory of the fruit and vegetable sector in Uzbekistan. The introduction of clustering methods through the establishment of fruit and vegetable clusters is a strategic step towards enhancing productivity, promoting value-added chains, and stimulating economic development in the agricultural industry.

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