

Modern models of agro-industrial production organization in Uzbekistan

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Abstract. The objective need to increase economic efficiency and to intensify the functioning of the agro-industrial complex poses new challenges related to the choice of competitive models that contribute to the maximum use of production capacities and the entire potential of the agricultural sector. The study of the development dynamics of different forms of management has shown a significant impact of various organizational forms and types of integration on economic growth, the sustainability of economic development, the competitiveness of the products of the agro-industrial complex (AIC). The study of the development evolution of integrated structures allowed to pay special attention to the functioning of cluster structures in the agro-industrial complex, to their high socio-economic and other efficiency. The important advantages of agro-industrial clusters in agricultural production include their use of the competitive advantages of the respective regions engaged in the production of certain food products, considering the geographical location of the regions of the republic, their climatic and other conditions. In addition, the use by clusters of existing opportunities characteristic of integrated systems for the development and improvement of the technical and technological base of all branches of the agro-industrial complex of the country.

1 Introduction

The agro-industrial complex of Uzbekistan plays an important role in the economy of Uzbekistan, its share in the gross domestic product (GDP) exceeds 28 percent. More than 4 million people are employed in agricultural production, which is about 30% of the total number of people employed in the country.

The priority crops of the agricultural sector of Uzbekistan until recently were cotton and grain. Nevertheless, due to the liberalization of the economy, in particular agriculture, and the abolition of quotas and supervision of prices for these crops in 2020-2021, there was a diversification of agriculture, crops, a gradual transition to the cultivation of new crops, fruits, and vegetables. This made it possible to significantly increase Uzbekistan's exports of agricultural products, which provided 9.8% of the republic's external revenues in 2019 [1].

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In 2022, on January 28, the President of Uzbekistan adopted a decree under the number UP-60 "On the development strategy of new Uzbekistan for 2022-2026". This strategy has seven main directions, which include one hundred tasks.

In the direction of "Accelerated development of the national economy and ensuring high growth rates", in its thirtieth goal, the task is set to increase the incomes of people employed in agricultural production, in particular the incomes of peasants and farmers. The tasks were set to increase the incomes of farmers at least twice, to ensure an annual increase in agricultural production by at least 5 percent due to the intensification of agricultural production and the introduction of science and technology.

One of the goals of this direction provides for the specialization of districts for the production of certain types of agricultural products, an increase in the range of state support and the introduction of new insurance mechanisms in agriculture [2].

Tasks have been set to develop in the future 464 thousand hectares of new and decommissioned land areas by allocating land to agricultural clusters on the basis of an open tender, as well as to reduce 200 thousand hectares of land from cotton and grain with their allocation on the basis of an open tender to the population on long-term lease terms.

The development strategy of Uzbekistan for 2022-2026 provides for the cultivation of export-oriented products, the development of fruit and vegetable growing, an increase in the area for intensive gardens by three times and greenhouses by two times, an increase in the export potential of the Republic by \$ 1 billion. It provides for increasing soil fertility and protecting it from degradation, improving the system of providing agricultural services based on advanced scientific achievements and innovations. In addition, the provision of agro-industrial enterprises with raw materials and a 1.5-fold increase in production volumes [11]. It also provides for the development of agrologistic centers, an increase in the number of modern laboratories, the implementation of a national program for seed production and seedling cultivation, as well as the creation of an International Agricultural University together with leading international scientific centers and higher educational institutions [3]. It should be noted that all these goals can be achieved only if the deepening of the integration of science and practice in the agricultural sector is ensured.

The objective need to increase economic efficiency and to intensify the agro-industrial complex of the Republic of Uzbekistan poses new challenges related to the choice of competitive models that contribute to the maximum use of existing production capacities, the entire potential of the agricultural sector.

The study showed that in modern conditions, the problems of the influence of various integration forms on the economic growth and sustainability of regional development, the competitiveness of the products of the agro-industrial complex (AIC) are of particular relevance.

The study of the development evolution of integrated structures made it possible to pay special attention to cluster structures in the agro-industrial complex, the socio-economic efficiency of their functioning, and their formation.

It should be noted that according to the research of the founder of the cluster approach to the theory of competitive advantages, M. Porter, "firms in industries with undeniable competitive advantages within the country (or on an international scale) are usually not randomly scattered throughout the country, but tend to concentrate in the same region of the country" [4].

Research has shown that the most important method of solving many problems of the agro-industrial complex (AIC) is agricultural production clustering. Currently, the cluster is an effective organizational unit not only of the agro-industrial complex, but also of other complexes and spheres of the national economy. It ensures the formation of an effective chain of high added value of manufactured products.

2 Methods

In the course of the research, such methods as formal logic, operations research, management problem solving, and statistical analysis were used.

3 Analysis and Results

The emergence and development of a cooperative system in the form of clusters with modern infrastructure and high technologies is a priority for reforming the agricultural sector of the Republic of Uzbekistan. Clustering opens up new horizons in ensuring the intensive development of the agricultural sector, forms entire production chains "from the field to the consumer" and creates new opportunities to increase exports of products.

Table 1 shows data on the formation of clusters in the Republic of Uzbekistan.

Table 1. Data on the functioning of clusters in the Republic of Uzbekistan

Indicators	2019	2020	2021
Number of clusters	47	117	420
Number of employees per 1 cluster	182	318	439
Number of textile clusters	47	117	153
Number of employees per 1 textile cluster	182	318	333
Manufacture of products of textile clusters, billion soms	888.3	4477.4	11815.4
Growth rate of production of textile clusters, as a percentage to the previous year		504.0	263.9
Average monthly salary of employees, million soms			1.4
Export volume of textile clusters, billion soms	400.9	1199.8	3269.2
Investments in fixed assets, billion soms	395.1	1743.8	1462.9
Net profit (loss), billion soms	-12.3	162.1	288.7
Accounts receivable, billion soms	334.7	795.9	1770.6
Accounts payable, billion soms	492.9	1788.0	3443.9

As can be seen from the table, in three years the cluster system of the agro-industrial complex has shown significant economic growth. Thus, if in 2019 the number of clusters was 47 units, then in 2021 this indicator increased by 9.8 times, the number of clusters of the republic was 420. Net profit increased from a negative value to 288.7 billion soms. Investments attracted to the cluster system increased 3.7 times and amounted to 1462.9 billion soms in 2021.

Currently, due to the high efficiency of the agro-industrial complex clustering, this process has affected not only cotton and fur farming, but also other branches of the agricultural complex, including sericulture [5].

A number of comprehensive measures are being implemented in the country to restore and develop sericulture by creating favorable conditions for the full use of the existing potential of this industry and increasing the profitability of production [12].

Currently, Uzbekistan ranks third in the world in terms of silk production, after China and India. The share of the republic among the CIS countries in the total volume of silk production is over 85% [13].

Silk is an important source of hard currency. 70% of the industry's products in the form of raw silk, dry cocoons, silk thread, yarn, and fabrics are exported to India, Iran, China, Bangladesh, South Korea, the United Arab Emirates, Turkey, and Russia. The rest is processed by the local textile industry. In addition, sericulture is a labor-intensive industry, it provides work for tens of thousands of rural residents [13].

The rich traditions of silk production in Uzbekistan, favorable climate, high population density, as well as the redundancy of labor resources in rural areas make sericulture a promising industry for investment.

The reform and comprehensive development of this industry provide for the creation of a single full-fledged organizational and technological chain that ensures the intensive development of the feed base, the improvement of the processes of feeding and harvesting cocoons, the introduction of effective production methods and in-depth processing of cocoons, raw silk, and silk yarn, the establishment of the production of finished silk products [6,7].

The reform of the sericulture industry implemented in Uzbekistan in recent years is bearing results. In particular, to strengthen the fodder base in 2020, the total area of mulberry trees was brought to 50.2 thousand hectares [12]. As a result of the uniform provision of raw materials and silk products to industry enterprises, the level of production capacity utilization reached 94 percent. At the same time, 1200 tons of dry cocoons, 800 tons of silk wool, 2557 linear meters of silk fabric, 800 tons of silk waste, 250 carpets were produced. 95.3 million dollars of investments were allocated for the launch of a new one and modernization of existing production facilities [12].

Despite the difficult situation associated with the coronavirus, effective economic ties have been established. As a result, in 2020, the enterprises of the industry exported products worth 76.5 million dollars [12].

In the course of the study, the activities of the sericulture cluster of Nurli Tong Silk LLC were considered, in particular. This cluster is located in the Fergana region, it has a positive image on the market, rich work experience. It maximally adjusts the structure and all the basic business processes used in the production activities of the organization. The results of its activities are shown in table 2.

Figure 1 shows data on the production and export potential of this organization.

Table 2. Data on the activity of the Nurli Tong Silk LLC

	2017	2018	2019	2020	2021
Production volume, million soms	13503	19782	21263	13875	21274
Sales revenue, million soms	21156	24556	25404	17104	23123
Product export volume, thousand dollars	2040	2930	2658	1543	1893
Including:					
- production of raw materials, tons	22.683	31.521	20.676	26.528	7.751
- cotton wool production, tons	14.114	43.285	22.576	10.505	16.822
- fabric production, thousand r.m.	46.358	26.841	28.891	3.612	5.901
Production costs, million soms	13891	17154	19307	13085	17192
General running costs, million soms	19771	20667	20710	14081	18687
Total revenue from sales, million soms	7265	7401	6096	4012	5930
General economic income	1454	3889	4704	3076	4435
Net annual income	1385	3889	4694	3023	4249
Annual payroll, million soms	91.177	135.566	330.126	404.994	392.291
Number of employees, people	43	64	42	64	42
Number of managers, people	1	1	1	1	2
Cost of fixed assets, million soms	976	1164	3947	4939	4626
Current assets, million soms	3765	11156	17815	14140	12151
Balance sheet assets, million soms	4741	12321	21762	19079	17090

According to the Uzbekpaksanoat Association <https://uzbekpaksanoat.uz/ru/>

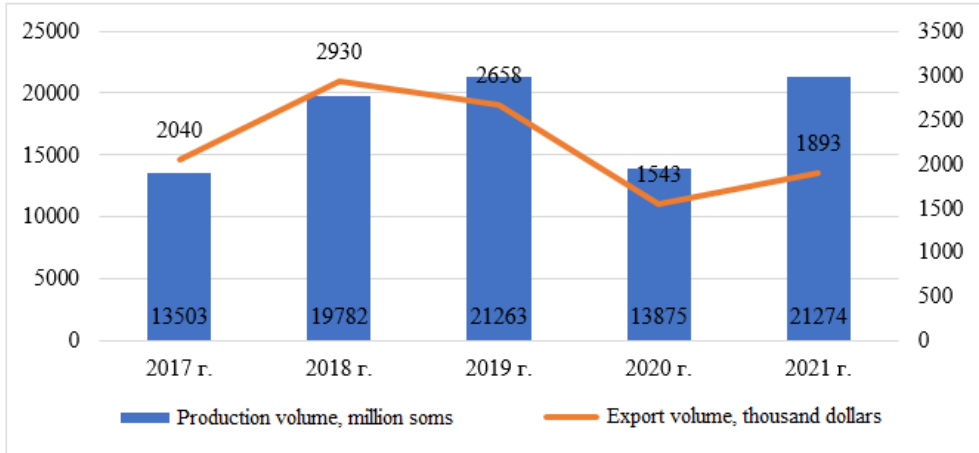


Fig. 1. Indicators of production and export potentials Nurli Tong Silk LLC in 2017-2021

(Compiled by the author on the basis of data based on the data of the Uzbekipaksanoat Association <https://uzbekipaksanoat.uz/ru/>)

The cluster is designed for a full production cycle - from the creation of mulberry plantations to the processing of cocoons and the production of finished silk products intended mainly for export [8, 9].

Figure 2 shows data on the income of Nurli Tong Silk LLC for 2017-2021.

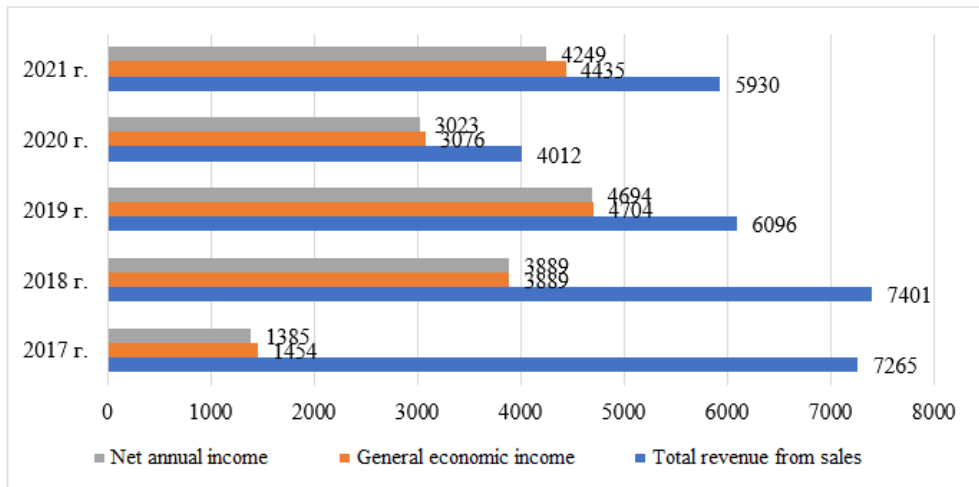


Fig. 2. Financial results Nurli Tong Silk LLC in 2017-2021, million soms.

(Compiled by the author on the basis of data based on the data of the Uzbekipaksanoat Association <https://uzbekipaksanoat.uz/ru/>)

It can be seen from the figure data that the introduction of modern technologies of sericulture processes with extensive use of complex mechanization and automation has reduced labor costs, improved product quality, and increased the share of net annual income.

Figure 3 shows data on the personnel potential of this organization.

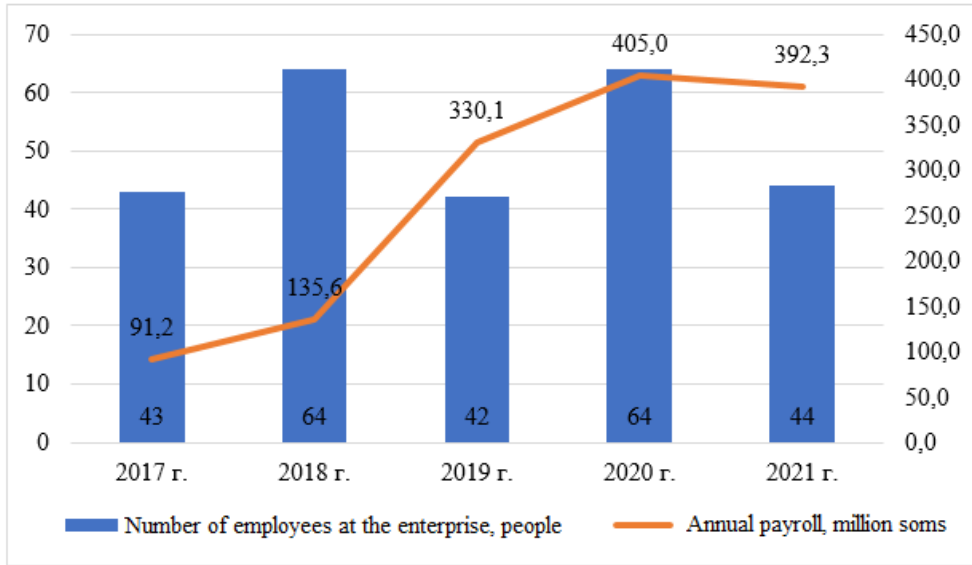


Fig. 3. Indicators of human resources and remuneration in Nurli Tong Silk LLC in 2017-2021. (Compiled by the author on the basis of data based on the data of the Uzbekpaksanoat Association <https://uzbekpaksanoat.uz/ru/>)

The figure shows that the number of employees at the enterprise during cluster existence varied from 43 to 64 people, reaching 44 people with a salary fund of more than 392 million soms by the beginning of 2022.

Figure 4 shows data on the profitability of sales of Nurli Tong Silk LLC.

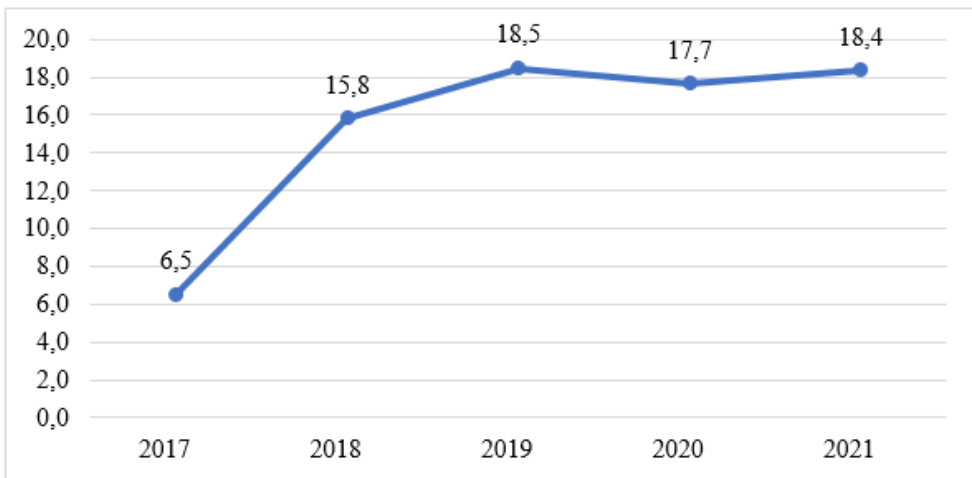


Fig. 4. Return on Sales (ROS) Nurli Tong Silk LLC in 2017-2021, %. (Compiled by the author on the basis of data based on the data of the Uzbekpaksanoat Association <https://uzbekpaksanoat.uz/ru/>)

From the data in Figure 4, it can be seen that the profitability of sales of Nurli Tong Silk LLC by 2021 reached the highest value during the period of cluster operation.

4 Conclusions

The integration of production units into a single system makes it possible to trace all costs, both direct and indirect. This, in turn, makes it possible to optimize them, which makes it possible to increase the economic potential and competitiveness of the cluster as a business entity of the agricultural sector.

The analysis has shown that clustering of agricultural production is an effective way to increase the economic potential of business entities in the agricultural sector.

The purpose of creating clusters is the creation of an industrial base, the integrated use of socio-economic potential, the achievement of a competitive advantage and productivity of the food sector of the region [10].

The analysis showed that in 2019 the number of clusters was 47 units, in 2021 this indicator increased by more than 9 times and amounted to 420 units in the republic. Net profit from the negative indicator increased to 288.7 billion soms, investments attracted to the cluster system by 2021 increased by more than 3.7 times and amounted to 1462.9 billion soms, which indicates the high efficiency of cluster systems.

Due to the high socio-economic efficiency of integrated systems in the form of clusters, it is advisable to create clusters in all branches of agriculture, in particular in sericulture.

The cluster system is aimed at the full cycle of silk production, from the creation of mulberry plantations to the deep processing of cocoons and the production of finished products.

An economic analysis of the financial and economic activities of the sericulture cluster of the Nurli Tong Silk LLC showed high profitability and efficiency of cluster systems in this sector of the agro-industrial complex.

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