

Analysis of factors to increase the efficiency of the use of peasant farms and the land of the field

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Abstract. This article analyzes the role of peasant farms and households in providing food to the population in Uzbekistan. Also, according to the results of the questionnaire received from the owners of peasant farms and households, the factors affecting the production efficiency of these economic entities were determined. Based on the results of the research, in the future, recommendations for improving the organizational and economic mechanisms of increasing the quality and productivity of the products grown on the farm and residential plots of land have been developed.

1 Introduction

Providing the population with quality food products is one of the main tasks facing the countries of the world. Ensuring the food security of the country requires the sector to be flexible to the external changing environment, effective in various innovations and scientific and technical development, based on the sustainable development of agriculture. According to the forecasts presented in the report of the Food and Agriculture Organization of the United Nations (FAO) entitled “The state of food security and nutrition in the world 2022”, “Even taking into account the recovery of the world economy in 2030, about 670 million people ((of the world’s population) 8 percent) will face famine”.

Structural and structural changes in the field of agriculture in Uzbekistan in recent years, in particular, a targeted measure to develop the activities of farms and landowners on a multi-dimensional basis, to financially support the sector, and to develop the sales system-activities are being carried out. For example, “As a result of effective use of single farms, rotation of crops, 2-3 harvests from the land, products exceeding the needs of the population are released to local and world markets”. However, the current stage of economic reforms in agriculture requires increasing the volume of products on the homesteads of the population, as well as improving the quality of products. Therefore, in the future, the task of “Supplying agro-industrial enterprises with raw materials and increasing the volume of production by 1.5 times and creating the necessary conditions for the effective use of farms by the population” is set.

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2 Materials and methods

Many foreign scientists have studied the socio-economic development and prospects of the agricultural network, including the activities of peasant farms and households. In particular, Uta Priegnits [4], Riya Jakhwal, Sudhanshu Singh [5], Aleksei V. Bogoviz, Vladimir S. Osipov [6], Kamaruddin Hasan, Masriadi [7], Gökçen Aydinbaş [8], K. Yu. Voloshenko, A. A. Mikhailova [1], A. Bobok [10], A. Zabuty [12], E. Budko [11], S. A. Belozyorov [9], Z. I. Kalugina [13], and others conducted theoretical research. In their scientific research work, they mainly highlighted the role and importance of farms in increasing the income of rural residents and studied the issues of their development in the future.

S. N. Khamraeva [2], R. K. Ergashev [3], G. T. Samiyeva [15] and reflected in the scientific research of others.

In these studies, in order to diversify the cultivation of crops on the farmlands of the population, and to explore the potential and prospects of their development in the future, these aspects serve as the basis for choosing the topic of this dissertation, defining its goals and tasks. However, at the same time, the problems of improving the scientific and methodological basis of increasing the efficiency of crop production on farms and people's homesteads have not been sufficiently researched. A systematic approach based on the use of graphic and monographic methods.

3 Results

In the Kashkadarya region, as of January 1, 2022, the number of farms and household plots of land was 18,783, an increase of 100.1% compared to the previous year, of which 5,706 received legal entity status, 30.3% of the total. Compared to 2020, this indicator has increased by 21.4%. Today, in the Kashkadarya region, one farmer's farm has an average of 0.34 hectares of land. As we know, along with agricultural products, livestock products are also grown on farms. It has a share of 70.7% in the production of the total product, while its share in the cultivation of agricultural products is 34%.

In agriculture, their number is increasing as a result of the granting of great benefits to farmers, farm managers, and landowners (Table 1).

As can be seen from the table, the total number of farmers and homesteads operating in the Kashkadarya region as of January 1, 2022, is 18,783. As of January 1, 2021, this indicator has changed by 100.1 percent. 5,706 of them have legal status, that is, 30.4 percent. The land area attached to all peasant and household farms is 6466 hectares. The average land area per farm is 0.34 ha. The share of farmers and homesteads in relation to the gross agricultural product is 70.6 on average in the region. In order to solve the problems in the field of agriculture, in recent years, an effective system of protecting the rights and legal interests of farmers, peasant farms, and homestead land owners has been created, and the personal interest and responsibility of land owners in the effective use of arable land have been increased.

If we rely on the statistical information about the products grown in homesteads, mainly vegetables, potatoes, potatoes, fruits, and grapes are grown in the homesteads population, and the total volume of these products in 2021 was 22153.5 thousand tons. The figure below shows the share of homesteads in the gross agricultural products grown (Figure 1).

According to the analysis, in 2021, 73.7% of vegetable products, 80.3% of potatoes, 51.6% of potato products, 43.4% of fruit, and 56% of grapes were grown on farms and people's homesteads. When analyzing the yield of products, in 2021, the average yield of vegetable products in the homesteads of the population was 341.6 centners per hectare, this indicator was 235.6 centners per hectare in farms, 811.9 and 292.7 centners in potatoes, 257.4 centners in rice and 257.4 centners in potatoes. 212.1 centners, fruit - 159.1 centners

and 61.1 centners, and grapes - 183.9 and 91.5 centners, respectively [16]. It can be seen from the data that homesteads are not as advanced as farms in terms of fertilizer, water, machinery, funds, and other necessary supplies for growing products, but they have high productivity. Here we can see the increasing efforts to further develop the homestead economy.

Table 1. General information about existing farmers and homesteads in Kashkadarya region (as of January 1, 2022).

No.	The name of the areas	Information about farmers and farms								
		Number of peasant farms, unit	Rrelative to 0220. %	legal entity status, unity	Relative to 2020 %	Proportion to the total. those with legal status, %	Combined land area, ha	2020 ratio in %	Average per farmer/farm. land area, ha	The share of peasant farms in relation to gross agricultural products, %
	Total:	18783	100.1	5 706	21.4	30.4	6 466	100.0	0.34	70.6
1	Guzor	1 096	101.2	266	13.1	24.2	484	91.7	0.44	80.5
2	Dehkanabad	2 555	100.3	503	19.1	19.6	1 209	103.7	0.47	89.9
3	Kamashi	363	117.6	266	12.3	73.2	104	100.2	0.29	75.1
4	Karshi	2 064	100.2	269	89.1	13	522	117.3	0.25	71.3
5	Koson	1 015	104.1	564	53.0	55.5	470	130.1	0.46	62.5
6	Kitob	3 200	99.8	1 537	31.8	48	1 086	115.6	0.34	80.2
7	Mirishkor	572	96.8	1	0.3	0.2	197	110.4	0.34	52.8
8	Muborak	833	101.2	15	8.1	1.8	115	109.8	0.14	69.1
9	Nishon	1 516	111.7	380	18.7	25	466	99.3	0.31	53.2
10	Kasbi	515	102.2	68	3.9	13.2	109	101.2	0.21	59.1
11	Chirokchi	734	119.5	176	2.0	24	276	110.5	0.38	75.1
12	Shahrisabz	1 681	100.3	1 454	34.5	86.5	404	121.5	0.24	73.1
13	Yakkabag	2 639	102.1	207	15.3	7.8	1 024	102.2	0.39	57.3
14	Karshi city	x	x	x	x	x	x	x	x	x
15	Shahrisabz city	x	x	x	x	x	x	x	x	x

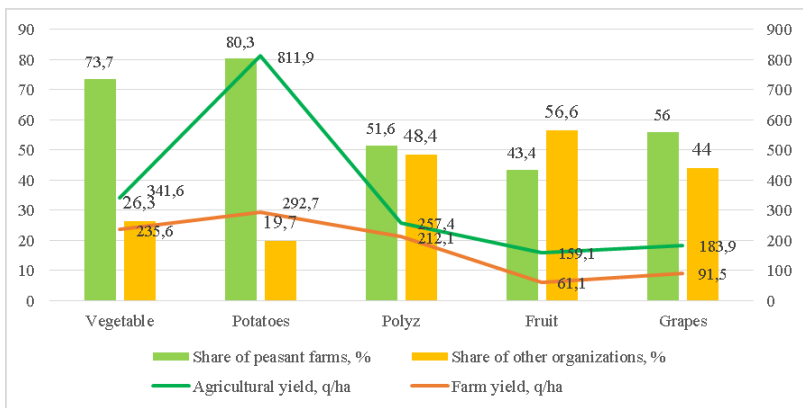


Fig. 1. Share of farmers and homestead farms in the main food products grown in Kashkadarya region and productivity indicators (2021) [15].

It is known that the agricultural sector has a number of characteristics that are unique to other sectors of the economy, that is, the specific characteristics of agriculture also affect the production of products on farms of farmers and residents. In our opinion, the factors influencing the production of products on farms and household plots of the population can be grouped as follows [2]:

- Natural factors. It can include the climate of the area, soil composition, soil quality, harmful insects, rainfall days, the level of groundwater use, the level of water supply.
- Scientific and technical factors, i.e. level of mechanization and electrification of production, characteristics of crop varieties, directions of use of innovative agrotechnologies, relations with industrial enterprises, level of infrastructure development, qualified specialists.
- Economic factors include the costs of purchasing raw materials, costs of material and technical resources, ways of using bank lines, costs of innovative technologies, differences in the growth of services, opportunities for capital investments, the size of food markets, and changes in demand.

In the course of the conducted research, several problems related to the cultivation of crops on the homesteads of the population were identified [2]:

- Limited number of special vehicles.
- Disruption of trade relations between producers and consumers.
- The activity of food markets has stopped.
- Disconnection of integration ties in the farmsteads and the population’s homesteads.

According to the conducted research, the problems in the system of selling the products produced on the farms and people’s homesteads can be eliminated by improving the service (scheme) system. In particular, it is possible to achieve high economic efficiency if the development of the activities of the farm association, i.e., the service of providing seeds and necessary mineral fertilizers suitable for the type of product, is continuously established.

4 Discussion

In the course of the research, a survey was conducted with 200 farmers and landowners in order to determine the existing problems for the production of agricultural products in the homesteads of farmers and residents (Table 2).

Table 2. The results of the survey conducted in the farms and homesteads of residents of Kashkadarya region.

	The content of the questions	Answers, %		
		Yes	No	The answer is no
1	Do you use innovative methods in the production process?	20	75	5
2	Do you use a garden service to deliver seeds and seedlings?	5	70	25
3	Does the annual income cover the cost of the production process?	73	22	5
4	Is the level of provision of modern agro techniques in the farm satisfactory?	45	45	10
5	Do you have problems with taxes in your business?	25	65	10
6	Do you think the productivity level is satisfactory?	65	25	10
7	Do you use agrotechnical measures to achieve high economic efficiency?	90	5	5
8	Having trouble selling the product?	52	43	5
9	Is scientific and practical knowledge enough to operate in the economy?	78	21	1
10	Do you use foreign experience in the production process?	19	76	5
11	Are you familiar with the laws of the Republic of Uzbekistan “On Agriculture” and “On Land Management”?	46	38	16
12	Is the productivity of farmland satisfactory?	58	37	5

Analyzing the results of the survey, 20 percent of respondents gave a positive answer to “Use of innovative methods in the production process”, 75 percent said that they rely only on experience, and 5 percent did not answer, which means that they do not have an understanding of innovative methods. To the question “Do you use the homestead service for the delivery of seeds and seedlings to start the process of growing crops”, we received 5% positive answers, and 70% of respondents answered no. That is, they use last year’s harvest or markets. Also, 25 percent of respondents expressed interest in getting detailed information about real estate services. The main goal of a farmer or homestead owner is to get more profit with less cost. 73 percent of the respondents stated that the annual income covers the cost of the process of crop production, while 22 percent said that it does not cover the cost, and 5 percent said that the natural climatic conditions prevent it.

Effective use of land, saving and targeted use of water, and application of new irrigation technologies will have an impact on cost reduction. 45% of the respondents who took part in the survey said that “there is a supply of modern agricultural machinery”, 45% of the respondents said that “there is a need, but the issue of funds is difficult”, and 10% of the respondents said that “it is necessary to expand the rental of modern agricultural machinery and take measures to reduce the payments”. Stated 25% answered “yes” and 65% “no” to the question “Are there any problems with taxes on your farm?” 10% of respondents had difficulty answering this question. At this point, the heads of some farms expressed their opinion that “the tax rate should be set according to the annual income”. 65 percent answered “satisfied” and 35 percent “unsatisfied” to the question about the level of productivity calculated from the main economic indicators.

90 percent of the respondents stated that “to achieve high economic efficiency” they apply necessary agrotechnical measures. Problems related to product sales occur due to lack of marketing knowledge. “To this question, 52% of the respondents said “there is a problem”, and 43% “no problem”. 78% answered “Yes” and 22% “No” to the question about the “adequacy of scientific and practical knowledge to operate in the economy”. 19% of the respondents stated that they are using foreign experiences. During the research, information was also obtained on the legal literacy of the respondents, and 46 percent of the respondents noted that they are familiar with the laws of the Republic of Uzbekistan “On Agriculture” and “On Real Estate”.

58% of the owners of farms and homesteads participating in the survey answered that the level of productivity of their land is “satisfactory”, and 37% “unsatisfactory”.

Based on the results of the survey, we have considered the SWOT analysis of the factors affecting the efficiency of production in the farms of the Kashkadarya region and the residents’ homesteads (Figure 2).

Since more than 70 percent of the products are grown on farms and estates, this process makes it much more convenient for consumers, without too much hassle, it is possible to carry out trade relations in retail form. Since the main part of the produced products is directed to implementation through guaranteed purchase, the costs are fully covered. As shown in the above picture, in our opinion, the strengths of farmers and homesteads today are 10, the weaknesses are 5, the opportunities are 7, and the threats are 6, which confirms that a deep study of their activities is relevant.

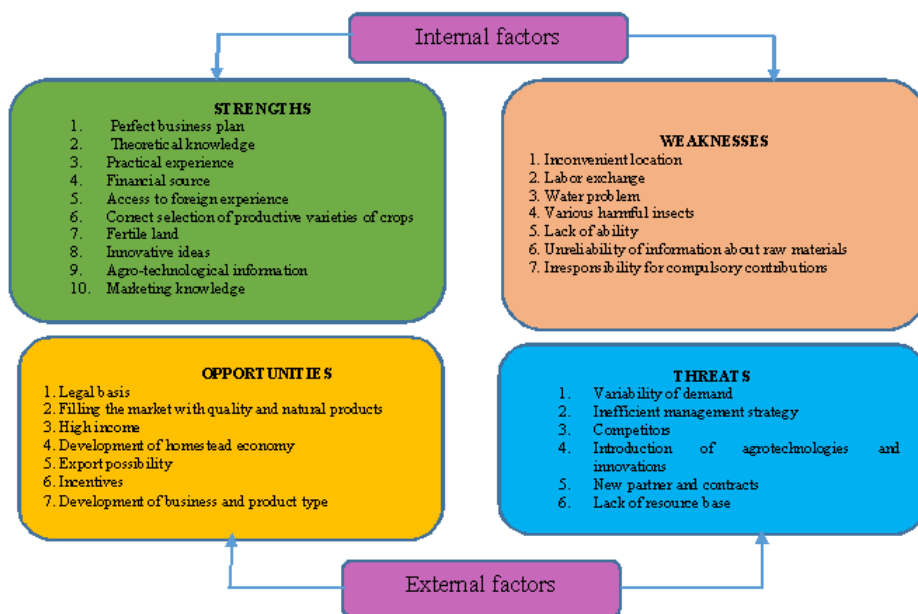


Fig. 2. SWOT analysis of the development of peasant and household farms of the Republic of Uzbekistan.

5 Conclusion

Today, a number of problems and shortcomings can be encountered in the sustainable development of the agricultural sector. Including:

- It is necessary to change the attitude of farmers and landowners toward the land in a more responsible way. The main solution to the origin of such problems is to create a continuous system for the supply of products to farms and farmers based on futures contracts.
- In order to continuously supply the country's domestic food market with agricultural products in all seasons of the year, it is necessary to improve the system of supply of raw materials to create a reserve, as well as to meet the needs of agricultural farms and land owners who produce food products. This can be achieved by publicizing the activities of “Tomorqa Service”:
- Due to the seasonal nature of agriculture, all categories of farms produce products at the same time. Naturally, there are obstacles and competition in finding buyers and offering to the consumer market. As a result, there will be a sharp drop in price, and the difference between cost and income will decrease. For this purpose, it is appropriate to develop a map of the system related to marketing in the cross-section of regions.
- We know that the share of peasant farms and homestead land owners in increasing the export potential is higher than 60 percent. However, their participation in creating an export-oriented value-added chain is significantly lower.
- One of the most important issues is the development of the certification system for the selection of fertile seeds and seedlings for farmers’ farms and the homesteads of the population, and farm employees should be introduced to the necessary information in a timely manner.
- Cooperation in agriculture, infrastructure, marketing, and logistic system integration, resource-saving innovative technologies, modern storage warehouses (freezers), and

sorting and packaging technologies for delivery to consumers have not been introduced. We believe that the following organizational and economic mechanisms should be implemented in order to increase the quality and productivity of the products grown on farms and people's homesteads:

- The organization of agro-seminars and master classes for farmers and farmland owners to find answers to questions such as the type of product to be produced, how to produce it, and which technology to rely on, will allow rapid development of consumer markets and agricultural enterprises. As a result, an increase in economic efficiency is achieved.
- By ensuring the integrity of the system of economic and moral stimulation of farmers and household employees, their self-confidence and responsibility will increase. As a result, a healthy competitive environment is formed, and intensive and extensive ways of growing products are developed.
- The quality and volume of agricultural products grown on the basis of the organization of processing small industrial branches in every rural area of our country will be preserved.
- Establishing the cultivation of the type of product taking into account the natural climatic conditions and soil quality of each region. In this case, systematic work is carried out step by step according to the principle of “one neighborhood - one product”.
- By establishing scientific and practical relations with foreign countries with developed agriculture, to study the technology of bringing intensive seeds and seedlings, taking into account the natural climatic conditions. This includes not only food but also non-food seeds.
- Wide implementation of the complex system of “Smart agriculture” (Smart agriculture) and innovative digital agro-technologies, taking into account the possibilities of electronic development of agriculture in the conditions of the digital economy. For example, creating an online platform and mobile applications for the further development of the farming and animal husbandry system, analyzing their practical implementation, and creating sources of financial support. As a result, farmers and landowners will have the necessary scientific and practical knowledge and information about innovative technologies to achieve efficiency. In our opinion, it is appropriate to involve statistical committees and agricultural departments and organize constant dialogue with them.
- On the basis of “Garden Service”, in order to breed unique and economically efficient crop varieties, establish greenhouses with favorable conditions, small intensive gardens, and timely delivery to farmers and homesteads. The positive result of these tasks, first of all, will ensure food security among the population, create a continuous chain of food needs, and self-employment, reduce unemployment in the society, and also serve as an important tool for achieving economic stability of the state.

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