

**AZERBAIJAN REPUBLIC**

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**ABSTRACT**

*Of the dissertation for the degree of Doctor of Philosophy*

**DEVELOPMENT DIRECTIONS OF COOPERATION  
IN THE AGRICULTURAL SECTOR OF LANKARAN  
ECONOMIC REGION**

Speciality: 5308.01 General economy

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## GENERAL CHARACTERISTICS OF THE WORK

**Relevance of the topic and degree of development.** In the conditions of the modern market economy in the Republic of Azerbaijan, the formation and development of agricultural activity at the level of the requirements of the new, post-oil era is of great importance. Cooperation and integration relations play an important role in these processes. In general, cooperative activity in the agricultural field in our country can be considered as the clearest example of effective and mutual relations between economic entities with different forms of ownership. Because this activity is purposefully adapted to the many changes occurring in the agrarian field in the new economic stage - the post-oil era, and enables the effective application of innovative innovations in this field. However, the implementation of those processes at the appropriate level, comprehensively and consistently is directly related to the great attention and care of the state.

In recent years, the formation of the necessary legislative framework for agrarian cooperative activity, the adoption of separate laws and agrarian economic programs in this area, measures that take into account the development of the agrarian field, especially agrarian cooperative activity, can be evaluated as a positive step. Azerbaijan's position in international rankings in comparison with other regional states in this field is improving every year. Observations and analyzes show that today in the agriculture of the economically developed countries of the world, successful results have been achieved precisely as a result of the formation of high-level agrarian cooperation and integration relations, efficient forms of farming have been established in the indicated direction and they have been able to develop sustainably. As can be seen from the international experience, the sustainable development of agriculture is ensured by using the numerous advantages of cooperative activities, not only the production of highly competitive products, but also their supply, processing and sale, material-technical and financial-credit guarantee, and the implementation of other necessary infrastructure measures happened this way.

Of course, the mentioned issues are also of special importance for our country. Because in the regions, especially in the Lankaran-Astara

economic region, the reconstruction of the agricultural sector in accordance with the modernization requirements, including the implementation of similar processes related to the correct production and processing of high-quality products and their delivery to consumers, is impossible without effective cooperation. Local monopolies, unhealthy and unfair competitive tendencies in the current field, and other similar situations require the correct consolidation of the activities of small producers operating in most cases in a retail and scattered manner and their joint activity based on healthy cooperation.

In a number of state programs implemented for the socio-economic development of the country's regions, special attention is paid to measures that take into account the trends of efficient and modern sustainable development of the agricultural sector. Because land areas suitable for agriculture, including the active labor force, are located in the regions. As a result of land reforms carried out in the country in the mid-1990s, the rural population became landowners, and due to certain objective and subjective reasons, most of the landowners did not cultivate their share lands and flocked to the cities for easier and more profit.

In addition, the "Law on the Basics of Agrarian Reforms" adopted in 1995, the "State Program for the Development of Agricultural Cooperation in the Republic of Azerbaijan for 2017-2022" adopted on July 14, 2017, etc. after the land reform carried out in the direction of the implementation of such legal-normative documents, quality-oriented changes in the agrarian field began to be implemented. In the next stages, the property of state farms and collective farms will be privatized, subsidies will be provided by the state to small farms, etc. It is a clear example of the state's concern for the development of the agricultural sector. The great role of the adopted state program on the sustainable development of regions in the mentioned process is undeniable. Especially, in recent times, more attention is paid to the modernization of the agricultural sector and the implementation of quality-oriented measures.

It should be noted that, as in other economic regions, there are still various economic problems in the agricultural sector in Lankaran-Astara economic region (ER). For example, most agrarian producers, especially small producers, including peasant farmers, face many problems in

cultivating their own land alone or are unable to produce crops at all. In this way, a small number of cooperatives (3 cooperatives) operating in the mentioned ER also face the above-mentioned problems, which requires the establishment and acceleration of cooperative activities in the agrarian field in accordance with the current realities. It should be noted that cooperative activity in the agricultural field covers a whole process from the producer to the consumer on all links of the value chain. The measures implemented in this direction make it necessary to organize cooperation relations in a more serious and justified way.

Effective development of cooperative relations in the agricultural field is also able to give a great impetus to the development of solutions to the existing problems of the majority of the population living in the regions. Of course, this problematic situation also falls on the share of Lankaran-Astara economic region, which has a denser population than other regions of our country. Namely, from this point of view, the above-mentioned and other issues that are considered important to be solved in the direction of the sustainable development of agrarian cooperation, necessitated the correct selection and development of the dissertation topic on the example of the Lankaran-Astara economic region.

Researches show that various theoretical-methodological and applied features of the problem we are studying have been of interest to both local and foreign scientists and various studies have been conducted in this direction. For example, at various times, I.H. Aliyev, I.T. Abbasov, V.H. Abbasov, N.A. Javadov, G.H. Hasanov, Y.A. Humbatov, H.A. Khalilov, E.R. Ibrahimov, H.A. Israfilov and others, among the well-known economists of our country, indicated various aspects of the issue were investigated, important and scientifically justified proposals were put forward in the direction of their effective solution.

Among foreign scientists - A.M. Babushkin, K.I. Vahitov, I.N. Gerchikova, F.K. Gamzaeva, M.I. Zhigalov, R.L. Amanda, M.E. Porter, etc. In his works, the problems of effective regulation of cooperation, including agricultural cooperation processes, have been widely studied. However, in the works of the above-mentioned scientists, especially Azerbaijani scientists, the issues of agrarian cooperation in the example of the regions of the country (Lankaran-Astara ER) have not been studied at a sufficient level, and the problems in the direction of cooperation-

oriented development of agriculture in the region have not been comprehensively investigated. From this point of view, it is necessary to carry out a study on the analysis and evaluation of the problems aimed at determining the development directions of cooperation in the agricultural sector of the Lankaran-Astara economic region. The development of market relations and the development of cooperative relations in the agricultural sector, the expansion of economic independence can further increase the economic power of our country by creating conditions for ensuring the food security and employment of the population.

**The object and subject of the research.** The object of the research work is cooperatives and small farms active in the agricultural sector of Lankaran-Astara economic district. The subject of the study is the evaluation of the development directions of cooperation in the agricultural sector of the Lankaran-Astara economic region.

**Research goals and objectives.** The purpose of the study is to investigate the role of agricultural cooperative activity on the example of the Lankaran-Astara economic region, as well as to determine the development directions of cooperation in the agricultural sector appropriate to the economic region and to develop scientifically based proposals and recommendations based on the analysis, evaluation and modernization of the state of this activity according to the current conditions. To achieve the set goal, the following tasks are planned:

- determination of the theoretical and methodological bases and principles of cooperative activity in the agricultural sector, its development characteristics in Azerbaijan based on international experience;

- Analyzing the current situation and sustainable development of the agricultural sector in Lankaran-Astara economic region from the point of view of agricultural cooperation;

- Analysis of the activity of processing enterprises in Lankaran-Astara economic district;

- giving and evaluating the model of dependence of economic growth in the country on the volume of the total product in agricultural enterprises and other four indicators related to it;

- Determining ways to modernize agro-processing industry enterprises in Lankaran-Astara economic district;

- examination of directions for improvement of cooperative relations in the agricultural sector;
- Elaboration of specific proposals and recommendations on development directions of cooperation in the agricultural sector on the example of Lankaran-Astara economic region.

**Research methods.** Scientific abstraction, analysis and synthesis, economic-statistical generalization and analysis, multifactorial regression analysis methods for econometric assessment were used in the research work.

**Main clauses defended.** The scientific propositions defended as a result of the research conducted in accordance with the subject of the dissertation are the following:

**Clause 1.** Types of cooperation in modern economic conditions stipulates systematization based on characteristic features of cooperative activity in the agricultural sector and their relations, its grouping according to different spheres of economic and non-economic activity, determination of the main principles of cooperative activity in the agricultural sector, etc.;

**Clause 2.** It was determined that the development of agrarian cooperative relations plays an important role in ensuring food security, becoming a reliable provider of food and agricultural products for the country's population, and the implementation of an efficient farming system in small-scale farms in Lankaran-Astara ER, their economic activity with intensive methods it creates the need to identify and find solutions to the problems hindering its development, to establish mutual relations with the principles of civil cooperation;

**Clause 3.** Development trends of cooperative relations in the Lankaran-Astara economic region were analyzed and evaluated on the example of the currently operating "Gaya" horticulture and "Bahrali" livestock cooperatives;

**Clause 4.** Development tendencies of cooperative relations in Lankaran-Astara economic region were analyzed and evaluated on the example of "Astarachay" LLC and "PALFOOD" LLC;

**Clause 5.** Based on the Setup application software package, the volume and standard errors of GDP in Azerbaijan depending on the total output of agricultural enterprises, the number of enterprises, the area of

arable land, the number of people employed in these farms and the profitability of product sales, as well as the use of the regression equation for the purpose of forecasting a number of conditions have been defined;

**Clause 6.** As a result of the conducted research, the ways of modernization of agro-processing industry enterprises in Lankaran-Astara economic district were determined;

**Article 7.** Scientifically based proposals have been made in the direction of improving cooperative relations in the agrarian sector.

**Scientific novelty of the research.** The main scientific innovations of the dissertation work can be grouped as follows:

- the issues of the current role and place of cooperative activity in the country's economy have been evaluated from the point of view of modern content, the efficient organization of cooperative activity in the agricultural field and development directions in accordance with modern requirements have been systematized [45,47, 104];

-indicating the role and importance of agricultural cooperative relations in the conditions of market relations, the directions for effective organization of agricultural cooperative activities in the studied economic region were determined [46, 105];

-Cooperation activity in the agricultural field of Lankaran-Astara economic region, development tendencies of cooperative relations were analyzed and evaluated in the case of "Gaya" crop and "Bahrali" livestock cooperatives [49];

-A multifactor regression model of the dependence of GDP growth on the total output of agricultural enterprises and other indicators were given, the hypothesis of autocorrelation of the model was checked by means of the Darbin-Watson test, and the overall statistical significance of the regression equation was determined based on the Fisher-Snedekor criterion. Due to the development of cooperative relations in the agricultural sector of the Lankaran-Astara economic region, it is possible to calculate the forecast value of this indicator for the following years by using the model of the dependence of economic growth on five independent variables ( $x_{i1}, x_{i2}, \dots, x_{i5}$ ) [48];

- The main directions of sustainable development of agricultural cooperative relations in the Lankaran-Astara economic region have been determined, the reasons for the financial and economic activities of



enterprises with a low level of development of cooperative relations in the studied region resulting in losses, profit tax of "Tuado Chay" LLC for 2016-2022 all cost elements were analyzed and evaluated based on his approval [50];

- In the Lankaran-Astara economic region, the income, cost and profit indicators of processing enterprises "Astarachay" LLC and "PALFOOD" LLC were analyzed and evaluated in terms of cooperative relations;

- In the Lankaran-Astara economic region, scientifically based proposals were made in the direction of improving cooperative relations in the agricultural sector by determining the ways of modernization of agro-processing industry enterprises.

Theoretical and practical significance of research. The theoretical significance of the research work is to achieve the improvement of economic measures by determining the future development directions of cooperative activities in the agricultural sector of the Lankaran-Astara economic region, to develop entrepreneurship in the direction of agrarian cooperation and to stimulate investments, to increase the opportunities for international export of agricultural products.

The practical significance of the research - the proposals and recommendations put forward in the dissertation work are in the justification of the effective development directions of agricultural cooperation activities in the Lankaran-Astara economic region, in the implementation of continuous measures in the direction of the modernization of the agrarian field, in the formation of clusters based on healthy cooperative relations in this region based on the current development trends of the agrarian field. In further strengthening of agrarian cooperation relations by supporting entrepreneurship in accordance with the characteristics of the field, etc. can play an important role.

The results obtained in the dissertation work can be used in the teaching of agricultural specialties in higher educational institutions.

Approval and application. Azerbaijan, Russia, Canada, etc. about the main provisions of the research work and the obtained results. Speeches were made at scientific-practical conferences. The main scientific results

of the research are reflected in 10 scientific articles, including 3 published abroad.

The main scientific provisions of the dissertation work were presented by the author at international scientific-practical conferences (international scientific-practical conference on "Regional economic policy and development of cooperative relations", "Baku 2014", international scientific on "Innovative development of agricultural science and education: world experience and modern priorities" -practical conference, "Ganja-2015", LII international scientific-practical conference on "Economy and management" "Moscow-2021", international scientific-practical conference of the International Research Center on "Innovations and perspectives of world science", Vancouver, Canada-2022 , the International scientific-practical conference of the International Scientific and Practical Conference on "Heydar Aliyev is the founder of the modern state of Azerbaijan", Baku-2023) was reported and published in the conference materials. Also, the main scientific results of the dissertation work were accepted and approved by the Lankaran Regional organization of the Ministry of Agriculture of the Republic of Azerbaijan, and a corresponding certificate was issued that it will be applied in the future (Reference No. 07, February 01, 2018).

The name of the institution where the dissertation work was performed. The work was performed at the Institute of Economics of Azerbaijan MSE.

The total scope of the dissertation. The dissertation consists of an introduction (15473 signs), three chapters (Chapter I – 65723 signs, Chapter II – 84157 signs, Chapter III – 86076 signs) and a conclusion (10271 signs). In total, the scope of the dissertation is 154 pages, it consists of 152 references, 15 tables, 12 pictures and graphs. Excluding the conclusion, literature list, tables and graphs, the volume of the dissertation consists of 261683 signs.

## **STRUCTURE OF THE DISSERTATION**

### **Entry**

#### **Chapter I. Theoretical-methodological basis of cooperative activity in the agricultural sector**

- 1.1. Theoretical bases of cooperative activity in the agricultural sector and principles
- 1.2. The main features of cooperative activity in the agricultural sector
- 1.3. International experience in the development of agrarian cooperation and its features of development in Azerbaijan

#### **Chapter II. Analysis and assessment of the modern situation of agricultural cooperation in Lankaran-Astara economic region**

- 2.1. Analysis and assessment of the current situation of the agricultural sector and rural cooperatives in Lankaran-Astara economic region
- 2.2. Analysis of sustainable development of Lankaran-Astara economic region from the point of view of agrarian cooperation
- 2.3. Analysis of the activity of processing enterprises in Lankaran-Astara economic district

#### **Chapter III. The main directions of the future development of agricultural cooperation in Lankaran-Astara economic region**

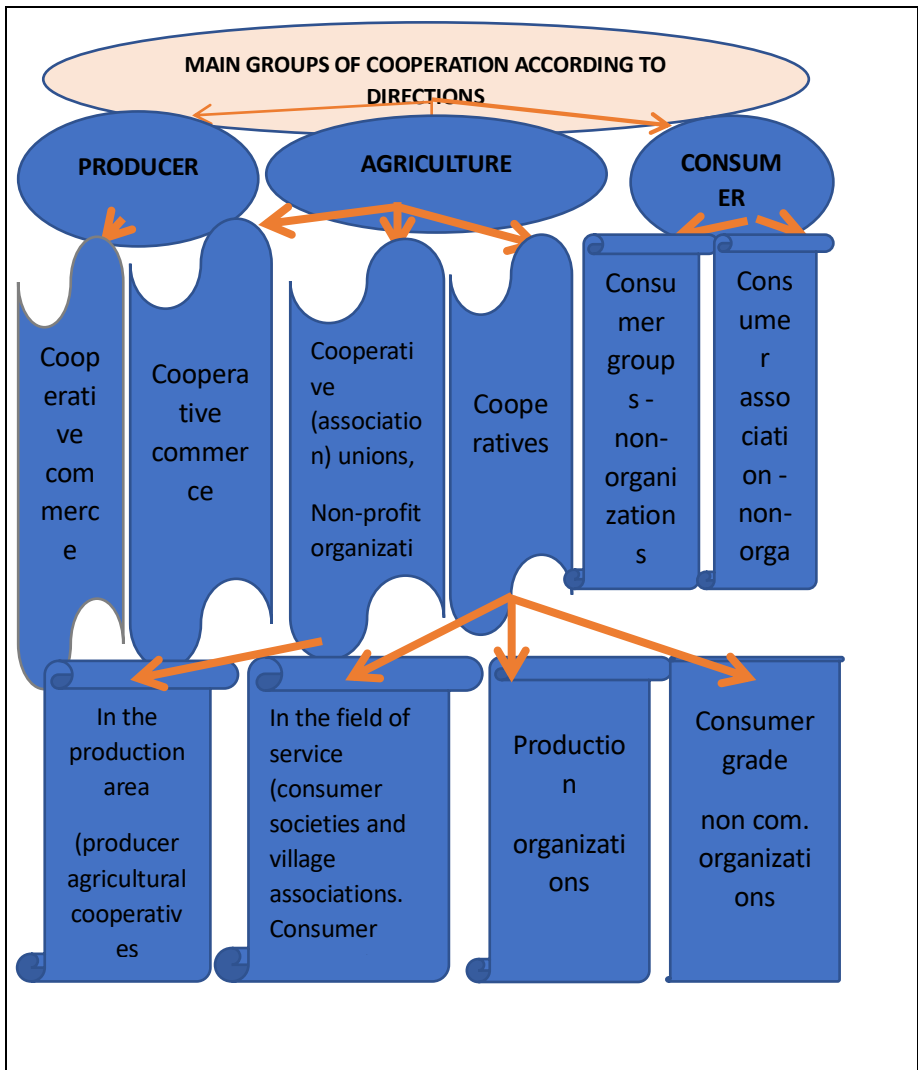
- 3.1. The model of the impact of agricultural sector development on economic growth and its evaluation
- 3.2. Ways of modernization of agro-processing industry enterprises in Lankaran-Astara economic district
- 3.3. Improvement directions of cooperative relations in the agricultural sector

#### **Conclusion and suggestions**

#### **Reference list**

## **THE MAIN SCIENTIFIC POINTS PRESENTED IN DEFENSE**

Clause 1. Regarding the characteristic features of cooperative activity in the agrarian sector and their relations, stipulates systematization based on the types of cooperation in modern economic conditions, its grouping according to different spheres of economic and non-economic activity, determination of the main principles of cooperative activity in the agrarian sector, etc. According to the International Cooperative Alliance, a cooperative is an independent association formed by society members to meet their economic, social and cultural needs, and at the same time, democratic control is ensured unanimously and united by creating a joint enterprise. At the same time, the International Labor Organization approaches the statement of the cooperative as follows - cooperatives are associative institutions where individuals and legal entities with relatively limited resources unite based on democratic values and form an efficient and healthy self-management environment in order to further improve their economic situation. The cooperative relationship is managed based on the principles of collegiality, economic independence and self-financing, acting as a set of economic processes and measures implemented as a result of joint efforts and initiatives, creating more favorable conditions for the increase of income and profits of economic subjects based on mutual relations. Cooperative activity, being one of the important and effective methods of organizing the process of economic activity, becomes the protection of the interests of the participants and the guarantee of effective utility, and is organized as the cooperation of a different number of people, owners, and any concrete voluntary associations that participate in several labor processes. From this point of view, the main principles of cooperative activity in the agricultural sector can be seen based on the grouped scheme of the main types of cooperation according to the nature of activity in modern conditions (Figure 1). As you can see from the picture, each of the cooperatives divided into three main types or groups is divided into different subgroups. Here, their specific directions of activity are reflected, which stipulates the determination of the main principles of cooperative activity.

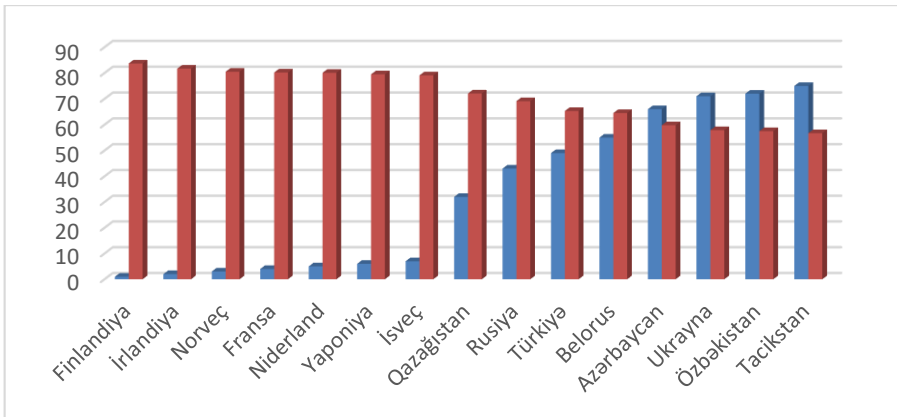


**Clause 2.** It was determined that the development of agrarian cooperative relations plays an important role in ensuring food security, becoming a reliable provider of food and agricultural products for the country's population, and the implementation of an efficient farming system in small-scale farms in Lankaran-Astara ER, their economic activity with intensive methods It is necessary to

**identify the problems that hinder its development and to find solutions, to establish mutual relations with the principles of civil cooperation.**

The conducted analyzes show that, taking into account the important role of the development of agricultural cooperative relations in ensuring food security, providing the population with food and agricultural products in every country is considered one of the most important tasks of the state. It should be taken into account that ensuring food security plays an important role in providing the country's population with reliable food and agricultural products. In addition, food security has a positive effect on the healthy formation of our national gene pool, as well as ensuring economic sustainability.

In the 2022 ranking of the level of food security among 113 countries of the world by the International Analytical Agency (Economic Intelligence Unit), different countries (including the Republic of Azerbaijan) were in different positions according to the food security index (Graph 1.).



**Chart 1. Ranking of some countries and global food in 2022 dynamics of security index Ranking order**

The analysis shows that in the field of global food security in 2022, Finland ranked 1st highest with 83.7 points. In addition, Ireland ranked 2nd with 81.7 points, Norway 3rd with 80.5 points, France 4th with 80.2 points and the Netherlands 5th with 80.1 points. This indicator for Azerbaijan was 66th place and made 59.8 points, Ukraine was 71st,

Uzbekistan 73rd, and Tajikistan 75th. As can be seen from the analysis, the implementation of serious economic measures in the development of agricultural cooperative relations in the next years can be considered as an important condition in order to ensure food security in our country. In our opinion, it will be possible to ensure the progress of our country in the international ranking only as a result of the measures planned to be implemented in this direction. Among the countries of the world, farmer cooperatives are one of the most important links in the agricultural sector in the United States, which is developing the economy comprehensively. According to the US Department of Agriculture, 4 out of 5 farmers use the services of these cooperatives. Through these cooperatives, 31% of the total volume of agricultural products are produced in the country, including 76% of milk and milk products, 59% of grain products, and 35% of cotton. However, the Law on agricultural cooperation adopted so far has not been able to give sufficient impetus to the development of the cooperative sector in the agriculture of the Republic of Azerbaijan. Because, for the efficient operation of the cooperative, loans, savings, borrowing, subsidies, etc. It is important to obtain the required amount of debt funds. A very important indicator of the credit cooperative's activity is the attraction of people's savings to the cooperative. According to the official information of the State Statistics Committee of the Republic of Azerbaijan, the number of cooperatives organized in the agricultural production and processing industry in the country decreased by 10 units in 2019 and by 15 units in the following years to 33 compared to 2014. The results expected from the implementation of the "2017-2022 State Program on the Development of Agricultural Cooperation in the Republic of Azerbaijan" were not satisfactory at the level of organization of this direction. Because, a number of problems prevent individual peasant households and farmers from joining agricultural cooperatives. From this point of view, a sufficient number of agricultural cooperatives in our country, as in foreign countries, both production, processing, material and technical supply and service areas in this field have a sufficient level of special weight in the total production and work volume, increase the income of the country's population, and can also encourage it to be in a decisive position in the development of the economy of the regions and the country as a whole.

**Clause 3.** Development trends of cooperative relations in Lankaran-Astara economic region were analyzed and evaluated on the example of currently operating "Gaya" horticultural and "Bahrali" livestock cooperatives.

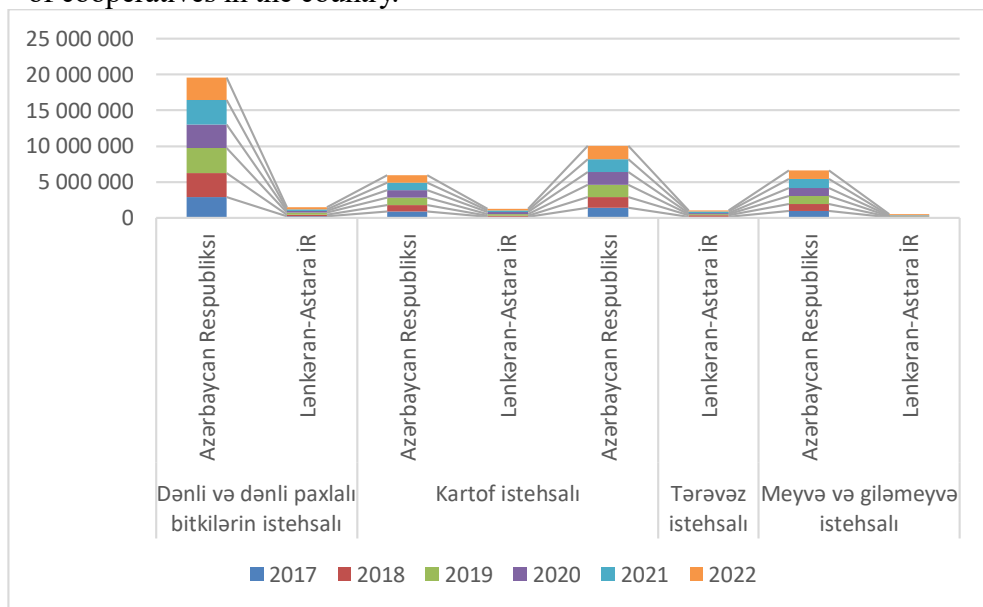
Since large farms are considered more important in terms of effective organization of the production process, cooperatives act as one of the forms of efficient organization of such farms. In this regard, the package of agrarian reforms, which the national leader Heydar Aliyev, with great foresight, envisaged the initial legal basis of agricultural cooperation, was gradually developed in the Lankaran-Astara economic region as well as in all regions of our country. In 2021-2022, the volume of the total agricultural output in the Lankaran-Astara economic region with the actual price is given in table 1.

**Table 1. Total production of agriculture in the economic district, million manats**

Lankaran-Astara ER and the regions included in it	2021				2022				
	Total	Specific weight of regions in the total volume of the economic region, %	Crop production	Animal husbandry	Total	Specific weight of regions in the total volume of the economic region, %	Crop production	Animal husbandry	Increase or decrease in 2022 compared to 2021, (+), (-), %
Lankaran-Astara ER	810,736	100,0	433,035	377,701	999,720	100,0	556,431	443,29	+23,3
Astara	88,377	10,9	44,619	43,758	110,318	11,035	60,106	50,212	+24,8
Jalilabad	335,319	41,3	214,448	120,830	415,907	41,602	278,272	137,635	+24,0
Lerik	60,766	7,49	19,505	41,261	84,904	8,493	26,598	58,306	+39,7
Lankaran	137,134	16,9	77,569	59,565	162,552	16,260	94,049	68,503	+18,5
Masalli	142,013	17,6	66,073	75,940	170,101	17,015	83,623	86,478	+19,7
Yardimli	47,127	5,81	10,781	36,346	55,937	5,595	13,782	42,155	+18,7



The analysis shows that agricultural products produced in this economic region accounted for 8.85% of the total national product in 2021 and 9.1% in 2020. In 2021, this indicator was 9.59% for crop products, 8.12% for livestock products, and 10.05% for crop production and 8.14% for livestock in 2022. It should also be noted that Jalilabad had the highest specific weight among the regions included in the studied economic region, which means 41.3% and 41.602% in the respective years. The lowest specific weight for this ER was 5.81% in 2021 and 5.595% in 2022, being in Yardimli district. In 2022, this indicator decreased by 0.215% in the current region. In our opinion, despite the increase of 8.8103 thousand manats in the volume of agricultural products in Yardimli district in 2022, the decrease in specific weight can be explained by the fact that the volume of production in other districts increased more in that year. The number of agrarian cooperatives operating normally in 2022 in Yardimli district, included in Lankaran-Astara ER, which we studied, was 2, which is 6.1% of the total number of cooperatives in the country.



**Table 2. Production volume of some agricultural products in Azerbaijan and Lankaran-Astara ER in 2017-2022**

One of the cooperatives operating in Yardimli ("Gaya" cooperative, cultivated area 52 ha) is engaged in the cultivation of grain, leguminous and oil crops, and the other ("Bahralli" cooperative, pasture area 37 ha) is engaged in the production of livestock products. The production volume of some agricultural products in the Republic of Azerbaijan and Lankaran-Astara economic region in 2017-2022 is given in graph 2.

In Azerbaijan in 2022, the specific weight of the region is 7.74% and the production volume is 244,828 thousand tons in the total production of cereals and legumes (3161,271 thousand tons); in the total production of potatoes in the country (1074,261 thousand tons), the specific weight of that IR is 23.2% and 248,870 thousand tons; respectively, in the total production of vegetables (1823,330 thousand tons), the specific weight of the region is 9.7% and 177,768 thousand tons; in the total production of fruits and berries (1253,069 thousand tons), the specific weight of the region was 8.7% and 108,657 thousand tons. The analysis of the data of the Yardimli district statistics office shows that in 2022, compared to 2018, there was a decrease of 25 ha in the cultivated area of comparable agricultural products in "Gaya" cooperative, only in grain and grain leguminous plants. In 2022, there was a decrease of 660 centners in the volume of collection for this type of product compared to 2018. Also, there was a decrease of 1 hectare and 95 centners in the production of vegetables, melons and potatoes during the comparison period. The live weight of lambs obtained in "Bahralli" cooperative decreased by 3 centners compared to 2018 and became 5 centners in 2022, and remained stable at 1 centner in cattle. In the corresponding period, there was a decrease of 1 centner in weight gain in cattle and sheep, and an increase of 3 centners in sheep. It should also be noted that the highest weight gain from cattle fattening in this cooperative was 7 centners in 2019. In sheep, the highest indicator of this indicator was 39.8 centners in 2019. Also, in the volume of livestock and birds sold for slaughter, 2 centners in cattle, 23 centners in sheep, 42 centners of milk from milked cows in 2022, and 12.2 centners of wool shearing from sheep in 2018.

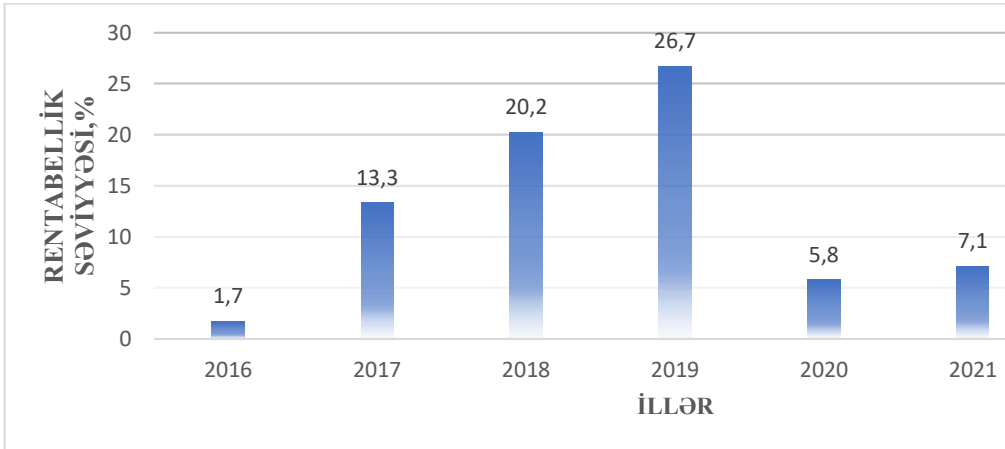
In our opinion, in order to increase the volume of production of the agrarian sector in the IR, more efficient use of existing land areas, labor resources, material and technical resources, the introduction of productive breeds of animals and plant varieties, and at the same time the

introduction of new forms of farming in accordance with the principles of the market economy (agricultural enterprises, individual entrepreneurial farms, small enterprises, cooperatives, etc.) based on the proper organization of activities, it is possible to effectively meet the needs of the population for agricultural and food products, and the processing industry for raw materials.

**Clause 4.** Development tendencies of cooperative relations in Lankaran-Astara economic region were analyzed and evaluated on the example of "Astarachay" LLC and "PALFOOD" LLC.

In Lankaran-Astara ER, green tea leaves are widely collected from the plantations of specialized tea farms such as "Astara Tea" LLC, "Beta" LLC and Lankaran Tea Science Experiment Base, along with the "Yashil Chay" farm in Lankaran-Astara IR. cooperative relations are developed. As we mentioned, Lankaran-Astara economic region is the leader in tea production and has a special weight on 94.3% of tea production in the country in 2022. The fact that the share of this economic region in the total collection of green tea leaves is too high indicates the specialization of that region in this field. For example, 66.19% of the production of this type of product in Astara, 26.82% in Lankaran and 1.28% in Masalli, and the remaining 6.71% (57.0 tons) falls to Zagatala region. In our opinion, cooperatives and small business enterprises operating in Lankaran-Astara ER should continue to specialize their activities in this direction, have high productivity by acquiring new tea, feijoa, orange and tangerine varieties and try to have a decisive role in the economic development of the region and the country. In 2020, the total income of "Astarachay" LLC from work and services decreased sharply compared to previous years and was 4,761,724 thousand manats, in 2021 it was 5,495,763 thousand manats and in 2020 it was 6,894,256 thousand manats. This means that the company's income in 2022 will decrease by 25.8-37.4% compared to 2019 for the studied period. As it can be seen, the dynamics of changes in the total income and expenses obtained by "Astarachay" LLC from works and services affected the change in profit for taxation purposes and determined the change in the level of profitability of the work and services product (graph 3). The analysis shows that in 2016-2019 years, the level of profitability of "Astarachay" LLC's work and services on product production has developed with increasing dynamics due to the reduction

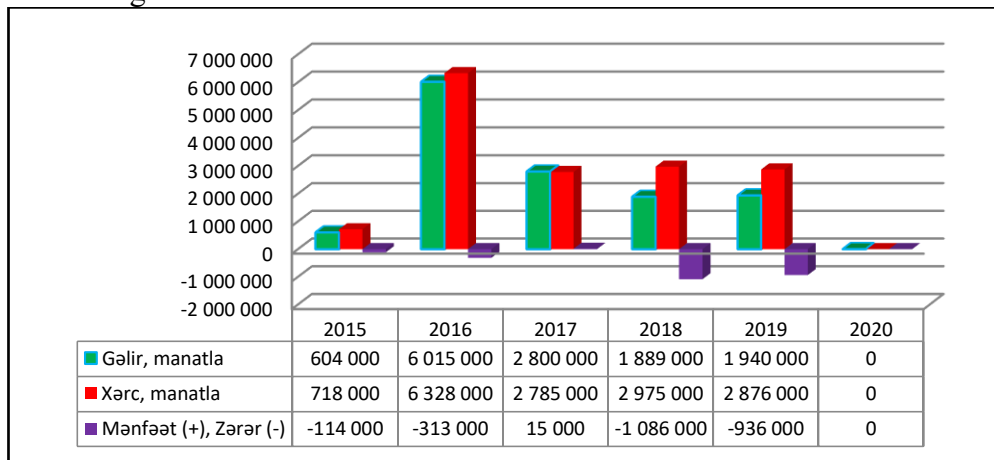
of costs incurred in the production and sale of tea products. However, the sharp drop of this indicator in 2020-2022 can be justified by the illness of workers as a result of the spread of the virus in that period, and at the same time, the lack of timely implementation of cultivation works in accordance with the vegetation period of the plant, as well as the insufficient level of work and service.



Graph 2. "Astarachay" LLC product production work and profitability level of services

Although the total income of "Tuado Chay" LLC for the years 2016-2019 decreased, in 2020-2022, the income obtained from the provision of goods, work and services increased compared to previous years and amounted to 1982.9 thousand manats, 2143.8 thousand manats in the respective years. thousand manats and 2392.6 thousand manats. However, despite the increase in income, in the profit generated for taxation purposes in the enterprise in 2020-2022, losses of 514.01 thousand manats, 542.39 thousand manats and 589.88 thousand manats were obtained in the corresponding years. At the same time, since the expenses deducted from the total income are 287,407 thousand manats in 2017, 514,01 thousand manats in 2020, 621,78 thousand manats in 2021 and 471,82 thousand manats in 2022, respectively, the enterprise operated at a loss in those years. In our opinion, the enterprise's profitable operation in the mentioned years is due to the additional expenses related to the increase of tea plantations, salary payments, etc. may cause an increase.

Although the products of "PALFOOD" LLC, operating since 2008, have been engaged in the production of milk and milk products in the Lankaran economic district under the trademark "PalSud", the production activity has been stopped since 2020. These can be seen from the diagram below.



**Diagram 1. Dynamics of income, expenses and profit of "PALFOOD" LLC for 2015-2020, in AZN**

Although the income of "PALFOOD" LLC for the years 2015-2019 developed with increasing dynamics, the expenses for the entire studied period, except for 2017, exceeded the income, which caused the financial and economic activity of the enterprise to result in losses. . As a result of the study of the development trends of cooperation in the agricultural sector in the Lankaran-Astara economic region, it was determined that the weak development of cooperative relations in some enterprises engaged in the processing of agricultural products resulted in a decrease in the level of profitability of products and production in those enterprises, which led to the cessation of the activities of the enterprises.

Clause 5. Based on the Setup application software package, the volume and standard errors of GDP in Azerbaijan depending on the total output of agricultural enterprises, the number of enterprises, the area of arable land, the number of people employed in these farms and the

profitability of product sales, as well as the use of the regression equation for the purpose of forecasting a number of conditions have been defined.

In order to clarify the change of the GDP in the Republic of Azerbaijan in 2008-2022 depending on the influence of the agricultural product and a number of indicators related to it, the volume of the GDP is determined by the agricultural product, the number of enterprises, the arable land under their control, the number of the employed population and the sales the model of the relationship between profitability and its evaluation was carried out.

Based on statistical data of  $N$  ( $i=1,2,\dots, N$ ) years during the past period, the statistical data necessary for forecasting the volume of GDP, consisting of the relevant indicators mentioned below, show that the specific weight of agricultural production in the volume of the country's gross domestic product increases year after year. In this regard, the volume of GDP ( $y$ ) is the total product of agricultural enterprises ( $KTum$ ) ( $x1$ ), the number of enterprises engaged in the production of products in agriculture ( $Ms$ ) ( $x2$ ) land, suitable for agriculture ( $KTyT$ ) ( $x3$ ), the number of population engaged in agriculture ( $MEs$ ) ( $x4$ ) and the profitability of the sale of agricultural products ( $Sr$ ) ( $x5$ ) was obtained according to the Setup application software package:

$$UDMh = -110.0497 + 40.7102KTum + 3.1124Ms - 31.491KTyT + 158.0936 MEs + 1.7302Sr. (1)$$

The conclusion about the presence of autocorrelation in the relationship model between the indicators was not determined. This means that the nonlinear regression equation is statistically significant and the built model is adequate as a whole.

**Clause 6.** As a result of the conducted research, the ways of modernization of agro-processing industry enterprises in Lankaran-Astara economic district were determined.

A sustainable economy provides a reliable base for sustainable development. The main principles of sustainable development are continuous improvement of the economic efficiency of economic activity; application of modern innovative technologies in production areas; ensuring efficient use of production potential; continuous expansion of production and service areas by regions, etc. conditions. The analysis of the current state of processing areas in the Lankaran-Astara economic

region, where we conducted the research, shows that there are many opportunities in this area that have not yet been used. As this region mainly specializes in the production of subtropical fruit and vegetable products, along with the development of canning industry institutions that mainly process fruit and vegetables, the level of development of flour grinding enterprises (mills) is also noticeable. Also, the number of meat, milk and wine industry enterprises processing food (food) products is increasing here. In this direction, we can mention the dairy products combine put into use by the "Palmaly" group of companies in the city of Lankaran in recent years. So, starting in 2008, a wide variety of dairy products under the trademark of this company began to meet the needs of consumers. However, PalSüd is not only a commercial project, it is primarily a socially oriented project that provides consumers with high-quality and hygienic products. The company is considered the only organization in the field of milk processing in the Republic of Azerbaijan that has received the international ISO 22000:2005 certificate. The existing laboratory established in the company and meeting the highest standards consists of physical, chemical and microbiological departments. It is here that favorable conditions are created for the necessary quality of milk raw materials entering the company, pasteurization and storage and packaging processes of processed analogous products.

The analysis of the economic activity of relatively small and medium-sized processing enterprises operating in the agrarian field of Lankaran-Astara economic region shows that the sale of processing products has faced certain problems in most of them. For example, in contrast to Lankaran district, which is in the territory of the region, the commodity level and indicators of most agricultural products produced in the neighboring Masalli district are higher. However, in addition to wheat flour and tea processing in the processing institutions of this region, the current activity process in other production areas is not carried out in accordance with new technologies, so increasing and decreasing trends are constantly observed here. The analysis of statistical data shows that the number of all industrial enterprises, including the processing industry, operating in Lankaran-Astara ER increased by 4.77 times during 2009-2022 and became 1531 units.

Numerous foreign specialists and experts are constantly satisfied with the quality of ecologically clean food products produced in Azerbaijan, especially vegetable, horticultural, and gardening products. They state that these products are rarely found in European markets, and wonder why local products of high quality and excellent taste are not fully and widely exported to European markets. It should also be noted that, as in other regions of the country, the insufficient level of necessary technological development of the agricultural sector in the Lankaran-Astara economic region also necessitates the creation of an appropriate center for the economic analysis of the activities of agricultural economic entities based on single technology transformation the issues of correct identification and application of modern agro-industrial technologies.

**Clause 7.** Scientifically based proposals have been made in the direction of improving cooperative relations in the agrarian sector.

Since cooperative relations in the agricultural sector act as the main form of inter-farm coordination and effective coordination processes, it needs to be constantly developed and improved. Thus, the improvement of the indicated relations - taking into account the conditions of the current market conjuncture, creates favorable conditions for the effective application of new, modern technologies in economic subjects, the majority of which are small and medium-sized, and creates conditions for the increase of productivity, which ultimately increases the income of the members of the cooperative and the level of well-being. allows it to rise. As can be seen from the observations, the development of agricultural cooperative relations in modern conditions is the most reliable and tested way of sustainable development of this field. In our opinion, the solution of the following matters plays an important role in the proper organization of cooperations: -specialization of economic regions according to the products they produce, relief and climatic conditions; - intensive development in agriculture, application of modern technologies, organization of production and creation of a new management system; -organization of improvement courses to raise the level of effective employment of agricultural specialists and increase their qualification; - manufacturers' equipment, agricultural machinery, etc. provision of equipment through leasing by taking advantage of the



relevant service systems of state or private companies engaged in this direction; - in uniting family and peasant farms, prevention of land destruction as a result of useless water ditches and non-bearing trees (mainly willow trees) built by them on the land borders, application of innovative methods in the fight against harmful microorganisms of plants, etc.

As mentioned in the research, one of the areas that are grown in accordance with the local climatic conditions in the Lankaran-Astara economic region and need constant improvement in terms of agrarian cooperation is paddy cultivation. The history of rice production in this economic region is based on ancient roots, it is grown mainly in Astara, Lankaran and Masalli regions. In the adopted state program for the development of paddy cultivation, it is planned to increase the cultivated area to 10 thousand hectares and the productivity to 40 centners/ha in 2025.

We believe that as a result of effective organization of agrarian cooperative relations in the field of tea growing in Lankaran-Astara ER, the tea fields, most of which exist today in the form of share lands, should be used jointly. Because it is almost impossible to achieve high results by individual implementation of heavy labor processes in tea production. High productivity and quality production can be achieved by applying appropriate technologies in a consistent, planned manner in tea cultivation. At this time, it is necessary to reduce the cost of the product. Despite all this, we consider it appropriate to implement the following for the cooperative development of tea growing in the Lankaran-Astara economic region: - joint acquisition and use of necessary technical means for the mechanization of production and harvesting processes in order to organize more efficient activities of tea farms; - compliance with all technical, technological and other processes that promote the improvement of the quality of local tea varieties produced on the basis of cooperation; - formation of the necessary technical base that enables economical use of available resources and formation of a tea-growing (subtropical plants) cluster, which includes the production, proper packaging and storage, transportation and other necessary processes of tea-growing products, etc.

The activity of agroparks in Azerbaijan, including in the territories freed from occupation (in Karabakh and Eastern Zangezur ER), will be an impetus for the start of healthy competition in the agrarian sphere. The opening of the first phase of the construction of the "Dost" smart agropark campus on October 20, 2022 shows that the state is taking decisive steps in this direction and will continue to take them in the future.

Another important direction in ER is to eliminate retailism and ensure its complexity in the field of development of vegetable growing, especially farash vegetable growing. Observations show that vegetable crops, which are considered one of the most complex areas of plant growing, are very demanding on soil and climate conditions. Soil fertility, especially the thickness of the fertile layer, the supply of organic and mineral nutrients and other factors play an important role in the development of these plants. Here, one of the main ways to increase productivity is the use of regionalized varieties and their conditioned seeds.

In our opinion, it is very necessary to form new economic structures in agriculture by regions in Azerbaijan, to ensure their efficient operation in accordance with the laws of the market economy, and for this the following issues should be resolved: development and implementation of long-term state programs on providing subsidies from the budget for investment purposes in agriculture; determination of preferential taxes for banks lending to the activities of agricultural entrepreneurs, implementation of the state subsidy system for relevant banks; implementation of the stimulated insurance mechanism in the activity of existing entrepreneurs in the agricultural sector, etc.

## CONCLUSION AND SUGGESTIONS

The economic content and constituent elements of cooperative activity, its unique characteristics in the agricultural sector, the study of foreign experience in the indicated direction, the evaluation and analysis of the current state of agricultural cooperation on the example of the Lankaran-Astara economic region, as well as the theoretical and practical significance corresponding to the direction of its future development and improvement. , the following propositions were put forward in the research work by obtaining important results of a scientifically based complex nature:

1. Cooperative activity - in order to achieve the set goals, it creates a healthy environment in the direction of more optimal coordination of purposeful and joint activities of the participants, as a form of effective organization of labor, being a joint economic activity carried out in various organizational forms. Effective and sustainable development of cooperative activity in the conditions of market relations creates favorable conditions for the further improvement of the existing economic entities in terms of organization and structure, and comprehensively and comprehensively reflects the changes occurring in the market conjuncture. Therefore, it is necessary to form and constantly develop the necessary scientific-methodological and legal base in the field of the comprehensive development of the economic essence and necessary structural aspects of the current cooperative activity.

2. The agricultural cooperative activity, having its own characteristics, acting as one of the important forms of legal organization of economic activity in the agricultural field, is a type of activity that brings together various agricultural and food producers in economic activity processes and is aimed at satisfying the needs of its members. Of course, the main purpose of creating this type of institutions based on voluntary association is to produce highly competitive products that can meet the demands of the market, to provide appropriate services, to use the existing potential efficiently and on the basis of intensification, to create favorable conditions for increasing labor productivity, and ultimately to ensure an increase in the income of cooperative members. is to ensure normal life and work activities. Observations show that it is necessary to take into account the factors that can stimulate the normal

formation and sustainable development of agricultural cooperative activity.

3. Advanced foreign experience in the direction of the development of agricultural cooperation shows that products produced in cooperatives developed as a result of direct support and patronage of the state have higher consumer characteristics and high quality compared to other similar products. The quality-oriented development and improvement of cooperative activities in the agricultural sector has already proven itself in the practice of developed countries by acting as a result of effective application of modern technologies of innovation and scientific and technical progress.

4. As can be seen from the analysis of the factors of assessment of the current state of the agricultural sector in the Lankaran-Astara economic region, this region has its own characteristics, unlike other regions of the country. The area of the region is relatively compact, and the population is very dense, the presence of a mysterious and unique subtropical climate zone, the passage of international transport hubs, etc. factors increase in importance according to its specific aspects. As can be seen from the conducted analyses, in these areas, the application of intensive methods in the process of growing agricultural plants and livestock products, the further expansion of the activities of private seed and seedling farms, the stimulation of the application of advanced technologies, the modernization of existing canning, juice and other similar products production enterprises and supporting the establishment of mini processing plants, etc. are necessary.

5. The following results were obtained during the evaluation of the model of the impact of the development of the agricultural sector on economic growth with the application of the Setup program: - the model of the impact of the development of the agricultural sector on economic growth  $UDMh=-110.0497 +40.7102KTum+3.1124Ms-31.491KTyt+158.0936MEs+1.7302Sr$  there is a dependence expressed by the equation; - it was determined by the application of the Setup program in the research work that, based on the determination of the dependence of GDP on five indicators, in connection with the development of cooperative relations in the agricultural sector, a total

increase of 1% in other indicators, except for the free variable  $x_3$  (KTyt), an increase in the volume of GDP by 0.9755%.

6. The analysis of the sustainable development of the Lankaran-Astara economic region from the point of view of agricultural cooperation shows that, according to the current conditions of the economic region, ecologically clean food products (especially tea and other subtropical plants), breeding animals, etc. it is possible to ensure its dynamic development, increase the depth of processing of agricultural raw materials, and act as a leading supplier of the above-mentioned products across the country. Because, favorable natural and climatic conditions of the region and the existing potential create a favorable opportunity for this.

7. Correctly determining the ways of modernization of agro-processing industry enterprises operating in the Lankaran-Astara economic region, as well as ensuring their innovative development, providing certain efficient proposals in accordance with these and other goals are also of particular importance. In our opinion, the main factors hindering innovation-oriented modernization in agricultural processing institutions are mainly related to both economic and production factors. The most important of the economic factors is that these institutions do not have the necessary financial resources and the existence of certain economic risks.

In our opinion, while concluding the thesis, these results and proposals can provide a strong impetus to the sustainable development of agricultural cooperation in the Lankaran-Astara economic region and create conditions for comprehensive stimulation of activity in this field.

**The following scientific works were published on the dissertation materials:**

1. Kənd təsərrüfatı kooperasiyasının inkişafına aqroparkların təsir mexanizmləri. Az KTİETİ-nun Elmi Əsərləri, №2/2017, s.67-72

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3. Современное состояние кооперационно-интеграционных связей в аграрном секторе Азербайджанской Республики. Журнал «Экономика и предпринимательство», №12 (ч.1) / (65-1) 2015, с.277 – 281

4. Aqrar kooperasiya və integrasiya əlaqələri: mövcud baxış və yeni yanaşma tərzii. AMEA İqtisadiyyat İnstitutunun Elmi Əsərləri, 2015,

5. Aqrar sahədə kooperasiya əlaqələrinin formalaşması və inkişafı məsələləri “Regional iqtisadi siyasət və kooperasiya münasibətlərinin inkişafı” mövzusunda beynəlxalq elmi–praktiki konfransın materialları, 22 noyabr 2014-cü il, s. 726 - 728

6. Aqrar sahədə kooperasiya münasibətlərinin təkmilləşdirilməsi istiqamətləri. “Aqrar elmin və təhsilin innovativ inkişafı” mövzusunda beynəlxalq elmi- praktiki konfransın materialları. Gəncə: 23-24.2015, III cild,s.385 – 388

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9. **Assessment of the influence of the development of agrarian cooperation on the economic growth of the Lyankyaran economic district.** Proceedings of II International Scientific and Practical Conference “INNOVATIVE DEVELOPMENT OF SCIENCE, TECHNOLOGY AND EDUCATION” Perfect Publishing, Vancouver, Canada. Noyabr **16-18 2023**, s.116-121

10. Aqrar sektorun inkişafının iqtisadi artıma təsiri modeli və onun qiymətləndirilməsi. “Heydər Əliyev müasir Azərbaycan dövlətinin qurucusudur” mövzusunda beynəlxalq elmi-praktiki konfransın materialları, 5 may 2023-cü il, s.116-121

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