



**AGRICULTURAL RESEARCH
CENTER**

**THE MINISTRY OF AGRICULTURE
OF THE REPUBLIC OF AZERBAIJAN**

AGRICULTURAL RESEARCH CENTER

ANNUAL REPORT

FOR 2023

BAKU 2024



<https://atm.gov.az/en>

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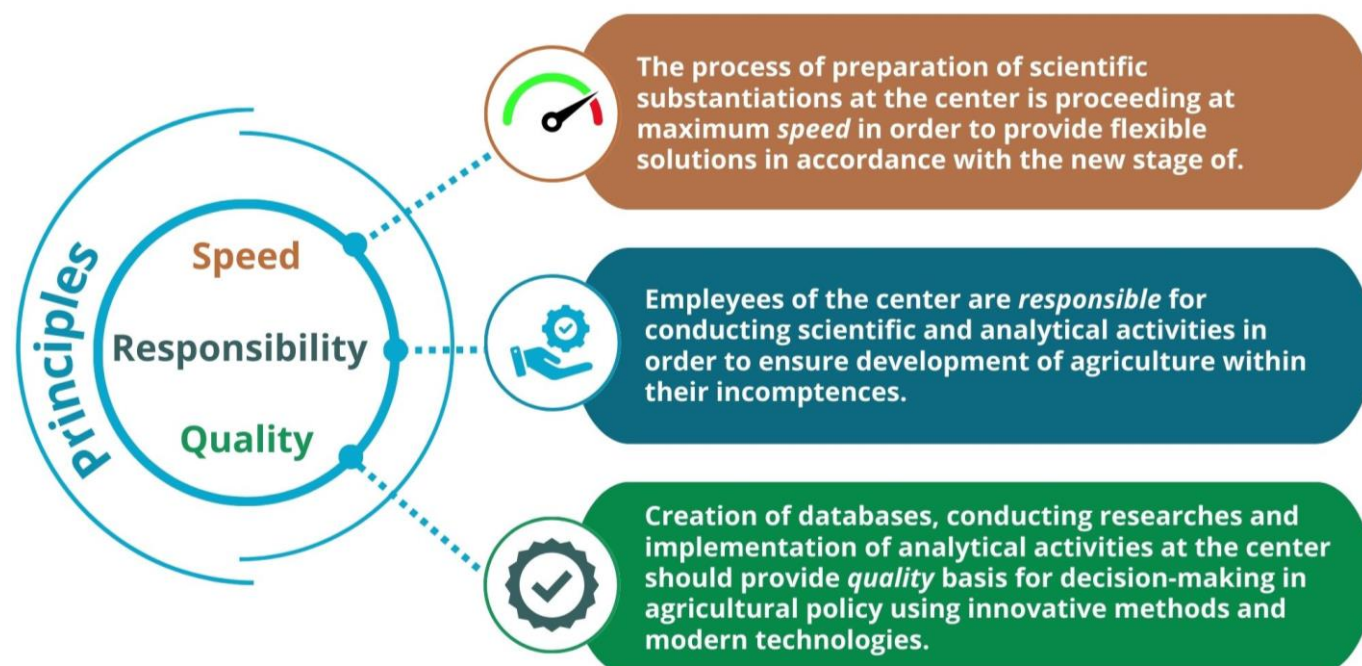
Introduction

Agricultural Research Center under the Ministry of Agriculture of the Republic of Azerbaijan was established on the bases of Research Institute for Agricultural Economics acting since 1962.

Research Institute for Agricultural Economics under the Ministry of Agriculture reformulated to Agricultural Research Center with the status of a public legal entity according to the decree of the President of the Republic of Azerbaijan, Ilham Aliyev dated 22 May 2018.

The objective of this institutional reform is to re-shape the research body with 60 years of history into a **“Think Tank”** to provide the necessary scientific justification and analytical base for further improvement of agricultural policy based on the requirements of the modern stage of agricultural reforms as well as the global challenges in the country.

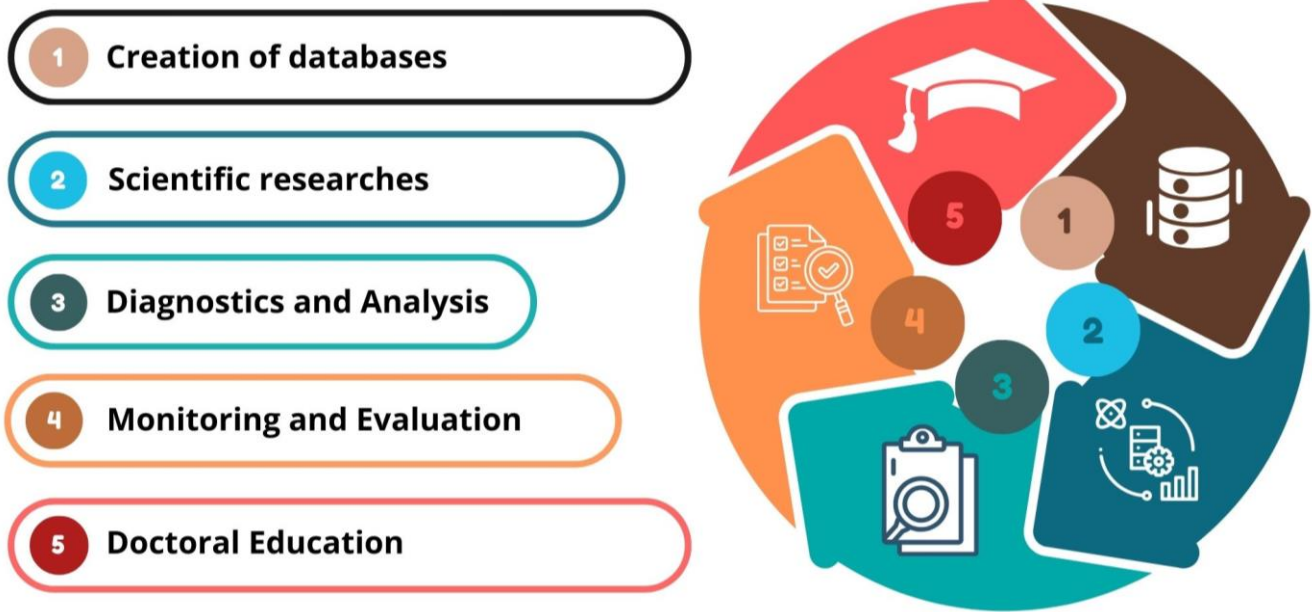
Currently, the creation process of the Agricultural Research Center continues based on a *new mission, new principles of affairs, new positions, innovative methods, and modern technologies.*



Activity

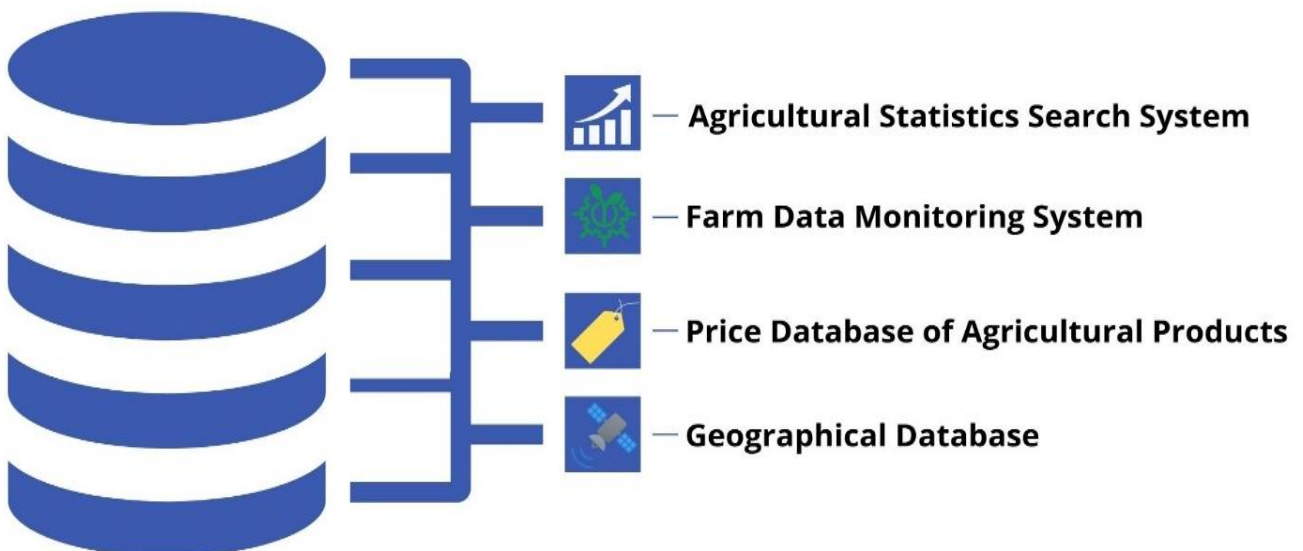
Agricultural Research Center's mission is creation of agro database, analysis, evaluation and forecasting, preparation of agricultural policy recommendations, programs, projects, and innovative development mechanisms. Following the mission, an Action Plan was prepared for 2023 and the Center's activities were organized by that Plan.

In general, the Center's activities are grouped under 5 directions:



1. Creation of databases

4 subgroup databases are being created in the Center: Electronical Agricultural Statistics Search System, Farm Data Monitoring System, Price Database of Agricultural Products, Geographical Database.



Agricultural Statistics Search System. All statistical data related to Azerbaijan's agriculture are systematized in this database.

Rayon	Grup	Növ	İl: 2015		İl: 2016		İl: 2017		İl: 2018		İl: 2019		İl: 2020	
			Sahə (ha)	Məhsul (ton)	Sahə (ha)	Məhsul (ton)	Sahə (ha)	Məhsul (ton)	Sahə (ha)	Məhsul (ton)	Sahə (ha)	Məhsul (ton)	Sahə (ha)	Məhsul (ton)
Balakan	Danil və danil paxlaları	Dan üçün qarğıdalı	7101	40006	7244	44788	6885	43152	7040	42994	7213	44173	7515	46288
		Payızlıq və yazlıq buğda	146	367	804	2606	1095	2978	1096	3080	1215	3402	896.1	2580.8
	Meyvə və giləmeyvə	Gilas	165.4	310	166.2	312	100.2	366.5	79.2	265.5	79.2	220	83.5	226.2
Sabirabad	Danil və danil paxlaları	Dan üçün qarğıdalı	489	2504	489	2649	627	7108	635	7177	651	11984	717	6760.2
		Payızlıq və yazlıq buğda	11907	47390	13719	54864	14206	57319	15215	61925	15536	63912	14762	64509.9
	Meyvə və giləmeyvə	Gilas	27	191.2	54	319	54	348.9	54	448.7	64	449.2	64	451
Xaçmaz	Danil və danil paxlaları	Dan üçün qarğıdalı	741	4720	428	3321	451	4037	348	2904	330	3150	331.4	4445.4
		Payızlıq və yazlıq buğda	22422	74889	22841	81022	17051	59650	17905	62610	19223	66887	17397.8	50361.9
	Meyvə və giləmeyvə	Gilas	-	13344.3	1911.6	15952.5	2148.2	15602.7	2175.9	16184.1	2441.7	17403.1	2465.7	18847.5

Agricultural Research Center continued to prepare reports covering agrarian statistics, including operational data on the production of agricultural products, imports and exports of agricultural and food products, and statistics collected from various sources on material and technical supply data in the agrarian sector in 2023.

In addition to statistical data on agriculture, the Center also continued to collect databases on subsidy and other state support data, data on the activities of the Ministry of Agriculture and subordinate bodies, structuring and preparing visual reporting, placing the processed data on the [AgroData statistical portal](http://agrodata.az/).

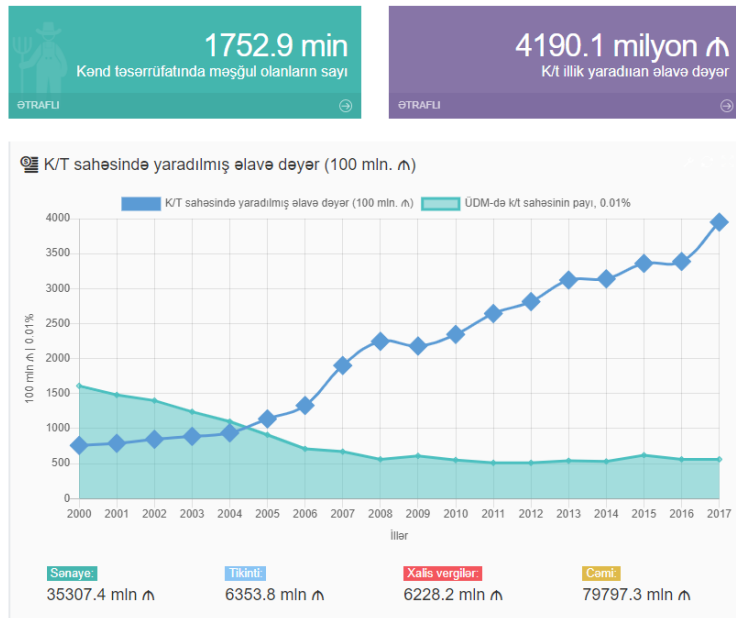
Improvements were made to the <http://agrodata.az/> portal created in order to obtain information related to the agrarian field from a single source, the user interface, structure and search system, as well as indicators on the agricultural field, were continued to be updated.

In addition to the general indicators of agriculture, the portal also includes indicators related to agricultural areas and production volume in individual fields by year and region.

Certain information is presented in a visualized form. Depending on the purpose of use and the user's goal, there is both a direct search and a search system with a multifunctional filter.

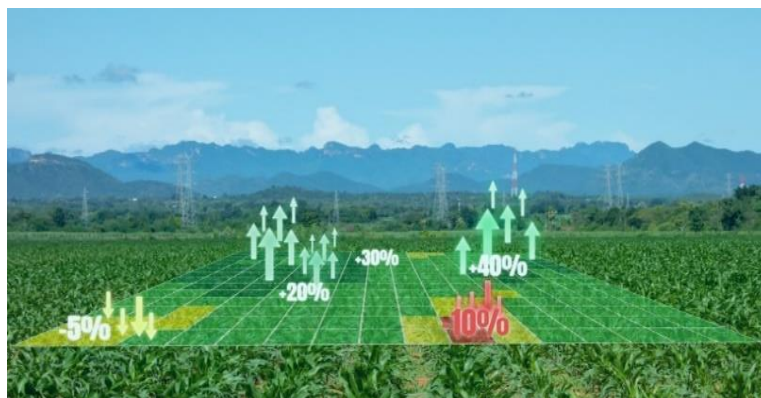
Various data loading functions have been added to the system in a selected form.

Work is ongoing to improve the portal as a single source that fully covers all statistical information and to ensure user comfort.



Farm Data Monitoring System (FDMS). Indicators characterizing the impact of the agricultural policy implemented in any country on the activities of agricultural producers are a system of important indicators for evaluating the efficiency of this policy.

Farm Data Monitoring System (*Farm Accountancy Data Network, FADN*) which is used at the level of the European Union, is an important data base for the Common Agricultural Policy (CAP) of the European Union and acts as a necessary tool for decision-making in this field.



FDMS was launched as part of a project of the Food and Agriculture Organization of the United Nations (FAO) in Azerbaijan for the first time in the Commonwealth of Independent States (CIS), Agricultural Research Center was designated as responsible executive body. Pilot surveys were conducted on farms in several regions as initial experience. Since 2015, FDMS data collection processes covering all regions of the country.

Sampling is based on the EAIS database in order to identify farms to be included in the FDMS survey. The farms in this database were divided into five strata according to the cultivated areas and the type of plants planted, and a stratified random sampling method was applied. The sample size in the sample is 1% of the number of subsidized farms. Thus, for the collection of data on FDMS, sampling is done among farms from all groups.

The specialists of the Agrarian Research Center were trained by international experts in order to further improve FDMS according to FADN standards within the framework of the Twinning project of the European Union, and the formed databases were evaluated.

Currently, there are reports covering the years 2015-2022 in the FDMS database of the Agricultural Research Center, which are widely used in conducting research and preparing analytical materials at the Center. Based on the results of 2023, 4000 farms were selected and surveyed based on the EAIS database in order to conduct surveys among farmers.

Along with the FDMS surveys, the Agricultural Research Center regularly conducts surveys on farmers' access to production resources and product market access, as well as conducting value chain analyzes across different sectors. In 2023, a selection plan covering 2,500 farmers was prepared on farmers who declared sowing based on the EAIS database taking into account all districts, sectors and the size of the sown area, surveys were conducted among the farmers involved in the selection, the collected data were analyzed and a final report was prepared. Moreover, a survey methodology for assessing farmers' access to finance was developed, a survey was conducted among 1,520 farmers, and a survey report was prepared.

In 2023, a survey was conducted among 1,515 wheat producers with up to 100 hectares of cultivated land, as well as all wheat producers with more than 100 hectares of cultivated land, regarding wheat productivity indicators, storage methods and directions of use, and a report was prepared.

Furthermore, a survey was conducted among 1447 farmers as part of the diagnostics of cattle breeding, 1595 as part of the diagnostics of sheep breeding, and 1250 as part of the diagnostics of the hazelnut industry.

It should be mentioned that all surveys in the Center were conducted using the technologies CATI (*Computer Telephone Surveys - Computer - Assisted Telephone Interviewing*) and CAPI (*Tablet System Survey - Computer - Assisted Personal Interviewing*).

“Azagroinvest.az” investment platform. The <https://azagroinvest.az/> portal, which is a significant online platform for investors who want to make long-term investments and obtain high returns, continued its activity, also in 2023. The purpose of the portal is to increase the awareness of entrepreneurs about investment opportunities in agribusiness fields. For this purpose, preliminary feasibility studies in agribusiness fields prepared by the Agricultural Research Center and its partners are regularly placed on the portal by the Center.



The portal consists of 3 sections – Investment Analysis, Field Reports and Investment Environment sections.

➤ **In the Investment Analysis section**, capital expenditures (CapEx) and operational expenditures (OpEx) for the production of agricultural products are calculated on 6 criteria including Net Present Value (NPV), Internal Rate of Return (IRR), Discounted Payback Period (PbP), Cost-Benefit Ratio (CBR), Sensitivity Analysis (SA) and Product Cost (PC). The final report is placed on the portal in PPT (Power Point) format.

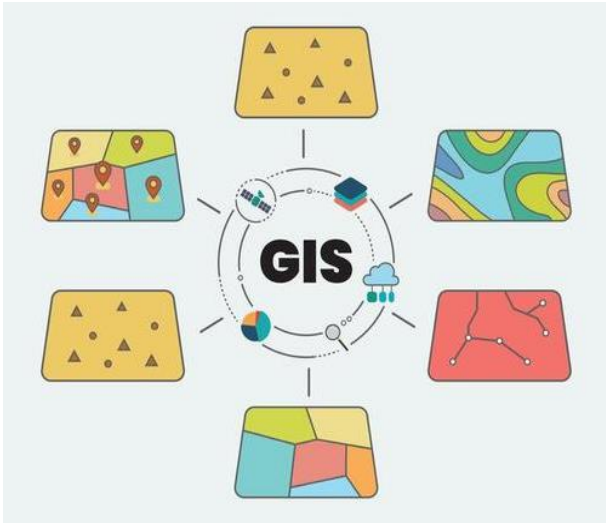
NPV, IRR, PbP, CBR, Sensitivity Analysis and Product Cost calculators have been added to the platform for the production of agricultural products to the platform.

The portal also features a visualized calculation panel with the outputs of investment efficiency for products, enabling the entrepreneur to visually evaluate the overall situation in the sector in which he or she wants to invest.

➤ Entrepreneurs are presented with information on the production of individual crop and livestock products **in the Field Reports section**. The references, which are available to download in PDF format, provide information on area, production, yield, price, import, export, and global (production, import, and export) indicators.

➤ The “Tax and customs regulations on production, processing and sale of agricultural products”, “Tax and customs regulations on supplies and services with agricultural machinery and equipment”, “Regulations on investment promotion” and “Regulations on state support in agriculture” are all included **in Investment Environment section**. The information on exemption from VAT on production, sale, import and export of agricultural products, services, means of production, relevant customs import duty concessions, relevant regulations in the direction of state support and temporary concessions on investment promotion is presented in detail in this section.

Geographical Database. Geographic Information Systems (GIS) is an information system that provides collection, processing, storage, transmission, cartographic and visual presentation of spatially coordinated information.



The “AgroGIS” geodatabase of the Ministry of Agriculture is managed by Agricultural Research Center. The structure of this database includes the results of photo interpretation on orthophoto maps for actual use of agricultural lands, as well as the land of other designated lands, category-changed lands, lands of economic and administrative regions, administrative-territorial units and municipalities, lands of subordinate bodies of the Ministry of Agriculture, buildings, spatial and non-spatial data on perennial plantings and greenhouses, all watersheds, as well as statistics of orthophoto maps and a digital model of relief and non-spatial data.

In 2023, the following works related to the Geographical Information database were carried out in the Center:

- On the basis of agro-climatic (soil, relief and climate) indicators, suitable areas for cultivation of pomegranate and hazelnut plants in Azerbaijan have been determined, relevant references have been prepared;
- Indicators for the work to be carried out within the framework of the "I state program on the Great Return to the liberated territories of the Republic of Azerbaijan" have been determined, taking into account these indicators, compliance for the cultivation of pomegranate, hazelnut, potato, persimmon, saffron, tobacco, wheat, apple, table beet, pear, plum, grape, garlic and autumnal cabbage plants on the liberated territories, moreover favorable, less favorable and unfavorable areas of cultivation of these crops were determined and their total area was calculated (**Figure 1; Figure 2**)

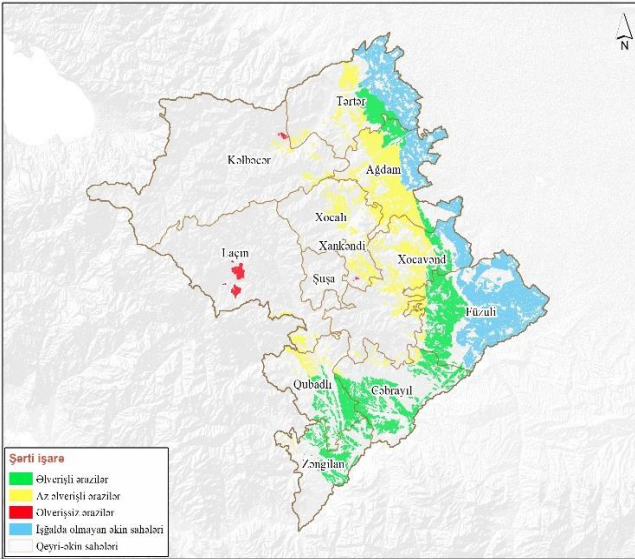


Figure 1. Compliance map for growing wheat on liberated territories

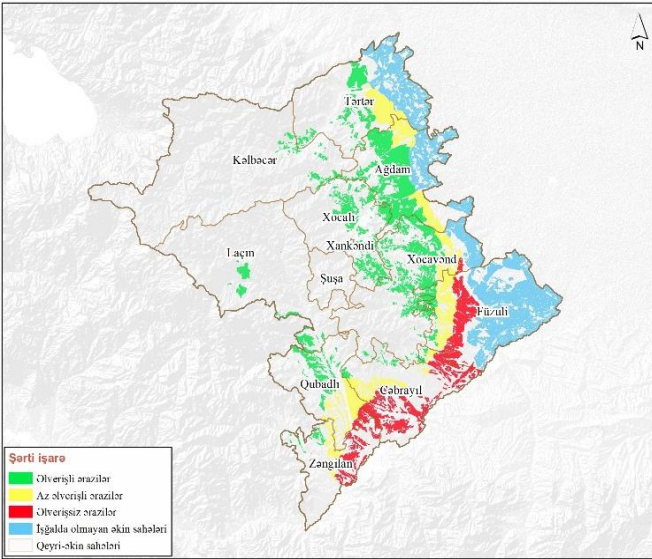


Figure 2. Compliance for the cultivation of pears on the liberated territories xəritəsi

- Based on climate data (maximum, minimum, average temperature and precipitation) covering 2018-2022, calculations were made for the administrative areas of the Nakhchivan Autonomous Republic;

- Hydrological data on the liberated territories were analyzed and evaluated for the creation of fish farms in the area on the basis of the GIS database of the Agricultural Research Center. The relief required for the construction of fish farms (incline model), temperature changes in the waters over the seasons, the level of security with light were determined, and data on the use of territories as arable land were checked. As a result, favorable, less favorable and unfavorable water basins for breeding cold-loving fish by creating a pool were determined and a map was prepared (Figure 3);

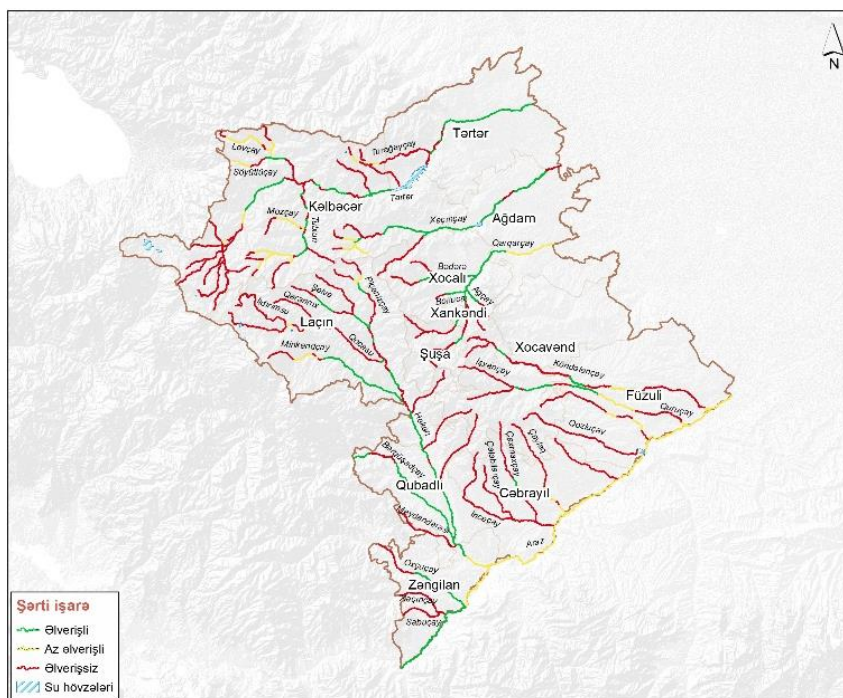


Figure 3. Compliance map for the creation of fish farms on the liberated territories

- The information on the work done by the Agricultural Research Center within the Action Plan of the “1 state program on the Great Return to the liberated territories of the Republic of Azerbaijan” was sent to the monitoring and accountability portal (<https://boyukqayidish.gov.az/>) has been sent to the relevant site for deployment, and the maps of specialization prepared on various agricultural products on the liberated territories have been integrated into the portal;
- In order to improve the GIS database of the center, indicators for 2021 were added to the climate base data, and data on soil and climatic conditions of plants were received from the relevant bodies subordinate to the Ministry of Agriculture and entered into the database;
- Based on agro-climatic indicators, compatibility maps for the cultivation of apple, potato and onion crops in Lerik region and apple, pear, sunflower and potato crops in Ivanovka village of Ismayilli region have been developed;
- Based on the survey of the Karabakh Revival Fund, analyzes were carried out taking into account the climatic relief, chemical (pH) and mechanical composition of the soil for growing trees in the territory of the Central Park, which is planned to be built in Fizuli, and an assessment report was prepared;
- The coordinates of migration farms to be allocated to farmers who applied for the resettlement of cattle and small ruminants to summer pastures of Kalbajar and Lachin districts were determined via satellite images.

Price Database of Agricultural Products. In 2015, the Ministry of Agriculture, together with the Food and Agriculture Organization of the United Nations (FAO), created an information portal on agricultural prices, which was subsequently updated by the Ministry of Agriculture and created as Electronic Price Information Portal on agriculture www.aqrarbazar.az.

The database collects prices of field sales, wholesale and retail sales of agricultural products. In 2023, changes were made in the structure of the price database, and an instruction was prepared according to the changes. The price collection process is adapted to the "Methodical Guidelines for the Management of the Electronic Price Information System (information resource) for Agriculture" approved in the new edition.

The Electronic Price Information Portal on agriculture also contains the following information:

- Supply prices of fruits and berries, vegetables, potatoes and melons by field sales, wholesale, retail and processing enterprises;
- Retail prices of livestock products (meat, milk, eggs, honey, fish), as well as wholesale prices for eggs;
- Prices of milk purchased by reception points;
- Retail prices of meat (beef, mutton and poultry) in live weight;
- Sale prices of wool and leather by population or slaughterhouses;
- Prices of cereals within seasonal sales and after seasonal wholesale;
- Prices of technical plants and other products purchased by processing enterprises for the purpose of industrial raw materials;
- Retail prices of production tools (forage, fertilizers, pesticides, breeding animals).

Wholesale and retail prices for all types or varieties of products are collected considering low, medium, and high levels by monitoring 5 days in a week in "Baku-Meyvali" wholesale and "Baku 8th km" and "Keshla market – Baku" (fish) retail markets, as well as one of the supermarkets. Sales prices from the field are collected weekly 2 times by learning directly from the producers by SADCs. Price information is entered into the database, and based on this information, operative information bulletins "on wholesale and retail price changes of agricultural products" are prepared daily.

2. Scientific Researches

Agricultural Research Center implements scientific justification for further improvement of agro policy in accordance with the requirements of current level of agricultural reforms of the country and global challenges.



- In 2023, scientific research activities were carried out on “Sustainable development problems of agriculture” and “Problems of improving the agribusiness environment” and scientific research was conducted based on 3 topics. The summary of the content of the research works carried out is given below.

Topic 1

Econometric assessment of factors affecting growth in the field of agricultural production (stage I)

Among these methods, the place and role of econometric modeling were determined, approaches to the selection of factors whose influence on growth in the agrarian sector on various econometric models were considered. A grouping of factors was carried out, for which an econometric assessment of the impact of agriculture on the main production indicators is advisable.

Taking into account the results of comparative assessments in the relevant direction, the approach to building a model that is expedient to use in modern conditions for assessing the growth rates on gross and basic products in agriculture of Azerbaijan has been determined.

At the same time, relevant models on econometric assessment of factors affecting growth in the agricultural sector of the country's economy in the field of production of general, as well as the main types of products were built and their adequacy was assessed. Based on the established models, a preliminary assessment of the effects of the main factors was carried out.

Research on the topic continues in 2024.

Topic 2

The study of the features of the development of the labor market in the field of agriculture in modern times (stage I)

The changes taking place on a global scale include the nature of both intra-industry processes in agriculture and the relationships and labor activity that are formed along the value (supply) chain of products due to various factors, including the acceleration of digital technologies and other processes. These processes have a significant impact on the intensity of labor in the agrarian sector, as well as employment.

In this direction, attention is increasing to the development of the labor market in the agrarian sector, especially in terms of improving the existing legislation and assessing employment in the conditions of a relatively high level of informal employment. Within the framework of this research work, conceptual approaches to the formation and development of the labor market in the field of agriculture were also analyzed. In particular, the factors determining the existing features and forms of employment in the agrarian sector in modern times have been disclosed.

At the same time, methodologies for assessing the size of the labor market and the necessary needs for labor resources in the agrarian sector were investigated. In this direction, relevant assessments were made on the role of automation of agricultural production processes and digital transformation in agrarian employment, the economic importance of concentration of production in this sector of the economy, global trends in the development of the labor market in agriculture in modern conditions and international challenges.

Within the framework of the investigations, proposals on improving the regulation of labor relations with seasonal (temporary) workers working in the agricultural sector in the direction of preventing informal employment in the country were prepared and submitted to the government.

Research on the topic continues in 2024.

Topic 3

Improvement of price policy for agricultural products (stage I)

In the course of the study, existing approaches to the formation of prices for agricultural products and the identification of the main factors affecting the level of prices were investigated.

Within the framework of the implementation of anti-inflationary measures in Azerbaijan, the level of change in price indicators of agricultural products under the influence of global trends was determined, producer and consumer price differences were assessed, proposals were prepared and submitted to the government to improve the conditions of access of agricultural producers to the market in order to achieve stabilization of prices.

Research on the topic continues in 2024.

3. Diagnostics and Analysis

Agricultural Research Center analyzes current trends and conjuncture changes in agriculture, identifies factors affecting the current situation, predicts scenarios and makes recommendations for decision making when it is necessary.




Generally, analyzes, diagnostics and forecasting in the following directions were implemented for this purpose:

- The growth rate of the total aggregate product and value added in agriculture;
- Indicators of food self-sufficiency and import dependence;
- The conjuncture of the domestic and world market, price changes, market access and risks for agricultural products;
- Factors affecting productivity in agricultural sector;
- Economic efficiency of agricultural producers;
- Analysis of the value chain of agriculture and development of production capacity in various sectors;
- Investment needs for sustainable development of agricultural sector and food security;
- Providing farmers with production means, access to financial services and infrastructure;
- The effectiveness of regulatory events and state support in agricultural sector;
- Employment rates in agricultural sector (paid and unpaid labor, age groups, gender, migration, education indicators, etc.);
- Diagnosis of rural development.

✚ In 2023, the following analyses were carried out at the Center, moreover reports and feasibility studies were prepared, recommendations were given:

- ✓ Preparation of reference, booklet and infographics on the work done in the field of agriculture in Azerbaijan in 2003-2023;
- ✓ Preparation of references on the dynamics of development in the field of agriculture in Azerbaijan, including grain growing, cotton growing, fruit growing and vegetable growing, animal husbandry for a 20-year period, reforms carried out by the state in the agrarian sector and achievements in this field;
- ✓ Preparation of data on actual indicators of the agricultural sector for 2022 and forecast for 2023-2027;
- ✓ Preparation of reference and presentation on world experience on agrarian subsidy;
- ✓ Preparation of presentations on "The place of member states of the organization of Turkic states in the global economy and agriculture, dynamics of agricultural development and integration opportunities in member countries" ;
- ✓ Preparation of a justification for the minimum threshold indicator determined on the division of arable land;
- ✓ Preparation of economic justification for VAT exemption for production and sale of organic fertilizers;
- ✓ To make an assessment of the current state of the Ivanovka village - Nikitin collective farm, prepare preliminary proposals on development directions, make calculations on investment in accordance with the development potential;
- ✓ Development of an economic rationale for the proposal to reduce the amount of state support provided for the preferential sale of purebred animals imported from European countries and bred by local farms from 60% to 50%/40%;
- ✓ To make an assessment on the establishment of the appropriate technical infrastructure to build capacity for embryo transfer work in cattle breeding;
- ✓ Preparation of economic and financial justification of tax benefits in order to amend the "List of irrigation and other facilities, machines, equipment and equipment, as well as their spare parts for agricultural purposes exempted from VAT";
- ✓ Preparation of the financial and economic rationale for the proposal to improve the tax regulation on dairy farming;
- ✓ Preparation of report on hazelnut value chain diagnostics;
- ✓ Preparation of Nar value chain diagnostics report;
- ✓ Preparation of report on diagnosis of cocoon value chain;
- ✓ Preparation of report on tobacco value chain diagnostics;
- ✓ Preparation of the report on diagnostics of cattle breeding;
- ✓ Preparation of a report on the diagnosis of sheep breeding;
- ✓ Preparation of reports on agro-diagnostics of regions, including those included in the Nakhchivan Autonomous Republic and updating them taking into account the indicators of 2022;
- ✓ Preparation of references on the volume of food wheat reserves, determination of the cost of food wheat and state supply prices for 2023;

- ✓ Preparation of a reference on the world experience of farmers' access to loans;
- ✓ Preparation of a reference on the current situation and expectations in the global wheat market;
- ✓ Preparation of a report on the assessment of the potential for the development of beekeeping and areas suitable for the establishment of orchards in newly controlled areas;
- ✓ Calculation of technical and economic efficiency on each of the methods of production of potatoes in organic and covered conditions;
- ✓ Preparation of a preliminary feasibility study on potato seed production with in vitro technology;
- ✓ Preparation of Preliminary Feasibility Study on rice planting in 10 hectares in Lankaran and Agdash regions;
- ✓ Preparation of feasibility study of 1 hectare tea plantation in Lankaran-Astara economic region;
- ✓ Preparation of Preliminary Feasibility Study of 1 hectare cotton plantation;
- ✓ Calculation of financial efficiency indicators of cocoon production based on the construction of intensive weight Gardens in 5, 50 and 500 ha and the construction of a modern cluster;
- ✓ Preparation of Preliminary Feasibility Study of traditional, semi-intensive and intensive Pomegranate Orchard;
- ✓ Preparation of Preliminary Feasibility Study for 1100 hectares of wheat;
- ✓ Development of a preliminary feasibility study for 50 hectares of intensive apple orchard;
- ✓ Development of a preliminary feasibility study for growing bananas in a greenhouse;
- ✓ Development of a report on the assessment of economic efficiency indicators of the "Smart Village" public farm model and the amount of government support needed;
- ✓ The evaluation of the economic efficiency indicators of the semi-intensive sheep farm model in the liberated territories;
- ✓ the National Academy of Sciences azagroinvest.az preparation of preliminary feasibility studies on agribusiness areas for the portal;
- ✓ Preparation of Preliminary Feasibility Study on the organization of Absheron Agroinnovation Park;
- ✓ Study of world experience in connecting Pivot irrigation equipment to electricity, preparation of report on efficiency of pivot irrigation equipment on the basis of traditional and alternative sources of energy;
- ✓ The study of the Hungarian experience on the stimulation of the poultry industry and the preparation of the report;
- ✓ To conduct research on the production of potash fertilizer and prepare a report on the organization of potash fertilizer production in Azerbaijan.

 **In general, the Center has prepared or updated about 280 reports, references, information, reviews, proposals reflecting relevant indicators on various sub-sectors of Agriculture (arable land, production volume, productivity, import-export, as well as world production and trade indicators), and answered requests.**

4. Monitoring and Evaluation

Agricultural Research Center implements monitoring and evaluation of the results of agricultural policy based on the methods used in international practice.

In accordance with the Mission of the Center, the strategic goals for sustainable development of agriculture, food security and rural development, the effectiveness of state support policy for agriculture, the impact of agricultural policy on the economic activity of agricultural producers, the implementation of state programs on agricultural policy and the effectiveness of the services provided by the agencies included in the structure of the Ministry of Agriculture is monitored and evaluated.



Monitoring and evaluation on the following areas were carried out in 2023 according to the Action Plan of the Center:

- Conducting surveys within the framework of the Farm Data Monitoring System was continued;
- Surveys were conducted within the framework of monitoring of farmers' access to the market and supply of production resources;
- Surveys were conducted among small and medium farmers, processors and traders within the framework of diagnostic analysis on value chain;
- Reports on the implementation of the following state programs on agriculture adopted in 2023, as well as on the National Action Plan and other strategic policy documents have been prepared:

- ✓ Preparation of reports on the implementation of the measures provided by the “Socio-economic development strategy of the Republic of Azerbaijan in 2022-2026” during 2022 year;
 - ✓ Determination of mission, strategic vision, objectives, priority directions and goals in the agrarian sector;
 - ✓ Preparation of the project “State program for the development of production and processing of agricultural products in the Republic of Azerbaijan in 2024-2030” ;
 - ✓ Preparation of “Immediate Impact Plan: potential aspiration and levers” presentation together with “Mckinsey” international consulting company;
 - ✓ Preparation of proposals on equestrian strategy project;
 - ✓ “Inflation and price monitoring” analysis and assessment on the issues discussed at the meeting of the Working Group, preparation of relevant references;
 - ✓ According to the information on the work carried out by Agricultural Research Center for the implementation of state programs on the development of cocooning and sericulture in Azerbaijan (2018-2025), tea growing (2018-2027), citrus growing (2018-2025), rice growing (2018-2025) and agricultural cooperation (2017-2022) in 2022 submission;
 - ✓ Preparation of data for monitoring the implementation status of “State program on the development of cotton growing in the Republic of Azerbaijan for 2017-2022” in the manner of state control;
 - ✓ Determination of target indicators on the result indicators of the measures envisaged in the “I state program on the Great Return to the liberated territories of the Republic of Azerbaijan”, preparation and review of data on the work carried out on the measures carried out by Agricultural Research Center for 2023 for reporting;
 - ✓ Submission of proposals for the preparation of a detailed action plan on the implementation of the “State program on the socio-economic development of the Nakhchivan Autonomous Republic for 2023-2027”, preparation of the implementation plan of the measures determined for the Agricultural Research Center; implementation of measures related to the diagnostics of the current state and development opportunities of plant growing and livestock;
 - ✓ “State program on the development of aquaculture in the Republic of Azerbaijan in 2022-2026”;
 - ✓ Preparation of a report on cooperation with the Organization of Islamic Cooperation on food security and development of agriculture in Azerbaijan;
 - ✓ Presentation of information on the work done by the Ministry of Agriculture on the implementation of the Action Plan of the Azerbaijani side for 2022 by the joint commissions on cooperation between the Republic of Azerbaijan and a number of foreign countries;
 - ✓ Providing national reports and agricultural data on the implementation of the Vienna Action Programme at the national level for the UN Landlocked Developing Countries (LLDC).
- ✚ **In addition, it was participated in the discussions on the preparation of 110 bill, national action plan, state program, strategy document, report, reporting project, reference and etc. document, comments were given, feedback and suggestions were made.**

5. Doctoral Education

The Agricultural Research Center has an educational program for the training of highly qualified personnel on agricultural economics and agrarian policy issues. The basis of the policy on this program is the preparation of research specialists with high knowledge, study of modern research methods and their application in local conditions, and flexibility, and the ability to solve the set problems.

The Center carries out doctoral and post-doctoral programs in agricultural economics and trains highly qualified personnel in these programs.

Programs are conducted in full-time and part-time forms. During the preparatory process the topic of dissertation is determined, appropriate guidelines and methodological support are provided to doctoral students, regular discussions are held, and their activities are evaluated.



- In 2023, 2 people were admitted to the doctorate of Doctor of Philosophy program, 1 people to the doctorate of the Doctor of Science program at the Center.
- Totally, in 2023, 14 people in the doctoral program of the Doctor of Philosophy program, 10 people in the dissertation program, and 13 people in the doctoral program of the Doctor of Sciences program have been received highly qualified personnel training at the Center, and each of them is carrying out scientific research work on the approved topic.
- In 2023, preliminary documentation of those admitted to doctoral and dissertation studies at the Center was organized, dissertation topics and scientific supervisors were determined and reviewed by the Scientific Council, and submitted to the Problem Council on Public Sciences of the Scientific Research Coordinating Council for approval.
- In 2023, 1 doctoral students on the Center's Doctor of Science program, 2 doctoral students on the Doctor of Philosophy program, and dissertation students defended their dissertations. 1 person completed their dissertation work on the Doctor of Science program, 7 people completed their dissertation work on the Doctor of Philosophy program, and were submitted to the preliminary discussion for defense.
- In 2023, an employee of the Center successfully defended his dissertation on “Improving the mechanism of financing exporter farms” and was awarded the title of Doctor of philosophy in economics.
- During 2023, 29 scientific articles (11 of them abroad, 3 articles in the Scopus database, 6 impact-factor articles), 24 theses (8 abroad), some newspaper articles were published by the Center's employees, doctoral students and dissertation students.
- For the year 2024, the admission plan for doctoral studies and dissertation studies of the Center for Sciences and Doctor of Philosophy programs was prepared and submitted accordingly.
- In 2023, the works defended by the employees of the Center with a scientific degree were defended, opinions were given to dissertations and abstracts. Including, 2 employees of the Center were members of various dissertation councils.

6. Publications. International Cooperation. Public relations

Publications. In 2023, a book entitled as **“The Role of National Leader Heydar Aliyev in the development of the agrarian sector in Azerbaijan”** was prepared and published at the Agricultural Research Center in accordance with the work plan approved by the order of the Ministry of Agriculture on the implementation of **“Action plan to declare 2023 as the year of Heydar Aliyev in the Republic of Azerbaijan”**. The presentation ceremony of the book was held and distribution to government agencies and educational institutions was organized.

The book consists of 3 sections. Section 1 is called **“Agriculture in the first period of Heydar Aliyev's leadership in Azerbaijan: access to the path of revival and rapid development”**. This section reflects in detail the work done in the first period of the leadership of the national leader in Azerbaijan on identifying and implementing the political line that created a turnaround in the field of agriculture, strengthening resource supply and development of infrastructures, development of clusters, as well as the development of rural areas and improvement of Rural well-being.

Section 2 is called **“Implementation of fundamental agrarian reforms under the leadership of Heydar Aliyev in independent Azerbaijan”**. This section provides detailed information on the initiatives put forward by Heydar Aliyev in the field of implementation of agrarian reforms in the conditions of state independence, the formation of the concept of agrarian reforms, the preparation of the legislative base of agrarian reforms and the transfer of land to private ownership, the work done to ensure the sustainability of agrarian reforms.

Section 3 is called **“Realization of Heydar Aliyev's ideas in the direction of strengthening the Sustainable Development grounds of the agrarian sector”**. This section deals with the formation of agricultural practice based on private property and Agrarian Policy mechanisms based on the principles of market economy in the country, as well as the successful implementation of reforms related to the development of the agrarian sector in the framework of purposeful economic policy implemented under the leadership of the president of the Republic of Azerbaijan, also, the dynamics of the development of the agrarian sector in independent Azerbaijan is analyzed, the main directions of the sustainable development strategy implemented in accordance with modern challenges are shown.

The book is intended for agricultural specialists, students and research workers, as well as people interested in this field.

To purchase or familiarize yourself with the electronic version of the book, follow this link:

<https://bit.ly/3UqyYVp>



In 2023, the scientific-practical journal entitled “Agricultural Economics” (Azerbaijani journal of Agricultural Economics) continued to be published once every quarter. Scientific articles have been published in the journal in 3 languages (Azerbaijani, English, Russian), and the articles have also been posted on the journal's website <https://agroeconomics.az/en/> and included in the "Google Scholar" search system of scientific publications.



In 2023, the indexing of the journal "Agricultural Economics" in the international bibliographic databases of scientific publications continued. Currently, the journal is indexed in 4 international bibliographic databases, and all the articles of each issue were included in these databases as a whole and individually.



A [Monthly Information Bulletin](#) reflecting the main statistical indicators related to agriculture and a [Monthly Short Review](#) (English and Azerbaijani languages) concerning the world market conjuncture on agriculture and food products were prepared by the Center. Electronic versions of the Bulletin and Review are sent to influential international organizations, embassies, as well as local financial and business organizations operating in Azerbaijan.

International Cooperation. Preparations for the conference "Climate change and agriculture forecasting" planned to be held in Baku in 2024 by the Agricultural Research Center continued, and articles and abstracts were accepted. The website of the conference (<https://agroprojectionsconference.az/en/>) has also been developed.

The purpose of organizing the conference is to exchange knowledge and experiences related to modeling and forecasting methods applied in the field of agriculture in developed countries with other countries of the world, to increase accessibility to research works and analysis tools in this field, as well as to create a platform that serves to expand international and regional cooperation in the field of scientific research.

Public relations. In 2023, a number of works in the field of public relations were carried out in the Center, including:

- ✓ 438 articles in two languages (Azerbaijani and English) were published on <https://atm.gov.az/> website about the activities of the Ministry of Agriculture and the Center;
- ✓ On the <https://www.facebook.com/atm.gov.az> social network account, the work done in the country's agrarian field, the achievements, the promotion of the state policy in this field, the activities of the Ministry and its subordinate institutions including the Center (in Azerbaijani and English languages)) 806 posts were shared;
- ✓ Employees and specialists of the Center, including the leadership gave more than 100 interviews and statements on various fields of agriculture, implemented work, upcoming tasks in the periodical press, especially on television and radio;
- ✓ Dozens of citizens' appeals regarding state support measures and import-export issues have been answered.

7. Strengthening of institutional capacity

In 2023, a number of works were carried out within the framework of organizational measures and strengthening the institutional capacity of the Agricultural Research Center. Capacity-building measures related to research, analytics, forecasting, planning, monitoring and evaluation activities, as well as software enhancement for econometric modeling, statistical analysis and databases, were continued during the year.



- In order to improve the knowledge and skills of the employees, participation in trainings and seminars organized by various international and local organizations throughout the year is ensured. In 2023, the employees of the Center participated in about 55 trainings, seminars and video conferences.
- 4 employees participated in the seminar on “Green economy and Environmental Protection” held in Beijing, the capital of the people's Republic of China on May 8-29, 6

employees participated in the training program on “Korean experience in Rural Development” organized by The Korea International Cooperation Agency (KOICA) in Seoul, South Korea on July 16-29, 2 employees participated on August 16 - September 5, in the training program on “Construction of a communication network in rural areas for developing countries” organized in Wuhan, people's Republic of China, 1 employee participated in the training seminar on “Mitigating the consequences of climate changes and land degradation to ensure food security” organized in Dushanbe, the capital of the Republic of Tajikistan, on October 9-13, 2 people took part in the training organized in



Changsha city of the Republic of China on the topic of "Establishment of value-added processing and logistics system of farm products" on October 11 - November 1, 3 people participated in the training on “Development of rural areas and financing of inclusive agriculture” organized on December 2-16 in Laknau, Republic of India, 1 person participated in the training program within the framework of European Union project on “Support to the development of competitive areas in the regions (viticulture, large grain and Seed Farms)” in Izmir, Turkey on November 20-24 and received certificates.

- An employee of the Center successfully passed the admission process at the Italian-Azerbaijani University established under ADA University and was admitted to the doctoral program on “Agriculture, Environment, Food Science and technology” at the University of Bologna, one of the oldest and most prestigious educational institutions in the world. Within the next 3 years, our employee will carry out research work on the topic “The impact of global climate change on agricultural crops” in the specialty “agricultural engineering”. The aim of the research work is to predict the impact of climate changes on agricultural crops. Such research is planned to be carried out both in Italy and in Azerbaijan. Geographic Information Systems (GIS) and remote sensing technology will be used to conduct the study.

This issue is a priority research topic in Azerbaijan, as in the whole world. Relevant work has been started in the Center for Agrarian Research in this area. The scientific-research plan of the center included the topic “assessment and forecasting of the impact of climate changes on agriculture”, the existing approaches to the study of the impact of

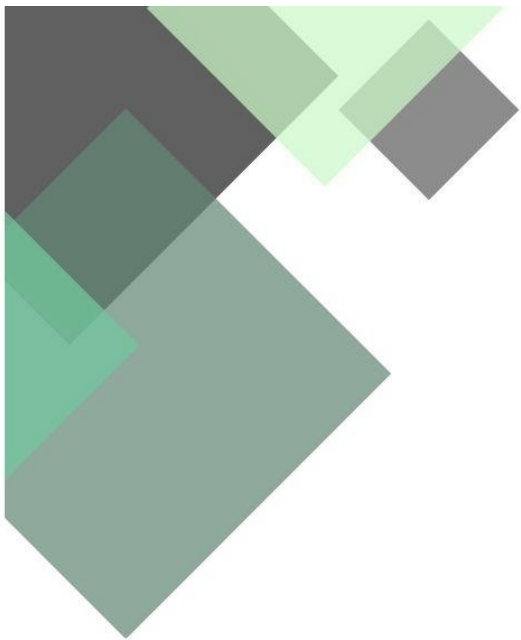
climate changes on agriculture were analyzed, the international experience of assessing and predicting this effect on the basis of agroecological, Ricardian, Panel-stable effect, integrated assessment and machine learning models was investigated. Also, methods for assessing the effects on agriculture of climatic indicators such as the amount, intensity of precipitation, temperature and thermal stress were studied. Necessary activities are underway to form a database on temperature, precipitation and other necessary indicators. The academic education, scientific knowledge and experience that our employee will receive in Italy will create new opportunities for the continuation of this work.

- One employee of the center won the Fulbright Program (Fulbright Program) Scholarship for an internship in the United States on agricultural forecasting. Within the framework of this program, he will conduct research at Purdue University in the United States for 9 months.

Our employee also received a certificate of achievement in conducting global trade analysis – GTAP model and model simulations. The GTAP (Global Trade Analysis Project) model is a computable general Equilibrium model that allows assessing the impact of policy decisions on the economy as a whole, including the agricultural sector. With the introduction of this model, changes in import duties applied to agricultural products, the introduction of new types of Agrarian subsidies or low-interest loans, the establishment of taxes and new technical standards, the introduction of quotas related to carbon emissions, etc. the results of such measures are based on macroeconomic indicators (GDP, employment, self-sufficiency, etc.) effects are predictable.

At present, the Agricultural Research Center has gained initial experience in conducting research based on the AGMEMOD forecasting model. The application of the GTAP model also allows further strengthening the scientific foundations of decisions on Agrarian Policy.





Contact:



(+994 12) 599-08-88



<https://atm.gov.az/en>



<https://agroeconomics.az/en>



info@atm.gov.az



Suleyman Vezirov street, 91

AZ1025 Baku, Azerbaijan



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