



**AGRICULTURAL RESEARCH
CENTER**

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

AGRICULTURAL RESEARCH CENTER

== ANNUAL REPORT ==

FOR 2022

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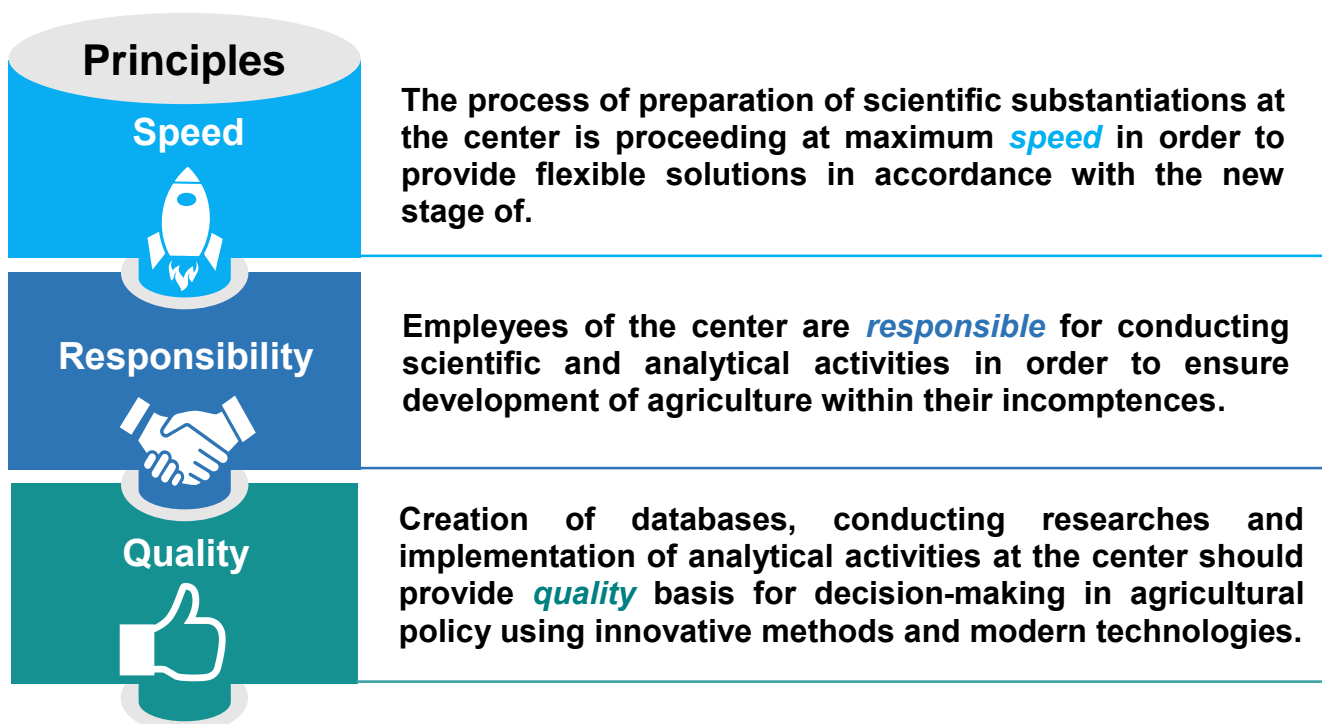
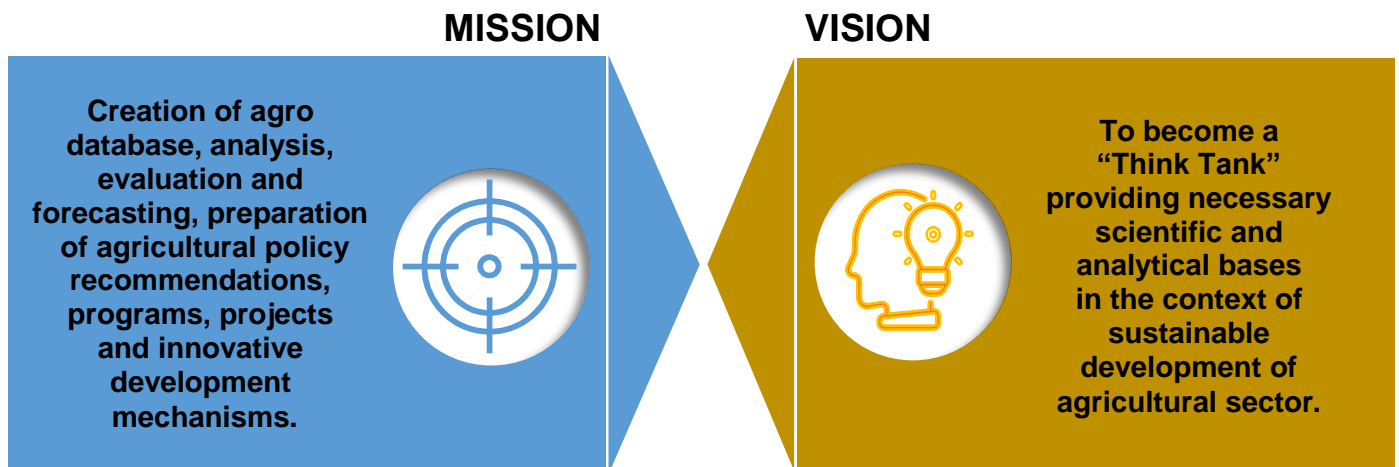
Introduction

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.

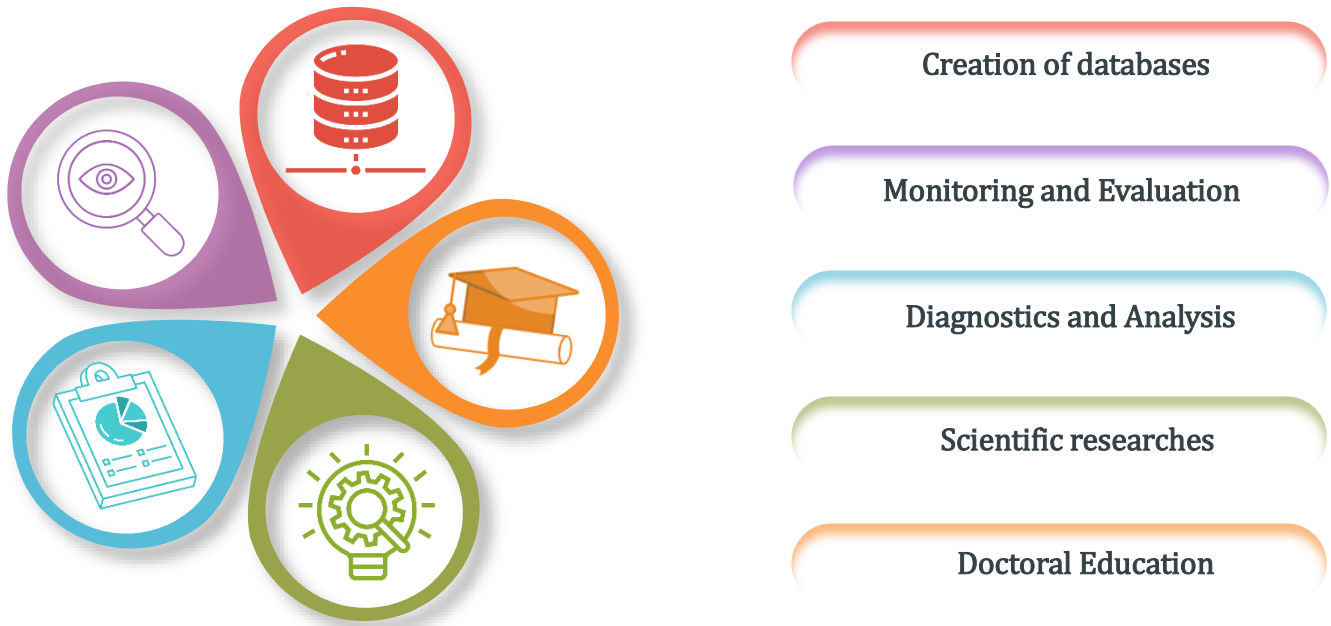
Currently, the creation process of the Agricultural Research Center continues based on a *new mission, new principles of affairs, new positions, innovative methods, and modern technologies.*



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 2022 and the Center's activities were organized by that Plan.

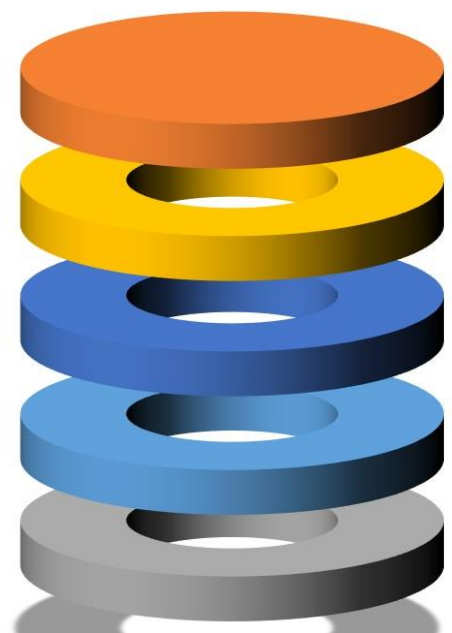
In general, the Center's activities are grouped under 5 directions:



1. Creation of databases

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

- Electronical Agricultural Information System
- Agricultural Statistics Search System
- Farm Data Monitoring System
- Price Database of Agricultural Products
- Geographical Database



Electronical Agricultural Information System (EAIS) - is a unique system which includes basic principles of the Ministry of Agriculture (proximity to farmers, transparent and effective management, and application of innovations), provides integration with internal and external systems, and creation of a wide range database for agricultural sector.



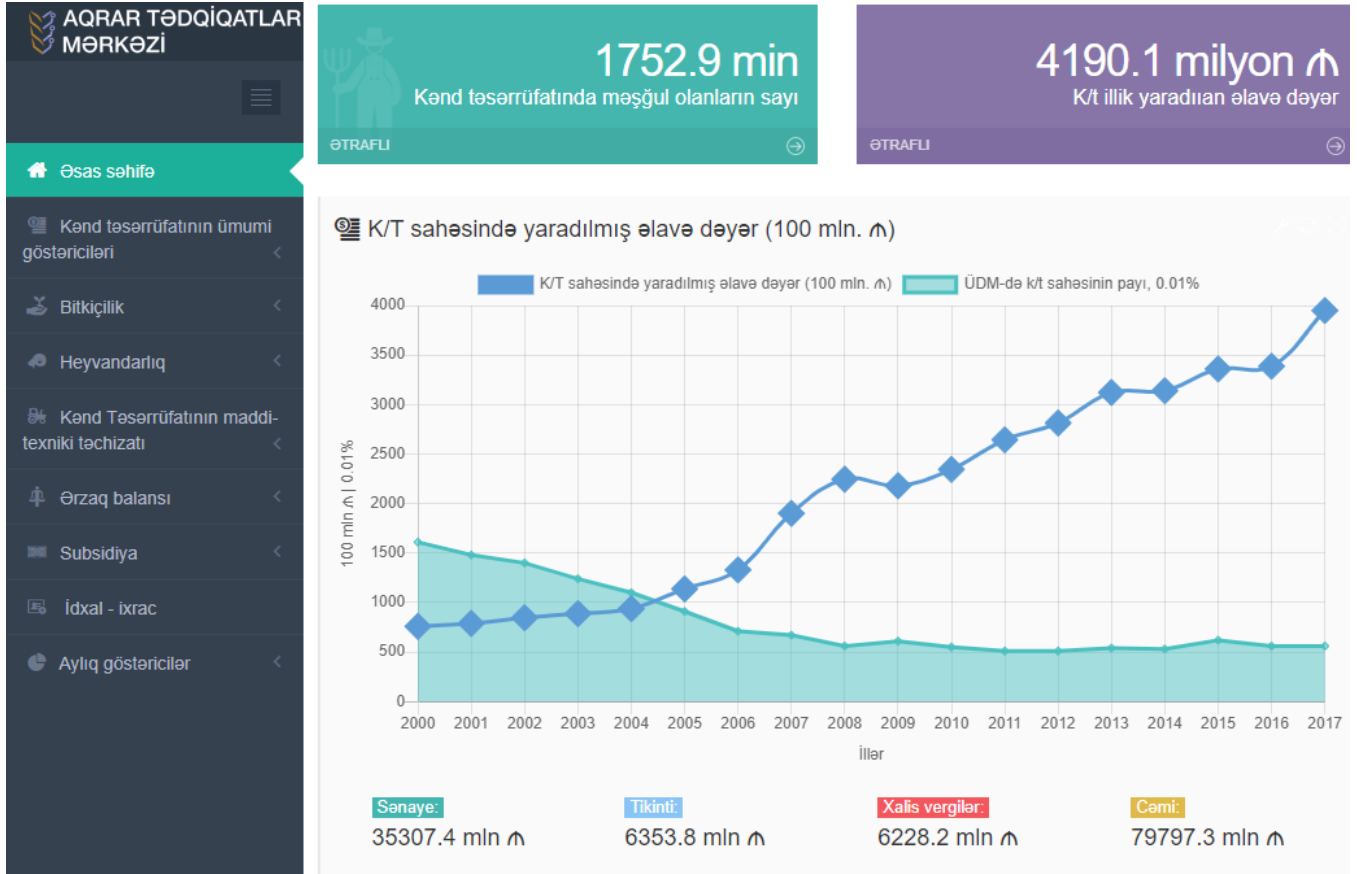
EAIS is a transparent and operational management tool, which primarily includes the development of modules covering business processes related to all phases of government support measures for agricultural producers. By the end of 2022, approximately 632,000 subjects, including farmers, suppliers, and service providers, were registered in the EAIS database.

In 2022, the improvement of EAIS was continued and the following works were implemented:

- An Electronic Accountability System was developed to ensure access to relevant reports of the EAIS database by ministries and institutions.
- GIS reporting has been improved and technical support for satellite monitoring has been continued;
- In 2022 as well, the provision of subsidies in the field of crop and animal husbandry was carried out without exception through EAIS;
- The “Sowing declaration” module, the “Repeat sowing” sub-module have been improved, crops have been declared by 394.2 thousand farmers on 1.37 million hectares of land for the 2021-2022 harvest year. Moreover, 818 seeds, 664 fertilizers, 184 cocoon suppliers, 19 tobacco, 17 cotton, 1 sugar beet, 2 cocoon suppliers, 9753 cummers (11164 clumps) and 29486 beekeepers have been registered in EAIS at present;
- During 2022, the EAIS has developed a sub-module that enables the registration of cold storage facilities, greenhouses and grain elevators, as well as the collection of data on the state of use and product balances for related products, and the acquisition of monthly reporting. In particular, instructions were prepared and trainings were held on the use of the system and data entry. As a result, 77 units of elevators, 51 units of cold storage and 532 units of greenhouse subjects were registered at EAIS.

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

The development of reports covering agricultural statistics, as well as operational data on agricultural production, import and export of agricultural and food products, statistical data on subsidies gathering from different sources on logistics in the field of agriculture was continued by the Agricultural Research Center in 2022.



In addition to agricultural statistical data, the databases on subsidies and other state support data, as well as the data collection, structuring, and preparation of visual reports on the activities of the Ministry of Agriculture and subordinate agencies, the distribution of the processed data to the [AgroData statistic portal](#) was continued.

Improvements were made to the <http://agrodata.az/> portal, which was created in order to obtain information related to the agricultural sector from a single source, the user interface was updated, and the indicators for the agricultural sector were continued to be updated.

In addition to the general indicators of agriculture, the portal also includes indicators related to cultivated areas and production volume in individual fields by years and regions.

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

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 2015-2021 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 2022, 3500 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 2022, a selection plan covering 2500 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 using the technologies CATI (*Computer Telephone Surveys - Computer - Assisted Telephone Interviewing*) and CAPI (*Tablet System Survey - Computer - Assisted Personal Interviewing*), the collected data were analyzed and the final report was prepared among the farmers involved in the selection.

In 2022, a survey was conducted among all wheat producers with a sown area of up to 50 hectares, as well as with a sown area of more than 2500 hectares on the yield indicators, storage methods and directions of use of wheat, and a report was prepared.

In addition, surveys were conducted among more than 1500 producers, processors, traders and exporters in order to diagnose the sunflower and pomegranate value chain.

“Azagroinvest.az” investment platform. In 2022, the <https://azagroinvest.az/> portal was developed for investors who want to make long-term investments and get high income within the framework of the cooperation of the Agricultural Economics Research Center with the USAID Private Sector Development project. The purpose of creating the “azagroinvest.az” portal is to increase the awareness of entrepreneurs about investment opportunities in agribusiness fields. For this purpose, it is planned to place the initial feasibility analysis prepared by the Agricultural Economics Research Center and its partners in the agribusiness fields on the portal.

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

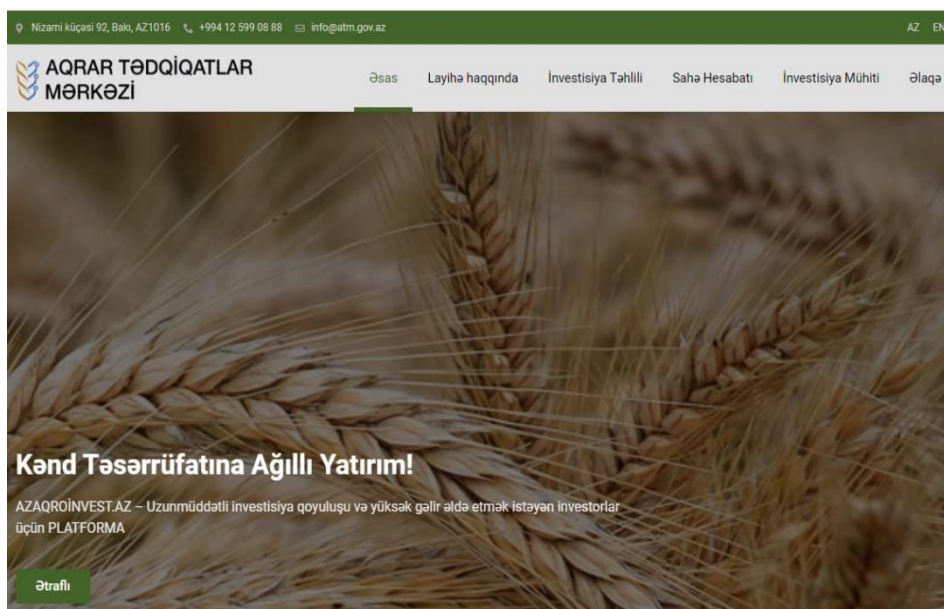
criteria including Net Present Value (NPV), Internal Rate of Return (IRR), Discounted Payback Period (PbP), Cost-Benefit Ratio (CBR), Sensitivity Analysis (SA) and Product Cost (PC). The final report is placed on the portal in PPT (Power Point) format.

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.

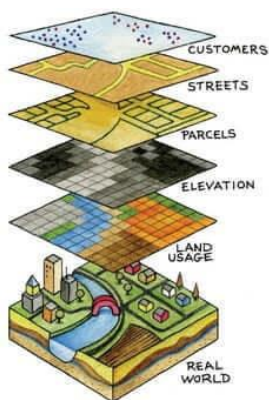
➤ Entrepreneurs are presented with information on the production of individual crop and livestock products ***in the Field Reports section***. The references, which are available to download in PDF format, provide information on area, production, yield, price, import, export, and global (production, 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 Economics Research Center. The “AgroGIS” geodatabase of the Ministry of Agriculture is managed by Agricultural Economics Research Center. The structure of this database includes



GIS

geographic information system

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 2022, 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 saffron, sunflower and pomegranate plants in Azerbaijan have been determined, relevant references have been prepared (**Figure 1; Figure 2.**) In addition, a compatibility map of the hazelnut plant for Agsu district was compiled;
- In terms of agro-climatic indicators, the grain-growing areas of Azerbaijan were compared with the corresponding areas of other countries (Russia, USA, France) and a corresponding reference was prepared. For this purpose, monthly climate data of those areas for 2017-2021 were collected, and annual data on average temperature, humidity and precipitation parameters were obtained by calculating average monthly indicators based on this data. In addition to these parameters, the elevation indicators of those areas were calculated based on the Digital Elevation Model of the Area (DEM - Digital Elevation Model);

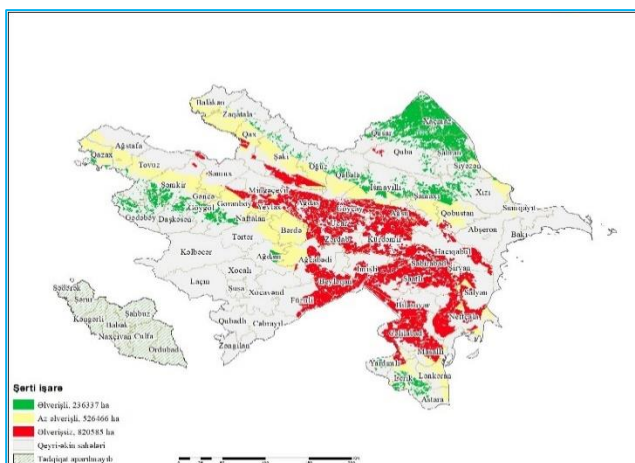


Figure 1. Map of suitability for sunflower cultivation by country

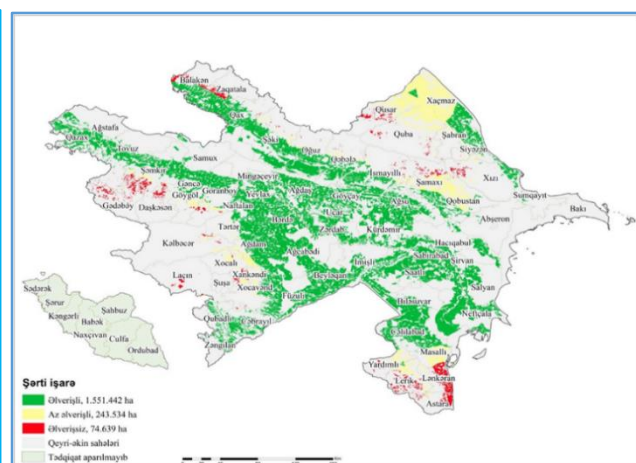


Figure 2. Suitability map for pomegranate cultivation by country

- Based on the results of soil analysis, soil map information has been updated, and soil maps for various purposes have been prepared. Studies have been conducted in the direction of developing a model of the specialization context that is partially optimized for small or small areas, and relevant work has been done within this framework;
- On the basis of the given coordinates, climatic indicators (minimum, maximum and average temperature, precipitation) were calculated for agricultural fields in the territory of Samukh district. Also, based on satellite images, water sources for irrigating agricultural fields were determined, and an elevation map was drawn up;
- A climate database was prepared by extracting the generalized precipitation, humidity, maximum and minimum temperature indicators covering the years of 1990-2018 on the territory of the republic using satellite images through the ArcGIS software. Moreover, basic climate data for the years 2000-2020 have been formed for small areas;
- Based on the request of the Agrarian Insurance Fund, the validity of the data on the insured farmland provided by the farmers was checked with the data of the Geographical Database;
- Within the framework of the Support to Development of a Business Information System (RBIS) project, a visual inspection of the sown areas in the Guba-Khachmaz region was carried out in order to estimate the productivity of plants and develop a productivity model, and the results were compared with the NDVI (Normalized Vegetation Index) analysis of satellite images. Data for visualization of cultivated fields has been entered into the "TerriaJS" portal, its continuous updating is being carried out.



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.



Field sales, wholesale and retail prices of all agricultural products are collected in the database. From 2022, fish, has been added to the portal as a new product, the list of varieties of fruit and vegetable products has been expanded.

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 State Agricultural Development Centers. 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 2022, scientific research activities were carried out on “Sustainable development problems of agriculture” and “Problems of improving the agribusiness environment” and scientific research was conducted on 5 topics. The summary of the content of the research works carried out is given below.

Topic 1

“Assessment and forecasting of the impact of climate changes on agriculture”

The assessment and forecasting practices of the impact of climate changes on agriculture on agroecological and agroeconomic models, Raicardian model, Panel-stable effect model, Production Function model, integrated assessment models and more recently applied machine learning models were investigated within the framework of the study, considering the conditions of Azerbaijan, test estimates of the impact of the corresponding changes were carried out on the models based on indicators such as precipitation amount, intensity, carbon dioxide, temperature and thermal stress. At the same time, the requirements for the database for reliable assessment of the impact of climate changes on agriculture were clarified, the application of the ARDL model was considered expedient in order to assess and predict the impact of climate changes on the overall indicator of agricultural production based on the existing database, and preliminary tests were carried out on this model.

Topic 2

“Improving the competitive environment in the agricultural products market”

Within the framework of the research work, methodological approaches to the assessment of the competitive environment in the agricultural products market were analyzed, the peculiarities of the transition to the modern value chain in the agricultural field on the horizontal and vertical competition, the requirements for the protection and development mechanisms of the competition in the given conditions are explained.

In addition, unfair trade practices affecting the competitive environment in the agricultural sector, as well as regulatory measures of different countries in this regard were investigated. Prohibited (black) and (gray) unfair trade behaviors under certain conditions were investigated in order to eliminate the factors affecting competition according to the directive of “On unfair trade practices in business relations in the supply chain of Agricultural and food products” adopted by the Parliament and Council of the European Union in 2019.

The competitive environment in Azerbaijan's agricultural products market was assessed based on various empirical approaches, recommendations were put forward to develop competition by improving market structures, expanding the scope of vertical coordination, and improving contractual relations. In order to prevent unfair trade practices in the supply chain of agricultural and food products, a proposal has been prepared on the possibilities of applying the experience of the European Union in our country, as well as on improving the legislation in this direction.

Topic 3

“Evaluation of export potential within the framework of issues of integration of agriculture and processing industry into the global value chain”

Within the framework of the study, conceptual aspects of the integration of agricultural and processing products into global value chains, the methodology for assessing the level of participation in these chains, production and trade trends within global value chains, issues of forward and backward participation in these chains from the perspective of micro and macro views of global value chains, functioning mechanisms of global value chains, as well as the world experience in this field, were examined.

At the same time, the Logistics Performance Index (LPI) and the Centrality Indicator (CI) of participation in global value chains were analyzed for individual countries, the fundamental factors of participation in global value chains, such as provision of production factors, market size, geographical location, and institutional quality, have been determined.

In the study, the Export Potential Map tool developed by the International Trade Center (ITC) determined the export potential of Azerbaijan for specific agricultural and food products, The Revealed Comparative Advantage (RCA) indicator of Azerbaijan's agricultural products was evaluated as a potential value indicator of exports, the Economic Complexity Atlas calculated on the basis of the Economic Complexity Index (ECI) for individual products was presented in order to evaluate the country's exports in terms of product diversification, and Azerbaijan's tomato export potential was evaluated based on the Gravity Model.

Topic 4

“Evaluating the results of the agricultural policy based on the AGMEMOD model of the European Union and providing forecasts for different scenarios”

The employees of the Agricultural Economics Research Center were in study visit at the Thünen Institute in Germany in June 2022 and participated in a seminar regarding the topic in order to acquire theoretical and practical knowledge about the AGMEMOD partial equilibrium model, which is used to assess the impact of national policies implemented in the field of agriculture in the European Union member states, on the agricultural market and food security in general.

A number of statistical data on the agricultural sector of Azerbaijan were included in the model and a forecast assessment of the wheat sector was carried out initially according to various scenarios at the seminar. As the initial situations, the scenarios for changing the world market price of wheat and the introduction of a product subsidy for wheat production were taken. A simple linear regression model was used in the econometric analysis block of the model.

At the next stage of the study, it is planned to use an enhanced linear regression model, accompanied by the necessary tests for conducting appropriate forecast assessments and econometric analysis for other sectors of agriculture, including the livestock sector.

Topic 5

“Comparative analysis of agricultural development indicators in countries rich in oil and gas resources”

The impact of the use of large-scale oil revenues in countries rich in hydrocarbon raw material resources on the development of the agrarian sector was investigated in the research work, it was shown that oil revenues in the long term stimulate the production of agricultural products through the rise of domestic demand, the establishment of multidirectional state assistance to the field, as well as favorable conditions for agricultural production with the development of infrastructure through oil revenues

Moreover, the indicators of the development of the agrarian sector in countries rich in oil and gas resources were examined in a comparative way, the features of agrarian development strategies implemented in different countries were disclosed, and the level of oil revenues played an important role among the main factors forming them.

It has been determined that in modern conditions in the state support system in countries with high oil income, stimulating the organization of production based on the application of innovative technologies that conserve soil and water, replacing investment subsidies with concessional loans, as well as improving the structure of direct subsidies to agricultural producers is a priority.

Comparative assessments were made in the study on the policy of state support for the development of agriculture carried out in Azerbaijan against the background of the experiences of other countries rich in oil and gas resources.

3. Diagnostics and Analysis

Agricultural Economics 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 2022, the following analyses were carried out at the Center and reports were prepared:**

- ✓ Preparation of the financial and economic justification of the project "Decree of the President of the Republic of Azerbaijan on a number of measures to increase the level of self-sufficiency with food wheat";
- ✓ Preparation of a financial-economic justification on the proposal to extend the period of exemption from VAT and customs duties on the import of feed and feed raw materials products imported into the country;
- ✓ Preparation of the financial and economic justification of the project "Decree of the President of the Republic of Azerbaijan on additional measures related to the development of dairy farming in Azerbaijan";
- ✓ Preparation of the financial and economic justification of the project "Decree of the President of the Republic of Azerbaijan on additional measures related to the development of the winemaking sector in Azerbaijan";
- ✓ Preparation of a report on the diagnosis of the value chain of the sunflower sector and the assessment of the development perspective;
- ✓ Preparation of a report on the diagnosis of the value chain of tobacco and the assessment of the development perspective;
- ✓ Preparation of the report on global trends in the production of silk and silk raw materials and diagnostics of the value chain of silkworm breeding in Azerbaijan;
- ✓ Preparation of a report on the assessment of the development potential of the cotton cluster in Azerbaijan;
- ✓ Preparation of the report on the diagnosis of the pomegranate value chain;
- ✓ Conduct of value chain diagnostics of hazelnut cultivation in Sheki-Zagatala and Guba-Khachmaz economic regions;
- ✓ Preparation of reports on agro-diagnostics of regions;
- ✓ Preparation of a report on the impact of the increase in the prices of mineral fertilizers on the world market on the costs of agricultural producers;
- ✓ Preparation of the economic rationale for improving the legislative framework related to the development of seed production in Azerbaijan;
- ✓ Preparation of proposals related to the creation of a legal framework for the purpose of determining relevant regions in the country based on the "Global and Nationally Important Agrarian Heritage Systems" (GIAHS/NIAHS) methodology;
- ✓ Preparation of the report on "Mechanisms for regulation of relations related to seasonal (temporary) employment in the field of agriculture: world experience and recommendations for Azerbaijan" and additions and changes to the relevant legislation;
- ✓ Preparation of proposals on crediting mechanisms of the agricultural sector with the aim of increasing access to financial resources of producers based on the mechanism of public-private partnership;
- ✓ Preparation of a report on the assessment of the effects of subsidies allocated to the agricultural sector in Azerbaijan.

Preliminary feasibility studies have been prepared for the following areas:

- ✓ Preparation of the justification for the economic efficiency of the creation of a support mechanism for embryo transfer activities at the expense of the funds provided within the framework of state support for imported breeding animals;
- ✓ Preparation of the initial feasibility study for investment for the organization of intensive cocooning in the area of 500 ha;
- ✓ Preparation of preliminary feasibility study for investment in 7,000 tons of yarn production;
- ✓ Preparation of preliminary feasibility study for the establishment of small and medium-sized wine production enterprises;
- ✓ Preparation of preliminary feasibility study for the construction of a 3,000-ton cold store for storing potatoes;
- ✓ Preparation of initial feasibility study for the cultivation of organic potatoes;
- ✓ Preparation of primary feasibility study for banana cultivation in the greenhouse;
- ✓ Preparation of primary feasibility study for economic efficiency of grain crops with the introduction of modern (pivot and cadman/hose reel) irrigation systems in 7,000 hectares;
- ✓ Preparation of primary feasibility study for Agribusiness areas for the portal of azagroinvest.az;
- ✓ Preparation of methodology on the initial feasibility study for the organization of the Absheron Agroinnovation Park;
- ✓ Preparation of primary feasibility study for production of fruit dryness, root juice, potato chips;
- ✓ Preparation of primary feasibility study on construction of 20 hectares of intensive organic olive grove and olive oil processing;
- ✓ Preparation of primary feasibility study on Development of preliminary feasibility studies on the construction of 50 head fattening breed livestock "Simmental" farm.

✚ Generally, 168 reports, references and information reflecting relevant indicators of various sub-fields of agriculture (planted area, production volume, productivity, import-export, as well as worldwide production and trade indicators) have been prepared or updated in the Center.

4. Monitoring and Evaluation

Agricultural Economics 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 2022 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 2022, as well as on the National Action Plan and other strategic policy documents have been prepared:

- ✓ Report on the monitoring and evaluation of the implementation of the agrarian policy;
 - ✓ 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;
 - ✓ Preparation and discussion of “Strategic Objectives for Agricultural output and Food Security” report together with “Mckinsey” international consulting company;
 - ✓ Preparation of information on the work done by the Ministry of Agriculture on the implementation of the proposals, comments and recommendations put forward by the deputies during the discussions held in the Milli Majlis about the activities of the government;
 - ✓ Preparation of information on the work carried out by the Ministry of Agriculture in 2019-2023 as part of the implementation of the “State program on socio-economic development of the regions of the Republic of Azerbaijan in 2022”;
 - ✓ Development of information on the work done by the Ministry of Agriculture within the implementation of "State Program on Project to Development in the Republic of Azerbaijan in 2018-2025";
 - ✓ Improvement of agricultural measures within the framework of the “State program on restoration and sustainable development of liberated territories for 2022-2026” project;
 - ✓ Development of information on the work done by the Ministry of Agriculture within the implementation of "State Program for 2018-2022 years on the Protection and Development of Carpet Art in the Republic of Azerbaijan”;
 - ✓ Submission of information on the work done by the Ministry of Agriculture on the implementation of "National Action Plan for 2020-2022 on the promotion of open government”;
 - ✓ Preparation of information on the work done about the implementation of the approved Work Plan on the measures responsible for the implementation of the Ministry of Agriculture on the “National Action Plan for strengthening the fight against corruption for 2022-2026”;
 - ✓ Preparation of information on the work done by the Ministry of Agriculture in 2022 to achieve the Sustainable Development Goals;
 - ✓ Submission of information from the UN High Commissioner for Human Rights for the preparation of a reporting the document on the topic of “Human trafficking through compulsory labor or service, slave or slavery experiences in agriculture”;
 - ✓ Submission of information on the preparation of the “Technical Cooperation Program”, which will cover the years of 2024-2025 by the Secretariat of the International Atomic Energy Agency.
- ✚ **In addition, it was participated in the discussions on the preparation of more than 50 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 Economics 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 2022, 5 people were admitted to the doctorate of Doctor of Philosophy program, 2 people to the dissertation program, 2 people to the doctorate of the Doctor of Science program at the Center.
- Totally, in 2022, 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 2022, 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 Social Sciences of the Scientific Research Coordinating Council for approval.
- In 2022, 2 doctoral students on the Center's Doctor of Science program, 3 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, 5 people completed their dissertation work on the Doctor of Philosophy program, and were submitted to the preliminary discussion for defense.
- In 2022, advisor to the director of the Agricultural Economics Research Center, Doctor of Economic Sciences, Hamza Khalilov's monograph on "Oil and economic development: the myth of the problem and the potential for a solution" was published.
- During 2022, 38 scientific articles (14 of them abroad, 3 articles in the Scopus database, 8 impact-factor articles), 22 theses (11 abroad), 5 newspaper articles were published by the Center's employees, doctoral students and dissertation students.
- For the year 2023, 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 2022, the works defended by the employees of the Center with a scientific degree were defended, opinions were given to dissertations and abstracts. Including, 3 employees of the Center were members of various dissertation councils.

6. Publications. International Cooperation. Public relations

In 2022, 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 agroeconomics.az and included in the "Google Scholar" search system of scientific publications.



In 2022, 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. In 2022, the expansion of scientific research studies of the Agricultural Economics Research Center was continued. Implementation of joint scientific-research related to agriculture between the Center and Daegu Gyeongbuk International Development and Cooperation Center of Kyungpook National University of the Republic of Korea, Memoranda of Understanding on cooperation regarding conducting joint scientific research on agriculture, experience exchange of research scientists and specialists, participation in training programs and etc fields were signed between the CREA Institute of Italy. In addition, the German Ministry of Food and Agriculture has started cooperation with the Johann Heinrich von Thünen Institute (Johann Heinrich von Thünen-Institut) on the application of AGMEMOD model in Azerbaijan, which is an agricultural forecasting methodology (**Figure 3**).



Figure 3. The ceremony of signing the Memorandum of Understanding between the Agricultural Economics Research Center and the Tunen Institute. 16.06.2022. Germany

During the year, experts of the Center participated in forums and conferences held in different countries and exchanged their experience.

This year, preparations for the international conference to be organized by the Agricultural Economics Research Center in Baku have begun on June, 2023. The conference on "Agricultural Forecasting: Challenges for Developing Countries" will be held with purpose of exchanging knowledge and experiences related to modeling and forecasting methods applied in the field of agriculture in developed countries with other countries of the world, increasing access to research works and analysis tools in this field, as well as organizing a platform serving the expansion of international and regional cooperation in the field of scientific research. In this regard, relations with international partners have been established, and the website of the conference is being prepared.

Public Relations. In 2022, a number of works in the field of public relations were carried out in the Center, including:

- ✓ 305 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) 781 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;
- ✓ On February 3, 2022, online discussions were held on the topic "Current issues of food security in the modern era: challenges for Azerbaijan" with the participation of economists, scientists, experts, students, as well as representatives of relevant state and non-state institutions within the framework of the Discussion Platform of Agricultural Researchers;
- ✓ The Wikipedia page of the Agricultural Research Center (Azerbaijani language) has been created.

7. Capacity building

In 2022, 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 2022, the employees of the Center participated in about 90 trainings, seminars and video conferences.
- An employee of the Center received the required passing score in the competition organized by the State Oil Company of the Azerbaijan Republic (SOCAR) at the State Examination Center and won the right to participate in the "MITx MicroMaster" Program of the Massachusetts Institute of Technology, he was awarded with a certificate of achievement after successfully completing the course "Designing and Running Randomized Evaluations" of the Program on February 1 - April 20, 2022.
- An employee of the Center, who received a master's degree in "Agricultural Economics" at Kangwon University of the Republic of South Korea within the framework of the KOICA Scholarship program, completed his studies in 2022 and is currently working at the Center.



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