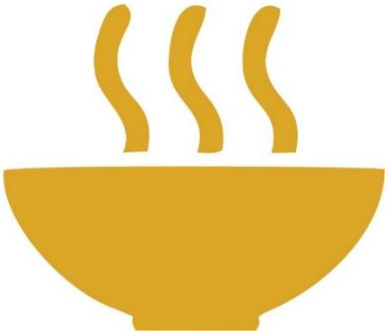
Baku State University

2025 REPORT ON

2 ZERO HUNGER



Introduction

This 2025 Report outlines the comprehensive efforts of Baku State University (BSU) in advancing the United Nations Sustainable Development Goal 2 (SDG 2) – **Zero Hunger**. SDG 2 seeks to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture through resilient food systems and equitable access to safe and nutritious food. As Azerbaijan's leading higher education institution, BSU recognizes its responsibility to contribute not only through academic excellence but also through impactful research, innovation, partnerships, and community engagement.

In response to global challenges such as climate change, environmental degradation, water scarcity, soil salinization, biodiversity loss, and geopolitical disruptions affecting food supply chains, BSU has adopted a multidisciplinary and solution-oriented approach. The university integrates agricultural sciences, ecology, biotechnology, artificial intelligence, environmental management, economics, and policy research to strengthen sustainable food systems both nationally and regionally.

Throughout 2025, BSU expanded its strategic collaboration with governmental institutions, including the Ministry of Agriculture of the Republic of Azerbaijan, research institutes, international universities, and innovation centers. Emphasis was placed on precision agriculture, climate-smart farming technologies, genetic diversity preservation, soil fertility assessment, water resource management,

and sustainable irrigation systems. Innovative student-led projects such as AI-powered monitoring tools and sustainable agricultural ecosystems demonstrate the university's commitment to translating research into practical solutions.

Simultaneously, BSU continues to prioritize student welfare and food accessibility. The university supports students from low-income families through meal voucher programs in cooperation with student unions. While dining services are operated by external contractors, BSU ensures strict compliance with national food safety regulations, promotes sustainable and diverse meal options, including vegetarian and vegan alternatives—and plans to introduce food waste monitoring mechanisms in future contracts.

Through education, research excellence, startup incubation, industrial internships, scientific seminars, and international representation, BSU reinforces its institutional mission to support food security, sustainable agriculture, and responsible resource management. This report highlights the university's achievements, research outputs, policy initiatives, innovation projects, and measurable progress toward SDG 2 in 2025.

For previous year`s report, please see

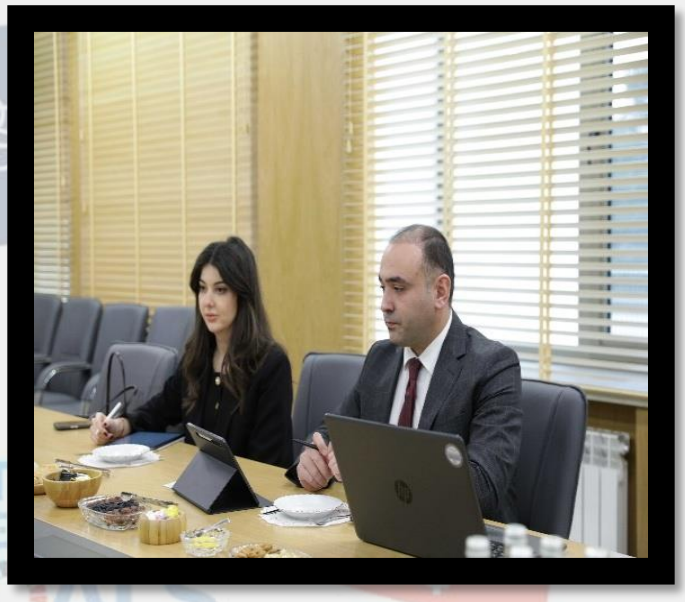
https://sdg.bsu.edu.az/report-on-sdg-2-zero-hunger

Zero Hunger (Sdg 2)

For many years, university canteens have been managed by external contractors. Initially, the agreements did not include any clauses for monitoring or recording food waste. However, in the upcoming contract renewal, BSU plans to address this by introducing specific measures for tracking and managing food waste. Addressing student hunger has always been a priority for BSU. In collaboration with the Unions of Students, the university runs a program that provides meal vouchers to students from low-income backgrounds. Although dining services are outsourced, the arrangement ensures the availability of sustainable food options, including vegetarian and vegan meals, for all campus members. The canteens are subject to regular inspections by the Food Safety Agency of the Republic of Azerbaijan, and staff members receive continuous training to uphold high food safety standards, earning consistently positive evaluations.

BSU's dedication to sustainability in agriculture and the promotion of organic foods is reflected in its comprehensive strategy. Faculty and researchers actively contribute by conducting studies and publishing work on innovative agricultural methods, while students gain practical experience through laboratory activities and direct application of new technologies. This dual focus on research and hands-on learning strengthens the university's role in advancing sustainable agricultural practices and modern approaches to food production.

MEETING WITH THE DIRECTOR OF THE AGRICULTURAL INNOVATION CENTER OF THE MINISTRY OF AGRICULTURE AT BSU



The Rector of Baku State University, Elchin Babayev, met with Anar Jafarov, Director of the Agricultural Innovation Center under the Ministry of Agriculture of the Republic of Azerbaijan, to discuss potential cooperation.

Rector Babayev highlighted ongoing research at BSU in aquaculture, food and water security, environmental protection, and efficient use of natural resources. He emphasized the establishment of modern laboratories, the application of advanced technologies, and the university's focus on training young specialists, noting BSU's interest in collaborating with the center.

Director Jafarov provided information about the center's projects, regional innovation festivals, and support mechanisms. He noted strong student interest in agricultural startups, particularly those promoting digitalization and productivity.

The meeting concluded with discussions on future collaboration, especially on projects involving the application of artificial intelligence in agriculture.

For More Information, Please Click Here

A PROFESSOR FROM AKDENIZ UNIVERSITY DELIVERED A LECTURE AT BSU ON THE PRESERVATION OF QUALITY IN FRUITS AND VEGETABLES

As part of the events dedicated to “Science Day” on March 27 in Azerbaijan, a scientific seminar titled “New Approaches to Quality Preservation in Fresh Fruits and Vegetables” was held at Baku State University. The seminar was delivered by Professor Mustafa Erkan, Dean of the Faculty of Agriculture at Akdeniz University.

Professor Erkan presented the latest scientific advances in preserving the freshness of fruits and vegetables, optimizing storage conditions, and improving post-harvest technologies. He highlighted modern methods for extending shelf life, including atmospheric control, innovative packaging, and bioengineering solutions.

The seminar also covered quality improvement of apple and tomato varieties common in Azerbaijan, environmentally friendly pest control methods, and sustainable technologies that meet consumer demands. The event concluded with an interactive discussion on food quality preservation and ecological sustainability.

For More Information, Please Click Here

DEVELOPMENT HISTORY AND CONTEMPORARY ISSUES OF AGRICULTURAL SCIENCES IN AZERBAIJAN DISCUSSED AT BSU

On March 17, 2025, a scientific seminar dedicated to “Science Day” was held at the Faculty of Ecology and Soil Science of Baku State University. Akif Valiyev, Scientific Secretary of the Agricultural Research Center under the Ministry of Agriculture of the Republic of Azerbaijan, delivered a report on the history and contemporary issues of agricultural sciences in Azerbaijan.

The seminar highlighted the development of agricultural science, current research directions, and measures taken to address existing challenges. Special attention was given to the “State Program for the Great Return to the Liberated Territories of the Republic of Azerbaijan (I)” and the efficient use of agro-economic and natural resources in the Karabakh and Eastern Zangezur economic regions.

The speaker also discussed the establishment of agro-industrial complexes, industrial and agricultural parks, and infrastructure projects, as well as the implementation of “Smart City,” “Smart Village,” and “Smart Agriculture” initiatives. The event concluded with a Q&A session with students.

For More Information, Please Click Here

BSU Students of the Faculty of Ecology and Soil Science Undergo Industrial Internship at the Vegetable Research Institute

Fourth-year students majoring in “Soil Science and Agrochemistry” at the Faculty of Ecology and Soil Science of Baku State University are completing their industrial internship at the Vegetable Research Institute under the Ministry of Agriculture of the Republic of Azerbaijan. During the internship, students gain practical experience in the Institute’s departments and laboratories. They study soil preparation, cultivation technologies for open-field and greenhouse crops, plant breeding methods, and primary seed production. In greenhouse and potato production units, they learn modern cultivation techniques and the development of new varieties.

Students also receive laboratory training in soil, plant, and water analysis, agrochemical residue detection, plant protection methods, processing and storage technologies, and microclonal propagation of potatoes. They work with advanced equipment, including ICP-OES and chromatography systems, to analyze macro- and microelements, pesticide residues, and various chemical indicators in agricultural products and water samples.

For More Information, Please Click Here

The Project IRRIGO – Sustainable Agricultural Ecosystem Which Will Be Established On The BBSU Campus, Will Be Featured In The Finals Of The TEKNOFEST 2025 SHC

The world's largest aviation, space, and technology event, **TEKNOFEST**, will take place on May 1–4, 2025, in the Turkish Republic of Northern Cyprus. This year, the competition attracted over 15,000 teams and 47,000 participants, competing across 7 main categories and 16 subcategories.

The project titled "Irrigo – Sustainable Agricultural Ecosystem," submitted by the "BDU TETYM" team of Baku State University, received high evaluation scores in the TEKNOFEST TRNC Research Projects category and advanced to the finals.

The system is designed to treat, recycle, and repurpose wastewater for irrigation, integrating innovative solutions based on IoT technologies and the Smart Village approach to support farmers and agricultural entrepreneurs.

Currently, team members from BSU are working on developing the project's prototype, as well as its official website and mobile application.

FOR MORE INFORMATION, PLEASE CLICK HERE

The first workshop of the project titled "Application of Artificial Intelligence in Precision Agriculture" organized by the Agricultural Innovation Center at BSU has been held

The Agrarian Innovation Center under the Ministry of Agriculture of the Republic of Azerbaijan launched the project “Application of Artificial Intelligence in Precision Agriculture” to promote the use of AI and digital technologies in agriculture. The initiative involves selecting universities and innovative farms, organizing workshops, and conducting field visits to agro-parks and large farms.

The first workshop was held on April 16 at Baku State University. Rector Elchin Babayev emphasized the importance of integrating AI into agriculture, particularly for the smart management of soil and water resources, noting that Azerbaijan’s digital development strategy prioritizes innovation and competitive human capital.

BSU’s contribution includes research in AI and agricultural technologies, as well as student achievements at TEKNOFEST, including the “Irrigo – Sustainable Agricultural Ecosystem” project, which reached the finals of TEKNOFEST 2025 in the Turkish Republic of Northern Cyprus.

Director Anar Jafarov highlighted the importance of commercializing scientific innovations and announced a Bootcamp on April 28–29 in Aghali village, Zangilan, to promote smart agricultural solutions in the liberated territories. Proposed technologies will be tested on selected private farms. The event also gathered representatives from agricultural institutions, innovation centers, and private companies to discuss practical applications of AI and automated systems in agriculture.

FOR MORE INFORMATION, PLEASE CLICK HERE

BSU IS REPRESENTED AT CASPIAN AGRO – THE 18TH AZERBAIJAN INTERNATIONAL AGRICULTURE EXHIBITION

Baku State University is taking part in the 18th Azerbaijan International Agriculture Exhibition, Caspian Agro, which brings together numerous local and international agricultural companies and government institutions.

Within the “Smart Agro” segment organized by the Agrarian Innovation Center, BSU is presenting its project “Irrigo – Sustainable Agricultural Ecosystem.” During the exhibition, the President of Azerbaijan, Ilham Aliyev, visited the university’s stand and was briefed on the project.

The “Irrigo” system treats wastewater and uses artificial intelligence to automatically adjust fertilizer type and dosage according to specific crop needs. By enriching irrigation water with the required mineral composition, the system enhances plant growth and development. The project integrates wastewater treatment, mineral analysis, and nutrient optimization in line with the “Smart Village” concept and the national strategy for efficient water resource management, contributing to sustainable development in the liberated territories of Karabakh.

The President was also informed about BSU’s recent successes in startup and technology competitions. In addition to its main booth, BSU is represented in a

special exhibition area for higher education institutions, where it showcases its academic and innovative potential.

FOR MORE INFORMATION, PLEASE CLICK HERE

REPUBLIC SCIENTIFIC CONFERENCE ON THE NEW STAGE OF LAND REFORM AND THE RESOLUTION OF ECOLOGICAL PROBLEMS AT BSU

A republic-wide scientific conference titled “The New Stage of Land Reform and the Resolution of Ecological Problems” was held at Baku State University, organized by the Faculty of Ecology and Soil Science to mark the 102nd anniversary of the birth of National Leader Heydar Aliyev.

The event opened with the State Anthem and a minute of silence in honor of Heydar Aliyev and the martyrs who sacrificed their lives for Azerbaijan’s territorial integrity.

Speakers highlighted Heydar Aliyev’s key role in developing agriculture, advancing land reforms, and shaping environmental policy in Azerbaijan. It was noted that during his leadership, major reforms were implemented in irrigation, water management, cotton growing, and viticulture, alongside the adoption of numerous state programs and laws. The land reforms carried out after independence were particularly associated with his name.

Participants also emphasized his contributions to democratic state-building, sustainable development, and environmental protection. Ecological issues became an important part of state policy under his leadership, focusing on reducing human impact on nature, ensuring efficient use of natural resources, strengthening environmental legislation, and restoring ecosystems.

The plenary session featured presentations on ecological changes in the Agdam district based on satellite imagery and the impacts on the wetland ecosystem of Gizilaghaj National Park.

FOR MORE INFORMATION, PLEASE CLICK HERE

BSU RANKS IN THE TOP 600 IN THE TIMES HIGHER EDUCATION IMPACT RANKINGS 2025

Baku State University has been ranked among the world's top 600 universities in the 2025 Impact Rankings published by Times Higher Education. The university placed in the 401–600 band, a major improvement from last year's 1001–1500 range.

Among 2,318 institutions evaluated globally, BSU was assessed across 15 Sustainable Development Goals (SDGs), up from 9 last year. Its overall score rose by 35%, increasing from 53.2 to 71.8, reflecting strong progress in sustainable development initiatives.

BSU ranked in the global top 100 for four SDGs: No Poverty, Quality Education, Gender Equality, and Reduced Inequalities. It also placed 101–200 for Life on Land and Peace, Justice and Strong Institutions, and 201–300 for Zero Hunger, Clean Water and Sanitation, Decent Work and Economic Growth, and Life Below Water.

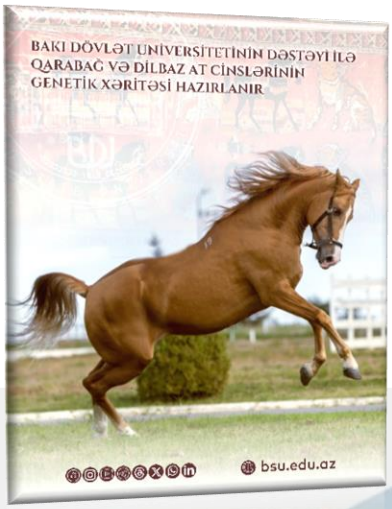
The Impact Rankings measure universities' contributions to social, economic, and environmental development based on the UN SDGs, evaluating research, governance, social impact, and public engagement.

This result highlights BSU's growing international reputation and its strong commitment to sustainability, social responsibility, environmental protection, inclusive education, and equal opportunity.

FOR MORE INFORMATION, PLEASE CLICK HERE

Zero Hunger

GENETIC MAPPING OF KARABAKH AND DILBAZ HORSE BREEDS INITIATED WITH BSU'S SUPPORT SCIENCE



Comprehensive research has been launched to develop genetic maps of the Karabakh and Dilbaz national horse breeds, which are of strategic importance to Azerbaijan.

The project is initiated by the Ministry of Agriculture of Azerbaijan with the support of Baku State University and the Food and Agriculture Organization of the United Nations (FAO). Project partners also include the Animal Husbandry Research Institute, the Ministry of Agriculture and Forestry of Türkiye, Letgen Biotechnology, and " Bayramlı Group".

The main objective is to preserve the genetic heritage of Karabakh and Dilbaz horses, analyze their genomic diversity, and support the development of scientifically based breeding and selection programs.

At the initial stage, phenotypic assessments were conducted at various horse-breeding farms with the participation of local specialists and experts from Türkiye, and blood and hair samples were collected.

For the first time, complete genome maps of both breeds will be created. The project also envisages the use of marker-assisted selection (MAS) technologies, identification of genotype–phenotype correlations to improve breeding efficiency, the establishment of a genetic database (genobank), and the integration of results into international scientific platforms, including NCBI.

FOR MORE INFORMATION, PLEASE CLICK HERE

BSU represented at Pakistan's largest entrepreneurship expo

Baku State University's Student Scientific-Technical Creativity Center showcased its project, "Irrigo – Sustainable Agricultural Ecosystem," at SEE Pakistan 2025, the largest entrepreneurship exhibition in Pakistan.

From 7 to 9 August 2025, BSU took part in the event in Lahore with its own exhibition booth, presenting its innovative solution to an international audience.

SEE Pakistan 2025, organized by the Association of Private Sector Universities of Pakistan (APSUP) in collaboration with institutions such as Superior University, University of Lahore, University of Sialkot, and Green International University, brought together thousands of startups, investors, researchers, and students from different countries. The exhibition served as a major platform for demonstrating new ideas and building global partnerships.

The Irrigo project drew considerable interest as a forward-looking approach to sustainable agriculture. It reduces the use of clean water in irrigation, purifies low-quality water by removing organic pollutants, salts, and heavy metals, and enables its reuse, thereby establishing a sustainable irrigation system.

BSU's participation in SEE Pakistan 2025 supports the growth of Azerbaijan's innovation and startup ecosystem, promotes the international success of young innovators, and further strengthens the ties of friendship between Azerbaijan and Pakistan.

FOR MORE INFORMATION, PLEASE CLICK HERE

BSU participates in “Sustainability Exhibition: Art and Innovation for the Planet”

Baku State University (BSU) took part in the “Sustainability Exhibition: Art and Innovation for the Planet,” held within the framework of Baku Climate Action Week, presenting two innovative projects — “Irrigo: Sustainable Agricultural Ecosystem” and “Hydroponics.”

The “Irrigo” project, developed by Reyhan Mirsultanova from BSU’s Student Scientific-Technical Creativity Center, introduces a smart agricultural model that reduces freshwater use, treats polluted wastewater, and reuses it in a self-sustaining irrigation system, promoting water conservation and environmental protection.

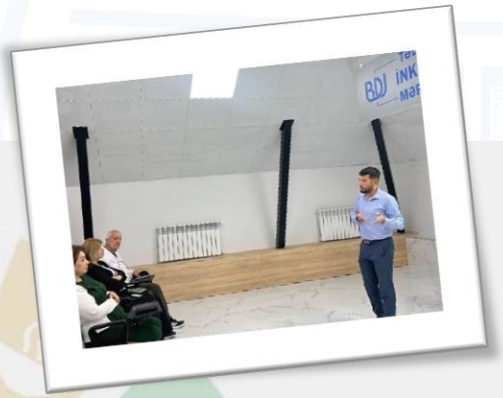
The “Hydroponics” project, created by researchers from BSU’s Research, Development and Innovation Excellence Center, encourages small and medium-sized farms to adopt soilless cultivation technologies, supporting sustainable production and climate change mitigation.

“Irrigo” was selected among the top six projects at the exhibition, and the team received a certificate of recognition for its contribution to sustainable development and innovative solutions.

FOR MORE INFORMATION, PLEASE CLICK HERE

Training on food safety held at BSU

Baku State University organized a training session titled “Food Safety and Engineering: New Paths and Opportunities for Students” at its Faculty of Biology to strengthen students’ knowledge and practical skills in science, technology, and industry.



Dean Afət Məmmədova highlighted the importance of such initiatives in helping students connect theory with practice and gain insight into modern production processes. She noted that compliance with food safety and quality standards is a global priority and that mastering contemporary approaches in this field is essential. The trainer, Javid Qurbanzadə, Head of Quality and HSE at Azerbaijan Fish Farm LLC, spoke about international quality management systems used in the food industry, including ISO 9001, ISO 22000, and HACCP standards. He also addressed quality control, risk assessment, production safety regulations, and environmental responsibility.

The session concluded with interactive discussions, where students received detailed answers to their questions about career prospects in food engineering, certification procedures, and technological innovations.

FOR MORE INFORMATION, PLEASE CLICK HERE

Research on the role of phytohormones in cotton genotypes conducted at BSU

A scientific seminar titled “The Role of Phytohormones in the Development of Tolerance to Fungal Diseases in Cotton Genotypes” was held at the Faculty of Biology of Baku State University (BSU).

The research, presented by PhD student Nurlan Amrahov, examines the impact of the pathogenic fungus *Verticillium dahliae* and heavy metals on cotton productivity, as well as the role of phytohormones in reducing these negative effects.

The study explored the influence of salicylic acid, kinetin, indole-3-acetic acid, and their graphene oxide-based nano-assemblies on the morphological, physiological, and biochemical parameters of cotton plants. Results showed that these substances enhance antioxidant activity, improve resistance to oxidative stress, and strengthen plant defense against pathogens.

According to the seminar discussions, the findings open new prospects for developing cotton varieties resistant to biotic and abiotic stresses, producing environmentally friendly biostimulants, and increasing agricultural productivity. The event concluded with a scientific exchange of ideas.

FOR MORE INFORMATION, PLEASE CLICK HERE

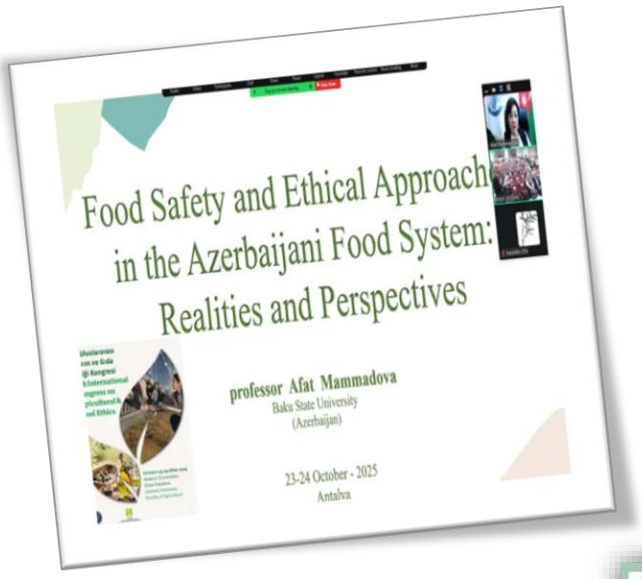
BSU students present their startups within the project “Application of artificial intelligence in precision agriculture”

Baku State University students presented their startup within the project “Application of Artificial Intelligence in Precision Agriculture,” implemented by the Agrarian Innovation Center under the Ministry of Agriculture. The initiative aims to expand the use of artificial intelligence and digital technologies in the agricultural sector.

At a meeting attended by representatives of the ministry, universities, and acceleration and incubation centers, BSU students Qurbanali Feyzullayev, Leman Imanzade, and graduate Nigar Isgandarova introduced their project, “AgroScan.” “AgroScan” is an AI-powered system that applies hyperspectral analysis to monitor plant health and soil conditions. By analyzing hyperspectral images, it detects early signs of water stress, diseases, and productivity changes, delivering results to farmers through a mobile application. The solution supports efficient resource use, higher yields, and environmentally sustainable agriculture.

FOR MORE INFORMATION, PLEASE CLICK HERE

Dean of the faculty of Biology represents Azerbaijan's Food Safety Sector on an international scientific platform

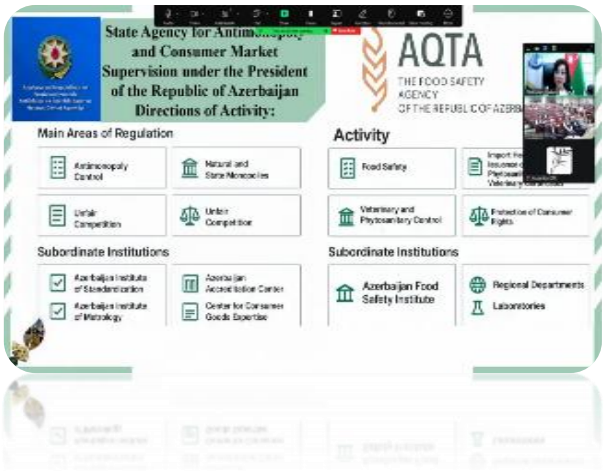


Professor Afat Mammadova, Dean of the Faculty of Biology at Baku State University (BSU), delivered a presentation at the 5th International Congress on Agricultural and Food Ethics, held on 23–24 October 2025 at Akdeniz University in Türkiye.

The congress gathered international scientists and industry experts to discuss food ethics, food safety, and sustainable food systems.

In her presentation, "Food Safety and Ethical Approaches in the Azerbaijani Food System: Realities and Prospects," Professor Mammadova outlined Azerbaijan's legal and regulatory framework on food safety, the activities of the Azerbaijan Food Safety Agency (AFSA), improvements in the certification system, and the implementation of HACCP and ISO standards.

She emphasized Azerbaijan's achievements in food safety while also addressing challenges such as



strengthening regional laboratory infrastructure, improving the technical capacity of small and medium-sized producers, and increasing public awareness.

Her presentation attracted significant interest and contributed to promoting Azerbaijan's food safety experience in international discussions.

FOR MORE INFORMATION, PLEASE CLICK HERE

Students of BSU visit the Vegetable Research Institute

Members of the "BDU Volunteers" organization from the Faculties of Ecology & Soil Science and Geography at Baku State University took part in a study tour to the Vegetable Research Institute under the Ministry of Agriculture.

During the visit, Scientific Secretary Afaq Rəcəbli introduced the students to the institute's activities, key research areas, and

scientific achievements. The participants observed ongoing research in various departments and laboratories.

The tour concluded with a visit to the Greenhouse Vegetable Growing Department's greenhouse, where students were introduced to newly developed tomato and cucumber varieties bred by the institute's researchers.

FOR MORE INFORMATION, PLEASE CLICK HERE

Scientific seminar on food security issues held at the faculty of Geography

A scientific seminar titled "Food Security Issues of the Republic of Azerbaijan" was held at the Faculty of Geography of Baku State University.

Opening the event, Dean Professor Magsad Gocamanov stressed the strategic importance of food security in today's world and the need for continued academic research in this field. He noted that the speaker, Vugar Karimli, PhD in Economics and lecturer in the

Department of Economic and Social Geography, has authored several studies on economic geography and food security.

In his presentation, Karimli focused on the role of import–export balance in ensuring Azerbaijan's food security, highlighting recent regional and structural changes in the country's food supply system. He also outlined proposals for strengthening short- and medium-term food security and supporting sustainable development in this area.

The seminar concluded with active discussions involving faculty members and researchers, who emphasized the relevance of the topic and the importance of further scientific studies.

FOR MORE INFORMATION, PLEASE CLICK HERE

Teaching of the "Agricultural Insurance" course launched at BSU

Starting from the 2025–2026 academic year, Baku State University (BSU) has introduced a new master's-level course titled "Agricultural Insurance" at its Faculty of Biology.

The course provides students with knowledge about natural and other risks affecting agriculture, risk assessment methods, investigation of insurance cases, and damage calculation methodologies. In Azerbaijan's state-supported agricultural insurance system,

accurate assessment is crucial, as compensation payments are determined based on these evaluations.

At the launch event, Dean Professor Afat Mammadova highlighted the growing impact of climate change on agriculture and stressed the importance of properly evaluating natural risks. She noted that the course will broaden students' professional prospects and strengthen the practical application of their expertise.

The course is taught by independent agricultural insurance expert Zulfu Məmmədov, who explained the national agricultural insurance mechanism and emphasized the rising frequency of extreme weather events such as hail, strong winds, and droughts, making precise damage assessment increasingly important.

During the open lecture, master's student Aysun Asadli delivered a presentation on crop productivity assessment methods, outlining key steps and considerations in evaluating plant damage.

BSU also plans to introduce the "Agricultural Insurance" course at the undergraduate level in the future to further enhance students' practical skills and involvement in the agricultural insurance sector.

FOR MORE INFORMATION, PLEASE CLICK HERE

Scientific seminar held: Ecological aspects of the use of polyene antibiotics in plant protection

On November 26, 2025, a scientific seminar was held at the Faculty of Ecology and Soil Science of Baku State University. Associate Professor Vafa Gasimova, Doctor of Biological Sciences at the Department of Soil Science and Real Estate Cadastre, presented a lecture titled "Ecological Aspects of the Use of Polyene Antibiotics in Plant Protection."

The seminar addressed the urgent need to increase crop productivity and improve product quality through environmentally safe plant protection methods. Modern approaches to phytosanitary management increasingly emphasize eco-friendly agents and innovative technologies to maintain healthy agroecosystems.

In her research, Gasimova used soil microorganisms, particularly Actinomycetes, to obtain biologically active compounds. These microorganisms can synthesize antibiotics effective against pathogenic bacteria and fungi. Through modern biotechnological methods, she produced molecularly purified polyene antibiotics with high membrane activity and selective effects against plant pathogens.

The developed preparation was tested on vegetable crops in both open-field and greenhouse conditions. Compared to conventional treatments, polyene antibiotics showed notable advantages, including strong antibacterial properties, effective penetration into plant tissues, and reduced dependence on adverse climatic conditions.

FOR MORE INFORMATION, PLEASE CLICK HERE

Conclusion

In 2025, Baku State University demonstrated substantial progress in advancing Sustainable Development Goal 2 – Zero Hunger by strengthening the integration of science, innovation, education, and societal engagement. The university's holistic strategy—combining agricultural research, digital transformation, biotechnology, ecological sustainability, and policy collaboration—positions BSU as a key national contributor to resilient and sustainable food systems.

BSU's growing international recognition, reflected in its improved standing in the Times Higher Education Impact Rankings 2025, confirms the effectiveness of its sustainability-driven institutional policies. The university significantly expanded its SDG-related research portfolio, increased interdisciplinary cooperation, and enhanced student participation in applied agricultural innovation. Projects focused on artificial intelligence in precision agriculture, wastewater recycling for irrigation, genetic mapping of national livestock breeds, climate-resilient crop development, and remote sensing for land management illustrate BSU's forward-looking approach.

Furthermore, the university strengthened food safety education, introduced new academic courses such as Agricultural Insurance, promoted environmentally friendly plant protection methods, and supported the commercialization of scientific innovations. By fostering strong partnerships with national agencies and international platforms,

BSU contributes to knowledge exchange, technological advancement, and the development of competitive human capital in the agricultural sector.

Looking ahead, BSU remains committed to deepening research on climate adaptation, expanding smart agriculture initiatives, enhancing food waste management systems, supporting inclusive food access programs, and increasing global research collaboration. Through sustained investment in scientific excellence, innovation ecosystems, and sustainable development strategies, the university reaffirms its dedication to achieving Zero Hunger and building resilient agricultural systems for future generations.

SDG Focused Memberships

CANIE
climate action network

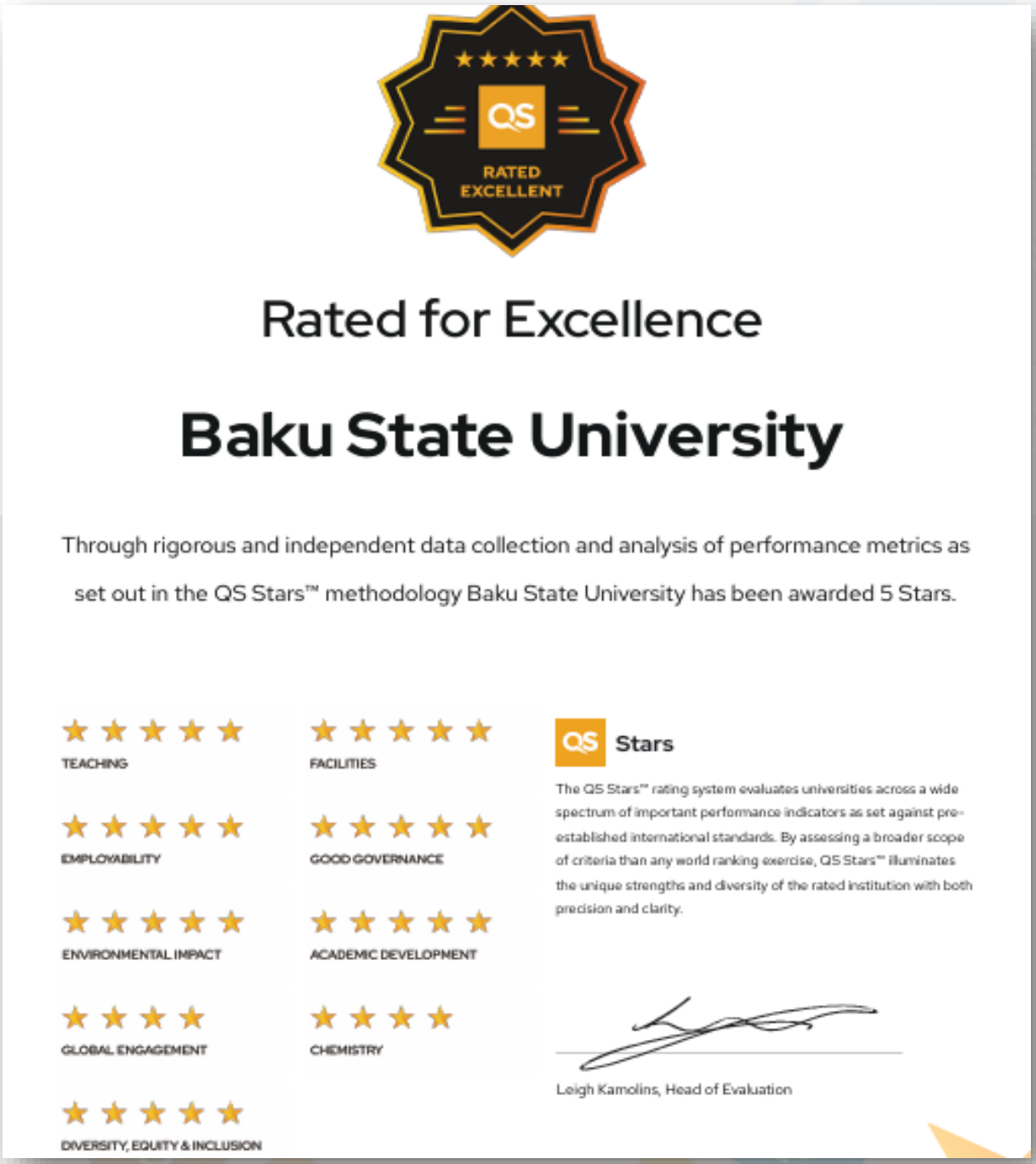
aashe member
The Association for the Advancement of Sustainability in Higher Education

ISCN
International Sustainable Campus Network

WAITRO

GUNI
GLOBAL UNIVERSITY NETWORK FOR INNOVATION

SDG Focused Ranking Results



RATED EXCELLENT

Rated for Excellence

Baku State University

Through rigorous and independent data collection and analysis of performance metrics as set out in the QS Stars™ methodology Baku State University has been awarded 5 Stars.

TEACHING

FACILITIES

EMPLOYABILITY

GOOD GOVERNANCE

ENVIRONMENTAL IMPACT

ACADEMIC DEVELOPMENT

GLOBAL ENGAGEMENT

CHEMISTRY

DIVERSITY, EQUITY & INCLUSION

QS Stars

The QS Stars™ rating system evaluates universities across a wide spectrum of important performance indicators as set against pre-established international standards. By assessing a broader scope of criteria than any world ranking exercise, QS Stars™ illuminates the unique strengths and diversity of the rated institution with both precision and clarity.

Leigh Kamolins, Head of Evaluation


UI GreenMetric
UNIVERSITAS INDONESIA
UI GreenMetric World University Rankings 2025
CERTIFICATE
This certificate is awarded to
Baku State University
as The 493rd World's Most Sustainable University
in 2025 UI GreenMetric World University Rankings
5 December 2025
Dr. Vishnu Juwono, S.E., MIA
Chairperson of UI GreenMetric

4. RANKING IN AZERBAIJAN

Country Ranking	SI Ranking	EC Ranking	WS Ranking
1	2	11	3

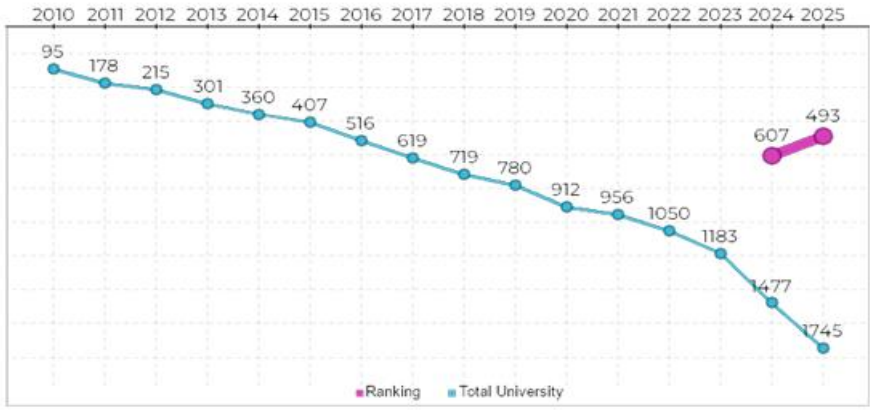
WR Ranking	TR Ranking	ED Ranking
5	1	2

2. RESULTS SUMMARY

World Ranking	SI Ranking	EC Ranking	WS Ranking
493	660	1102	654

WR Ranking	TR Ranking	ED Ranking
607	98	239

3. WORLD RANKINGS HISTORY



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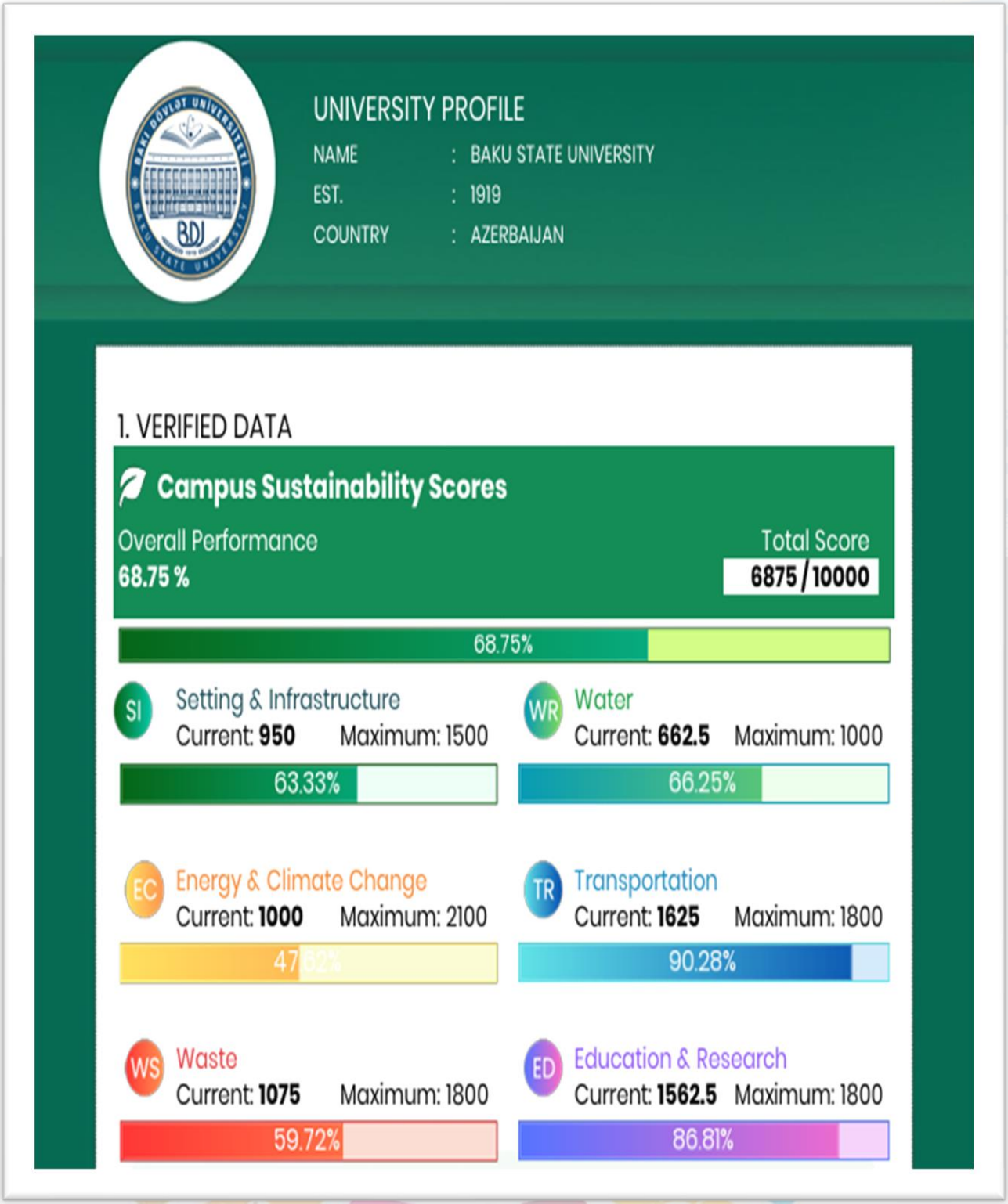
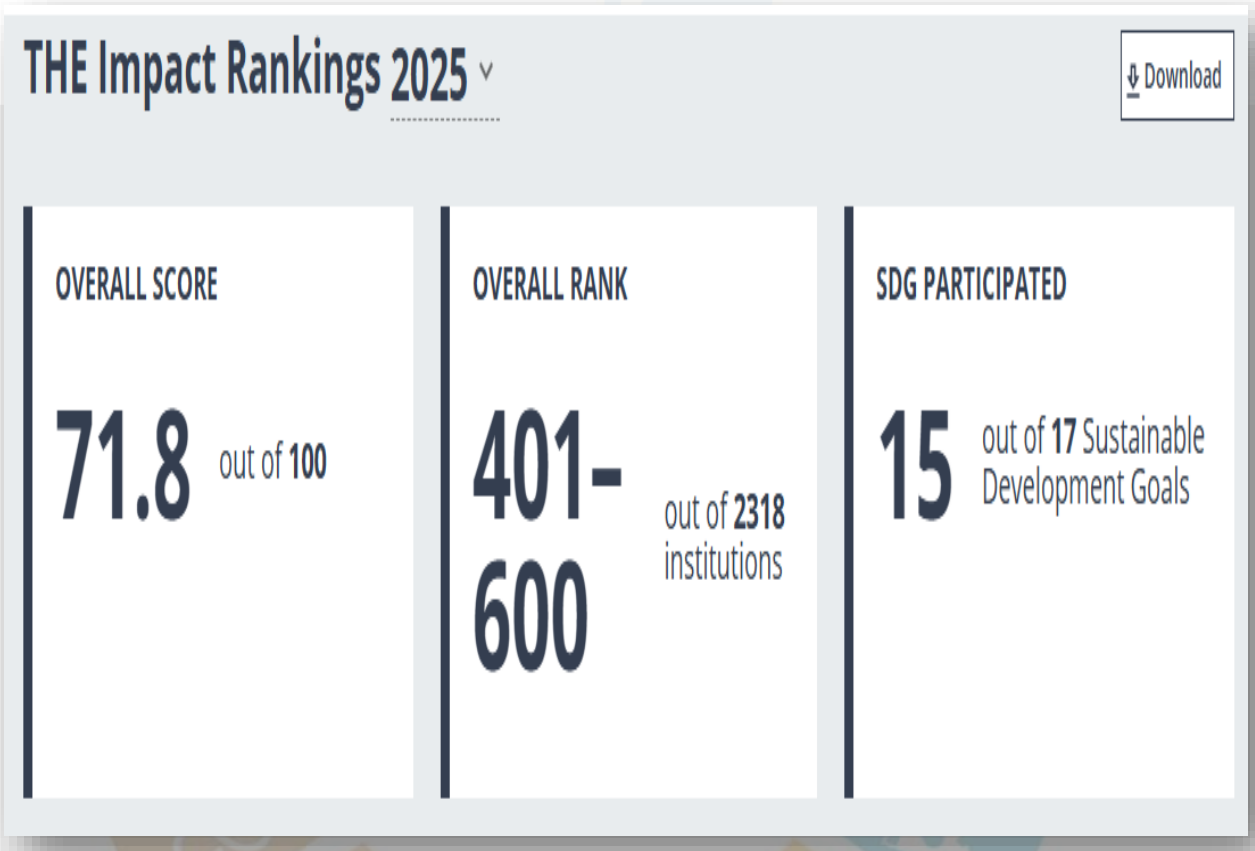
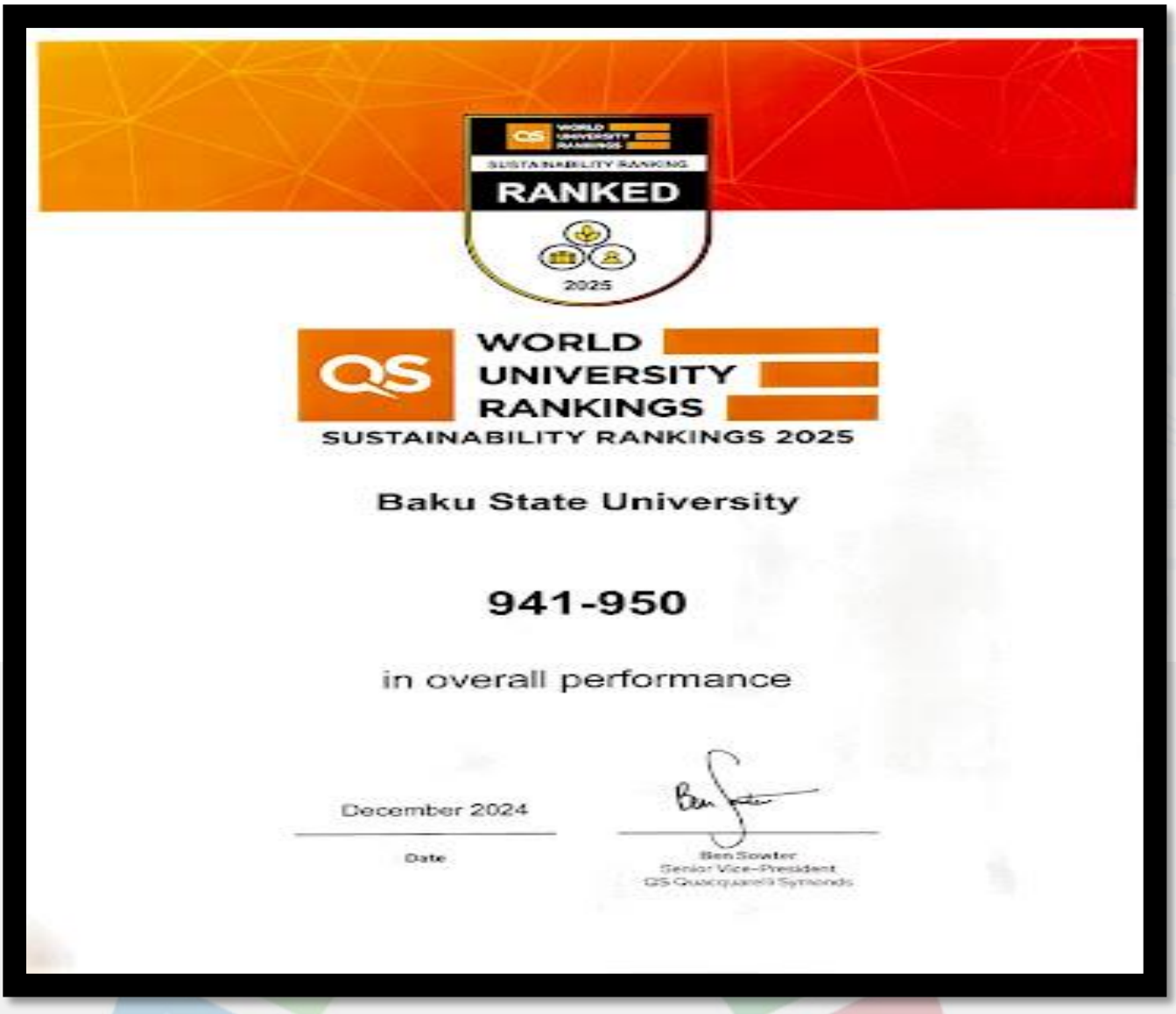


2 ZERO HUNGER

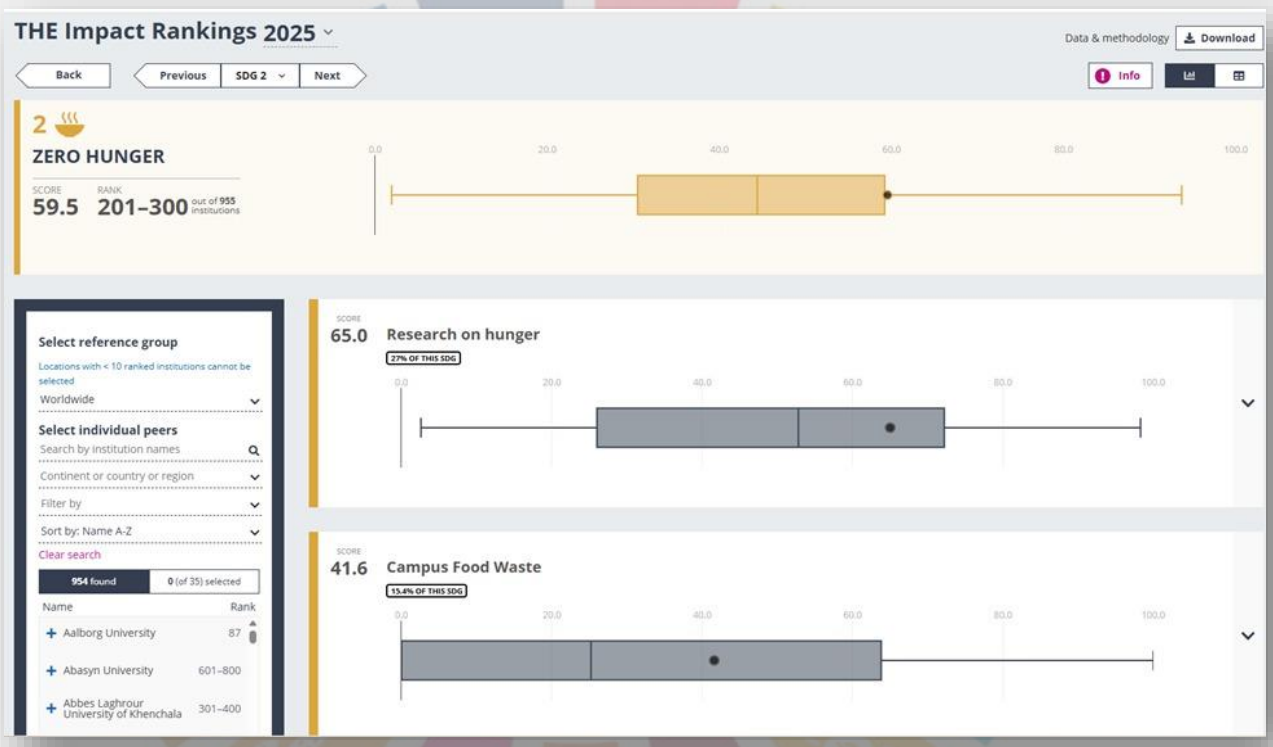
THE IMPACT RANKINGS



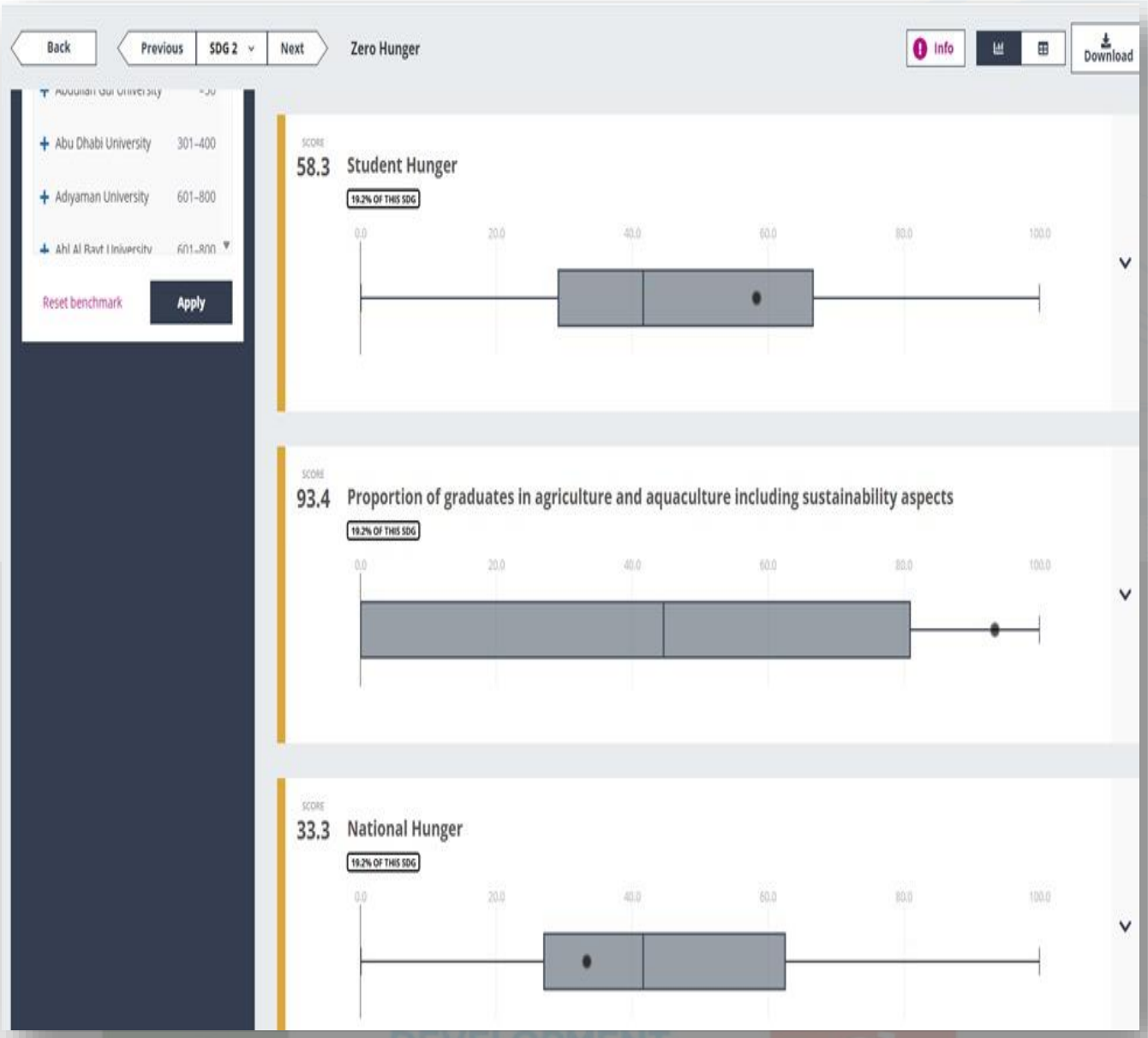

SUSTAINABILITY RANKING
RANKED
2025
QS WORLD UNIVERSITY RANKINGS
SUSTAINABILITY RANKINGS 2025
Baku State University
941-950
in overall performance
December 2024
Date
Ben Sowter
Senior Vice-President
QS Quacquarelli Symonds


OVERALL RANK
401–600
out of 2318
institutions

2 ZERO HUNGER



Baku State University
http://sdg.bsu.edu.az/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Adıyaman University 601–800
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SCORE
58.3
Student Hunger
19.2% OF THIS SDG
0.0
20.0
40.0
60.0
80.0
100.0
SCORE
93.4
Proportion of graduates in agriculture and aquaculture including sustainability aspects
19.2% OF THIS SDG
SCORE
33.3
National Hunger
19.2% OF THIS SDG

SDG Focused Research

Introduction

Food security and sustainable agriculture are fundamental to achieving global development and human well-being. The United Nations' **SDG 2: Zero Hunger** aims to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture by 2030. While global progress has been made in reducing hunger, recent crises—including climate change, armed conflicts, and the COVID-19 pandemic—have disrupted food systems and reversed many of the earlier gains. Today, hunger and malnutrition continue to affect hundreds of millions of people worldwide, with rural populations, children, and vulnerable households at the greatest risk.

For **Baku State University (BSU)**, the objectives of SDG 2 resonate strongly with its mission of fostering sustainable development in Azerbaijan and beyond. As a leading academic and research institution, BSU contributes to this goal by advancing studies in agricultural sciences, biology, environmental management, and public health, while also engaging in interdisciplinary research on food security and rural development. The university's partnerships with government agencies, international organizations, and local communities further enhance its capacity to generate practical solutions for ensuring sustainable food production and equitable access to nutrition.

By integrating SDG 2 into teaching, research, and community outreach, BSU not only supports Azerbaijan's national priorities in food security and agricultural modernization but also strengthens its role as a regional hub for sustainability-focused knowledge. Through innovation, capacity-building, and awareness-raising, the university contributes to building resilient food systems that can withstand climate and economic shocks, ultimately aligning with the global agenda of eradicating hunger and promoting sustainable livelihoods.

All SDGs related articles please visit: https://www.scopus.com/pages/organization/60071969#tab=sdgs

2 ZERO HUNGER

SDG contributions

Goal 1: No poverty	9 documents	Goal 10: Reduced inequalities	40 documents
Goal 2: Zero hunger	74 documents	Goal 11: Sustainable cities and communities	37 documents
Goal 3: Good health and well-being	241 documents	Goal 12: Responsible consumption and productior	44 documents
Goal 4: Quality education	21 documents	Goal 13: Climate action	55 documents
Goal 5: Gender equality	12 documents	Goal 14: Life below water	50 documents
Goal 6: Clean water and sanitation	83 documents	Goal 15: Life on land	31 documents
Goal 7: Affordable and clean energy	353 documents	Goal 16: Peace, justice and strong institutions	36 documents
Goal 8: Decent work and economic growth	68 documents	Goal 17: Partnership for the goals	47 documents
Goal 9: Industry, innovation and infrastructure	101 documents		

1. Climate Factors and Agriculture in Türkiye

Authors: Tayyar A., Emrah G., Nijat B., Ömer F., Mukhtarov S.
Focus: Climatic impacts on agriculture in Türkiye (1970–2022).
Methods: Bayesian Model Averaging + ARDL.
Findings:

- Minimum average temperature ↑ → agricultural GDP share ↑.
- CO_2 emissions, ground temperature, and cultivated area → negative effects.
  Implication: Need for climate-smart policies integrating emission reduction and efficient land use.
  Full text

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2. Triple-Defense Strategy against Salt Stress in Tomato

Authors: Sultana S., Altaf U.N., Islam M.R., Rahman F., +7.
Focus: Mitigating NaCl-induced stress in tomatoes.
Methods: Application of KNO_3, H_2O_2, $CaCl_2$ individually and in combination.
Findings: Combined application provides strongest growth and stress tolerance.
Implication: Promising approach to enhance productivity under saline conditions.
Full text

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3. H_2O_2-Mediated Growth in Wheat Cultivars

Authors: Kamruzzaman M., Siddiqui M.N., Rustamova S., Ballvora A., Léon J.
Focus: Genetic regulation of elshan–shoot growth in wheat.
Methods: Genome-wide association study of 150 cultivars.
Findings: 108 marker-trait associations linked to ion binding, transport, oxidation-reduction.
Implication: Genetic basis for breeding stress-tolerant wheat.
Full text

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4. Chenopodiaceae Adaptations to Harsh Environments

Authors: Orujova T.Y., Gurbanova U.A.
Focus: Biochemical diversity in Chenopodiaceae family.
Findings: C_4 photosynthesis enhances water-use efficiency and stress resilience.
Implication: Biotechnological potential for climate-adaptive crops.
Full text

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5. Genetic Diversity in Azerbaijani Wheat (SSR Markers)

Authors: Mammadova R., Akparov Z., Amri A.B., Alo F., +3.
Focus: SSR-based diversity analysis of 45 wheat genotypes.
Findings: Nine primers polymorphic; unique drought-tolerant genotypes identified.
Implication: Valuable resources for breeding resilient wheat.
Full text

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6. Agroecological Land Assessment in Gusar-Gonagkend

Authors: Mammadov G., Mammadova S., Yusifova M., Isayeva S., Osmanova S., +2.
Focus: Soil fertility and sustainable land management.
Methods: Field analyses, bonitet scoring, agroecological scales.
Findings: Highest fertility in mountain-meadow and mountain-gray-brown soils.
Implication: Basis for sustainable land-use strategies in Azerbaijan.
Full text

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7. Chitosan–Biochar Coatings for Wheat Seeds

Authors: Mustafazade T., Maharram M., Akhundzada H.V., Khankishiyeva R.
Focus: Eco-friendly seed coatings.
Findings: CS–BC (4:1) ↑ germination, vigor, soil carbon.
Implication: Sustainable agriculture tool; needs field validation.
Full text

8. Arbuscular Mycorrhizal Fungi (AMF) and Plant Growth

Authors: Hashem A., Almutairi K.F., Alshaikh N.A., Kumar A., Wu Q.S., +2.
Focus: Role of AMF in nutrient uptake and stress resistance.
Findings: Improve soil structure, activate defense genes, alter metabolism.
Implication: Natural ally for sustainable agriculture and pest management.
Full text

9. Cytokines in Rheumatoid Arthritis

Authors: Azam S., Rahayu S., Saba A., Anvar A.H., Irfan M.
Focus: Role of interleukins in RA pathology.
Findings: High IL-1, IL-6, IL-17, IL-18, IL-21, IL-23 contribute to joint damage.
Implication: Targeted biologics offer promise in RA management.
Full text

10. Remote Sensing & ML for Vegetation Mapping

Authors: Amiraslanova M.S., Babazade R.A., Musabayli K.M.
Focus: UAV + satellite multispectral data for vegetation.
Methods: ML + deep learning.
Findings: Accurate mapping of vegetation cover, species, and structure.
Implication: Applications in agriculture, forestry, biodiversity, climate monitoring.
Full text

11. Agroecosystem Sustainability in Barda District

Authors: Macnunlu K., Babazade R.H., Hasanova T.
Focus: Soil and crop health via remote sensing (NDVI, SAVI).
Findings: Precision farming + green manure practices improve sustainability.
Implication: Supports long-term food security and land optimization.
Full text

12. Agroecological Fertility Models for Vineyards (Lankaran-Astara)

Authors: Mammadov G., Mammadova S., Yusifova M., Sadigov R., Ahmedova G.
Focus: Soil fertility for grape cultivation.
Findings: Tailored fertility management enhances viticulture sustainability.
Implication: Integrates eco-friendly and traditional methods for productivity.
Full text

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13. Genetic Variation in Azerbaijani Wheat Accessions

Authors: Ojaghi J., Nuriyeva S., Salayeva S., Eldarov M., Akparov Z.
Focus: SSR-based genetic variation in 50 wheat accessions.
Findings: 42 alleles identified; significant polymorphism.
Implication: Useful for genetic diversity studies and wheat breeding.
Full text

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14. Environmental Flow of the Alijanchay River

Authors: Imanov F., Aliyev S., Aliyev E., Nuriyev A., Snow D.
Focus: Water flow and ecological health.
Findings: Flow alteration from irrigation/reservoir construction; water quality fluctuations.
Implication: Need for comprehensive ecological flow management.
Full text

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15. Genetic Diversity in Azerbaijani Durum Wheat

Authors: Mammadova R., Amri A., Akparov Z., Alo F., Sheikhzamanova F., +4.
Focus: Diversity of durum wheat genotypes.
Findings: 31 alleles, high PIC (0.912); drought-tolerance potential.
Implication: Provides resilient cultivars for breeding programs.
Full text

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16. Genetic Diversity of Local Apples (Guba, Azerbaijan)

Authors: Guseinova N.T., Asadova B.G.
Focus: Biomorphological + molecular diversity in apple varieties.
Findings: Rare alleles linked to long-term fruit preservation identified.
Implication: Supports conservation and breeding of Azerbaijani apples.
Full text

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17. Plant Hormones and Immunity in Plant–Pathogen Interaction

Authors: Amrahov N.R., Aghazada G.A., Alizada S.R., Mehdiyeva G.V., Mammadova R.B., +2.
Focus: Role of SA, IAA, GA in plant immune responses.
Findings: Hormonal crosstalk critical for defense vs. energy conservation.
Implication: Insights for enhancing plant immunity in crop protection.
Full text