2025 / ANNUAL SUSTAINABILITY REPORT

SDG 2 | Zero Hunger

Khazar University · Baku, Azerbaijan

REPORTING PERIOD JANUARY–DECEMBER 2025

Institutional Approach

Khazar University approaches food security through sustainable food policies, nutrition-related campus provisions and international collaboration on agriculture and environmental health. During 2025, the University participated in research and knowledge-sharing activities on climate-resilient crops, sustainable farming and the links between food systems and public health. The initiatives below present the University's documented work during the reporting year.

2022	11–12 Mar	70+
Sustainable food policy adopted	SORG4NOBAL final event	One Health researchers in 2025

2.1 Research on hunger

In 2025, Khazar University strengthened its research contributions to food security, sustainable agriculture, crop resilience, and agricultural biodiversity. University-affiliated researchers contributed to **15 Scopus-indexed publications associated with SDG 2 (Zero Hunger)**, reflecting interdisciplinary engagement in agricultural sciences, environmental sustainability, and technological innovation.

Agricultural biodiversity and climate-resilient crops represented important areas of scientific investigation. Mammadova et al. (2025) examined the genetic diversity of 45 Azerbaijani bread wheat genotypes using molecular markers associated with drought tolerance, identifying genetic characteristics relevant to future crop-breeding research. Similarly, Ojaghi et al. (2025) investigated the allelic diversity of 50 Azerbaijani wheat accessions, contributing to the scientific understanding and conservation of local agricultural genetic resources. Salimov et al. (2025) further explored the genetic and morphological diversity of Azerbaijani grape varieties, supporting research on crop biodiversity and genetic resource management.

Research also addressed **climate change and sustainable agricultural production**. Tasneem et al. (2025) investigated the effects of changing climatic conditions on rice yields through machine learning models, providing insights into agricultural vulnerability and yield forecasting. Hummatov et al. (2025) examined the natural and ecological characteristics of agricultural landscapes through field surveys and remote sensing, contributing to environmental assessment approaches relevant to sustainable land management.

In the field of **agricultural innovation and resource efficiency**, Alam et al. (2025) developed a machine learning approach incorporating uncertainty quantification to improve crop recommendation systems and agricultural decision-making. Morchid et al. (2025) investigated smart irrigation technologies integrating embedded systems and predictive models to support more efficient water management and sustainable agricultural practices.

Together, these publications demonstrate Khazar University's interdisciplinary research engagement in food security, agricultural sustainability, climate adaptation, and technological innovation. Through scientific research and international academic collaboration, the University contributes knowledge relevant to resilient agricultural systems and the long-term sustainability of food production.

Selected Research Publications (2025)

1. **Mammadova et al. (2025).** *Genetic diversity analysis of Azerbaijani bread wheat (Triticum aestivum L.) genotypes with simple sequence repeat markers linked to drought tolerance.* Genetic Resources and Crop Evolution. DOI
2. **Ojaghi et al. (2025).** *Allelic diversity of Azerbaijani bread wheat (Triticum aestivum L.) by SSR markers.* Turkish Journal of Agriculture and Forestry. DOI
3. **Salimov et al. (2025).** *Inter simple sequence repeat (ISSR) based genetic and morphological polymorphism of Azerbaijani grape (Vitis vinifera) genotypes.* Genetic Resources and Crop Evolution. DOI
4. **Tasneem et al. (2025).** *Predicting rice yield and impact of climate change on rice production using machine learning models.* Theoretical and Applied Climatology. DOI
5. **Alam et al. (2025).** *An approach for crop recommendation with uncertainty quantification based on machine learning for sustainable agricultural decision-making.* Results in Engineering. DOI

6. **Morchid et al. (2025).** *An Innovative Smart Irrigation Using Embedded and Regression-Based Machine Learning Technologies for Improving Water Security and Sustainability.* IEEE Access. DOI
7. **Hummatov et al. (2025).** *Study of natural-ecological conditions in agro-landscapes based on field surveys and remote sensing.* Visnyk of V. N. Karazin Kharkiv National University, Series Geology, Geography, Ecology. DOI

On the other hand, research and international cooperation help Khazar University explore how environmental changes affect agriculture and access to food. In 2025, the Department of Life Sciences participated in the final activities of SORG4NOBAL, an international research project that examined climate-resilient sorghum as a way to reduce agricultural pollution and strengthen food security. The project brought together researchers from several countries to exchange knowledge on crop resilience, biodiversity and sustainable agricultural practices.

On 11–12 March 2025, project participants discussed nature-based solutions and agroecology, including possible uses of sorghum for animal feed and human nutrition. These exchanges connected agricultural research with practical environmental challenges and opportunities for future collaboration.

2.2 Campus food waste

Khazar University's Policy to Ensure that Food on Campus is Sustainably Farmed provides a framework for responsible food sourcing, consumption and disposal. Adopted in January 2022, the policy considers food loss and waste alongside water and soil health, biodiversity, animal welfare and workers' well-being. It applies to food and beverage provision for the University community, including contracted services and suppliers.

The policy calls for annual assessments of progress and communication of the results to University authorities. Reducing unnecessary food waste is part of the University's wider approach to managing the environmental impact of campus food services.

2.3 Student hunger

Access to nutritious and reasonably priced food contributes to students' health and well-being. Under the University's Health and Well-being Policy, which was revised in January 2024, campus nutrition and food services are expected to offer balanced, affordable meals and different dietary options, including vegetarian and allergy-sensitive choices. The policy also addresses food-safety and hygiene standards and awareness of healthy eating habits.

These provisions show how nutrition is considered in the University's campus well-being framework. They provide a policy basis for making healthy food choices more accessible to students and other members of the University community.

2.4 Proportion of graduates in agriculture and aquaculture including sustainability aspects

Khazar University's Life Sciences activities connect academic knowledge with challenges in sustainable agriculture and food production. Participation in SORG4NOBAL brought researchers into discussions on climate-resilient crops, biodiversity and the responsible use of natural resources. The University's broader scientific engagement also links food-related sustainability to environmental and public health research.

2.5 National hunger



Food security depends on the exchange of useful research and practical knowledge among universities, farmers, public institutions and other stakeholders. The SORG4NOBAL final event held in Azerbaijan on 11–12 March 2025 brought together international researchers, farmers and representatives of organisations including FAO and the Ministry of Agriculture. Sessions covered agroecology, agricultural biodiversity and possible applications of sorghum in food and feed production.

The programme included a visit to the Genetic Resources Institute and its National Genebank. Discussions highlighted the importance of knowledge exchange, farmer awareness and collaborative research for resilient agricultural practices.



On 28–29 November 2025, Khazar University hosted the 4th International Conference on "One Health: Problems and Solutions" with national and international partners, including Azerbaijan's Food Safety Agency and the Swedish University of Agricultural Sciences. A session on climate change, health and food security explored how environmental and agricultural challenges affect human well-being.

The conference brought together more than 70 researchers from seven countries and included 24 presentations. It provided a forum for exchanging research findings and discussing ways to improve cooperation among environmental, agricultural and health organisations.



At the institutional level, the sustainable food policy also sets out considerations for food purchasing, including resource use, soil and water health, nutrition, workers' rights and animal welfare. These commitments provide a framework for taking environmental and social factors into account when sourcing food for campus services.



2025 event sources: SORG4NOBAL | One Health

Selected Activities in 2025

2025	ACTIVITY
11–12 Mar	Final event of the SORG4NOBAL international research project
28–29 Nov	4th International Conference on One Health: Problems and Solutions

2025 Overview

Throughout 2025, Khazar University maintained policies addressing sustainable campus food provision and food-related well-being, contributed to research on climate-resilient agriculture, and hosted dialogue linking food security, environmental change and public health. The SORG4NOBAL project and the One Health conference created opportunities for collaboration among researchers, public institutions and agricultural stakeholders. Together, these activities reflect the University's engagement with the wider goals of sustainable food systems and improved food security.