

“KAZAKH NATIONAL AGRARIAN RESEARCH UNIVERSITY”
Non-Profit Joint Stock Company

DEVELOPMENT PLAN OF THE EDUCATIONAL PROGRAM
8D08101 – AGRONOMY

FOR 2024–2028

Recommended by the Academic Committee
of the Faculty of Agrobiological Sciences Minutes No.
10 dated May 24, 2024

Reviewed at the extended meeting of the
Department of Agronomy, Breeding and
Biotechnology Minutes No. 11 dated May
15, 2024

Almaty, 2024

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1. Passport of the Educational Program Development Plan 8D08101 – Agronomy for 2024–2028

1	Basis for the Development of the Educational Program Development Plan	The strategy and thematic focus of the Educational Program Development Plan were formulated based on the requests of employers in accordance with the Concept for the Development of Higher Education and Science of the Republic of Kazakhstan for 2023–2029 and the Development Strategy of the Non-Profit Joint Stock Company “Kazakh National Agrarian Research University” for 2024–2028.
2	Principal Developers of the Educational Program Development Plan	Head of the Department: Associate Professor Zhanbyrbayev Ye.A. PhD in Agricultural Sciences, Professor Zholamanov K.K. Master of Agricultural Sciences, Senior Lecturer Kanatova M.K. Employer: General Director of LLP “Kazakh Research Institute of Agriculture and Plant Growing” PhD in Agricultural Sciences, Professor Bastaubayeva Sh.O.
3	Main Developers of the Educational Program Development Plan	for 2024–2028
4	Scope and Sources of the Educational Program Development Plan	State Budget and Contract-Based Sources of Financing
5	Expected Final Results of the Educational Program Development Plan Implementation	Training of highly qualified scientific and pedagogical personnel for higher education institutions, research institutes, and other organizations possessing competent knowledge in the field of crop production in agriculture, capable of conducting independent research and having pedagogical skills for training future specialists.
6	Annex Number to the License for the Field of Training	KZ89LAA00031870 dated August 05, 2021, with amendments and updates KZ69LAM00001188 dated March 04, 2025

7	Accreditation of the Educational Program Name of the Accreditation Body Validity Period of the Accreditation	NAAR – “Independent Agency for Accreditation and Rating” (Non-Profit Organization) Validity period: December 24, 2020 – December 23, 2025
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2. Analytical Justification of the Program

2.1. Information on the Educational Program

“On Education” Law of the Republic of Kazakhstan dated July 27, 2007 No. 319-III;

State Compulsory Standard of Higher Education. Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2;

Classifier of Areas of Training for Higher and Postgraduate Education. Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 13, 2018 No. 569;

Model Rules for the Activities of Educational Organizations Implementing Educational Programs of Higher and (or) Postgraduate Education. Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 30, 2018 No. 595;

Rules for Organizing the Educational Process under the Credit Technology of Education. Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 12, 2018 No. 563;

Algorithm for Inclusion and Exclusion of Educational Programs in the Register of Educational Programs of Higher and Postgraduate Education. Order of the Minister of Education and Science of the Republic of Kazakhstan dated December 4, 2018 No. 665;

Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated October 12, 2022 No. 106 — Rules for Maintaining the Register of Educational Programs Implemented by Organizations of Higher and (or) Postgraduate Education, as well as the Grounds for Inclusion in and Exclusion from the Register of Educational Programs.

Professional Standard in Agronomy “Cultivation of Leguminous and Oilseed Crops”, approved by the National Chamber of Entrepreneurs of the Republic of Kazakhstan “Atameken”, dated October 26, 2022 No. 190.

Professional Standard for Teachers (Academic and Teaching Staff) of Organizations of Higher and (or) Postgraduate Education, approved by the Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated November 20, 2023 No. 591.

Purpose of the Educational Program “8D08101 – Agronomy” The purpose of the educational program “8D08101 – Agronomy” is to train highly qualified scientific and pedagogical personnel for higher education institutions, research institutes, and other organizations possessing competent knowledge in the field of crop production and agriculture, capable of conducting independent research and demonstrating pedagogical skills necessary for training future specialists.

The program is designed for the preparation of doctoral students under the educational program “8D08101 – Agronomy” at the Non-Profit Joint Stock Company “Kazakh National Agrarian Research University”.

2.2. Information on Students The contingent of doctoral students in the 2025–2026 academic year amounts to 6 doctoral students studying under state educational grants.

2.3. Internal Conditions for the Development of the Educational Program To ensure the achievement of the above-stated goals of the educational program, the Faculty possesses the necessary material and technical resources, including:

- lecture halls equipped with computers, installed software, and projectors for presentations;

- classrooms for practical classes, including computer laboratories equipped with software and Internet access for disciplines requiring digital learning environments;

- multimedia classrooms for conducting foreign language classes;

- access for students to electronic textbooks, methodological guidelines for coursework and thesis writing to support independent learning activities;

- facilities and laboratory equipment with necessary reagents for conducting student research activities at the graduating department;

- financial resources of the program provided by the university budget as well as research and international scientific and educational projects;

- information resources available to the program, including a library (with electronic publications), full Internet access for all students and academic staff, and necessary computer facilities;

- the teaching staff is fully staffed in accordance with the Educational Program Development Plan;

- the material and technical base meets the requirements of the State Compulsory Standard of Education (SCSE).

Educational and methodological documents for the specialty have been developed in accordance with the current regulatory framework, including the State Compulsory Standards of Education, model curricula for the specialty, as well as working curricula, academic calendars, catalogs of elective disciplines, and Educational and Methodological Complex of the Discipline (EMCD) for all areas of study.

The topics of diploma (thesis) works correspond to the research areas of the department (initiative scientific research themes). Particular attention is paid to such aspects as increasing the proportion of academic staff holding scientific degrees, as well as their participation in professional development courses at domestic universities, universities abroad (near and far abroad), and research institutions.

2.4. Characteristics of the Surrounding Social Environment

The University has created favorable conditions for conducting research internships. Internship programs have been developed whose content corresponds to the goals and objectives of specialist training. Long-term and short-term agreements have been concluded with partner organizations for the organization of internships.

During the internship, supervisors from both the University and the host organization maintain continuous consultation with doctoral students, providing guidance and assisting them in their professional activities. Upon completion of the internship, students submit detailed reports, which are analyzed jointly by the University and the host

organization. A joint commission, approved in accordance with established procedures, conducts the final assessment of doctoral students' internship results.

The final grade for the internship is determined based on the evaluation of the internship supervisor from the host organization (100%) and the evaluation of the University supervisor following the report defense.

The degree of satisfaction among students, academic staff, and employers regarding internship locations, conditions, and content, as well as the preparedness of students and instructors, is determined based on feedback from organizations providing internship placements. After each internship, doctoral students complete a survey to assess their satisfaction with the internship sites and organizational arrangements. Similarly, supervisors from the host organizations complete surveys evaluating the preparedness of the students.

Monitoring of the internship process and assessment of its quality are carried out by the Department of Agronomy, Breeding and Biotechnology together with the Department of Internship and Employment. Based on the results of this monitoring, both units develop recommendations for improving the organization and quality of internships.

The main internship bases for the educational program 8D08101 – Agronomy are:

LLP “Kazakh Research Institute of Agriculture and Plant Growing”;

LLP “Kazakh Research Institute of Animal Husbandry and Fodder Production.”

2.5. Information on the Academic Staff Implementing the Educational Program

The implementation of the doctoral educational program is ensured by scientific and pedagogical personnel in accordance with the requirements of the State Compulsory Standard of Education of the Republic of Kazakhstan (SCSE RK).

The list of scientific and pedagogical staff involved in the implementation of this educational program is presented in the official Staffing and Human Resource Provision Report, which confirms full staffing of the program.

Quantitative and Qualitative Composition of the Department's Faculty

The Department of Agronomy, Breeding and Biotechnology employs 23 faculty members, including 2 Doctors of Science, 13 Candidates of Science, and 4 PhD holders.

The academic degree rate of the department is 82.6%, and the average age of the faculty is 50 years.

All faculty members (100%) teach in the state language (Kazakh) and the language of interethnic communication (Russian); 4 instructors conduct classes in English.

The implementation of the educational program 8D08101 – Agronomy is carried out by highly qualified teaching staff who possess specialized education relevant to the disciplines they teach and are actively engaged in scientific and/or methodological research activities.

Instructors of specialized modules and disciplines, as a rule, hold academic degrees of Candidate of Science, Doctor of Science, or Doctor of Philosophy (PhD), and/or possess practical experience in the corresponding professional field.

Relevance and Professional Development of the Academic Staff

The relevance of the faculty composition of the Department of Agronomy, Breeding and Biotechnology lies in ensuring the high quality of education and conducting research activities that meet modern scientific and industrial demands.

The department's structure includes academic and teaching staff, research and support personnel, master's and doctoral students.

The effectiveness of this team directly influences the quality of the educational process, the implementation of new academic standards, and the university's overall scientific potential.

To enhance the quality of educational services, the instructors of the 8D08101 – Agronomy program regularly undergo advanced training, including:

- participation in professional development courses and internships in Kazakhstan and abroad;

- attendance at international, national, and regional scientific, methodological, and practical conferences and seminars.

Comprehensive professional information about the academic staff is publicly available on the official website of Kazakh National Agrarian Research University (KazNAIU) at the following address:

<https://www.kaznaru.edu.kz/ru/department/81>

2.6. Characteristics of Achievements of the Educational Program

The achievements of the educational program 8D08101 – Agronomy include the awarding of the academic degree of Doctor of Philosophy (PhD) upon successful defense of the dissertation, the opportunity to focus on in-depth scientific research, and the preparation of highly qualified scientific and pedagogical personnel, as confirmed by the diploma and certificate of completion.

The educational program 8D08101 – Agronomy is implemented in accordance with modern labor market requirements, current trends in science and technology development, and the strategic goals of the University aimed at ensuring the quality training of competitive specialists.

Research Activities The department conducts scientific research projects under grant funding that reflect relevant directions in the development of crop science. Doctoral students actively participate in these projects, which contributes to the formation of their research competencies and practical skills in experimentation, data analysis, and the presentation of scientific results.

Improvement of the Educational Program Content Based on labor market analysis and recommendations from employers, working curricula and catalogs of elective disciplines are regularly updated to include new subjects aimed at enhancing students' practice-oriented and research competencies. Such flexibility and adaptability ensure the program's relevance and compliance with modern professional standards.

Cooperation with Employers Employers actively participate in shaping the content of the educational program, organizing industrial internships, and assessing the final competencies of graduates. Collaboration with various agricultural enterprises and organizations strengthens the practical component of training and increases the employability of graduates.

Achievements of the Academic Staff The academic staff of the department actively engage in scientific research and methodological activities, develop and publish educational and methodological manuals, monographs, participate in grant-funded projects, and present their findings at international and national scientific and practical conferences.

Development of Academic Mobility and International Cooperation The program promotes academic mobility among doctoral students and faculty through research internships and exchange programs with international partners. Inviting foreign scholars to deliver lectures and workshops contributes to raising the academic level of the program and expanding international cooperation networks.

3. Description of the Problems Addressed by the Educational Program Development Plan and Justification of the Need for Their Resolution

At present, the implementation of the educational program faces the following issues:

Relevance of research topics — the need to strengthen the scientific focus of research to ensure alignment with national priorities and global scientific trends;

Insufficient linkage between science and production — the necessity to enhance the integration of research outcomes into practical agricultural applications and strengthen partnerships with production enterprises;

Low publication activity — the need to increase the number and quality of scientific publications in national and international peer-reviewed journals indexed in recognized scientific databases.

3. Main Goals and Objectives of the Educational Program Development Plan

The objective is to train qualified scientific and pedagogical personnel for higher education institutions, research institutes, and other organizations possessing competent knowledge in the field of crop production and agriculture, capable of conducting independent research work, and demonstrating pedagogical skills necessary for the training of future specialists.

To achieve this objective, the following tasks must be accomplished:

No	Title of the Task	Activity
1	Improvement and enhancement of conditions for obtaining full-fledged and high-quality professional education.	Development of activities aimed at improving educational services for the formation of professional competencies and skills.
2	Involvement in the process of improving the educational program, defining the professional competencies of graduates, and preparing educational and methodological support for the disciplines proposed by employers.	When updating the content of the educational program, include and revise disciplines that meet labor market demands and are recommended by employers.

3	Establishing strong partnerships with foreign institutions for the implementation of joint research activities and the publication of educational and methodological literature.	Development and implementation of joint scientific research and publication of educational and methodological literature.
4	Creating prerequisites for independent research activities of students within the framework of conducting experiments at all stages of their education.	Incorporation of research activities into the educational program for its development and improvement.
5	Development of activities for mastering the use of scientific information through the application of national and international experience in professional practice.	Development of a list of relevant and practically significant topics taking into account the proposals of employers and research institute scientists.

To achieve this goal, the following tasks must be accomplished:

- Creation of an innovative educational environment;
- Expansion of the educational space;
- Engagement of talented youth in scientific research;
- Development of multilingual education aimed at expanding the range of studied languages;
- Enhancement of human resource potential;
- Development of a system for advanced training of the teaching staff;
- Expansion of international cooperation between the university and higher education institutions abroad within the framework of scientific projects and academic mobility programs for students and faculty;
- Ensuring the employability and competitiveness of graduates in the labor market.

For further improvement of the academic qualification level of the teaching staff, the university should strengthen its efforts to attract young lecturers to scientific research and subsequently support their enrollment in doctoral studies.

Taking into account the further development of the educational program, it is necessary to:

- increase the proportion of teaching staff holding academic degrees;
- plan participation in international professional development and qualification courses;
- increase the number of teaching staff proficient in foreign languages;
- raise the number of published scientific papers in journals with a high citation index;
- and participate in the development and implementation of scientific projects funded by international grants.

Expected Final Results of the Educational Program Development Plan Implementation The expected final results of the implementation of the Educational Program Development Plan 8D08101 – Agronomy include the training of qualified

specialists capable of conducting scientific research, introducing innovations into production, and solving current issues in agriculture.

The results also include the successful defense of dissertations, publication of scientific articles, development of new technologies, and the creation of competitive products based on these technologies.

As a result of the implementation of the activities under the Educational Program Development Plan 8D08101 – Agronomy, the following final outcomes are expected to be achieved:

Quality of Specialist Training Training of qualified agronomist specialists possessing both theoretical knowledge and practical competencies in the fields of crop production, plant cultivation, forage production, and seed production of field crops.

Formation of graduates' ability to engage in research, production, and innovative activities under modern conditions of agronomy and related fields.

Development of critical thinking skills, as well as project-based and analytical approaches to solving professional problems.

2. Development of Research Potential

Active involvement of master's students in research activities and participation in scientific and practical conferences of various levels.

Creation of conditions for conducting research at leading research institutes of the Republic of Kazakhstan and at joint facilities established with domestic and international partners.

Increase in the publication activity of the teaching staff and master's students in peer-reviewed journals.

3. Integration of Education, Science, and Production

Strengthening cooperation with employers and specialized enterprises to enhance the practice-oriented nature of the educational process.

Improvement of graduate employability rates and employer satisfaction with the quality of graduate training.

4. International Cooperation and Mobility

Expansion of academic mobility for students and teaching staff, participation in international programs such as Erasmus+ and others.

Engagement of professors from foreign universities in teaching and research activities at KazNAIU.

Enhancement of the international competitiveness of the educational program.

5. Development of the Digital Educational Environment

Expansion of the university's educational portal capabilities to provide online course registration and access to digital learning materials.

Active utilization of international educational online platforms (Coursera, Aisana, Astana Hub, HUAWEI, etc.) to individualize learning and enhance the digital competencies of master's students and teaching staff.

6. Improvement of Educational, Methodological, and Human Resource Support

Publication and updating of educational and methodological literature by the teaching staff of the department. Приобретение современных учебно-методических и лабораторных материалов по всем ступеням подготовки.

Advanced Training and Internships

Advanced training of the teaching staff through internships in scientific and industrial organizations, including foreign institutions.

Implementation of the Educational Program Development Plan will ensure:

- improvement of the quality and attractiveness of the educational program 8D08101 – Agronomy at both the national and international levels;
- formation of competitive, mobile, and responsible specialists capable of working in the fields of science, education, and agricultural production;
- strengthening of KazNAIU's image as a leading university implementing innovative and internationally oriented educational programs.

3. Measures to Mitigate Risks Affecting the Educational Program

In order to minimize possible risks affecting the implementation and sustainable development of the educational program 8D08101 – Agronomy, the following measures are planned for implementation:

№	Activity	Expected Result	Responsible Unit
1	Increase in the Doctoral Student Contingent Increase in the number of doctoral students through the enhancement of career guidance and recruitment activities. Conclusion of agreements with leading research institutes and scientific centers for the targeted training of doctoral students. Development of international student recruitment, including from CIS countries.	Increase in the number of students and enhancement of the financial sustainability of the program.	Department, Admission Committee of the Kazakh National Agrarian Research University (KazNARU)
2	Improvement of the doctoral educational program in accordance with modern requirements. Full provision of students with educational and methodological literature — including the publication of teaching materials	Improvement of the quality of the educational process and accessibility of educational resources.	Department, Library of the Kazakh National Agrarian Research University (KazNARU)

	by the department's faculty, the renewal of the university library collections, and the acquisition of modern literature and electronic resources.		
3	Conclusion of agreements with leading economic entities for the organization of research internships and for facilitating graduate employment.	Enhancement of the practice-oriented nature of education and improvement of graduate employability.	Department, Office of Practice and Employment of the KazNARU
4	Timely planned renewal and procurement of modern laboratory equipment, consumables, and reagents.	A modern material and technical base that meets the requirements of the educational process and scientific research.	Department, Procurement Office of the KazNARU
5	Professional development and enhancement of the teaching staff's human resource potential through internships, training courses, and seminars.	Enhancement of the professional level of teachers and the quality of educational services.	Department, Office of Advanced Training of the KazNARU
6	Enhancement of international cooperation and academic mobility of students and teaching staff. Participation in international educational and scientific projects.	Expansion and strengthening of academic exchanges and enhancement of the international status of the educational program.	Department, International Office of the KazNARU
7	Development of the digital infrastructure of the educational process (upgrading of the university portal, implementation of digital tools for monitoring and feedback).	Reduction of administrative risks, and enhancement of transparency and manageability of the educational process.	Department, IT Department of the KazNARU

3. List of Activities of the Educational Program Development Plan

№	Activity	Timeline	Responsible Unit	Expected Outcomes
1	Updating the content of the educational program taking into account the priority areas of agricultural science, digitalization, and sustainable agriculture.	Annually	Department, Academic Committee, and Dissertation Defense Council (DDC).	The program meets modern scientific and industrial requirements.
2	Expansion of doctoral students' participation in research projects and grants of the Ministry of Science and Higher Education, the World Bank, Erasmus+, and GreenAgro.	Annually	Scientific Supervisors and Department.	Increase in the number of publications and patents.
3	Development and implementation of video lectures, online courses, and MOOCs for doctoral program disciplines.	2025–2027.	Department Faculty Members and Dissertation Defense Council (DDC).	Digitalization of the educational process.
4	Development of international cooperation with leading agricultural universities and research centers (academic mobility, internships, joint research).	2025–2028.	Department and Department of International Relations of the Kazakh National Agrarian Research University.	Enhancement of international visibility and publication activity.
5	Improvement of the system of scientific supervision and consulting for doctoral students.	2025–2026.	кафедра, Департамент по науке.	Improvement in the quality of dissertation research.
6	Introduction of interdisciplinary courses (agroecology, biotechnology, precision agriculture, big data in the agricultural sector).	2026.	Department and Educational and Methodological Office (EMO)	Development of competencies in related scientific fields.
7	Organization of international and national scientific conferences, seminars, and round tables with the participation of doctoral students.	Annually	Department and Council of Young Scientists of the Kazakh National Agrarian Research University	Advancement of scientific communication and knowledge exchange.
8	Support for doctoral students' publications in high-impact journals (Scopus, Web of Science, Q1–Q3).	Annually	Department and Scientific Supervisors of the Kazakh National Agrarian Research University (	Growth in the citation index and academic reputation of the educational program.
9	Upgrading of laboratory and research facilities for the implementation of experimental studies.	2025–2027.	Department and Department of Science of the Kazakh National Agrarian Research University	Creation of conditions for high-quality scientific research.
10	Monitoring of PhD graduates' employment and feedback collection from employers.	Annually	Department and Dissertation Defense Council (DDC) of the Kazakh National Agrarian Research University	Increase in the employability of graduates and the practical orientation of research.

8. Justification of the Resource Support for the Plan

Qualified teaching and professorial staff;

Library collection of electronic educational materials and other available educational and methodological resources;

Information resources;

Human resources;

Material and technical base.

9. Mechanism for the Implementation of the Educational Program Development Plan

The mechanism for implementing the Development Plan of the Educational Program 8D08101 – Agronomy includes the development and approval of curricula, course syllabi, and the assessment of learning outcomes.

For the effective implementation of the development plan of the educational program 8D08101 – Agronomy, a phased approach is envisaged, aimed at improving the quality of specialist training and strengthening the competitiveness of the program.

1. Increase in the number of students.

Agreements will be concluded with leading research institutes and scientific centers for the targeted training of doctoral students. Special attention will be given to promoting the educational program on international educational platforms and participating in exhibitions, forums, and career guidance events.

2. Improvement of the content and structure of the educational program.

The department staff will develop and annually update catalogs of elective disciplines with the participation of employers, ensuring that learning outcomes align with current labor market demands and professional standards. Interdisciplinary approaches will be actively integrated into the program.

3. Development of practice-oriented learning.

The development of practice-oriented learning for doctoral students in agronomy includes strengthening the connection between academic training and real tasks of the agro-industrial sector through project-based activities, internships, case studies, and participation in research projects conducted at research institutes.

It is essential to develop not only theoretical knowledge but also professional competencies, experience in modern technologies, and the ability to apply knowledge to practical problem-solving.

4. Involvement of external experts and international cooperation.

Leading scientists and specialists from both domestic and foreign institutions will be invited to deliver lectures, conduct workshops, and provide scientific consultations. Active development of academic mobility among doctoral students and teaching staff, as well as the creation and implementation of joint educational and research projects with international partners, are key priorities.

5. Information and digital support of the educational process.

Information and digital support of the educational process within the educational program 8D08101 – Agronomy involves the use of modern digital tools and technologies in teaching. This includes online courses, learning management systems (LMS), electronic libraries, and specialized digital solutions such as Geographic Information Systems (GIS), the Internet of Things (IoT), and Artificial Intelligence (AI), which are directly applied in the agro-industrial complex.

6. Monitoring and Evaluation of the Effectiveness of Plan Implementation

Continuous monitoring of key performance indicators of the implementation of the educational program is carried out.

These indicators include graduate employment rates, employer satisfaction, academic performance, and the level of research activity among students and teaching staff.

The results of the analysis are used to further adjust the development plan and update the educational program.

10. SWOT – анализ

S (Strengths) – Strong Points Compliance of the educational program with the requirements of the State Compulsory Educational Standard of the Republic of Kazakhstan (SCES RK) and professional standards. Qualified teaching and research staff with both scientific and practical experience. Free access of doctoral students to international online learning platforms (Coursera, HUAWEI, and others). Functioning university educational portal providing access to learning and methodological materials. Participation of doctoral students in scientific and research projects.	W (Weaknesses) – Weak Points Insufficient participation of foreign professors in the implementation of the program. Low level of publication activity of the teaching and research staff in international databases (Scopus, Web of Science). Weak English language proficiency among the department's teaching staff. Low level of English language proficiency among doctoral students. Insufficient systematic involvement of employers in the evaluation of educational outcomes.
O (opportunity) – Expansion of international cooperation with foreign universities and research centers. Participation in international educational and scientific programs. Involvement of foreign professors in teaching and research activities. Publication of modern educational and methodological literature in the department's specialized disciplines. Participation of students and teaching staff in international conferences and seminars. Acquisition of modern equipment within the framework of scientific projects. Explanation:	T (Threats) – Threats and Risks High competition in attracting talented students and young faculty members. Low probability of increasing salary levels above the average university rate. Moral and technological obsolescence of laboratory and research equipment.

Expansion of international cooperation — an accurate equivalent of “расширение международного сотрудничества.”

Participation in international educational and scientific programs — a universal formulation covering Erasmus+, Horizon Europe, GreenAgro, and other initiatives.

Involvement of foreign professors — an official academic term used for engaging international experts in teaching and research.

- Publication of modern educational and methodological literature — a precise translation of publication of modern educational and methodological literature. Acquisition of modern equipment — a standard expression used to describe the purchase of equipment within research projects.

11. Graduate Model of the Educational Program 8D08101 – Agronomy

№	Graduate Profile	Key Competencies	Learning Outcomes	Potential Areas of Professional Activity
1	A professionally trained specialist in the field of agronomy.	Knowledge in the field of crop production, plant cultivation, forage production, and seed production of field crops.	Identification and formulation of current scientific problems and research programs in agronomy. Establishment of experimental trials, processing, analysis, and systematization of information on research topics. Preparation of reports, scientific recommendations, and publications on current issues in agronomy. Planning of teaching sessions in accordance with the curriculum and educational strategy. Evaluation of pedagogical outcomes and learning achievements. Definition of specific teaching objectives and forecasting of learning results. Selection and application of appropriate teaching tools and methods for the design of effective learning technologies..	Joint-stock companies, production cooperatives, limited liability partnerships, and agricultural enterprises. Farming enterprises, peasant farms, and agricultural production cooperatives. Experimental and research institutions in the field of agriculture. Enterprises engaged in the storage and processing of crop production. Institutions for the variety testing of agricultural crops. Agricultural experimental stations.
2	Researcher and Innovator	-Ability to formulate scientific hypotheses and conduct experiments. -Skills in project-based and research activities.	Participates in the development and implementation of scientific research projects. Is able to analyze results, prepare reports, and publish scientific findings.	Participates in the development and implementation of scientific research projects. Is able to analyze results, prepare reports,

				and publish scientific findings.
3	Practice-Oriented Specialist	Ability to apply acquired knowledge in practice in the field of agronomy and environmental management. Possession of skills to organize and develop environmentally safe and nature-conserving farming systems. Ability to conduct expert evaluation of crop production for the presence of hazardous and harmful substances, ensuring compliance with sanitary and environmental standards.	- Competencies and Learning Outcomes: Conducts laboratory research, analyzes results, and implements innovative solutions. Participates in production processes.	Places of Professional Practice and Employment: Joint-stock companies, production cooperatives, limited liability partnerships, and agricultural enterprises; Farming and peasant households, as well as production cooperatives; Experimental and research institutions in the field of agriculture; Enterprises for storage and processing of crop production; Institutions for variety testing of agricultural crops.
4	A communicatively and socially competent individual.	Possession of business and scientific communication skills. Ability to work in a team and in an interdisciplinary environment. Ability to present research results.	Effectively interacts within the professional community. Demonstrates leadership qualities and communication skills.	Academic and corporate environments, including project and research groups.
5	A citizen demonstrating ethical integrity and environmental responsibility.	Awareness of the social and environmental significance of bioengineering activities. Adherence to the principles of scientific and professional ethics.	Observes ethical principles in conducting research. Assesses environmental risks and consequences of biotechnological solutions.	Joint-stock companies, production cooperatives, limited liability partnerships, and agricultural enterprises;

				Farming and peasant households, as well as production cooperatives; Experimental and research institutions in the field of agriculture; Enterprises for storage and processing of crop production; Institutions for variety testing of agricultural crops; Universities and international research centers.
6	A competent and adaptable specialist proficient in modern information technologies.	Proficiency in modern digital tools and databases. Readiness for academic mobility and international collaboration.	Uses digital platforms for data analysis, exchange, and visualization. Participates in international academic and research projects.	

Upon completion of the program, the graduate should be able to:

Codes of Learning Outcomes	Learning Outcomes of the Educational Program 8D08101 – Agronomy
Learning Outcomes Codes 1	To select solutions for the development and improvement of research methods and methodologies, to formalize research results, to recognize the features of academic writing genres, and to follow the rules of citation and referencing of information databases for scientific, business, project, and other purposes.
Learning Outcomes Codes 2	To demonstrate a systematic understanding in the field of study, to possess skills and methods of scientific research, to comprehend the problems of scientific inquiry, to apply innovative research techniques in accordance with the characteristics of scientific style, and to develop an understanding of written forms of research and skills in writing academic texts.
Learning Outcomes Codes 3	To demonstrate improved agricultural crop productivity considering plant morphology, biological traits, and field landscape conditions.
Learning Outcomes Codes 4	To be able to critically analyze, evaluate, and synthesize new and complex ideas in the field of the use of Global Navigation Satellite Systems (GNSS), Geographic Information Systems (GIS), and Remote Sensing (RS) technologies that ensure the accuracy of technological operations (sowing, soil cultivation, harvesting, and other activities) taking into account the features of the terrain, etc.
Learning Outcomes Codes 5	To evaluate effective water-saving innovative irrigation methods for agricultural crops that ensure the intensive use of irrigated lands.
Learning Outcomes Codes 6	To use irrigation systems in addressing water consumption issues within major intensive farming systems in Kazakhstan.

Head of the Department

“Agronomy, Breeding and Biotechnology”

Zhanbyrbayev E.A.

Dean of the Faculty of Agrobiology –

Abildayev Y.S.

**DEVELOPMENT PLAN OF THE DOCTORAL EDUCATIONAL PROGRAM
8D08101 – Agronomy**

Task 1. Integration of scientific and scientific-technical activities with the educational process at all levels of higher and postgraduate education.

<i>№</i>	Performance indicators	Unit of measu.	2024	2025	2026	2027	2028
1.	Contingent of students enrolled in the educational program	чел	3	5	7	8	10
2.	Share of graduates employed within the first year after graduation	%	100	100	100	100	100
3.	Share of international students in the total number of students in the educational program	%	0,1	0	1	1	2
4.	Share of students participating in academic mobility programs of the total number of students in the educational program, including international internships	%	0,1	0,1	0,2	0,2	0,3
5.	Compliance of the Academic Staff (faculty) of the educational program with qualification requirements regarding academic degrees	%	100	100	100	100	100
6.	Share of invited foreign experts involved in teaching activities	%	1	1	2	2	3
7.	Number of research institute (RI) scientists employed as part-time and/or hourly faculty at the university	pers.	2	2	3	4	5
8.	Joint supervision and training of doctoral students based on research institutes	pers.	3	4	6	8	10
9.	Share of faculty teaching in English in the total number of academic staff	%	16	16	17	17	18
10.	Number of educational and methodological publications developed by faculty according to the specifics of the educational program	qty.	10	11	11	12	12
11.	Updating of the Educational Program in accordance with labor market requirements	+/-	+	+	+	+	+
12.	Analysis of the Educational Program for compliance with the University Strategic Development Plan	+/-	+	+	+	+	+
13.	Application of digital technologies in the disciplines of the Educational Program	+/-	+	+	+	+	+
14.	Organization of round tables on the implementation of competencies into the educational process	+/-	+	+	+	+	+
15.	Participation of potential stakeholders as experts of the Educational Program	qty.	2	2	3	3	4
16.	Involvement of stakeholders in the development of the Educational Program and in	+/-	+	+	+	+	+

	the evaluation of the quality of specialist training (Students, Employers, Alumni)						
17.	Position of the Educational Program in national rankings: — NAAR — NKAOKO — Atameken	rank	1 1 1	1	1 1 1	1 1 1	1 1 1
18.	Availability of accreditation of the Educational Program	+	+	+	+	+	+
19.	Share of disciplines incorporating online courses such as Coursera, edx, etc.	%	3	5	5	7	7
20.	Number of doctoral students who have completed at least one certified Coursera course related to the Educational Program	pers.	2	2	3	4	8
21.	Number of faculty members participating in fundamental and applied research	unit	5	6	7	8	10
22.	Number of students participating in research projects and competitions	unit	2	3	4	6	8
23.	Number of research projects carried out within international cooperation	unit	-	-	-	1	1
24.	Number of student publications in journals recommended by the Committee for Quality Assurance in Science and Higher Education (KKSON)	unit	3	4	5	56	
25.	Number of doctoral students' publications in journals with a non-zero impact factor indexed in Thomson Reuters / Scopus	unit	4	4	6	8	10

Task 2. Development of an effective model of corporate governance and strengthening of the university's intellectual potential.

<i>Nº</i>	Performance indicators	Unit of measu.	2024	2025	2026	2027	2028
1.	Share of young researchers in the total number of scientists and researchers engaged in R&D activities	%	1	1	1	2	3
2.	Share of academic staff who have completed professional development and international internships	%	4	2	3	4	5
3.	Participation of academic staff in annual competitions for the awards “Best Researcher,” “Best University Teacher,” state research awards and scholarships for outstanding scientists	qty.	-	-	1	1	2
4.	Participation of the academic staff of the Educational Program in the “Silver University” programs aimed at providing access to high-quality education for individuals of any age (with specialization options: digital education, inclusive education, digital technology-based training)	+/-	-	-	-	1	1

Task 3. Activities aimed at the commercialization of the results of scientific and scientific-technical research and the implementation of scientific developments and technologies in production.

<i>Nº</i>	Performance indicators	Unit of measu.	2024	2025	2026	2027	2028
1.	Participation of students in startup projects	pers.	0	0	0	1	2

Task 4. Development of the university's scientific-educational infrastructure and digital architecture.

<i>Nº</i>	Performance indicators	Unit of measu.	2024	2025	2026	2027	2028
1.	Share of upgraded laboratory equipment	%	1	1	2	2	3
2.	Provision of student housing (availability of dormitory accommodation for students)	+/-	+	+	+	+	+