The Ministry of Agriculture of the Republic of Kazakhstan
Non-commercial JSC "National Agrarian Science and Educational Centre"

«S.Seiffulin Kazakh Agrotechnical Research University» JSC

Catalog of completed scientific and technical developments for 2021-2023

Astana, 2025

Content

Program-specific financing

Grant funding

"Development of analytical control and food safety monitoring methods"

Program/Project Manager - Doctor of Technical Sciences, Professor Bulashev A. K.

Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, amount 540 000,0 thousand tenge

Goal - Development of methods for monitoring the safety of livestock products and determination of the risks of pathogenic microflora resistance to antibiotics.

Research area - Veterinary medicine. Directions: veterinary sanitation, veterinary microbiology, veterinary diagnostics, veterinary immunology.

Program/project results - scientific and technical documentation and experimental samples of the following veterinary drugs, made on the basis of the use of modern biotechnology methods and ready for commercialization, have been developed:
- diagnostic kit for pathogen detection campylobacteriosis in animal products;
- diagnosticum to detect antibiotics in milk and meat;
-kit for rapid detection of cow mastitis pathogens;
-multiplex PCR for detection of pathogenic staphylococci and streptococci in dairy products.

Potential customers – agricultural producers, laboratories.

Contact details - email address: aytbay57@mail.ru




Program/Project Manager – Candidate of Biological Sciences, Savin T. V.

Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, amount 1 206 514,92 thousand tenge

Goal – Increasing the productivity of the agroindustrial complex of the Republic of Kazakhstan by creating and accelerating the introduction of highly productive and resistant to environmental stress varieties and hybrids of new generation grain crops using the world's plant diversity, classical breeding methods, molecular biology and bioengineering.

Research area – Crop production.

Program/project results – together with the implementing organizations, 23 varieties of agricultural crops were created and submitted for State variety testing. Added funds DNA Collection Bank spring soft wheat, durum wheat, rice, and barley. A DNA passport of 60 varieties and promising lines of spring soft wheat was created using 10 informative KASP markers associated with economically valuable traits that determine the adaptability and yield of plants. As a result of clustering the studied collection of soft wheat using 10 KASP markers, we created dendrogram.

Potential customers – agricultural producers, representatives of agribusiness, and the scientific community.

Contact details – email address: savintimur_83@mail.ru




«Building a decision-making system for the production of major types of agricultural crops based on the adaptation of the model DSSAT growth and development of agricultural crops, an integrated management system for the production of livestock products based on SMART- technologies with the formation of an information base of scientific and technical documentation on agro- technologies for agribusiness entities in order to create SMART- systems in agriculture»

Program/Project Manager – Doctor of Agricultural Sciences, Professor A. K. Kurishbaev

Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, the amount of 649,873. 91 thousand tenge

Goal – implementation of the concept of "Smart" agriculture, including high-tech crop and livestock products, including on the basis of new technical solutions

Research area – Crop production.

Program/project results – adapted the DSSAT decision-making system (decision support system in the field of information security). agricultural technologies) for three farms located in different soil and climatic zones of Northern and Central Kazakhstan. The values of genotype-specific parameters (GSP) for CERES models are determined-Wheat, CROPGRO-Pea and OILCROP-Sunflower DSSAT, respectively, for cereals, legumes, and oilseeds. The first stage of development of a farmer information portal based on the DSSAT model has been completed. As part of this stage, an open access module has been developed (open API), which allows other researchers and interested parties to use the system.

Potential customers – agricultural producers, representatives of agribusiness, and the scientific community

Contact details – email address: aabsattarova@mail.ru

Program/Project Manager – Doctor of Technical Sciences, Professor Tultabayeva T. Ch.

Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, amount 265 277, 98 thousand tenge

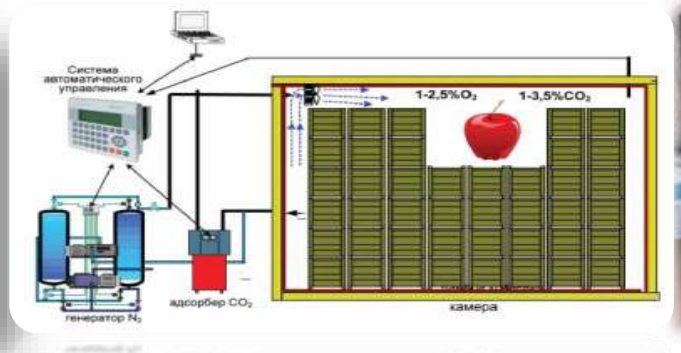
Goal – Development of innovative technologies for processing and storage of crop and livestock products

Research area – food and processing industry.

Program/project results – developed by 4 production technologies:
- drinks made from bee honey;
- freeze dried honey with a long shelf life;
- freeze-dried high-quality berries with a long shelf life;
- innovativelast name technology of storage of fruits, berries and grapes.

Potential customers – food industry enterprises.

Contact details – email address: tamara_tch@list.ru



Program/Project Manager – Doctor of Technical Sciences, Professor Tultabayeva T. Ch.

Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, amount 626 562,34 thousand tenge

Goal – Development of innovative technologies for processing and storage of crop and livestock products

Research area – food and processing industry.

Program/project results – 11 production technologies have been developed:
- functional products made from sheep's and goat's milk;
- fast food products;
- combined fermented milk protein products of long-term storage;
- lactose-free products dairy products;
- preventive drinks;
- low-fat meat products trans fats and herodietic destinations

Potential customers – food industry enterprises.

Contact details – email address: tamara_tch@list.ru



Program/Project Manager – Candidate of Agricultural Sciences, S. K. Bostanova

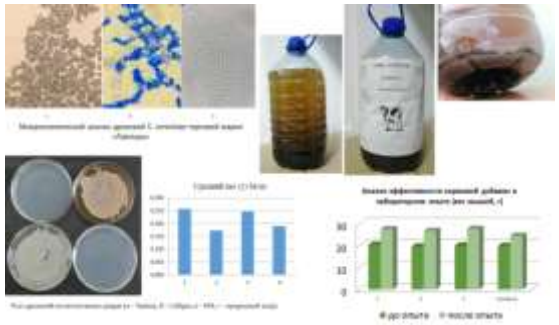
Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, amount 584 827,81 thousand tenge

Goal – razrabotka technologies contents, feedings, growing facilities and reproductions in dairy cattle breeding adapted ones resource-saving technologies, digital technologies for various natural and climatic conditions zones Of Kazakhstan.

Research area – animal husbandry.

Program/project results – developed by:
-feeding standards for dairy cows based on the following standards NRC and a signed license agreement with the National Academy of Sciences (USA), standards for the maintenance and reproduction of dairy cows;
-technological schemes for rearing heifers that were inseminated at 15 months of age;
-resource-saving production technology highly digestible combi- a new generation of feed with programmable properties, which involves the use of the software platform extrusion process

Potential customers – agricultural producers, representatives of agribusiness, and the scientific community
Contact details – email address:bostanova_sk@mail.ru

"Development and creation of science-based SMART farms (herd horse breeding, beef cattle breeding) using various at least 3 digital solutions for each implementation area digitalization for the actual production tasks of agribusiness entities and the formation of the necessary infrastructure for this purpose reference page databases for training farm and farm employees and transferring digital knowledge to students"

Program/Project Manager – Candidate of Agricultural Sciences, S. K. Bostanova

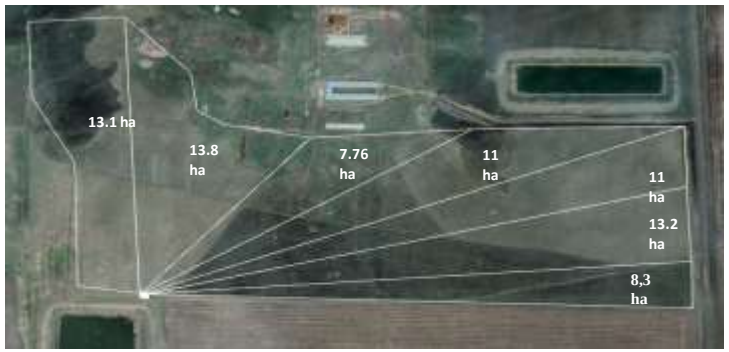
Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, amount 705 306,49 thousand tenge

Goal – Creation of integrated systems in herd horse breeding and beef cattle breeding based on digital solutions

Research area – animal husbandry.

Program/project results – developed by:
- own tracker which requires further research, based on on GPS and LoRaWAN;
- platform stress-free weighing of cattle (CATI) with systems Intergado (Brazil) and Vytelly (Canada);
- smart pasture technology for remote herd management.

Potential customers – agricultural producers, representatives of agribusiness, and the scientific community
Contact details – email address:bostanova_sk@mail.ru



Program/Project Manager – Doctor of Biological Sciences, Professor Әліпбеки О. Ә.

Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, amount 249 437, 61 thousand tenge

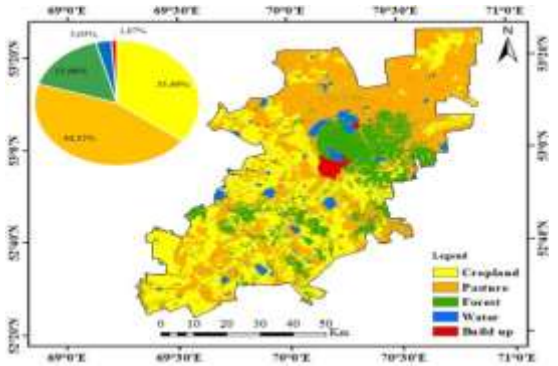
Goal – development of organizational, economic, environmental and social (SEEC) mechanisms for ensuring sustainable development of the agro-industrial complex (AIC) of Kazakhstan based on the integrated use of fundamental declarative approaches (DP), spatial and temporal data (LDP) and sustainable Development indicators (SDGs) of the 2030 Sustainable Development Goals (SDGs).

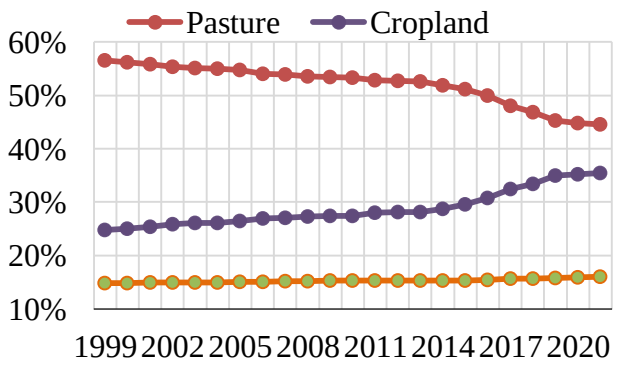
Research area – rural development

Program/project results – A methodology for integrated assessment of the sustainable development of individual administrative-territorial districts using demographic, economic, social, environmental, climatic indicators and spatial and temporal data has been developed.

Potential customers – employees of state bodies of the Republic of Kazakhstan, as well as representatives of agribusiness, the community of scientists

Contact details – email address: oalipbeki@mail.ru





Program/Project Manager – Ph. D. in Economics, assoc. professor Karabasov R. A.

Source and amount of funding for the program / project – competition of PCF of the Ministry of Agriculture of the Republic of Kazakhstan for 2021-2023, amount 212 372,74 thousand tenge

Goal – regulatory, legal and methodological support for the development of organic production in the Republic of Kazakhstan in accordance with international and foreign standards and requirements and priority sales markets.

Research area – organic farming.

Program/project results – The "Roadmap for the development of organic agriculture of the Republic of Kazakhstan for 2022-2023", draft concepts for the formation and operation of the Register of Organic seeds of agricultural crops in the Republic of Kazakhstan, and the application of the system were developed. traceability production and turnover of organic products, formation and operation of the PGS program-Qazaqstan. The socio-economic and environmental results of the transition to organic management methods are determined.

Potential customers – enterprises switching to the production of organic products, consumers of organic products, employees of state bodies of the Republic of Kazakhstan, representatives of agribusiness, the community of scientists

Contact details – email address: karabasov.rasul@mail.ru

"Express test for diagnosing trichinosis"

Program/Project Manager - Ph.D. , Associate Professor Akibekov Orken Sultanhamitovich

Source and amount of funding for the program/project - competition of the State Fund of the MU KN MNE RK for 2021-2023 , amount 54,000.0 thousand tenge

Goal - Development of an immunochromatographic test (ICA test) for intravital and post-mortem diagnosis of trichinosis in animals.

Field of study - Veterinary medicine. Veterinary diagnostics, parasitology.

Results of the program/project - rabbits were infected with *Trichinella larvae spp* . from spontaneously infested animals;
- work was carried out to isolate Trichinella larvae and excretory-secretory and somatic antigens were obtained;
- the diagnostic value of somatic and excretory-secretory antigens in immunological reactions was determined;
- polyclonal antibodies were obtained to the obtained *Trichinella antigens spp* ;
- conjugates of the Trichinella antigen with colloidal gold were prepared, the parameters of the ICA test were developed and optimized for the effective detection of antibodies to *Trichinella spp* .
- using the established parameters, an ICA test was designed to detect antibodies to *Trichinella spp* . in animals in the field;
- 2 articles published in the journal incoming base Web of science data (Q2), 1 journal article recommended by KOKSNVO, 4 theses in the international conference and received 2 copyrights evidence

Potential consumers – Veterinary laboratories.

Contact details - email: orken.as@mail.ru

No. AP09058301 “Aflatoxin contamination of various nuts and development of methods for their detoxification”

Program/Project Manager – PhD , associate professor

Source and amount of funding for the program/project - competition of the CMU GF MNE RK for 2021-2023, amount 49,150.0 thousand tenge

Goal - Development of methods for detoxification of various nuts when contaminated with aflatoxin B_1 with determination of their veterinary and sanitary assessment.

Field of study – Food and phytosanitary safety

Program/project results - scientifically based recommendations for production and guidance for consumers on the risks associated with consuming contaminated nuts were developed; methods for detoxification of nuts when contaminated with aflatoxin B 1 have been selected a comparative veterinary and sanitary assessment of various nuts has been developed;

Potential consumers – producers and importers of nuts

Contact details - laura_aut@list.ru

“Development of a methodology and computer program for determining additional losses of electrical energy during its transportation and distribution in the electrical network”

Program/Project Manager - PhD , acting assoc . Professor Zhantlesova A.B.

Source and amount of funding for the program/project – competition of young scientists of the Republic of Kazakhstan for 2021-2023, amount 39,652.42 thousand tenge

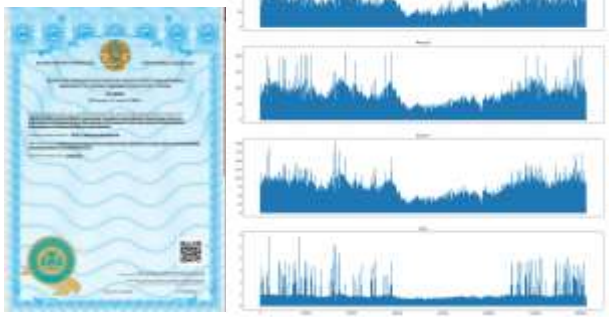
Goal - Creation of an improved methodology for determining additional electricity losses caused by asymmetry and non-sinusoidal currents in electrical networks, as well as its implementation in a software environment .

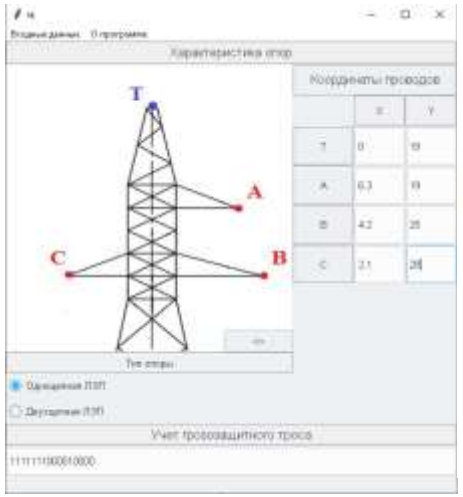
Field of study - Electric grid companies to determine the structure of losses and assess their quantitative characteristics.

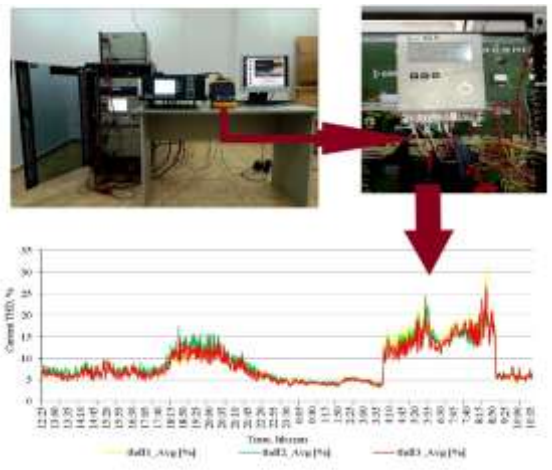
Results of the program/project - a software application has been developed that allows estimating electricity losses from asymmetry and non-sinusoidal currents. “Instructions for calculating losses for electric grid companies on using the program “Calculation of losses on power lines” have been compiled. Based on the methodology for calculating the main and additional losses, recommendations have been developed that outline the accounting of additional losses when regulating commercial relations between the energy supply organization and the consumer, recommendations for assessing additional losses of electricity and taking them into account when setting tariffs, as well as recommendations for reducing the share of additional losses of electricity. Educational and methodological manuals have been developed for implementation in the educational process.

Potential consumers – Electric grid companies.

Contact details - email: acbizh@mail.ru







“Study of electric discharge destruction of reinforced concrete products and solid waste for the development of a mobile complex for their processing and disposal”

Program/Project Manager – PhD Sarsikeev E.Zh.

Source and amount of funding for the program/project – competition “ Grant funding for young scientists for scientific and (or) scientific and technical projects for 2021-2023” , amount 40,598.9 thousand tenge

Goal - Development of the physical and technical foundations of the electric discharge method for the destruction of reinforced concrete to increase the efficiency of its disposal and processing, reduce the environmental load by minimizing the volume of industrial waste and introducing energy-saving, environmentally friendly technologies in the dismantling and repair of buildings and structures .

Field of study - Recycling of reinforced concrete products.

Program/project results

- A phenomenological model of electric discharge destruction of concrete and reinforced concrete has been developed, taking into account the geometry and depth of reinforcement .
- A physical and mathematical model of electric discharge (electric discharge impact) in concrete and reinforced concrete structures has been developed, taking into account the parameters of a high-voltage generator, physical and mechanical characteristics and natural cracking of the destroyed material and the structure of concrete and the geometry of the reinforcement frame .
- Requirements for the technical characteristics of the generator and electrode system, recommendations for the assessment and selection of effective operating and energy characteristics of mobile equipment have been developed ; mobility, power supply, reliability, safety, design requirements, technical and economic requirements .

Potential consumers are organizations for the dismantling and recycling of reinforced concrete products.

Contact details - email: sarsikeyev.ermek@yandex.ru

“Improving the quality of restoration of agricultural machinery parts by developing compositions of repair composite mixtures based on polymers, minerals and nanoadditives”

Project manager - Ph.D. , associate professor Kokaeva G.A.

Source and amount of project funding – competition for grant funding of young scientists for scientific and (or) scientific and technical projects for 2021-2023 , amount 54,000.0 thousand tenge

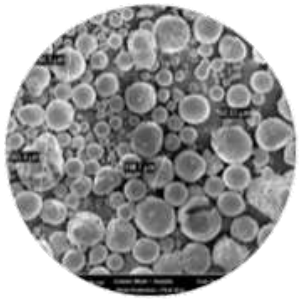
Goal - Development of new compositions of repair composite mixtures based on polymers, minerals with nanoadditives with improved characteristics for the restoration of machine parts .

Field of study - materials science, composite and powder materials, coatings. Directions: technology of composite materials, nanotechnology.

Project results :
- new composite materials based on silicates and technogenic waste have been developed for the restoration of parts of agricultural machinery;
-The scientific and technical basis for obtaining new composite materials based on silicates and man-made waste for the restoration of parts of agricultural machinery has been developed.

Potential consumers are mechanical engineering enterprises, service centers in rural areas for the repair and restoration of agricultural machinery parts.

Contact details - email: GAKokaeva@mail.ru



“Development of technology for baby food meat products from non-traditional raw materials of the meat industry”

Program/ Project Manager – PhD, Makangali K.K.

Source and amount of funding for the program/project - competition of the Global Fund of the Ministry of Education and Science of the Republic of Kazakhstan for 2021-2023, amount 53,277.268 thousand tenge

The goal is to develop technology for baby food meat products from non-traditional raw materials of the meat industry, in particular, camel and goat meat .

Field of study – Food industry . Directions: Processing and storage of agricultural products and raw materials.

Results of the program/project - scientific and technical documentation and prototypes of boiled sausage products have been developed, manufactured using modern methods of combinatorics of food raw materials and ready for commercialization:
- Scientifically based use of non-traditional meat raw materials and its quality indicators;
- Sausages for baby food “ Kainar ”;
-Boiled meat pate for baby food “ Zhiger ”;

Potential consumers are meat processing enterprises.

Contact details - email: k.makangali@kazatu.kz

“ CREATION OF A CRYOBANK OF REPRODUCTIVE CELLS OF VALUABLE FISH SPECIES OF KAZAKHSTAN ”

Program/Project Manager to agricultural science Asylbekova A. S.

Source and amount of funding for the program/project - competition of the Global Fund of the Ministry of Education and Science of the Republic of Kazakhstan for 2021-2023, amount 52,802.188 thousand tenge

Goal - Adaptation of advanced cryopreservation methods and creation of a cryobank of genetically pure biomaterials to preserve the gene pool of valuable fish species in Kazakhstan .

Field of study – Fisheries **,** Aquaculture .

Program/project results

- Adaptation of advanced methods of cryopreservation of reproductive cells of males of valuable fish species in Kazakhstan was carried out.
- Collection of biomaterials of valuable fish species in Kazakhstan was carried out.
- A molecular genetic analysis of valuable fish species was carried out.
- A cryobank of reproductive cells of valuable fish species has been created.
- Practical recommendations on cryopreservation technology have been developed

Potential consumers – Fish farms, fish hatcheries.
Contact details - email: gamily-05@mail.ru









" RESEARCH AND DEVELOPMENT OF AN AUTOMATED PROCTORING SYSTEM FOR CONTROL OF STUDENTS' KNOWLEDGE IN DISTANCE LEARNING CONDITIONS "

Program/Project Manager - Ph.D. , Zulpykhar Zh.E.

Source and amount of funding for the program/project - competition for grant funding of the Ministry of Science and Higher Education of the Republic of Kazakhstan for 2021-2023, amount 58,608.0 thousand tenge

The goal is to research and develop an automated proctoring system for monitoring students' knowledge in distance learning conditions.

The field of study is the field of education .

Results of the program/project - Scientific and methodological foundations for organizing the educational process using distance learning technologies at universities have been developed ; Structural and logical schemes for monitoring and assessing the results of students' educational activities based on artificial intelligence have been developed; mathematical models of informative features of an object are proposed ; Classification algorithms have been implemented to reduce the time required to identify a person's face ; identification algorithms have been proposed that take into account such interference as portrait shift, different scales of photographs and the tilt of the identified face to increase confirmation of the authenticity of the recognized object ; mathematical models, methods and algorithms are implemented in the form of a program ; The automated proctoring system Proctor SU has been developed

Potential consumers are public and private organizations such as universities, schools, etc.

Contact details - email: astzhan@gmail.com

" Ecological monitoring of water bodies in Northern Kazakhstan "

Project leader: Candidate of Biological Sciences, Associate Professor Satybaldieva G.K.

Source and amount of project financing: competition of the Ministry of Education and Science of the Republic of Kazakhstan for 2021-2023, amount 60,214.06 tenge

Goal: comprehensive environmental assessment of the current state of water bodies in Northern Kazakhstan.
Field of study: biology, ecology, hydrobiology.

Project results:
1) the status and functional integrity of the system is assessed in A km olinskaya , S e v e r o - K a z a k h st a nsk o y , P a v o d a rsk o y and K o st a n a ysk o y o b l a s t e y;
2) the biodiversity of water in A km o Linsk , S e v e r o -K a z a h st a n , P a v o d a rsk o i K o st a n was studied a ysk o b l a st e y , the species composition of hydrobionts has been determined ;
3) the composition of the ichthyofauna and the structure of fish populations in the studied reservoirs of Akmola, North Kazakhstan, Pavlodar and Kostanay regions were determined;
4) ichthyoparasitological studies were carried out, 17 species of parasitic organisms were identified, of which 15 were identified to species, 2 parasitic organisms were identified to genus;
5) research work was carried out to determine the productivity of water in A km o Linsk o y , S e v e r o -K a z a h st a n o y , P a v o d a rsk o y and K o st a n a ysk o y o bl a st e y;
6) the basics of environmental forecasting of the state and productivity in Northern Kazakhstan have been developed .

Potential consumers - specialists in the field of ecology, hydrobiology and fisheries.

Contact details - email: gkalmashevna@mail.ru

“ Scientific and methodological foundations for organizing the educational process in distance learning conditions at an agricultural research university ”

Program/Project Manager - Doctor of Pedagogical Sciences , Professor Abdyrov A.M.

Source and amount of funding for the program/project - competition of the State Fund of the Republic of Kazakhstan for 2021-2023, amount 38,847.3 thousand tenge

Goal - The goal of the project is to form scientific and methodological foundations for organizing training using distance learning technologies at an agricultural research university .

Field of study - Higher education of the Republic of Kazakhstan, including agricultural education .

Program/project results - Effective methods for organizing the educational process using distance learning technologies in agricultural universities have been identified.
- Scientific and methodological foundations for organizing the educational process using distance learning technologies at an agricultural research university
- A methodology for organizing the educational process using distance learning technologies has been developed.
- A conceptual model for organizing the educational process has been developed .
- Scientific and methodological recommendations for the development of educational programs using distance learning technologies are presented

Potential consumers – educational institutions .
Contact details - email: abdyrov62@bk.ru

“Development of technology for producing Bi -HTSC ceramics with high critical parameters”

Program/Project Manager – PhD , ass. Professor Uskenbaev D.E.

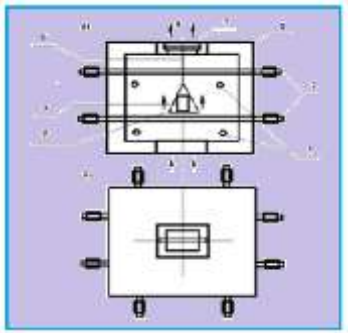
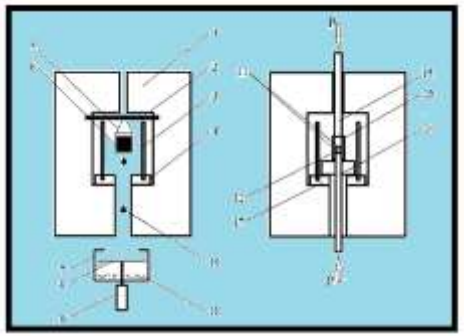
Source and amount of funding for the program/project - competition of the Ministry of Education and Science of the Republic of Kazakhstan for 2021-2023, amount 59,926.798 thousand tenge

The goal is to develop technology and optimize modes for producing Bi -HTSC ceramics with a high critical temperature and an increased critical current density.
Field of study - Chemical technologies and materials. Directions: high-temperature superconductivity, ceramics, nanotechnology and nanomaterials ;

Results of the program/project - a technology has been developed for producing glassy precursors for the synthesis of Bi- HTSC materials under the influence of IR radiation, which has increased reactivity;
- a technology has been developed for the production and synthesis modes have been optimized for HTSC ceramics of compositions Bi -2212 and Bi -2223 with a high critical temperature and an increased density of the critical transport current with an accelerated synthesis mode;
-a technology has been developed for producing HTSC ceramics with compositions Bi -2212 and Bi -2223 with high density and increased texture;
-synthesized HTSC ceramics of Bi -2212 and Bi -2223 compositions with high critical parameters by creating ferromagnetic nanodispersed pinning centers for pinning vortex magnetic flux .

Potential consumers - producers HTSC products (ceramics, tapes, wires, cables) for energy, electronics, etc.

Contact details - email: usdan@mail.ru


“Development of an intensive device for drying, grinding, mixing particles of feed flour from animal waste”

Program/project manager - Ph.D. , Associate Professor Iskako in R.M.

The source and amount of funding for the program/project is the competition of the State Fund of the NVO of the Republic of Kazakhstan for 202 1 -202 3 , the amount is 32,039.34 thousand tenge

The goal is to develop, construct and implement an intensive device for drying, grinding, mixing particles of feed flour from animal waste.

Field of study - agricultural engineering . Directions: stages of the combined drying process with grinding and mixing in a pilot plant, thermophysical properties of feed from greaves, feed mixtures.

Results of the program/project - a mathematical model of the process of leveling the layer of feed mass was developed with obtaining an analytical expression for determining the required power for leveling the layer of feed mass during heat and mass transfer
- a design and technological scheme of a developed and constructed device for drying, grinding, mixing particles of feed flour from animal waste has been developed and justified ;
-Mathematical processing of experimental heat and mass transfer data was carried out to obtain differential equations that optimize drying

Potential consumers – feed mills, farms.

Contact details - email: r.iskakov@kazatu.kz

$$N_{\text{po}} = F_p \cdot v_c = \left(F_m + P_c\right) v_c =$$
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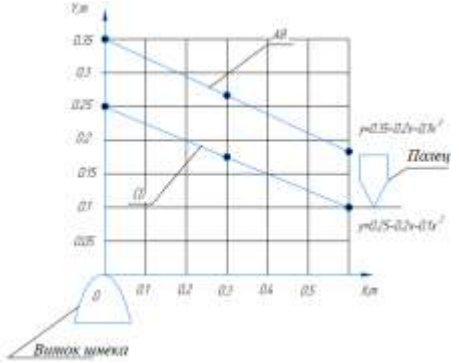


" Development of a rapid test for the diagnosis of salmonella abortion in horses based on monoclonal antibodies "

Project Manager - Ph.D. , Acting Professor Borovikov S.N.

Source and amount of funding for the project - competition of the Global Fund of the Kyrgyz Republic of the Ministry of Education and Science of the Republic of Kazakhstan for 2021-2023, amount 64,600.0 thousand tenge

Goal – Development of a rapid test for diagnosing salmonella abortion in horses based on monoclonal antibodies .
Field of study - Veterinary medicine. Directions: veterinary diagnostics, veterinary immunology.

Results of the program/project - a study of samples of biological and pathogenic material from disadvantaged farms **was carried out** using PCR and ELISA, in 47% the pathogen causing salmonella abortion of horses;

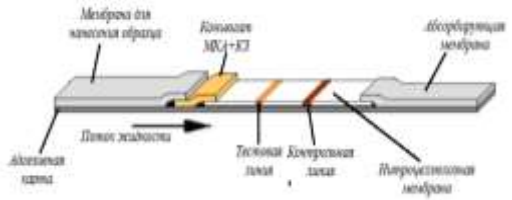
- for the first time, a genome-wide characterization of 3 *Salmonella* strains was carried out *serovar abortus equi* isolated on the territory of the Republic of Kazakhstan;

- strains *of E. have been created* . *coli* producing recombinant proteins Omp X *S. abortus equi* , which demonstrated high activity in equine sera. Proteins Omp X used for obtaining hybrid cells producing antibodies to Omp X *S. abortus equi* , based on them, a rapid test has been developed to identify the causative agent of salmonella abortion in horses in material samples. Laboratory tests of the developed test confirm its effectiveness, the test is not inferior to foreign commercial analogues and allows you to obtain results within 15 minutes outside the laboratory;

- a scientific and technical documentation has been developed for the production and use of an ICA test for the rapid diagnosis of salmonella abortion in horses in veterinary practice; - a positive decision was received on the application for a patent of the Republic of Kazakhstan “Method of obtaining antigen of outer membrane proteins from bacteria of the genus *Salmonella spp* ."

Based on the research results, 3 articles were published in Scopus journals (Q 1 and Q 2) and 1 article in the KOKNVO journal

Potential consumers – “Republican Veterinary Laboratory” of the Ministry of Agriculture of the Republic of Kazakhstan, regional and district laboratories; “National Reference Center for Veterinary Medicine; business entities involved in horse breeding



Contact details - nicsb_katu@mail.ru

“ Development of biotechnical methods for the artificial reproduction of pike perch in a closed-circuit water supply (RAS) installation ”

Program/Project Manager k.v. Sc., Associate Professor Syzdykov K. N.

Source and amount of funding for the program/project - competition of the Global Fund of the Ministry of Education and Science of the Republic of Kazakhstan for 2021-2023, amount 57,948.31 thousand tenge

Goal - Development of biotechnical methods for the artificial reproduction of pike perch in an installation with a closed water supply cycle.

Field of study – Fisheries **,** Aquaculture .

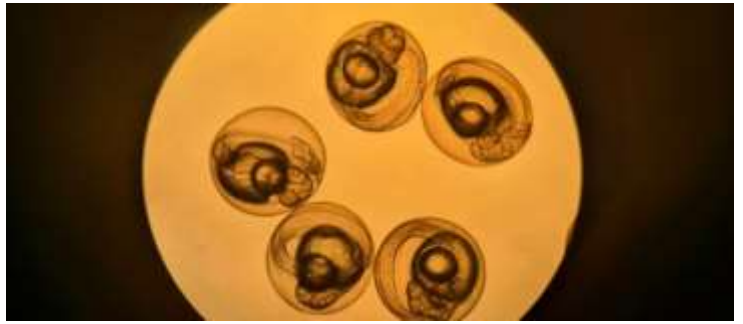
Program/project results

- A replacement broodstock of pike perch breeders has been formed
- Optimal conditions for the reproduction of pike perch in RAS have been determined
- Optimal conditions for growing pike perch fish seed material have been determined
- Optimal conditions for obtaining marketable products were determined
- A practical recommendation has been developed on the technology of artificial reproduction of pike perch in RAS

Potential consumers – Fish farms, fish hatcheries.

Contact details - email: k_syzdykov@mail.ru






“ Methodology for analysis and optimization of the socio-economic model of a rural district (based on materials

Head of the program/project - Doctor of Economics, Professor Kusainov T.A.

Source and amount of funding for the program/project - competition of the Global Fund of the Ministry of Education and Science of the Republic of Kazakhstan for 2021-2023, amount 43,077.030 thousand tenge

The goal is to develop a methodology for analysis and measures to form optimal socio-economic models for the development of rural districts .

Area of research: agricultural economics and rural development. Directions: economic policy, investment and financial system, structural, technological and territorial-spatial development, management and business.

Results of the program/project - 1) methodological tools for a comprehensive analysis and assessment of the resources of the rural district, the level and uniformity of distribution of resources and income among households (population) of the rural district; 2) an optimal economic model of a rural district (with the definition of a branded product, forms of organizing economic activity and interaction between economic entities of the district), ensuring the most efficient use of resources; 3) recommendations for equalizing the level of well-being among the population of a rural district.

Potential consumers – local and regional authorities for the development of rural areas; consulting organizations.

Contact details - email: *kta2006@bk.ru*