

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY**

"APPROVED"

Scientific Council of
Sumy national agrarian university
protocol № _____
from «__» _____ 20__

Chairman of Scientific Council, SNAU,
Rector of SNAU
_____ V.I. Ladyka

EDUCATIONAL PROFESSIONAL PROGRAM

HIGHER EDUCATION LEVEL	THE THIRD (EDUCATIONAL-SCIENTIFIC)
HIGHER EDUCATION DEGREE	DOCTOR OF PHYLOSOPHY
KNOWLEDGE AREA	20 – AGRARIAN SCIENCES AND FOOD
SPECIALTY	204 – TECHNOLOGY OF PRODUCTION AND PROCESSING OF LIVESTOCK PRODUCTS

I. Preamble

Educational-scientific program of the third (educational-scientific) education level, higher education degree - Doctor of Philosophy, branch of knowledge - 20 Agrarian sciences and food, specialties - 204 Technology of production and processing of livestock products

Approved by Scientific Council of Sumy national agrarian university, protocol № _____ dated «_____» _____ 20____ .

Developers of the program

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Educational-scientific program was considered and approved by scientific council of bio-technology faculty of Sumy national agrarian university, protocol № _____ dated «_____» _____ 20____ .

II General characteristics

Level of higher education	The third (educational-scientific) level
Higher education degree	Doctor of philosophy
Knowledge area	20 Agrarian sciences and food
Specialty	204 Technology of production and processing of livestock products
Restrictions on forms of study	No
Educational qualification	Doctor of Philosophy on specialty «Technology of production and processing of livestock products», specialization (title of specialization).
Diploma qualification	Higher education degree – Doctor of philosophy Specialty – 204 Technology of production and processing of livestock products Specialization – (to state title of specialization) Educational program – Technology of production and processing of livestock products
Description of subject area	Technology of production and processing of livestock products: research and improvement of technological processes of usage, production and growing of animal products
Object(s) of research	Research of regularities and development of scientific and practical fundamentals and methodological approaches concerning: fundamental and applied problems of animal husbandry, technologies of production and processing of animal products, taking into account biological features of animals, technical and technological solutions, ensuring production of quality products and environmental safety while improving economic industry efficiency.
Aims of study	Training a Ph.D. able to conduct scientifically-research and professional approach to improving production issues of efficient, environmentally-friendly agricultural production, using existing and creating new genotypes of breeds, lines and crosses of biological objects of livestock breeding, developing new and improving existing methods of reproduction and breeding.
Theoretic content of subject area	Acquiring universal skills of a researcher in organization of production and processing of livestock products.
Peculiarities of the	<i>Educational component of the program.</i> The program

<p>program</p>	<p>is implemented in small groups of researchers in three specializations: "<i>Animal feeding and technology of fodders</i>", "<i>Animal breeding and selection</i>", "<i>Technology of livestock production (by species)</i>".</p> <p>The program provides 38 ECTS credits for compulsory disciplines, 18 ECTS credits of which are general education courses that provide the graduate with general science (philosophical) competences, language competences and universal research skills. 27 ECTS credits are provided for professional training courses, 15 ECTS credits of which are for elective disciplines within mentioned specializations.</p> <p>Scientific component of the program. Scientific component of educational and scientific program involves carrying out own scientific researches under tuition of one or two scientific supervisors with appropriate registration of obtained results in the form of dissertation. This component of the program is not measured by ECTS credits but is designed separately as individual postgraduate research plan and is an integral part of curriculum.</p>
<p>Methods, methodology and technologies</p>	<p>Modern methods, techniques and methodologies for scientific research concerning organization of production and processing of livestock products for organic farming</p>
<p>Instruments and equipment</p>	<p>Tools and equipment, objects, devices and machinery, modern equipment of specialized laboratories and scientifically-research equipment, technical means for scientific research with biological objects of animal husbandry in accordance with the technologies of production and processing of their products.</p>
<p>Academic rights of graduates</p>	<p>Successful defense of the dissertation for gaining doctor of philosophy degree gives the right to apply for admission to doctoral studies.</p>
<p>Employment of graduates</p>	<p>Research and teaching activities at NS institutes and educational establishments of I-IV levels of accreditation of agrarian direction in the field of production and processing of livestock products. Administrative and management activities in the field of production and processing of livestock products</p> <p>Positions according to profession classificatory of Ukraine. Assistant (2310.2), associate professor (2310.1), professor (2310.1), director (head) of a small industrial enterprise (firm) (1312), director (head) of an organization (research, construction, project)</p>

	<p>(1210.1), director (head) of professional educational institution (vocational-technical school, vocational school, etc.) (1210.1), (1210.1), director (chief, other head) of enterprise (1210.1), director (rector, chief) of a higher educational institution (technical college, college, institute, academy, university, etc.) (1210.1), director of advanced training courses (1210.1), director of research institute (1210.1), director of advanced training center (1229.4), head (chief) of department (research, design, project etc.) (1237.2).</p> <p>Place of employment. Ministry of Education and science of Ukraine, higher educational establishments of agrarian direction, research institutes of NAAS (stations, laboratories), regional departments of agriculture, colleges, regional selection centers.</p>
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III The volume of ECTS credits required for obtaining higher education degree – doctor of philosophy

Volume of educational compound of educational-scientific program doctor philosophy is 57 credits.

IV List of competences for doctor of philosophy

Integral competence	Ability to solve complex problems in the technology of production and processing of livestock products, carry out scientific research with the latest and advanced, practically directed and valuable theoretical and methodological results, which implies a deep rethinking of existing and creation of new holistic knowledge and implementation of innovations in production activity
General competences	<p>They are correlated with the description of relevant qualification level NLC.</p> <ol style="list-style-type: none"> 1. Ability to think abstractly, analyze and synthesize. 2. Ability to communicate in state language both orally and in writing. 3. Ability to communicate in a foreign language. 4. Skills in using information and communication technologies. 5. Ability to conduct research at appropriate level. 6. Ability to search, process and analyze information from various sources. 7. Ability to generate new ideas (creativity). 8. Ability to work autonomously.. 9. Ability to evaluate and ensure the quality of work performed.

	<p>10. Definiteness and perseverance concerning the tasks and responsibilities.</p> <p>11. Desire to preserve the environment.</p>
Special (professional, subject) competences	<p>1. Ability to plan, organize and conduct research, process, publish and patent their results</p> <p>2. Ability to retrospectively analyze scientific developments in the technology of production and processing of livestock products</p> <p>3. Ability to take comprehensive approach in the possession of information on current state and trends of development of world and domestic agricultural science.</p> <p>4. Ability to plan and manage the time of preparation of dissertation research.</p> <p>5. Ability to conduct professional analysis of various information sources, author's methods, specific educational, scientific and professional materials on the technology of production and processing of livestock products.</p> <p>6. Complexity in identifying, setting and solving scientific tasks and problems in the technology of production and processing of livestock products.</p> <p>7. Ability to perform, analyze, and critically evaluate results of experimental work with biological livestock facilities.</p> <p>8. Ability to substantiate new knowledge in the field of scientific achievements in the technology of production and processing of livestock products.</p> <p>9. Ability to form the structure of dissertation work and rubric its content.</p> <p>10. Ability to participate in scientific discussions, critical dialogues at domestic and international levels, to defend their scientific position in the technology of production and processing of livestock products.</p> <p>11. Ability to overlight the results of scientific research in domestic and foreign scientific publications.</p> <p>12. Ability to put into production scientifically based results of dissertation research.</p> <p>13. Complexity in acquisition and understanding of significant amount of modern scientific and theoretical knowledge of the technology of production and processing of livestock products and related fields of agrarian sciences.</p>

V Regulatory content of training competitors for higher education, formulated in terms of learning results

The final, summary, integrative learning results, which determine normative content of training.

Program learning results

A competitor for doctor of philosophy degree must:

1. Be able to present results of scientific research in state and foreign languages.
2. Demonstrate knowledge and understanding when conducting research in laboratory and production conditions with biological objects of livestock breeding.
3. Implement results of scientific researches into production and educational process.
4. Prepare and publish scientific articles (the number of which is provided by relevant legal acts), monographs, scientific and methodological recommendations, abstracts of reports.
5. To process statistically obtained results of scientific research with the use of information technologies.
6. To evaluate and ensure high quality of scientific research in technological processes of production and processing of livestock products.
7. Participate in execution of budgetary, governmental and initiative scientific-research works (topics).
8. Connect and implement the latest developments in world production, leading technologies for the production and processing of livestock products.
9. Conduct comprehensive and methodically correct scientific research.
10. Achieve stated goal and receive results of scientific research.
11. Analyze scientific achievements of domestic and foreign authors, using modern information resources.
12. Implement research achievements in the production.
13. Prepare and publicly defend dissertation at the meeting of specialized academic council.
14. Use information technologies in the process of conducting research on technology and processing of livestock products, using appropriate software, knowledge, and analyzing and displaying results.
15. Identify significant difference in the results of scientific research.
16. Analyze research findings and evaluate effectiveness of the research.
17. Have research skills to work independently or in a group, be able to get results within a certain time, with an emphasis on scientific and professional conscientiousness and making plagiarism impossible.

Specialization "Animal feeding and fodder technology":

1. Knowledge of peculiarities of digestion, metabolism and absorption of diet nutrients.
2. Ability to develop conceptual, theoretical and methodological fundamentals of animal nutrition, create and use feeding programs for mono - and polygastric animals.
3. Knowledge of theoretical and methodological fundamentals of the impact of feeding on animal productivity in the production of functional food products.

4. Knowledge of mechanisms of amino-acid, vitamin and mineral nutrition of organism

5. Knowledge about usage and application of modern synthetic feeding means in animal nutrition.

6. Ability to justify production technologies and cost-effectiveness of using different groups of fodders and feed additives in animal nutrition.

Specialization "Animal breeding and selection":

1. Knowledge of theory and methodology of estimation of selection and pedigree value of animals, basic statements and stages of formation of modern idea about organization of selection process in animal husbandry.

2. Knowledge of principles for construction of breeding indices and values of economic weight coefficient and ability to calculate them at the level of Ph.D.

3. Knowledge of main statements of European and world legislation concerning ensuring selection process and movement of genetic resources in animal husbandry..

Specialization "Technology of production of livestock products (by kinds)":

1. Knowledge of justification and development of effective technologies (or their individual elements) for the production and processing of livestock products, taking into account biological features of biological objects of livestock breeding, technical and technological solutions that ensure production of quality products and environmental safety, to work out ways of improvement economic efficiency of livestock breeding industry.

2. Knowledge of conceptual, theoretical and methodological fundamentals of dairy and beef cattle breeding. Abilities and skills to create and raise animals for various purposes – repair young stock, pedigree products, cattle for fattening.

3. Knowledge of peculiarities of cattle reproductive ability.

4. Knowledge of theoretical and methodological fundamentals of milk and beef production increase. Abilities and skills to create cattle objects on genetic and selection basis. Ability to grow high-quality pedigree products and over-repair young cattle in the conditions of agricultural and farm enterprises.

5. Knowledge of biological features, regularities of development, growth and formation of productivity for native and highly productive different type animals. Abilities and skills of intensive livestock production.

6. Knowledge of methods for increasing productivity and biological value of animals for different purposes.

VI Forms of attestation of competitors for higher education

6.1. Forms of attestation of competitor for higher education	Attestation is carried out in the form of public Ph.D. dissertation defense.
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<p>6.2. Requirements for qualification work</p>	<p>Ph. D. dissertation work is an important part of educational process and independent research activity. Ph. D. dissertation work on specialty 204 - Technology of production and processing of animal products is entrusted with basic research and professional qualification function, which is expressed in ability of competitor for Ph. D. degree to conduct independent scientific research, to solve applied tasks, to carry out their generalization in the form of own deposit in development of modern science and practice. It appears result of independent scientific work of a graduate student and has the status of intellectual product on the rights of manuscript.</p> <p>Volume and structure of the work are determined by the requirements of state attestation commission (SAC). Work should be checked for plagiarism in accordance with the procedure established by the higher education institution's assurance system of educational activity quality and higher education quality.</p>
<p>6.3. Requirements for public defense</p>	<p>The thesis is defended in public at the meeting of specialized academic council. An obligatory prerequisite for admission to dissertation defense is approbation of research results and main conclusions at scientific conferences and their edition in professional scientific publications, including those included in science-metric bases, in accordance with SAC requirements.</p>

VII Component list of educational and scientific program and their logical sequence

List of ESP components

№	Components of educational program (disciplines, course projects (works), practices, qualification works)	Number of credits	Semesters								Form of final control
			1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	9	10	11	12
1. Normative subjects											
1.1. Disciplines of general training circle											
1.1.1.	Philosophy of science	3,0	x								exam
1.1.2.	Experiment in animal breeding	3,0	x								exam
Total for general scientific training		6,0									
1.2. Disciplines of special (professional) training circle											
1.2.1.	Modern information	3,0			x						credit

	technologies in scientific activity										
1.2.2.	Communication in scientific environment	3,0		x							credit
1.2.3.	Methodology of research conducting	3,0		x							credit
1.2.4.	Modelling and planning scientific experiment	3,0			x						credit
Total for special (professional) training circle		12,0									
1.3. Disciplines of research training circle											
1.3.1.	Registering of intellectual property rights	3,0		x							exam
1.3.2.	Organization and methodology of conducting academic classes	3,0		x							exam
1.3.3.	Organization of preparing scientific publications	3,0				x					exam
1.3.4.	Management of scientific projects	3,0	x								exam
Total for research training circle		12,0									
1.4. Language training circle											
1.4.1.	Foreign language for professional purposes	4,0		x							exam
1.4.2.	Methodology of training scientific works in foreign language	4,0				x					exam
Total for language training circle		8,0									
1.5. Practical training circle											
1.5.1.	Pedagogical training	2,0						x			credit
1.5.2.	Pedagogical practice	2,0							x		credit
Total for practical training circle		4,0									
Total for all circles of main party of curriculum		42,0									
2. Variety part of curriculum											
2.1. disciplines of special (professional) training (by the choice of graduate) circle											
2.1. 1	Methodology and organization of training and writing of dissertation / Management of laboratory activity	3,0			x						exam
2.1. 2	Optimization of technologies in husbandry / realization of genetic potential of agricultural animals	4,0				x					credit

2.1. 3	Modern innovations in husbandry and poultry keeping / Optimization of animal feeding	4,0				x						credit
2.1. 4	Herd management / Bio-safety in husbandry	4,0				x						credit
Total for special (professional) training (by choice of graduate) circle		15,0										
Total for selective disciplines		15,0										
Total for circles of normative and variety part		57,0										

Structural and logical scheme ESP

Competitors for higher education have the right to choose disciplines within the limits, provided by corresponding educational program and working curriculum, in the volume not less than 25 % of total amount of credits ECTS provided for this level of higher education.

Structural and logical scheme of educational compound of OSP

	Block of general training (competences)			Block of professional training (competences)		
	Philosophical	Teaching	Research	Communicative		Professional deep knowledge and skills
1 year	Philosophy of science	Organization and methodology of conducting academic classes	Methodology of conducting scientific research	→		Experiment in husbandry
				Foreign language за професійним спрямуванням		
			Registration of rights for intellectual property	↓		
				Organization of scientific publication preparation	Communications in scientific environment	
2 year			Modern information technologies in scientific activity	→		
			Management of scientific projects			
			Modelling and planning of scientific experiment	Methodology of preparing scientific works in foreign language	Methodology and organization of preparing and writing dissertation / Management of laboratory	

				activity
				Optimization of technologies in husbandry / Realization of genetic potential of agricultural animals
				Modern innovations in husbandry and poultry farming / Optimization of animal feeding
				Herd management / Bio-safety in husbandry
3 year		Pedagogic practice		

VIII System of internal quality assurance in higher education

Sumy NAU operates a system of quality assurance for educational activity and quality of higher education (system of internal quality assurance), which provides implementation of the following procedures and measures:

1. Defining principles and procedures for quality assurance in higher education;
2. Monitoring and periodic review of educational programs;
3. Annual assessment of competitors for higher education, research and teaching staff and regular publication of such assessments on the official website of Sumy NAU;
4. Provision of advanced training for pedagogical, scientific and scientific-pedagogical workers;
5. Ensuring availability of necessary resources for organization of research for graduates (competitors) of the third (educational and scientific) level;
6. Ensuring availability of information systems for effective management of educational and scientific process;
7. Ensuring publicity of information about educational programs, degrees of higher education and qualifications;
8. Provision of effective system for prevention and detection of academic plagiarism in scientific works of university teachers and competitors for higher education.

Quality assurance system for higher education and quality of higher education (internal quality assurance system), on the submission of Sumy NAU, is evaluated by national agency for quality assurance of higher education or by accredited independent institutions for evaluation and quality assurance of higher education for its compliance with the requirements of quality assurance system of higher education, approved by national agency for quality assurance in higher education and international standards and guidelines concerning higher education quality assurance.

IX List of normative documents, which educational-scientific program is based on.

1. Project of standard for higher education of Ukraine of the third (educational-scientific) level of education, degree of higher education – doctor of philosophy, knowledge area – 20 Agrarian sciences and food, specialty – 204 Technology of production and processing of livestock products.
2. Law of Ukraine "About higher education" dated 01.07.2014 № 1556-VII.
3. Law of Ukraine "About licensing of economic activities" from 02.03.2015 N 222-VIII.
4. Resolution of the Cabinet of ministers from November 23, 2011 № 1341 «About approval of national qualification frame».

5. Resolution of the Cabinet of ministers from April 29, 2015 N 266 “About approving the list of knowledge fields and specialties by which higher education applicants are trained”.

6. Resolution of the Cabinet of ministers from December 30, 2015 N. 1187 “About approving license conditions for carrying out educational activities of educational institutions”.

7. Order of the MES of Ukraine dated 19.02.2015 N 166 “Some issues of publication of information about activities of higher education institutions”.

8. Order of the MES of Ukraine N 1151 dated 06.11.2015 “About features of introduction the list of knowledge branches according to which higher education applicants are trained, approved by the Resolution of the Cabinet of ministers of Ukraine from April 29, 2015 N 266”.

9. Order of the Ministry of education of Ukraine dated 01.06.2016 N 600 “About approval and implementation of methodological recommendations for development of higher education standards”.

10. Order of the Ministry of economic development and trade of Ukraine from November 18, 2014 N 1361 “About approval of change to the national classifier of Ukraine DK 003: 2010” (change N 2).

11. National classificatory of Ukraine: «Classificatory of professions» SC 003:2010. – Kyiv : Publishing house «Sotsinform», valid from 2010-11-01.

12. Ares of education and professional training 2013 (MCKO-O 2013): Accompanying manual to International standard classification of education 2011. – Institute of statistics UNESCO, 2014. – Available at: <http://www.uis.unesco.org/Library/Documents/isced-f-2013-fields-of-education-training-2014-rus.pdf>

Guarantor of
educational and
scientific program

Khmelnychy Leontii Mykhailovych,
doctor of agricultural sciences,
professor

EXPLANATORY NOTE

**to educational and scientific program of the third (educational-scientific) level of education, higher education degree
- doctor of philosophy, knowledge area - 20 agrarian sciences and food, specialty - 204 Technology of production and
processing of livestock products**

Table 1

Compliance matrix of determined ESP competencies with NRC descriptors

Competence classification by NRC	Knowledge	Skills	Communication	Autonomy and responsibility
Integral competence				
Ability to solve complex problems in the technology of production and processing of livestock products, including research and innovation activity, which involves deep rethinking of existing and creation new integral knowledge and conducting innovations concerning productive activity.				
General competencies				
1. Ability to think abstractly, analyze and synthesize.	levels of modern philosophical thinking, taking into account the principles of world-view pluralism and ideological tolerance	- reveal such established topics as the essence and subject of philosophy, ontology, epistemology, axiology, history of philosophy.	- usage of different language means in accordance with communicative intentions during educational and scientific training; - expression of opinion for successful solution of problems and tasks in professional and scientific activity.	- express opinions for successful solution of problems and tasks in professional and scientific activity; - improve and use communicative, motivational and leadership qualities in conducting scientific research.
2. Ability to communicate in state language both	- use it to present scientific results in oral	- master official business, scientific,	- usage of different language means in	- express thoughts for successful solution of

orally and in writing.	and written forms	spoken styles of Ukrainian language to ensure professional and scientific communication.	accordance with communicative intentions during implementation of educational and scientific training	problems and tasks in professional and scientific activity; - improve speech competence; - have own judgments and draw conclusions according to received information.
3. Ability to communicate in foreign language	- know and understand: - foreign language; - professional scientific terms and concepts, zoo-technical terminology; - foreign-language scientific and professional texts.	- use foreign language to present scientific results in oral and written forms; - understand results of scientific research in foreign language; - communicate in foreign scientific and professional environment; - work together with researchers from other countries.	- scientific and professional foreign language communication; - usage of different linguistic means according to educational and scientific communicative intentions; - expression of opinion for successful implementation of scientific research; - international cooperation and joint research.	- improvement of foreign language skills in professional and scientific direction; - raising information literacy and deepening knowledge of practical use of foreign language in professional and scientific activities.
4. Skills of using information and	- basic theoretical concepts in the field of	- formulate research problem correctly to	ability to analyze technological processes	ability to provide necessary level of

communication technologies	<p>information technologies and information systems;</p> <ul style="list-style-type: none"> - methods and algorithms for processing large data sets with the help of information technologies; - purpose, possibilities and functions of applied program packages that can be used in dissertation on the specialty, in applying methods of scientific analysis, in presentation of research results; - basic concepts of mathematical statistics and mathematical modeling methods 	<p>further solve it using computer systems;</p> <ul style="list-style-type: none"> - choose the best computer program to solve research problem; - apply information technologies for processing and analysis of experimental research results and their presentation; - apply methods of mathematical processing of experimental data and evaluation of their accuracy and reliability. 	<p>in scientific research using mathematical modeling with usage of modern information technologies</p>	<p>knowledge and to apply information technologies in conducting of scientific research.</p>
5. Ability to conduct research at appropriate level.	<ul style="list-style-type: none"> - selection of appropriate mathematical software packages and analysis of their functions regarding the topic of dissertation 	<ul style="list-style-type: none"> - systematic approach to scientific research at the level of Doctor of Philosophy; - use methodology of systematic analysis in 	<p>ability to communicate while conducting research at appropriate level</p>	<p>personal responsibility for meeting the requirements for carrying out research and reliability of the results obtained.</p>

	<p>research;</p> <ul style="list-style-type: none"> - theory and methodology of system analysis, stages of implementation of system approach in research of processes and phenomena in animal husbandry; - research methods and ability to use them at the level of Ph.D. 	<p>agricultural science;</p> <ul style="list-style-type: none"> - work with different sources, search, process, analyze and organize the information received. 		
<p>6. Ability to search process and analyze information from various sources.</p>	<ul style="list-style-type: none"> - rules of citation and references to sources used, rules for bibliographic list making 	<ul style="list-style-type: none"> - work with modern bibliographic and abstract databases, as well as science-metric platforms such as Web of Science, Scopus, etc .; - analyze information sources, identify contradictions and not previously solved problems or parts of them, formulate working hypotheses. 	<ul style="list-style-type: none"> - the ability to carry out communicative activities when analyzing information sources and formulating of working hypotheses 	<p>personal responsibility for keeping to the rules of citation and references for sources used, rules for execution of bibliographic requirements</p>
<p>7. Ability to generate new ideas (creativity).</p>	<ul style="list-style-type: none"> - universal skills in processing and analyzing various types 	<ul style="list-style-type: none"> - organize creative activities and the process of scientific research; 	<ul style="list-style-type: none"> - methodology for organizing and conducting scientific 	<ul style="list-style-type: none"> - defining goals and objectives in scientific search for rational

	<p>of data to facilitate improvement of mechanisms for managing scientific projects and writing proposals for research funding;</p> <ul style="list-style-type: none"> - current trends and prospects of science development; - general schemes and principles of scientific research. 	<ul style="list-style-type: none"> - identify and solve scientific tasks and problems in the technology of production and processing of livestock products. 	<p>research, generating new ideas</p>	<p>production and processing of livestock products</p>
<p>8. Ability to work autonomously.</p>	<ul style="list-style-type: none"> - basic principles of scientific research; - methods of organizing scientific experiments 	<ul style="list-style-type: none"> - search, process and analyze information from various scientific sources; - organize creative activities and the process of scientific research; - carry out necessary experimental work and develop recommendations for more rational management of technological processes in agricultural production 	<ul style="list-style-type: none"> -ability to communicate with specialists and scientists of production and processing of livestock products to solve the tasks of scientific research 	<ul style="list-style-type: none"> -observe and be responsible for correctness of conventional methods during scientific experiments in the technology of production and processing of animal products

		of livestock products; - work independently.		
9. Ability to evaluate and ensure the quality of work performed	methodology of systematic analysis in agricultural science	- organize creative activities and the process of scientific research	-reporting own substantiated conclusions about conducting scientific research with biological objects	-be responsible and evaluate performed scientific research
10. Definiteness and persistence concerning the tasks and responsibilities taken	purpose and main tasks of the dissertation - production and research schemes	perform persistence in formulating the tasks of research and to be responsible in carrying out the duties assigned.	methodology for organizing and conducting research	keep to and be responsible for the tasks and responsibilities taken
11. Desire to preserve the environment.	maximum permissible concentrations of pollutants in the environment and their effects on farm animals	carry out environment protection measures	ability to carry out communicative measures for environmental protection	personal responsibility for compliance with the requirements for environmental protection during scientific experiments
Special (professional) competencies				
1. Ability to comprehensively study biological objects of animal husbandry	information concerning current state and trends in the development of agricultural production and processing of livestock products	-take measures to improve animal productivity; - formulate and use productive properties of biological objects of animal husbandry for scientific purposes; - carry out	- provision and implementation of communicative interaction with experts in the technology of production and processing of livestock products concerning implementation of	- personal responsibility for compliance with technological processes in complex research on the production and processing of livestock products

		comprehensive research of objects of agricultural production and processing of livestock products	complex research on the production and processing of livestock products	
2. Ability to analyze retrospectively scientific developments in the technology of production and processing of livestock products.	current state and tendencies of technology development in world and domestic agricultural science	to participate in scientific discussions at international level, to defend own position at conferences, seminars and forums; - to conduct critical analysis of various information sources, specific educational, scientific and professional texts on the technology of production and processing of livestock products.	To inform specialists about scientific research and technological processes in the production and processing of livestock products	- to take into account and use in practical and scientific activities effective components of technological processes in the production and processing of livestock products to obtain environmentally friendly and safe livestock products
3. Ability to take complex approach to possession of information concerning current state and trends of development of world and domestic agricultural science.	theoretical fundamentals for the development of technologies of livestock production and processing of livestock products	- to create new knowledge through original research, the quality of which can be recognized at national and international levels	- to participate in a critical dialogue concerning the need to improve technologies of production and processing of livestock products and to interest others in the results of	responsibility for informing the results, current state and trends in the development of livestock production and processing

			own research	
4. Ability to plan and manage the time of dissertation research preparation	- tasks and problems in the production and processing of livestock products; - purpose, tasks, object and subject of the research	- to plan and manage the time of dissertation research preparation; - identify and solve scientific tasks and problems in the production and processing of livestock products.	- apply theoretical and practical aspects in the planning and implementation of scientific research	- understanding of basic scientific principles, methods of conducting research
5. Ability to conduct professional analysis of various information sources, author's methods, specific educational, scientific and professional materials on the technology of production and processing of livestock products.	- from information sources to know changes that occur in the body of animals at different stages of ontogeny; - processes in different periods of annual cycle, seasons and influence of abiotic and biotic factors of the environment	- to master modern methods of research; - to conduct professional analysis of various information sources in accordance with the task of research.	- joint development of strategies for improvement of metabolic processes of animals to produce quality livestock products; - professional provision of information sources, educational, scientific and professional materials	- development of professional special analysis aimed at improving farm animal productivity its quality; - development of new methods aimed at improving metabolic processes of animals by regulating optimal values of anthropogenic factors
6. Complexity in identifying, setting and solving scientific tasks and problems in the technology of production	- goals and objectives when designing and solving scientific research; - structural approach to	- to evaluate objects of husbandry by relevant indicators of certain functional systems; - distinguish the effects	- to apply acquired knowledge for solving scientific and practical problems in the technology of production	- responsibility for setting and solving of scientific problems in the technology of production and processing of

and processing of livestock products.	<p>solving scientific tasks and problems;</p> <ul style="list-style-type: none"> - intensive technologies for growing livestock biological objects using different systems and methods of production and processing of products; - principles of scientific research of biological objects in animal husbandry; - organizational, economic, logistical support during research 	<p>of anthropogenic factors from natural changes;</p> <ul style="list-style-type: none"> - master basic methods of assessing the effects of anthropogenic actions on the technology of production of livestock products and human health 	and processing of livestock products	livestock products
7. Ability to conduct, analyze, and critically evaluate the results of experimental work with biological livestock objects.	<ul style="list-style-type: none"> - the methodology of conducting and analyzing experimental work with biological objects of animal husbandry 	<ul style="list-style-type: none"> - to conduct and analyze the results of experimental work; - justify and critically evaluate scientific achievements. 	<ul style="list-style-type: none"> - bringing to the specialists and implementation of modern technological achievements, advanced methods of growing biological objects 	<ul style="list-style-type: none"> - responsibility for evaluation of the results of experimental work with biological objects
8. Ability to substantiate new knowledge in the field of scientific achievements in the technology of production	<p>theoretical developments in the main areas of technology of production</p>	<ul style="list-style-type: none"> - to conduct critical analysis of the conditions of practical application of developed technologies in animal 	<ul style="list-style-type: none"> - to promote implementation of new knowledge in the field of scientific achievements in the technology of 	<ul style="list-style-type: none"> - conducting and implementation of modern technological achievements in the production and

and processing of livestock products	processing of livestock products; - modern biotechnical methods of industrial breeding of farm animals	husbandry; - evaluate feasibility of applying scientific achievements at various stages of growing livestock products; - substantiate scientific achievements in the technology of production and processing of livestock products; - to use effectively developed technologies for production and processing of livestock products.	production and processing of livestock products	processing of livestock products; - responsibility for implementation of new high-tech technological achievements in the production and processing of livestock products
9. Ability to form the structure of dissertation work and rubricate its content.	-- structure of the dissertation; - requirements for design of sections and subdivisions that reflect main components of scientific research of the dissertation	- to form the structure of dissertation; - to form the rubrics of thesis content.	- to provide the formation and structuring of dissertation	responsibility for the formation of dissertation structure
10. Ability to participate in scientific discussions, critical dialogues at the domestic and	- current trends in scientific research in the production and processing of livestock	- to defend own scientific position; - to participate in scientific discussions,	- cooperation with specialists of national and international level; - expansion of	- responsibility for implementation of high-tech achievements in the technology of production

international levels, to defend own scientific position in the technology of production and processing of livestock products.	products	conferences, etc.; - to cover scientific developments at the national and international levels; - to be guided in the tendencies of development of modern science; - to determine the most appropriate type of international cooperation for joint scientific projects.	international cooperation in the field of research on the production and processing of livestock products	and processing of livestock products
11. Ability to report the results of scientific research in domestic and foreign scientific publications.	Requirements for publication of scientific research results in national and foreign scientific publications	to report the results of scientific research in national and foreign scientific publications	Dissemination of scientific-based research results among the specialists in the technology of production and processing of livestock products	- responsibility for implementation of cost-effective scientific-based research results in the technology of production and processing of livestock products
12. Ability to implement scientific-based results of dissertation research into production	- registration procedure of normative-legal acts concerning introduction of scientific research into production	- independently organize control-analytical and operative work concerning introduction of scientific research results into production;	- involvement of specialists in the implementation of scientific-based results of dissertation research into the production	- responsibility for implementation of scientific-based results of dissertation research in the production

		- economically evaluate effectiveness of scientific research		
13. Complexity in acquisition and understanding of significant amount of modern scientific and theoretical knowledge in the technology of production and processing of livestock products and related fields of agrarian sciences.	- current trends in scientific research in the field of technology of production and processing of livestock products and related fields of agrarian sciences.	- to use effectively developed technologies of production and processing of livestock products.	- expanding cooperation in the field of scientific research on the technology of production and processing of livestock products and in related fields of agrarian sciences.	-responsibility for scientific research on the technology of production and processing of livestock products and related fields of agrarian sciences.

scientific research	level																								
16. Analyze research results and evaluate research effectiveness	Combination	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17. Master research skills to work independently or in a group, be able to receive results within a certain period with an emphasis on scientific-professional conscientiousness and elimination of plagiarism.	Naturalization	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Note: the number of marks "+" reflects influence of the component on formation of program learning result.

"+++" - this component dominates in the program

"++" - this component is sufficient in the program

"+" - this component does not make significant contribution to the program

"-" - this component is not mastered in the learning process

Table 3

Provision matrix for program learning results (PLR) with appropriate components of educational program

	PLR 1	PLR 2	PLR 3	PLR 4	PLR 5	PLR 6	PLR 7	PLR 8	PLR 9	PLR 10	PLR 11	PLR 12	PLR 13	PLR 14	PLR 15	PLR 16	PLR 17
EK1							+	+									+
EK2		+	+			+			+	+					+	+	+
EK3					+		+				+			+		+	
EK4	+		+				+						+				+
EK5		+			+	+	+		+	+					+	+	
EK6						+		+	+								
EK7			+									+					
EK8			+														
EK9	+			+							+					+	
EK10			+				+									+	
EK11	+			+			+	+			+						
EK12	+			+				+			+						
EK13			+														
EK14													+				
EK15		+				+	+								+		+
EK16		+				+	+								+		+
EK17		+				+	+								+		+