

Ministry of Education and Science of Ukraine
Sumy National Agrarian University
Faculty of Veterinary Medicine
Department of Veterinary and Sanitary Inspection, Microbiology, Hygiene and
Pathological Anatomy

MODULE SYLLABUS

Implemented within the educational program 21 VETERINARY MEDICINE
in specialty 211 VETERINARY MEDICINE

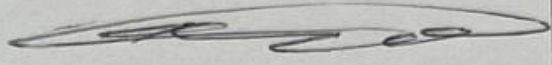
Level of higher education: the second master's level of higher education

Sumy— 2026

Author:
associate professor



Fotin O.V., candidate of veterinary sciences,

Module syllabus agreed at the Department of Veterinary and Sanitary Inspection, Microbiology, Hygiene and Pathological Anatomy	protocol dated 2.06.2026 № 15
	The Head of Chair R.V. Petrov 

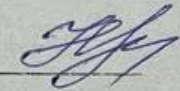
Agreed:

Guarantor of the educational program



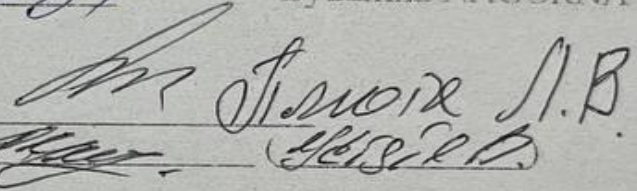
Oleksandr CHEKAN

Dean of the faculty,
where educational programs implemented

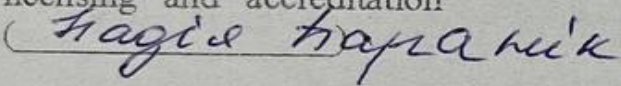


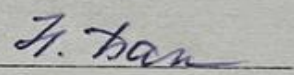
Lyudmila NAGORNA

Syllabus review (attached) is provided by:



Representative of the Department of Education Quality assurance,
licensing and accreditation





Registered in electronic data base

22.06

2026

Syllabus review data:

The academic year in which changes are made	The Academic program attachment number with changes description	Changes revised and approved		
		Minutes No and date of the department meeting	Head of Department	Guarantor of the Academic program

1. MODULE OVERVIEW

	Name OK	SAFETY AND HYGIENE OF FEED AND FEED ADDITIVES AND ANIMAL NUTRITION			
2.	Faculty / department	Faculty of Veterinary Medicine			
3.	Type (compulsory or optional)	compulsory			
4.	Program(s) to which module is attached (to be filled in for compulsory types)	Veterinary medicine 211			
5.	Module can be suggested for (to be filled in for optional types)	Veterinary medicine 211 The second master's level of higher education			
6.	Level of the National Qualifications Framework	7			
7.	Semester and duration of study	6 rd semester			
8.	ECTS credits number	5			
9.	Total workload and time allotment	Contact work (classes)			Individual work
		Lectures	Practical / seminar	Laboratory	
10.	3d semester	2		2	146
11.	Language of instruction	English			
12.	Module leader	Fotin Olexsiy			
11.1	Contact Information	Sumy NAU, Faculty of Department of Veterinary and Sanitary Inspection, Microbiology, Hygiene and Pathological Anatomy. Room. 65 a alexeyfotin79@gmail.com =			
13.	General description of the educational component	The quality of feed is a set of its various characteristics that satisfy the needs of livestock for nutrients, energy and taste. The productivity of livestock depends on the quality of nutrition. The requirements increase even more if it is a large livestock farm or an industrial complex with full automation and mechanization of work process management.			
14.	The purpose of the educational component	formation of future specialists of deep theoretical knowledge about the quality and safety of feeds, The discipline develops in students the ability to analyze the general principles that apply to food products and feeds in general and the safety of food products and feeds in particular, at the national level and at the level of the European Community. The ability to conduct a state audit at controlled facilities for the production, processing, circulation of food products, feeds, feed additives, premixes, veterinary drugs, by-products in accordance with the food safety management system and to control the monitoring system for each critical control point (CCP) during product production. The			

		ability to carry out veterinary and sanitary control of the production and circulation of feeds, feed additives, premixes, etc. at controlled facilities, to competently use the methods of their research and to conduct their sanitary assessment.
15.	Prerequisites for studying OK, the relationship with other educational components of OP	The educational component is based on the knowledge acquired through the study of: Biology; Medical and Biological Physics; Biochemistry; Cytology, Histology and Embryology; Anatomy of Domestic Animals; Animal Physiology. The course serves as a foundation for the further study of: Epizootiology; Infectious Diseases of Animals; Veterinary Sanitation; Veterinary Pharmacology; Veterinary Virology; Veterinary Public Health; Food Safety and Quality; Veterinary Immunology; Veterinary Mycology. The acquired competencies are applied during practical training and in the professional activities of veterinary medicine specialists.
16.	The policy of academic integrity	Students are informed about the value of acquiring new knowledge, the principles and functions of academic integrity, and the importance of avoiding plagiarism. They are encouraged to complete all academic tasks independently and provide proper references when using scientific sources. Cheating during tests and examinations, including the use of electronic devices, is prohibited. Written assignments must contain appropriate citations and references. Violations of academic integrity may result in the following sanctions: Academic plagiarism – grade 0 and resubmission of the assignment. Academic dishonesty (cheating, deception, presenting another person's work as one's own) – cancellation of obtained results, repeated assessment, and completion of a new assignment. Use of electronic devices during final assessment – removal from the examination, grade 0, and repeated completion of the final assessment.
17.	Educational component keywords	Safety, hygiene, quality, feed, feeding, animals.
18.	Access to Moodle.	https://cdn.snau.edu.ua/moodle/course/view.php?id=3462

2. CORRELATION BETWEEN MODULE LEARNING OUTCOMES (MLOs) AND PROGRAM LEARNING OUTCOMES (PLOs)

3d semester MLOs: On successful completion of the module the learner will be able to:	Program learning outcomes to be achieved by the OK (indicate the number according to the numbering given in the OP)		How assessed
	PL7	PLOs 17	
MLO 1. The importance of risk analysis of feed and feed additives. Animal health protection. Identification of biological, chemical and physical hazards in feed. Prevention of diseases, poisoning and reduced animal	+	+	survey of theoretical issues, performing tasks in laboratory and practical classes, testing, performing tasks of

<p>productivity.</p> <p>Food safety. Feed can affect the quality of meat, milk, eggs and other animal products. Risk analysis helps to avoid the entry of hazardous substances into the food chain.</p> <p>Control of feed additives The safety, effectiveness and correct use of additives are assessed. Prevents overdose, accumulation of toxic substances and undesirable side effects.</p> <p>Compliance with legal requirements. Feed manufacturers are obliged to implement safety management systems based on the HACCP principles. Risk analysis is the basis of state control and international trade.</p> <p>Economic efficiency. Reduces losses from animal diseases, product recalls and penalties. Increases consumer confidence and the competitiveness of the enterprise.</p>			independent work
<p>MLO2. Risk classification. Methods of risk analysis of feed and feed additives. The concept of risk in the feed sector. Risk is the probability of a negative impact on animal health, humans or the environment due to the presence of a hazardous factor in feed or feed additive.</p> <p>In the feed safety system, risk is considered as a combination of: the probability of a hazardous event; the severity of its consequences.</p> <p>Classification of feed and feed additive risks. By the nature of the hazardous factor</p> <p>Biological risks Associated with living organisms or their waste products: bacteria (Salmonella, Escherichia coli, Clostridium); viruses; parasites; mold fungi; mycotoxins (aflatoxin, ochratoxin, etc.).</p> <p>Chemical risks Associated with the presence of chemical pollutants: pesticide residues; heavy metals (lead, cadmium, mercury); dioxins; veterinary drugs; excess feed additives; toxic impurities.</p> <p>Physical risks Foreign objects in feed: glass; metal particles; stones; plastic;</p>		+	survey of theoretical issues, performing tasks in laboratory and practical classes, testing, performing tasks of independent work

<p>wood. By source. Raw material risks Arise due to contaminated or poor-quality raw materials. Technological risks Related to the production process: violation of the temperature regime; cross-contamination; additive dosing errors. Logistical risks Arise during: transportation; loading and unloading; storage. Management risks Related to: insufficient control; personnel errors; non-compliance with HACCP procedures. By level of danger low risk; medium risk; high risk; critical risk. Risk analysis of feed and feed additives Risk analysis is the basis of the HACCP system and the requirements of Ukrainian and EU legislation on feed safety. It consists of three interrelated elements: Risk Assessment A scientifically based process for determining the hazard and its impact. Stages: Hazard identification Identification of potential hazardous factors: pathogenic microorganisms; toxins; chemical contaminants. Hazard characterization. Assessment of possible consequences: toxicity; pathogenicity; degree of impact on animals. Exposure assessment Determination of the level of exposure to the hazardous factor: concentration in feed; frequency of consumption; duration of exposure. Risk characterization A final assessment of the risk level. Risk Management Provides the selection of measures to reduce the risk: control of suppliers; certification of raw materials; laboratory control; implementation of HACCP; good manufacturing practice (GMP); good hygiene practice (GHP). Risk Communication Information exchange between:producers; regulatory authorities; scientists;feed consumers.</p>			
<p>MLO 3 Feed and feed additives. Quality requirements.Safety Feeds must</p>	+	+	survey of theoretical issues, performing tasks

not contain: toxic substances; pathogenic microorganisms; poisonous plants; heavy metals above permissible limits; pesticides and other pollutants. Nutritional value Feeds must meet the needs of animals for: proteins; fats; carbohydrates; vitamins; minerals; energy.			in laboratory and practical classes, testing, performing tasks of independent work
MLO 4. Modern development of legislation on feed and feed additives. Main directions of modern development of legislation. Harmonization with the law of the European Union. One of the most important directions is the approximation of Ukrainian requirements to European standards. The legislation provides for the possibility of using feed additives permitted in the EU in Ukraine, which significantly simplifies international trade and access of producers to modern animal feeding technologies. Improving the state registration system	+	+	survey of theoretical issues, performing tasks in laboratory and practical classes, testing, performing tasks of independent work
MLO 5 Good Manufacturing Practices. GMP is a set of requirements for the organization of production that provide appropriate conditions for the manufacture of safe products. The main elements of GMP: sanitary condition of premises and equipment; personal hygiene of personnel; water supply control; pest control; proper storage of raw materials and finished products; equipment maintenance; employee training; record keeping .	+	+	survey of theoretical issues, performing tasks in laboratory and practical classes, testing, performing tasks of independent work

MODULE INDICATIVE CONTENT 3d semester

Topics	Distribution of hours			Learning resources
	Directed study		Self-directed study	
	Lectures	lab		Learning resources)
Topic 1. Legislation on feed. Requirements for the production and circulation of feed. Law of Ukraine	2		46	1,7,8.

"On the safety and hygiene of feed"				
Topic 2 Feed quality. Classification and methods of assessing feed quality. Feed quality control.			50	2, 3,8.
Topic 3. Animal feeding. Standardized feeding of farm animals. Cattle feeding. Pig feeding. Sheep feeding. Horse feeding. Poultry feeding.		2	50	4, 5, 12.
	2	2	146	

METHODS OF TEACHING AND TEACHING

MLOs	Teaching methods (directed study)	Learning methods (self-directed study)	Hours
MLO1. The importance of risk analysis of feed and feed additives	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction. <i>Visual:</i> demonstration, illustration, observation. Active methods: (use of technical teaching aids, use of training and control tests) Interactive teaching methods: (use of multimedia technologies.</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (analytical, <i>synthesis methods</i>, and <i>inductive method, deductive method, translational method</i>). Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)</p>	42
MLO 2. The importance of risk analysis of feed and feed additives	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction. <i>Visual:</i> demonstration, illustration, observation. Active methods: (use of technical teaching aids, use of training and control tests) Interactive methods will present ting : (use of multimedia technologies.</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (analytical, <i>synthesis methods</i>, and <i>inductive method, deductive method, translational method</i>). Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive technologies teach ting (use of multimedia technology, learning dialogue, cooperation of students (cooperation).</p>	40
MLO 3 Feed and feed additives. Quality requirements.	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation.</p>	40

	<p>reproductive), lecture, instruction.</p> <p><i>Visual:</i> demonstration, illustration, observation.</p> <p>Active methods: (use of technical teaching aids, use of training</p>	<p>Teaching methods by the nature of the logic of cognition (analytical, <i>synthesis methods</i>, and <i>inductive method</i>, <i>deductive method</i>, <i>translational method</i>).</p> <p>Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research).</p> <p>Interactive technologies teaching</p>	
<p>MLO 4. Current developments in feed and feed additive legislation.</p>	<p>Methods of teaching by source of knowledge:</p> <p><i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction.</p> <p><i>Visual:</i> demonstration, illustration, observation.</p> <p>Active methods: (use of technical teaching aids, use of training and control tests)</p> <p>Interactive methods will present ting : (ie use of multimedia technologies, spreadsheets.</p>	<p>Methods of teaching by source of knowledge:</p> <p><i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation.</p> <p>Teaching methods by the nature of the logic of cognition (analytical, <i>synthesis methods</i>, and <i>inductive method</i>, <i>deductive method</i>, <i>translational method</i>).</p> <p>Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research).</p> <p>Interactive technologies teaching ting (use of multimedia technology, learning dialogue, cooperation</p>	40
<p>MLO 5. HACCP, GMP system.</p>	<p>Methods of teaching by source of knowledge:</p> <p><i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction.</p> <p><i>Visual:</i> demonstration, illustration, observation.</p> <p>Active methods: (use of technical teaching aids, use of training and control tests)</p> <p>Interactive methods will present ting : (ie use of multimedia technologies, spreadsheets.</p>	<p>Methods of teaching by source of knowledge:</p> <p><i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation.</p> <p>Teaching methods by the nature of the logic of cognition (analytical, <i>synthesis methods</i>, and <i>inductive method</i>, <i>deductive method</i>, <i>translational method</i>).</p> <p>Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research).</p> <p>Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation</p>	40

5. ASSESSMENT

5.1. Diagnostic assessment

5.2. Summative assessment

5.2.1. Intended learning outcomes methods: 3d semester

No	Summative assessment methods	Grades	Deadline
1.	Thematic survey	20 points / 20 %	Weekly
2.	Execution of tasks in laboratory- practical classes	35 points / 35 %	According to the schedule
4.	Report with a presentation on the subject of independent study of the discipline	45 points / 45 %	According to the schedule of delivery of modules

5.2.2. Grading criteria

Summative assessment method	Unsatisfactory	Satisfactorily	Good	Excellent
Thematic survey	<12 points	12-15 points	15-18 points	20 points
	The student can play only individual fragments of the course.	Most requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All requirements of the task are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered
Execution of tasks in laboratory- practical classes	<12 points	12-15 points	15-18 points	20 points
	Task requirements not met	Most of the tasks are performed using the basic theoretical principles, the student has difficulty explaining the rules for solving laboratory- practical problems. Execution of individual control tasks is significantly formalized, there is no deep understanding of the work	The student learned the basic material, and understands and performs laboratory- practical tasks and has suggestions for the direction of their solutions. Understands the main provisions that are decisive in the course, can solve similar problems with those discussed with the teacher, but allows a small	Competitor realism is a theoretical ground material discipline in carrying laboratory- practical work, able to analyze and correlate the results obtained from the discipline acquired knowledge, skills, practical skills

			number of inaccuracies .	
Multiple choice test	<i>≤ 5 points</i>	<i>6-9 points</i>	<i>10–13 points</i>	<i>14-15 points</i>
	The student gives the correct answer to several questions (≤ 33% of the correct answers) .	The student has some knowledge provided in the program of the discipline, has the basic provisions being studied and gives the correct answer to several questions (34-59% of correct answers) .	The student is generally well versed in the material, knows the basic provisions of the material, and gives the correct answer to several questions (60-89% of the correct answers).	The student demonstrates complete and solid knowledge of the study material in the amount that corresponds to the program of the discipline, correctly answers the test questions (90 -100% of correct answers).
Design and presentation report independently of the processed material	<i>< 9 points</i>	<i>10 - 19 points</i>	<i>20 - 39 points</i>	<i>40 - 45 points</i>
	The student does not have a complete understanding of the material on the discipline. The student is not performed independently is processing material.	Despite the fact that the program of discipline complied by student, but some components are missing, a student worked passively.	Know the basic and provisions with crucial at performing independent work / individual tasks. Errors in the answers are not significant .	All requirements, tasks are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered.

Formative assessment

Formative exercises are designed to enable students to develop particular aspects of their learning, prior to summative assessments. Formative exercises are designed to help students use feedback and self-reflection to manage and develop their learning so that they can see how to improve their work.

№	Formative Assessment elements	Date
1	Oral feedback after studying topics 1 - 3 , 6-8	3 weeks
2	Written feedback after studying topics 4 - 5	8 weeks
3	Written feedback from the teacher while working on	Within 1 week after

	laboratory-practical tasks	execution		
4	Oral feedback from the teacher after the story with a presentation on the topic of independent study of the discipline	During classes		
№	Summative assessment methods	Grades		Deadline
	Autumn semester			
2.	Thematic survey	20 points / 20 %		Weekly
3.	Execution of tasks in laboratory-practical classes	35 points / 35 %		According to the schedule
5.	Report with a presentation on the subject of independent study of the discipline	45 points / 45 %		According to the schedule of delivery of modules
Summative assessment method	Unsatisfactory	Satisfactorily	Good	Excellent
Thematic survey	<12 points	12-15 points	15-18 points	20 points
	The student can play only individual fragments of the course.	Most requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All requirements of the task are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered
Execution of tasks in laboratory-practical classes	<12 points	12-15 points	15-18 points	20 points
	Task requirements not met	Most of the tasks are performed using the basic theoretical principles, the student has difficulty explaining the rules for solving laboratory-practical problems. Execution of individual control tasks is significantly formalized, there	The student learned the basic material, and understands and performs laboratory-practical tasks and has suggestions for the direction of their solutions. Understands the main provisions that are decisive in the course, can solve similar problems with those discussed with the	Competitor realism is a theoretical ground material discipline in carrying laboratory work, able to analyze and correlate the results obtained from the discipline acquired knowledge,

		is no deep understanding of the work	teacher, but allows a small number of inaccuracies .	skills , practical skills
Multiple choice test	≤ 5 points	6-9 points	10–13 points	14-15 points
	The student gives the correct answer to several questions (\leq 33% of the correct answers) .	The student has some knowledge provided in the program of the discipline, has the basic provisions being studied and gives the correct answer to several questions (34-59% of correct answers) .	The student is generally well versed in the material, knows the basic provisions of the material, and gives the correct answer to several questions (60-89% of the correct answers).	The student demonstrates complete and solid knowledge of the study material in the amount that corresponds to the program of the discipline, correctly answers the test questions (90 -100% of correct answers).
Design and presentation report independently of the processed material	< 9 points	10 - 19 points	20 - 39 points	40 - 45 points
	The student does not have a complete understanding of the material on the discipline. The student is not performed independently is processing material.	Despite the fact that the program of discipline complied by student, but some components are missing, a student worked passively.	Know the basic and provisions with crucial at performing independent work / individual tasks. Errors in the answers are not significant .	All requirements , tasks are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered.

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6. LEARNING RESOURCES

Main Literature

1. Ibatullin I. I., Chygrin A. I., Otchenashko V. V. Feeding of farm animals: a manual. Kyiv: NUBiP of Ukraine, 2021. 328 p.
2. Kryvenok M. Ya., Ibatullin I. I. Practical course on feeding of farm animals: a manual. Kyiv: Komprint, 2022. 396 p.

3. McDonald P., Wilkinson R. G., Edwards R. A., Greenhalgh J. F. D., Morgan C. A., Sinclair L. A. *Animal Nutrition*. 8th ed. Harlow: Pearson, 2022. 712 p.
4. On the safety and hygiene of feed: Law of Ukraine dated 12/21/2017 No. 2264-VIII (as amended on 03/02/2026). Database "Legislation of Ukraine" / Verkhovna Rada of Ukraine.
5. Regulation (EC) No 183/2005 of the European Parliament and of the Council of 12 January 2005 laying down requirements for feed hygiene. *Official Journal of the European Union*. 2005. L 35. P. 1–22.

Additional References=

1. Directive 2000/13/EC of the European Parliament and of the Council of 20 March 2000 on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs
2. Commission Directive 2003/14/EC of 10 February 2003 amending Directive 91/321/EEC on foods intended for infants up to 6 months of age and for infants over 4 months of age
3. Law of Ukraine “On withdrawal from circulation, processing, disposal, destruction or further use of substandard and dangerous products”. No. 1393-XIV | 14.01.2000
4. Law of Ukraine “On the basic principles of state supervision (control) in the field of economic activity”. No. 877-V dated 05.04.2007
5. Resolution of the Cabinet of Ministers of Ukraine “On approval of the procedure for selecting samples of products of animal, plant and biotechnological origin for conducting research”. No. 833 dated 14.06.02.

Information Resources

1. Google Cloud and Google Docs: cloud services for organizing the educational process. URL: <https://workspace.google.com> (access date: 09.06.2026).
2. Moodle 3.11: distance learning system. URL: <https://moodle.org> (access date: 09.06.2026).
3. Zoom Workplace (Zoom Video Communications, Inc.). URL: <https://zoom.us> (access date: 09.06.2026).
4. Microsoft Excel. Microsoft Corporation. URL: <https://www.microsoft.com/microsoft-365/excel> (access date: 09.06.2026).
5. <https://cdn.snau.edu.ua/moodle/course/view.php?id=3462>

Other Sources

1. Shkromada, O., Suprun, Yu., Fotin, O., Plyuta, L., & Lifar, I. (2024). Determination of the effect of the enzyme and probiotic complex on animal productivity. *Scientific Horizons*, 27(5), 9-19. <https://doi.org/10.48077/scihor5.2024.09>
2. Shkromada, O., Hrek, V., Fotin, O., Hrek, R., & Rud, V. (2023). Increased lactation in females due to the use of probiotic-based feed additives. *Scientific Horizons*, 26(10), 9-18. <https://doi.org/10.48077/scihor10.2023.09>
3. Berezovskyi, A., Dovbnya, A., Fotin, O., Kisil, D., & Morozov, B. (2023). Rationale for the prevention of mastitis in cows during the dry period and after calving. *Scientific Horizons*, 26(4), 43-53. <https://doi.org/10.48077/scihor4.2023.43>
4. Shkromada, O., Fotina, T., Berezovskyi, A., Dudchenko, Yu., & Fotin, O. (2022). Determination of the therapeutic effect of the use of bacillus coagulans in calf dyspepsia. *Scientific Horizons*, 25(6), 9-20. [https://doi.org/10.48077/scihor.25\(6\).2022.9-20](https://doi.org/10.48077/scihor.25(6).2022.9-20)