

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY
Faculty of food technologies
Department of food technology and safety

Syllabus of the educational component
EEC 11 ECO-TECHNOLOGIES IN FOOD PRODUCTION

Specialty	G 13 Food Technology
Educational program	Food technology
Level of higher education	First (Bachelor's)

Sumy-2026

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Reviewed, approved and ratified at the department meeting technologies and food safety (name of department)	protocol 17 of 19.05,2026
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Agreed:

Guarantor of the educational program "Food Technologies" [Signature] Olena KOSHEL

Dean of the Faculty of Food Technology,
where the educational program is implemented [Signature] Nataliia BOLHOVA
(signature)

Review of the work program provided by : [Signature] Oksana MELNYK
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Information on reviewing the work program (syllabus):

Educational the year in which are introduced changes	Number of the appendix to the work program with a description of the changes	Changes reviewed and approved		
		Date and number minutes of the meeting departments	Head of the Department	Guarantor educational programs

1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

Name EC	EEC 11 Eco-technologies in food production	
Status EC	Selective	
Program/Specialty, which includes EC	G 13 "Food Technology"	
Name of structural unit	Food Technology/Department of Food Technology and Safety	
NRC level	Level 6	
Semester and duration of study	6th semester (for s.t.) 8th semester	
Number of ECTS credits	5	
Total hours and their distribution 150	Contact work (classes)	
	Lectures – 14	Laboratory – 46
Language of instruction	Ukrainian, English	
Limitation	missing	
General description of the educational component	Studying the educational component contributes to the formation of special skills and knowledge that provide for the training of specialists who are able to manage the production of eco-food products, organize their production, know their role in supporting human health, competitiveness in the food market, have the skills to analyze existing trends in the development of craft production of environmentally friendly livestock and crop products of various types in Ukraine and the world; study of legislative documents of Ukraine and the European Union that regulate environmentally friendly production	
Purpose of the educational component	to deepen theoretical knowledge and acquire the necessary skills in the practical organization of the technology of production of eco-food products, reducing energy consumption in production	
Prerequisites for studying EC, connection with other educational components of ECs	No prerequisites. EC is based on the study of EC 18, EC 19, EC 21, EC 22, and is the basis for the study of EC 27	
Academic Integrity Policy	Provided in accordance with the Code of Academic Integrity (http://surl.li/khyd)	
Keywords OK	food industry, sustainable development, environmental safety, eco-technologies, organic products, organic production, renewable energy sources, energy efficiency, processing of industrial waste, waste-free production, circular economy, resource conservation, green energy, greening of the food industry	
Teacher information	Doctor of Philosophy, Assistant Demidova Evgeniya Vyacheslavivna, room 317m, 0507372890, E-mail: lera072010@ukr.net	
Link to the course in Moodle	https://cdn.snau.edu.ua/moodle/course/view.php?id=6067	

2. LEARNING OUTCOMES BY EDUCATIONAL COMPONENT AND THEIR RELATIONSHIP WITH PROGRAM LEARNING OUTCOMES

Learning outcomes for OK: After studying the educational component, the student is expected to be able to...	Program learning outcomes that the OK aims to achieve				How is the DRE assessed?
	PLO 1	PLO 14	PLO 17	PLO 29	
DRE 1. Implement resource-saving and competitive technologies. Develop recommendations for the implementation of resource technologies.	+	+	+		Oral defense of laboratory work (during distance learning – upload the completed laboratory work to Moodle). Development of an eco-project. Final multiple choice test. Completion of an individual assignment in the form of an essay or presentations Differential credit
DRE 2. Strive to protect the environment, know how to dispose of waste, and ensure ecologically clean production	+	+	+		
DNE 3 Apply and advise on environmental principles production of products animal husbandry and crop production	+		+	+	

LIST OF COMPETENCES THAT WILL BE IMPROVED/ACQUIRED IN THE PROCESS OF NON-FORMAL EDUCATION

Sustainable and Renewable Energy. Basics	
https://prometheus.org.ua/prometheus-free/renewable-energy-basics/	General: critical thinking, the ability to justify a position, summarize and interpret information, assess the weight of arguments and the relevance of evidence. Professional: - knowledge and understanding of the overall picture, prerequisites and challenges that shape the relevance of the development of alternative energy, economic principles, environmental prerequisites and prospects for the development of the industry; - knowledge of the physicochemical and engineering principles of the most common technologies for generating energy from renewable sources; - knowledge and understanding of the physical and chemical foundations of processes and phenomena underlying the production of electricity from solar energy, the latest achievements in the field of physical materials science and nanotechnology; - economic aspects and issues of energy management, aspects of the actual implementation of alternative energy in real life, economic efficiency and feasibility of distribution. Form for confirming learning results: Certificate of successful completion of training. The authenticity of the certificate can be verified by using the link on it.
Planetary well-being: what everyone should know and can do	
https://prometheus.org.ua/prometheus-free/planet-wellbeing-knowledge/	General: critical thinking, the ability to justify a position, summarize and interpret information, assess the weight of arguments and the relevance of evidence, the desire to preserve the environment. Professional: The ability to develop new and improve existing food technologies taking into account the principles of rational nutrition, resource saving, and intensification of technological processes. Form for confirming learning results:

	Certificate of successful completion of training. The authenticity of the certificate can be checked by clicking on the link on it.
Eco-practices for agriculture and communities	
https://prometheus.org.ua/prometheus-free/agriculture-and-community-eco-practices/	General competencies: skills in using information and communication technologies; ability to search and analyze information from various sources; ability to work autonomously. Professional competencies: – the ability to develop new and improve existing food technologies taking into account the principles of rational nutrition, resource saving and intensification of technological processes. Form for confirming learning results: Certificate of successful completion of training. The authenticity of the certificate can be verified by using the link on it.
	Ecology
https://eduhub.in.ua/courses/kurs-8-ekologiya	General competencies: skills in using information and communication technologies; ability to search and analyze information from various sources; ability to work autonomously. Professional competencies: the ability to develop new and improve existing food technologies taking into account the principles of rational nutrition, resource saving and intensification of technological processes. Form for confirming learning results: Certificate of successful completion of training. The authenticity of the certificate can be verified by using the link on it.
	Sustainable Food Production Through Livestock Health Management
https://www.coursera.org/learn/livestock-farming	General competencies: skills in using information and communication technologies; ability to search and analyze information from various sources; ability to evaluate and ensure the quality of work performed; ability to work autonomously; ability to communicate in a foreign language. Professional competencies: – the ability to implement technologies that prevent the spread of diseases, increase production hygiene and the safety of the final product; – skills in analyzing technological risks, drawing up production schemes, optimizing processes taking into account biological and economic efficiency; – adhere to the principles of sustainable development, resource conservation, ethical treatment of animals and meeting consumer demands; – the ability to develop new and improve existing food technologies taking into account the principles of rational nutrition, resource saving and intensification of technological processes; – the ability to ensure product quality and safety based on relevant standards and within the framework of food safety management systems during their production and sale. Form for confirming learning results: Certificate of successful completion of training. The authenticity of the certificate can be verified by using the link on it.

3 CONTENT OF THE EDUCATIONAL COMPONENT (COURSE PROGRAM)

Topic. List of issues to be addressed within the topic	Distribution within the overall time budget		Himself work	Recommended literature
	Classroom work			
	Luke	Lab. with		
Module 1 The impact of the food industry on the environment. Organic production				
Lecture 1. The impact of the food industry on the environment. Green energy technologies in the food industry 1. Air pollution. 2. The role of greening production in ensuring sustainable development 3. Basic concepts of low-waste and waste-free technologies. 4. "Green" modernization of food enterprises 5. Using solar energy 6. Energy-efficient lighting systems and equipment 7. Use of wind energy	2			[1],[2],[4]
Self-study questions 1. The role of domestic scientists in creating the scientific foundations of waste-free technological processes. 2. Zero-waste production model 3. Prospects for implementing energy saving in the food industry. 4. Introduction of alternative energy sources at food enterprises. 5. Priority areas in implementing an active and innovative resource-saving policy at food industry enterprises.			12	[1], [4]
Laboratory lesson No. 1. Creation of a regional cluster for the production of environmentally friendly agricultural products.		2		[1],[3]
Laboratory lesson No. 2. Development of a model for complex processing of plant raw materials		2		[1],[3]
Laboratory lesson No. 3. Research into energy-saving technologies in the food industry. Energy consumption analysis of food enterprise equipment		2		[1],[3]
Lecture 2. Food ecology, its importance 1. Sources of food contamination. 2. Procedure and frequency of control of food raw materials and food products for safety indicators. 3. Food contamination with nitrates. 4. Food contamination with radionuclides, heavy metals, and pesticides. 5. Pollution of groundwater and water bodies 6. Wastewater classifications. Composition and properties of wastewater 7. Methods of industrial wastewater treatment.	2			[1],[2],[4] [5] ,
Self-study questions 1. Problems of wastewater treatment in some branches of the food industry 2. Sanitary requirements for drinking and process water 3. Food additives, antibiotics, hormones, biostimulants in food products			12	[1-4],[7]

4. Soil contamination with radioactive isotopes, toxins and heavy metals during organic production.				
Laboratory lesson No. 4. Drinking water quality research.		2		[1],[3]
Laboratory lesson No. 5. Determination of nitrates in food products		2		[1],[3]
Laboratory lesson No. 6. Research on the content of food additives in products		2		[1],[3]
Lecture 3. Production of organic food products. Eco-packaging for food products. 1. State and prospects for the development of the organic products market. 2. Development directions of the organic food industry 3. Innovative packaging technologies and packaging materials for organic food products 4. ECO packaging, biodegradable packaging, natural eco-friendly dishes	2			[1], [8], [9], [10], [8 - 14] ,
Self-study questions 1. Historical references on the basis of organic agricultural production. 2. The state of organic agricultural production in the EU, CIS and Ukraine.			6	[1-4],[7]
Laboratory lesson No. 7. Eco-technological methods of protecting agricultural crops from pests.		2		[6] , [8 - 14]
Laboratory lesson No. 8. Familiarization with the basic standards of organic production and the legislation of Ukraine on organic production		2		[1],[3]
Laboratory lesson No. 9. Evaluation of an organic food product according to its labeling system		2		
Laboratory lesson No. 10. Study of the shelf life of products in different types of eco-packaging		2		
Laboratory lesson No. 11 Research on the decomposition time of different types of packaging		2		[1],[3]
Informal education				
Sustainable and renewable energy. Fundamentals. Course program 1. Introduction to sustainable and renewable energy. 2. Advanced technologies and methods of energy generation. 3. Solar and nanotechnology. 4. Integration, accumulation and distribution of energy systems. 5. Security and economic aspects of renewable energy development			10	https://prometheus.org.ua/prometheus-free/renewable-energy-basics/
Planetary well-being: what everyone should know and can do Course program: 1. Key issues and challenges of ecology 2. Climate change and its consequences 3. Ecopolitics 4. Nature-oriented solutions 5. What can I change?			10	https://prometheus.org.ua/prometheus-free/planet-wellbeing-knowledge/
Eco-practices for agriculture and communities Course program: 1. Greening agriculture: why is it important? 2. How is the impact of agriculture on the environment regulated in Ukraine and the EU?			10	https://prometheus.org.ua/prometheus-free/

3. Changing the environmental and health impacts of agriculture: best practices 4. The impact of climate change on agriculture: best practices for adapting to the effects of climate change. 5. Nature-based solutions in agriculture				free/agriculture-and-community-eco-practices/
Ecology Course program: 1. Environmental problems 2. Global warming and its consequences 3. Ecodaptation 4. Earth as a living space			10	https://eduhub.in.ua/courses/kurs-8-ekologiya
Total for module 1	6	22	30	
Module 2 Types and directions of application of industrial waste from the food industry. Eco-product production technologies.				
Lecture 4. Wastes of the agro-industrial complex of Ukraine, their classification. 1. Classification of food waste 2. Directions of waste use. 3. Technologies of products from secondary dairy resources. 4. Directions of rational processing and use of meat industry waste. 5. Characteristics of waste from commercial fish processing . Directions of rational processing	2			[1], [2] [4]
Self-study questions 1. Composition, properties, nutritional and biological value of secondary dairy resources. 2. The use of membrane processes in the processing of skim milk, buttermilk and whey. 3. Electrodialysis of whey. 4. Organic milk production using ESL technology 5. Innovative technologies for organic livestock farming. 6. Livestock and poultry waste, classification of secondary raw materials. 7. Technology for processing and using blood for food and medical purposes. 8. Comprehensive bone processing at enterprises of various capacities. 9. Keratin-containing raw materials. Directions of rational use and processing of non-food raw materials. 10. Processing and equipment for processing non-food fish products 11. Disposal of non-food fish waste 12. Global scheme of use of secondary raw materials from fish production in different countries of the world			20	[1-4],[7]
Laboratory lesson No. 12. Analysis of household waste and its recycling.		2		[1],[3]
Laboratory lesson No. 13. Develop a waste-free technology for processing milk/dairy products. Assessment of food quality indicators		2		[1],[3]
Laboratory lesson No. 14. Technology for the production of livestock products of various types of "custom" quality using economical, environmentally safe resources.		2		[1],[3]

Laboratory lesson No. 15. <i>Development of waste-free technology for processing livestock products (pigs, ducks, cattle)</i>		2		
Laboratory lesson No. 16. <i>Development of waste-free technology for processing fish products</i>		2		
Lecture 5. Processing of secondary resources in the sugar and brewing industries. 1. Directions of use of secondary raw materials and waste (molasses, refined treacle, beetroot tails and "fight" beets, press water) 2. Obtaining citric acid 3. Characteristics of secondary resources in brewing production. 4. Technologies for processing secondary resources in brewing production. 5. Products of processing secondary raw materials and winemaking waste.	2			[1] [2]
Self-study questions 1. Production of bioethanol from beet molasses. Technology for the production of fermented feeds. 2. Energy-saving technology for processing beet pulp 3. Characteristics of secondary resources in winemaking (pomace, yeast and lees, cognac lees) 4. Areas of application of grape pomace, skins and seeds .			10	[1],[2],[4],
Laboratory lesson No. 17. <i>Development of a food product recipe using molasses</i>		2		[1],[3]
Laboratory lesson No. 18. <i>Develop a waste-free technology for wine and beer production</i>		2		
Lecture 6. Processing of secondary raw materials of the fruit and vegetable industry				[1] [1 5-21]
1. Utilization of waste from fruit and vegetable juice production 2. Use of potato processing waste 3. Hydrothermodynamic technology for processing berry raw materials 4. Low-temperature technologies in the production of organic food products 5. Waste-free technology for processing wild berries 6. Technology for obtaining dietary fiber.	2			[4],[2]
Self-study questions 1. Basic principles of biodynamics 2. Waste-free, environmentally friendly technology for the production of pectin concentrate from apples 3. Production of dyes, flavor condensates, and tea substitutes. 4. Waste-free technologies for processing fruit stones 5. Chemical composition of potatoes. Requirements for potatoes used in the production of organic food products. Technologies for preparing potatoes for freezing 6. Chemical composition of wild plant fruits. Technology for the production of food additives based on berries 7. Using cryopowders of wild berries for the production of biscuit semi-finished products.			20	[1][2],[4]
Laboratory lesson No. 19. <i>Research on non-traditional raw materials in food production</i>		2		[1],[3]

Laboratory lesson No. 20. <i>Develop technology for natural food products from berry/vegetable raw materials. Safety assessment of organic food products</i>		2		[1],[3]
Laboratory lesson No. 21. <i>Develop a technology for the production of organic potato chips. Features of the quick-freezing process. Assessment of the safety of organic food products</i>		2		[1],[3]
Lecture 7. Processing of waste from the oil and fat and grain processing industries 1. Characteristics of secondary resources of the oil and fat industry. 2. Waste from the grain processing industry. 3. Use of waste from the flour milling industry 4. Technologies for producing diesel biofuel from vegetable oils	2			[1-4],[7]
Self-study questions 1. Use of waste from the production of bread, confectionery and fresh cakes 2. Use of waste from the production of cocoa, chocolate and sugar confectionery products 3. Use of waste from the production of flavor additives and seasonings 4. Use of waste from the production of pasta, noodles, couscous and similar flour products 5. Processing of grain products in a stream of infrared rays. 6. Barothermal processing of grain crops			10	[1][2],[4]
Laboratory lesson No. 22. <i>Use of waste from the production of bread, confectionery, and spices</i>		2		[1],[3]
Laboratory lesson No. 23. <i>Development of a mini-project on greening production. Protection of an ecological project</i>		2		[1],[3]
Total for module 2	8	24	60	
Total	14	46	90	

4 TEACHING AND LEARNING METHODS

DRN	Teaching methods	Number of hours	Teaching methods	Number of hours
DRN 1. Introduce resource-saving and competitive technologies. Develop recommendations for the introduction of resource-saving technologies	Lectures-presentations with demonstration and use of interactive technologies	14	Laboratory classes (performing tasks according to methodological instructions)	46
DRN 2. Strive to protect the environment. Know how to dispose of waste and ensure ecologically clean production.			Individual tasks (independent processing of the information proposed by the teacher)	80
DPR 3			Oral survey	20

Know the basics of organic agricultural production, current trends and prospects for the development of the organic production industry				
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5. EVALUATION BY EDUCATIONAL COMPONENT

5.1. Summative assessment

5.1.1. To assess the expected learning outcomes, there are

N o.	Summative assessment methods	Points / Weight in the overall score	Date of compilation
2nd semester			
Module 1 (40 points):			
1.	Laboratory work defense (11 LB, 2 points each)	22 points / 22%	within 5 days after class
2.	Preparation of the presentation "Energy Saving in the Food Industry"	6 points / 6 %	Week 5
3.	Midterm testing (multiple choice test)	12 points / 12%	Week 7
4.	Passing an optional non-formal education course (not mandatory). Possibility of obtaining 6 points as an alternative to testing or laboratory work	6 points / 6%	Week 7
Module 2 (60 points):			
5.	Laboratory work defense (11 LB, 2 points each)	22 points / 22%	within 5 days after class
6.	Midterm testing (multiple choice test)	12 points / 12 %	Week 15
7.	Writing a thesis	10 points / 10 %	10 week
8.	Protection of the eco-project	16 points / 16%	Week 15

5.1.2. Evaluation criteria

Component	Unsatisfactorily	Satisfactorily	Good	Perfectly
Laboratory work protection	<i>Each laboratory work, designed and performed in accordance with the methodological instructions, is evaluated at 2 points.</i>			
Midterm testing (multiple choice test)	<i>The test includes 12 questions, each of which is worth 1 point.</i>			
Preparation of the presentation "Energy Saving in the Food Industry"	<i>Preparation and public defense of the presentation</i>			
Writing a conference thesis	<i>Preparation and public speaking, publication</i>			
Testing the research results in the form of an eco-project	<i>0 points</i>	<i>4-8 points</i>	<i>9-12 points</i>	<i>13-16 points</i>
	The project does not match the topic or there is no clear research.	The research is superficial, lacking specific data or analysis. The problem is identified, but the solutions are not substantiated.	The research has been conducted, some data has been collected, but the analysis is shallow. The problem has been identified, solutions have been proposed,	The research is thorough, the problem and goal are clearly formulated. The results of the analysis are complete and reliable. The proposed solutions are realistic, innovative and have the potential for implementation.

			but their realism and effectiveness are questionable.	Cause-effect relationships are demonstrated.
Training on Prometheus	<i>If you have a certificate – 6 points</i>			

5.2 Formative assessment:

To assess current progress in learning and understand areas for further improvement,

No.	Elements of formative assessment	Date
1	Oral survey after studying all topics, during laboratory classes (in the case of distance learning - tests)	According to the educational process schedule
2	Feedback in the form of a presented presentation	Week 5
3	Feedback in the form of a presented thesis	10 week
4	Feedback in the form of a discussion of the final testing	Week 15
5	Feedback in the form of a presented eco-project (develop a waste-free processing technology according to the chosen topic: duck meat, milk, berries, pumpkin, potatoes, etc.)	7, 15 weeks

The form of final control is *differentiated assessment*. The final number of points in the discipline (maximum 100 points per semester) is determined as the sum of points based on the results of the applicant's work during the semester.

Total points for all types of learning activities	ECTS assessment	National scale assessment
90-100	AND	perfectly
82-89	IN	good
75-81	WITH	good
69-74	D	satisfactorily
60-68	E	satisfactorily
35-59	FX	unsatisfactory with the possibility of reassembly
0-34	F	unsatisfactory with mandatory re-study

6 LEARNING RESOURCES (LITERATURE)

6.1 Basic

6.1.1 Textbooks, manuals

1. Eco-technologies in food production: a training manual / E.V. Demidova, M.M. Samilyk, T.P. Synenko. Sumy, 2025. 330 p.

6.1.2 Methodological support

2. Eco-technologies in food production: Course of lectures for 3rd year students in specialty 181 "Food technologies" of full-time and part-time forms of study, degree of higher education "bachelor" / compiled by M.M. Samilyk, E.V. Demidova - Sumy: SNAU, 2024 - p.132.

3. Eco-technologies in food production: Methodological instructions for performing laboratory work for 3rd year students in the specialty 181 "Food Technologies" of full-time and part-time forms of study, higher education degree "bachelor" / compiled by M.M. Samilyk, E.V. Demidova - Sumy: SNAU, 2024 - p.66.

4. Eco-technologies in food production . Methodological instructions for performing independent work for 2nd year students in specialty 181 "Food Technologies" of full-time and part-time forms of study, bachelor's degree / Compiled by M.M. Samilyk, E.V. Demidova - Sumy: SNAU, 2024 - p.106.

6.2 Additional sources

5. On Environmental Protection. Law of Ukraine dated 25.06.1991 No. 1264-XII. Date of update: 28.12.2007. <http://zakon3.rada.gov.ua/laws/show/1264-12>

6. DSTU 7525:2014 Drinking water. Requirements and methods of quality control. [Valid from 2015-02-01]. Official edition. Kyiv: Derzhspozhyvstandart of Ukraine, 2014. 28 p.

7. On the Protection of Atmospheric Air. Law of Ukraine dated 16.10.1992 No. 2707-XII. Update date: 03.01.2023. <http://zakon2.rada.gov.ua/laws/show/2707-12>

8. Official website of the Federation of Organic Movement of Ukraine. URL: <http://organic.com.ua/> vidannya-dovidnika-standartiv-%D1%94s-shhodoregulyuvannya –organicnogo-virobnictva-tamarkuvannya-organichnih-produktiv/.

9. Regulation (EC) No 834/2007 on organic production and labelling of organic products. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Af86000>.

10. For a clean product. Law and Business. URL: https://zib.com.ua/ua/133877-novi_vimogi_do_organichnogo_virobnictva_obig_markuvannya_san.html.

11. EU Regulation 1235/2008 laying down rules for the import of organic products from third countries. 2008. URL: https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/legislation_en.

12. EU Regulation 889/2008 laying down rules governing organic production, labelling and control. 2008. URL: https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/legislation_en

13. IFOAM Basic Standards. URL: <https://www.aquaculturealliance.org/advocate/ifoam-drafts-basicstandards-for-organic-aquaculture-production/>.

14. On approval of the state logo for organic products. Order of the Ministry of Agrarian Policy and Food of Ukraine dated 02/22/2019 No. 67. Update date 08/14/2020. <https://zakon.rada.gov.ua/laws/show/z0261-19>

15. Oliynyk M. I. Products obtained by processing fish raw materials and methods of their isolation. Tavria Scientific Bulletin. Series: Technical Sciences. 2022. No. 3.P. 144-155. <https://doi.org/10.32851/tnv-tech.2022.3.16>

16. Samilyk M. M. Development of waste-free technology for obtaining natural dyes from plant raw materials. Scientific Bulletin of the Poltava University of Economics and Trade. Series "Technical Sciences". 2022. Vol. 1. P. 49-54. <https://doi.org/10.37734/2518-7171-2022-1-8>

17. Samilyk, M. Scientific substantiation of the use of plant processing derivatives for enrichment of ferrous milk drinks. EUREKA: Life Sciences.2022. Vol. 5. R. 58–64.

18. Samilyk M. M., Sheshenya I. O. Development of a rational method of processing sea buckthorn fruits. Bulletin of the Sumy National Agrarian University. Series: Mechanization and automation of production. 2023. No. 4 (50). P. 98-102. <https://doi.org/10.32845/msnau.2022.4.15>.

19. Samilyk, M., Demidova, E., Bolgova, N., Savenko, O., Cherniavska, T. (2022). Development of bread technology with high biological value and increased shelf life. *Eastern-European Journal of Enterprise Technologies*, 2 (11 (116)), 52–57. <https://doi.org/10.15587/1729-4061.2022.255605>.
20. Marina M. Samilyk, Evgenia V. Demidova, Natalia V. Bolgova (2022). Waste-free technology of processing wild plant raw materials. *Journal of Chemistry and Technologies*, 30(3), 394-403. <https://doi.org/10.15421/jchemtech.v30i3.256924>.
21. Samilyk, M. Demidova, E., Bolgova, N., Kapitonenko, A., Cherniavska, T. Influence of adding wild berry powders on the quality of pasta products. "EUREKA: Life Sciences" Number 2. 2022. P.28-35. DOI: 10.21303/2504-5695.2022.002410
22. Mazurenko, I. K., & **Demydova, E. V.** (2025). Characteristics of secondary plant raw materials and the possibilities of their use in the production of food products. *Bulletin of Sumy National Agrarian University. The Series: Mechanization and Automation of Production Processes* , (4), 79–84. <https://doi.org/10.32782/msna u .2025.4.11>

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