



IASI UNIVERSITY
of LIFE SCIENCES
1842

**LIFE SCIENCES TODAY
FOR TOMORROW**
24-25 October 2024



CONGRESS PROGRAM

Iași, 24th-25th October 2024



OPIS

Faculty of Agriculture	13
Faculty of Horticulture	68
Faculty of Food and Animal Sciences	105
Faculty of Veterinary Medicine	156



SCIENTIFIC COMMITTEE

I. I. AGRICULTURE AND FOOD ENGINEERING

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- Prof. Carmen del CAMPILLO GARCIA, PhD – University of Cordoba, Campus of Rabanales, Spain



II. THE ART OF NATURE – Fundamental research in Horticulture, Landscaping, Environmental Engineering and Agricultural Biotechnologies

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- Lecturer Luminița AILINCAI, PhD - I.U.L.S. Vice-dean of the Faculty of Veterinary Medicine

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- Lecturer Gabriel TELIBAN, PhD – Vice dean, Faculty of Horticulture, I.U.L.S., Romania
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- Prof. Vasile STOLERU, PhD - Faculty of Horticulture, I.U.L.S., Romania
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- Lecturer Roberto Renato BERNARDIS, PhD - Faculty of Horticulture, I.U.L.S., Romania

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- Prof. Marius Giorgi USTUROI, PhD - Director of Department, Faculty of Food and Animal Sciences, I.U.L.S., Romania
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- Prof. Sorin Aurelian PAȘCA, PhD - Vice-dean, Faculty of Veterinary Medicine, I.U.L.S, Romania
- Assoc. Prof. Dragoș Constantin ANIȚĂ, PhD - Vice-dean, Faculty of Veterinary Medicine, I.U.L.S, Romania
- Lecturer Luminița AILINCAI, PhD - Vice-dean, Faculty of Veterinary Medicine, I.U.L.S, Romania
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- Assoc. Prof. Viorel FLORIȘTEAN, PhD - Director of Department, Faculty of Veterinary Medicine, I.U.L.S, Romania
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EDITORIAL COMMITTEE

The editorial committee is provided by: the Faculty of Agriculture, the Faculty of Horticulture, the Faculty of Food and Animal Sciences and the Faculty of Veterinary Medicine.

The scientific works selected by the scientific committee and edited, preferably, in an international language, will be published, according to the domain they cover, in the following journals, indexed BDI (CAB International, Copernicus International, Genamics Journal Seek, SCIRIUS, DOAJ, AGRIS):

- Journal of Applied Life Sciences and Environment by “Ion Ionescu de la Brad” Iasi University of Life Sciences (ISSN 2784 – 0379);

-, „Lucrări științifice. Seria Agronomie” - Scientific Works. Agronomy Series (ISSN 1454-7414);

-, „Lucrări științifice. Seria Horticultură” - Scientific Works. Horticulture Series (ISSN 1454-7376);

-, „Animal & Food Sciences Journal Iasi” - (ISSN 2821-6644);

-, „Lucrări științifice. Seria Medicină Veterinară” – Scientific Works. Veterinary Medicine Series (ISSN 1454-7406).



THURSDAY, OCTOBER 24th, 2024

09:30 – 10:00 **Registration of the participants**

10:00 – 12:00 **Opening ceremony**

Rector's message

Plenary sessions:

1. Ammonia leakage can underpin nitrogen-sharing among soil microbes

Schäfer P

Justus Liebig University Giessen, Germany

Presenter: Prof. Patrick Shafer, PhD

2. Circular Economy and life science: a continuous and valuable dialogue

Alessandra Bonoli, Raluca Hlihor, Sara Pennellini, Isabela Simion
University of Bologna, Italy, "Ion Ionescu de la Brad" Iasi University of
Life Sciences, Romania

Presenter: Prof. Alessandra BONOLI, PhD

3. Understanding eggshell formation to maintain its quality in laying hens

Joël Gautron, Alejandro Rodriguez-Navarro, Michel Duclos

INRAE, UMR BOA, Université de Tours, Nouzilly, France;

Departamento de Mineralogía y Petrología, Universidad de Granada

Presenter: Dr. Joël GAUTRON

4. Competence center for climate change digital twin earth for forecasts and societal redressement: DTEclimate

Mihai Datcu, Corina Vaduva, Daniela Faur, Daniela Coltuc,

Alexandru Vulpe, Andrei Anghel

National University of Science and Technology POLITEHNICA

Bucharest, Romania

Presenter: Prof. Mihai Datcu, PhD

5. The stereotypes and the influence on cognitive performance

UMS28, Sorbonne Université/INSERM, Paris, France

Department of Public Health, "Ion Ionescu de la Brad" Iasi University of
Life Sciences, Romania

Presenter: Assoc. Prof. dr. Șerban MOROSAN, PhD

12:00 – 13:45 **BRUNCH**

14:00 – 18:00 Presentation of the scientific papers by sections within each Faculty

19:00 – 23:00 Official Dinner – „La Castel Restaurant”

FRIDAY, OCTOBER 25th, 2024

08:00 – 18:50 Book launch

Workshops within each faculty

Poster presentations

Presentation of the scientific papers



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AGRICULTURE AND FOOD ENGINEERING



THURSDAY, OCTOBER 24th, 2024

**FIRST SECTION
SOIL, WATER AND AGRICULTURE TECHNOLOGIES**

→ 5th Lecture room (A5), first floor

**Secretariat: Lecturer Andrei Mihai GAFENCU, PhD
Lecturer Cristian HUȚANU, PhD**

PLENARY SESSION

14:00– 16:00

**Chairpersons: Prof. Daniel BUCUR, PhD
Prof. Dănuț SIMIONIUC, PhD**

14:00-14:20

KEYNOTE SPEAKER:

**SOIL FOOTPRINT AND SOIL SECURITY: INNOVATIONS IN EROSION
TRACER RESEARCH**

Vanwalleghem, T., García-Gamero, V., Peñuela, A., Más, P.
University of Cordoba, Spain

Soil erosion is a major threat to soil security, and therefore to agriculture. To address this challenge, effective strategies are needed to protect soil resources without compromising crop yields. Currently, there are three main players involved: scientists, policymakers, and land managers. However, the technical knowledge required to understand how soil erosion affects food production hinders the communication of the potential benefits of soil sustainability strategies to nontechnical stakeholders, such as farmers and food producers. Moreover, a major player in this fight is still missing, consumers. If there is no connection between soil and society then the soil itself may not be valued and it is less likely to be managed sustainably. In this study, we propose the concept of soil footprint, defined as the ratio of soil loss to crop yield, to communicate, quantify, and compare soil security for different crops. To showcase some of these potential uses, we used national data to calculate the soil footprint of the ten main crops in Spain. We demonstrate the utility of this metric to compare and rank crops, identify problematic regions, and assess the effect of land management on the soil footprint. In addition, we test and apply a novel method for analyzing $^{239+240}\text{Pu}$ isotopes, that offers a much cheaper way of analysis and hence a potential new standard to estimate long-term soil erosion-deposition rates. Spatially distributed estimations of long-term soil erosion-deposition rates are used to calibrate and evaluate the soil erosion models RUSLE and MMF-TWI which will then be used to assess present and future soil resource status in a catchment in southern Spain.



14:20-14:30

RESPONSE OF ROSE (*Rosa damascena* Mill.) OIL COMPONENTS TO DIFFERENT IRRIGATION WATER AND NITROGEN APPLICATIONS

Ucar Yusuf, Kazaz Soner, Eraslan Inal Figen, Baydar Hasan, Erbaş Sabri

Isparta University of Applied Sciences, Faculty of Agriculture, Turkey

Ankara University, Faculty of Agriculture, Department of Horticulture, Turkey

In this study, the effects of different irrigation water amounts and nitrogen doses on the components of rose oil obtained from rose flowers harvested in different periods were investigated in oil rose (*Rosa damascena* Mill.). The experiment was set up in Süleyman Demirel University Agricultural Research and Application Center and carried out according to the randomized block factorial experimental design with 3 replications. The experiment trials were created as 4 irrigation water amounts created depending on Class A pan (T0: 0.00, T1: 0.40, T2: 0.80, T3: 1.20) and 4 nitrogen levels (N0: 0 kg N/da, N1: 8 kg N/da, N2: 16 kg N/da, N3: 24 kg N/da, pure substance). Irrigation was carried out at 10-day intervals by drip irrigation method. According to the results obtained from the study, differences were observed in the ratios of citronellol, geraniol and nerol which are the important components of rose oil according to the trial subjects. Citronellol ratios were 19.41-38.25 (1st year: 25.35-34.40; 2nd year: 19.41-30.10; 3rd year: 24.16-38.25), geraniol ratio was 9.62-35.36 (1st year: 27.86-33.87; 2nd year: 28.12 -35.36; 3rd year: 9.62-26.62) and the nerol ratio is between 2.80-14.43 (1st year: 11.48-14.43; 2nd year: 10.65-13.80; 3rd year: 2.80-10.26).

14:30-14:40

CHALLENGES AND INNOVATIVE APPROACHES IN AGRICULTURAL WATER MANAGEMENT

Öner Çetin

Dicle University, Diyarbakır, Türkiye

In recent years, global warming and climate change have become the most important natural and/or human-induced environmental issues on Earth. Accordingly, the most affected sector is agriculture with a particularly negative impact on water resources. By 2080, it is estimated that a 20% increase in water demand will lead to a 10% decrease in agricultural production. Irrigated agriculture is mostly practiced in Asian countries and water is used much more in agriculture in the same countries. The water used in agriculture in the world varies from 40% to as high as 92% depending on the country. Irrigation efficiencies also vary from 35% to 70-80% depending on the country. On the one hand, there are the overuse of water and also major environmental challenges such as salinization and erosion. Thus, efficient and sustainable use of water has become imperative for both climate change and increasing population and food security. This will be possible with the use of new innovative approaches, technological methods and devices to save water and increase water productivity in agriculture. However, many factors such as education of water users, social, cultural and political conjuncture have an impact on water use. On the other hand, the economic productivity of agricultural irrigation also varies in a wide range from 0.10 USD to 2.20 USD per m³ of irrigation water. These data show us that it is still necessary and even obligatory to increase irrigation efficiency and to use irrigation water more economically where water is used intensively or excessively in agriculture in the world. In this presentation, agricultural water use in different countries around the world, comparisons of water productivity, challenges and, consequently, innovative approaches to water use in agriculture are discussed in terms of food security and water productivity perspectives.



14:40-14:50

**SOIL HEALTH UNDER CONVENTIONAL AND MINIMUM-TILLAGE
PRACTICE: SOIL CARBON STORAGE AND NUTRIENT USE**

Irina-Gabriela Cara, Denis-Constantin Țopa, Gerard Jitäreanu

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Tillage is a fundamental soil practice that impacts an extensive variety of soil characteristics. However, the implication of tillage on soil health is complex and specific to the context. The aim of our study was to evaluate soil carbon sequestration and nutrient use of two different tillage practice: conventional and minimum-tillage at different depths ranging from 0 to 30 cm using a chernozem soil type. The results of our study are consistent with the hypothesis that, over time, minimum-tillage typically boosts soil health in 0-10 cm soil layer. Compared to the conventional practice (19.36 t C ha⁻¹) there was a significant accumulation of soil organic carbon (0-30 cm) in the minimum-tillage practice (23.21 t C ha⁻¹). Below 10 cm depth, the soil organic carbon stocks is close to that of the conventional layer (0-30 cm). Total nitrogen (TN), available potassium (AK) and phosphorus (AP) content in 0-10 cm depth under minimum-tillage practice were 26%, 6% and 32%, greater respectively, compared to the conventional treatment. Overall, the values of TN, AP and AK decreased with depth within the soil profiles as a consequence of soil practice and minimum disturbance. The data show that minimum tillage is a sustainable and effective management practice that maintain soil health with soil carbon increase and efficient nutrient use.

14:50-15:00

**INCREASING THE EFFICIENCY OF PHENOMIC SELECTION BY REDUCING
THE NUMBER OF WAVELENGTHS IN NIRS PROFILES**

Lennard Roscher-Ehrig, Andris Finkbeiner, Sven Weber,

Sefan Abel , Reinhard Hemker, Milka Malenica,

Amine Abbadi, Benjamin Wittkop, Andreas Stahl, Rod Snowdon

Justus Liebig University Giessen, Germany

Limagrain GmbH, Peine-Rosenthal, Germany

NPZ Innovation GmbH, Holtsee, Germany

Institute for Resistance Research and Stress Tolerance, Federal Research Centre for Cultivated Plants, Julius

Kühn-Institut (JKI), Quedlinburg, Germany

Phenomic selection is emerging as a cost-effective and high-throughput alternative to genomic selection, utilizing near-infrared reflectance spectroscopy (NIRS) profiles instead of genomic markers to predict complex crop traits such as yield. NIRS profiling offers a non-destructive, simpler, and more affordable method compared to genomic data collection, which typically requires costly, outsourced genotyping services. In contrast, NIRS measurements are often already routinely performed in-house for quality assessments in various plant parts. However, most phenomic selection studies employ a broad range of wavelength, spanning hundreds to thousands of values. This raises a challenge for labs equipped with NIRS machines capable of capturing only a smaller range of wavelengths. Here, we address the question of whether phenomic selection can still be effective using smaller NIRS profiles, determining the minimum number of wavelengths required for reliable prediction accuracy, and exploring methods for efficient wavelength selection. Therefore, we applied various strategies to reduce the number of wavelengths used in phenomic selection in a hybrid rapeseed population. Remarkably, we found that the number of wavelengths could be reduced to just



around 2 % of the original profile – around 20 wavelengths – before prediction accuracy began to decline. Importantly, the optimal wavelengths were trait-dependent. The heritability of individual wavelengths could serve as a useful criterion for selection. Our findings suggest that reducing the size of NIRS profiles is a promising approach to enhance the efficiency of phenomic selection, making it more accessible to smaller labs with limited NIRS capabilities. This opens up new opportunities for broader adoption of phenomic selection in crop breeding programs.

15:00-15:10

FEATURE CRAFTING: POSSIBILITIES OF DATA TRANSFORMATION FOR PREDICTIVE MODELS

Philipp Georg Heilmann, Matthias Frisch, Eva Herzog

Institute of Agronomy and Plant Breeding II, Justus Liebig University, Gießen, Germany

In recent years, the volume of data generated through experiments has grown drastically. Advances in technology have enabled high-resolution data collection, made instruments and services for data generation more affordable, and eliminated storage limitations. These large quantities of data open up new possibilities, such as the development of more complex predictive models. However, raw data must first be processed and shaped into a model-friendly format. While this preprocessing step is essential, it is often the only transformation applied to the data. With such large datasets, further transformations can be performed to make the data even more accessible to models or to uncover hidden information within the raw data. To address this, we explore a range of data transformation techniques from simple adjustments to more advanced methods that have the potential to improve model accuracy or reduce computation time. This is demonstrated using data from plant breeding field trials, presenting transformation methods and their impact on the data and the performance of models.

15:10-15:20

THE DETERMINATION OF YIELD AND YIELD COMPONENTS OF SOME FABA BEAN (*Vicia faba* L.) CULTIVARS AT BURSA CONDITIONS

Karakaya Mehmet Can, Karasu Abdullah

Bursa Uludag University, Faculty of Agriculture, Bursa, Turkey

The aim of the research is to determine suitable faba bean varieties for Bursa region. In the research, 11 different faba bean cultivars and lines were used as plant material. This research was carried out in the fields of Bursa Uludag University, Faculty of Agriculture, Application and Research Center in the plant growing season of 2021-2022. The experiment was carried out in a randomized block design with three replications. According to the results of research; it was determined that plant height from 101 to 128,2 cm, first pod height from ground from 18,86 to 30,66 cm, number of branches from 2,8 to 3,6 pieces/plant, number of pods per plant from 5,9 to 12,46 pieces/plant, number of plant seeds from 16,46 to 36,2 pcs, pod number from 2,61 to 2,98 per plant, 100 seed weight from 76,8 to 142,9 gr, hectoliter weight from 59,9 to 74,2 kg/100lt, harvest index from 38,8 to 72,7%, grain yield per unit area from 368,8 to 535,9 da/kg. In addition, it was found that the ratio of protein between %24,9-25,8 swelling capacity between 0,81-1,62 ml/grain, water absorption capacity between 1,19-1,66 ml/grain, swelling index between 2,04-2,21%, water absorption index between 1,02% - 1,25%, cooking time between 47-80 minutes swelling capacity between 0,81-1,62 ml/grain, water absorption capacity between 1,19-1,66 ml/grain.



15:20-15:30

IDENTIFICATION OF LOCAL TOMATO VARIETIES (*SOLANUM LYCOPERSICUM*) WITH GENETIC RESISTANCE TO RADIAL CRACKING

Nicolae-Bogdan Stoica, Narcis-Iosif Antal, Vasile Ciorca, Aurel Maxim

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

The study was conducted in 2023, with the main objective of evaluating the resistance to radial cracking of fruits of 44 tomato landraces from 5 countries. 15 of these landraces come from different geographical regions of Romania, particularly Transylvania. This phenomenon is caused by alternating climatic conditions between drought and heavy rains, and it is quite a common problem for this crop. The landraces were studied in the experimental field of UASVM Cluj-Napoca, and the applied technology was ecological. The evaluation of tomato cracking resistance was performed by determining the frequency of cracked fruits, the intensity of cracking, and the degree of cracking coverage (following the model used in phytopathology). The Kruskal-Wallis test and the Dunn post-hoc test were used for statistical analysis. The Bonferroni correction was applied for the adjustment of multiple comparisons. The results highlighted significant differences between landraces in terms of cracking resistance. Among the 44 landraces, five cherry landraces (520 CDN, 525 CDN, 503 USA, 533 PL, and 509 CDN) did not show any radial cracking on the fruits. Nine normal-sized tomato landraces - 532 DJ, 515 CDN, 516 CDN, 519 CDN, 542 MS, 541 DJ, 526 CDN, 524 CDN, and 527 CDN - exhibited very high resistance to cracking. Conversely, 29 landraces were found to be highly sensitive to this phenomenon, with p-values below 0.0011628, indicating very low genetic resistance. The crack-resistant cultivars can be used directly in organic farming or can serve as the genetic basis for the creation of new tomato varieties, in the context of climate change and the need to optimize the use of fresh water resources.

15:30-15:40

ESTABLISHING AND IMPORTANCE OF THE AGRICULTURAL AND RURAL ADVISORY CENTER (ARAC) IN REPUBLIC OF MOLDOVA

Olesea Cojocaru, Mariana Popa, Valerian Cerempei, Vlada Polișciuc, Cristian Taras

Agricultural and Rural Advisory Center, Rep. of Moldova

The Agricultural and Rural Advisory Center (ARAC) was created by Government Decision no. 538/2023 as a necessary response to the challenges faced by the agricultural sector in the Republic of Moldova. This article explores the establishment and initial activities of ARAC in the first half of 2024, their impact on local farmers, and provides a comparison with similar centers in the European Union. Established by Government Decision no. 538/2023, subordinate to the Ministry of Agriculture and Food Industry, CCAR has the mission of supporting farmers by providing advisory services, continuous training programs and facilitating access to innovative technologies. The ARAC activity started on February 12, 2024, and the present study used a mixed methodology, including the analysis of official reports, questionnaires applied to farmers and collaboration with specialized research institutions, consultation and training activities, knowledge transfer and their impact on productivity and sustainability. The results of the study show a significant increase of 54% in the level of knowledge among farmers of 394 farmers who benefited from ARAC services, with 92% of them reporting a high degree of satisfaction with the activities carried out. For dissemination and



information, all activities were placed on the Facebook social media page. However, the challenges of limited resources, poorly developed infrastructure and difficult access to markets still remain.

15:40-15:50

**PLASMA AGRICULTURE – NON-THERMAL PLASMA CAN STIMULATE
THE GERMINATION OF SEEDS AND PLANT GROWTH**

**Iuliana Motrescu, Constantin Lungoci, Mihai Alexandru Ciolan,
Anca Elena Calistru, Gerard Jitäreanu**

*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
“Alexandru Ioan Cuza” University of Iasi, Romania*

Plasma agriculture has been growing as an interdisciplinary research field in the past decade, showing great promise as an efficient green technology that can be incorporated in many stages of the food cycle. It is based on the interaction of a plasma discharge, usually a non-thermal plasma, and seeds, plants, soil, food, etc. Applications include decontamination of temperature-sensitive materials such as biological (e.g. seeds, plants, fruits, meat), stimulation of plant growth, improved crop yields, boosting plant resilience to disease and abiotic stress factors, having a potential to reduce the reliance on chemical fertilizers and pesticides, and, overall promoting sustainable farming practices. Our research aims to reveal insights of the mechanisms of interaction between non-thermal plasma and different kinds of seeds, studying the morphological changes of seed surface, germination behavior, and seedling growth, with a deep interest in the production of bioactive compounds by the latter following seeds exposure to plasma. We found that the testa of the seeds is chemically and physically affected by plasma treatment, the results being specific to the species. It is also possible to stimulate the germination of the seeds as well as speed up the growth. In some cases, the seedlings also have increased nutraceutical abilities.

COFFEE BREAK

16⁰⁰ – 16¹⁵

POSTER SESSION

16:15– 18:00

**CLASSIFICATION OF SOME DURUM WHEAT GENOTYPES UNDER
IRRIGATED AND RAINFED CONDITIONS FOR WATER UTILIZATION
POTENTIAL**

Bayhan Merve, Özkan Remzi, Akinci Ahmet Can, Çetin Öner

Dicle University, Turkey

Drought is one of the most significant factors that restrict crop production and yield. Plants can adapt to several morphological, physiological, biochemical, and molecular responses under drought stress. The aim of this study was to investigate the genetic differences in durum wheat under rainfed and irrigated conditions and to review their morphological and physiological parameters. The experiment was conducted in the research area of the Faculty of Agriculture at the Dicle University.



Eight durum wheat genotypes were examined in this study. In the first year of the study, the total rainfall during the wheat growing season was 418.4 mm, whereas the irrigated group received an additional 207.5 mm of irrigation water. In the second year of the study, total rainfall was 679.6 mm. The irrigated group received additional 95.5 mm of irrigation water. In the first year of the study, Cesare (211.2%) had the highest increase in yield with supplementary irrigation, whereas in the second year, the highest increase was found in TBT16-7 (39.4%). In terms of water use efficiency, the highest value in the first year under rainfed and irrigated conditions was found in the Hat-300 line and in the second year under both conditions in the Hat-300 and Svevo genotypes. There was a positive correlation between grain yield and heading time, plant height, NDVI, and hectoliter parameter under drought conditions. Under supplementary irrigated conditions, except for SPAD, protein, and b values, all other traits had a positive effect on grain yield. In this study, the Svevo and Hat-300 genotypes showed good performance in terms of water utilization.

THE CONTROL OF WEEDS PRESENT IN THE WHEAT CROP

Mihaela Cergan, Gheorghe Măturaru, Elena Partal, Cătălin Lăzăr

National Agricultural Research and Development Institute Fundulea, Călărași, Romania

Wheat (*Triticum aestivum*) is the most important plant cultivated in our country and in more than 100 countries around the world. Providing plenty of food to feed Earth's population is a concern for humanity. This paper presents the results obtained at National Agricultural Research and Development Institute Fundulea, during 2022-2023, according to the herbicide treatments: Floramix (70,8 g/kg piroxulam + 14,2 g/kg florasulam + 70,8 g/kg cloquintocet –mexil (safener)+ Dasoil 26-N (adjuvant); Omnera (fluroxipir 135 g/l + tifensulfuron metil 30 g/l + metsulfuron metil 5 g/l) + Foxtrot (fenoxaprop-P-etil 69 g/l + cloquintocet mexil 34,5 g/l (safener); Pallas (7.5% piroxulam + 7.5% cloquintocet-mexil safener)+ adjuvant, postemergently applied -BBCH 32, for the weeds controlling from the wheat crop.

The main objective of this work focused on the study of the selectivity and effectiveness of the application of herbicide treatments to combat the weeds present in the crop. The weather from the experimentation years is representative for the local trend. In the wheat crop, the application of herbicide treatments must be correlated with the infestation degree, the spectrum and dominance of the weeds, the time of application and the pedoclimatic conditions.

PHENOTYPIC, MORPHO-ANATOMICAL AND BIOCHEMICAL ADAPTIVE RESPONSES OF TRIFOLIUM REPENS TO HEAT STRESS DURING SYMBIOTIC NITROGEN FIXATION

Boz Irina, Stedel Catalina, Zoanos Emmanuel, Kalloniati Chrysanthi, Flemetakis Emmanouil, Efrose Rodica Catalina

Department of Experimental and Applied Biology, NIRDBS-Institute of Biological Research-Iasi, Romania

Faculty of Medicine and Biological Sciences, Ștefan cel Mare University, Romania

Laboratory of Molecular Biology, Department of Biotechnology, Agricultural University of Athens, Greece

Leguminous plants are essential for agricultural productivity but frequently face challenges due to abiotic stresses. Heat stress, in particular, presents significant difficulties for legume crops, adversely affecting their morphology, physiology, and reproductive development. It also impairs the ability of rhizobia to fix nitrogen symbiotically, a process crucial for enhancing soil fertility and



supporting legume growth. The disruption of this process limits plant growth and development, impacting agricultural productivity and sustainability in many regions. This study aims to evaluate the adaptive responses of *Trifolium repens* to heat stress during symbiotic nitrogen fixation. Both sensitive and resistant indigenous RMCC rhizobial strains, known for their high nitrogen fixation capabilities, were used to inoculate the plants. Heat stress was applied for 14 days to temperature-resistant white clover plants, both uninoculated and inoculated with native *Rhizobium leguminosarum* strains. Plants were harvested once phenotypic changes became apparent, and their morphological traits were assessed. In addition to growth analyses, various morpho-anatomical and biochemical parameters were measured to evaluate the plant's responses to increased temperatures. Structural analyses of the root, hypocotyl, and cotyledons were conducted to identify changes during heat stress. Variations were observed in the thickness of the central cylinder at the hypocotyl level and in the number of vascular bundles. Moreover, the data indicated that moderate heat stress (35°C) altered antioxidant enzyme activity (CAT, SOD, APX) in white clover plants inoculated with selected rhizobial strains. This integrated analysis provides new insights into the mechanisms through which nitrogen-fixing legume crops adapt to and withstand heat stress, offering valuable information for cultivating leguminous plants in challenging environments. Acknowledgments: This work was supported by the Core-Program, within the National Plan for Research, Development and Innovation 2022-2027, developed with the support of the Romanian Ministry of Research, Innovation and Digitization, project 7N/2023/23020402.

RESEARCH ON WATER LOSSES AT BRANCHES IN THE MAINS OF WATER SUPPLY SYSTEMS

Stavarache Vasile, Luca Mihail, Branianu Petru-Daniel
"Gheorghe Asachi" Technical University of Iasi, Romania

Water losses from the pipe network constitute one of the main problems in the operation of water supply systems. The impact of water losses from pipelines is economic, financial, but also natural resource protection. In water supply systems, the amount of losses varies from 8-10% to 60-74% of the volume of water taken from the source. In water supply systems with a long service life, large water losses are recorded at the branches. The amount of these losses is very important, due to the large number of connections on the distribution pipes and the difficulty of finding them. At the same time, identifying the losses in the branches is difficult due to the low flow emitted in the location. At the current stage, modern technologies are used to locate and identify water losses that are difficult to notice (hidden losses). The case study carried out used modern acoustic detection equipment for hidden water leaks. By mounting 20 noise loggers on a distribution pipe with Dn 100 mm and in the branch housing, several losses were detected, among them an important one at a branch. The analysis of the data showed that the noise-to-signal logger correlation ratio had a 90% ratio in case of loss at the connection. Thus, the rate of water loss at the connection was about 0.5 m³/h (12 m³/day or 360 m³/month). After fixing the connection, the occurrence of new losses was verified with the help of noise loggers through the captured acoustic signal. The rehabilitation works, as well as the modernization works, of the connections to the consumers can result in a reduction of water losses of around 40-60%.



THE IMPACT OF DROUGHT AND ANTHROPOGENIC ACTIVITIES ON EDAPHIC MESOFAUNA COMMUNITIES IN CERTAIN STEPPE NATURA 2000 GRASSLAND HABITATS

Călugăr Adina, Ivan Otilia

Institute of Biological Research, Iasi, Romania

The mites from the orders Parasitiformes, Trombidiformes, and Sarcoptiformes, as well as microarthropods from the Entognatha class (Collembola), insects, and other groups, were analyzed. Only Oribatida were identified at the species level. The analysis was conducted both quantitatively and qualitatively in Natura 2000 steppe meadows. The vulnerability of these sites, including susceptibility to drought and the impact of grazing, influenced the structure of the microarthropod communities. The density of individuals was higher in strictly protected areas; however, there was no significant qualitative difference compared to the buffer zones. Humidity deficiency and grazing negatively affected the mesofauna, particularly species sensitive to drought. Oribatids exhibited a rich diversity, indicating good habitat conservation. Continuous monitoring of the impact of natural and anthropogenic factors is necessary, especially in buffer zones.

Acknowledgments: This work was supported by the Core-Program, within the National Plan for Research, Development and Innovation 2022-2027, developed with the support of the Romanian Ministry of Research, Innovation and Digitization, project 7N/2023/23020402.

CHALLENGES IN SUNFLOWER CULTURE

**Florin Gabriel Anton, Emil Georgescu, Maria Joița-Păcureanu,
Luxița Rîșnoveanu, Laura Conțescu, Mihaela Șerban**

National Agricultural Research and Development Institute Fundulea, Călărași, Romania

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“Acad. David Davidescu”, Bucharest, Romania

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Among the most important soil pests that attack sunflowers are the sow beetle (*Agrotis segetum*), the wireworm (*Agriotes* sp.) and the corn borer (*Tanymecus dilaticollis*) and in recent years they represent a big problem in the south-east of Romania. Other pests that cause great damage to the sunflower crop are the seeding crow (*Corvus frugilegus*), the collared pigeon (*Columba palumbus*) and house sparrow (*Passer domesticus*). Besides these pests, field rabbit (*Lepus europaeus*) represent another problem that causes significant damage to the sunflower crop. Among the pathogens that attack sunflower culture in Romania, the most important are *Plasmopara halstedii*, which causes downy mildew, *Sclerotinia sclerotiorum*, which causes white mold and *Phomopsis helianthi*, which causes phomopsis stem canker of sunflower. In last years, we observed in sunflower culture in Romania, sunflower white rust (*Albugo tragopogonis*) but without important economic losses. Atmospheric and pedological drought cause significant damage to the sunflower culture even with irrigation systems because of the high temperatures recorded in the flowering phenophase which makes the pollen unreliable. Another problem in sunflower culture is represented by the high degree of infestation with weeds such as broomrape (*Orobancha cumana*), *Chenopodium album*, *Ambrosia artemisiifoli*, *Xanthium strumarium*, *Cirsium arvense*, *Atriplex littoralis*, *Setaria viridisi* and *Sorghum halepense*.



CURRENT TREND IN CLIMATE PARAMETER EVOLUTION AFFECTING VINEYARDS IN BUJORU VITICULTURAL AREAL

Mihai Tudor, Tabaranu Gabriel, Enache Viorica, Aurel Ciubuca

"Bujoru" Wine and Viticulture research facility, Tg.Bujor, Galati, Romania

Climate change caused by global warming phenomena is causing major disruptions in all types of ecosystems, including wine-growing areas. The present study presents the evolution of the influential climatic parameters for the vine varieties in the Bujoru wine-growing area, located in the south-eastern part of Romania. The climate analysis identified important changes on the main climate indices that influence the vegetative development and the biological production specific to the vine varieties. The results of the study confirm the evolution of climatic parameters with negative influences on traditional wine-growing areas. Amplification of prolonged drought has been observed with precipitation values below multi-year averages due to current climate change trends. The decrease in soil water reserves was influenced by: the increase in the number of days with temperatures exceeding 30°C, the change in the interval in which the highest air temperatures are recorded. July maximum air temperatures have also moved to August. During the winter months average temperatures rose above known reference levels. This study, through its results, confirms the current trend of intensification of extreme weather, phenomena that can have significant effects on vine plantations, as well as the pan-European trends of replacement of traditional genotypes.

THE RESPONSE OF OFFSPRING OF VIRUS-INFECTED TOMATO PLANTS TO ABIOTIC FACTORS AT THE GAMETOPHYTIC AND SPOROPHYTIC LEVELS

Marii Liliana, Saltanovici Tatiana, Andronic Larisa, Antoci Liudmila

Institute of Genetics, Physiology and Plant Protection, Rep. of Moldova

The investigation assesses the influence of abiotic factors (heat/drought) on some biomorphological traits of sporophyte and male gametophyte in the virus-free offspring from virus-infected tomato plants (Tobacco Mosaic Virus - TMV or Tomato Aspermy Virus - TAV). The variance analysis of the evaluated traits, in both seedling and plants, under abiotic stress conditions revealed, as a rule, a significant contribution of stress in the variability, followed by the effects of genotype and plant health status with different strength. The action of abiotic factors on the male gametophyte caused differentiated changes in pollen functional traits, determined by genotype (5.6-19.7%), heat (36.8-81.5%) or drought (55.4-82.1%). In most cases, the influence of stresses caused suppression of the evaluated traits' values. Under conditions of heat or drought, depending on the status of plant health, it was confirmed the specific manifestation of some traits in seedling (radicle length, growth intensity), plant (plant height, number and leaves length) and male gametophyte (pollen viability, pollen tube length and pollen). Thus, specific effects expressed by stimulation, inhibition or lack of differences for the analyzed traits were observed in the offspring of virus-infected plants under heat or drought conditions compared to the optimal one. Analysis of pollen variability spectra for each genotype showed differences in sensitivity to the action of the factors, which allows description of the microgamete reaction to stress and application of the obtained data for predicting sporophyte resistance.



THE QUALITY OF INDICES OF GREEN MASS AND HAY FROM ARRHENATHERUM ELATIUS AND FESTUCA ARUNDINACEA, IN MOLDOVA

Ababii Alexei, Țiței Victor, Blaj Vasile, Doroftei Veaceaslav, Guțu Ana, Gadibadi

Mihai, Andreoiu Andreea, Marușca Teodor, Tod Monica, Cozari Serghei

*“Alexandru Ciubotaru” National Botanical Garden (Institute) of Moldova State University, Rep. of Moldova
Research and Development Institute for Grasslands Brașov, Romania*

We studied the quality indices of the of green mass and hay from tall oatgrass *Arrhenatherum elatius* and tall fescue *Festuca arundinacea* which grow in the experimental sector of the “Alexandru Ciubotaru” National Botanical Garden (Institute) MSU. It was determined that the biochemical composition and nutritive value of the dry matter of studied species harvested green mass were: 9.6-11.2% CP, 8.2-8.7% ash, 35.4-37.5% CF, 37.9-39.9% ADF, 65.3-68.4% NDF, 3.3-3.7 % ADL, 12.0-12.4% TSS, 34.6-36.2% Cel, 27.4-28.5% HC, 590-629 g/kg DMD, 538-572g/kg OMD, 11.48-11.76 MJ/kg DE, 9.43-9.66 MJ/kg ME and 5.45-5.67 MJ/kg NEL. The quality indices of prepared hays were: 10.0-11.4% CP, 9.4-10.0% ash, 36.7-39.9% CF, 39.4-41.4% ADF, 64.6-68.3% NDF, 3.7-3.8 % ADL, 3.7-3.8% TSS, 35.7-38.0% Cel, 25.2-26.5% HC, 515-567 g/kg DMD, 471-527g/kg OMD, 11.21-11.55 MJ/kg DE, 9.20-9.48MJ/kg ME and 5.3-5.5.50 MJ/kg NEL. The biochemical methane potential of studied substrates varied from 343 to 354 l/kg ODM. The *Arrhenatherum elatius* and *Festuca arundinacea* species can be used for the restoration of permanent grasslands and creation of temporary grasslands, and the harvested green mass and prepared hays can be used as forages for farm animals or as substrates for biomethane production.

VALORIZATION OF WASTEWATER FROM SPIRULINA PLATENSIS CULTIVATION AS A BIOLOGICAL STIMULANT FOR THE GERMINATION OF GALEGA ORIENTALIS L. SEEDS PRESERVED IN COLLECTIONS

Sergiu Dobrojan, Victor Melnic, Galina Dobrojan, Angela Melnic, Tamara Merciuicar

Moldova State University, Rep. of Moldova

This paper presents the experimental results obtained following the application of a biostimulator based on residual water from *Spirulina platensis* algae on the germination of *Galega orientalis* L. seeds maintained under collection conditions for 2, 3 and 4 years. The results show that seeds treated with biostimulants have a higher germination capacity than those in the control group, where germination ranged from 27-33%. The highest germination rates were obtained for 4-year-old (60%) and 3-year-old (47%) seeds treated with 2% and 4% biostimulator concentrations for 2-4 hours. The germination index is also significantly higher for the treated seeds, reaching maximum values of 12 and 8.6 for 4- and 3-year-old seeds compared to the control group (5.4-6.6). Relative root elongation was higher in 2-year-old seeds treated with 1% biostimulant, but for older seeds (3-4 years), the 2% concentration applied for 4 hours gave the best results. The 4% concentration showed stability, but with less root elongation than the lower concentrations. In conclusion, the 2% biostimulant applied for 2-4 hours is the most effective for stimulating germination and root growth in older seeds of *Galega orientalis* L.



METHODS OF DIGITALIZATION OF AGRICULTURE PRACTICED IN ROMANIA

Giucă Andreea-Daniela, Buțu Marian

*Research Institute for the Economy of Agriculture and Rural Development, Bucharest, Romania
National Research and Development Institute for Biological Sciences, Bucharest, Romania*

In Romania, the agricultural sector is considered one of the most important sectors of the national economy, which plays a strategic role in ensuring food security. Under these circumstances, with the population growth trend, there is also an increase in demand for agri-food products, and the influence of climate change on agricultural production requires the need to switch from traditional to precision farming methods. This study aims to contribute to the development of research on this topic by investigating and presenting the most important and known ways of digitization of agriculture practiced in Romania.

RESEARCH CONCERNING CONTROL OF THE LARGE CABBAGE WHITE (*PIERIS BRASSICAE*) LARVA IN THE OILSEED RAPE CROP FROM SOUTH-EAST ROMANIA

Emil Georgescu, Cană Lidia, Râșnoveanu Luxița

National Agricultural Research and Development Institute Fundulea, Romania

Large cabbage white (*Pieris brassicae*) is one of the most harmful pests of the oilseed rape (OSR) crop during the autumn period in Romania. This study monitored the attack of the *P. brassicae* larva on both OSR untreated and treated seeds with cyantraniliprole active ingredient (625 g/l) at the experimental field from NARDI Fundulea, located in the southeast of Romania, between 2019 and 2021. In the autumn of 2019, on 28 October, at OSR, the untreated variant attack degree was 12.49 %, while the seed-treated variant attack degree was 4.30 %. On 6 November, in the untreated variant, the attack degree was 38.58 %, while in the treated variant, it was 8.77 %. In the autumn of 2020, it registered higher attacks from this study. On 11 November, the attack degree was 53.07% in the untreated variant, while in the treated variant with cyantraniliprole a.i. the attack degree was 22.14%. In 2021, it didn't register the attack of this pest. A possible explanation is the delayed emergence of the OSR plants at the end of October. Regarding pest density, this study makes evidence that in the autumn of 2019, on 6 November, the untreated variant registered 4.24 larvae/m² and 2.32 larvae/m² in the treated variant. In the autumn of 2020, on 2 October, the untreated variant registered 4.82 larvae/m² and 2.57 larvae/m² in the treated OSR variant. On 11 November, the pest density was higher than the economic damage threshold at both variants. This study reveals a higher attack of the large cabbage white at OSR crop in southeast Romania, compared with results from the previous studies. At the same time, it registered higher pest' attacks in November.

THE QUALITY INDICES OF THE BIOMASS OF SOME TRIFOLIUM SPECIES UNDER THE CONDITIONS OF THE REPUBLIC OF MOLDOVA

Țiței Victor

"Alexandru Ciubotaru" National Botanical Garden (Institute) MSU, Rep. of Moldova

We studied the quality indices of the biomass from local ecotype of *Trifolium alpestre*, *Trifolium hybridum*, *Trifolium pannonicum*, *Trifolium pretense*, *Trifolium repens*. It was determined that the nutrients content and energy value of the dry matter of studied *Trifolium* species whole plants



were: 144.9-206.9 g/kg CP, 25.8-31.7 g/kg EE, 224.4 -312.9 g/kg CF, 352.7-492.9 g/kg NFE, 85.6-125.0 g/kg ash, 11.4-22.9 g/kg Ca, 1.6-2.6 g/kg P, 17.86-18.43 MJ/kg GE, 8.31-9.96 MJ/kg ME and 4.63-5.76 MJ/kg NEL. The quality indices of prepared hays were: 168.4-196.9 g/kg CP, 15.8-2.51 g/kg EE, 269.0-339.6 g/kg CF, 350.8-424.0 g/kg NFE, 94.2-124.6 g/kg ash, 12.6-22.6 g/kg Ca, 1.6-2.8g/kg P and 7.80-8.58 MJ/kg ME. The green mass substrates from studied Trifolium species have C/N=14.89-21.10 and the biochemical methane potential varied from 260 to271 l/kg ODM. The local ecotype of studied Trifolium species can be used for the restoration of permanent grasslands and degraded lands, as a component of the mix of grasses and legumes for the creation of temporary grasslands. The harvested clovers mass can be used as forages for farm animals or as co-substrates in biogas generators for biomethane production.

THE BIOMASS QUALITY OF EPILOBIUM ANGUSTIFOLIUM L. AND PROSPECTS OF ITS USE IN MOLDOVA

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This research was aimed at evaluating the quality indices of green mass forage and the substrates for the biomethane production from rosebay willowherb *Epilobium angustifolium*. The local ecotypes of *Epilobium angustifolium* which grow in the experimental sector of the “Alexandru Ciubotaru” National Botanical Garden (Institute) MSU Chișinău served as subject of the research. The results revealed that the dry matter of *Epilobium angustifolium* whole plants contained: 12.99% crude protein, 5.83% crude fats, 28.33% crude cellulose, 44.92% nitrogen free extract, 5.23% sugars, 1.74% starch, 7.92 % ash, 1.11% calcium, 0.28% phosphorus with 10.06 MJ/kg ME and 5.64 MJ/kg NEL. The *Epilobium angustifolium* substrate for anaerobic digestion and biomethane production had optimal carbon to nitrogen ratio and the estimated biochemical methane potential reached 288 l/kg VS.

CHANGES IN METABOLIC EFFICIENCY DURING CORN SEED GERMINATION

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Plant growth can be defined as an irreversible process of increasing size and biomass, often associated with the formation of new structures: root and shoot growth is a complex multistage biochemical and physiological process. The purpose of this study was to evaluate changes in the metabolic efficiency of corn seeds during ten days of their germination. The objects of the study were seeds of corn hybrids P280, P398 and P402, which have different ripening periods and differ in endosperm structure. The metabolic efficiency of seeds was determined after 5, 7 and 10 days of germination under optimal conditions. The maximum content of reserve substances utilized for germination and root/shoot growth was observed during 5-7 days of seed germination. Moreover, for two hybrids (P398 and P402) it was necessary to germinate for 7 days to achieve the highest metabolic efficiency, but hybrids P280 had the maximum metabolic efficiency on the 5th day. After this period the metabolic efficiency of seeds decreased. The obtained results can be used to change the methodological approaches to the comparative determination of metabolic efficiency of various hybrid seeds.



THE INFLUENCE OF TREATMENTS WITH VARIOUS PHYTOSANITARY PRODUCTS (FUNGICIDES) ON THE ATTACK OF SOME PHYTOPATHOGENIC FUNGI ON WHEAT HARVEST – GLOSA VARIETY - IN 2023 PEDOCLIMATIC CONDITIONS OF THE EASTERN BARAGAN

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This study aims at monitoring the dynamics of the occurrence and evolution of the attack of some pathogens to Glosa Romanian wheat variety, among which we mention: *Puccinia recondita* f. sp. *tritici* (sin. *Puccinia triticina*) which produces wheat's brown rust and *Septoria* sp. which produces wheat's brown leaf spotting (septoriosis). The influence of applying these fungicides on the harvest, as compared to the untreated control variant, has also been monitored. One experiment with 5 variants (4 variants with phytosanitary treatment, plus one control variant not treated) was taken into consideration for this study, for which the following phytosanitary products were used, as follows: NATIVO PRO 325 SC (prothioconazole 175 g/l + trifloxystrobin 150 g/l), RETENGO (Pyraclostrobin 200 g/l). The treatment variants were the following: V1 – NATIVO PRO 325 SC 0.7 L/HA 1 treatment applied at booting – flowering phase; V2 - RETENGO 0.5 L/HA1 treatment applied at booting – flowering phase, V3 - NATIVO PRO 325 SC – 0.7 L/HA 1 treatment applied at straw's extension + 1 treatment applied at kernel filling; V4 - RETENGO 0.5 L/HA 1 treatment applied at straw's extension + 1 treatment applied at kernel filling and V5 – Control variant not treated. The experiment was placed in Latin square, the 5 variants being placed in 5 repetitions. The year 2023 was a year with a relatively wet spring and early summer. The experiment was irrigated in the spring of 2023 with the norm of 600 m² of water / ha. The experiment was established after rapeseed. The climatic conditions were favorable to the attacks of some wheat pathogens, at higher values than in 2022, year which was very dry. The yields of the variants were as follows: V1 – 7,056 to/ha, V2 – 7,287 to/ha, V3– 6,783 to/ha, V4 – 6,783 to/ha and V5 (control variant not treated) – 6,720 to/ha.

THE INFLUENCE OF TREATMENTS WITH VARIOUS PHYTOSANITARY PRODUCTS (FUNGICIDES) ON THE ATTACK OF SOME PHYTOPATHOGENIC FUNGI ON BARLEY HARVEST, DONAU VARIETY, IN 2023 PEDOCLIMATIC CONDITIONS OF THE EASTERN BARAGAN

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This study aims at monitoring the dynamics of the occurrence and evolution of the attack of some pathogens to barley, among which we mention: mildew (*Blumeria graminis* f.sp. *hordei*), leaf stripe (*Pyrenophora graminea*) and barley's rust (*Puccinia hordei*). Also, the influence of applying these fungicides on the harvest, as well as of the number of treatments/ha as compared to the untreated control variant, has been monitored. For this study, an experiment with 6 treatment variants was created, being used the following phytosanitary products: EVALIA (azoxystrobin 250 g/l), RETENGO (200 g/l pyraclostrobin) and ORIUS 25 EW (250 g/l tebuconazole). The treatment variants were the following: V1- ORIUS 25 EW 0.5 L/HA, 1 treatment applied at booting – flowering phase; V2 – EVALIA 1/L/HA, 1 treatment applied at booting – flowering phase, V3 - RETENGO 0.5 L/HA, 1 treatment applied at booting – flowering phase, V4 - ORIUS 0.5 L/HA, 1 treatment applied at straw's extension + 1 treatment applied at kernel's filling, V5- EVALIA 1L/HA, 1 treatment



applied at straw's extension + 1 treatment applied at kernel's filling, V6-RETENGO 0.5 L/HA, 1 treatment applied at straw's extension + 1 treatment applied at kernel's filling, V7 – Control variant not treated. The experiment was placed in Latin square, the 7 variants being placed in 7 repetitions. The year 2023 was a year with a relatively wet spring and early summer. The climatic conditions were favorable to the attacks of barley-specific pathogens, earlier than in 2022, year which was very dry. The experiment was not irrigated. The experiment was established after rapeseed. Among the pathogens followed, attacks produced by the *Pyrenophora graminea* fungus, which produces, in barley, the disease known as leaf stripe, were observed. Between the untreated control variant and some of the variants that were treated with fungicides, there were significant yield differences in the climatic conditions of 2023. The variant's yields were: V1- 7335 t/ha, V2-7165 t/ha, V3-7505 t/ha, V4-7305 t/ha, V5-7496 t/ha, V6 - 7622 t/ha and V7-7275 t/ha. The presence of the phytopathogenic fungus *Blumeria graminis* f.sp. *hordei*, which produces barley's mildew, was slightly higher than in 2022.

IDENTIFICATION OF SOME MAIZE GENETIC RESOURCES BASED ON THE INTERPRETATION OF MORPHOPHYSIOLOGICAL DESCRIPTORS SPECIFIC TO DROUGHT AND BURNT FOR USE IN THE BREEDING PROCESS

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The main objective of this study is the creation of maize hybrids with high production potential, tolerant to drought and heat, resistant to the action of damaging factors, with agronomic characteristics capable of exploiting the nutrient potential of the soil even in unfavorable conditions of thermohydric stress, intended to be cultivated in all areas favorable for this culture in Romania. This research program has started with the creation of experimental field composed of 336 genotypes that were isolated with paper bags in order to ensure self-pollination. Each genotype was sown in a 6 m long row. All 336 genotypes were characterized both in the field and in the lab. After the application of the selection criteria, the number of genotypes was reduced to only 224, the most promising varieties being C2.15, C7.6, and C11.8. This study represents a systematic approach to breeding maize hybrids suited for the challenging growing conditions often encountered in Romania. The focus is on selecting genotypes that can thrive despite environmental stresses while still providing high yields.

ASSESSMENT OF THE EFFECT OF A DIETARY MIXTURE OF WASTE MEALS FOR THE REDUCTION OF ZEARALENONE CONCENTRATION IN LIVER AND INTESTINAL CONTENT OF WEANED PIGLETS

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Zearalenone (ZEN) is a mycotoxin that can be produced by several field fungi belonging to *Fusarium* genera. Biological approaches represent the most promising solution for mitigation of the toxic effects of mycotoxins in animals. In this purpose we have assessed the effect of a mixture of waste meals (grape seed, flax and sea buckthorn - GFS) included in the diet of weanling piglets as a nutritional solution for counteracting the toxic effect of zearalenone. The experiment was performed in vivo on 24 crossbred weaned piglets with a body weight of 11.25 kg, randomly assigned (6



animals/group) to one of the following groups: control group (Control) fed control diet, experimental group (ZEN) fed the control diet artificially contaminated with 290 μ g ZEN/kg feed, experimental group (GFS) fed the control diet with 10% mixture of grape seed, flax and sea buckthorn meals in a ratio of 3:4:1, experimental group (ZEN+GFS) fed the control diet artificially contaminated with 290 μ g ZEN/kg feed and the mixture of GFS meals. At the end of the experimental period (30 days) piglets were slaughtered and samples of liver and intestinal content were taken for further analyses. Analyses of chemical composition of the diets, have shown that GFS/ ZEN+GFS diets are rich in bioactive compounds especially in polyunsaturated fatty acids (PUFA): 6.91% vs 1.90% in Control/ZEN diets. The concentration of alpha linolenic acid in the GFS/ ZEN+GFS diets was 5.22 times higher than in the Control/ZEN diets. Analyses of mycotoxin content in the samples of liver and intestinal content were done using ELISA assay. Inclusion of waste meals in the diet of weanling piglets significantly decrease the content of zearalenone in the liver of the piglets from ZEN+GFS group with 59.73% as compared with the control group. Similarly, a decrease of ZEN concentration (49.64%) was observed in the intestinal content of weanling piglets fed ZEN+GFS diet. In conclusion, the administration of a mixture of waste meals: grape seed, flax and sea buckthorn in a ratio of 3:4:1 in the swine diet, could reduce the zearalenone concentration in liver and intestinal content of intoxicated animals with a possible role in the reduction of the toxin negative effect in weaned piglets.

COMPARATIVE RESULTS OF THE STUDY ON THE IMPACT OF DROUGHT AND COMMON PESTS ON EDIBLE LEGUME SPECIES ON NATURAL BACKGROUND

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Edible legume species, in the Republic of Moldova, are universal crops due to their diverse agro-industrial and zootechnical uses. These advantages are associated with the bio-ecological adaptations to biotic and abiotic factors, which include such phenomena as drought and heat waves as well as pest complexes. Phenological and phytosanitary surveys were conducted on such legume species as: pea, soybean, chickpea, common bean, faba bean and lentil, under the impact of pest complexes, under the conditions of experimental sectors in open field. Some phenological features of the investigated species were identified and some of the most common pest species associated with the respective crops were estimated. The most resistant species to the parasitic and pathological impact are *Pisum sativum* L. and *Vicia faba* L., since they are early-season crops, they avoid the critical contamination phases, but the most vulnerable species were *Glicine max* (L.) Merr. and *Phaseolus* spp., which were more severely affected by *Bruchus* sp., *Ascohyta* spp., and various bacterial diseases in the budding and flowering stages. Besides, the severity of the impact of pedological drought, as well as parasitic, entomological and pathological impact was determined comparatively by species.



BLACK SOLDIER FLY LARVAE MEAL AS FEED INGREDIENT FOR LABORATORY MICE

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The condition of laboratory animals chosen for biomedical experiments—such as their appearance, health, genetic consistency, and the care, maintenance, and feeding they receive—has a significant impact on the outcomes and conclusions of experimental research. In experiments testing the effects of various substances, it is often necessary to determine the concentration of the substance being studied. However, animals can sometimes gain excess weight beyond the normal range for their age during feeding, and alterations in internal organs are commonly found during post-mortem examinations. Laboratory mice have unique dietary requirements that must be met to support their growth, reproduction, and immune responses to pathogens or environmental stress from handling and experimental procedures. The aim of this study was to examine the changes in growth in mice when black soldier fly (BSF) larvae meal was added to their diet. The results showed that a 4.0% inclusion of BSF larvae meal had a positive effect on the growth of the laboratory mice compared to those fed a standard diet. Overall, BSF larvae could serve as a viable alternative protein source in animal feed.

THE CURRENT STATE OF FORAGE CROPS IN THE AGRO-ECOLOGICAL ZONES OF THE REPUBLIC OF MOLDOVA

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Global warming is one of the greatest challenges of the millennium. This phenomenon seriously threatens the environment, slows economic development, and affects global prosperity, and the Republic of Moldova is no exception. Climate change has become a major threat to sustainable development, and mitigation and adaptation measures must be included as top priorities in national policies. In recent years, the Republic of Moldova has been facing an increasing frequency of droughts, which directly affects the forage base for domestic animals. This situation necessitates the organization of a scientifically sound forage base that ensures balanced nutrition for animals and birds, taking into account all necessary nutrients. This could also significantly contribute to reducing the cost of livestock production. In addressing this issue, the correct selection of forage plants plays a key role, and this selection must take into account several factors: the agro-biological characteristics of the plants, their requirements for vegetation factors (such as climate and soil), the ecological cultivation zone, and the species of animals or birds for which the forage is intended. Additionally, it is important to choose plants that, under optimal technological conditions, can provide the full range of energy- and protein-rich forage necessary for animals and birds to fully realize their productive potential. Studies were conducted in different agro-ecological zones of the Republic of Moldova to determine the influence of changes in climatic conditions on the state of the fodder base for animal husbandry.



CANNABIS SATIVA L. – A PROMISING INDIGENOUS NATURAL SOURCE OF ENDOCANNABINOIDS FOR STRENGTHENING HUMAN HEALTH

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This article provides a bibliographic synthesis regarding the importance of endocannabinoids from the *Cannabis sativa L.* species. Forms of the *Cannabis sativa L.* species are found in the wild flora of the Republic of Moldova and are of significant interest due to their high endocannabinoid content. Cannabinoids represent the most extensively studied group of compounds, particularly because of their wide range of pharmacological effects on humans, including psychotropic activities. Most of the biological properties associated with cannabinoids are based on their interactions with the human endocannabinoid system. Endocannabinoids regulate or modulate a variety of physiological processes, including appetite, pain perception, mood, memory, inflammation, insulin sensitivity, and fat and energy metabolism. CBD (cannabidiol) exhibits anti-anxiety, anti-nausea, anti-arthritis, antipsychotic, anti-inflammatory, and immunomodulatory properties. In preclinical models of central nervous system diseases (such as epilepsy, neurodegenerative diseases, schizophrenia, multiple sclerosis), affective disorders, and central regulation of eating behavior, CBD has also demonstrated strong antifungal and antibacterial properties, including remarkably effective activity against methicillin-resistant *Staphylococcus aureus* (MRSA). Additionally, cannabidiol has anti-inflammatory and anticancer properties. We consider that *Cannabis sativa L.* is of significant interest for cultivation and utilization in the fortification of human health.

EFFECTS OF DIFFERENT COMPLEX FERTILIZERS DEPENDING ON THE METHOD OF APPLICATION ON MAIZE YIELD UNDER GROWING CONDITIONS OF SOUTH ROMANIA

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Complex fertilizers are an important tool to enhance productivity of the maize plants and their ability to support stress factors, especially in the present when climate change has become the biggest global challenge to agriculture and food production. Nowadays, the selection of the right complex fertilizer products, the appropriate rate and time of application are essential for farmers. In this context, the aim of this paper is to present the obtained results regarding the influence of different types of complex fertilizers depending on different method of application on maize grain yield under the specific growing conditions of South Romania. The research was carried out in field experiments located in South Romania (44°22' N latitude and 26°09' E longitude), under rainfed conditions in the years 2022 and 2023. The experimental factors were the following: Factor A – 2 types of fertilization (Surface broadcast + incorporation and banded with sowing), Factor B – complex fertilizers, respectively DAP 18:46:0, DAP 18:46:0 treated with AVAIL and complex fertilizer 14:40:0+7S. The obtained results brought attention to the positive effects of DAP 18:46:0 treated with Avail incorporated and banded at the same time with sowing to the maize grain yield. Under drought conditions, the nitrogen rate should not be high, as this could be even a limiting yielding factor.



SUNFLOWER YIELD AT DIFFERENT NITROGEN RATES AND FERTILIZER PRODUCTS

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Current climatic conditions, increasing concern of the entire society regarding the environmental protection, as well as regarding the access to safe and safety food, to which it is added the increasingly cost of nitrogen fertilizers require farmers to optimize nitrogen fertilization according to the specific growing conditions of their crops. Choosing the right fertilizer product, rate and time of application are essential decisions for farmers. In this context, the purpose of this paper is to present the results obtained regarding sunflower yield under different nitrogen fertilization conditions as rate and fertilizer product under the specific growing conditions of South-East Romania. In this sense, field experiments were performed in South-East Romania, respectively in Dobrogea region, under rainfed conditions in the years 2022 and 2023. The experimental factors were the following: Factor A – Nitrogen rate, with 3 gradations, respectively 60 kg/ha, 80 kg/ha, 100 kg/ha; Factor B – Nitrogen fertilizer, with 4 gradations, namely Classic Urea, Airtek Urea, Ammonium Sulphate, Sulfammo 25 MPPA DUO. The obtained results drew attention to the positive effects of Classical Urea on the sunflower production yield.

PEDOLOGICAL STUDY ON THE SUITABILITY OF THE LAND IN THE TECUCI-MATCA AREA, GALAȚI COUNTY, FOR THE ESTABLISHMENT OF FOREST BELTS ON AGRICULTURAL LAND

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The protective forest belts for agricultural land have proven their usefulness, being recommended since the beginning of the 19th century, as presented and mentioned in various specialized scientific works. In this paper, we aim to highlight, first and foremost, the stabilization of sandy soils (psamosols) in the Tecuci Plain, as well as their importance for the protection of agricultural land, which is vulnerable to the current dry and arid climate. The pedoclimatic conditions in the mentioned area are less favorable for field crops as well as for fruit and vine plantations, which is why efforts are being made to use these lands, prone to deflation, more efficiently. In this regard, several soil profiles and surveys were conducted, from which soil samples were collected both in their natural state and in a modified state. Subsequently, the main criteria for grouping the land based on its forestry suitability were determined, including: granulometric composition, edaphic volume, soil thickness until compact rock, skeleton content, compaction, salinization/alkalization, humus content, slope of the land, water table level, etc. This study can serve as a model for assessing the suitability of lands in plain areas with similar pedoclimatic conditions, especially on psamosols.



DYNAMICS OF ORGANISMS HARMING THE POTATO CROP IN THE YEAR 2024 IN THE CONDITIONS OF CENTRAL MOLDOVA, ROMANIA

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Potato yield is diminished by a wide range of pathogens and pests that affect plants throughout the growing season. The research was carried out at ARDS Secuieni, where, in 2024, a potato experience was established that included monitoring pests and diseases in this crop. The climatic conditions from March to August characterized the analyzed period as extremely hot and dry. The species *Leptinotarsa decemlineata* and the pathogen *Phytophthora infestans* affected the potato crops. The *L. decemlineata* population density was from 5 adults/m² to 15 adults/m², and the number of larvae varied between 25 and 50 larvae/m². The *L. decemlineata* attack produced by adults and larvae on potatoes plants was between 0.7% (first part of June) and 22.3% (mid-July). The pathogen *P. infestans* produced attacks with values between 7.9% and 27.6% of potato crops.

STUDY REGARDING THE HEIGHT OF POTATO PLANTS DEVELOPED IN VARIOUS CULTURE SYSTEMS AND DIFFERENT SUBSTRATES

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This paper presents 2 research studies. First one is about influence of culture system and variety on potato plants height, a bifactorial experience, 5 x 4 type and followed the effect of experimental factor a, culture system (without automation on perlite substrate; NFT system; Wilma system, aeroponic system; classic system: on classic substrate: peat and perlite) and the experimental factor b, the variety. Second study is about the influence of cultivation substrate (inorganic substrate, without substrate -in aeroponic culture, classical substrate -peat and perlite) and the variety on the height of the potato plants (also, a bifactorial experience). In both studies' variety factor b, had 4 graduations: Azaria, Brașovia, Cosiana and Cezarina. From the first study it emerged that the best plant height values were obtained in the aeroponic system (no type of substrate), followed by the NFT system, and low values presented the plants developed in the conventional system. From second study best development of the plants was observed in the aeroponic culture (no substrate) and on the last place is classical substrate. Regarding the variety, the best results were obtained for Brașovia variety in both studies.



RESEARCH ON THE IMPACT OF VARIETY ON GRAIN YIELD OF TRITICALE IN THE SPECIFIC CONDITIONS OF THE CENTRAL MOLDAVIA REGION

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Choosing the right variety is one of the most critical factors in achieving successful agricultural yield. Varieties are selected according to several criteria, such as adaptability to climatic conditions, resistance to diseases and pests, yield, and product quality. The paper presents the results of research to evaluate the impact of different triticale varieties on grain yield under the specific pedoclimatic conditions of the central region of Moldova. The study aimed to identify the most productive varieties, adapted to local conditions such as soil fertility, rainfall, and temperatures in this area. The research was conducted during 2023-2024, assessing indicators such as yield and resistance to biotic and abiotic stress factors. During the analyzed period, the average grain yields for triticale ranged from 4767 kg . ha⁻¹ (Negoiu) to 7933 kg . ha⁻¹ (Zvelt) in the fertilized system, and from 4592 kg . ha⁻¹ to 7342 kg . ha⁻¹ in the unfertilized system for the same varieties. The results contribute to optimizing the selection of triticale varieties, providing valuable recommendations for increasing agricultural production efficiency in the central region of Moldova.

COMPARATIVE ANALYSIS OF BULK DENSITY AND SOIL MOISTURE IN CONVENTIONAL AND NO-TILLAGE TILLAGE SYSTEMS

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The main current concern in adopting a set of measures to complete the concept of agriculture is tillage systems. Soil physical properties, especially bulk density and soil moisture, play an important role in modern agriculture. Soil bulk density is an important indicator of soil structure and influences aeration, infiltration capacity and water retention. High bulk density can lead to soil compaction, restricting air and water circulation, which has a negative effect on root development and nutrient absorption. Soil moisture, on the other side, determines the water available to plants and influences biological processes in the soil, which is essential for maintaining plant health and maximizing yields. This study was realized at the Student Research and Practice Station Ezăreni, Iasi, of USV Iași. On the experimental plots, two tillage systems were considered, no-tillage (NT) and conventional tillage (CT). Soil bulk density and soil moisture at sowing period were determined, while for moisture, samples were also taken and analyzed for the next two vegetation stages (two consecutive months after sowing) in 2023 and 2024 for maize crop. The results indicated that the no tillage system retains a higher water content in the 0-10 cm depth at sowing than the conventional system, which also retains moisture during the growing season. In terms of bulk density in both systems the values were optimal.



HEAVY METAL ASSESSMENT IN LETTUCE AND HUMAN RISK TRANSFER

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Heavy metals in soil present health hazards because they can be assimilated by plants which impacts food quality. The need to monitor the heavy metals concentration and to evaluate the transport and transfer from the contaminated soil, which was cultivated with a leafy vegetable -lettuce (*Lactuca sativa*) is a major concern.

This paper is based on an experiment conducted under simulated pollution with heavy metals, cadmium (Cd) and lead (Pb). Growth metal uptake from soil and their accumulation in the plant during a growth cycle were evaluated. The results obtained, indicate that soil pH, organic matter percent and the presence of significant amounts of phosphorus (P), calcium (Ca) and magnesium (Mg) in the soil solution influences the translocation of Cd and Pb into the lettuce plants.

The transfer factors (TF) from the soil to the plant fluctuated considerably, especially Cd > 1. Pb and Zn registering values of 0.9 and 0.5 respectively. Increased levels of Cd in leaf lettuce 5.59 mg/Kg, and Pb in roots 9.23 mg/Kg were identified, causing modification related to food safety and public health. The need to monitor heavy metal concentrations in soil used for growing vegetables is emphasized.

COMPARATIVE ANALYSIS OF DIGESTION METHODS FOR QUANTIFYING HEAVY METALS IN PLUM ORCHARDS

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Increasing interest in healthy food among the population raises concerns about the transfer of heavy metals from fruit to consumers, which could have a negative impact on public health.

To assess this issue, the present study evaluates the ecological and conventional management systems for heavy metals in the plum variety "Centenar" from the "Adamachi" Farm district of Iasi University of Life Sciences (IULS).

The study compares two wet digestion methods—conventional and microwave-assisted—to determine the concentrations of heavy metals such as Cu, Zn, Ni, Pb, and Cd. The metal concentrations were measured using an Atomic Absorption Spectrophotometer, according to standard methods.

Additionally, the potential health implications of heavy metals were analyzed by calculating the estimated daily intake (EDI), target hazard quotient (THQ), and hazard index (HI), for both adults and children. The results indicate that EDI values of accumulated elements in the plum fruits followed the order of Cu > Zn > Ni > Pb > Cd with no concern for human health (THQ and HI < 1). Furthermore, the analysis revealed non-significant differences in most data obtained after processing with the two methods.

These results highlight the importance of selecting sustainable agricultural practices, not only to safeguard the environment but also to ensure high-quality products suitable for human consumption.



TILLAGE SYSTEMS ON SOIL PHYSICAL PROPERTIES AND EVALUATION OF THE CORRELATION BETWEEN THESE PROPERTIES AFTER A WINTER WHEAT CROP ON THE EZARENI IAȘI FARM

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Soil management alters its physical attributes. Reducing soil disturbance can limit erosion, but many still consider tillage necessary for seedbed preparation, especially on poorly drained soils. In order to evaluate soil properties during three agriculture years a research was conducted in the experimental area of the Ezareni Farm within the Didactic Station belonging to the „ Ion Ionescu de la Brad" Iasi University of Life Sciences. For the study, two tillage systems were compared: no tillage (NT) and conventional (CT). The study was carried out on a cambic chernozem soil type. Soil bulk density (BD), soil moisture (SM) and water stable aggregates (WSA) were determined for each soil tillage system. The bulk density was determined measuring both the soil mass and the soil volume at four different depths: 0-10 cm, 10-20 cm, 20-30 cm and 30-40 cm. About the water stability of soil aggregates, the soil samples were also taken at four depths. For soil moisture samples were collected to a depth of 90 cm. Sampling was performed in three replicates for each depth. The no-till system had a significantly positive effect on soil bulk density, especially at 10-20 cm depth, with 1.54 g/cm³ being the highest value registered. The same effect was reported for soil aggregate stability under the same treatment but at different depth 0-10 cm with 88.41 % as the highest rate registered. The most notable mentions regarding the soil water content are observed at sowing, where for the 0-10 cm interval, the highest soil moisture were determined in no tillage. The correlation coefficient was determined between the physical properties of the soil studied by correlating them in pairs.

SOIL ENZYMATIC ACTIVITY UNDER DIFFERENT TILLAGE SYSTEMS AND INOCULATIONS OF BACILLUS MEGATERIUM VAR. PHOSPHATICUM IN SUNFLOWER CROP

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Enzymatic activity is often used to assess health, the impact of natural changes and anthropogenic actions on soil. Enzymes are involved in organic matter decomposition and are catalysts in many nutrient cycles (carbon, phosphorus, nitrogen and others). Microbiota and plant roots are the main sources of enzymes and their activity depends on environmental conditions and agricultural management. Research indicates that conservative tillage as well as the inoculation of microorganisms enhance soil biota, with positive effects on enzymatic activity and increased nutrient availability. Therefore, the present study aims to investigate the impact of *Bacillus megaterium* var. *phosphaticum* bacteria inoculation on soil enzymatic activity in no-tillage (NT) and conventional (CT) sunflower (*Helianthus annuus* L.) crop. The experiment with five treatments (T0 - NPK (control); T1 - NPK + 100% Ecofertel; T2 - NPK + 75% Ecofertel + Corona N; T3 - NPK + 100% Ecofertel + Corona N; T4 - NPK + 125% Ecofertel + Corona N) was conducted in 2023, in Moldavian Plain, on cambic chernozem soil. The objective of this research was to analyze the activity of the following enzymes: catalase (CAT), dehydrogenase (DHA), urease (UR), acid and alkaline phosphatases (AcP



and AIP) and invertase (INV). With the exception of CAT, all other enzymes measured showed higher activity in NT compared to CT in almost all fertilizer treatments. Of the *Bacillus megaterium* var. *phosphaticum* inoculations, T1, T3 and T4 generally resulted in increased enzyme activities. Conservative tillage leads greater activity, but bacterial inoculation does not reveal a clear pattern of influencing soil enzymes.

ASSESSMENT OF THE EFFECTS OF DIFFERENT FERTILIZERS APPLICATION OVER THE DEVELOPMENT AND YIELD OF WINTER WHEAT IN HYDRIC STRESS CONDITION

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Winter wheat (*Triticum aestivum*) is a major grain crop in north East of Romania. Winter wheat production in North East Region is challenging due to both drought stress and low chemical fertilizer use efficiency on hydric stress conditions. Therefore, effective water management for agricultural production in water-scarce regions requires the application of innovative and sustainable approaches. Currently, adopting superior winter wheat cultivars and increasing fertilizer inputs have contributed to enhanced total production capacity. Two experiments were conducted to determine the impact of N fertilizer and biostimulant fertilizers on the winter wheat growth and yield. In the first experiment, the winter wheat was screened for their sensitivity to five biostimulant fertilizers applications. The second experiment was carried out to study the response of the winter wheat to four slow-release N fertilizer applications. NPK+ Nitrogen had improved protein production and plant growth, Phosphorus from fertilizer improved plant root growth and provided energy for plant processes and Potassium was essential for plant growth and quality, improved nitrogen uptake, plant strength and reduces effect of drought. The N release rate of slow-release fertilizer corresponds more closely to crop plant N requirements for physiological functions. Its one-time application is also more convenient than multiple N applications, so this method reduces labor costs since fewer N applications are required. In addition to reducing labor inputs, slow-release fertilizer can effectively increase the utilization rate of N and production efficiency. Biostimulant fertilizers what was used in the experiment Improves the absorption of nutrients and the movement of nutrients within the plant. In the same times increased photosynthetic activity by extending the lifespan of chloroplasts (StayGreen effect) and increased the resistance to abiotic stresses of plants while enhancing their normal processes.

THE ATTACK AND METHODS OF PREVENTION AND COMBAT OF THE SPECIES *DIABROTICA VIRGIFERA VIRGIFERA* LE CONTE IN THE CONDITIONS OF CENTRAL MOLDOVA

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The species *Diabrotica virgifera virgifera* Le Conte (western corn rootworm) is part of the order Coleoptera, family Chrysomelidae. Originally from North America, it entered in Europe in 1992, and in Romania in 1996. Both adults and larvae of this species are harmful, with the adults attacking the aerial parts of the plant (leaves, panicle, silk, pollen and milk stage berries) and the larvae causing



root damage (Moeser and Hibbard, 2005). To recognize plants attacked by larvae, a preventive assessment can be made regarding the characteristic symptomatology of the stem, namely "swan neck" (Krysan and Miller, 1986). In the conditions of Central Moldova, in the year 2024, the average number of larvae per plant ranged from 1 to 7, and the frequency of swan neck symptom ranged from 0% to 44.7%. The average attack frequency produced by adults on leaf was 59%, and on silk 89%. The average number of adults per plant recorded values between 3.8 and 7.1 before the chemical treatment was applied to the vegetation, which was reduced to 0.2 adults per plant after the application of the treatment. The efficacy of insecticides was between 96.6% and 97.2%.

DEVELOPMENT OF AN ANEMOMETER FOR MEASURING AIR FLOW VELOCITY IN AGRICULTURE

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This paper presents the construction and calibration steps of a hot-wire airflow sensor (anemometer) using an incandescent filament as the sensor. Due to the properties of the filament, its high melting point and the materials from which it is made, the light bulb filament allows the filament to heat up when electric current is passed through it without the filament oxidising rapidly. The paper also describes the aerodynamic calibration of the filament sensor using a calibrated anemometer (testo 405i) as a reference point. The experimental results following the calibration process confirm that the electrical resistance of a conductor can be successfully used to measure airflow.

RESEARCH ON THE EFFICIENCY OF BIOFERTILIZERS ON BARLEY PRODUCTION IN THE ECOLOGICAL CONDITIONS OF THE MOLDAVIA REGION

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The new fertilization technologies using biopreparations aim to increase soil fertility, obtain more vigorous and healthier plants, and improve yield per unit area. The research was conducted at the teaching farm of the University of Life Sciences in Iași (USV), located in Ezăreni, Iași County, during the 2022-2023 agricultural year. The purpose was to observe the influence of the biopreparation Ecofertil P on soil mineral elements (nitrogen and phosphorus), the dynamics of soil reaction (pH) after the product's application, as well as its impact on winter barley production. The results showed that the pH values in the variant where the biopreparation was applied were lower compared to the fertilized variants. Ecofertil P led to a 20.6% increase in barley production compared to the unfertilized control and a 7.0% lower yield compared to the variant fertilized with nitrogen and phosphorus.



STUDY OF THE AIR VELOCITY FIELD IN THE COMBINE HARVESTING CLEANING SYSTEM

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This paper describes how a stand for measuring the airflow generated by the fan of combine harvesters for cereals and technical plants was realised. The airflow velocity at the top of the sieve and the velocity profile over the entire sieve surface are important for the design and construction of a cleaning system fan fitted to combine harvesters. The experimental results show the velocity profile of the New Holland TC5050 combine measured with the anemometer at 56 points on the upper sieve surface for different fan rotations, fan deflector positions, upper sieve positions and lower sieve positions.

DETERMINING THE ENERGY INVOLVED IN THE INSTALLATION OF PEHD PIPES. APPLICATIONS OF DETERMINING THE ECONOMIC DIAMETER OF PRESSURE PIPES IN IRRIGATION SYSTEMS

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The main purpose of the work is the economic evaluation of the construction of pipeline networks under pressure, within the irrigation systems. In this sense, the following stages were completed: the technology for the execution of the pipeline network was established; the phases related to the execution technology were established, respectively, grouped by categories of work, are as follows; category of earthworks: mechanized excavation when making a trench related to the pipeline network; manual excavation when making a trench related to the pipeline network; mechanized filling when making the pipe network; manual filling when making the pipeline network; mechanized compaction when making the pipe network; manual compaction when making the pipe network; making (manual filling) sand bed; the mechanized spreading of the surplus earth resulting from the excavation; category of construction and assembly works: preparation for joining pipes (tubes); joining by welding the pipeline (tubes); laying of pipes (tubes); corresponding to the technological phases of the construction of the pipeline network, estimate items were allocated using WindevRO version 7.3 estimate preparation software, with the price catalog related to the semester preceding the preparation of this work; going through the above stages, the price per linear meter of pipeline executed in the field, equipped with PEHD, PE 100, PN 10 pipes and the range of diameters DN 90...DN630, was evaluated. By using these prices in an already established mathematical model, the accuracy of determining the economic diameter for pressure pipe networks within irrigation systems has been improved.



TEXTURE OF SOILS DEVELOPED ON FLUVIAL DEPOSITS FROM NORTH-EAST PART OF ROMANIA

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Alluvial or fluvial deposits associated with lacustrine ones predominate in the river plain from North East part of Romania. The dominant soils of the river plain areas are represented by Fluvisols, arenosols, cambisols, gleysols and even alluvial Chernozems. Some soils are affected by processes of glaciation, stagnation, salinization and alkalization. Frequently, the parent materials of Fluvisols that are strongly weakly affected by pedogenic processes are considered in the description of the soil profile as a pedogenetic horizon marked with the symbol C. One of the common characteristics of meadow soils is the textural variability both within the soil profile and in the characteristic areas of the meadow. Soil texture is considered a property that is very difficult to change or practically unchangeable over tens or even hundreds of years. At the same time, a large part of the soil properties is influenced by the soil texture and the distribution of clay, dust and sand on the soil profile. In our studies carried out in the North-Eastern part of Romania, they highlighted that the most pronounced textural variability of the soils is recorded in soils located in the confluence areas of the main river within a hydrographic basin with its tributaries. The soils formed in the confluence zone retain a greater amount of water as a result of the much more pronounced textural variability. The lowest values of clay content are recorded in the soils of the raised bank. The lowest values of clay content are recorded in the soils formed in the raised bank and are well drained.

PHENOTYPIC EVALUATION TRITICUM SP. GENOTYPES VARIATION

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The intensity of selection, improvement of different traits and the influence of climate change collectively amplify the frequency of detrimental alleles. This phenomenon causes genetic drift, resulting in an accidental decline in the diversity of plant germplasm sources. Genetic variability is of great importance for the adaptability and tolerance of a species to stress factors. Our investigation centres on Triticum germplasm within the agroclimatic conditions of the Ezareni Farm Iaşi, encompassing 2021–2022 field trials. Phenotypic characterization was performed for 15 genotypes, which belong to two species of Triticum (*T. aestivum* L. and *T. monococcum* L.). The data analysis involved the calculation of amplitude of variation, variance (s^2), standard deviation (\sqrt{s}), and coefficients of variation (s%) for three pivotal agronomical traits: plant height, spikelets per spike, and total seeds per spike. The results showed a high coefficient of variation, indicating a significant variability within the analyzed germplasm. The genotypes that stood out with high results of the analyzed parameters can be used in future breeding programs.



EVALUATING SALT ACCUMULATION IN THE SOIL THROUGH THE USE OF SURFACE WATER IN IRRIGATION - CASE STUDY FOR TOMATOES GROWN IN POLYTUNNELS

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Vegetable crops grown in polytunnels require high amounts of water due to the high degree of evapotranspiration as well as the high yields that are obtained. The water used to irrigate the crops in polytunnels comes from drilled wells or surface water: lakes, rivers. These waters are most often waters with a high content of mineral substances, with a high pH and frequently used for irrigation will lead to salinization and alkalization of the soil over time. The purpose of the present study is the quantitative evaluation of the salts that reach the soil with the irrigation water, as well as their accumulation during a growing season in a polytunnel, located in Iasi county near the border with the Republic of Moldova. The frequency of watering and the amount of water used was correlated with the needs of the plant depending on the phenophase, taking into account the temperatures in the tunnel. For each watering carried out, several water samples were taken and were chemically analyzed to determine: pH, carbonates, bicarbonates, total salt content, sodium and calcium. During the growing season, the pH of the water varied between 7.3 and 9.33, and the salt content varied, depending on the amount of precipitation alternated with dry periods, and ranged from 300mg/L to 470 mg/L. Soil samples were taken prior and after growing season and were analyzed for salt accumulation.

RESEARCH ON THE SUSTAINABLE DEVELOPMENT OF THE COMMUNITY OF DIMĂCHENI, THROUGH RESPONSIBLE MANAGEMENT OF NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION

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This research focuses on the sustainable development of the Dimăcheni commune by addressing soil degradation, water management issues, and environmental challenges. The study examines the current state of soil erosion on sloped lands, where agricultural productivity is declining due to improper land use and lack of water resources. Soil degradation processes, exacerbated by climate change and anthropogenic factors, are reducing the agricultural potential of the region. The study emphasizes the need for urgent interventions to prevent further soil loss, including the restructuring of crop rotations and improving water management strategies. Additionally, the lack of a centralized water and sewage system poses significant challenges to both environmental and public health. The findings highlight the need for sustainable solutions such as the implementation of a drinking water supply network and appropriate waste management systems. These improvements are very important to enhancing both agricultural productivity and the quality of life for residents.



RESEARCH ON THE SUSTAINABLE DEVELOPMENT OF THE COMMUNITY OF DIMĂCHENI, THROUGH RESPONSIBLE MANAGEMENT OF NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION

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The study of the natural framework in the hydrographic basin in order to rehabilitate the ecosystem and control soil erosion. The hydrographic basin of the stream, located in the Moldavian Plateau, is an area of major interest due to its physical-geographical diversity and the significant impact on the economic-social activities of local communities. Soil erosion, accelerated by human activities such as deforestation, intensive grazing and inappropriate agricultural techniques, is one of the main environmental challenges in the area, contributing to the deterioration of agricultural land and reduced productivity. The study aims to identify the necessary measures for soil erosion control and rehabilitate the basin. With an area of 322 km² and a length of 43 km, the basin is affected by natural and anthropogenic factors, which intensify land degradation. Risks include fragile soil structure, deforestation and poor agricultural practices. The collected climatic and geomorphological data allowed a detailed assessment of the degree of erosion and helped to map areas at high risk of landslides. Vegetation plays an essential role in soil stabilization, but the reduction of vegetation cover in the southern part has amplified erosion phenomena. The study recommends an integrated anti-erosion rehabilitation approach to protect the environment and ensure the sustainability of communities in the basin.

THE IMPACT OF NITROGEN AND PHOSPHORUS FERTILIZATION ON SOIL PHYSICO-CHEMICAL INDICATORS IN WINTER WHEAT CROPS IN EASTERN ROMANIA

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Winter wheat is one of the most important crops in Romania, ranking second in terms of cultivated area. This research investigates the influence of nitrogen and phosphorus fertilization on key soil physico-chemical indicators in a moderately eroded cambic chernozem soil in Eastern Romania. The study was conducted on sloped land at the "Mircea Moțoc" Soil Erosion Research and Development Station in Perieni, Vaslui County, located in the middle basin of the Țărnii Valley, in the Tutova Hills. Fertilization was applied in a differentiated manner, tailored to the specific growth stages of the wheat, taking into account factors such as species, variety, soil conditions, and other agronomic variables. Soil samples were collected from fertilized and unfertilized plots across three sections (upstream, middle, and downstream) at a depth of 0-10 cm to assess nutrient levels and other relevant soil characteristics. The results showed that soil pH ranged from 4.78 to 5.98, nitrogen content varied between 0.103% and 0.181%, and humus levels fluctuated between 1.97% and 3.5%. These findings highlight the direct impact of fertilization on soil quality and the importance of precise agrochemical treatments to optimize agricultural production while preserving soil resources.



EVALUATION OF NEW SUNFLOWER HYBRID (*HELIANTHUS ANNUUS* L.) FOR PRODUCTION POTENTIAL AND OIL CONTENT UNDER THE CONDITIONS OF SOUTHERN ROMANIA

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Sunflower breeding at the Agricultural Research Company Fundulea is conducted at a high level, with remarkable results. The working collection includes numerous inbred lines, and in recent years, new materials with outstanding combining ability and valuable traits have been developed. The hybrid HS-FSP-1023, currently under testing, stands out for its high production potential and oil content. The second-year trials, carried out in 2023 in the counties of Călărași, Constanța, and Buzău, confirm its adaptability to various environmental conditions, drought and disease resistance, as well as production stability. The work focuses on developing semi-early hybrids with rapid seed drying and high production capacity in diverse environments. The objective of this research is to highlight the performance of the HS-FSP-1023 hybrid in comparison to 4 standard sunflower hybrids, with an emphasis on productivity and oil content, making it a promising candidate for expanding cultivated areas in Romania.

RESEARCH ON THE EFFECT OF GROWTH REGULATORS ON THE MORPHOLOGICAL DEVELOPMENT OF SOYBEAN PLANTS UNDER CLIMATIC STRESS CONDITIONS

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The earliest mentions of soybean cultivation are found in a botanical work dating from 2838 B.C., written by the Chinese emperor Sheng-Nung. Later, it is described in several other works and is considered the most important leguminous, while also being mentioned as one of the five sacred plants: rice, soybean, wheat, barley, and millet, which were essential for the existence of ancient Chinese civilization. The entire biomass of the soybean plant can be utilized, but the seeds, rich in proteins (36-50%) and lipids (13-27%), are the most valuable part. Growth is the process of a stable and irreversible increase in the volume and weight of plant cells, tissues, and organs due to the continuous accumulation of dry matter resulting from biosynthetic processes, transformation, and deposition of the plant's own organic substances. Knowing the importance of the growth process, this paper presents the results obtained from a bifactorial experiment aimed at analyzing the influence of several growth regulators on the morphological development (plant height, number of leaves) of soybean plants under climatic stress conditions. The research was conducted in 2024 at A.R.D.S. Secuieni. According to the results obtained, the values of the morphological characteristics varied depending on both the variety and the treatment applied. Thus, the highest average plant height was 80.4 cm (Eugen variety, untreated), while the lowest was 62.6 cm (Eugen variety, treated with Ormet). The average number of leaves per plant ranged between 8.82 leaves per plant (Eugen variety, treated with Toprex) and 11.77 leaves per plant (Iris TD variety, untreated).



THE INFLUENCE OF SALINE STRESS ON THE CONCENTRATION OF TOTAL POLYPHENOLS IN BITTER CUCUMBERS (MOMORDICA CHARANTIA)

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Momordica charantia is a climbing plant from the cucurbitaceae family known and widely used for its many medicinal properties including the fight against diabetes. Salinity is the main abiotic stress factor affecting every aspect of plant physiology and biochemistry significantly affecting growth, development and production yield. Polyphenols are natural phytochemicals synthesized in plants as secondary metabolites with the role of signaling, plant defense, mediating auxin transport, antioxidant activity and free radical scavenging. To determine salinity resistance, 5 bitter cucumber genotypes were studied that were treated with different salt concentrations. The highest amount of total polyphenols was observed in the case of Line 4 where the value recorded at the treatment with saline solution 200 mM NaCl determined an increase by 125.9% compared to the untreated control. This value correlated negatively with the number of lateral shoots, which highlights a poor adaptation of the genotype to salt stress. Compared to this genotype, Line 3 showed a reduced increase in the content of polyphenols in the variants subjected to saline stress, but also an increase in the number of lateral shoots, observing a positive correlation in the two factors. This response of the genotype highlights a good adaptation to salt stress.

UNRAVELING THE IMPACT OF SOWING DATE AND GENOTYPE ON ANTITRYPSIN CONTENT, GRAIN YIELD AND YIELD ELEMENTS IN SOYBEANS

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Soybean is an important source of protein. However, the direct inclusion of soybeans in animal feed is limited by the presence of antitrypsin, an inhibitor that impedes protein digestion, necessitating thermal processing of the grains prior to use. To identify germplasm sources with low antitrypsin content and to understand the influence of different sowing dates on this trait, a field experiment was conducted over two consecutive years (2021 and 2022) at the Agricultural Research and Development Station Turda. The experiment employed a randomized block design, examining 10 soybean genotypes. Comprehensive biometric measurements were performed, including plant height, first pod insertion, number of nodes/plant, number of pods/plant, number of grains /plant, grain weight/plant, and thousand kernel weight. Additionally, grain yield and antitrypsin content were rigorously evaluated. Results indicated that, irrespective of sowing date, the Avatar variety exhibited the lowest antitrypsin content (<15 mg/g), making it a promising candidate for direct use in animal feed. Among Romanian genotypes, the Felix variety demonstrated a notable reduction in antitrypsin content (24.94 mg/g) when sown at the optimal time. Antitrypsin content showed strong negative correlations with grain weight per plant ($r = -0.32$), thousand kernel weight ($r = -0.96$), and grain yield ($r = -0.95$). These findings suggest that breeding efforts to reduce antitrypsin content in soybeans can benefit from



considering sowing date as a critical factor; the identification of genotypes with low antitrypsin levels could facilitate the development of soybean varieties better suited for animal feed, reducing the need for thermal processing and enhancing feed efficiency.

ALTERNARIA HEAD ROT ON SUNFLOWER IN THE NE REGION OF ROMANIA

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Alternaria sp. infections can produce a major disease on sunflower worldwide, with yield losses as high as 60-80%, especially in warm and humid areas of Europa, India, Australia, America and some parts of Africa. Species as *Alternaria zinniae* and *Alternariaster helianthi* are responsible for *Alternaria* leaf blight and stem spot, that is considered a middling frequent foliar disease on sunflower in Romania culture conditions. During summer 2024 diseased sunflowers plants with numerous tan or light-brown, slightly sunken cankers and scattered over the bracts and the back of the receptacle were observed in the climatic conditions from Iasi county, located in the NE region of Romania. Observations from the field revealed an extremely high percentage of affected plants, over 60% of the sunflower plants showed attack symptoms on the heads and seeds. According to the carried out analyzes, both by *Alternaria zinniae* and *Alternariaster helianthi*, were morphologically identified and described. Taking into account the fact that the genus *Alternaria* is ubiquitous and abundant in the atmosphere, as well as in soil, seeds and crop residues, but also of the increasingly pronounced climate changes and the EU regulations on the reduction of pesticide use and crop rotation, a strong knowledge and constant observations on these type of phytopathogens become essential.

PHOMOPSIS CANCKER AND DIEBACK OF *ELEAGNUS ANGUSTIFOLIA* L. FROM THE SPONTANEOUS FLORA OF IASI COUNTY, ROMANIA

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Russian olive (*Eleagnus angustifolia* L.) started to be regarded in the last time more as a very useful multipurpose tree species with a high potential for forest land reclamation, rather than a dangerous invasive one. In the perspective of contemporary climate change, characterized by higher temperatures and lower rainfall, Russian olive trees could gain more attention from foresters, ecologists and land managers who should develop an integrated management plan for this species. Nevertheless, due to one of the most serious diseases of *Eleagnus angustifolia* L., that is caused by the fungus *Phomopsis elaeagni* Sandu. (1962) also phytopathologists attention and interest must be increased regarding the Russian olive trees. The disease symptoms were observed in May 2024 on the several branches of *Elaeagnus angustifolia* L. trees from a spontaneous flora area of Iasi county, Romania. The primary aim of the present study was to identify and at the same time to signal the presence of *Phomopsis elaeagni* fungus on the Russian olive tree in the mentioned area. In order to confirm the field diagnosis observed several laboratory determination were made, so the fungus can be identified and morphological described.



FUNGAL LOAD ASSESSMENT OF WHEAT KERNELS UNDER THE ACTION OF SOME PHYTOSANITARY PRODUCTS

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The quality of the wheat seeds determine the production and quality of the grain's final agricultural product. Crop losses due to fungal contamination represent a significant problem for many cereals all over the world. Especially for cereals like wheat, at wich for example different toxigenic *Fusarium* spp. are frequently found as contaminants. Thus, in order to obtain the production of crops free from fungal infections it is necessary a permanent evaluation of the seeds before and after harvest but especially before sowing, even if it is mandatory the treatment of the seeds. Tested material was represented by kernels of Miranda wheat variety to which were applied a number of 12 variant treatments. Therefore, identified fungi genera on Miranda wheat variety kernels were *Alternaria*, *Aspergillus*, *Fusarium*, *Penicillium*, and *Rhizopus*. The incidence and percentage of the identified micromycetes was different for each treatment variant that was applied to the kernels.

STRUCTURE, DYNAMICS AND ABUNDANCE OF COLEOPTERE SPECIES FROM A SUNFLOWER CROP FROM THE WESTERN AREA OF ROMANIA

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The observations were made in the western part of Romania in the town of Aldea, Arad county in a sunflower crop. For these observations, the Barber-type soil traps were used in the number of 12 traps. They were placed in the culture in two rows. These were placed in the culture in two rows of 6 per row from the beginning of the plants' emergence until harvesting, harvesting at intervals of about 2 weeks during the year 2022 on the following calendar dates: 15.05, 29.05, 12.06, 26.06, 24.07, 7.08, 21.08, 4.09 and 18.09. Coleopteran species, including carabid species, were retained from the collected material. Two variants were used: Variant 1 is represented by an ecological sunflower culture where no chemical treatment was done to combat pathogens and pests. Variant 2, represented by a sunflower crop grown in a conventional system where chemical treatments were applied both to the seed and to the crop to combat pathogens and pests. Among the coleoptera species collected, I mention: *Pentodon idiota*, *Dorcadion aethiops*, *Ontophagus taurus*, *Hister quadrimaculata*, *Adalia bipunctata*, etc. In general, a greater diversity and an important number of coleopterans are found in the sunflower culture cultivated in an ecological system (variant 1).



RESEARCH ON THE INFLUENCE OF RECURRENT HYBRIDIZATION ON THE VARIABILITY OF QUANTITATIVE CHARACTERS IN F1 HYBRIDS OF RYE

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After 6 generations of backcross carried out between 2018 and 2023 at SCDA Suceava, the plant height in F1 rye hybrids showed the weakest variability and was measured by coefficients of variation between 4.6% in the direct hybrid (Sv 200 S- 99 X Horizon)⁶ and 8.1% in the direct hybrid (Sv 90 EM X Horizon)⁶, and the absolute average values of the character or framed between 102.3 cm in the direct hybrid (Sv M 72-98 X Horizon)⁶ and 134 .1 cm in the reciprocal hybrid (Gloria X Sv 200 S-99), which led to waist reductions of up to 23.6% (29.6 cm) in the direct hybrid (Sv M 72-98 X Horizon)⁶ to the highest parent. An average variability was recorded in spike length (12.1%), number of spikelets per spike (13.5%), spike fertility (16.4), number of grains per spike (19.2%), grain weight per spike (18.5 %) and MMB (13.8 %), and intense variability was marked by coefficients of variation of up to 57 % for twinning ability, 37.7 % for the number of grains per plant and 43.8% to the weight of the grains per plant.

THE INFLUENCE OF CROP ROTATION AND FERTILIZATION ON AGRICULTURAL YIELD IN THE CONTEXT OF CLIMATE CHANGE ON SLOPED LANDS IN THE BÂRLAD PLATEAU

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In Romania, severe droughts of varying intensities frequently impact large parts of the country, particularly the southern and eastern regions. Sloped agricultural lands, prone to erosion, cover approximately 43% of the country's agricultural area. Due to their extent and productive potential, these lands play a decisive role in Romanian agriculture, including in drought-affected areas. In addition to achieving competitive yields, soil conservation on these lands is essential. In this context, it is necessary to adapt and integrate both traditional and innovative methods to reduce soil erosion to acceptable limits and improve soil fertility. In the Bârlad Plateau, the topographical conditions and lack of water sources prevent the use of irrigation on sloped lands to offset moisture deficits, leaving crop production dependent solely on precipitation. The aridity of the region is exacerbated not only by the lack of rainfall but also by the terrain, which reduces the effectiveness of precipitation through runoff and diminishes the soil's water retention capacity due to surface erosion. This study investigates the role of crop rotation and fertilization in the quality and quantity of the primary agricultural crops on sloped lands in the upper sub-basin of the Țărnii Valley, Bârlad Plateau, over the past 10 years, in the context of climate change. The research highlights how rainfall patterns and surface runoff impact crop yields and emphasizes the importance of efficient soil and water resource management in areas at high risk of erosion.



RESEARCH ON THE EXPLOITATION WATER AND CLIMATIC FACTORS BY MAIZE HYBRIDS OF DIFFERENT FAO GROUPS AND THEIR ADAPTATION TO CLIMATE CHANGE

Cioboată Marius, Nițu Oana Alina, Brumar Dragomir, Popescu Cristian

*University of Craiova, Romania,
University of Agronomic Sciences and Veterinary Medicine, Bucharest, Romania*

The researches and observations proposed by the presented paper aim to identify those corn hybrids that make superior use of rainwater and that lend themselves to the local climate conditions specific to the south-western area of Romania.

The research was carried out by testing 18 maize hybrids from different FAO maturity groups, from FAO-350 to FAO-500 (6 hybrids from FAO group 350-400, 6 hybrids from FAO group 400-500, 6 hybrids from FAO group 450-500), in 2021 and 2022.

Determining the Water Recovery Coefficient (CVAT) resulted in values between 0.09 – 0.29 mc/kg, thus hybrids that can make superior use of water.

Comparing the total volume of precipitation recorded in the period April-September of 2021-2022 with the water consumption (ET) for that period, the appearance of the moisture deficit (550.38 mm in 2021 and 594.51 mm in 2022, respectively), a deficit that has values higher than the multiannual average (506.17 mm) is observed.

Precipitation between April and September of 2021-2022 is lower than the sum of the multiannual average, 301.40 mm (2021) and 272.20 mm (2022) respectively compared to 318.70 mm (multiannual average).

ENHANCING THE TECHNICAL AND ECONOMIC EFFICIENCY OF THE CURTEȘTI IRRIGATION SYSTEM IN BOTOȘANI COUNTY

Federovici Ionuț-Silviu, Bucur Daniel, Saveliev Gabriel-Iustinian

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The Curtești irrigation system in Botoșani County, designed and constructed over 30 years ago, faces significant challenges due to outdated technology and deterioration. This study focuses on the technical and economic efficiency of modernizing the system to meet current agricultural demands. The research highlights the necessity of investments aimed at minimizing water losses and reducing energy consumption. Key modernization efforts include waterproofing the supply channel, replacing a 2 km-long degraded distribution pipe, and installing new, energy-efficient pumps and motors in the pumping station.

The study also addresses the broader context of irrigation system degradation across Romania due to insufficient investment from 2000 to 2020. The Curtești system has recently secured European Union funds for rehabilitation, with the work expected to be completed by December 2024. The modernization will not only increase the irrigated area from 100 ha to cover more farmers but also serve as a model for other irrigation systems in Botoșani County.

The findings emphasize the critical role of irrigation in combating drought and supporting agricultural productivity, particularly in areas with inconsistent rainfall. The study concludes that with appropriate investments, the Curtești irrigation system can be transformed into a modern, economically viable operation, benefiting both local farmers and state institutions involved in agricultural development.



**SECOND SECTION
AGRIBUSSINES AND RURAL DEVELOPMENT**

→ 3rd Lecture room (A3), second floor

**Secretary: Lecturer Eduard BOGHITĂ, PhD
Lecturer Ștefan VIZITEU, PhD**

PLENARY SESSION

14:00 – 16:00

**Chairpersons: Prof. Carmen COSTULEANU, PhD
Prof. Stejărel BREZULEANU, PhD**

14:00-14:15

**LEARNING FOREIGN LANGUAGE FOR SPECIFIC PURPOSES IN TERMS OF
PROFESSIONAL COMPETENCY DEVELOPMENT: PROPOSAL FOR A
FRENCH TRAINING PROGRAMME FOR STUDENTS IN LIFE SCIENCES**

Petrea Elena

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Our paper is the result of twenty years of reflection and of teaching French to students in life sciences. This career path has given rise to several key concepts, namely specialised French as a teaching trend in didactics and, in training engineering, the construction of course progression, the objectives pursued and the profiling of exercises to ensure the development of learners' professional skills. The first part of our paper is of a didactic nature: it looks at the ideas that have marked the field of teaching French as a foreign language to professional audiences or those in the process of becoming professional, and also makes reference, where appropriate, to what has happened in the teaching of English. The aim of this part is not to draw up an exhaustive picture of the different methodologies, but rather to highlight the overall movement in this field of study. The second part is more practical and comes under the heading of training engineering, by proposing a specialised language teaching pathway, our point of view being, following Florence Mourlhon-Dallies' approach (*Enseigner une langue à des fins professionnelles*, 2008), that there is no one methodology that is better than another, but that it is all a question of project, audience and priority.

14:15-14:30

**A DIACHRONIC VIEW ON MEAT ADVERTISING – THE CASE OF SISSI
PRODUCTS FROM CAROLI FOODS GROUP**

Raluca-Stefania Pelin

*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
“Alexandru Ioan Cuza” University of Iasi, Romania*

Advertising plays a significant role in raising consumers' awareness regarding the emergence and existence of products on the market. Meat advertising may set various reception trends nowadays



due to a constant emphasis on adopting sustainable farming and consuming practices. The present study focuses on a diachronic analysis of the commercials for Sissi products from Caroli Foods Group covering the time span between 2016 and 2024. Special attention has been given to the semiotic and rhetoric elements and their fluctuations over time due to the shortening span allotted for commercials as well as to the intended effect on the prospective consumers. The conclusion is that despite the changes in the amount of information delivered by the commercials, there is a constant unwavering focus on the quality of the products which boast a very strict nutritional standard and cater for the needs of the most sophisticated consumers who may favour a certain cultural and social input.

14:30-14:45

IS THERE A REINVENTED TEACHER? NEW EDUCATIONAL PARADIGMS

Sîrghea Alina

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The current paper aims to explore and analyze the challenges of today's teacher in preparing tomorrow's youth through the new paradigms of education and the impact of technologies, because we are dealing with future digital natives and teachers known as digital immigrants. We will focus on the education process but also on the product delivered for the labor market in the context of digital era. It is true that many professors have had to adapt rapidly, some of them for their own motivation, others for circumstances, but there are also many who still have a certain fear of digital technologies (hardware or software) and this is challenging for many reasons. It is not only enough the desire to implement it, but to know how to do it the right way and adapt it so that it turns out to be really functional and beneficial for students. There are many new roles that are assigned to the teacher in these new educational paradigms generated by ICT (informational and communication technologies). Teachers must stop being less police officers or/and simple information providers but become organizers, guides, generators, companions, coaches, learning managers, counselors, facilitators. In the context of a reinvented teacher with information at one click away, new paradigms have to appear, planning educational strategies inside or outside the classrooms. In the end, this paper will emphasize the role of current paradigms in shaping educational policies, understanding the close connection between them.

14:45-15:00

CONSUMPTION OF NATURAL JUICES: A COMPARATIVE MULTICRITERIAL ANALYSIS

**Delibaş Cristian, Jităreanu Andy-Felix, Mihăila Mioara,
Alec Ciprian Ionel, Leonte Elena**

*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
“Gheorghe Zane” Institute for Economic and Social Research, Romanian Academy Iași Branch, Romania*

The issue of consumption of specific food products, such as natural juices, is increasingly in the attention of both producers and marketing analysts. Predominantly, consumers from generations Y and Z (Millennials and IGen) are increasingly interested in quality food products that support health, proper nutrition and a healthy lifestyle. Natural juices are within the scope of these consumption concerns, and its analysis is based on several varied criteria. It was noted in the research that some are objective criteria, and most are subjective. However, on the consumption market, speculative capitalization is felt by producers who are tempted to deliver juices in accordance with the new



subjective consumption requirements, but with minimum possible production costs. The present research considers the analysis of consumption preferences for natural juices, by Romanian consumers, and constitutes a multicriteria market study. The results indicate that, in most cases, consumers do not know the content of what they are consuming, but they prefer juices that present the image of naturalness, the motivation to consume is in conflict with actual consumption, since although they want health, the subjects predominantly consume unnatural juices, and consumption preferences are rather based on reference to the external environment, such as areas of consumption and marketing, influence of social groups, price, etc. and much less on personal beliefs and intrinsic values. The study was carried out through a market investigation, based on a questionnaire, applied to the national level, and the results were based on a multivariate factorial analysis.

15:00-15:15

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON FOOD CONSUMPTION BEHAVIOR IN E-COMMERCE

Bianca Antonela Ungureanu, Andy Jităreanu, Mioara Mihailă, Tatiana Baltag, Leonte Elena
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This paper will explore the evolution of food consumption behavior in a dynamic and interconnected world, influenced by the growing diversity of available products and their accessibility through e-commerce platforms. Food diversity, defined by the variety and abundance of options available to consumers, plays a crucial role in meeting nutritional needs and promoting a healthy lifestyle. In this context, artificial intelligence (AI) becomes an indispensable tool in shaping and understanding food consumption behavior. From a marketing perspective, studying the connection between AI and food consumption behavior in e-commerce is crucial to understanding how technology can influence purchasing decisions and consumer preferences. AI has the ability to analyze and interpret large volumes of data to offer personalized recommendations and optimize the shopping experience. By using machine learning algorithms and predictive analytics, AI can identify users' preferences and consumption habits, thus contributing to increased satisfaction and customer loyalty. Additionally, AI can facilitate efficient stock management and reduce food waste by anticipating demand and adjusting offers based on consumption trends. Thus, integrating AI into e-commerce not only improves the consumer experience but also contributes to the sustainability of the food supply chain. The paper will also highlight AI's crucial role in automating and optimizing marketing campaigns. Through demographic and behavioral data analysis, AI can segment the audience and create personalized advertising campaigns that reach the right consumers at the right time. Examples of e-commerce platforms like Amazon and Alibaba, which use AI to analyze shopping history and user preferences, will be discussed to illustrate these concepts.

15:15-15:30

CRITICAL FACTORS FOR THE SUCCESS OF THE AGRICULTURAL COOPERATIVES

Radu-Adrian Moraru, Dan Bodescu, Alexandru-Dragoş Robu
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

In agriculture, cooperatives face numerous challenges and changes, their existence being influenced by their ability to adapt to resource scarcity, market instability and the need for continuous development. Based on the review of the specialized literature, the present paper aims to highlight the



main driving forces behind the performance of cooperatives in agriculture. The findings indicate that the success of the agricultural cooperative are dependent not only on the economic environment, but also on the social context in which the cooperative operates. Two main categories of success factors were identified: external factors, such as government policy, the marketing system, external assistance, the legal framework; and internal factors, related to managerial skills, governance and the motivation for establishing the cooperative. The degrees of importance of these critical succes factors are determined by the level of development of the cooperative system.

15:30-15:40

SHARING THE LANGVET – IA PROJECT: CONCEIVING LINGUISTIC AND PEDAGOGICAL CONTENT WITH THE HELP OF ARTIFICIAL INTELLIGENCE TOOLS IN THE FIELD OF VETERINARY MEDICINE

Velescu Elena

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This article draws on the LANGVET - IA project, "Concevoir des contenus linguistiques et pédagogiques à l'aide des outils de l'intelligence artificielle (IA) dans le domaine de la médecine vétérinaire" (Conceiving linguistic and pedagogical content with the help of artificial intelligence tools in the field of veterinary medicine), coordinated by the University of Life Sciences "Ion Ionescu de la Brad" Iași, with the financial support of the Agence Universitaire de la Francophonie within the call AUF-ECO 2024 - Soutien à la recherche scientifique francophone en Europe Centrale et Orientale - RESCI-ECO, and developing from July 1, 2024 to August 31, 2025. The project focuses on the study and use of artificial intelligence tools to develop educational resources designed for veterinary students, by integrating them in their formal learning and practice, and their language trainers, by applying them in their teaching and research activity. The article looks into the project's methodology and partial results for the creation of online teaching and learning resources dedicated to professional communication in the field of veterinary medicine; these include trilingual (French, English, Romanian) learning units on medical vocabulary and doctor-client communication, based on an interdisciplinary (linguistic, didactic and cultural) exploration. As the LANGVET - IA project capitalizes on artificial intelligence tools to facilitate the teaching-learning process in the specialised field of veterinary medicine, this article explores its further potential for modernizing the education system..

COFFEE BREAK

16⁰⁰ – 16¹⁵



POSTER SESSION

16:15 – 18:00

TOWARDS SUSTAINABLE CONSUMPTION BEHAVIOR ON ORGANIC FRUITS MARKET - TRANSITION PATHWAYS

Ruxandra – Eugenia Pop , Steliana Rodino, Vili Dragomir

*Research Institute for Agriculture Economy and Rural Development, Bucharest, Romania
National Institute of Research and Development for Biological Sciences, Bucharest, Romania*

Nowadays, the conservation of natural resources becomes one of the main challenges to which society must respond. Population dynamics and urbanization, economic growth, cross-country interdependencies, climate changes among with changes at consumption and nutrition patterns level are all factors which reinforce the importance of accelerating the transition from current production and consumption models to more sustainable ones, in relation to environmental and economic resources. Achieving this global objective can be realized through the collective efforts of all parties involved: decision-makers, authorities, researchers, economic agents along the product chain, farmers, and last but not least, consumers. Moreover, global and European strategies repeatedly emphasize the important role that consumers hold in achieving goals related to a healthier planet and to the population well-being. Applying specific qualitative and quantitative research methods, the present paper proposes a complex approach to the current context limited to the level of organic fruit consumption in Romania but also in other European member states. As a final result, the study comprises a series of recommendations regarding effective policies to achieve the objectives of sustainable development at the level of consumer behavior.

RISKS ARISING FROM THE PARTICIPATION OF PUBLIC ENTITIES IN INTERNATIONAL TRANSACTIONS IN PUBLIC-PRIVATE PARTNERSHIPS

Flavian Clipa, Gabriela Ignat, Carmen Luiza Costuleanu, Raluca Irina Clipa

*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
Alexandru Ioan Cuza” University of Iasi, Romania*

The factual evidence and contributions in the literature highlight the role of public-private partnership as a viable alternative to make up for the lack of state financial resources, the shortcomings in the management of large infrastructure projects, while also making an important contribution to technology dissemination. In most cases, the realization of large financing projects cannot be conceived without the participation of foreign capital. However, there are many cases where such partnerships do not succeed, due to inefficient risk allocation between partners, poor management approach, over-optimistic forecasts. Moreover, the unprecedented openness of national economies to international trade is creating consistent preconditions for the propagation of the shock waves characteristic of recession phases at the national level, contributing to the aggravation of existing macroeconomic problems, at least for developing countries. Our study, through an integrative qualitative approach and filling a relative gap in the field of scientific research, aims to analyze the main risks for public authorities in the case of public-private partnerships, and to formulate relevant recommendations for their mitigation.



SUSTAINABLE AND RESILIENT FARMING SYSTEMS IN THE EUROPEAN UNION

Ioan Prigoreanu, Lilia Șargu, Carmen Luiza Costuleanu, Gabriela Ignat

*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
University of European Studies of Moldova, Chisinau, Rep. of Moldova*

Farming systems in Europe face a variety of environmental, economic, social and institutional challenges, such as volatile producer prices, extreme weather events, dependence on landowners and financial institutions, organizational changes in value chains, competing policy objectives and changing consumer preferences. Resilience theory provides an integrated framework to analyze the capacity of social-ecological systems to cope with these changes, and resilience is defined as the maintenance of essential functions of farming systems in the face of increasingly complex economic, social and environmental challenges, thus farming systems include interactions between farms, technologies, stakeholders, consumers, decision makers and the environment, and vulnerabilities such as intergenerational transfer and declining attractiveness of farming affect the demographic stability of rural areas. The paper explores the resilience of farming systems in the European Union in the face of growing economic, social, environmental and institutional challenges. The study identifies a wide range of risks to EU farming systems, from extreme weather events and price volatility to demographic and institutional changes, thus through dynamic scenarios, it provides a picture of the possible future of European agriculture, taking into account socio-economic, environmental and technological developments. The scenarios developed are used to test resilience strategies at the level of farming systems and to make recommendations for the Common Agricultural Policy and governance to support the long-term resilience of these systems.

MINERAL VARIABILITY OF DIFFERENT TRITICALE FLOURS VARIETIES CULTIVATED IN REPUBLIC OF MOLDOVA

Ursachi Florin, Codină Georgiana Gabriela, Atudorei Denisa, Paiu Sergiu, Rumeus Iurie, Svetlana Leatamborg, Lupascu Galina, Ghendov-Mosanu Aliona

*“Stefan cel Mare” University, Suceava, Romania
Technical University of Moldova, Rep. of Moldova
Cahul State University “Bogdan Petriceicu Hasdeu”, Rep. of Moldova
Applied Genetics Laboratory, Institute of Genetics, Rep. of Moldova*

The aim of this study was to analyze the mineral composition of flours produced from different triticale varieties cultivated in Republic of Moldova. For this purpose, seven of whole flours derived from triticale varieties Ingen 33, Ingen 35, Ingen 93, Ingen 54, Ingen 40, Fanica, Costel were analyzed to determine their mineral composition using an Energy Dispersive X-ray Analysis (EDX) and also an atomic absorption spectrometer (AAS). The total mineral content has been determined using the ICC 104/1 method. According to the data obtained the highest mineral content has been obtained for Ingen 93 and the lowest one for Ingen 54 and Fanica. To EDX, the following mineral elements were found: potassium (K), phosphorus (P), calcium (Ca), sulfur (S), manganese (Mn), iron (Fe), zinc (Zn) and copper (Cu). Some of the mineral elements have been determined using AAS such as Ca, Zn, Fe, Cu and Na. Among all the analyzed mineral elements, copper was in the lowest amount whereas potassium was in the largest amount followed by phosphorus and calcium in all triticale flour samples. According to our results a high variability has been obtained among triticale varieties. The



knowledge of this variation may be useful for consumers from the nutritional point of view and for further breeding studies in order to improve triticale nutritional quality.

Funding: This work was supported by a grant from the Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, project number PN-IV-P8-8.3-ROMD-2023-0078, within PNCDI IV.

SUSTAINABLE AND MODERN METHODS FOR THE LOGISTICS OF AGRICULTURAL PRODUCTS

Cristian Delibaş, Andy-Felix Jităreanu, Mioara Mihăila, Ciprian Ionel Alecu, Elena Leonte
"Ion Ionescu de la Brad" Iași University of Life sciences, Romania
"Gheorghe Zane" Institute for Economic and Social Research, Romanian Academy Iași Branch

Agricultural production proves to be a priority in the market analyzes. The main pillars target both production and distribution activities, being increasingly influenced by sustainability rules. In the current economy, the interest for a diversified and increased production remains at a high level, starting primarily from the basic needs that agricultural products satisfy and the increased demand. Commercial, financial, technological, logistical interests are also added to this, all being components of market studies. From the perspective of globalization and the requirements to respect the sustainability rules, logistic steps have become the nucleus of attention in both market analyzes and planning processes. The present paper approaches in an interdisciplinary manner three directions of agricultural products market analysis: sustainable marketing, logistics and the need-production-consumption relationship. An objective of the research is the analysis of conceptual framework regarding the dimensions of sustainability in the field of marketing of agricultural products and the main requirements that they claim. The data used for the analysis are from official sources such as Eurostat and NIS, and data from the companies subjects of the analysis: Agricover, PrimeAgriculture, Kompas, Agromontana. The results highlighted that adapting production to market requirements is a vital component of the marketing plan, and the distribution and commercialization pillars directly impact on production, even if the consumer is in the foreground as a focus. The lack of efficiency in the logistic system leads to loss of capital and image, so ensuring the sustainability of these pillars is a way to ensure the success of companies present on the agricultural products market.

FOOD SECURITY IN ROMANIA IN THE CONTEXT OF GLOBAL AND EUROPEAN POLICIES

Bianca Antonela Ungureanu, Andy Jităreanu, Elena Leonte
"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

Sustainable rural development and agri-food systems are crucial in addressing global challenges such as food security, poverty alleviation, and environmental sustainability. Food security poses a global challenge with far-reaching implications for humanity. The persistence of hunger is closely linked to power dynamics, and addressing it falls under the FAO's international efforts. In the case of Romania, ensuring food security should remain a priority, especially considering the evident decline in agriculture and agricultural production. The main objective of this article is the analysis of the agricultural sustainability of Romania, in comparison with European countries in economic, environmental, social, and political terms, by analyzing the central agricultural food policies related to food sustainability worldwide. The methodology consisted in analyzing the main indicators related to food sustainability and ended with the analysis of a social survey. We interpreted several forecasts



related to the evolution of the average daily food consumption per inhabitant. In the study, we analyzed the overall score of the accessibility of the Global Food Security Index (GFSI) in Europe, which indicates the level of access to food and the population's ability to obtain sufficient, safe, and nutritious food. We are in search of discovering the best, most accurate, and statistically significant forecast variant in doing so. Romania is on the 23rd place regarding the overall score of the Global Food Security Index, and the value of this indicator is increasing. Romania is on the 25th place on accessibility, 21st place on food availability and, also on the 21st place on quality and security. While the overall score, accessibility, and food availability are on a positive trend; quality and safety are recorded to have a negative course. Based on the critical analyses of the results, there were addressed to substantiate recommendations for a convergent strategy to increase food sustainability.

GAEC STANDARDS-COEFFICIENTS FOR MEASURING THE SUSTAINABILITY AND DURABILITY OF THE EUROPEAN AGRICULTURAL POLICY

Carmen Mariana Diaconu

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The GAEC standards are derived from the code for good agricultural and environmental conditions, which refers to the definition of the standards or conditions that farmers must meet in order for the subsidy application, regardless of the scheme they opt for, to be eligible; the concept has been developed and debated since the 70s, but was introduced into EU policy in 2003 through the publication of Council Regulation EC 1782/2003. Currently we can talk about 8 GAEC standards as a way of evaluating compliance with eco-conditionality for the following specific areas, namely climate and environment, including water, soil and ecosystem biodiversity, public health and plant health, animal welfare. Thus, the GAEC standards applicable for the purpose of sustainability and durability of the agricultural policy implemented at the Union level at the moment are: GAEC 1: Maintenance of permanent grasslands; GAEC 2: new from 2023. Protecting wetlands and peatlands; GAEC 3: Prohibition of burning stubble, dry vegetation and plant debris on arable land; GAEC 4: Creation of buffer strips (strips of protection) along watercourses; GAEC 5: Management of earthworks, reducing the risk of soil degradation and erosion, including consideration of slope; GAEC 6: Minimum ground cover to avoid bare ground during the most sensitive periods; GAEC 7 Crop rotation on arable land, excluding crops growing under water; GAEC 8: Minimum proportion of agricultural area dedicated to non-productive areas or features and on all agricultural areas, maintaining landscape features and prohibiting the cutting of hedges and trees during the breeding and rearing period of birds; GAEC 9: introduced in 2023. Prohibition of conversion or plowing of permanent grassland designated as ecologically sensitive permanent grassland within the perimeter of Natura 2000 sites.

RESILIENCE AND FOOD SECURITY: ADDRESSING GLOBAL RISKS

Boghița Eduard, Donoșă Dan, Viziteu Ștefan

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Food security is dependent on social, economic and biological systems that are interconnected to meet people's nutritional needs. Managing risks is crucial to strengthening the resilience of food systems and ensuring long-term food security. Some of the biggest challenges are climate change, financial risks and political instability. Resilience, the ability to overcome shocks, is becoming



increasingly important. To improve long-term food security, we need to build better food systems that can absorb and adapt to climate change and other risks. A proposed study aims to assess adjustments to the Global Food Security Index and provide recommendations for improving global food security policy. Identifying gaps in the index and accurately reflecting the complexity of the global food system are important findings. Access to food at reasonable prices is essential for social well-being and stability. High-income households are better able to absorb temporary price increases, while low-income households need a safety net.

PERFORMATIVITY IN ECONOMICS

Dan Donoșă

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Introducing the theme of performativity and placing it within the field of cultural economics makes the role that performativity plays in economics a logical place to start and acknowledge. The idea that economics does not describe an existing external "economy" but brings that economy into being: economics realizes economics, creating the phenomena it describes. This idea is now recognized by many authors as one of the major contributions to economic sociology and has been accompanied by heated debates in the social sciences about the actual influence of economics and economists on economic practices and, more generally, on society and political processes. But when one considers the 'cultural' dimension - that is: when one moves beyond economic sociology to the wider intellectual domain of the social sciences and humanities in general - then an interest in performativity has developed as a way of approaching issues whose importance it goes far beyond the pure processes of language. Since some authors have outlined the philosophical proposition that speech is not primarily or exclusively "constative", that is, it does not just "state" facts, but, under certain happy conditions, "acts" or "realizes" certain realities, the idea of performativity has attracted theorists involved in political and social science, philosophy and economic theory.

URBAN AGRICULTURE AND INNOVATIVE ENTREPRENEURSHIP

Ștefan Viziteu, Dan Donoșă, Eduard Boghiță

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Urban agriculture (or urban farming) is a new and innovative field in business development, bridging the gap between the producer and the local urban community, being an area where the entrepreneurship can have diverse initiatives and approaches. Urban agriculture generally refers to the cultivation, processing and distribution of agricultural products in urban and suburban settings, including directions like vertical production, warehouse farms, community gardens, rooftop farms, hydroponic, aeroponic and aquaponic facilities or other innovations. This type of farming adapted to the limited space available in the city has various advantages but it faces also challenges. The benefits of setting-up an urban farm consist in creating jobs for local low-income communities, waste reduction, urban revitalization, community education and development, while the main challenges refer to the lack of policy and regulations addressing urban farming in statutory plans and zoning bylaws, possible noise or restrictions on farm structures such as greenhouses and storage sheds. This paper aims to highlight ways to improve entrepreneurial skills through innovative ideas on agricultural activities in urban and peri-urban areas, exemplifying different initiatives associated with effective management in this regard and describing this sector less known and in Romania but with a high growth potential.



THE CONCEPT OF CARBON CREDITS IN AGRICULTURE: A REVIEW OF LITERATURE

Dumitraș Constantin Dragoș, Tudoran Alexandru Sorin, Ștefan Gavril
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

One of the major concerns of the 21st century is climate change, which has a significant impact on sustainable development strategies and the global economy. In this regard, the carbon credit market has become a key tool in efforts to reduce greenhouse gas emissions and accelerate the shift towards a low-carbon economy. This work presents a literature study that emphasizes the discrepancies in the current understanding of carbon credits in agriculture. The approach will focus on a detailed analysis of the relevant terms and concepts, highlighting the connections and interdependencies among them and emphasizing their importance within the carbon market framework. Thus, carbon credits are primarily intended to provide businesses with a financial motivation to implement strategies to reduce greenhouse gas (GHG) emissions and to switch to environmentally friendly and more sustainable operations in industries like manufacturing and agriculture. The paper's findings highlight the three key areas of study for experts in the field of carbon credits: carbon trading, carbon markets, and carbon sequestration.

STRATEGIES FOR PACKAGING OPTIMIZATION IN THE WINE INDUSTRY

Andreea Grigore-Sava , Ioan Prigoreanu, Gabriela Ignat
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This study addresses significant aspects of the wine industry, focusing on wine packaging and analyzing the environmental impact of materials used by producers. The circular economy, applied to waste minimization through the integration of sustainable solutions into the production cycle, along with innovations in this sector, represents important components in developing and ensuring a sustainable future.

Identifying materials with a reduced environmental impact, such as recycled glass, biodegradable cardboard, or innovative materials like bioplastic, constitutes the first step in conducting a customized study aimed to create sustainable packaging. The second essential aspect is the analysis of the direct impact of these materials on the greenhouse gas emissions of the wine industry. The next step is validating the logistics chain to identify partners that use renewable energy sources in the production process, in order to ensure that indirect emissions do not negatively influence the company's carbon footprint. The final step involves the integration of the new packaging into the production cycle and optimizing it to foster consumer loyalty.

Designing sustainable packaging for the wine industry requires careful analysis, integrating innovation, renewable energy sources, and eco-friendly materials. It is important to consider the entire product life cycle, from production to recycling, to ensure minimal environmental impact. Only by adopting these practices can the wine industry contribute to environmental protection and promote responsible consumption.



VEGETABLES IN IDIOMATIC REALMS: A CONTRASTIVE APPROACH

Mihalache Roxana, Velescu Elena, Brezuleanu Carmen-Olguta

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This study explores the use of vegetables in idiomatic expressions across four languages—English, French, Italian, and Romanian—employing a contrastive approach to highlight both similarities and divergences. Idiomatic expressions involving vegetables provide a rich field for examining how cultural contexts shape language and meaning. By analyzing idioms from each of these languages, the research reveals how vegetables symbolize various cultural values, social norms, and emotional states. In English, idioms such as “cool as a cucumber illustrate how vegetables can convey composure and status. Similarly, French idioms like “tomber dans les pommes” (to fall into the apples, meaning to faint) and “être dans le pétrin” (to be in the kneading trough, meaning to be in trouble) reflect a blend of humor and traditional imagery. Italian expressions, such as “essere un cetriolo” (to be a cucumber, meaning to be calm), further demonstrate the role of vegetables in conveying personal traits and social actions. Romanian idioms, including “a fi în pom” (meaning to be in a difficult situation) and “a se face roșu ca un ardei iute” (to turn red as a hot pepper, meaning to blush), offer insights into how vegetables are used metaphorically to express emotional states and social interactions. This contrastive analysis highlights how idiomatic expressions involving vegetables are deeply rooted in cultural practices and perceptions. The study underscores the importance of understanding these idiomatic nuances for more effective cross-cultural communication and translation. By examining the metaphorical use of vegetables across languages, this research contributes to a deeper understanding of how language reflects and shapes cultural attitudes and practices.

CONSIDERATIONS ON THE DIMENSION OF THE AGRICULTURAL MARKET IN THE NORTH-EAST REGION

Maria Robu, Andy-Felix Jităreanu, Mioara Mihăilă, Elena Leonte

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Analyzing the share of total consumption expenses in Romania during 2018 – 2023, the authors will show that the allocated budget for food consumption needs dominates the ranking of expenses in a household. According to the data published by the National Institute of Statistics (INS), agro-food products and non-alcoholic beverages held a share of about 33%-34% of the total consumption expenditure of households throughout this period. Regarding the structure of the production value of the agricultural branch by development regions, as will be shown, the North-East Region is in the third position among the eight development regions. The South-East Region and the South-Muntenia Region are on the first two positions, and the Bucharest-Ilfov Region is on the last position. As will be pointed out, the years 2018 and 2021 were the most favorable for most crops and especially for the main crops: corn, wheat, sugar beet, etc. A number of crops have particularly suitable conditions in the areas of Iași county, where about half of the entire production from the region is obtained: 54% in the case of cauliflower and broccoli crops and 47% in the case of green and yellow melon crops. Of the 26 products or categories of agri-food products analyzed in the current paper, 16 (61%) have a production of more than 20% obtained in Iași county. The share of production, starting from the absolute values, is 13.92% in the case of the cereal, oleaginous, leguminous plant category, 28.85% in the case of the vegetable category and 27.55% in the case of the fruit category.



RESEARCH ON SUSTAINABLE AGRICULTURE IN ROMANIA UNDER THE AEGIS OF THE ROMANIAN CODE OF SUSTAINABILITY

Florin Diaconu, Ștefana-Beatrice Păduraru, Roxana-Elana Gherasim, Gabriela Ignat
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Sustainable agriculture is crucial for the management of natural resources, the protection of biodiversity, and combating climate change. In Romania, the Romanian Code of Sustainability provides a regulatory framework for promoting ecological agricultural practices aligned with European requirements. The adoption of sustainable practices, such as crop rotation and pesticide reduction, contributes to improved productivity and environmental protection. Although the transition involves obstacles related to access to resources and education, financial support and European programs are essential for success. Farmers who have adopted these practices have recorded significant improvements in soil quality and biodiversity. The authors conducted a bibliographic study analyzing the impact of the Code of Sustainability on Romanian agriculture, highlighting its challenges and benefits.

KEY FACTORS IN DEVELOPING SUSTAINABLE AGRITOURISM

Radu-Adrian Moraru, Ștefan Viziteu, Dan Constantin Șumovschi
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The objective of this paper was to identify the main factors that contribute to the development of agritourism in terms of sustainability. For this purpose, the method of systematic review of specialized literature was applied, which addressed the linkage between sustainability and agritourism activities. The findings indicate that agritourism can offer sustainability advantages under all three basic aspects of sustainable development (economic, ecological, social). The current state of literature shows that among the most important factors that positively affect agritourism sustainability are: good skills and competences, high level of hygiene of facilities, green technology innovations, good infrastructure and accessibility, landscape design, reducing water and energy consumption, family involvement, women empowerment, quality products and services at affordable prices, education and training, collaboration and partnerships.

THE IMPACT OF AGRI-FOOD PRICE DEVELOPMENTS ON SUSTAINABLE RURAL DEVELOPMENT

**George Ungureanu, Elena Leonte,
Bianca-Antonela Ungureanu, Monica Ionela Pandelea**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The main objective of this article is to analyze the impact of the evolution of prices of agri-food products on sustainable rural development in Romania, compared to European countries, from an economic, environmental, social and political point of view. Price Stabilization: Implementation of policies to stabilize prices of agri-food products to ensure affordability and availability of food. The methodology consisted in the analysis of the main indicators of food sustainability and ended with the analysis of a social survey. We interpreted several forecasts related to the evolution of average daily food consumption per inhabitant. In the study, we analyzed the overall accessibility score of the Global Food Security Index (GFSI) in Europe, which indicates the level of access to food and the ability of the population to obtain sufficient, safe and nutritious food. Sustainable rural development and agri-food systems are crucial in addressing global challenges such as food security,



poverty reduction and environmental sustainability. Food security is a global challenge with far-reaching implications for humanity. The persistence of hunger is closely linked to power dynamics, and addressing it is part of FAO's international efforts. In Romania's case, ensuring food security should remain a priority, especially considering the obvious decline in agriculture and agricultural production. The main objective of this article is to analyze Romania's agricultural sustainability, compared to European countries from an economic, environmental, social and political point of view, by analyzing central agricultural policies related to food sustainability worldwide. Based on the critical analyzes of the results, the substantiation of the recommendations for a convergent strategy to increase food sustainability was addressed.

ANALYSIS OF PRICE POLICY IN RELATION TO THE COMMON AGRICULTURAL POLICY (CAP): IMPLICATIONS AND STRATEGIC ADAPTATIONS

**George Ungureanu, Elena Leonte,
Bianca-Antonela Ungureanu, Monica Ionela Pandelea**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The Common Agricultural Policy (CAP) of the European Union plays a crucial role in establishing and regulating prices in the agricultural sector, thus influencing the competitiveness and sustainability of the European agri-food market. This paper aims to analyze the impact of CAP on price policy through subsidies, direct payments, and market interventions. The study employs statistical research methods, analyzing data on agri-food product prices from representative markets and observation units in the Municipality of Iași. The paper provides an overview of product categories and sources, essential for a comparative analysis of prices between local and imported products. The analysis reveals that CAP contributes to the stabilization of agricultural prices through several mechanisms: subsidies and direct payments. These provide financial support to farmers, maintaining prices at a competitive and stable level. Market regulation, interventions such as temporary market withdrawal and strategic product storage, help prevent major price fluctuations. Quality and safety standards: the imposition of strict standards helps maintain product quality, thus influencing their price through compliance costs. The Common Agricultural Policy balances the interests of farmers and consumers, supporting the stability of producers' incomes and offering consumers affordable prices for agricultural products. Through subsidies and market regulations, CAP ensures sustainable development of the agricultural sector, thus contributing to maintaining a balanced and sustainable rural economy within the European Union.



**THIRD SECTION
FOOD ENGINEERING**

→ 3rd Lecture room (TPPA_A3), third floor, TPPA building

**Secretariat: Asist. Prof. Ioana CRIVEI, PhD
Eng. Ionuț-Dumitru VELEȘCU, PhD**

14:00 – 16:00

PLENARY SESSION

**Chairpersons: Prof. Radu ROȘCA, PhD
Assoc. prof. Otilia MURARIU, PhD**

14:00-14:15

**CHEMICAL AND ANTIOXIDANT PROPERTIES OF
PEAR FRUITS AND JAM**

Dejan Prvulović, Marijana Peić Tukuljac, Goran Barać, Radenka Kolarov
University of Novi Sad, Serbia

Pear (*Pyrus communis* L.) is consumed as fresh fruit, processed into in various food products and also used as a traditional remedy in different countries. Takiša is traditional pear cultivar in Balkan countries. Fruits are small with yellowish-brown skin, medium sweet and with very high tolerance to different pests and diseases. It is believed that traditional cultivars are great source of health-promoting and restoring bioactive compounds: sugars, vitamins, phenolic compounds and minerals. The aim of the present study was to evaluate the content of different phenolic compounds, antioxidant capacity, sugar content, acidity, pH and water content of fresh fruits and jam made of this fruits. The antioxidant properties were evaluated using seven different antioxidant assays. It was observed that thermal processing of fruits led to statistical significant alterations for most of monitored parameters. The fresh fruits contains higher water content (80.00%) compared to jam (15.55%) while jam has higher sugar content. Pear jam had higher total phenolics and total tannins contents comparing to fresh fruits, while flavonoids, anthocyanins and flavan 3-ols were not detected in samples. Antioxidant capacity was similar in both investigated samples.

14:15-14:30

**RESEARCHES ON THE DEVELOPMENT OF INNOVATIVE PRODUCTS SUCH
AS ARTISANAL CHOCOLATE WITH SEA BUCKTHORN BY-PRODUCTS
POWDER UNDER THE CIRCULAR ECONOMY CONTEXT**

**Otilia Cristina Murariu , Nicoleta Diaconu, Georgiana Iuliana Venin,
Petru Marian Cârlescu, Oana-Mărgărita Ghimpețeanu, Florin Daniel Lipșa**
*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
University of Agricultural Sciences and Veterinary Medicine of Bucharest, Romania*

The by-products of the extraction of sea-buckthorn (*Hippophae rhamnoides* L.) concentrated juice may represent a functional food ingredient for chocolate production, as a rich source of bioactive compounds. The effects of six treatments derived from the factorial combination of two types of by-products (with oil or without oil) and three different concentrations (5%, 10%, 15%), were assessed



on rheological, quality, colour, antioxidant and mineral properties of chocolate. The 15% addition of full powder led to the highest values of max firmness, total shear energy, shear energy, cohesiveness, gummosity, dry matter and ABTS, compared to the untreated control, but the two highest concentrations of the oil-deprived powder resulted in the protein content increase. The full powder addition always raised fat levels. Both the 'L' and 'a' colour component as well as total carotenoids, β -carotene, lycopene, and vitamin C increased with the rise of *H. ramnoides* powder addition, compared to the untreated control. Opposite trend was shown by the 'b' colour component and pH, whereas polyphenols and antioxidant activity attained higher values with the oil-deprived powder. The content of potassium decreased upon the 15% addition of *Hippophae ramnoides* by-product powder, compared to the untreated control, whereas calcium and magnesium increased. The 15% *H. ramnoides* full powder elicited the augmentation of phosphorus content in chocolate, compared to the untreated control, contrary to the effect of the oil-deprived powder on P and Zn. The employment of SBB by-products highlights great potential for manufacturing innovative functional food with high nutritional value, such as chocolate.

14:30-14:45

APPLE POMACE POWDER AS A NATURAL FOOD INGREDIENT FOR THE DEVELOPMENT OF YOGURT

Florina Stoica, Roxana Nicoleta Rațu, Florin Daniel Lipșa, Irina Gabriela Cara, Denis Țopa, Gerard Jităreanu

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

Apple pomace, the by-product of apple juice and cider production, is a promising source of phytochemicals and contains substantial quantities of dietary fibers, vitamins, and minerals. Incorporating apple pomace powder (APP) as a natural ingredient in yogurt presents a novel strategy to enhance the nutritional profile of a dairy product. The study examines the effects of APP addition on the physicochemical, bioactivity, sensory, and textural properties of APP-enriched yogurt—the evaluation involved including APP at different concentrations (1% and 2% w/w). The results showed that yogurts enriched with APP had enhanced antioxidant activity due to their increased polyphenol content. The investigation of the texture showed that yogurts with APP had a thicker and creamier consistency. The sensory evaluation revealed that consumers found smaller concentrations (up to 1%) acceptable, whereas greater concentrations impacted their taste and texture preferences. The APP demonstrates potential as a natural ingredient in yogurt, providing nutritional advantages and improving functional characteristics while maintaining consumer acceptability at suitable levels.

14:45-15:00

THE USE OF GRAPE POMACE FOR DEVELOPING AN INNOVATIVE YOGHURT WITH ENHANCED ANTIOXIDANT PROPERTIES

Roxana Nicoleta Rațu, Florina Stoica, Florin Daniel Lipșa, Ionuț Dumitru Veleşcu, Ioana Crivei, Marius Giorgi Usturoi

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

The present paper explores the use of grape pomace, a by-product of the wine industry, as a functional ingredient for enriching yoghurt with the aim of increasing its nutritional value and antioxidant capacity. Through modern ultrasound-assisted extraction techniques, bioactive compounds were recovered from the grape pomace, resulting in a high content of polyphenols, flavonoids, and anthocyanins. The study evaluated the impact of adding grape pomace powder in 1%



and 2% proportions on the chemical, phytochemical, and sensory properties of the yoghurt. The chemical results showed an increase in fibre, protein, and dry matter content, while the phytochemical analysis revealed a significant rise in total anthocyanins, flavonoids, and polyphenols, along with greater antioxidant activity in the enriched yoghurts compared to the control yoghurt. Additionally, the sensory analysis demonstrated high acceptability for the yoghurt with 1% grape pomace powder, achieving a total score of 19.6, classifying it as "very good," while the 2% variant received a lower score. These findings highlight the potential of using grape pomace to create innovative dairy products with improved nutritional and functional benefits, thus contributing to the sustainable valorisation of an agro-industrial by-product.

15:00-15:15

INNOVATIVE BIOSENSOR TECHNOLOGY FOR REAL-TIME DETECTION OF PATHOGENIC BACTERIA IN FOOD SUPPLY CHAINS

**Ioana Cristina Crivei, Roxana Nicoleta Rațu, Ionuț Dumitru Veleşcu,
Florina Stoica, Florin Daniel Lipșa**

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

Microbiological foodborne diseases pose significant difficulties to public health and the food sector, involving prompt and precise detection techniques to avoid foodborne diseases and guarantee food safety. Traditional individual biosensing methods often have constraints regarding their sensitivity, specificity, and response time. Implementing biosensors has been recognized as an innovative method for quickly identifying foodborne diseases in food products. A biosensor is a system that combines a biological detection material with chemical or physical transducers to convert chemical, biological, or biochemical information into detectable electrically transmitted impulses. This review presents an examination of the benefits, difficulties, and future possibilities of multimodal biosensing for foodborne diseases, highlighting its revolutionary capacity for ensuring food safety and improving public health. Finally, the primary objective of this study is to make a valuable contribution to the advancement of novel approaches in addressing foodborne diseases and guaranteeing the authenticity of the food supply chain.

15:15-15:25

SIMULATION AND IMPORTANCE OF A TRACEABILITY SYSTEM IN DAIRY MICROPRODUCTION FOR ENSURING FOOD SAFETY AND QUALITY

**Ionuț–Dumitru Veleşcu, Ioana Crivei, Vlad Nicolae Arsenoia,
Florina Stoica, Roxana Nicoleta Rațu**

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

Traceability, which provides the ability to track each step of the production chain from raw materials to the finished product, is crucial for guaranteeing the quality and safety of food. In this study, we examine the importance of implementing an effective traceability system in the production of milk and by-products from the Milk Microproduction Workshop of Iasi University of Life Sciences. A system like this makes it possible to quickly identify the causes of non-compliance, reducing the risks involved in removing items from the market and safeguarding consumers' health. In addition, the article offers a realistic simulation of a traceability exercise that involves monitoring raw milk batches, processing them, and identifying each final product, including cheeses and yogurts. The results of the exercise show that a well-designed traceability system increases consumer confidence in the products obtained within the workshop, while guaranteeing compliance with existing laws. The



results emphasize how this system must be continuously modified to satisfy market demands and enhance the efficiency of the production and food safety procedures.

15:25-15:35

OPTIMISING THE NUTRITIONAL PROFILE OF BUTTER THROUGH ENRICHMENT WITH CACTUS POWDER: AN INNOVATIVE SOLUTION FOR THE FOOD INDUSTRY

Andreea Bianca Balint, Marius Giorgi Usturoi, Roxana Nicoleta Rațu, Florin Daniel Lipșa, Florina Stoica

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

In the context of growing concerns around health and nutrition, this research focuses on enhancing the nutritional profile of butter by incorporating cactus powder, an ingredient known for its high fibre and antioxidant content. The study compares the chemical, nutritional, and phytochemical composition of plain butter with butter enriched with cactus powder, assessing the impact of this addition on various physical and chemical properties. The results show that the enriched butter exhibits higher protein content (1.48%) and non-fat solids (4.34%), while the fat and moisture values remain similar to those of plain butter. Phytochemically, the addition of cactus powder led to a significant increase in carotenoids (81.43 $\mu\text{g/g}$ d.m.), flavonoids (1.16 mg EC/g d.m.), and polyphenols (1.91 mg GAE/g d.m.), thus improving the antioxidant potential of the final product, with a free radical inhibition capacity of 60.11%. These findings suggest that cactus powder-enriched butter could contribute to the diversification of healthy food products available on the market, offering a food item with enhanced nutritional value and functional benefits.

COFFEE BREAK

15³⁵ – 15⁵⁰

POSTER SESSION

15:50 – 18:00

LISTERIA MONOCYTOGENES IN DAIRY PRODUCTS - OCCURRENCE, MONITORING, AND SURVEILLANCE. A MINI-REVIEW

Cristina Ștefania Afloarei, Amelia Buculei, Anuța Chetrariu, Adriana Dabija

“Stefan cel Mare” University of Suceava, Romania

During every step of food preparation, there is a risk of cross-contamination with foodborne microorganisms. Because *Listeria monocytogenes* can tolerate a wide range of temperatures and pH levels and may even flourish at high salt concentrations, it poses significant and persistent challenges to the food sector. These elements significantly affect the ultimate risk to customers as well. Although the bacteria is commonly found in the environment and is routinely isolated in food, *Listeria* is incredibly rare in the general population. There is a significant increase in the prevalence of systemic listeriosis among vulnerable groups, such as the elderly, pregnant women, and people with weakened immune systems. The most significant species in the *Listeria* genus for food purposes is *Listeria monocytogenes*, owing to its capacity for proliferation. It can also adapt to an environment that is changing all the time. Thanks to recent advancements in detection technologies, more outbreaks with



fewer cases each epidemic have been found. To track and validate the efficacy of control measures, an effective environmental monitoring program is necessary. Some of the elements of a strong, scientifically grounded environmental monitoring program include establishing procedures for sampling and detection, choosing when and how frequently to sample, identifying sampling zones, and putting corrective actions in place. The goal of this study is to examine the specialist literature on the management, surveillance, and prevalence of the *Listeria monocytogenes* species in dairy products.

WINE LEES – CHARACTERISTICS AND POTENTIAL OF VALORISATION

**Chetrariu, A., Avrămia, I., Dabija, D., Caisin, L., Malenchi, D., Agapii, V.,
Pavlicenco, N., Dabija, A.**

*"Stefan cel Mare" University of Suceava, Romania
Technical University of Moldova, Rep. of Moldova*

The circular economy's primary goals are reducing and recycling food waste, which are still problems in the agro-industrial sector. Waste reduction is one of the potential strategies that can be used to increase the sustainability of food production. Animals have the ability to convert indigestible by-products and forages into food that humans may consume. So the best method to transform these wastes into useful products that also reduce environmental issues is to feed nutritious by-products to animals. One of the guiding principles of the circular economy and one of the most significant challenges in food engineering, with implications for the strategic fields of bioeconomy, health, and environment, is the identification and establishment of new directions for utilizing the nutritional and functional potential of yeasts produced as a by-product from the wine industry. This paper proposes a review of the specialized literature regarding the valorisation of residual yeast from the wine industries, in the context of the circular economy and the promotion of "green technologies", in order to obtain feed with high nutritional value and antioxidant potential, beneficial in the animal nutrition process. Supplementation of non-conventional feedstuffs in animal diets is now widely used to serve as growth and health promoter and helps to improve the production performance of animal without any harmful side effects.

ACKNOWLEDGMENTS: This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, project number PN-IV-P8-8.3-ROMD-2023-0121, within PNCDI IV.

SEED PROTEIN AND LIPIDS CONTENT IN SEVERAL INDUSTRIAL HEMP GENOTYPES

**Ciprian Buzna, Marinel Nicolae Horablaga,
Anca Panda, Luana Sabo, Camelia Urda, Florin Sala**
Agricultural Research and Development Station Lovrin, Romania

Hemp (*Cannabis sativa* L.) is a crop plant with multiple uses, for the production of fibers, seeds and bioactive compounds. This study evaluated the protein (PRO, %) and lipid (LIP, %) content of six industrial hemp genotypes. The experiments were carried out under the specific conditions of ARDS Lovrin. The protein content (PRO, %) varied between 20.43 – 22.18±0.12%, and the lipid content (LIP, %) varied between 24.08 – 29.97±0.45%. The ANOVA test confirmed the reliability of the experimental data ($p < 0.001$). The comparative analysis highlighted differences between genotypes regarding the protein content, under statistical safety conditions ($p < 0.01$, **, in four cases; $p < 0.001$, ***, in three cases). In the case of lipid content, differences were recorded between



genotypes ($p < 0.001$, ***), with four exceptions ($p > 0.05$, *). In the case of protein content (PRO), compared to the mean at the level of the experiment (PRO_m = 21.04%), the FHG1 genotype showed an increase (Δ PRO), Δ PRO = 0.43%; $p = 0.0027$, **) and the FHG5 genotype showed an increase, Δ PRO = 0.84%; $p < 0.001$, ***). In the case of the lipid content (LIP), compared to the mean value at the experiment level (LIP_m = 27.82%), the FHG1 genotype (Δ LIP = 1.83%; $p < 0.001$, ***), the FHG2 genotype (Δ LIP = 1.26) showed higher values %; $p = 0.012$, *), and respectively the FHG6 genotype (Δ LIP = 1.48%; $p = 0.0044$, **). Based on the PRO and LIP indices, the multivariate analysis generated the PCA diagram, in which PC1 explained 58.158% of variance, and PC2 explained 41.842% of variance.

A MULTIVARIATE STATISTICAL ANALYSIS OF THE PHYSICAL-CHEMICAL CHARACTERISTICS OF BREAD AND DIFFERENT TRITICALE FLOURS VARIETIES CULTIVATED IN REPUBLIC OF MOLDOVA

Codină Georgiana Gabriela, Ursachi Florin, Atudorei Denisa, Paiu Sergiu, Rumeus Iurie, Ghendov-Mosanu Aliona
“Stefan cel Mare” University, Romania
Technical University of Moldova, Rep. of Moldova
Cahul State University “Bogdan Petriceicu Hasdeu”, Rep. of Moldova

Different triticale flours varieties cultivated in Republic of Moldova were evaluated through their physical-chemical characteristics. The physical-chemical data analyzed were moisture, protein, wet gluten, fat, ash, carbohydrates, flour acidity, falling number, test weight, color parameters L*, a* and b*. Bread quality characteristics analyzed were specific volume, porosity and acidity. Principal component analysis was used in order to analyze the correlation between the physical-chemical characteristics of triticale flours samples and bread quality parameters. According to the data obtained it has been found a significant negative high correlations ($p < 0.05$) between protein and carbohydrates ($r = -0.96$), test weight and ash ($r = -0.76$). Also the variables ash, lipid, acidity were inverse correlated. Regarding triticale variety correlations with their analyzed characteristics, it seems that the varieties Ingen 93 and Ingen 35, Costel and Ingen 35, Fanica and Ingen 54 are more related to each other. From the bread quality parameters loaf volume and porosity were close associated. Also a positive correlation has been obtained between these parameters and chemical flour characteristic protein and wet gluten content. These data are of a significant importance values for industry producers in order to choose the triticale variety depending on what they want to obtain. Funding: This work was supported by a grant from the Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, project number PN-IV-P8-8.3-ROMD-2023-0078, within PNCDI IV.

ASSESSMENT OF THE QUALITY OF RED WINES FROM A PROFILE UNIT IN VRANCEA COUNTY

Ghimpețeanu Oana-Mărgărita, Borda Cristin, Gheorghe Irimia Raluca Aniela, Petcu Carmen Daniela, Mihai Oana Diana, Tăpăloagă Dana, Murariu Otilia Cristina
USAMV Bucharest, Romania,
USAMV Cluj Napoca, Romania,
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

In the last years, the consumption of red wines has increased due to the diversity of natural climatic conditions, assortments, preparation technology and taste which determined the existence of a very large range of wines, with different chemical composition. In the context of high consumption



of different types of red wines and given the consumer demand regarding food safety, the purpose of this study was represented by the quality control of these products using physicochemical methods and a comparison with the legislative requirements. Twenty samples of red wine (4 samples for each type –Merlot, Cabernet Sauvignon, Black Fetească) were submitted to analyze regarding the alcoholic concentration, total acidity, total sulphury dioxide and residual sugar. For the determinations were used classical methods of investigations. The results ranged from 12,9 to 13,8 % vol for alcoholic concentration, 5,10 to 5,62g tartaric acid/l for total acidity, 133 to 164 mg/l for total sulphury dioxide and 20 to 21,7 g/l for residual sugar. All red wine assortments respected the product specifications imposed by the legislation and producer. In conclusion, it can be said that the products obtained within the studied unit meet the quality requirements imposed by the legislation and the consumption of these products does not represent any risk for consumers' health.

RESEARCH ON THE QUALITY CHARACTERIZATION OF INNOVATIVE BAKERY PRODUCTS OBTAINED USING NATURAL SOURDOUGH DERIVED FROM GRAPE MUST

Otilia Cristina Murariu , Georgiana Iuliana Venin, Nicoleta Diaconu, Petru Marian Cârlescu, Florin Daniel Lipșa, Gianluca Caruso

*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
University of Neaples Federico II, Italy*

Aiming to be successful with an innovative idea or approach to turn a baking product into use, it is essential to identify its overall characteristics and the way to get an added value from the final product addressed to consumers. Notably, the quality, antioxidant and organoleptic (particularly the taste) properties must be analyzed as they give additional benefits to the bread making products. The experimental protocol was based on the factorial combination between three different types of must used for natural sourdough production (Fetească regală, Fetească neagră and Cabernet), plus an untreated control, applied at three concentrations (200, 300, and 500, plus an untreated control). The effects of the experimental treatments were assessed in terms of texture, porosity and acidity of bread, in relation to the characteristics targeted in accordance with the use requirements. This study demonstrated the potential of the chosen ingredients on the organoleptic and nutritional value of the produced bread, which have a significant commercial and health impact on this type of products, concurrently valorising the grape must.

QUALITY ASSESSMENT OF SOME ASSORTMENTS OF CHICKEN BREAST PASTRAMI

Gabriela Frunză, Otilia Cristina Murariu, Paul Corneliu Boișteanu

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The purpose of this paper was the comparative assessment of the quality of some assortments of chicken breast pastrami sold in Romania. Two batches from five manufacturer of chicken breast pastrami were taken in the study: Marcel, Aldis, Caroli, Jumbo, Prodprosper, coded from A to E. Sensory (five-point scale method) and physico-chemical properties were analyzed. Were determined the pH of the products, the content of mineral substances (by calcination at 550 °C), the content of water, lipids, proteins, collagen and salt (with the Food-Check infrared spectrophotometer). The results showed significant differences between products in terms of fat content (between 0.9% and



5.5%), the variability was lower for proteins (between 21.1% and 21.9%) and water content (between 72.9% and 76,1%). The salt content had the highest value of 4.03%, exceeding the maximum standard limit, only in the case of C product. The pH value varied between 5.49 for E product, and 6.28 for B product. The results of the sensory analysis revealed a minimum score for product E (12.58 points/ "satisfactory product" according to quality standards), compared to product D which obtained the best score among all the analyzed assortments (18.06 points/ " very good product ").

RESEARCH ON THE TECHNOLOGY OF OBTAINING PRODUCTS WITH HETEROGENEOUS STRUCTURE: A COMPARATIVE STUDY

Gucianu Ioana, Anchidin Bianca-Georgiana, Ciobotaru Cătălin-Mihai, Flocea Elena-Iuliana, Manoliu Diana-Remina, Ciobanu Marius-Mihai, Boișteanu Paul-Corneliu

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

Innovative approaches in food technology focus on optimizing and maintaining food quality to meet consumer preferences, needs, and requirements. At the same time, they aim to reduce the environmental impacts associated with transforming agro-resources into food products. This is achieved by implementing efficient processing systems that consume minimal amounts of energy and water and through co-product valorization. These principles are applicable throughout the food processing chain. The present study provides a comparative analysis of technologies for the production of a heterogeneous structure cooked smoked pork product. Two processing methods were applied: a classical method and a current method. In the analysis, technological losses, the gross chemical composition of the product as well as sensory aspects evaluated by a panel of experts were monitored. The analyzed data concluded that the protein value between the two samples does not present significant values (Italian salami - classic method has a protein content value of 20.4% and Italian salami - current method has a protein content value of 20.2%). Lower losses of raw material were found in the technological flow obtained by the current method, but at the same time, the batches obtained by the classic method obtained an average score of 6.1 points out of the 8 points achieved in the applied method.

IMPACT OF INTENSIVE AND EXTENSIVE REARING SYSTEM ON POST-SLAUGHTER LOSSES IN RABBIT MEAT

Ciobanu Marius-Mihai, Ciobotaru Cătălin-Mihai, Manoliu Diana-Remina, Anchidin Bianca-Georgiana, Guceanu Ioana, Flocea Elena-Iuliana, Munteanu Mugurel, Boișteanu Paul-Corneliu

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

This study investigates the impact of intensive and extensive breeding systems on post-slaughter losses in rabbit meat. Two rabbit carcasses were analyzed, one from an intensive growth system, sourced from a local producer and stored under refrigeration for 24 hours before the study began, and the other from an extensive system, obtained according to Romania's National Hunting and Wildlife Protection Legislation (Law no. 407/2006) during the 2023-2024 winter hunting season in hunting ground no. 52, Mironeasa, Iași, Romania. The intensive system carcass followed ISO quality standards as outlined by the Meat Microproduction Department (IULS Iași), while the extensive system carcass was harvested as part of a population control measure. Samples from both carcasses were collected within 24 hours post-mortem, sex and age were recorded, and samples were sealed in sterile bags. They were transported to the laboratory in refrigerated conditions (0-5°C) in



accordance with Regulation (EC) no. 853/2004. The research offers a comparative analysis of the post-slaughter losses between the two systems and highlights the differences in handling and processing outcomes based on the growth method. The findings provide valuable data for improving meat quality and minimizing losses in rabbit meat production.

**VALORISATION OF WHEY FROM CHEESE PROCESSING:
DEVELOPMENT OF AN ENHANCED PRODUCT USING
DAIRSAL+ SOLUTION**

Sandu Talpă, Roxana Nicoleta Rațu, Marius Giorgi Usturoi
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Whey, a valuable by-product of the dairy industry, holds significant potential for developing new products, thus contributing to waste reduction and improving economic efficiency. This research focuses on the valorisation of whey from cheese processing by producing whey cheese, comparing two batches: a control batch (RC) made exclusively from whey, and an experimental batch (RCD+), where 250 ml of DAIRSAL+ solution was added. The cheese from the experimental batch was found to be creamier, sweeter, and had a softer texture compared to the control batch. These sensory improvements suggest that the addition of DAIRSAL+ not only optimises the product's texture and taste but also enhances its market appeal in the functional food sector. The study highlights the potential of using functional additives to transform dairy by-products into innovative foods with improved properties, contributing to a sustainable model in the food industry.



FRIDAY, OCTOBER 25th, 2024

WORKSHOP SESSION

Chairperson: Prof. Florin LIPȘA, PhD
Assoc. Prof. Iulian GABUR, PhD

9:00-10:45

EFFECTIVE SCIENTIFIC WRITING

Speaker: Prof. dr. Rod SNOWDON, Justus Liebig University, Giessen, Germany

FUNDING A POSTDOC

Speakear: Assoc. Prof. Tom VANWALLEGHRM, University of Cordoba, Spain

NEW BREEDING TECHNOLOGIES

Speaker: Dr. Andrei Marutescu, Vice-President of the Seed Industry Association of România

11:00-11:45

PLANT TOLERANCE TO SOIL SALINITY IN THE CONCEPT OF THE IASI SCHOOL OF SOIL SCIENCES

Speaker: Assoc. Prof. Feodor Filipov, Iasi University of Life Sciences, România
T.B.A

11:45 - 12:00

COFFEE BREAK

12:00 – 16:00

POSTER SESSION (SECOND PART)



IASI UNIVERSITY
of LIFE SCIENCES
1842

**LIFE SCIENCES TODAY
FOR TOMORROW**
24-25 October 2024



THE ART OF NATURE - HORTICULTURE



THURSDAY, OCTOBER 24th, 2024

**FIRST SECTION
FUNDAMENTAL SCIENCES, ENVIRONMENTAL ENGINEERING AND
AGRICULTURAL BIOTECHNOLOGIES**

→ A235, third floor of the main building

PLENARY SESSION

**Chairpersons: Assoc. prof. Camelia Elena LUCHIAN, PhD
Assoc. prof. Raluca Maria HLIHOR, PhD
Lecturer Ilie BODALE, PhD**

**Secretariat: Assistant Diana GABUR, PhD
Assistant Ina TURCANU, PhD**

14:00-14:10

**BIOPLASTIC CONTENT IN BIOWASTE: A GROWING PROBLEM IN
COMPOSTING EFFICIENCY AND QUALITY**

Bini Maria Elena, Bonoli Alessandra
University of Bologna, Italy

The increase in fossil fuel-based plastic use, its subsequential refuse production and dispersion in the environment, causes long-lasting waste, quickly piling up. Compostable bio-based plastics, polymeric compounds that are functionally like fossil fuel-based plastics, seem instead to be more environmentally sustainable, and particularly useful and recommended in food packaging. Even with bioplastic's lower impacts, there is still a need for effective end-of-life management strategies to promote more efficient treatment of bioplastic waste. One such treatment, unique to biodegradable bioplastics, is composting.

As bioplastics are processed like any other organic waste, this prompts a closer study of how efficient this process is in degrading bioplastics, or if their presence can persist even in high-quality compost or even food cultivated. This paper focuses on the analysis of organic waste treatment and compost production to assess the efficiency of bioplastics degradation, aiming at developing and proving a method for the detection and statistical analysis of bioplastic content in compost.

Analysing waste flow data from some Italian composting plants, along with mass characterization and product type evaluations, highlighted a high bioplastic reduction rate, with a small variance for different kinds of bioplastic, stressing the importance of investing in collection strategies to valorize this kind of waste.



14:10-14:20

CRITERIAL ANALYSIS OF BIOCHAR PRODUCTION EQUIPMENT AND DETERMINATION OF THE OPTIMUM SOLUTION FOR A NEW TYPE OF INSTALLATION

**Olan Mihai, Voicea Iulian, Vladut Valentin,
Alexandru Zaica, Vladuțoiu Laurențiu**

*National Institute of Research-Development for Machines and Installations
Designed for Agriculture and Food Industry-INMA Bucharest, Romania*

The main objective of this study is the analysis of representative technical solutions described in invention patents, as well as the study of existing equipment in this field, for the development of an eco-innovative system for biochar production from plant waste under laboratory conditions (The Generalized Object Method of Technical Creation, Vitalie Belousov). Biochar is produced from biomass by burning it in the absence of oxygen or at low oxygen levels. Once in the soil, it activates its properties, such as carbon sequestration and water retention in the ground. The study utilized a technical creativity method through the criterial analysis of existing technical solutions and the development of a cylindrical matrix, which will determine the discovery of a new constructive-functional version that will be further developed through design and research activities. The research carried out has led to an original, patentable solution, which will be developed by designing and executing a prototype based on a research contract.

14:20-14:30

THE QUALITY ASSURANCE OF DENSIFIED SOLID BIOFUELS PRODUCED FROM VINEYARD RESIDUES IN THE REPUBLIC OF MOLDOVA: A CASE STUDY FOR THE "CABERNET" AND "MOLDOVA" VARIETIES

**Marian Grigore, Nazar Boris, Guđima Andrei, Alexiou Ivanova Tatiana,
Marian Teodor, Pavlenco Andrei, Banari Alexandru, Malai Leonid**

*Technical University of Moldova, Chișinău, Rep. of Moldova;
Czech University of Life Sciences Prague, Prague - Suchdol, Czech Republic
CC „BASADORO AGROTEH” LLC*

In the context of efficiently utilizing available biomass resources, this study explores the possibility of ensuring the quality of pellets produced from biomass derived from vineyard residues, through a case study on the most widespread grape varieties in the Republic of Moldova – "Cabernet" and "Moldova." The aim of the study is to validate the proposed hypothesis, which focuses on the feasibility of obtaining densified solid biofuels from biomass resulting from vineyard care, in all aspects covered by the ENplus certification system. The adopted methodology includes both statistical analyses based on data from the specialized literature and experimental investigations carried out in the Scientific Laboratory of Solid Biofuels at the Technical University of Moldova. The results indicate the feasibility of using vineyard residues for biofuel production, while adhering to ENplus quality standards. Additionally, the study highlights the need for implementing specific technological procedures to maximize yield and minimize losses throughout the entire production process. The conclusions emphasize the multiple benefits of utilizing vineyard residues, both from an economic and ecological perspective, contributing to the sustainable development of the viticulture industry and environmental protection.



14:30-14:40

USE OF MAGNETICALLY POLARIZED WATER IN HORTICULTURAL RESEARCH

Luca Mihail, Chelariu Elena Liliana

*"Gheorghe Asachi" Technical University of Iași, Romania
"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania*

Water is a main constituent of living environments, and an artificial magnetic field acts on it with different values compared to the natural one. The research carried out looked at the influence of magnetic treatment on the density and electroconductivity of water, the speed of crystallization of salts, on the stimulation of seed germination and vegetative growth of plants, therapeutic downpours and others. In general, water is a polyphasic system, i.e. a system consisting of water in combination with dissolved and dispersed substances. Magnetically polarized water can be obtained by using installations that use an energy source. Several mobile water distribution devices equipped with ferrite permanent magnets have been made for trickle irrigation. When creating these devices, the aim was to exploit the field areas with maximum intensity, in order to obtain a maximum yield of the treatment. The mobile distribution devices can be located at any point of the hydraulic system and can diversify their functions. The research carried out revealed the affinity of plants to magnetically polarized water. A number of effective results have been obtained in the germination of seeds in some tree species such as cherry and sour cherry, as well as conifers. Achievements in this field can positively influence research in the horticultural field by approaching new viable directions in the future.

14:40-14:50

CONSIDERATIONS REGARDING THE CROSS-BORDER POLLUTION PHENOMENON

Luca Mihail, Romanescu Ionuț Petronel

"Gheorghe Asachi" Technical University of Iași, Romania

The extraction of natural substances from underground or surface presents an important risk of environmental pollution. The interference between natural and anthropogenic risk factors can trigger the initiation and development of negative phenomena, which can turn into local and regional ecological disasters. In the case of a fast transport factor such as water and wind, pollution can also be transboundary. One such example was the ecological disaster produced in the sodium chloride mining area in Ocnele Mari, Valcea county. The exploitation of salt is carried out with extraction columns using water as a solvent, which finally fills the caverns formed in the rock massif. In the period 2001-2008, the roof of several caverns collapsed, and the brine spilled over the agricultural land, towns, roads, etc. The flows of salty water with initial values of 3.0 – 4.0 m³/s produced during the damage in 2004 were taken over by the Sarat Stream, then by the Olt river and reached the Danube River. The initial concentration of the brine had values of 30,000 mg/l - 250,000 mg/l. The flow rates decreased over time to 0.15...0.20 m³/s, and the brine concentration to 225.0...250.0 g/l. The brine wave polluted the Olt river, the downstream accumulations (mainly Govora) and finally the Danube river for a period of time.



14:50-15:00

SUPERMARKET VS. FARMERS MARKET: A COMPARATIVE ANALYSIS

Trofin Alina, Ungureanu Elena, Trincă Lucia Carmen, Eperjessy Diana Beatrice

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Saint Mary Emergency Children Hospital Iași, Romania

Vegetable products are part of a balanced diet regardless of the consumer's age. Their diversity and the options offered for marketing multiply the factors considered when purchasing them. Through the present study we analyzed three vegetable products widely distributed and consumed by all population groups (potatoes, tomatoes and spinach). Supermarket products and similar products from a farmers market were selected, and the indicators analyzed were pH, acidity and the content of nitrite, phosphate, iron and copper ions. Differences were observed between the two categories of products, in the sense that those purchased from the farmers market had a higher content of dry matter, but also high values for the analyzed ions, which denotes the application of fertilization and foliar treatments to increase production. The highest values, compared to data from the literature, of the phosphate content were recorded in farmers market potatoes (20.62 mg P/100 g), for nitrite, in farmers market spinach (7.23 mg/100 g), and as for iron and copper ions, all products exceeded the values provided in the literature.

15:00-15:10

INFLUENCE OF CARVACROL ON THE STABILITY OF SUNFLOWER OIL

Trincă Lucia Carmen, Cristina Elena Scutărășu, Andreea Paula Cozma,

Alina Trofin, Andra Sabina Neculai-Văleanu, Adina Mirela Ariton

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

SCDB Dancu, Iași, Romania

Carvacrol (2-Methyl-5-(propane-2-yl)benzenol) is a phenolic monocyclic terpenoid present in significant proportions in the essential oils extracted from the family of Lamiaceae plants, possessing functional antimicrobial, immunomodulatory, and antioxidant potential properties. This work aimed to perform carvacrol's extraction, identification, and dosage by using the aerial parts of *Origanum vulgare* L (oregano), a common spice in everyday diet, to study the influence of carvacrol on the stability of sunflower oil.

The experimental results highlighted that adding carvacrol ensured better maintenance of the sensory and physico-chemical characteristics of the sunflower oil samples stored for 28 days. Thus, the sunflower oil samples with added carvacrol presented lower peroxide and p-anisidine index values and higher chlorophyll and carotenoid contents while the sunflower oil samples stored at 45 °C and exposed to artificial light presented the biggest peroxide and anisidine index values. The main mechanism of action involved inhibiting the lipid oxidation process thus recommending carvacrol as a natural antioxidant candidate, capable of substituting the synthetic antioxidant additives that are nowadays questioned for their side effects on the safety of human health.



15:10-15:20

**ENHANCING THE GERMINATION AND GROWTH OF TOMATO
(LYCOPERSICON ESCULENTUM MILL.) UNDER SALT STRESS THROUGH
SEED PRIMING**

Roșca Mihaela, Ruocco Michelina, Monti Maurilia, Stoleru Vasile

“Ion Ionescu de la Brad” University of Life Sciences, Iași, Romania

Institute for Sustainable Plant Protection (IPSP), National Research Council of Italy (CNR), Portici, Italy

Seed priming is a cost-effective method to improve crop germination, growth, and yield while also increasing stress tolerance to various biotic and abiotic factors. The study aimed to investigate the effects of seeds priming with chitosan, silicic acid, water extracts from laurel leaves and tomato bagasse on the germination of San Marzano nano tomato seeds in vitro and soil (rhizoboxes) under the influence of sodium chloride (NaCl). The action of seed priming agents on tomatoes grown under the influence of NaCl was assessed by quantification of seed germination rate, aspects of seed germination in pre-defined categories such as normal seedlings, abnormal seedlings and dead seeds, as well as by biometric measurements (length of radicles and hypocotyls, determination of water and dry matter contents). For experiments in soil, the content of chlorophyll pigments and carotenoids in plant leaves was also determined. The seeds underwent priming by immersion in three distinct doses of each priming agent for 24 hours. In vitro, the experiments showed that seeds treated with 3 mM silicic acid and 0.005 g/mL laurel leaf extract had the highest germination rates. The germination rates were 73.33% and 76.67% without salt stress and 56.67% under 25 mM NaCl. The longest lengths of radicles and hypocotyls were recorded for seeds primed with 3 mM silicic acid, indicating its beneficial effect on initial seedling development. Tomato extract also positively influenced seedling growth, particularly under salt stress conditions. The experiments conducted in soil showed that priming tomato seeds with laurel leaves and tomato extracts resulted in faster germination, particularly under salt-stress conditions. Additionally, these extracts had a slightly positive impact on leaf pigment content, indicating enhanced photosynthesis.

Funding: This work was supported by the Romanian Ministry of Education, through the Credits and Scholarships Agency.

15:20-15:30

**THE STUDY OF CLASSICAL AND MODERN STATISTICAL METHODS
IN THE LIFE SCIENCES**

Sonea Pătrașcu Andromeda, Chiruță Ciprian

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

In general, the study of characteristics with the help of an experiment involves the analysis of numerous data obtained by measurement at different stages of that experiment. This analysis can be quite complicated, and statistics are an excellent tool to answer many research questions clearly and concisely. Classical statistical methods are well known, such as linear regression, multilinear regression, parametric statistical tests of the Student type, Fischer or the ANOVA test, and so on, which gives us much information about the analyzed data. However, there are situations where the multitude of measured data will make statistical tests difficult to apply. Modern fuzzy algorithms are used to complete the conclusions obtained by classical statistics. They can give "high," "medium," and "low" answers, or numerical answers that establish a ranking. Classical and modern statistics



provide a clearer picture of the experiment's results. In this paper, we illustrate some examples of the use of statistical techniques to understand the mentioned methods better.

15:30-15:40

AN UNPRECEDENTED SYNTHETIC ROUTE FOR QUINOLINE DERIVATIVES

Ciurlă Liliana, Belei Dalila, Bîcu Elena, Ghineț Alina

"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania

"Al. I. Cuza" University, Iași, Romania

Heterocyclic compounds represent by far the largest class of compounds in organic chemistry and are of immense biological and industrial importance. In particular, 1,3,5-triazine (or s-triazine) is the hexatomic aromatic ring containing three nitrogen atoms, representing the building block of a well-known family of compounds with a wide range of applications, including agrochemistry. The starting point of the current study derives from research focused on the synthesis of new s-triazine derivatives with different applications. 2-Ethynyl-4,6-dimethoxy-1,3,5-triazine represents a key precursor of our synthesis, which has been successfully used as dipolarophile in cycloaddition reactions, obtaining new triazole, indolizine, or isoxazole derivatives. The study of the reactivity of this compound towards different types of amines led to new quinoline derivatives, in addition to the expected enamines. In order to establish the reaction mechanism of this synthetic pathway for the quinoline nucleus, without precedent in the literature, various investigations and spectral analyzes were carried out.

15:40-15:50

FREEZE-DRYING MICROENCAPSULATION OF RIBES NIGRUM FRUIT ANTHOCYANIN'S IN COMPLEX POLYMERIC MATRICES - AN EFFICIENT METHOD FOR CONTROLLED RELEASE OF BIOACTIVE COMPOUNDS

Enache Iuliana – Maria, Ciurlă Lucescu Liliana, Călin Buțerchi Ioana,

Irimia Liviu Mihai, Patraș Antoanela, Vizireanu Camelia

"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania

"Dunărea de Jos" University, Galați, Romania

Black currant (*Ribes nigrum*) is an important source of biologically active compounds such as anthocyanins, carotenoids, flavonoids, phenolic acids, as well as vitamins (e.g. vitamin C).

To the best of our knowledge, the anthocyanins are sensitive compounds to extrinsic factors (e.g. pH, temperature, light, oxygen). Meanwhile, the beneficial effect of anthocyanins correlated with their successful application in different formulae depends on stability and bioavailability.

The main aim of this study was to protect the black currant anthocyanins by freeze-drying microencapsulation. For this reason, *R. nigrum* extract (as raw material) was mixed with whey protein isolate, chitosan, inulin and *Lactobacillus casei* (as wall materials). The data obtained in this study shown that during in vitro digestion approximately 94% of anthocyanins were liberated after 120 minutes of intestinal digestion.



15:50-16:00

**UNCONVENTIONAL BIOMATERIALS USED TO REMOVE METAL IONS
FROM POLLUTED AQUATIC ECOSYSTEMS**

**Enache Iuliana – Maria, Ciurlă Lucescu Liliana,
Călin Buțerchi Ioana, Irimia Liviu Mihai, Patraș Antoanela**
“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The natural equilibrium of the entire ecosystem is upset by heavy metal contamination of the air, water, and soil (As, Cd, Cu, Ni, Pb, etc.). Furthermore, heavy metals are not biodegradable and exhibit increased flexibility, resilience, and high accumulating capability.

Heavy metals are absorbed by plants through their root systems along with water and nutrients from the soil, which has a detrimental effect on all members of the food chain, including people. The presence of metal ions in wastewater has the greatest impact on hydrobionts in aquatic habitats.

This main aim of this study was to demonstrate how well plant sources or their byproducts function as biosorbents to remove heavy metals from an aquatic ecosystem that has been purposefully contaminated with cadmium, nickel, and lead metal ions.

**POSTER SECTION
FUNDAMENTAL SCIENCES**

→ A235, third floor of the main building

16:00-16:05

**CHANGES IN NUTRIENT STATUS OF SOYBEAN IN RELATION TO
BRADYRHIZOBIUM JAPONICUM AND SALICYLIC ACID APPLICATION
UNDER LOW PHOSPHORUS AND LOW WATER SUPPLY**

Rotaru Vladimir

Institute of Genetics, Physiology and Plant Protection, Moldova State University

Phosphorus (P) deficiency of soil and drought are major environmental constraints, which alter key physiological constituents and functions in plants. The study was carried out to determine the influence of rhizobacteria *Bradyrhizobium japonicum* and salicylic acid (SA) on particularities of soybean mineral nutrition under low P supply and drought conditions. Plants were treated with two regimes of irrigation water: normal soil moisture, 70% of water holding soil capacity (WHC) and 35% of WHC as drought. The bacterial suspension of *Bradyrhizobium japonicum* was applied as seeds treatment and SA by foliage treatment (0,5mM). Plants cultivated under P insufficiency and drought exhibited lower physiological parameters. Experimental data demonstrated that integrated application of nitrogen-fixer bacteria and SA better improved phosphorus and potassium contents in leaves.



16:05-16:10

**DYNAMICS OF SOME PHYSIOLOGICAL PARAMETERS IN SILPHIUM
PERFOLIATUM L. IN PEDO-CLIMATIC CONDITIONS FROM WESTERN
ROMANIA**

**Jușor (Boldea) Noemi, Șumălan Renata-Maria,
Beinșan Carmen, Șumălan Radu-Liviu**

Life Sciences University "King Mihai I st" Timișoara, Romania

Silphium perfoliatum L., or cup plant (Asterales: Asteraceae), is a native, herbaceous, prairie species cultivated to produce biomass, food, medicines, and animal feed in many countries. Its native range is the eastern United States (USA) from North Dakota to Arkansas and eastward, and Ontario and Quebec in Canada. Due to its high ecological plasticity, its ability to improve ecosystems (remediating degraded or polluted soils) and its multiple fields of use (energy biomass, industrial raw material, animal feed, etc.) the species has generated a special interest in cultivation in the last two decades.

The research objectives consisted in the dynamic evaluation, for a period of five years of the bio productive capacity in correlation with the soil and climatic conditions specific for the western part of the country and to determine the impact of these conditions on the main physiological indices underlying the formation of biomass.

The obtained results attest to the ability of *S. perfoliatum* plants to easily adapt to the conditions determined by drought and heat, managing to achieve high and stable biomass productions by forming a high leaf area and the biosynthesis of assimilating pigments in the foliar apparatus.

16:10-16:15

**THE GO GREEN PROJECT: A NEW INITIATIVE TO SUPPORT SCHOOLS'
MISSION ON ENVIRONMENTAL ISSUES**

Colibaba Lucia Cintia, Gheorghiu Irina, Ailincăi Andreea Alina, Pascal Gabriela

"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania

Albert Ludwigs University, Freiburg, Germany

EuroEd Foundation, Iași, Romania

EuroEd High School, Iași, Romania

The article is study of the Transdisciplinary Approaches to Teaching Environmental Sustainability (Go Green) project, funded by the Erasmus+ Programme, Cooperation partnerships in education, developed by educational institutions from Italy, Ireland, Spain, and Romania. Its goal is to foster collaboration among schools to create innovative theoretical and methodological frameworks and practical models to address environmental issues. The paper gives insights into the project's main output, the e-learning course, based on thorough research on teachers' specific needs. The research findings facilitated the development of materials meant to empower teachers to incorporate environmental and sustainable development-related subjects into the curriculum to motivate students to become active members of society and participate in local environmental issues. Additionally, the article analyzes teachers' comments on the e-learning course.



16:15-16:20

ALTERATION OF METABOLISM IN THE PROCESS OF CANCER CELL PROLIFERATION

**Cozma Andreea Paula, Dascălu Anca Mihaela, Popovici Ivona, Morosan Șerban,
Trincă Lucia Carmen**

*"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania
Sorbonne Univ, INSERM, Paris, France*

According to the World Health Organization (WHO), cancer is the second leading cause of death worldwide, responsible for 20 million new cases and about 10 million deaths annually. The disease may start in almost any organ or tissue of the body and represents aetiological and pathological disorders of the mechanisms that control cell division, differentiation and metabolism. Normal cells have complex signalling networks coordinated by key controlling enzymes. During cell proliferation, in response to incoming signals, metabolic pathways are activated to adapt to the increased consumption of adenosine triphosphate (ATP). Mutations in cancer and tumour suppressor genes may alter several intracellular signalling pathways which in turn will modify the cellular metabolism to facilitate the oncogenic process. The new adjusted signalling pathways not only will allow tissues to adapt to tumour cell metabolism, but several of these metabolic changes are also essential for malignant transformation.

The aim of the paper is to present the metabolic changes characteristic of the oncogenic process so that the energy required for cancer cell growth and survival is provided.

16:20-16:25

BIOISOSTERS IMPACT ON WINE CONDITIONING

Tucaliuc Roxana Angela, Buțerchi Ioana, Marius Niculaua

*"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania
Oenological Research Center - Romanian Academy, Iași, Romania*

Bioisosters are compounds with different substituents and with similar biological, physical or chemical properties. Pyridazine derivatives bioisosters are compounds with an intense biological activity, being used as anticancer, antituberculosis, antihypertensive, antifungal or antimicrobial agents. Several studies have tested the effect of some cyclic compounds with nitrogen in wine conditioning because stabilisation treatments against metal case are frequent operations used in winemaking production. The present paper aims to improve the oenological products array used in wine conditioning, using pyridazine derivatives bioisosters, capable to expel the excess of metals, by complexing reactions. The impact of the tested compounds was studied on wines obtained from Fetească regală grape variety. The analysis method used was atomic absorption spectrometry. Also, the evolution of main physical-chemical parameters of wine were analysed.



16:25-16:30

**ENVIRONMENTAL, ECONOMIC AND SOCIAL PERFORMANCE
ASSESSMENT FOR A TOURIST DESTINATION IN GREECE**

**Țăbuleac Raluca-Maria, Ungureanu Comăniță Elena Diana,
Simion Isabela Maria, Gavrilesu Maria**

"Gheorghe Asachi" Technical University of Iași, Romania

"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania

Academy of Romanian Scientists, Bucharest, Romania

The tourism is one of Greece's major economic sectors, with a considerable impact on the national economic performance, regional development and the well-being of local communities. Nevertheless, the expansion of tourism presents major challenges in terms of sustainability, especially in conserving natural resources, protecting cultural patrimony and maintaining social balance. The specific objective of this paper was to evaluate the environmental, economic and social performance of a touristic destination by applying Cost-Benefit Analysis (CBA). For this purpose, it was determined the feasibility and sustainability of tourism development, taking into account the effects on the environment, local economy and society. This involves: (I) identifying and quantifying the economic benefits, including employment opportunities generating from tourism, income generated from tourism and local infrastructure development; (II) assessing the environmental and social costs, including environmental degradation (pollution, loss of biodiversity) and potential negative effects on the local community (pressure on local resources, increases in prices); (III) comparing costs and benefits to determine if tourism development brings a positive net gain, both economically and socially, without sacrificing the ecological balance. In conclusion, this analysis aimed to ensure sustainable tourism development that maximizes community and economic benefits as well as environmental and social costs. This study provides a solid basis for strategic decisions on tourism development investments and policies.



SECOND SECTION HORTICULTURAL AND LANDSCAPING TECHNOLOGIES

→ A177 amphitheatre (A6), second floor of the main building

PLENARY SESSION

Chairpersons: Prof. Liviu Mihai IRIMIA, PhD
Prof. Valeriu V. COTEA, PhD
Assoc. prof. Liliana Elena CHELARIU, PhD
Lecturer Cristina ZLATI, PhD

Secretariat: Assist. Ioana BUȚERCHI, PhD
Lecturer Maria APOSTOL, PhD

14:00 – 14:10

QUALITY ATTRIBUTES OF EGGPLANT VARIETIES GROWN UNDER DIFFERENT IRRIGATION REGIMES AND CULTIVATION SYSTEMS

Abd Elhawary Saad Masooud, Ordóñez-Díaz Jose Luis,
Ciubotarita Ana Maria, Rusu Oana Raluca,
Moreno-Rojas Jose Manuel, Stoleru Vasile

"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania
Universidad de Córdoba, Córdoba, Spain
Andalusian Institute of Agricultural and Fisheries Research and Training (IFAPA), Córdoba, Spain

Eggplant is an excellent nutritionally vegetable in all parts of the world, and it is extensively consumed, thus it has a considerable impact on the horticultural industry.

The purpose of this study was to assess the qualitative of three eggplant varieties cultivated under various irrigation and farming regimes, with a focus on nutritional and antioxidant capabilities. The experiment was carried out on the farm of the Iași University of Life Sciences in Romania, utilizing different agronomic techniques. A total of 24 version were cultivated using four different fertilization treatments: organic, chemical, control, and biological. Following harvesting, analyses were performed at the Andalusian Institute in Cordoba, Spain, using advanced laboratory modern.

Quality and safety markers such as chlorophyll a, chlorophyll b, lycopene, beta-carotene, tannins, total polyphenols, and antioxidant activity (ABTS, DPPH assays) were assessed. The results showed significant variations between fertilization procedures. For example, the biofertilisation treatment produced the highest total polyphenol content, but the control group demonstrated modest antioxidant activity. Chlorophyll levels and carotenoid content also varied with cropping methods, demonstrating that fertilisation types had a significant impact on eggplant quality.

This study examines the effects of planting schemes and irrigation regimes on the nutritional and phytochemical properties of eggplant, promoting sustainable agricultural methods that improve crop quality.



14:10-14:20

RESPONSE OF TOMATO VARIETIES AND F2 RECIPROCAL HYBRIDS TO STRESS TEMPERATURES

**Mihnea Nadejda, Lupașcu Galina,
Rusu Vadim, Cristea Nicolae**

Moldova State University, Institute of Genetics, Physiology and Plant Protection, Chișinău, Rep. of Moldova;

The paper presents the results of assessing the resistance of some cultivars and 2 reciprocal F2 hybrid combinations: Despettarea x Flacăra/Flacăra x Desteptarea and Flacăra x Vrojainii/Vrojainii x Flacăra of tomato to stressful temperatures (41°, 43°C). Seedlings grown at 25°C served as a control variant. The analysis of the variability of the resistance character was carried out based on the length of the embryonic radicle, the stem, the whole seedling. In most cases, stress temperatures produced significant inhibition of growth organs. Through cluster analysis (k-means method) in the variant with 41oC, the reciprocal combination F2 Deșteptarea x Flacăra / F2 Flacăra x Deșteptarea was identified which formed cluster 2, and in the case of the 43oC temperature 5 of the mentioned genotypes – Exclusiv, Prestij, Deșteptarea, Flacăra and F2 Deșteptarea x Flacăra formed cluster 3 with the highest values of the evaluated characters, which provides opportunities for their use in breeding programs as reliable sources of resistance. The research of the influence of stressful temperatures on the distribution of plants in phenotypic classes demonstrated that obtaining a greater number of segregates with reduced sensitivity to high temperatures is more likely in the case of the combinations F2 Deșteptarea x Flacăra and F2 Vrojainii x Flacăra.

14:20-14:30

INFLUENCE OF THE NAA PRODUCT ON THE PREMATURE OF GALA MUST FRUITS DROP AND QUALITY INDICES

Peșteanu Ananie, Cumpănici Andrei

Technical University of Moldova, Chișinău, Rep. of Moldova

The aim is to study the effectiveness of applying grow regulator Obsthormon 24a (NAA) to ‘Gala must’ cultivar in different doses and treatment periods to maintain the physiological balance in the plant and keep the fruit in the crown as much as possible at the time of fruit harvesting. To achieve the stated goal, the following variants were studied: (1) the control (trees sprayed with water only); (2) NAA 15 ppm; (3) NAA 22.5 ppm; (4) NAA 30 ppm; (5) NAA 37.5 ppm; (6) NAA 15+15 ppm; (7) NAA 15+22.5 ppm. To prevent premature fruit drop, to treat with NAA 30 ppm 15 days before harvest, or in two doses of 15 ppm. The first treatment to be applied in the first decade of July, when the differentiation of fruit buds on the apple starts, and the next one 15 days before harvest.



14:30-14:40

THE IMPACT OF THE MECHANIZED CONTOUR PRUNING OF SWEET CHERRY TREES (*PRUNUS AVIUM* L.) OF THE CV SWEET STEPHANY, GRAFTED ON THE GISELA 6 ROOTSTOCK, ON FRUIT PRODUCTION AND QUALITY

Russu Stanislav, Balan Valerian, Bilici Inna

Technical University of Moldova, Chişinău, Rep. of Moldova

This work is a comparative analysis of the mechanized contour pruning of sweet cherry trees carried out after fruit harvesting in an intensive cultivation system in the northern zone of the Republic of Moldova (47.9163°; 27.4587°; 160 m.) The orchard of sweet cherry trees with slender spindle-shaped crowns of the Sweet Stephany variety, grafted on the Gisela 6 rootstock and planted at a distance of 4x1 m, was established in 2018. The method and degree of contour pruning during the vegetation period of the trees was studied. The fruit quality can be improved using contour pruning without affecting the crop yield. The weight of the fruit (10.92-11.19 g), in the groups where mechanized contour pruning was used, was significantly greater than the weight of the fruit grown using annual maintenance and fruiting pruning (10.75 g). Regardless of the technique and degree of pruning, the Sweet Stephany variety has produced more than 80% of fruit larger than 26 mm in diameter.

14:40-14:50

THE BEHAVIOR OF SOME APPLE VARIETIES CULTIVATED IN SUPERINTENSIVE SYSTEM, IN FĂLTICENI FRUIT GROWING BASIN

Istrate Mihai, Florea Ştefan, Zlati Cristina

“Ion Ionescu de la Brad” Iaşi University of Life Sciences, Romania

The purpose of this work is to follow the production of new apple varieties, grafted on a rootstock of low vigor (M9) cultivated in an area devoted to this species, the Fălticeni orchard basin. The work starts from the characterization of the natural environment in which the orchard is located, taking into account measurements regarding the growth vigor of the trees, the resistance to the limiting factors of production, the phenophases of the fruiting organs. However, the most important thing at the end of a fruit growing year is the economic yield given by the plantation, therefore it is important to determine the annual production obtained for each variety. For the observed year, production was satisfactory for all varieties, varying between 42.74 t/ha for the “Golden D. Reinders” variety and 58.67 t/ha for the “Szampion” variety. Although the quantity of fruits is important, their quality is equally important, therefore the physico-chemical properties are not a factor to be ignored and that is why periodic analyzes are carried out. Thus, the variety with the highest malic acid content is the “Szampion” variety with 0.43 g/l malic ac., at the same time this variety recorded the highest content of soluble dry matter 12.60°Bx.



14:50-15:00

THE COLLECTION AND DENSIFICATION OF GRAPE VINE SHOOTS INTO BRIQUETTES

Țenu Ioan, Roșca Radu, Cârlescu Petru, Corduneanu Oana, Acatrinei Pavel, Marian Grigore

*“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania
Technical University of Moldova, Chișinău, Rep. of Moldova*

Globally, biomass is a valuable renewable organic resource from which are briquettes and pellets produced. The biomass used for performing the experimental research regarding the production of briquettes from grapevine shoots was collected from eight varieties within the vineyard of the "Ion Ionescu de la Brad" University of Life Sciences in Iași, with a row spacing of 2.3m and 1m between vines. The average quantity of shoots collected per plant ranged between 0.327 kg/vine for Cabernet Sauvignon and 0.433 kg/vine for Muscat Ottonel. As a result of the experiments, the moisture content of the briquettes was ranged between 7.78% for the Fetească neagră variety and 8.20% for Busuioaca de Bohotin. The unit density, for all varieties, was higher than 1389 kg/m³; the briquette length recorded values ranging from 200 ± 1.5 mm for Muscat Ottonel to 200 ± 2.5 mm for Busuioaca de Bohotin, and the diameter ranged from 49 ± 0.28 mm for Pinot noir to 49 ± 0.83 mm for Sauvignon blanc. The density of the briquettes was between 1227.0 kg/cm³ for Fetească Albă and 1389.0 kg/cm³ for the Muscat Ottonel variety. The lower calorific value was ranged from 16.92 ± 1.2 MJ/kg for Muscat Ottonel to 17.94 ± 1.1 MJ/kg for Sauvignon blanc. The energy required for grinding the fractions containing particles bigger than 8 mm ranged between 0.0976 MJ/kg of product for Cabernet sauvignon and 0.1032 MJ/kg of product for Muscat Ottonel.

15:00-15:10

THE COLLECTION AND DENSIFICATION OF GRAPE VINE SHOOTS INTO PELLETS

Țenu Ioan, Roșca Radu, Cârlescu Petru, Corduneanu Oana, Acatrinei Pavel, Marian Grigore

*“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania
Technical University of Moldova, Chișinău, Rep. of Moldova*

Biomass is the third largest source of primary energy in the world, after coal and oil. The main sources of biomass are agricultural and forestry residues, energy crops and organic waste. The biomass used for performing the experimental research regarding the production of briquettes from grapevine shoots was collected from eight varieties within the vineyard of the "Ion Ionescu de la Brad" University of Life Sciences in Iași, with a density of 4347 vines/ha. The average quantity of shoots collected per plant was ranged between 0.327 kg/vine for Cabernet sauvignon and 0.433 kg/vine for Muscat Ottonel. The pellet production process involved subjecting the biomass to high pressures and forcing it through the cylindrical holes of a die, thus forming a solid mass. The experiments yielded the following results: the moisture content of the pellets was 11%, the pellet length ranged between 3.15 mm and 40 mm; the diameter was between 6 ± 0.5 mm for the Fetească regală and Busuioacă de Bohotin varieties, and 6 ± 1.0 mm for Sauvignon blanc. The bulk density ranged from 603.65 kg/m³ for Cabernet sauvignon to 681.63 kg/m³ for Fetească neagră. For all



varieties studied, the unit density exceeded 1039 kg/m³. The higher calorific value of the pellets ranged from 18581 MJ/kg for Busuioaca de Bohotin to 19117 MJ/kg for Fetească regală.

15:10-15:20

TECHNICAL ACTIONS ON THE APEX OF TREES TO OBTAIN ANTICIPATED BRANCHING IN THE AREA OF CROWN FORMATION IN THE FRUIT NURSERY

Gaberi Valentin

Technical University of Moldova, Chişinău, Rep. of Moldova

In order to determine the reaction of Gala Schniga SchniCo Red grafted on the biotype M9T337 to different intervention techniques on the tree apex to increase the degree of bud emergence of the anticipated shoots in field II of the tree nursery, the following variants were studied: 1. Free growth (control); 2. Progerbalin LG, 25 ml; 3. Progerbalin LG, 25+25 ml; 4. Progerbalin LG, 25 ml + apical leaf break; 5. Progerbalin LG, 25+25 ml + apical leaf breakage. It was established, that the higher number of anticipated branches in the area of crown formation was registered in the variant treated with the product Progerbalin LG, 25+25 ml (8.0 pcs), as well as their total length was higher in this variant (373.6 cm).

15:20-15:30

A REVIEW OF DIGITAL AND HAND-DRAWN RENDERING TECHNIQUES IN LANDSCAPE DESIGN: COMPARATIVE ANALYSIS OF EFFICIENCY, USABILITY, AND CREATIVE EXPRESSION

Istrate Ana-Maria-Roxana, Duţu Ştefan, Cojocariu Mirela

“Ion Ionescu de la Brad” Iaşi University of Life Sciences, Romania

This review examines the efficiency and user preferences of digital rendering software, Lumion® and Twinmotion®, in landscape design while considering traditional hand-drawn rendering. Rendering is crucial in visualizing landscape designs and transforming conceptual models into realistic representations. Lumion®, developed by Act-3D®, integrates seamlessly with CAD software and offers an extensive asset library, making it practical for large-scale projects. Twinmotion®, owned by Epic Games®, leverages gaming technology for real-time rendering and immersive experiences, including virtual reality. In contrast, though less efficient, hand-drawn rendering remains valued for its artistic expression and personal touch. This review highlights the strengths and limitations of each method in landscape design, focusing on user satisfaction and project efficiency.



15:30-15:40

STUDIES ON SOME „ORANGE” WINES

Colibaba Lucia Cintia, Hrițcu Vlad, Andrieș Mitică-Tiberiu,

Luchian Camelia, Rotaru Liliana, Cotea V. Valeriu

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Payments and Intervention Agency for Agriculture, Iași, Romania

Due to the variety of production styles and techniques associated with the orange type wines, wine-makers have a lot to explore. In order to study these wines, a thorough understanding of the maceration, fermentation and maturation procedures is required, as well as how these processes impact the quality and characteristics of the final wine. Creativity and innovation are essential for the exploitation of orange wines, as they allow experimentation with different grape varieties, vinification methods and production conditions to produce unique and high-quality products. The present research analyzes by physico-chemical and sensory methods two wines obtained by the long-term maceration method, one obtained experimentally, in the USV Iași winery and the second, commercially obtained in the Republic of Moldova, at the Mircești winery. The samples demonstrate the need for a diverse range of wines with complex sensory characteristics and a fascinating history behind them.

15:40-15:50

WEED INFESTATION DYNAMICS INFLUENCED BY SOME ALLELOPATHIC SPECIES IN CLIMBING BEAN (*PHASEOLUS VULGARIS*) CROP

Calara Mariana, Munteanu Neculai, Brezeanu Creola,

Brezeanu Petre Marian, Balaita Claudia,

Antal Tremurici Andreea, Muscalu Sebastian-Petru,

Stoleru Vasile, Stan Teodor, Teliban Gabriel-Ciprian,

Avasiloaiei Dan-Ioan

Vegetable Research and Development Station Bacău, Romania

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The aim of this study was to evaluate the effect of eight allelopathic plant species on weed infestation in “Auria Bacăului” climbing bean (*Phaseolus vulgaris*) crop. The biological material included plant species with allelopathic potential: yellow mustard (*Sinapis alba*), sainfoin (*Onobrychis viciifolia*), oil radish (*Raphanus sativus var. oleiformis*), barley (*Hordeum vulgare*), two-row barley (*Hordeum distichon*) oats (*Avena sativa*), red clover (*Trifolium pratense*) and white clover (*Trifolium repens*). The experimental design involved a single factor represented by mixtures of these allelopathic species, which were sown simultaneously with climbing bean in an intercropping system. The weed species identified in the field included red-root amaranth (*Amaranthus retroflexus*), guasca (*Galinsoga parviflora*), flower-of-an-hour (*Hibiscus trionum*), pale knotweed (*Persicaria lapatifolia*), groundsel (*Senecio vulgaris*), purslane (*Portulaca oleracea*), field bindweed (*Convolvulus arvensis*), Canada thistle (*Cirsium arvense*), hairy crabgrass (*Digitaria sanguinalis*), and cockspur (*Echinochloa crus-galli*). The results showed that weed infestation was significantly reduced by intercropping of climbing bean with allelopathic species, highlighting the potential of this practice in sustainable weed management.



15:50-16:00

PRELIMINARY STUDIES ON THE ALLELOPATHIC EFFECT OF SOME ENDEMIC SPECIES OF AROMATIC PLANTS AND THEIR POSSIBLE USE AS BIO-HERBICIDES

Tănase Beatrice Elena, Stoleru Vasile

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Allelopathy as a process defines the process of inhibition or influence of some plants on other associated plants, by means of biochemical compounds or by the production of chemical substances that eliminated in nature by various means inhibit the germination of weed seeds.

Studies in the scientific literature indicate that the main plants with allelopathic effect are aromatic and medicinal species containing essential acids or essential oils such as basil, rosemary, fennel, mint, lavender, thyme, or mustard.

The potential for using these plants to produce natural herbicides can be significant, and the percentage reduction in the amount and germination rate of weed seeds in crops is high. Further study of this phenomenon is necessary for the development of biologically active substances for the treatment of weed infestation of crops. Allelopathy and its beneficial effects help to control weeds without harming the health of people, wildlife and the environment. Our preliminary studies include a review of research to date and a proposal for the use of allelopathic plants in urban and peri-urban gardens.

16:00-16:10

EVALUATION OF ENZYMATIC ACTIVITY ON QUINOA LEAVES (*CHENOPODIUM QUINOA*, WILLD.), UNDER HYDRIC AND NUTRITIONAL REGIMES

Chiriță Raluca, Apostol Maria, Stoleru Vasile

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Quinoa (*Chenopodium quinoa* sp.), is a species known throughout the world, native to Latin America, and is increasingly appreciated in many parts of the world. Our own studies and research have shown that certain populations can be used as leafy vegetables. The aim of the research was to evaluate fertigation and irrigation on the enzyme activity in the leaves of two cultivars of quinoa (Vikinga and Puno), for its introduction as vegetable crop. The experiment was carried out in the IULS Iași greenhouse, in vegetative pots, of 42 version, the experiment was organized in randomized blocks. The results obtained, under the influence of the factors: cultivar, fertilization and irrigation, show that the most intense enzymatic activity was evidenced in Vikinga cultivar - chemically fertilized variant, with irrigation 50% of the substrate field capacity. The results are positively correlated with the increase in the amount of chemical fertilizer administered. The most evident decreases in CAT activity were evidenced in the experimental variants to which Micoseed MB® was applied, in both cultivars.



16:10-16:20

IMPACT OF DIFFERENT CULTIVATION PRACTICES ON THE PERENNIAL WALL-ROCKET IN A PROTECTED ENVIRONMENT UNDER THE INFLUENCE OF CLIMATIC CONDITIONS (2022-2023)

**Preuceanu Cristina, Rădeanu Georgiana, Teliban Gabriel-Ciprian,
Caruso Gianluca, Stoleru Vasile**

*“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania
University of Naples Federico II, Italy*

Evaluation of best practices for planting time, mulching and fertilization of perennial wall-rocket (*Diplotaxis tenuifolia*) in Romania is an important step in development of sustainable and efficient agriculture. In the context of the diversity of climatic and soil conditions in Romania, identifying the most appropriate agricultural techniques for this crop becomes essential to ensure both crop productivity and quality. By analyzing the interaction between these agricultural practices, the study aimed to identify the most efficient methods for growing perennial wall-rocket under optimal conditions. Within it, we evaluated the behavior of the variety, Bologna, under influence of three technological factors, in two experimental years (2022-2023): planting time (with three gradations: 28.03 = Epoch 1, 7.04 = Epoch 2 and 17.04 = Epoch 3), mulching (with three gradations: non-mulching - NM, mulching with white polyethylene film - WLDPE, and mulching with black polyethylene film - BLDPE) and fertilization (with three gradations: unfertilized - NF, organic fertilized - O, and chemical fertilization - Ch). The experiment was conducted in an unheated plot, during the winter-summer cropping cycle, using a split-plot design with three replications. For the Epoch factor, the highest yield resulted from the first Epoch, 53.90 t ha⁻¹. For the mulching factor the highest yield resulted from WLDPE 55.91 t ha⁻¹. For the fertilization factor the highest yield was obtained from the organic fertilized, 55.67 t ha⁻¹. In terms of the combined influence of the three factors, the highest yield was recorded for WLDPE x O x Epoch 1, 63.96 t ha⁻¹.

16:20-16:30

OPTIMIZING EGGPLANT SEED PRODUCTION TECHNOLOGY THROUGH USING BIOSTIMULANTS

Dascălu (Constantin) Delia - Cristina, Munteanu Neculai, Scurtu Ion

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Research and Development Institute for Vegetable and Flower Growing Vidra, Romania*

Biostimulators are increasingly used in agriculture and horticulture, being able to improve plant growth and development, vegetable and fruit production, and also can increase plant tolerance to biotic and abiotic stress. The studies of their influence on the quantity and quality of vegetable seeds are not numerous, but they present importance to cultivar maintainers and seed producers. This paper presents a state of arts on the influence of treatments with biostimulators on eggplant, based on the results of scientific research and technological practice in Romania and in the world. This study aims to introduce these biostimulants in the seed production technology of eggplant, in order to obtain a higher quantity of quality seed.



16:30-16:45

COFFEE BREAK

16:45-16:55

THE EFFECT OF FOLIAR FERTILIZATION WITH BIOSTIMULANTS ON THE GROWTH PARAMETERS OF EGGPLANT SEEDLINGS

Dascălu (Constantin) Delia - Cristina, Paraschiv Mihaela

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Research and Development Institute for Vegetable and Flower Growing Vidra, Romania

The quality of the seedlings used to establish crops directly influences the quality of vegetable production. The experience aimed to study the influence of foliar treatments with different biostimulants and fertilizers on some growth parameters of eggplant seedlings, Belona cultivar. The experiment was monofactorial, in randomized blocks with five repetitions. Four foliar treatments with Razormin, Atonik, Sprintene and Microcat Magnesium were administered at 10-day intervals, starting on the 20th day after emergence. After 60 days from emergence, five plants from each replicate were selected randomly for analysis. The measurements made concerned the height of the plants, the length of the roots and the aerial part, the stem diameter, the fresh and dry weight of whole plants, of the roots, of the aerial parts and of the leaves. There was also count the number of true leaves. The treatments with the Sprintene product proved a significantly positive influence on the eggplant seedlings.

16:55-17:05

MORPHOLOGICAL AND BIOCHEMICAL CHARACTERISTICS OF SOME TAXA OF LAVANDULA L.

Ozarchevici Alina - Ștefana, Apostol Maria, Cioroiu Bogdan-Ionel, Draghia Lucia

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Of the representatives of the genus *Lavandula L.*, lavender (*L. angustifolia Mill.*) and lavandin (*L. x intermedia Emeric ex Loisel*) are considered the most important for their ornamental and essential oil content. This paper presents the results of a study carried out on plants in their second year of cultivation, from two varieties of *L. angustifolia* ('Little Lottie' and 'Munstead') and one variety of *L. x intermedia* ('Grosso'), grown under the ecological conditions of NE Romania (city of Iași). Both the decorative aspect of the plants (by determining some morphological characters) and the chemical composition of the essential oil obtained from the flowers were analyzed in order to identify the most efficient ways of valorization. Lavandin showed the highest growth in height (88.5 cm) and diameter (141 cm), as well as the highest number of inflorescences (570 inflorescences/plant). The lavender varieties had heights of 56.7-38.4 cm and bush diameters of 61.2-70 cm, with the highest values in 'Munstead' and almost identical number of inflorescences/plant (199.4-200.1). The chemical composition showed the presence in higher amounts of compounds such as linalool (maximum in lavandin), linalyl acetate and lavandulyl acetate (maximum in 'Munstead'), eucalyptol (maximum in lavandin). Monoterpene products (camphor) were also identified in the lavender flowers.



POSTER SECTION

17:05-17:10

GERMINATION OF SEEDS AND ADAPTATION OF BEECH SEEDLINGS OF PLAIUL FAGULUI-23 ORIGIN UNDER THE INFLUENCE OF BIOREGULATORS

**Elisovetcaia Dina, Ivanova Raisa,
Popovschi Ecaterina, Brindza Jan**

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Slovak University of Agriculture (SAU) in Nitra, Slovak Republic*

The purpose of this research was to study the effect of bioregulators on the germination of beech seeds of Plaiul Fagului-23 (Republic of Moldova) origin and adaptation seedlings in the solarium and natural conditions. The gibberellic acid served as standard plant growth regulator. Seed viability, determined by two tests, averaged 82.0-88.0%. The highest mean daily germination (0.74) was observed for Juniperus sabina 0.001% and 0.0001% variants. During stratification in laboratory conditions the highest seed germination (82.64%) was in the J. sabina 0.0001%. The highest rate index (1.17 and 1.57) of seed germination was observed in the J. sabina 0.0001 and 0.0005% variants. Alginite no 2 (3%) 0.01% and J. sabina 0.0005% showed the average germination time below the control by 1.05-1.11 days. According to statistical data processing, the length of the roots for germinated beech seeds in Alginite No.2 and J. sabina 0,001% significantly exceeded the control (39.66 mm) and reached 56.04 and 52.05 mm. In the solarium conditions the highest rate of seedlings emergence was noted in the variants Alginite No. 6 (92.50%), J. sabina 0.0005% (91.11%), J. sabina 0.001% (90.00%) and Alginite nano powder (82.35%), which exceeded control by 1.6-1.8 times. The height of the plants in the Alginite no.2 (13.50 cm), J. sabina 0.0001% (12.24 cm) and J. sabina 0.001% (10.08 cm) significantly exceeded the control (7.37 cm). Statistical analysis of the data showed that in the natural conditions the germination of beech seeds in the variants Alginite nano powder (60.80%) and Alginite No. 6 (47.47%) was significantly higher than in the control (42.67%) and in gibberellic acid (43.73%). The height of the plants in the Alginite nano powder (28.10 cm), genistifolioside 0,01% (29.70 cm) and gibberellic acid 0,004% (28.22 cm) significantly exceeded the control.

17:10-17:15

THE EFFECT OF SUPPLEMENTAL OXYGENATION AND LED LIGHTING ON ROOT DEVELOPMENT AND CARBOHYDRATE CONTENT IN LETTUCE GROWN IN THE NFT SYSTEM (NUTRIENT FILM TECHNIQUE)

Niţu Oana Alina, Ivan Elena Ştefania, Gheorghe Marinela

University of Agronomic Sciences and Veterinary Medicine, Bucharest, Romania

The NFT system is a type of hydroponics where a thin layer of nutrient solution constantly circulates over the plant roots. This ensures continuous access to water, nutrients, and oxygen, which promotes rapid and healthy plant growth. Controlling the conditions in this system, such as oxygen levels and lighting, plays a crucial role in the efficiency of photosynthesis and, implicitly, in carbohydrate content.



Oxygen is essential for plant growth, especially for the roots, as it aids in root respiration. In hydroponic systems like NFT, water and nutrients are recirculated, and the oxygen level in the nutrient solution can affect plant metabolism, including carbohydrate synthesis. Supplemental oxygenation of the nutrient solution can improve nutrient uptake and photosynthesis, which could increase carbohydrate levels in lettuce.

LED lights are frequently used in plant cultivation because they are energy-efficient and can be adjusted to provide the light spectrum necessary for photosynthesis. The light spectrum directly influences the rate of photosynthesis and, consequently, the production of carbohydrates in plants. Different light wavelengths can have varying effects on carbohydrate accumulation.

17:15-17:20

RESEARCH CONCERNING THE INFLUENCE OF *E. AMYLOVORA* NATURAL INFECTIONS ON THE ANTIOXIDANT PROPERTIES OF QUINCE FRUITS (*CYDONIA OBLONGA*)

**Baciu Călin, Popescu Sorina, Poiană Mariana,
Costea Marinela, Șumălan Radu**
Life Sciences University "King Mihai I st" from Timișoara, Romania

Quince (*Cydonia oblonga*) is one of the fruit species cultivated on important areas globally, and fire blight (*Erwinia amylovora*) is one of the pathogens that causes significant damage at all stages of plant development, from vegetative growth to flowering and fruiting.

The objective of the research was to determine the degree of impact of the natural fire attack on some morphological, biochemical and physiological parameters involved in the characterization of the fruit quality of two varieties of quince (Bereczky and Auri) grown in an organic system.

The obtained results highlighted the negative impact of fire blight attack by reducing the size of the fruits, increasing their firmness by decreasing the amount of water and affecting the appearance of the pericarp. The fruits harvested from the diseased plants showed altered values of sugar content, titratable acidity (TA) and maturity index (MI), and the total phenolic content (TPC) was lower compared to the fruits harvested from healthy plants.

17:20-17:25

THE EFFECT OF THE FOLIAR FERTILIZER PISTACHIO MIX PLUS NPA ON THE YIELD AND QUALITY OF CHERRY (*PRUNUS AVIUM* L.) FRUITS OF THE CV SWEET STEPHANY, GRAFTED ON GISELA 6 ROOTSTOCKS

Balan Valerian, Bilici Inna, Russu Stanislav
Technical University of Moldova, Chișinău, Rep. of Moldova

The paper presents an analysis of the effect of the nanotechnology-based Pistachio Mix Plus NPA foliar fertilizer on cherry fruit yield and quality in the cv Sweet Stephany cherry variety, grafted on Gisela 6, planted at a distance of 4x1 m. Between 2023 and 2024, the foliar fertilizer was used during four phenophases of flower bud development in a dose of 2.5 l/ha. The fruit yield increased by 12,5-19,8%, when the Pistachio Mix Plus NPA was used 2.5 l/ha three times, in comparison with the yield of the sweet cherry trees which were not treated with the fertiliser. The foliar fertilization with microelements has increased the number of fruits with a diameter larger than 30 mm by 54,4-58,3%.



Thus, the fruit yield and quality can be improved in sweet cherry orchards using nanotechnology-based foliar fertilizers during three fruiting phenophases, namely pink-white bud + petal shedding + the beginning of ripening.

17:25-17:30

TOMATO NUTRITIONAL CHARACTERISTICS UNDER FARMING TECHNOLOGY

Abd Elhawary Saad Masooud, Ordóñez-Díaz Jose Luis, Teliban Gabriel Ciprian, Roșca Mihaela, Cojocaru Alexandru, Moreno-Rojas Jose Manuel, Stoleru Vasile

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Universidad de Córdoba, Spain

Andalusian Institute of Agricultural and Fisheries Research and Training (IFAPA), Córdoba, Spain

Tomatoes are considered to be some of the most nutritious vegetables around the world. The quality of tomatoes is determined by fibre, vitamins, and minerals, all of which contribute to a healthy diet. Its adaptability and widespread cultivation makes it an essential component of global food security and a raw matter in a variety of industries. This study looks at the qualitative characteristics of different tomato varieties grown under various cultivation systems, with a particular emphasis on fertilization methods.

The experiment was carried out on the farm of the "Ion Ionescu de la Brad" Iași University of Life Sciences, Romania. Sixteen version of tomatoes were chosen, with various types treated with four different fertilization treatments: organic, chemical, control, and biological. The goal was to determine the effect of these treatments on the quality and safety of harvested tomatoes.

The samples were analysed at the Andalusian Institute in Cordoba, Spain, to evaluate critical quality factors. ABTS and DPPH tests were used to determine the amounts of chlorophyll a, chlorophyll b, lycopene, beta-carotene, tannins, total polyphenols, and antioxidant activity. These characteristics were chosen as markers of both nutritional quality and potential health advantages for tomato consumption.

The findings revealed considerable differences across fertilization treatments and tomato types, emphasizing the impact of farming practices on tomato nutritional and antioxidant qualities. These findings provide useful insights into optimising tomato farming techniques to improve fruit quality while adhering to food safety norms.

17:30-17:35

THE EFFECT OF ALTERNATIVE TREATMENT METHODS ON THE POPULATION EVOLUTION OF METCALFA PRUINOSA IN GOOSEBERRY CULTURE

Rădulescu (Nichifor) Liliana-Aurora, Dobrin Ionela, Hoza Dorel

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European level research has shown that *Metcalfa pruinosa* attacks over 300 plant species.

The results of this research on the effect of alternative pest control methods in gooseberry cultivation could be applied to other plants of the more than 300 species attacked by *Metcalfa pruinosa*.



The attack capacity of *Metcalfa pruinosa* is influenced by the following factors: variety tolerance, the phenological stage corresponding to the attack, climatic conditions and the type of treatment applied.

The alternative treatment methods investigated in this study involved the application of infusions of: *Urtica dioica*, *Mentha piperita*, *Thymus serpyllum* and *Mentha pulegium*, plants that have beneficial effects on humans.

The applied treatments had different effects, with the most effective being the infusion of *Thymus serpyllum* across all variants.

17:35-17:40

THE EFFECT OF ALTERNATIVE TREATMENT METHODS ON THE POPULATION EVOLUTION OF ARANEAE IN GOOSEBERRY CULTURE

Rădulescu (Nichifor) Liliana-Aurora, Hoza Dorel, Dobrin Ionela
University of Agronomic Sciences and Veterinary Medicine, Bucharest, Romania

This paper presents the effects of alternative treatment methods on the population dynamics of spiders in three gooseberry varieties: Invicta, Captivator, and Hinnonmaki Red.

The presence of entomophagous spiders is influenced by factors such as prey availability, plant odor, the phenophase of the host plant, climatic conditions, and the type of treatment applied.

The treatments were carried out using infusions of *Urtica dioica*, *Mentha piperita*, *Thymus serpyllum*, and *Mentha pulegium*. The effects of these treatments on the population of entomophagous spiders were studied and compared. Differences were noted based on both the treatment's influence on prey and the odor of the plants used.

17:40-17:45

THE DYNAMICS OF SOIL MOISTURE IN THE VINEYARD PLANTATIONS IN THE IAȘI VINEYARD UNDER CONDITIONS OF WATER AND THERMAL STRESS

**Zaldea Gabi, Nechita Ancuța, Alexandru Lulu Cătălin,
Filimon Roxana, Damian Doina**
Viticulture and Oenology Research and Development Station Iași, Romania

Drought periods lasting 2-3 years are those with serious consequences for wine plantations, because the effects are felt from the following year, and the restoration of the plantations takes another two to three years. From the analysis of the multiannual data recorded at the SCDVV Iași, an increase in the frequency of dry years is noted. The lack of precipitation and their uneven distribution associated with the ever-higher temperatures, led to a sharp decrease in the accessible moisture values from the soil and an increase in the deficit, in certain periods, up to a depth of 150 cm. The paper presents the precipitation regime in the viticultural ecosystem of the Iași vineyard from 2022 to 2024, compared to the multi-year averages, as well as the dynamics of accessible humidity and soil water deficit in conditions of water and thermal stress.



17:45-17:50

RESEARCH ON THE POSSIBILITY OF CULTIVATION EXTENSION IN THE NORTH-EAST AREA OF MOLDOVA OF SOME VARIETIES FOR TABLE GRAPES OBTAINED BY ROMANIAN VITICULTURE RESEARCH

**Nechita Ancuța, Zaldea Gabi, Filimon Roxana,
Damian Doina, Filimon Răzvan, Alexandru Lulu Cătălin**
Viticulture and Oenology Research and Development Station Iași, Romania

The structural improvement of viticultural varieties with varieties for table grapes has always been a concern of breeding researchers. In the context of the climate changes of the last decades, it is necessary to permanently update the knowledge regarding the climatic favorability for table grapes and the expansion of their cultivation area. The paper presents preliminary results regarding the agrobiological and technological value of 6 vine varieties obtained by Romanian viticultural research (Argesis, Auriu de Ștefănești, Muscat Timpuriu de București, Timpuriu de Pietroasa and Mara), in order to highlight the most valuable, adapted to the conditions climate, in order to expand the range of varieties for table grapes recommended and authorized in the Iași vineyard.

17:50-17:55

EVALUATION OF THE TECHNOLOGICAL POTENTIAL OF SOME OLD AUTOCHTHONOUS GRAPEVINE VARIETIES (*VITIS VINIFERA L.*) IN THE CURRENT CLIMATE CONDITIONS OF NORTHEASTERN ROMANIA

**Filimon Vasile Răzvan, Filimon Roxana, Damian Doina,
Nechita Ancuța, Rotaru Liliana, Pușcalău Mărioara**
Viticulture and Oenology Research and Development Station Iași, Romania
“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania
Viticulture and Oenology Research and Development Station in Odobestii, Romania

Old Romanian grapevine varieties are currently preserved in ampelographic collections or planted on very small areas. In the context of recent climate changes, technological characteristics of three old Romanian grapevine varieties (*Vitis vinifera L.*) for white wines (Rară Albă, Alb Românesc and Plăvaie) were evaluated in the climatic conditions of the northeastern Romania (Copou-Iași wine-growing center) in two consecutive years (2023-2024). Ripening the grapes in the second part of September, the analyzed varieties produced medium - large grapes (120-220 g), leading to high yields (>10 t/ha), with good sugar accumulations (>190 g/L) and a balanced total acidity (>5.2 g/L as tartaric acid). Analyzed in relation to the current climate conditions, autochthonous varieties showed superior technological characteristics indicating their potential use of for the production of quality white wines in the northeastern area of Romania, also, providing important genetic material for future breeding programs.



17:55-18:00

HEAT CONSUMPTION DURING SELECTIVE PROCESSING OF WHOLE GRAPES FOR RED JUICES

Vacarciuc L., Griza Ina, Bogatîi E., Melenciuc M.
Technical University Of Moldova, Chişinău, Rep. of Moldova

The processing of grapes of black berry varieties traditionally proceeds according to the in-red method with fermentation on the marc, fully utilizing the phenolic compounds from the solid phase (for red wines). In the case of juices, in the absence of the fermentation process, the extraction of biologically active substances (BAS) is problematic. Hygienically valued red juices are almost absent from the market. This study aligns with the series of research projects and focuses the objective on determining the heat consumption in the selective processing of whole grapes by plasmolysis of the skin, cell destruction and rapid release of anthocyanins, followed by cooling and crushing, separation of the pigmented red juice in the subsequent conservation process. Technical calculations and comparative analysis of thermal consumption and the priorities of applying innovative technology in the production of diet juices in the Republic of Moldova, are presented.

18:00-18:05

NEW TRENDS IN VALORIZING GRAPE POMACE WASTE

Gabur Georgiana-Diana, Teodosiu Carmen, Cotea V. Valeriu
"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania
"Gheorghe Asachi" Technical University of Iasi, Romania

Grape production is one of the world's most important extended agro-economic activities, with almost 6.7 million hectares of vineyards worldwide and a global annual production of around 73 million tonnes (FAO, 2023). Nevertheless, the wine sector is a major producer of waste streams, as it disposes of a large amount of grape marc left over after processing. It is estimated that approximately 20% of the total weight of the grape is waste, representing more than 8 million tonnes of grape marc worldwide. This can be a serious environmental problem if not properly managed. The valorisation of wine waste is important to support a circular bioeconomy and to avoid additional pressure on land, negative impacts on biodiversity and threats to global food security. The aim of this review is to provide an overview of the latest trends in the valorisation of grape pomace as a value-added resource and to investigate its potential applications in the wine industry. Acknowledgements: This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS - UEFISCDI, project number PN-IV-P2-2.1- TE-2023-0333, within PNCDI IV.



FRIDAY, OCTOBER 25th, 2024

**POSTER SECTION
HORTICULTURAL AND LANDSCAPING TECHNOLOGIES**

→ A177 Amphitheater (second floor, main building)

**Chairpersons: Prof. Nicolae MUNTEANU, PhD
Prof. Mihai ISTRATE, PhD**

Secretariat: Assist. Roxana ISTRATE, PhD

09:00-09:05

**PRELIMINARY STUDY OF INTERACTION EFFECT OF VARIETIES AND
FERTILIZERS ON QUALITY AND YIELD OF SWEET PEPPERS**

**Teliban Gabriel-Ciprian, Tenie Mădălina,
Buțerchi Ioana, Popa Lorena-Diana,
Cojocaru Alexandru, Burducea Marian,
Bodale Ilie, Stan Teodor, Munteanu Neculai,
Irimia Liviu-Mihai, Stoleru Vasile**

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

ARDS Secuieni-Neamț, Romania

“Al. I. Cuza” University, Iași, Romania

One of the most valued vegetable species is the sweet pepper, known for its significant organoleptic and physico-chemical attributes. Typically, sweet peppers are grown as a main crop, but for this study, they were cultivated under a plastic tunnel using a sequential cropping technique. The purpose of this study was to assess how different fertilization regimes affected certain physico-chemical traits and the yield of three sweet pepper hybrids. The experimental design involved a bifactorial experiment in a split-plot arrangement with three replications, with the following factors: Factor A – Sweet pepper hybrid (a_1 - Reno F1; a_2 - Traian F1; a_3 - Bihar F1), and Factor B – Fertilization regime (b_1 - unfertilized; b_2 - organic fertilization; b_3 - chemical fertilization). The highest quantitative yields were obtained after chemical fertilization (53.8 t/ha), while organic fertilization resulted in the highest vitamin C content (126.2 mg/100 g of product). The results demonstrated a significant influence of the fertilization regime on yield.



09:05-09:10

**INTERACTION EFFECT OF THREE
TECHNOLOGICAL FACTORS ON SOME QUANTITATIVE
AND QUALITATIVE INDICES IN PHASEOLUS COCCINEUS**

**Rădeanu Georgiana, Precupeanu Cristina, Teliban Gabriel,
Cojocaru Alexandru, Stoleru Vasile**

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The species *Phaseolus coccineus* has multiple uses, in food, its nutritional characteristics being similar to those of *P. vulgaris*, but the size of the grain advantage it among consumers, but also as an ornamental plant, being used in landscape compositions for its lush foliage and impressive size of the flower racemes. In Romania, there are a large number of local populations of this species, without any cultivar being released. Thus, the aim of this study is to evaluate the interaction of three technological factors on some quantitative and qualitative traits in broad bean. In 2022, a trifactorial experiment was set up in the teaching field of the vegetable growing discipline, to analyzing the interaction of two support systems, (pyramid and trellis), with three local populations (Cozia 1, Cozia 2 and Cozia 3), with three types of fertilization (unfertilized, organic fertilized, and chemically fertilized). Following data collection, the results were statistically analyzed, the means being expressed as the interaction of two experimental factors. For the characters Mass of beans/nest, average number of pods/nest and average number of beans/pod, the Pyramid x Cozia 3 variant stood out, for the mass of grains/hectare the Trellis x Cozia 2 variant obtained 5.7 t/ha, and the highest result for MMB, was obtained by the Cozia 1 x Chemical variant.

09:10-09:15

**RESEARCH ON THE MODIFICATION OF PHYSICOCHEMICAL VALUES OF
WALNUT FRUITS FROM HARVEST (GREEN) TO STORAGE (DRY)**

**Gherghel Mădălina-Iuliana, Buțerchi Ioana, Istrate Mihai,
Turcu Cristina-Ionela, Corneanu Margareta, Iurea Elena**

Research Station for Fruit Growing Iași, Romania

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

This paper analyzes the physicochemical characteristics of fruits from the moment of harvest to their storage under controlled conditions. The study focuses on the changes occurring in the composition and quality of fruits during various stages of post-harvest. The analysis includes parameters such as soluble solids, acidity index, titratable acidity, and moisture content, and explores how these parameters evolve throughout the post-harvest process.

Observations indicate an increase in the value of soluble solids during the storage (drying) of walnut kernels. Regarding total acidity content, it is higher at harvest and decreases during fruit dehydration. However, some varieties exhibited an increasing trend in acidity, with higher levels of organic acids during storage, due to natural drying of the kernel. Varieties with a high acidity index showed greater concentrations of oleic acids or they may have higher levels of rancidity.

This paper contributes to a better understanding of the physicochemical changes in fruits post-harvest and provides recommendations for optimizing handling and preservation processes, aimed at maintaining fruit quality and nutritional value over time.



09:15-09:20

OBSERVATIONS ON THE FLIGHT CURVE AND PEST CONTROL OF CYDIA POMONELLA L. IN THE NORTH-EAST AREA OF ROMANIA

**Turcu Cristina Ionela, Tălmăciu Mihai,
Gherghel Madalina Iuliana, Perju Ionel, Chelaru Simona Mihaela,
Aftudor Manolache Agurița, Tălmăciu Nela, Herea Monica**

*Research Station for Fruit Growing Iași, Romania
"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania*

The observations refer to the monitoring of the appearance of the pest *Cydia pomonella* L. in the apple orchards within the SCDP Iași.

The data regarding the monitoring of the pest that causes significant damage in apple orchards helps us to combat it according to the biological cycle of the species, recording in recent years an incomplete third generation, the period of activity being extended, in 2021 the first appearances on the pheromonal traps were on 07.05.2021 and in 2022 they were on 27.04.2022.

Analyzing the catches on the pheromonal traps in 2021, the maximum flight curve for the first generation was reached on 24.05 and in 2022 on 22.05.

Phytosanitary treatments for both the first generation and the second generation of the pest *Cydia pomonella* L. were warned according to the maximum of the flight curve.

09:20-09:25

RESEARCH ON THE ECO-PHYSIOLOGICAL EVOLUTION OF SOME SWEET CHERRY CULTIVARS UNDER THE INFLUENCE OF CLIMATE CHANGES

**Mineață Iulia, Perju Ionel, Sîrbu Sorina, Golache Iuliana Elena,
Ungureanu Ionuț Vasile, Jităreanu Carmen Doina**

*Research Station for Fruit Growing Iași, Romania
"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania*

Knowing the vegetation course of the sweet cherry cultivars is a major desideratum and a basic condition in the zoning of a fruit crop in order to capitalize on the biological production potential. The research of this study was carried out during the years 2022 and 2023 and aimed at the development of the phenological stages, the quantification of the sum of the temperature degrees and the total amount of precipitation, the stomatal conductance at the leaf level as well as the evaluation of the fruit quality and the productivity of three cultivars of sweet cherry trees ('Van', 'Andreiș' and 'Margonia') from the Research Station for Fruit Growing Iași, located in the N -E area of Romania. The climatic conditions of the studied years (2022-2023) confirm the global context of climate change, the average annual temperature having values of 11.4°C, with a positive deviation of +1.7°C more than the multi-annual average (2000-2020) and total precipitation totaled 440 mm, with a deficit of -77.5 mm from the reference value, thus influencing the phenological patterns, physiological processes and productivity of the sweet cherry crop.



09:25-09:30

OBSERVATIONS ON ARTHROPOD SPECIES FROM SOME CHERRY ORCHARDS

**Balint Romeo Ciprian, Tălmaciu Nela, Herea Monica,
Balint Răducu Ionuț, Croitoru Nichita, Tălmaciu Mihai**
“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The Barber-type ground traps were used to capture the epigeal arthropod species from cherry plantations. The observations were carried out in a 15-year-old cherry plantation in the eastern part of Romania, in the locality of Răducăneni, Iași county.

The traps were installed in the plantation in 2022, the observations being made between May and September. A number of 7 collections of biological material were made, on the following dates: 25.05, 7.06, 19.06, 27.06, 18.07, 23.08, 5.09.

The collected epigeal arthropods belong to the order Arthropoda and to 3 classes: Insecta, Arachnida and Crustacea. The most numerous species belong to the class Insecta, order Coleoptera.

The species of coleoptera collected belong to the families: Carabidae, Dermestidae, Elateridae, Cantharidae, Staphilinidae, Chrysomelidae and Coccinellidae.

09:30--09:35

OBSERVATIONS ON THE DYNAMICS AND ABUNDANCE OF ARTHROPOD SPECIES COLLECTED FROM SOME CHERRY ORCHARDS USING DECIS TRAPS

**Balint Romeo Ciprian, Monica Herea, Tălmaciu Nela,
Balint Răducu Ionuț, Panuta Sergiu, Tălmaciu Mihai**
“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The observations were made in 2023 in a cherry orchard located in the Eastern part of Romania, Raducaneni locality, Iași county, using the Decis trap method. In carrying out the research, 3 experimental variants were used, with three traps for each variant. The readings were performed periodically, at intervals of 10-14 days.

The three variants are represented as follows: V1- Rivan early cherry plantation; V2- cherry plantation with the Stela variety; V3- Cherry plantation with the Regina variety;

The traps were installed in the plantation on May 15, the readings being done periodically, during the vegetation period, the last reading being done on September 2, 2023.

The species collected at these traps belong to the following groups of arthropods: Diptera, Hymenoptera, Chrysopods, Orthoptera, Lepidoptera and Dermaptera.



09:35-09:40

SOME ASPECTS IN THE CONTROL OF RAPE PESTS THROUGH THE USE OF PREPARATIONS BASED ON ACETAMIPRID 200G/L + LAMBDA-CYHALOTRIN 150G/L, IN THE CONDITIONS OF THE REPUBLIC OF MOLDOVA

Croitoru Nichita, Panuța Sergiu, Tălmăciu Nela

*Technical University of Moldova, Chișinău, Rep. of Moldova
"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania*

If prevention and control measures are not applied, the harvest losses of rapeseed crops can reach 30-70% of the potential harvest. Taking into account the particularities of the rapeseed culture, it is important that chemical treatments are applied with selective phytopharmaceutical products, with little residue and a low degree of toxicity and only with warning in strictly necessary numbers, to avoid the formation of toxic residues. It is necessary to pay more attention to the activity of the numerous species of pests, which attack the rape crop during the entire vegetation period, from sowing to harvesting. As a result of the research carried out, it was demonstrated that, in the integrated complex of rape pest control, in the Republic of Moldova, chemical control plays an important role, and the composition of phytosanitary products must be constantly renewed. Thus, the chemical treatment of rape plants, with the insecticide with the active substance acetamiprid, 200 g/l + lambda-cihalotrin, 150 g/l, with a consumption rate of 0,2 l/ha, ensured an essential reduction in the numerical density of the species *Meligethes aeneus* F., (98,99 – 91,48%), *Ceuthorychus quadridens* Pany (100,00 – 90,20%) and *Brevicoryne brassicae* L., (97,76 – 91,17%).

09:40-09:45

BIOLOGICAL EFFICIENCY OF SOME INSECTICIDES CONTAINING ACETAMIPRID 200 G/L + LAMBDA-CYHALOMETRIN 150 G/L, IN THE CONTROL OF PLUM PESTS, IN THE CONDITIONS OF THE REPUBLIC OF MOLDOVA

Panuța Sergiu, Croitoru Nichita, Tălmăciu Mihai

*Technical University of Moldova, Chișinău, Rep. of Moldova
"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania*

The share of fruit crops in the national economy is due to the role that fruits have in food, in preventing and combating some diseases, as well as in increasing the national income. However, the orchards and fruit production are affected by numerous species of animal pests, which in some years multiply considerably, attack all the organs of the fruit trees and cause considerable damage. Plum plantations are attacked by various species of harmful, sucking, carpophagous or defoliating insects both during the vegetation period. The most dangerous pests, the density of which exceeded the economic damage threshold, were the plum saw wasp, the plum seed wasp, the gray plum louse and the plum worm. In combating plum pests, satisfactory results were obtained by using with the insecticide with the active substance acetamiprid, 200 g/l + lambda-cihalotrin, 150 g/l, with a consumption rate of 0,25 l/ha, which ensures a reduction of the species *Hyalopterus pruni* Geoffr. (96,32 - 88,11%), *Cydia funebrana* Tr., (94,50 – 92,56%), *Hoplocampa* spp. (92.07 - 92.93%) and *Eurytoma schreineri* Schr., (95,78%).



09:45-09:50

SENSORY ANALYSIS AND CONSUMER PREFERENCES FOR DEHYDRATED PRODUCTS

Buțerchi Ioana, Irimia Liviu Mihai

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Sensory analysis is an easy method of assessing the quality of a food product by bringing features to the attention of the public. As a complementary method in food control and expertise, sensory analysis reflects the outcome of certain physiological/ psychological aspects of the tasters, such as reception, recognition, ordering, description and appreciation. Based on the consumer's first contact with the product, the analysis measures sensory properties that affect the subjects' ability to make choices and purchasing decision. By describing the results obtained from the sensory analysis of apple crisps, this paper aims to emphasize the importance of tasting in the presentation, refinement and promotion of the product. This objective was realized in IULS where 60 people, aged between 6 and 60 years, participated. The apple crisps were evaluated organoleptically: appearance, smell, taste and flavor, and overall impression for comparison with other commercially available dehydrated products. The study aimed to emphasize the importance of consuming dehydrated fruits with enriched nutritional value by attracting the consumer's and raising public awareness on healthy eating. The results of the study showed that modern consumers choose products as natural as possible, without food additives and want to change their lifestyle and diet.

09:50-09:55

GARDENS DESIGN AS OUTDOOR EVENT SPACES

Zlati Cristina, Știrban Măriuca, Chihaia Alice

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The proposed theme aims to design and implement gardens as event spaces, addressing the need for attractive and functional environments for social and cultural activities. In the context of a demand for outdoor events, the article aims to provide innovative plant compositions, landscaping and design solutions, integrating decorative elements, functional facilities and plant selections adapted to the specific needs of event spaces. An event garden is a space designed to host various social and cultural activities. These gardens are carefully created to provide an inviting atmosphere, combining landscape design elements, functional amenities and pleasing aesthetics. The choice of this theme was based on market research, analysis of client requirements and principles of sustainable design, providing opportunities to innovate and adapt to ever-changing trends. A personal fascination with how landscape architecture can transform urban spaces into vibrant and lively places for celebrating special moments was key. These gardens not only provide a delightful natural setting for events, but also promote the connection between people and the environment, contributing to community well-being and environmental sustainability.



09:55-10:00

INTEGRATING SENSORY PLANT COMPOSITIONS IN PUBLIC SPACES

Zlati Cristina, Chihaia Alice, Știrban Măriuca

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Present study explores the basic concepts of sensory gardens design, highlighting their characteristics and qualities. It also presents the analysis of how sensory compositions can be integrated in different places, starting from case studies such as the sensory garden in the urban space, in special schools and in public institutions of daily care, addressed, for example, to the elderly. An essential part of the paper will be related to the theory of the five senses and how the therapeutic plantscape can influence these senses. This type of landscape is generally a plant-dominated environment intentionally designed to facilitate interaction with the healing elements of nature that promote human health and well-being. The research starts from the belief that every landscape has the ability to stimulate the five human senses, but landscapes with therapeutic plants in particular do so to a greater degree than others. The importance of integrating sensory aspects in the design and arrangement of public spaces, offering a new perspective on how nature can be used for the benefit of health and leading to the creation of sustainable, inclusive communities for all social categories, in particular of the disadvantaged is underlined.

10:00-10:05

INFLUENCE OF ROOTING SUBSTRATE ON THE DEVELOPMENT OF CUTTINGS IN SOME ECHEVERIA SPECIES

**Apostol Maria, Amișculesei Petronica, Ozarchevici Alina-Ștefana,
Chiriță Raluca, Dohotaru Andrei, Draghia Lucia**

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Among the most studied species of the Crassulaceae family are plants of the Echeveria genus, which show great potential as an ornamental plant on the national and international market. The morphological variability ensures the ornamental value of plants in the genus Echeveria in terms of plant size, shape, thickness, the color of the leaves, size, and shape of the inflorescence, and characters that influence their importance on the flower market. The experiments and the observations were set up in the greenhouse of the Dohotaru Andrei Individual Enterprise, Iași, Romania, during March-July 2024. Of the three species studied (*E. purpusorum*, *E. elegans*, *E. pulidonis*), *E. purpusorum* showed the shortest rooting period of the cuttings and the longest rooting period was recorded for *E. elegans* cuttings. Rosette development was mainly influenced by the type of substrate on which the cuttings were rooted. In all three species the highest percentage of rosettes formed were obtained on Dr. Soil substrate and the lowest percentage of rosettes formed in the variants where Agro substrate.



10:05-10:10

**OBSERVATIONS REGARDING MULTIPLICATION ON VEGETATIVE WAY
OF JUNIPERUS HORIZONTALIS MOENCH. SPECIES IN IAȘI COUNTY
CONDITIONS**

Bernardis Roberto Renato, Zlati Cristina, Sandu Tatiana, Dascălu M., Poșta Daniela

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Life Sciences University “King Mihai I st” Timișoara, Romania

Within the multitude of dendrological species, Juniperus species are particular importance in green areas and especially in our country's conditions that are generally favorable and very favorable to these species.

The aim of the paper is to highlight the potential for vegetative propagation of the most popular species, namely *Juniperus horizontalis Moench.*, which is found in Iași county.

During the vegetation period, observations were made on the action of rooting biostimulators and the growth rate of cuttings roots by determining the percentage of rooted cuttings, the average length of roots emitted per cuttings and the average number of roots per cut.

10:10-10:15

**POSTHARVEST CHANGES IN PHYSICO-CHEMICAL AND ORGANOLEPTIC
PROPERTIES OF APPLES**

Buțerchi Ioana, Tucaliuc Roxana Angela, Irimia Liviu Mihai

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Globally, apples (*Malus domestica*) rank among the most popular fruits. Freshly consumed, they are highly valued due to their specific aromas, sweet-sour taste, and high nutritional value. However, effective storage and packaging methods are required to preserve the nutritional content and sensory qualities at suitable periods till consumption.

The current study's goal is to prove how various packing options affect the physical chemical and organoleptic properties of apples that are ready for commercial sale. Three apple varieties packed as follows were studied: Granny Smith in modified atmosphere packaging; Bulk-packed Granny Smith; Golden Delicious in modified atmosphere packaging; Bulk-packed Golden Delicious; Red Delicious in modified atmosphere packaging, Bulk-packed Red Delicious. The following physical chemical analyses were carried out: firmness (kgf/cm²), average weight (g), total soluble solids (°Brix), titratable acidity (g malic acid/100 g), pH, gluco-acidimetric index, total dry matter (%) and starch index. The point method was used to analyze the fruits' organoleptic properties, and a graphic representation of the averages were realized. The findings confirm that packaging influences the physical chemical composition and organoleptic characteristics of apples. Apples in modified atmosphere packaging preserve acidity, pH, firmness and soluble dry matter within higher limits than apples packed in bulk and are of higher quality, regardless of variety.



10:15-10:20

**BEHAVIOUR OF SOME CHERRY VARIETIES IN THE CONDITIONS OF
NORTH-EAST REGION OF ROMANIA**

Dascălu Marius, Istrate Mihai, Zlati Cristina, Bernardis Roberto

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The cherry tree, a species always present in orchards, has undergone continuous improvements both in technological aspects and varieties assortment. While today cherry culture in Europe knows “a new breath”, in particular by increasing the number of plants per unit surface in conjunction with obtaining rootstocks and varieties of low vigor, existing plantations can be subject to detailed studies to better understand the secrets of the species.

10:20-10:25

**TRENDS IN TOTAL LIPID CONTENT OF PEA SEEDS UNDER STORAGE
CONDITIONS**

**Cărbune Răzvan Dumitru, Stan Teodor, Teliban Gabriel Ciprian,
Cojocaru Alexandru, Stoleru Vasile**

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Crop plant seeds deteriorates when stored improperly and for long periods. Thus, there is a loss of growth and vigor of aged seeds, which eventually leads to a decrease in total germ count. The decrease in vigor of young plants depends on the storage conditions, the crop species and the cultivar plays a major role. Relative humidity and storage temperature are the major factors. that influence seed quality during storage. Seed deterioration is caused by loss of carbohydrate, protein, lipid, etc. content

In order to reveal the losses in lipid content, during 2017-2019, four garden pea cultivars stored under different temperature and humidity conditions were analyzed in triplicate.

The obtained results highlight that lipids are influenced by both storage conditions and seed age. The data show a higher propensity to depreciation of the cultivar Gloriosa compared to Zsusi or Kelvedon wonder, which denotes a better genetic capacity of both cultivars to adapt to storage conditions. The best results were obtained when seeds of these cultivars were stored at 4°C and 8% humidity compared to 22 °C and 65% humidity.

10:25-10:30

**PRELIMINARY RESULTS ON GROWING EARLY CABBAGE IN AN ORGANIC
SYSTEM**

Zaharia (Rogojină) Mihaela, Stoleru Vasile

“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Cabbage crops require soils with a pH between 6 and 7.5. If necessary, amendments are used to correct soil acidity, one of which is biochar. Organic and inorganic fertilizers provide nutrients available to cabbage plants for proper vegetative growth. It has been found that nitrates accumulate predominantly in the outer leaves rather than in the head. The method of obtaining the biostimulant has different effects on nitrate content. Thus, in most cases, biostimulants obtained through



mechanical homogenization decreased the nitrate content in the leaves but increased the nitrate content in the head; biostimulants obtained using ultrasound had the opposite effect, namely increasing nitrate content in the leaves but decreasing it in the head. The results obtained regarding the influence of herbal biostimulants on the content of microelements and macroelements will be presented.

10:30-10:35

BIODIVERSITY HOTSPOTS IN URBAN DESIGN: THE ROLE OF PERENNIAL MEADOWS IN REPLACING ORNAMENTAL TURF IN INSTITUTIONAL SETTINGS

Vladimir (Asiminei) Ina, Cojocariu Mirela

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Recent studies in urban landscape design highlight the importance of green areas in cities, emphasizing their essential role in addressing the climate crisis and biodiversity decline. In recent years, the creation of urban meadows has been globally recognized as an effective solution, not only for tackling these issues but also for bringing social benefits. In urban design, perennial meadows represent an ecological alternative to traditional ornamental lawns, which often require considerable resources and contribute to biodiversity loss. Implementing perennial meadows in institutional spaces, such as university campuses or administrative complexes, can create biodiversity “hotspots”, supporting local species and improving environmental quality. This paper proposes the development of a perennial meadow design to replace the existing lawn in the outdoor space of the Faculty of Biomedical Engineering at the “Grigore T. Popa” University of Medicine and Pharmacy in Iași, evaluating the success of the initiative by analyzing three key factors: impact on biodiversity, improvement of local climate conditions, and benefits for the institution’s users.

10:35-10:40

STUDIES ON THE USE OF ZEN PRINCIPLES IN JAPANESE GARDEN ART

Chelariu Elena Liliana, Ghidiboanca Raluca, Cojocariu Mirela

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This paper presents aspects of the use of Zen principles in Japanese garden art, and how they have evolved over time. Zen principles have their origins in Japanese philosophy and culture, influencing not only thought and wisdom, but also the artistic and aesthetic manifestations of society. The work covers not only the principles themselves, but also how they were understood and applied in the art of Japanese gardens, highlighting how these concepts were translated into landscape composition, the design of spaces and the creation of an environment that reflects the balance and harmony proposed by these Zen teachings.



10:40-10:45

**THE IMPACT OF TERROIR ON THE PHYSICO-CHEMICAL
SPECIFICITY OF INDIGENOUS AND INTERNATIONAL WHITE WINES
CULTIVATED IN ROMANIA**

**Bedreag (Rebigan) Ioana Cristina, Scutărășu Cristina,
Cioroiu Ionel – Bogdan, Cotea V. Valeriu**

*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
Research Centre for Oenology- Romanian Academy Iași Branch, Romania*

The study explores the impact of terroir on the physico-chemical characteristics of white wines, focusing on both local and international varieties cultivated in Romania. Terroir represents a complex interaction of environmental factors such as soil, climate, altitude, and vine exposure, which significantly influence the profile and quality of the wines. The research compares wines from varieties like Sauvignon blanc (SB) and Fetească albă (FA), grown in various Romanian viticultural regions.

The growing conditions, soil-climate characteristics, and vinification methods applied in 2019 and 2021 had a notable influence on the physico-chemical properties of the wines. Physico-chemical parameters were evaluated to assess quality benchmarks. Results indicated established quality parameters, with alcohol strength ranging from 11.04 % (FA, 2019) to 14.6 % vol. (SB, 2021), volatile acidity between 0.1 (FA, 2019) and 0.63 g acetic acid/L (SB, 2019), and reducing substances from 0.31 g/L (FA, 2019) to 12.00 g/L (SB, 2021), indicating a broad technological complexity. Total acidity ranged between 5.05 to 7.39 g/L tartaric acid, correlating with both grape treatments and initial grape values. Significant differences ($p < 0.05$) were observed only for free sulphur dioxide in Fetească albă between vinification years.

**WORKSHOP SESSION 1: 10:00- 12:00, WINE QUALITY MONITORING
THROUGH SENSORS AND ALGORITHMS - HOW AI IS
REVOLUTIONIZING THE SENSORY ANALYSIS OF WINE**

(Adamachi farm, oenology laboratory L24)

**Chairpersons: Prof. Cotea V. Valeriu, PhD,
Assoc. prof. Luchian Camelia, PhD,
Assoc. prof. Colibaba Cintia, PhD,
Assist. Scutarașu Cristina, PhD**

**WORKSHOP SESSION 2: 12:00-14:00, THE USE OF AI TOOLS IN LIFE
SCIENCES EDUCATION**

A177 Amphitheater (second floor, main building)

**Chairpersons: Assoc. prof. Chiruta Ciprian, PhD
Lecturer Bulgariu Emilian, PhD
Lecturer Elena Veleșcu
Assist. Sonea Andromeda, PhD**



WORKSHOP SESSION 3: 12.00 – 12.50 (10 min discussions), LES OUTILS DE L' IA À L'USAGE DES ENSEIGNANTS ET DES ÉTUDIANTS

Miranda LOMIDZE

Université de Koutaïssi, Georgia
mirandalomidze@gmail.com

12.50 – 13.00 Coffee brak

WORKSHOP SESSION 4: 13.00 – 13.30 (10 min discussions), WORKSHOP ON LEARNING EXPERIENCE DESIGN FOR HIGHER EDUCATION TEACHERS

Nives Mikelic PRERADOVIC

Faculty of Humanities and Social Sciences, University of Zagreb, Croatia
nmikelic@ffzg.unizg.hr

WORKSHOP SESSION 5: 13.30 – 13.45, LE PROJET AUF "CONCEVOIR DES CONTENUS LINGUISTIQUES ET PEDAGOGIQUES A L'AIDE DES OUTILS DE L'INTELLIGENCE ARTIFICIELLE (IA) DANS LE DOMAINE DE LA MEDECINE VETERINAIRE (LANGVET-IA)"

Elena VELEȘCU

Department of Agroecology, Faculty of Agriculture, "Ion Ionescu de la Brad: Iasi University of Life Sciences, Romania
elena.velescu@iuls.ro

WORKSHOP SESSION 6: 13.45 – 14.00, THE USE OF COMPUTER APPLICATIONS: AI AND KAHOOT IN THE TEACHING OF MATHEMATICS

Ciprian CHIRUȚĂ

Department of Sciences, Faculty of Horticulture, "Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania
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**LIFE SCIENCES TODAY
FOR TOMORROW**
24-25 October 2024



**TRENDS AND CHALLENGES IN FOOD, ANIMAL SCIENCES AND
SUSTAINABLE DEVELOPMENT**



THURSDAY, OCTOBER 24th, 2024

**FIRST SECTION
ANIMAL SCIENCES**

→ Emil Honoriu Roșu (E28) auditorium, 1st Floor

PLENARY SESSION

**Chairpersons: Prof. Marius-Giorgi USTUROI, PhD
Prof Ozkan Elmaz, PhD**

**Secretariat: Lecturer Bogdan-Vlad AVARVAREI, PhD
Assist. prof. Claudia PÂNZARU, PhD**

14:00– 14:10

**CURRENT ANIMAL WELFARE PROTOCOLS ON-FARM: SCIENTIFIC
STUDIES ON INDICATORS OF POSITIVE WELFARE IN FUTURE**

Ozkan Elmaz

Faculty of Veterinary Medicine, Burdur Mehmet Akif Ersoy University, Turkiye

The concept of animal welfare is an important issue in animal husbandry. Its importance is increasing among farmers, consumers and researchers in the world in the last 50 years. Various welfare assessment protocols have been developed to measure the welfare levels of farm animals. Welfare assessment protocols began with pigs and continued with poultry, dairy and beef cattle. The Welfare Quality® assessment protocols, that developed to assess the quality of animal welfare on farms or at the slaughter. There are three broad categories of indicators used to assess animal welfare. These; resource-based indicators, management-related indicators and animal-related indicators. The Welfare Quality® assessment protocols, on-farm consists of 4 welfare principles (good feeding, good housing, good health, appropriate behaviour) 12 welfare criteria and 30 measures. In 2011–2015, an EU-funded project on Animal Welfare Indicators (AWIN) developed on-farm welfare assessment protocols for sheep, goats, horses, donkeys and turkeys, possibly using animal-based indicators. Positive animal welfare is a term increasingly used in the welfare literature. It is used to refer to an approach to animal welfare that goes beyond minimizing the negative aspects of animal welfare and encourages the promotion of the positive aspects. The researchers suggest that indicators for a future “positive animal welfare protocol” should be structured around (i) animal-based measures, (ii) emotional state indicators, and (iii) short-term emotion, medium-term mood, and long-term cumulative assessment of an animal’s life until now. In this context, based on the evidence on the validity and reliability of different indicators for cattle, ear position, play, allogrooming, brush use and QBA (qualitative behaviour assessment) were proposed as candidate indicators. Five Domains Model is a framework for assessing animal welfare that focuses on subjective mental experiences that matter to the animal. Five Domains Model consists of Domain 1 (Nutrition), Domain 2 (Physical Environment), Domain 3 (Health), Domain 4 (Behavioral Interactions) and Domain 5 (Mental State). Other animal welfare assessment frameworks exist. For example, Welfare Quality focuses on four



areas: good feeding, good housing, good health, and appropriate behavior. However, none focus on the mental experiences of animals to the same extent as the Five Domains Model. 'LIFT' is a 4-year EU funded COST Action project which will provide the background for including positive welfare in farm animal welfare assessment. The Action started in November 2022 and will continue to November 2026. Currently, the Action has more than 200 participants from 38 different countries. In the future, with the intensive use of technology in the livestock sector, it will be possible to identify "positive welfare indicators" and develop appropriate protocols.

14:10 – 14:20

THE MODULATION OF INTESTINAL INFLAMMATION BY A MUSTARD BY-PRODUCT IN E. COLI-LYPOPOLYSACCHARIDE – CHALLENGED WEANED PIGLETS

**Gina Cecilia Pistol, Valeria Cristina Bulgaru,
Iulian Alexandru Grosu, Ionelia Țăranu**

Laboratory of Animal Biology, INCDBNA – IBNA Balotesti, Romania

The agro-food industry generates a large quantity of waste/by-products, which cause environmental issues due to their increased accumulation; their inclusion in animal nutrition as nutritional strategies to improve animal health could reduce these issues. The aim of our study was to investigate the capacity of mustard meal (MM) to attenuate the E coli lipopolysaccharide induced intestinal inflammation. A feeding trial was conducted on weaned piglets grouped on four groups: piglets fed Control diet (groups 1 and 2) and 8% MM diet (groups 3 and 4); after 21 days, piglets from groups 2 and 4 were challenged with LPS. At the end of the experiment, samples of jejunum and colon were collected and a number of 42 genes involved in inflammatory response were analyzed by qPCR array technique. The results showed that MM prevented the amplitude of LPS-induced inflammation, by decreasing the 93% (in jejunum) and 73% (in colon) of LPS- affected genes. Among these, it is noticed the significant reduction of the master pro-inflammatory markers TNF- α , IL-1 β , IL-6, IL-18, RANTES. These results suggested that weaned piglets fed MM by-product are resistant to LPS-induced intestinal inflammation. Related to the anti-inflammatory potential of mustard meal, the enhancement of immune system and the attenuation of the intestinal inflammation suggested that this by-product could be used as ZnO replacer in weaning piglet's feed.

Acknowledgements: This research was funded by the project PN-III-P4-PCE-2021-0992 – PCE 40, granted by the Romanian Ministry of Research, Innovation and Digitalization.

14:20– 14:30

RESEARCH ON THE IMPACT OF FATTENING TECHNOLOGIES ON THE GROWTH AND DEVELOPMENT OF RAM LAMBS

**Alexandru Gabriel Varitc, Camelia Zoia Zamfir,
Petru Gabriel Vicovan, Corneliu Ion Neacșu,
Ana Enciu, Constantin Pascal**

*Research and Development Institute for Sheep and Goat Breeding Palas, Constanta, Romania
"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania*

The research was carried out at the Research and Development Institute for Sheep and Goat Breeding Palas Constanța on 4 batches of ram lambs from the Palas Merino breed and crossbreeds of the Palas Meat Breed x Palas Merino. These batches were tested for productive performance in intensive fattening, applying two feeding systems: one uniform throughout the entire period, and one



differentiated across the three stages of fattening (acclimatization, proper fattening, and finishing). Each batch consisted of 20 ram lambs, which were homogeneous in terms of body weight, age and sex. The daily average gains in the two feeding systems applied to the Palas Merino lambs were 299 ± 9 g and 294 ± 12 g, while the daily average gains achieved by the crossbreeds of the Palas Meat Breed x Palas Merino were 328 ± 9 g and 320 ± 10 g, respectively. Following the experiments, it was concluded that for fattening lambs for meat, either of the two feeding systems can be used: a uniform system in terms of energy and protein throughout the entire period, or a system differentiated into the three phases (acclimatization, proper fattening, finishing), depending on the resources available on the farm. The protein level in the rations used for fattening lambs of genotypes (breeds) specialized for meat can be higher than 16%, calculated over the entire fattening period. The perimeter of the gigot and the width at the coxofemoral joints showed higher values in the F1 crossbreeds of the Palas Meat Breed x Palas Merino, being 24.8% and 14.24% higher, respectively, compared to the Palas Merino breed lambs. This finding supports breeders' interest in producing crossbreed lambs for meat.

14:30– 14:40

DIFFERENCES IN NUTRITIONAL MANAGEMENT OF PANCREATIC DISEASES IN DOGS AND CATS

**Silvia – Ioana Petrescu, Mădălina Matei,
Cristina Gabriela Radu- Rusu,
Dragoș M. Lăpușneanu, I. M. Pop**

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Pancreatitis is an inflammatory condition of the pancreas, which is divided into two types: acute pancreatitis, which can occur suddenly, and chronic pancreatitis, characterized by persistent inflammation of the pancreas. One of the most commonly cited causes of inflammation of the pancreas is inadequate nutrition in dogs and cats. Current research aims to clarify the need for species-differentiated nutritional management in both the prevention and treatment of pancreatic disorders. Medical studies that emphasize the dietary management of pancreatitis indicate the use of low residue and highly digestible diets in cats with pancreatic disorders, while in dogs low fat diets are recommended.

14:40– 14:50

THE INFLUENCE OF BIOLOGICALLY ACTIVE PREPARATIONS ON THE PRESERVATION OF BOAR SEMEN

**Cibotaru E., Darie G., Djenjera I.,
Chisalița O., Rotari D., Iacob D.**

*Practical Scientific Institute of Biotechnologies in Animal Husbandry and Veterinary Medicine,
Technical University of Moldova, Rep. of Moldova*

The research was conducted on sperm collected from breeding males. Collection was performed using the manual method. For processing, ejaculates with a motility of no less than 70% and a concentration of 0.25 billion per milliliter were accepted. The study utilized the biologically active preparation MP extracted from cyanobacterial yeasts. The biologically active preparation IMB-2 was introduced as an additional component in the GHTS medium at concentrations ranging from 0.2% to 1.2%. The experimental results allowed for the attainment of sperm motility after 120 hours of storage at hypothermic temperatures, measuring $60.3 \pm 2.3\%$, with morphological indices at $63.0 \pm 0.7\%$ and a total anomaly rate of 7.8% when the concentration of IMB-2 was added as an



additional component at 0.7% in the base medium. In comparison, the control group showed these indices at $50.3 \pm 2.9\%$, $53.5 \pm 1.2\%$, and 10.2% , respectively. The average sperm progression speed after 120 hours was as follows: VAP (velocity average path) - $59.6 \pm 5.1\%$; VSL (velocity straight line) - $28.3 \pm 2.4\%$; and VCL (velocity curve line) - $115.4 \pm 1.9\%$.

14:50 – 15:00

**RESEARCH REGARDING THE CONCEPTION RATE TO COWS USING
HORMONOTHERAPY WITH GnRH AND PG F_{2α}**

Gherasim Nacu, Ștefan Ciornei, Vasile Maciuc,

Raluca Donoșă, Mihaela Ivancia

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The sexual cycle is neuro-endocrine conditioned, and the smallest disturbances of the system may lead to its blocking. For example, after calving, the resumption of ovarian activity may be delayed, thus prolonging SP and CI respectively, ultimately leading to economic losses. There are often used hormonal blends in order to correct reproductive disorders or to intensify them. In the present paper, we aimed to evaluate two methods of oestrus induction in Holstein Friesian (HF) cows that did not come into heat in 60 days after calving. Batch L1, consisting of 91 cows, was treated with Gonadotropin Releasing Hormone (GnRH, 2.5 ml) and Prostaglandine F_{2α} (PGF_{2α}, 2 ml) according to the Ovsynch protocol. Batch 2, consisting of 27 cows, was treated with 2 doses of Prostaglandin F_{2α} (2 ml) at an interval of 11 days. All cows were artificially inseminated, both those with clinical signs of oestrus during treatment and those without signs (to 18 hours after the end of treatment for the L1 group and to 72 hours for the L2 group, respectively). The average conception rate in cows in the first batch was 45.1%, higher in those showing obvious signs of oestrus (54.2%) and lower in cows without clinical signs of oestrus (42.8%). In cows from group L2, the conception rate was lower than those from group L1 (37.0%). To the cows of group L0 (63 heads), which spontaneously came into heat in the first 60 days post-partum, the conception rate was 57.14%.

15:00– 15:10

**STUDY ON THE PERFORMANCE OF MILK PRODUCTION AND GENETIC
PARAMETERS IN A HERD OF ROMANIAN BLACK SPOTTED COWS**

Amariții Gabriela, Neculai-Văleanu Andra-Sabina,

Țenu Felicia, Maciuc V.

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Research and Development Station for Cattle Breeding Dancu – Iasi, Romania

The present study analyzes the level of production achieved in a herd of Romanian black spotted dairy cows, the values of the genetic parameters and the estimated breeding value for the bulls with the highlighting of the influencing factors on the phenotypic performances. The statistical estimators were calculated with the S.A.V.C. computer program, the genetic parameters were estimated using the REML method and the breeding value was estimated using the BLUP methodology. In the case of normal lactations, the highest production average is 10141.75 kg reached in the third lactation, with 4.05% fat content and 3.38% protein. The heritability of milk production is 0.23 and this character is genetically correlated very strongly with the amount of fat and that of the protein, the coefficient value being 0.99. Although the average productions of the cows are very good,



Although the average productions of the cows are very good, the maximum production value being close of the paternal grandmothers which is of 11467 kg of milk, they do not phenotypically express their genetic potential due to the influence of external environmental factors.

15:10 – 15:20

**RESEARCH ON THE ESTIMATION OF GENETIC PARAMETERS FOR
PRODUCTION TRAITS IN THE ROMANIAN SPOTTED CATTLE BREED –
SIMMENTAL TYPE**

Roxana-Bianca Coșa, Horia Grosu

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

The objective of this study is to estimate the genetic parameters of the production traits in a population of cattle from the Romanian Spotted Cattle breed-Simmental type. Genetic parameters refer to the heritability and genotypic correlations between traits. Knowing them is essential for optimizing cattle breeding programs.

To estimate genetic parameters, the REML methodology was used, applied to a BLUP animal model, for five traits, analyzed simultaneously (milk quantity/fat quantity/protein quantity/fat percentage/protein percentage).

The obtained results revealed an intermediate genetic determinism, with heritability values in the range of 0.18-0.34. Thus, for lactation I, heritability values were 0.253 (milk quantity); 0.226 (amount of fat); 0.177 (amount of protein); 0.258 (fat percentage) and 0.252 (protein percentage). For the second lactation, heritability values were 0.339 (milk quantity); 0.306 (amount of fat); 0.312 (quantity of protein); 0.326 (fat percentage) and 0.262 (protein percentage). For the third lactation, the corresponding values were the following 0.215 (milk quantity); 0.208 (amount of fat); 0.176 (quantity of protein); 0.198 (fat percentage) and 0.213 (protein percentage).

Regarding the genetic correlations between the traits, their values were closely correlated between the amount of milk and the amounts of fat and protein (> 0.70), which shows that the respective traits are controlled by the same genes, in the same direction. Between the quantity of milk and its quality (percentage of fat and protein), the genetic correlations were negative ($-0.0162/-0.382$), which highlights the fact that selection for high milk quantity means counter-selection for milk quality.

15:20 – 15:30

**STUDIES ON THE DIFFERENT EFFECTS OF SUBSTANCES USED AGAINST
ADHESIVENESS OF FISH EGGS IN THE RECIRCULATING AQUACULTURE
SYSTEM**

Liliana B. Athanopoulos, Veta Nistor, Floricel M. Dima,

Neculai Patriche, Elena Sirbu, Magdalena Tenciu,

Desimira M. Stroe, Gabriel Ion, Cristina M. Chivoeanu

Institute of Research and Development for Aquatic Ecology, Fishing and Aquaculture Galați, Romania

An important stage in artificial reproduction in fish of the families Acipenseridae and Cyprinidae is the elimination of adhesiveness of egg process. International studies recommended a variety of substances used against adhesiveness of eggs but do not differentiate the major advantages and disadvantages of their use. The present experiment aimed to determine the effects of de-adhesion with mineral silt, talcum and tannin. The final results regarding the effect of the substances used for



de-adhesion on embryogenesis were determined by qualitative assessments, and the fungal infestation was quantitatively quantified by the percentages of fish eggs infested with *Saprolegnia* sp. in relation to the fertilization percentages. The present work emphasizes that the use of tannin for de-adhesion of fish eggs (B3) not only provides medium-good transparency in embryogenesis, but also reduces the risk of fungal infestation by 12.55 compared to de-adhesion (B1 with split) 13,56% (B2 with talcum), with comparable fertilization percentages of 87% in B1, 86.9% in B2 and 89.4% in B3, which recommends it for de-adhesing of eggs and reducing fungal attacks in aquaculture.

15:30 – 15:40

ASSESSMENT OF DNA PURITY AND QUANTITY IN TELEORMAN BLACK HEAD, SUFFOLK AND ÎLE DE FRANCE SHEEP BREEDS

**Andrei Ciobanu, Mihaela Ivancia, Constantin Pascal,
Daniel Simeanu, Mădălina Alexandra Davidescu, Șteofil Creangă**

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

The increasing demand for sheep meat requires modern methods to improve production, and genetic selection through genetic markers plays an important role in this process. The analysis of genetic markers depends on the quality of the extracted DNA, and assessing its purity through spectrophotometry is essential for the validity of genetic studies. In this study, blood samples were collected from three sheep breeds –Teleorman Black Head, Suffolk, and Ile de France. DNA was manually extracted using the Wizard Genomic DNA Purification kit (Promega), and purity was determined using the Nanodrop ASP-3700 spectrophotometer, ensuring precise evaluation of the A260/A280 ratio and DNA concentration. The DNA purity analysis of blood samples from the three sheep breeds demonstrates satisfactory results for the majority of samples. Out of 34 samples analyzed, 16 exhibited A260/A280 ratios within the ideal range of 1.7 to 2.0, indicating high-quality DNA suitable for further genetic analysis. These results highlight the overall effectiveness of the DNA extraction process and support the reliability of subsequent genetic studies.

COFFEE BREAK

15⁴⁰ – 15⁵⁰

15:50 – 16:00

RESEARCH ON THE GENETIC DIVERSITY AND MORPHO-PRODUCTIVE CHARACTERISTICS OF SOME INDIGENOUS PIG BREEDS

Dionisie Kui, Șteofil Creangă

"Ion Ionescu de la Brad" Iași University for Life Sciences, Romania

The objective of the present research is to analyze the genetic diversity and the morpho-productive characteristics of some local pig breeds and their importance in the sustainable economy of the country as well as their introduction into traditional farming systems. The first part of this study will describe the first pig breeds of Europe and Asia, their origin and their contribution to the production of the new breeds. Classification and description of the Romanian breeds by geographic areas, the presentation of the origin of each breed and populations, their growth aspects and their role in the sustainable economy of Romania. The importance of genetic conservation and its advantages in breeding, and especially the organic resistance, the organoleptic qualities and the potential for



producing traditional Romanian food. To estimate the costs of production, taking into account the hardness of local pig breeds (using pasture, and food scraps). The studies will be based on the morphological analysis in the field of local pig populations, followed by the collection of biological samples (blood) in order to establish the identity and genetic diversity by molecular genetics laboratory methods (PCR - polymerase chain reaction) to test the spatio-temporal sustainability of individuals.

16:00– 16:10

**IMPACT OF NON-GENETIC FACTORS ON GROWTH TRAITS ACROSS
TELEORMAN BLACK HEAD, SUFFOLK AND ÎLE DE FRANCE SHEEP
BREEDS**

Mihaela Ivancia, Andrei Ciobanu, Constantin Pascal, Dorel Dănuț Dronca

*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
University of Life Sciences “King Mihai I” from Timișoara, Romania*

Evaluating the effect of non-genetic factors on growth traits, such as birth weight and weaning weight, is essential for optimizing production within sheep farming systems. Factors such as sex, type of lambing (single or twin), and year of birth can significantly influence lamb development, with direct implications for their growth performance and, consequently, the economic yield of farms. The aim of this study was to investigate the influence of sex, type of lambing, and year of birth on birth weight and weaning weight in three sheep breeds: Teleorman Black Head, Suffolk, and Île de France, using t-tests and ANOVA. The results indicate that the studied non-genetic factors have a variable impact on growth traits. Birth weight is significantly influenced by the type of lambing and year of birth in the Teleorman Black Head breed ($p < 0.05$). For Suffolk, the type of lambing and year of birth have significant effects on birth weight ($p < 0.05$), and for Île de France, the same factors influenced birth weight ($p < 0.05$), while sex did not have a significant impact on birth weight in Teleorman Black Head and Suffolk breeds ($p > 0.05$), but had a significant impact in Île de France breed ($p < 0.05$). Regarding weaning weight, type of lambing, and year of birth significantly influence this trait in all three breeds ($p < 0.05$), while sex significantly influenced weaning weight ($p < 0.05$) in Teleorman Black Head and Île de France breeds and insignificantly ($p > 0.05$) in Suffolk.

These results highlight the importance of non-genetic factors in influencing birth weight and weaning weight, and are relevant for optimizing management strategies in sheep farming.

16:10 – 16:20

**ADAPTATION OF BIOSTATISTICAL METHODS FOR CROSS-SECTIONAL OR
LONGITUDINAL EXPERIMENTAL PROTOCOLS**

Laurian Cristian Cojocariu, Răzvan-Mihail Radu-Rusu

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

In recent years, biostatistics has emerged as an indispensable tool in biomedical research, playing a crucial role in the design, analysis, and interpretation of data from biological and medical studies. Biostatistics encompasses a diverse range of statistical methodologies adapted to address the unique challenges presented by complex biological systems. This paper aims to explore and contribute to the further development of biostatistics by deepening into the difference between statistical analysis tests.



The general purpose of this paper is to compare different tests for the analysis of the differences between the means of the control group and the experimental groups, in order to identify the optimal biostatistical test, correlated with the study and typology of the collected data. To perform these statistical tests and subsequently compare them, data were collected from a total of 60 BALB/c mice divided into 3 groups with equal numbers of individuals (one control group and two experimental groups) in whose food was introduced monosodium glutamate at different concentrations.

16:20– 16:30

STUDY REGARDING THE APPRAISAL OF HONEY POTENTIAL FROM THE AREA OF TĂCUTA COMMUNE, VASLUI COUNTY

Marius Gheorghe Doliș, Georgeta Diniță, Alexandru Usturoi, Mădălina Alexandra Davidescu, Claudia Pânzaru, Cristinel-Gigi Șonea

*“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania
University of Agronomic Sciences and Veterinary Medicine, Bucharest, Romania
Ministry of Agriculture and Rural Development, Romania*

The current paper represents a study accomplished on the territory of Tăcuta commune, in Vaslui County, to estimate the honey potential of the area. The results showed that here lives a spontaneous, diversified, and cultivated flora, among which exist also species of honey interest (acacia, linden, rapeseed, sunflower, etc.); they can provide up to 153 tons of honey, which would ensure conditions for the maintenance of 1260 stationary bee families. The area can also assure good conditions for capitalizing on the honey potential by pastoral beekeeping, especially for: acacia harvesting, where could be moved up to 3000 hives, linden harvesting, where could be moved up to 2700 hives, and sunflower harvesting, where could be moved up to 970 hives.

16:30 – 16:40

RESEARCH ON THE IMPACT OF FEEDING AND MAINTENANCE CONDITIONS ON THE GROWTH OF SUMMER CARP I POPULATION OF MOLDOVA PODU ILOAIEI

Mihaela Dabija Roibu, Mihai Cezar Cioran, Vasile Maciuc, Benone Pășarin

*“Olga Sturdza” Tehnological Agricultural High School, Miroslava, Iași, Romania
“Ion Ionescu de la Brad” Iași University of Life Sciences, Romania*

The cultured carp Moldova Podu Iloaiei lends itself very well both to the consumption of natural food and to the consumption of granulated feed, efficiently assimilating their potential, being possible productions of 1000-1300kg/ha, in accordance with the properties of fish water. The experiments were carried out in two fish farms, one belonging to the Valea Ursului fish farm, and the other located in the Răcăciuni fish farm. The experimental period extended over 4 months (July-October), in 2023. The ponds farm studied had areas of 1.3 ha (Valea Ursului farm) and 2.6 ha (Răcăciuni Farm), the average water depth being 1.4 m, and the population with juvenile carp from the population of Moldova Podu Iloaiei, with an average weight of 5g/specimen. The stocking with fish material taken in the study was carried out on 01.07.2023, in each pond a number of 20,000 specimens/ha were introduced. For feeding the carp, a granulated feed with a size of 3mm was used, according to a proprietary recipe, at the level of the fish farm, meeting all the requirements for growth



and development of the biological material. Through statistical analysis, the differences between the two batches were followed, comparing each period of the control fishing, following the dynamics and growth rate of the batches parked in the two summer I ponds taken in the study.

16:40– 16:50

**DAIRY 4.0: INNOVATIVE DIGITAL TECHNOLOGIES IN DAIRY CATTLE AS
PATHWAY TO IMPROVED PRODUCTIVITY IN THE CONTEXT OF CLIMATE
CHANGE**

**Andra-Sabina Neculai-Valeanu, Adina-Mirela Ariton,
Ioana Porosnicu, Catalina Sanduleanu, Gabriela Amaritii**

Research and Development Station for Cattle Breeding Dancu, Iasi, Romania

Academy of Romanian Scientists, Bucharest, Romania

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Climate change is one of the significant challenges that dairy farmers confront, leading to adverse effects on milk production, animal well-being, and the economic revenues of a dairy farm. The rising global temperatures call for designing new approaches for mitigating the consequences of heat stress. Emerging technologies within the sector’s digital revolution provide solution strategies for the animal husbandry business, including dairy farming through real-time monitoring, predictive analytics, and adaptive management strategies to enhance productivity, sustainability, and resilience in farms. This paper explores the applications, benefits, challenges, and potential of innovative digital technologies including precision livestock farming (PLF), Internet of Things (IoT) sensors, artificial intelligence (AI), big data analytics, and blockchain, in transforming modern dairy farming and mitigating heat stress.

16:50 – 17:00

**RESEARCH ON THE HETEROSIS EFFECT FOR MEAT PRODUCTION IN
CROSSBRED LAMBS OBTAINED FROM CROSSING ȚIGAIE SHEEP WITH
MEAT TYPE BREED RAMS**

**Constantin Pascal, Costică Cristian,
Dragoș Bulmagă, Georgiana Păun**

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Research and Development Station for Sheep and Goat Breeding Secuieni - Bacău, Romania

The purpose of the research was to evaluate the effect generated by the use of meat type rams from the Vandeen, Blanche du Masif Central and Berrichon du Cher breeds on the main specific indicators of sheep meat production. The biological material was represented by F1 lambs resulting from the crossing of the respective meat breeds with local females of the Țigaie breed - rusty variety. The evaluation period was carried on when the lambs were in the nursing stage. Based on the values obtained at weaning, the average daily growth gain and the total gain accumulated during the 75 days of suckling were determined. The differences recorded between the performance of the Țigaie breed lambs and that of the crossbred lambs is evident and has a high degree of statistical significance ($P \leq 0.001$) both for the total gain and for the average daily gain.



17:00– 17:10

**RESEARCH ON IMPROVING THE QUALITY INDICES SPECIFIC TO MEAT
PRODUCTION IN THE BOTOȘANI KARAKUL BREED**

**Nechifor B.I., Nechifor I., Boldișor A., Nechifor D.C.,
Țurcanu I., Maciuc V., Pascal C.**

*Research and Development Station for Sheep and Goat Breeding Popăuți, Botoșani, Romania
"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania*

The main objective was to find solutions to improve the maintenance conditions of crossbred young sheep in order to increase their productive potential for meat production. The research was conducted on two experimental groups of crossbred young sheep from the F1 and R1 generations, obtained by crossing Botoșani Karakul ewes with rams specialized in meat production. The formation of the experimental groups aimed to apply an experimental protocol for analyzing the butchered regions in the carcass structure of crossbred young sheep. For data accuracy, the R1 generation crossbred youth from 2022 was compared with the F1 generation crossbred youth from 2020, 2021, and 2022. The evaluation of the carcasses was performed by analyzing the slaughter yield, defined as the percentage ratio between the carcass mass and the live animal mass, as well as by determining the percentage of butchered regions, which reflects the distribution and economic value of the main anatomical parts of the carcass. In the case of the 2021 crossbred youth, the half-carcass analysis revealed the following: 7.76 kg of meat, 2.31 kg of bones, and 1.17 kg of fat, with the ratio between the average bone weight and average meat weight being 1:3.36. The proportion of body regions in the carcass was 33.07% haunch, 16.58% loin, 22.04% breast with flank, and 28.31% neck and shoulder. The study also details the growth performance, including daily average gain and slaughter yield, comparing the F1 and R1 generations. It demonstrates that, although the growth rate of the F1 generation individuals was initially higher than that of the R1 generation individuals, by six months, the differences become insignificant. The experimental methods used showed that the crossbred young sheep exhibit superior performance in terms of growth rate, slaughter yield, and the value of butchered regions compared to Botoșani Karakul young sheep.

17:10 – 17:20

**RESEARCH ON THE INFLUENCE OF EXPLOITATION TECHNOLOGY ON
THE QUALITY OF MILK OBTAINED FROM THE BROWN BREED**

**Maciuc V., Nistor-Anton Mariana,
Amarîții Gabriela, Bojoga Dana**

"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania

The present paper approaches a current topic namely the influence of cow exploitation technology on their milk quality. The study was carried out on 85 cows from the Brown breed rearing in different exploitation systems, in the mountainous area. It was studied the technological factors and milk quality indicators like the number of somatic cells. For this indicator the average value was 466.78 ± 207.121 thousand/ml in the herd exploited in extensive system and of 157.64 ± 16.925 thousand/ml for herds exploited in the semi-intensive system. The percentage of fat in the cows' milk rearing in extensive system had an average value of $3.86 \pm 0.257\%$ and for those exploited in the semi-intensive system the average value was $4.64 \pm 0.151\%$. The milk protein percentage had an average value of $3.36 \pm 0.137\%$ in case of the extensive system, respectively an average value of $3.73 \pm 0.040\%$,



for the semi-intensive system case. The quantity and quality of milk varies, within very wide limits, from one cow to another, depending on the technology applied, even if the animals benefit from the same exploitation system and feeding conditions.

17:20 – 17:30

STUDY REGARDING THE CANINE POPULATION OF GERMAN SHEPHERD BREED FROM VON BISMARCK KENNEL

Raluca Donosă, Luminița Mihaela Axinte, Lenuța Fotea
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The German Shepherd is a highly versatile and intelligent dog breed known for its loyalty, strength, and trainability which have made it one of the most respected dog breeds worldwide. The aim of this study was to analyse the German Shepherd dog population raised in the Von Bismark kennel from a morphological and reproductive point of view, wanting to establish if the unit meets the requirements for breeding and selection of this breed. Thus, the body dimensions, reproductive performance of the adults were evaluated, but there were also, considered the canine youth development and growth indexes.

17:30 – 17:40

MORPHOLOGICAL DYNAMICS OF THE SHAGYA ARABIAN HORSE BREED AT RĂDĂUȚI STUD FARM

**Claudia Pânzaru, Răzvan Mihail Radu-Rusu,
Mădălina Alexandra Davidescu, Ioana Bolohan (Acornicesei),
Marius Laurian Maftel, Marius Gheorghe Doliș**
*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania*

The Shagya Arabian horse breed is highly appreciated for its unique combination of elegance, strength, and character. Regarding contributions to its morphological dynamics, the present study examined the height at the withers, heart girth, and cannon girth of mares registered over a 30-year period and stallions registered over a 15-year period at the Rădăuți Stud Farm. The results showed that, for mares, the average height at the withers ranged from 154.30 ± 0.26 cm to 154.80 ± 0.25 cm, the heart girth from 176.20 ± 0.80 cm to 177.10 ± 0.77 cm, and the cannon girth from 18.70 ± 0.19 cm to 18.90 ± 0.70 cm. For stallions, the average height at the withers ranged from 157.66 ± 1.21 cm to 161.22 ± 0.84 cm, the heart girth from 177.25 ± 4.09 cm to 183.33 ± 1.83 cm, and the cannon girth from 18.50 ± 0.77 cm to 19.16 ± 0.31 cm. In all cases, the coefficient of variation indicated that the studied traits are homogeneous. However, as the breeding objectives to improve these traits were not fully met for the cannon girth, changes should be implemented in the breeding management for this population.



17:40– 17:50

THE EFFECTS OF NATURAL BIOSTIMULANTS ON THE PRODUCTIVE PERFORMANCE OF BROILER CHICKENS

**Atudosiei (Aniță) Gabriela, Radu-Rusu Răzvan Mihail,
Usturoi Alexandru, Rațu Roxana Nicoleta,
Davidescu Mădălina Alexandra, Doliș Marius Gheorghe,
Usturoi Marius Giorgi**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The study aimed to assess the effect of natural biostimulants on production indicators in broiler chickens fed with compound feeds of different qualitative characteristics. The research was conducted on 9,000 Ross-308 chicks, divided into two growth series (Series A - slow-growth feed; Series B - fast-growth feed); each series included a control group (without biostimulants), two groups supplemented with Esstence (8 ml/litre of water for 15 days), and two groups treated with Herba Safe (2 ml/litre of water for 10 days). In the control groups, the slaughter weights were 6.01-1.31% lower than those of the chicks treated with Herba Safe and 6.70-2.36% lower than those that received Esstence. The feed conversion ratio was 5.38-7.71% higher compared to the Herba Safe groups and 9.06-11.88% higher compared to the Esstence groups, while mortality rates were higher by 0.86% and 1.68-1.66%, respectively. The conclusion of the study was that the Esstence preparation, administered in the first 15 days of life (8 ml/litre), ensures the best performance in Ross-308 hybrids, regardless of the quality of the compound feeds used.

17:50 – 18:00

THE INFLUENCE OF SEASON AND STOCKING DENSITY ON MEAT QUALITY IN BROILER CHICKENS

**Curea Cornelia Daniela, Radu-Rusu Răzvan-Mihail,
Usturoi Alexandru, Rațu Roxana Nicoleta,
Davidescu Mădălina Alexandra, Doliș Marius Gheorghe,
Usturoi Marius Giorgi**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

To assess the influence of season and stocking density on meat quality in Ross-308 chickens, two experiments were conducted (one in December-January and the other in July-August), each with three groups differentiated by stocking density (19 birds/m² = Lc-1 and Lc-2; 17 birds/m² = Lexp-1 and Lexp-3; 16 birds/m² = Lexp-2 and Lexp-4). In the warm season, the pH of the meat showed narrower ranges between measurements on warm meat (6.70-6.76) and refrigerated meat (6.03-6.11), compared to the values found in the cold season (6.75-6.80 vs. 6.11-6.18). The sensory qualities of the meat were influenced by stocking density, with lower densities receiving higher scores. However, the scores in the warm season were lower than those in the cold season. Compared to the chickens reared at higher densities, those housed at the 16 birds/m² stocking rate had the highest dry matter content (0.60-0.71% higher in the cold season and 0.65-0.71% higher in the warm season), protein content (0.41-0.55% and 0.54-0.62% higher, respectively), and lipid content (0.10-0.11% and 0.13-0.17% higher, respectively). In conclusion, to maintain meat quality within normal limits during periods of extreme temperatures, lower stocking densities should be applied.



**SECOND SECTION
FOOD SCIENCES**

→ Animal Physiology Laboratory, 2nd floor

PLENARY SESSION

**Chairpersons: Prof. Paul-Corneliu BOIȘTEANU, PhD
Joël GAUTRON, PhD**

**Secretariat: Lect. Cristina-Gabriela RADU-RUSU, PhD
Lect. Cătălin-Emilian NISTOR, PhD**

14:00 – 14:10

**DIFFERENTIATION OF MANGALITZA PIGS FROM LARGE WHITE AND
WILD BOAR IN BIOLOGICAL SAMPLES AND MEAT PRODUCTS USING DNA
MARKERS**

**Alexandra Silvia Ardelean Costin,
Valentin Adrian Bâlțeanu, Marian Mihaiu**
University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

The demand for Mangalitza derived meat products on the market increased significantly in the last years. Because of the low number of pigs from this breed to satisfy this demand fraudulent practices consisting of meat substitution or undeclared crosses with more productive pig breeds or wild boars might occur. DNA-based methods might offer a viable alternative to limit these possible fraudulent practices. In this respect, we tested the possibility to use some single nucleotide polymorphisms (SNP) located in SLC45A2 and MC1R genes as DNA markers for differentiation of Mangalitza from Large White pigs and from wild boar in biological samples and in some derived pork products. The genotyping data revealed that they might be successful used for this purpose.

14:10 – 14:20

**COMPARATIVE ANALYSIS OF THE CHARACTERS INVOLVED IN THE
INFECTIVITY OF LACTOCOCCUS LACTIS STRAINS ISOLATED FROM
DIFFERENT ENVIRONMENTS**

**Nicoleta-Raluca Chelaru, Ionela Sarbu,
Diana Pelinescu, Ileana Stoica, Tatiana Vassu-Dimov**
University of Bucharest, Department of Genetics, Bucharest, Romania

Although most strains of *Lactococcus (L.) lactis* are considered Generally Recognized as Safe (GRAS), some data reported infectious diseases associated with this species. In order to identify virulence factors involved in pathogenicity of strains belonging to this species a comparative study was conducted on two *L. lactis* strains included, one isolated from a patient with endocarditis and another strain with probiotic potential, previously characterized. Main assessed tests were: capacity to auto-aggregate and co-aggregate with pathogenic strains (*S. Typhimurium* ATCC 14028, *S. aureus*



subsp. aureus ATCC 25923 and *E. coli* with ESBL phenotype), biofilm formation, adherence to HT-29 cell line, hemolytic activity and serum resistance assay. Experimental results showed significant differences between the strains proving the virulence and pathogenicity potential of *L. lactis* strain isolated from patient with endocarditis. Yet, mechanisms involved in such traits remain still poorly understood because of lacking knowledge on the subject. In this concern, our study underlines the need for rigorous characterization in terms of virulence and pathogenicity traits of *L. lactis* strains before using them in biotechnological applications.

14:20 – 14:30

REVAMPING TRADITIONAL INGREDIENTS IN ONE INNOVATIVE PRODUCT WITH HEALTH BENEFITS

Gabriela Berechet

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Sweet products will always hold a place as indulgent treats, and recent tax hikes of over 10% on sugars will impact consumer behavior. This may lead to reduced purchases of sweet products, less frequent consumption, or a preference for delicious and health-conscious sweets. Modern consumers are increasingly aware of the health benefits of foods, which nutritionists often tout as superfoods. Functional products, in particular, are foods or ingredients that offer health benefits, aiding in disease prevention or treatment. Some market studies in recent times show that consumers are more and more aware of the health-benefits of prebiotics at the same time they are sensitive to taste and price. While selecting the ingredients as sources of prebiotics, it has been found that they were often chosen not necessarily for their nutritional value or health benefits, which was often insufficiently researched, but as substitutes for luxury items like coffee, cocoa, and their derivatives such as instant coffee and chocolate. Previous research on selected ingredients highlights their significant nutritional properties that contribute to overall health. This study aims to develop a product based on instant chicory, oatmeal, and a non-sweetened jam of plumps that combines the functional benefits, using the natural sweetener *Stevia Rebaudiana* to satisfy the sweetness preferences of at-risk consumers (such as those with diabetes and obesity) and appealing as a treat and a nutritious option.

14:30 – 14:40

A REVIEW OF GOAT MEAT COMPOSITION, QUALITY AND HEALTH BENEFITS

**Marinică Laura, Nadolu Dorina, Anghel Andreea Hortanse,
Dordescu (Preșa) Oana Corina, Pascal Constantin**

*National Association of Goat Breeders of Constanța, Romania,
Institute of Research-Development for Sheep and Goat Breeding Palas, Constanța, Romania
“Ovidius University” of Constanta, Romania
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania*

With a long tradition in different regions of the world, rearing goats for meat production has become a valuable agricultural activity, given the adaptability of these animals to different environments and climatic conditions. Goat meat production plays a key role in meeting global demand for healthy meat. Although a major source of meat in developing countries, where it is valued, goat meat is less popular in Western countries. Perceptions are changing, however, as its health benefits are becoming increasingly recognized, mainly due to its low fat and cholesterol content. The



aim of this article is to provide a detailed assessment of the composition and quality of goat meat, examining its nutritional aspects and impact on health, highlighting the benefits it can bring to the daily diet. Understanding these aspects is essential to ensure optimal quality for consumers, thus helping to promote goat meat as a valuable and healthy dietary option.

14:40 – 14:50

IMPACT OF FARMING SYSTEMS ON MILK QUALITY: A PRECISION LIVESTOCK FARMING MANAGEMENT APPROACH

**Cătălina Sănduleanu, Andra-Sabina Neculai-Văleanu,
Aida Albu, Roxana Nicoleta Rațu, Marius Giorgi Usturoi,
Vasile Vintilă, Vasile Maciuc**

*"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania
Research and Development Station for Cattle Breeding Dancu, Romania*

This study provides a comparative assessment of milk quality from various dairy cattle farming systems, each employing distinct management strategies. The farms are located in the N-E of Romania. The analysis emphasizes the impact of factors such as feeding practices, housing conditions, and milking procedures on key milk quality parameters, while also evaluating the integration of precision livestock farming technologies. The study found that the extensive farm had the highest average values for milk fat (4.318%), protein (3.591%), casein (2.898%), lactose (4.927%), and total solids (13.201%), while the intensive farm consistently showed the lowest averages across most parameters. The findings offer a deeper understanding of how different farming systems influence milk quality, delivering actionable insights for dairy producers, processors, and consumers seeking to optimize production and ensure high-quality products.

14:50 – 15:00

STUDY ON THE NUTRITIONAL VALUE OF THE POULTRY MEAT ISSUED FROM DIFFERENT FARMING SYSTEMS

**Boroș Maria-Monica, Mircea Ioan Pop,
Răzvan Mihail Radu-Rusu,
Cristina-Gabriela Radu-Rusu, Daniel Simeanu**

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

The present study focuses on the fatty acids profile and amino acids profile of domestic animals meat from different intensive, free-range and organic farming systems. Broiler chicken meat contains unsaturated fatty acids such as oleic acid and linoleic acid, which are considered to be beneficial to health (h/H 2.52-3.16). Turkey meat was characterized by a high proportion of unsaturated fatty acids (MUFA + PUFA ~68%). The fatty acid profile varies according to the different anatomical segments of the pork, with the muscle showing the highest levels of SFA. Beef showed an n3/n6 ratio varying between 1.9 and 2.6. The importance of proper management of animal diets to improve meat quality is also emphasized. Meat is the most consumed protein source, rich in essential amino acids, therefore this study can help guide dietary decisions based on consumer health and lifestyle preferences, as well as improve practices in sustainable agriculture.



15:00 – 15:10

**INFLUENCE OF ARTIFICIAL ADDITIVES ON MEAT CONSUMER
PERCEPTION**

**Elena-Iuliana Flocea, Marius-Mihai Ciobanu, Ioana Gucianu, Cătălin-Mihai Ciobotaru,
Diana-Remina Manoliu, Bianca-Georgiana Anchidin, Paul-Corneliu Boișteanu**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This study aimed to evaluate the impact of the additive E250 in concentrations of 0.05% and 0.1% on the sensory properties of a functional product with a heterogeneous structure. Two main anatomical areas from *Sus scrofa domestica* were selected: *Musculus gluteus maximus* and *Musculus longissimus dorsi*, both commonly used in the production of meat products. The additive-treated samples were subjected to sensory analysis to determine their influence on texture, flavor, and overall acceptability. The results indicated a significant sensory impact on the treated products, which received higher scores for perceived quality compared to the untreated samples, which generated predominantly negative reactions, including aspect and odor rejection. These data highlight the important role that additives can play in enhancing the sensory characteristics of food products, such as taste, texture, and aroma, thus contributing to increased consumer acceptance. Additionally, the results provide insights for refining the technological manufacturing processes of functional meat products, with the potential to improve both perceived quality and production efficiency in the food industry.

15:10 – 15:20

**RESEARCH ON THE MATURATION OF MEAT FROM THE ILE-DE-FRANCE
AND MERINOS DE PALAS BREEDS**

**Mihai Nelu Baștea, Marius-Mihai Ciobanu, Cătălin-Mihai Ciobotaru, Diana-Remina
Manoliu, Bianca-Georgiana Anchidin, Ioana Gucianu,
Elena-Iuliana Flocea, Paul-Corneliu Boișteanu**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The aim of this paper is to conduct a comparative study on the wet aging process and evaluate its effects on the physical parameters of meat from Ile de France and Merinos de Palas sheep breeds. The study focused on two specific anatomical regions, the leg (*Musculus biceps femoris*), and the ribeye (*Musculus longissimus dorsi*), to identify differences and similarities in the evolution of meat quality based on breed and region. The research monitored pH fluctuations during the aging process for both breeds and evaluated their impact on meat quality. The study investigated the processes of oxidation and degradation of pigments and lipids in the meat, as well as methods for maintaining an appealing and stable color, which is essential for consumers' perception of meat freshness and quality. Comparing the physical parameters between the Ile de France and Merinos de Palas breeds allowed the identification of differences and similarities in the influence of wet aging on the leg and ribeye. The sheep meat industry can benefit from the implementation of an integrated system for monitoring and adjusting aging conditions, which should include pH parameters, sensory qualities, and color evolution. Educating consumers on how these factors affect meat quality, along with promoting sustainable production practices, can help increase appreciation and demand for high-quality sheep meat.



15:20 – 15:30

**THE INFLUENCE OF LIPID ADDITIVES IN THE FEED OF FARMED CARP
(CYPRINUS CARPIO L.) ON THE QUALITY OF THE MEAT OBTAINED**

B. Păsărin; G.V. Hoha; C.E. Nistor; Cristina Simeanu

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

In the conditions of an obvious and aggressive contamination of sea and ocean fish meat, freshwater fish can represent an important source of strategic protein for countries with a developed fish culture associated with a competitive fish industrialization sector. Fish meat continues to represent an important source of polyunsaturated fatty acids, necessary both to feed modern man and to preserve his health, with fractions n-3 and n-6 being given special attention (especially linoleic acid -C18 : 2 n-6 and α -linolenic acid - C18: 3 n-3). However, as is known, these fatty acids cannot be synthesized by fish metabolism, so their intake depends on the diet provided or allocated in the feeding technology. Starting from these considerations, under production conditions, it was tested the possibility that different intakes of lipids included in the carp feed could influence the composition of fatty acids in the meat, thus counting on obtaining a meat with high nutritional value. The biological material, consisting of carp from the Ila summer, was divided into distinct batches, depending on the type of fats included in the supplementary feed (vegetable oils – Lot LI and L2 and animal fat – Lot L3), individuals of the control Lot (Mt) being fed with the standard feed of the fish farm that hosted the experiments. After completion of the experimental period, the fish were analyzed for lipid content and fatty acid composition of the meat, samples being collected from the dorsal muscle (meat without skin). At the end of the growing period in autumn, the average weight of carp varied between values of 816 g/individual in group Mt and values of 916 g/individual in group L1 (feed and sunflower oil, 10%), 957 g /specimen in batch L2 (forage and pumpkin seed oil, 10% and 1003 g/specimen in batch L3 (forage and pork fat, 10%). The lipid content of the skinless back muscle varied between a minimum of 6.83 % (Batch Mt - medium fat) and a maximum of 12.4% (Batch L3 - fat). The results show that the group of carp that ingested only the basic feed (LMt) presented lower contents of lipids and also of n-3 and n-6 fatty acids, compared to the carp of the other groups, the differences being statistically significant. However, even though the lipid level of carp supplemented with vegetable and animal fats was higher than that of carp that ingested only the basic feed, the absolute contents of n-3 and n-6 fatty acids were relatively identical, for all batches, which is explained by a certain type of fish metabolism. In conclusion, we affirm the fact that a high content of n-3 and n-6 fatty acids in the diet can lead to differences between groups fed with lipid supplements, but without these differences being statistically significant. The highest level of n-3 and n-6 fatty acids was identified in the case of the group that received the most energy-rich diet, namely animal fat, 10% addition.

15:30 – 15:40

**THE INFLUENCE OF ECO-GENETIC VARIETIES OF THE MANGALIȚA
BREED ON THE CHEMICAL COMPOSITION OF THE MEAT AND THE
PROFILE OF FATTY ACIDS IN THE MEAT**

B. Păsărin; G.V. Hoha; C.E. Nistor; Cristina Simeanu

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The increasing number of consumers of meat and products derived from meat obtained from the Balkan breed of Mangalita pigs, shows a definite concern about the nutritional and healthological



quality of food products derived from some breeds of pigs. This is also the reason why, for a certain period of time, the Mangalița breed has started to re-enter the attention and concerns of breeders in Romania, becoming a biological material for the export of live animals. Within the present research protocol, the aim was to investigate the possible influences of the eco-genetic varieties belonging to Mangalița pigs (blonde, black and red-brick varieties) on the chemical composition of the meat and the profile of fatty acids, analyzes carried out at the level of the Longissimus dorsi muscle. Following the research and observations undertaken, it can be stated that, although raised in the same system, fed with the same category of feed and having similar ages and body masses, the quality characteristics of the meat varied between individuals, corresponding to the eco-genetic type. Regarding fat composition, a higher proportion of n-3 and n-6 polyunsaturated fatty acids (PUFA) was identified in pigs belonging to the red-brick variety, while the ratio between them was significantly more balanced, compared to the others varieties. The ratio of polyunsaturated fatty acids to saturated fatty acids (PUFA/SFA) was not significantly different between groups, while the ratio of monounsaturated fatty acids to saturated fatty acids (MUFA/SFA) was significantly lower in pigs brick-red. In conclusion, we can affirm the fact that within the Mangalița breed there are certain chemical characteristics of the meat, which vary according to the eco-genetic type, a fact that increases the importance of the exploitation of this breed in different technological systems.

COFFEE BREAK

15⁴⁰ – 15⁵⁰

15:50 – 16:00

CHARACTERISTICS OF PIG CARCASS FROM ROMANIA

**Gabriel Vasile Hoha, Cătălin Emilian Nistor,
Alexandru Andrei Casapu, Roxana Bobeică, Benone Păsărin**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

In Romania, the system for classifying pig carcasses according to the percentage of meat in the carcass was established in 2004, being motivated by the guarantee of a fair payment to breeders and the continuous improvement of pig herds to obtain higher quality carcasses. The strict classification of pig carcasses has been imposed on slaughterhouses in Romania since march 2006, following the EU rules for establishing the reference content of lean meat. For a current image of the quality of pig herds raised in Romania, the data from the year 2023 were analyzed. According to the data of the Romanian carcass classification commission, in year 2007, 1,988,791 carcasses were classified, reaching in year 2023 at 3,065,086 carcasses. Of these cases 1,845,735 were of S quality class, 1,075,295 were of E quality class, 133,764 were of U quality class the difference of 10,292 cases cases were of R, U and P classes. The weight of the cases varied , depending on the live weight of the classified pigs, having values between 64.77 kg and 105.13 kg. The main conclusion of the study is that, over time, the number of classified carcasses had an upward evolution, at the same time the quality of the carcass was thus demonstrated and the very good quality of the own livestock in Romania.



16:00 – 16:10

RESEARCH ON THE QUALITY OF MANCHURIAN ROE SOLD ON IASI COUNTY MARKET

**Cătălin Emilian Nistor, Cătălina Teodora Cîrmaciu,
Gabriel Vasile Hoha, Alexandru Usturoi, Benone Păsărin**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Manchuria red roe are derived from the *Oncorhynchus keta* wild salmon species and belong to the by-products of these fish, bringing a great nutritional benefit to those who consume them. This type of eggs contains significant amounts of nutrients such as 30% protein, 30% easily assimilable fats, 10-13% lecithin, vitamins A, E, D, B complex, phosphorus, iron and other mineral substances, so a constant consumption of roe leads to reduced triglyceride levels and may help in the fight against depression, with arthritis or Alzheimer's disease. This research aimed at highlighting the most significant sensory characteristics, as well as physico-chemical and microbiological parameters for the three assortments of red roe sold on Iasi County market. As a result of the study, it was especially highlighted that in the case of all assortments the recorded protein content was below the level mentioned on the label, a fact for which we recommend a review of the labels of the 3 products.

16:10 – 16:20

RESEARCH ON THE TECHNOLOGICAL, SENSORY AND PHYSICO-CHEMICAL CHARACTERISTICS OF SOME TYPES OF BREAD WITH RYE FLOUR SOLD ON IASI COUNTY MARKET

**Cătălin Emilian Nistor, Gabriel Vasile Hoha,
Alexandru Usturoi, Benone Păsărin**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Bread obtained by adding rye flour is recommended for people suffering from hypertension, diabetes, other cardiovascular diseases, but also for people who have need a balanced and healthy diet. It is also an important food source in the case children developing the intestinal flora and ensuring the nutritional intake they need for a healthy growth. Aim of this paper is to present the influence of different added amounts of rye flour on the technological, sensory and physico-chemical properties of some types of bread. The sensory features monitored were: the shape and volume of the product, the color and appearance of the crust the degree of ripening and the appearance of the core, the porosity of the core and the structure of the pores, the smell and the taste. The physico-chemical evaluations consisted in determining the total mass of the product, determining the H/D ratio, determining the acidity, determining the water content, determining the salt content. Following the study, it was observed that with the increase in the content of added rye flour, the color and taste of the bread changes, the elasticity and porosity decrease inversely proportionally, and the shelf life of the bread increases.



16:20 – 16:30

RESEARCH ON THE PHYSICAL-CHEMICAL PROPERTIES OF MANGALIȚA BREED PORK MEAT FROM DIFFERENT VARIETIES RAISED IN THE AREA OF MOLDOVA

**Nistor Constantin, Păsărin Benone,
Tihiniuc-Popa Bianca-Petruța, Manea Dragos Florin**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Mangalitsa is one of the old-type breeds, formed a few centuries ago by crossing primitive European and Asian pigs. This breed was introduced to Romania from Serbia in the 19th century, being specialized for fat production. In our country, the Mangalița pig breed was exploited until the 1950s, after which the herds of pigs of this breed decreased drastically as a result of the growth of some breeds and crossbreeds with high productive performances, but also of the change in the consumption habits of the population. In this study, a series of data obtained from the analysis of the physico-chemical properties of Mangalitsa pig meat, which come from specimens of different varieties raised in the NE area of the country, are presented. The biological material used to carry out this study was represented by pigs from the Mangalița breed, which come from 3 different varieties, namely the blonde variety, the red variety and the sparrow-bellied variety.

16:30 – 16:40

RESEARCH ON THE TECHNOLOGICAL PROPERTIES OF MANGALIȚA BREED PORK FROM PIGS OF DIFFERENT AGES RAISED IN THE NE AREA OF THE COUNTRY

**Nistor Constantin, Păsărin Benone,
Tihiniuc-Popa Bianca-Petruța, Manea Dragos Florin**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The Mangalița pig breed is considered one of the oldest pig breeds in Europe, so at the end of the 19th century Mangalița pigs were the main breed of pigs bred in Europe, they were raised and fattened up to a weight of 250 - 300 kg, especially for fat. Although it was not created in our country, the Mangalița is considered a local breed, because it was raised on the territory of our country since ancient times, during which it perfectly adapted to the natural and growing conditions here. Within the framework of this paper, results obtained from the analysis of the technological properties of Mangalița pig meat, from specimens of different ages, of both sexes, are presented, thus the rate of losses due to refrigeration, the rate of losses due to freezing and thawing, respectively the rate of losses due to roasting and boiling of Mangalita breed pork. In most cases, the results obtained showed a higher percentage of losses, in younger specimens, which presented a lower degree of fattening.



16:40 – 16:50

**MINERAL OIL HYDROCARBONS (MOHS) IN FEED: A CASE STUDY
FOCUSED ON CORN SILAGE CONTAMINATION**

**Mădălina Matei, Silvia Ioana Petrescu,
Bianca-Maria Mădescu, Dragoș Lăpușneanu,
Daniel Simeanu, Ioan Mircea Pop**

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The paper aims to assess the contamination of feed with mineral oil saturated hydrocarbons (MOSH) and aromatic hydrocarbons (MOAH) and to investigate whether corn silage could represent a significant source of contamination for farm animals. Specific extraction and purification procedures, along with the LC-GC-FID coupled detection technique, were applied to analyze corn silage samples from a dairy farm. Classical methods were used to determine the crude chemical composition. Among the chemical components, the crude fat content (2.7% DM) was particularly relevant to the study of contaminants. Meaningful concentrations of MOSH (26.5 mg/kg) and MOAH (0.5 mg/kg) were detected in the corn silage samples, attributed to both direct exposure of crops to polluting emissions and technological contamination. This paper provides valuable insight into food safety within the livestock production chain and contributes to the improvement of agricultural and technological practices to minimize the risks associated with contamination.

16:50 – 17:00

**ANALYSIS OF FOOD PRODUCTS CERTIFIED WITH QUALITY SCHEMES
ACROSS THE EUROPEAN UNION**

**Dragoș Mihai Lăpușneanu, Mădălina Matei,
Silvia Ioana Petrescu, Ioan Mircea Pop**

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The work aims to achieve an analysis of the status of implementation of food products quality schemes in the countries of the EU. The information gathered from the "eAmbrosia" database were methodologically analysed, processed, summarized and prioritized in correlation with the European legislation. The data entered and processed within this study cover the 1996-2024 period and refer to: the determination of the number of products registered under the PDO, PGI and TSG quality schemes by each EU country; the highlight of the total number of registered products in each class; the highlight of the countries with the most registered products, namely those with the fewest registered products. The results obtained show that during the analyzed period, the producers from the EU countries certified and registered 1561 products, of which 667 PDO (42.7 %), 826 PGI (52.9 %), and 68 TSG (4.3 %). In conclusion, the work proposes a set of recommendations to intensify the implementation of quality schemes at national level.

17:00 – 17:10

**CLIMATE CHANGE AND RURAL DEVELOPMENT.
CASE STUDY: GALATI COUNTY**

Camelia Epure, Silviu Stanciu
Dunărea de Jos University of Galați, Romania

Climate change, increasingly felt in recent years, has a significant impact on agricultural activities and rural development. The purpose of this study is to analyze the effects of climate change



on rural communities, with a specific focus on Galați County. For documentation, open-access articles available on platforms such as Google Scholar, ResearchGate, and Web of Science were used. The applied research involved processing public information obtained from national statistics and local public institutions. The data were processed using statistical methods, presented in tabular and graphical formats, and thoroughly analyzed. The results obtained were validated by correlating them with relevant scientific information from the literature. The research findings highlighted that rural development in Galați County is significantly affected by climate change, particularly by drought. To mitigate these effects, the authors recommend implementing structural changes in the rural economy and applying support schemes tailored to the economic environment. The research is part of the preparatory phase of a doctoral thesis and will be supplemented by further studies.

17:10 – 17:20

**ASPECTS OF THE USE OF INFORMATION AND COMMUNICATION
TECHNOLOGIES AND THEIR IMPACT ON THE EDUCATION OF STUDENTS,
FUTURE ENTREPRENEURS**

**Brezuleanu Carmen-Olguța, Ungureanu C. Ovidiu,
Brezuleanu Madalina-Maria, Paduraru Florin Andrei, Clipa Flavian**

*"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania
"Vasile Goldis" Western University of Arad, Romania
"Alexandru Ioan Cuza" Universitaty, Iași, Romania*

Digitalization in education due to current social challenges has become an essential factor of teacher-student interaction, allowing students to overcome certain territorial limits, social positions or community boundaries and opening new possibilities to learn, have fun, work, explore and achieve ambitious goals. In universities digitization has become an important factor in educating students, future citizens adapted to the knowledge society, to achieve specific competences at global, European and national levels. The European model towards a digitized economy and society stands for solidarity, prosperity and sustainability, is based on empowering citizens and businesses, while ensuring the security and resilience of the European digital ecosystem and European supply chains. The implementation of digitization enables the training of new skills for students, future entrepreneurs, enabling them to innovate, set up and develop their own business wherever they live, to open markets and make investments anywhere in Europe and anywhere in the world, and to create new jobs at a time when an increasing number of Europeans feel threatened by economic security or the environment. The introduction of new information technologies into the educational environment has brought about many changes in the infrastructure needed in schools, and ICT-specific training courses have been directly linked to improving the quality of learning and digital literacy.

17:20 – 17:30

**STUDIES REGARDING THE ROLE OF FLORAL DESIGN WITHIN TOURIST
BOARDING HOUSES**

Avarvarei Bogdan-Vlad, Simeanu Cristina, Chelariu Elena-Liliana

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

Ornamental plants, used in the decoration of indoor or outdoor spaces, are a source of beauty and give a touch of freshness and nature to any space. With their help, creativity can be easily



expressed and they bring a number of benefits to living and working spaces. It contributes to a healthier and visually appealing environment, creating a sense of tranquillity and a connection with nature, giving a sense of comfort, relaxation and well-being, aspects increasingly sought by tourists. The current paper presents aspects related to how ornamental plants and floral design can influence the activity of tourist boarding houses in Romania. To carry out this study, questionnaires were used that were completed by a number of 100 people, tourists or potential tourists. After analysing the answers, it was found that the use of ornamental plants in the boarding houses gives a more welcoming and refreshing air. With the help of floral design, tourist boarding houses can create different elements to promote their image.

17:30 – 17:40

**THE QUALITY EVALUATION OF SOME FORTIFIED YOGURT VARIETIES
OBTAINED FROM THE MILK MICRO-PRODUCTION WORKSHOP AT IULS
IAȘI**

Andronachi Vasile-Cosmin, Avarvarei Bogdan-Vlad, Rațu Roxana-Nicoleta, Simeanu Daniel

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Yogurt is an acidified dairy product, similar to cream, obtained by fermenting pasteurized milk inoculated with a starter culture containing lactic acid-producing bacteria. Yogurt is easily digestible due to its lower lactose content compared to pasteurized milk. Additionally, yogurt is considered to be the healthiest dairy product due to its high content of polyunsaturated fatty acids, proteins, calcium, and phosphorus. In this work, we aimed to analyze the qualitative parameters of several types of yogurt made at the Milk Processing Workshop of USV Iași, which we enriched with rose syrup, dehydrated bananas, aronia powder, aronia jam, and natural beetroot coloring. The new varieties obtained were compared with two types of plain yogurt (a full-fat yogurt with 3.8% fat and a standardized yogurt with 2.6% fat). According to FAO and WHO, to obtain value-added yogurt, it is recommended that the used additives range between 5-15%. To determine the qualitative parameters, sensory and physicochemical analyses were performed, where the water content (%), dry matter (%), fat content (%), protein level (%), and mineral content (%) were evaluated. Fruit yogurt is not a new concept, but the one we processed contains no sugar or other sweeteners. Through the additives we used, we managed to increase both the sensory characteristics and the nutritional values. Additionally, reduced syneresis was observed in the yogurts with additives compared to the plain or colorant-only ones, and from a sensory point of view, the scores were higher, especially for the one with rose syrup.

17:40 – 17:50

**RESEARCH ON THE FOOD ADDITIVES USED IN SOME PRODUCTS FROM
SWEETS CATEGORY**

Cristina Gabriela Radu-Rusu, Mircea Ioan Pop, Silvia Ioana Petrescu, Mădălina Matei

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Among the multitude of marketed food product categories, confectionery stands out for its variety and complexity, often involving the use of a wide range of additives to meet consumer demands for taste, texture and shelf life. The objective of this study was to present the food additives used in products from the category of sweets frequently consumed by all categories of consumers due to their affordable price. Thus, 5 products each from the croissant with filling and wafers with filling categories were analyzed. The results obtained highlight 8 classes of additives in the products of the



croissants category with filling, namely: dyes, preservatives, acidity correctors, emulsifiers, stabilizers, gelling agents, thickeners and strengthening agents, while in the analyzed products of the wafer category with filling, 4 classes of food additives: colorants, acidity correctors, emulsifiers and loosening agents. Differences were observed in the number of additives used by different manufacturers to obtain filled croissant pods and filled wafers.

17:50 – 18:00

OPTIMIZATION OF THE TENDERIZATION PROCESS AND NUTRITIONAL QUALITY OF PHEASANT MEAT

Paul-Corneliu Boișteanu, Elena-Iuliana Flocea, Marius-Mihai Ciobanu

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This study aims to explore and enhance the quality attributes of pheasant meat (*Phasianus colchicus*). The animals were not used exclusively for research purposes; rather, the game reserve manager authorized the collection of samples for scientific analysis, as outlined in the annual wildlife management plan. The research protocol adheres to bioethical guidelines, including principles of Replacement, Reduction, and Refinement to minimize animal use and harm. Feed supplementation was provided during the winter months, averaging 85.5 kg/animal/year, consisting of cereals, seeds, fruits, and root vegetables such as beets, turnips, and potatoes. Two distinct anatomical regions, the breast (*Musculus pectoralis*) and thighs (*Musculus femoralis*), were subjected to different tenderization techniques, specifically tumbling and tenderizing treatments. The study focused on chemical composition, texture, and pH balance, providing key insights into optimizing both the tenderness and nutritional value of pheasant meat based on the applied methods. The raw material was obtained from a hunting reserve in accordance with Romania's National Hunting and Wildlife Protection Legislation (Law No. 407/2006). Meat processing involved anatomical sectioning, deboning, and trimming in a microproduction unit, followed by storage in controlled refrigeration at 2-4°C to ensure optimal analysis conditions. Pheasant meat is recognized as a valuable source of high-quality protein essential for tissue growth and repair. The literature confirms a significant content of vitamins and minerals, including vitamin B12, iron, and zinc, which support optimal human health. The results indicated that while both tenderization techniques are effective, tumbling produced a marginal but notable improvement in meat tenderness. Although modest, this improvement can have a meaningful impact on both consumers and the food industry, highlighting the importance of selecting the optimal processing method to achieve the desired quality of the final product. Our research offers valuable insights for the food industry, suggesting promising directions for developing new pheasant meat products and promoting a healthy, balanced diet. The use of diverse evaluation methods provided a comprehensive understanding of pheasant meat quality and tenderness, reinforcing confidence in the study's findings.



FRIDAY, OCTOBER 25th, 2024

**POSTERS SECTION
ANIMAL SCIENCES, FOOD SCIENCES,
AGROTOURISM & ECONOMICS**

→ Faculty of Food and Animal Sciences, Marble Hall

9:00 – 12:00

**Chairpersons: Prof. Răzvan-Mihail RADU-RUSU, PhD
Assoc. prof. Alexandru USTUROI, PhD**

**Secretariat: Assist. Dragoș-Mihai LĂPUȘNEANU, PhD
Assist. Matei MĂDĂLINA, PhD**

**COMPARATIVE STUDY ON THE QUALITY OF EGGS SOLD IN
SUPERMARKET CHAINS**

**Alexandru Usturoi, Marius Giorgi Usturoi,
Cătălin Emilian Nistor, Cristina Simeanu,
Marius Gheorghe Doliș, Mădălina Alexandra Davidescu**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

The main objective of the present study was to identify and subsequently compare the quality of chicken eggs sold in various supermarkets. Accordingly, the main morphological, physical, and chemical properties of the chicken eggs were analyzed, the results were statistically interpreted, and comparisons were made. Throughout the research stages, it was found that the studied batches fell within acceptable limits in terms of quality indicators (Haugh Unit, yolk index, shell strength, and air cell size). The results for the chemical composition did not show deviations from the typical characteristics of fresh chicken eggs, but there were slight differences in physical characteristics. The main conclusion indicates that despite the subtle differences in the qualitative parameters of the eggs, the products complied with the current standards.

**ANALYSIS OF TOURIST CIRCULATION IN AGRITOURISM GUESTHOUSES
IN RURAL TOWNS IN IAȘI COUNTY**

**Cristina Simeanu, Benone Păsărin, Daniel Simeanu,
Mădălina-Alexandra Davidescu, Cristinel-Gigi Șonea**
*“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
Ministry of Agriculture and Rural Development, Romania*

The dynamics of arrivals and overnight stays and the analysis of the average length of stay in the rural localities of Iasi County (Aroneanu, Bălțati, Bârnova, Brăești, Deleni, Dobrovăț, Holboca, Ion Neculce, Lețcani, Lungani, Miroslava, Popricani, Răducăneni, Rediu, Schitu Duca, Tomești,



Valea Lupului), where there are agritourism guesthouses, highlights that, during the analyzed period (2013-2022), arrivals registered a relative increase of 7%, overnight stays registered a relative increase of 3% and the average length of stay of registered a decrease of 27.77% in the year 2022 compared to the base year (2013).

THE NUTRITIONAL AND PHYTOCHEMICAL COMPOSITION OF MOLDAVIAN PUMPKINS

Paladi Daniela, Mija Nina

Technical University of Moldova, Chisinau, Rep. of Moldova

This paper presents the results of analyzing of chemical composition and some bioactive components such as phenols, carotenoids, carbohydrates and minerals in one of a product of plant origin, namely, in pumpkin. High amount of carbohydrates, vitamins and minerals in pumpkin makes it an important source of bioactive ingredients. Pumpkin is rich in beta-carotene, and lycopene. In accordance with current research, the edible part of pumpkin grown industrially in Republic of Moldova presented the following nutritional potential: total phenols – 260,3 mg GAE/100 g, total carotenoids – 8,38 mg/100 g, carbohydrates – 10,5%, minerals as iron, calcium, potassium, phosphorus, the most abundant mineral was potassium – 210 mg/100 g. The acidity was of 0,23 %, expressed as malic acid, and pH value of 5,2. The knowledge and effective use of this valuable agro-food product can be useful in the development of different healthy diets and in the treatment of pathologies with nutritional impact.

QUALITY CONTROL OF BOILED, ROASTED, AND SMOKED PRODUCTS: A CASE STUDY ON „SALAM ȚĂRĂNESC”

Roxana Lazar, Ioana Bolohan (Acornicesei),

Bianca Maria Madescu, Bianca-Ioana Ionica,

Mircea Lazar, Paul Corneliu Boisteanu

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This paper provides a comprehensive evaluation of the physicochemical and organoleptic properties of „Salam Țărănesc,” produced at a local processing facility. The study was conducted over three sampling sessions, spaced six months apart, starting in June 2023, with each session involving the collection of two salami sticks. Physicochemical analyses demonstrated remarkable stability in the product composition, with lipid values ranging between 29.93% and 30.20%, proteins between 15.71% and 16.60%, water between 49.14% and 50.93%, and NaCl between 1.86% and 2.23%. These results align with current regulatory requirements, indicating rigorous quality control during the production process. Although variations in water content were observed, they remain within specified limits, confirming the stability of the product. Organoleptic evaluations confirmed the preservation of essential sensory qualities of the salami: a clean, non-sticky surface, a uniform reddish-brown color, a continuous casing, and a homogeneous filling. The aroma and taste met expectations for a well-cooked and smoked product, indicating a specific and pleasant consistency. The study highlights the high compliance of „Salam Țărănesc” with regulatory standards, ensuring consistent quality and food safety. The findings provide solid evidence of the effectiveness of quality control and the product’s conformity to consumer expectations, confirming that the production process is adequate for maintaining a high standard of the product.



MICROBIOLOGICAL CONTAMINATION OF CONFECTIONERY PRODUCTS: A CASE STUDY ON SANTIAGO AND MONCHERRY VARIETIES

**Roxana Lazar, Ioana Bolohan (Acornicesei),
Bianca Maria Madescu, Fabiana-Delia Cazaciuc,
Mircea Lazar, Paul Corneliu Boisteanu**

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This study investigates the microbiological contamination of confectionery products, specifically focusing on two popular varieties, Santiago and Moncherry, sourced from a confectionery establishment in Botoșani County, Romania. Conducted over a two-year period, the research involved biannual sampling, culminating in a total of 40 samples analyzed for Enterobacteriaceae presence in strict adherence to the SR ISO 21528-2:2007 standard. The sampling protocol entailed the collection of five samples per product type during each visit, with meticulous attention to maintaining aseptic conditions during transport to preserve microbiological integrity. Analytical results consistently revealed that all samples had Enterobacteriaceae counts below the threshold of 10 colony-forming units per gram (cfu/g) or milliliter (cfu/ml), thereby demonstrating compliance with established safety standards. These findings underscore the efficacy of the quality control measures and hygiene practices implemented throughout the production, storage, and handling processes of the confectionery products. The continuous monitoring and strict adherence to rigorous hygiene standards are critical in ensuring the safety and quality of these products. This research offers significant insights into the microbiological safety of confectionery items and serves as a benchmark for future studies aimed at enhancing food safety protocols. Compliance with international safety standards confirms the effectiveness of the implemented control measures and underscores the importance of sustained efforts to protect consumer health.

ASSESSMENT OF MICROBIOLOGICAL CONTAMINATION AND PARASITIC INFESTATION RISK IN PIG CARCASSES

**Ioana Bolohan (Acornicesei), Roxana Lazar,
Bianca Maria Madescu, Helena-Laura Cotovan,
Mircea Lazar, Paul Corneliu Boisteanu**

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

This study investigates and evaluates the microbiological control of pig carcasses in a slaughterhouse located in Vaslui County, Romania, over a two-year period. During the study, 40 samples from pig carcasses were collected, divided into four batches of 10 samples each. The samples were collected every six months for two years. The assessment focused on determining the total germ count (NTG), the presence of Enterobacteriaceae, and the detection of *Trichinella spiralis*. The study employed a rigorous methodology for evaluating microbial contamination, using arithmetic means and standard deviations to summarize the data for each batch. The results demonstrated that microbial contamination, measured as NTG and the presence of Enterobacteriaceae, remained within acceptable limits throughout the study, indicating effective hygiene practices and process controls. Additionally, no carcasses contaminated with *Trichinella spiralis* were identified, confirming compliance with safety standards. This investigation provides valuable insights into the effectiveness of current meat processing practices and highlights potential areas for improvement in food safety protocols.



SOURCES OF FOOD CONTAMINATION

Doina Leonte, Corneliu Leonte

"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

The current work presents a review of notifications regarding food with different degrees of risk, registered in 2022 by the Central Competent Authorities for food and feed within the member states in the European Union. In the European Union, the health of food consumers is ensured through the implementation of strict legislation. This legislation covers both the production and circulation of food. One tool for checking food safety is the Rapid Alert System for Food and Feed, which links more than 160 European countries with regard to the transmission of information on food contamination. The European Community implemented the SRAAF system with the following objectives:

- preventing entry into the market or ensuring the withdrawal from the market or from the final consumer of food that poses a risk to public health;
- prevention of feed that can indirectly affect public health from entering animal consumption;
- preventing the entry into the market of any material or product that comes or may come into contact with food and feed and may present a risk to public health;
- rapid information between the competent authorities in the field of food safety, at the three levels: central, county and local, on the dangers or risks regarding food and feed that do not meet the requirements imposed by the legislation on food safety, as they can constitute a risk factor in the food chain for consumers.

In the paper, I tracked the number of notifications of this portal regarding different food categories. Thus, in 2022, 3885 notifications were registered in the food field, and 230 related to materials that come into contact with food. Cases of contaminated food products from the European Union that posed a risk to consumers and were detained, recalled, confiscated or rejected from consumption were identified.

INFLUENCE OF THE INCORPORATION RATE OF TERMITES (MACROTERMES SUBHYALINUS) IN PASTRIES ON THE NUTRITIONAL VALUE AND PALATABILITY OF THE FORMULATED BISCUITS

Fogang Zogang Bienvenu

University Institute of Technology, University of Ngaoundere, Cameroon

This study is a contribution to the valorization of edible insects in pastries. Indeed, after collecting the winged termites (*Macrotermes subhyalinus*) from the surrounding markets, they underwent technological treatments (Sorting, Winnowing, Washing, Drying, Grinding). A portion of the treated termites was defatted to obtain deoiled termite meal. To achieve the formulation of biscuits enriched with whole and defatted termites, a mixing plan using Expert Design software allowed us to obtain the biscuit formulas at different levels of incorporation of *M. subhyalinus*. Physico-chemical, nutritional and rheological analyzes were carried out on the raw materials and the formulated biscuits.

It appears from these analyzes that the water, ash, lipid, protein, carbohydrate and energy contents of whole *M. subhyalinus* are respectively 6.96g/100g; 3.47g/100g; 43.12g/100g; 48.75g/100g; 4.66g/100g and 601.44g/100g. Furthermore, those of delipidated *M. subhyalinus* are respectively 9.26g/100g; 0.12g/100g; 3.73g/100g; 48.75g/100g; 41.46g/100g and 394.41g/100g. Regarding the physicochemical composition of the different formulas of biscuits enriched with whole



and defatted termites, their values are respectively (1.14 - 2.79 g/100g) and (1.06 - 3.05g/100g) with regard to water content; (8.65 - 1.58g/100g) and (5.72 - 4.32g/100g) for the ash content; (1.18 - 4.87g/100g) and (9.07 - 4.50g/100g) for crude protein content; (28.20 - 17.18g/100g) and (23.08 - 23.74g/100g) for lipids; the carbohydrate contents (68.23 - 52.92g/100g) and (67.09 - 63.15g/100g) and finally with regard to the gross energy the respective differences (460.06 - 529.76kcal/100g) and (495.82 - 501.38kcal/100g) were obtained. At the end of our work, it emerges that the enrichment of biscuits based on *M. subhyalinus* made it possible to significantly increase the crude protein contents and the energy value of the biscuits thus formulated, which can be used for the reduction of sub- infant nutrition.

DEVELOPMENT OF A SOUP ENRICHED WITH LOCUST POWDER (LOCUSTA MIGRATORIA)

**Saouda Labaran, Fogang Zogang Bienvenu,
Panyo Emmanuel**

*University Institute of Technology, University of Ngaoundere, Cameroon
National School of food technology, University of Ngaoundere, Cameroon*

Locust powder (*Locusta migratoria*), a sustainable source of protein and bioactive compounds, was used as an ingredient to reformulate a food soup. The main objective of this work is the development and characterization of a food soup based on locust powder (*Locusta migratoria*). To achieve this, the following methodology was adopted. Initially, it was a question of characterizing the raw materials, then of establishing an experimental plan using the Expert Design software and of formulating the soups themselves and finally of carrying out analyzes on the products obtained. At the end of the rheological analyses, it appears that at incorporation rates not exceeding 2g of locust powder in the mixture, we obtain high viscosity values and less syneresis compared to formulations with a rate >2g. The highest viscosity value at 20°C was observed at sample E3 with 3829 mPa.s and at 40°C with a value of 3543 mPa.s. At the end of this analysis, the parameters of the mathematical models were brought out. Following the sensory analysis, it appears that the best formulation was E5 (-0.35; 0.36; -0.39) respectively onion powder, potato starch and locust powder. Its bromatological composition revealed a protein content of 10.67±2.13 g/100gDM; 4.69±0 g/100g DM of carbohydrates and 288.39±28.36 mg EAG/g of polyphenol compounds. However, sample E8 with 3g of the locust powder showed the highest concentration of polyphenols (493.35±48 mg EAG/g), significantly higher protein content (14.73±0.63) and a good carbohydrate value (5.76±0.49) compared to the blank sample (absence of locust powder). Although the improvement in nutritional quality was noted, sensory analysis showed a reluctance on the part of consumers towards these new products.

FORMULATION AND CHARACTERIZATION OF AN EGG BASED NUTRITIONAL SUPPLEMENT FOR ELDERLY PEOPLE

Ngute Daribelle, Fogang Zogang Bienvenu

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The main objective of this work was the formulation and characterization of a food supplement based on local resources with the aim of overcoming the various deficiency problems among the elderly. This work made it possible to formulate different rations enriched with eggs. To achieve this,



this methodology was adopted. Firstly, we identified and cleaned the materials, namely white corn, yellow corn, sesame and fresh eggs. Secondly, the use of the Design Expert software allowed us to generate twenty-three (23) formulations. Then, the exploitation of this experimental matrix led us to produce our different formulations and then to characterize them. At the end of these analyzes it appears that the protein, lipid and carbohydrate contents of white corn, yellow corn, sesame, egg white and egg yolk were respectively: 8.51g/100g DM; 1.71g/100g DM and 87.83g/100g DM; 8.80g/100g DM; 1.93g/100g DM and 86.98g/100g DM; 35.19g/100g DM; 15.82g/100g DM and 29.31g/100g DM; 59.66g/100g DM; 25.10g/100g MS and 9.16g/100g MS; 41.81g/100g DM; 44.77g/100g DM and 5.36g/100g DM. Furthermore, the physicochemical composition of the different flour formulations varies respectively from (13.49-95.16%) for dry matter; (1.93-19.27 g/100g DM) for ash content; (8.51-59.66g/100g DM) for protein content; (1.71-44.77g/100g DM) for lipid content. While the energy parameters oscillate between (5.35-87.83g/100g DM) for the carbohydrate content; (399.98-591.09 Kcal/100g) for energy value and (4.00-5.92 Kcal/100g) for energy density. At the end of this work it emerges that the formulations F3 and F16 are those which correspond to the specifications. Enriching egg flours increases not only the protein content but also the energy value, making it possible to meet the needs of target populations.

THE IMPACT OF CONSUMERISM AND FOOD WASTE OF MEAT PRODUCTS ON THE ENVIRONMENT IN EUROPE

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The impact of consumerism and food waste in Europe's meat sector has become a critical issue with significant environmental implications. The continuous increase in demand for meat is associated with excessive use of natural resources, deforestation, water consumption and increased greenhouse gas emissions. Also, food waste in the meat sector, which affects all stages of the supply chain, contributes to the loss of valuable resources and the pollution of soil and water. This paper examines the extent of these problems in the member states of the European Union, identifying the countries with the greatest environmental impact and analyzing the measures implemented to reduce food waste and promote sustainability. The study focuses on innovative solutions and legislative measures adopted at European and national level to optimize the food supply chain and reduce emissions from the meat industry. The results show that implementing more sustainable practices and engaging consumers are essential to reducing food waste and environmental impact.

CHANGES IN MEAT COLOR DYNAMICS IN AUBRAC CATTLE: EVALUATION OF M. SEMITENDINOSUS AT VARIOUS POSTMORTEM INTERVALS

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This study aimed to evaluate the changes in meat color over time in Aubrac cattle of both genders. The focus was specifically on M. Semitendinosus, with color values of the meat assessed at



0, 24, and 48 hours postmortem. The CIE Lab color space allows colors to be represented in a three-dimensional system. The L, a*, and b* values correspond to lightness, the red-green color component, and the yellow-blue color component. These values facilitate the evaluation and description of meat color. Analyzing the lightness of *M. Semitendinosus*, it is observed that, in the case of males, there are significant differences between the mean lightness values at 0, 24, and 48 hours postmortem, with average values ranging from 32.80 to 30.16. We can see that, with regard to all analyzed color parameters (brightness, hue intensity, meat color intensity, color saturation, and hue index) observed in the anatomical region under study, there are significant differences between males and females.

THE IMPORTANCE OF ADDING BUCKWHEAT FLOUR IN MEAT PRODUCTS

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The present study analyzes the use of buckwheat flour in meat products, focusing on its impact on the physico-chemical, technological, and organoleptic properties of sausages. It was found that adding a small amount of buckwheat flour to the sausage samples (from 50g to 250g of the raw material weight) has a beneficial effect on the water retention capacity of the product, enhancing the juiciness and consistency of the sausages. The increase in this water-binding capacity ranges from 1.1% to 15%, indicating a significant impact on the texture and stability of the final product. The appearance, color, smell, aroma, consistency, taste, and juiciness were studied in the produced sausage samples. It was found that introducing hydrated buckwheat flour into the minced meat, up to 150g of the raw meat material, has a positive effect on the physico-chemical, technological, and organoleptic parameters of the sausages.

A RETROSPECTIVE OF THE PRIORITY OF NUTRITIONAL SECURITY IN THE REPUBLIC OF MOLDOVA

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The global nutrition crisis's continued ascendance highlights agri-food systems' fragility, with worrying trends in all forms of malnutrition. Analyzing, anticipating and understanding the evolution of national nutritional security is essential for the informed and effective development of viable policies and plans that can contribute to its multidimensional assurance. The evaluation of the nutritional profile through the lens of international organizations included the systematic review of reports on global platforms, but also of data on the official pages of national and international structures in which the Republic of Moldova was included. The nutritional profile of the Republic of Moldova is found in a limited number of international reports. It highlights several crucial aspects regarding the diet and health of the population. Information on various indicators and organisms is fragmented and, in some places, it is missing or lacks robustness. Despite some small progress in certain areas, the Republic of Moldova still faces significant challenges in reaching essential nutrition targets. A national nutrition security analysis can help address nutrition disparities to achieve national and international health goals.



EVALUATION OF THE NATIVE MICROFLORA OF GRAPES IN THE VITICULTURAL REGION OF ȘTEFAN VODĂ

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Fermentative yeasts are used industrially in the production of wine, having as their main characteristic the ability to produce the fermentation of simple carbohydrates in anaerobiosis, with the formation of ethyl alcohol and carbon dioxide. A large number of microorganisms are found, in particular, during the ripening period of the grapes. In the autumn, after harvesting, the yeasts on the leaves fall into the soil with their fall, being there until the spring, thus taking place natural selection, as a result of which the most resistant species survive. The purpose of the research consisted in the application of microbiological methods and techniques for the observation, isolation and identification of microorganisms existing in the examined products to establish the presence or absence of harmful microorganisms, especially the determination of the indigenous microflora. The study methods focused on the direct microscopy of the washing water of Cabernet Sauvignon and Merlot grapes from Javgur, Cimișlia district and the inoculation of microorganisms on media by scarification, after which the media were placed in a thermostat at a temperature of 30 °C and maintained for 7 days. The inoculation was carried out on the following media: Sabouraud (SDA), MRS (sterilized), Broth, Bretanomyces Agar. After the microscopy of the grape-washing waters, the presence of Saccharomyces yeasts and rod-shaped acetic bacteria was detected in both samples. The presence of the following microorganisms was also found: on the Sabouraud medium - yeasts from the genus Saccharomyces cerevisiae and Torulopsis, and the Bretanomyces agar medium - the genus Bretanomyces. Thus, we could deduce that the grapes from the studied region have yeasts of the Saccharomyces genus, which would allow the fermentation to be carried out on wild yeasts and would ensure a reduction in expenses and other benefits, but in addition to the fermentation yeasts in the analyzed grape samples, there were also detected other types of yeasts and even bacteria that could pose a danger to the fermentation process. Further research will focus on ways to capitalize on the indigenous microflora of grapes in the above-mentioned area. The authors thank the Project for Young Researchers 23.70105.5107.04T Valorization of the indigenous flora of the Ștefan Vodă wine-growing region to increase the authenticity and competitiveness of Moldovan wines, which is carried out within the Oenological Research Center, Department of Oenology and Chemistry, Faculty of Food Technology, Technical University of Moldova.



EFFECTS OF THE LEVEL OF INCORPORATION OF THE FLOUR OF THE LARVAE OF BLACK SOLDIER FLIES AND PHYLLOPHAGA ANXIA ON SOME GROWTH PARAMETERS AND THE QUALITY OF THE FLESH OF AFRICAN CATFISH (*CLARIAS GARIEPINUS*) (BURCHELL, 1822)

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This study was carried out at the wakwa Agricultural Research Center (CRA-wakwa), located in the Vina department, Adamaoua region (Cameroon), during the period from July 2023 to August 2024. This study aims the substitution of fish meal by black soldier fly and common cockchafer meal in the food formulation and monitoring of some growth parameters of *Clarias gariepinus*. Specifically, it was a question of evaluating in *Clarias gariepinus* the effect of MSN larva powder on the screeching parameters and the quality of fish flesh. To carry out this study, 600 *C.gariepinus* fry aged 4 weeks and having an average weight of 4g were distributed randomly in 12 tanks (1m x 1m x1m) of 50 subjects comparable to each other. The latter were subjected to 4 treatments consisting of the control diet (RT), which contained fish meal (FP 40%) as a protein source. In the 3 other diets (R1; R2; R3) the fish meal was completely replaced by black soldier fly larvae meal and common chafer meal produced (R1: FMSN 40% dry matter; R2: FMSN 40 %; R3: FMSN 20% and FHN 20%). These animals were fed 02 times per day (7 a.m. and 6 p.m.), at 5% of their biomass. The results of this study showed that the incorporation of larva meal of MSN at 40% in the diet made it possible to obtain the highest weight value of clarias ($18.17 \pm 0.78a$).

ASSESSMENT OF KAPPA-CASEIN GENE POLYMORPHISM IN ROMANIAN PINZGAU CATTLE: IMPLICATIONS FOR MILK PRODUCTION TRAITS

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The study of milk polymorphism, focusing on k-casein is vital for improving milk quality and dairy production. K-casein is a key protein that influences milk's physical and chemical properties, including its ability to coagulate. The objective of this study was to investigate the genotype profile of the kappa-casein gene in Romanian Pinzgau cattle, specifically the Black and Red varieties. A total of 24 cows were genotyped for the kappa-casein gene using the PCR-RFLP (Polymerase Chain



Reaction-Restriction Fragment Length Polymorphism) method. Three genotypes (AA, AB, and BB) were identified within the studied population. The frequency of the A allele was 0.681 in Black Pinzgau and 0.563 in Red Pinzgau, while the B allele exhibited frequencies of 0.319 in Black Pinzgau and 0.437 in Red Pinzgau. The higher frequency of the A allele in both Black and Red Pinzgau suggests a potential for greater milk volume but with potentially lower protein content and cheese-making efficiency. On the other hand, the presence of the B allele, especially in the Red variety, indicates a favorable genotype for dairy producers focusing on milk quality, particularly for cheese production.

ANALYSIS OF THE IMPACT OF LIGHT SPECTRUM ON HEALTH AND PERFORMANCE IN BROILER CHICKENS: A CRITICAL REVIEW

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Light is an essential factor in broiler chicken production and welfare management, having a significant impact on physiological and behavioral aspects. The avian visual system, which enables birds to perceive light in the 315-750 nm range, plays a crucial role in modulating their behavior. The main parameters of artificial lighting, such as light intensity, photoperiod, and wavelength spectrum, exert various influences on the growth performance, behavior, and welfare of broiler chickens. Recent advancements in lighting technology create new possibilities for improving conventional lighting programs in poultry housing. Recent studies have shown that blue light with a wavelength of 450 nm and green light, at 550 nm, have had beneficial effects on body weight in broiler chickens. In contrast, red light, with a wavelength of 700 nm, negatively affected weight gain and amplified aggressive behavior. In general, lighter colors have significantly impacted broiler behavior, though the effects on their welfare were less pronounced. In a global context where the demand for poultry meat continues to rise, optimizing rearing conditions, including lighting, plays a crucial role in improving production efficiency, meat quality, and bird welfare. Therefore, this review topic offers a relevant contribution to enhancing sustainability and productivity in the poultry sector.

THE INFLUENCE OF A BIOLOGICALLY ACTIVE DRUG ON THE PRESERVATION OF THE REPRODUCTIVE POTENTIAL OF THE SPERM OF STUD RAMS AFTER CRYOPRESERVATION

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Preserving biomaterial from valuable producers makes it possible to rationally use the genetic fund, as well as preserve and restore populations of rare and endangered species. Spermatozoa are the most used biomaterial in projects for the conservation and restoration of animal genetic resources due to their ease of obtaining. In the sheep industry, the use of reproductive technologies remains limited. One of the reasons is the low efficiency of using frozen and thawed semen from breeding rams, since the process of cryopreservation and thawing leads to significant cell loss and damage to their structures.



To develop a method for long-term storage and preservation of the biological usefulness of spermatozoa during the process of diluting, freezing and thawing semen from frozen rams, the drug IMB-2, which has an antioxidant effect, was tested, introduced into the SSF medium in different concentrations. for efficiency..

It was found that the introduction of the drug IMB-2 into the GC medium at concentrations of 0.4-0.8%/V allowed us to obtain the highest indicators of motility, survival, preservation of acrosome integrity, and speed of sperm movement compared to the control group.

IMPACT OF RHODOTORULA GLUTINIS YEAST ON MORPHO-PRODUCTIVE PARAMETERS OF SILKORM BOMBYX MORI ALB ORSOVA-33 LINE

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This paper aimed to assess the morpho-productive traits of Alb Orșova-33 monovoltine silkworm as the impact of supplementing mulberry leaves with *Rhodotorula glutinis* yeast. A number of 300 larvae were randomly assigned to 3 groups (2 replicates each), during 5th instar: 1) C group fed classical mulberry leaves; 2) E1 fed C diet and yeast 1×10^7 concentration; 3) E2 fed C diet and yeast 1×10^9 . An increase in body weight, BW ($>10.57\%$, $P < 0.05$), average daily gain, ADG ($>13.91\%$, $P = 0.03$), length of the larva (7.87% higher, $P = 0.001$) was noticed in E2 fed group vs. C group. The Pearson correlation between productive parameters and silk gland was statistically significant ($R = 0.56$ between BW and silk gland, respectively 0.58 between length and silk gland). The average value, except for the transverse axis for which a tendency of increase in E2 fed group vs. C ($P < 0.10$), the other parameters were not significantly affected. In contrast, the percentage of silk shell increases by 2.3% in E2 vs. C ($P > 0.05$), being negatively correlated ($P < 0.001$) with the cocoon, pupal and shell weights. *R. glutinis* may be able to positively alter certain traits of AO-33 silkworm.

THE PREVALENCE OF MYCOTOXINS IN THE COMPLETE FEED FOR FARM ANIMALS IN SOUTH-EASTERN OF ROMANIA DURING 2021-2023 PERIOD

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Mycotoxins are common natural contaminants of crops and fruits, producing negative effects on the health of human and animals. Currently, more than 300 mycotoxins have been identified, but according to the European Commission (EC 1319/2016), for farm animals there are regulations concerning the maximum limit allowed in feed only for aflatoxins, for all other mycotoxins there are only recommendations. Considering their variety, toxic effects, but also the fact that not many details are yet known about the cumulative effects of co-contamination with various mycotoxins, it is necessary to monitor the evolution of their presence in animal feed. The aim of our study was to analyze for a three-year period (2021-2023) the concentrations of six mycotoxins (Aflatoxins-AFT, Fumonisin-FUMO, Deoxynivalenol-DON, Zearalenone-ZEA, T-2/HT and Ochratoxin-OTA), the most frequently encountered in the south-eastern area of Romania in poultry, piglets and pig's feed. Our results showed that the maximum highest concentrations were: 2.9 ppb AFT, 4.7 ppm FUMO, 1.9 ppm DON, 62.8 ppb ZEA, 32.1 ppb HT2/T-2 and 19.7 ppb OTA irrespective of the type of feed.



It should be noted that AFT was the mycotoxin identified in all samples during the entire monitored period. Recent studies demonstrated that sub-chronic and chronic exposure to low concentrations of mycotoxins and specially co-contamination is more common than acute exposure being able to affect animal health over time by lowering the defense capacity, inducing inflammatory reactions and affecting intestinal health, which in the long term could have important economic consequences. Further nutritional studies are needed to establish the maximum accepted contamination level for mycotoxins for which there are no regulations.

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THE EFFECTS OF CARROT WASTE ON CELLULAR PROLIFERATION AND OXIDATIVE STRESS IN PORCINE IPEC1 CELLS

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The current challenge in the nutrition research for piglets at weaning is to find new strategies to improve the gastrointestinal health and to replace the in-feed antibiotics. The agro-industrial by-products/waste, rich in bioactive compounds, may be used as antibiotic replacers and to improve their immune status. The aim of the present study is to evaluate the effects of vegetable waste (carrot meal - CM) on some important cellular parameters, in an in vitro experimental system using porcine intestinal epithelial cells (IPEC1). The IPEC1 cells were cultured in the presence of carrot meal extract for 2 hours, and then treated with *E. coli* lipopolysaccharide LPS for 24 hours. At the end of the experiment, the cells and culture supernatants were collected and several parameters, markers of oxidative stress (ROS production), cellular membrane damage (LDH), proliferation (Ki67), cellular nitric oxide activity and apoptosis were determined by flow cytometry and ELISA technique. The results showed that LPS increased significantly the LDH activity compared to control while CM extract was able to counteracted LPS action in LPS-treated cells under the LPS level. Also, a decrease in the percentage of both early and late apoptotic cells, together with an increase of percentages of proliferative cells was found in CM-pretreated cells challenged with LPS. The increase of NO producing cells was registered in LPS-treated cells, and this effect was counteracted by the pretreatment of IPEC1 cells with CM. Similar results were obtained in the case of ROS, with a significant increase of ROS(+) cells in LPS treated cells, but a significant lower percentage of ROS(+) cells in CM-pretreated IPEC1 cells. In conclusion, this study highlights the anti-apoptotic and antioxidant potential of the carrot waste, suggesting that this by-product could be used for the defense of the intestinal epithelial barrier against the toxins of pathogenic bacteria and the reinforcement of intestinal homeostasis.



EFFECT OF THE FEED FORMULAS WITH ACHETA DOMESTICUS ON SOME ZOOTECNICAL PARAMETERS OF CATFISH (CLARIAS GARIEPINUS)

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In order to assess the effect of feed formulations with *Acheta domesticus* on some zootechnical parameters of catfish *Clarias gariepinus*, an *in vivo* trial study was conducted in a fish farm from Zamakoe in the Center region (Cameroon). For this purpose, a total of 240 larvae weighing in average 20 g were divided into twelve (12) batches, corresponding to six treatments (06) with duplicates for each. These rations were (T100 ; T80 ; T60 ; T40; T20 and T0), formulated on the basis of the level of substitution of « gouessant », an commercial feed. A fully randomized random design has been used for the distribution of the larvae. They were feed three times day (morning at 8 a.m., 1 p.m. and at 6 p.m.) at a rate of 6.5 % of their body weight during the first three weeks and 5 % after. until the end of the experiment. Data were collected daily on survival rate, weight gain ; Apparent Conversion Rate, and the specific growth rate. Finally some data on financial profitability have been carried out. It emerges from this study that the highest average values of the survival rate were observed with T0 treatment (85.00%) and T100 (85.00%) and the lowest average value was observed for T40 (75%). The best daily weight earning during this experiment was recorded with T0 treatment (2.01 g) and the low value was recorded at the level of treatment T20 (1.36 g). The highest cost was obtained with T0 feed (616.57 FCFA) significantly higher to T100 feed (124.48 CFA). The use of these feeds generated a gain in total final biomass of 1259.97 g with the T100 feed against 1003.33 g for the T20 feed. In conclusion, in the current state of knowledge, we consider the T100 diet constituted as being the most interesting. It would be more accessible to average fish farmers, followed by T40 made up of 40% of our feed, which has growth performance close to T100. But the cost that T40 induces and the value of the survival rate which amounts to 80% makes it less profitable

DIET FORMULATION FOR FISH FEEDING USING LOCAL INGREDIENTS ENRICHED WITH CRICKETS (ACHETA DOMESTICUS)

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To contribute to the development of edible insects through the formulation of fish pellets at a lower cost and of high nutritional value. The study on the formulation and characterization of insect-based fish pellets was conducted at the University of Ngaoundéré specifically at the Engineering and Food Technology Laboratories, and chemical engineering, during the period from June 10 to August 31, 2019. To achieve this, the following methodology has been adopted. First there was talk of drawing up a mixing plan from the Expert Design software to get 18 pellets, then formulating the pellets themselves and finally performing analyses on these formulated pellets. From this approach, it appears that the protein, lipid, ash and dry matter content of crickets are 62.6g/100g MS, 9.6g/100g



MS, 9.8g/100g MS and 94.3% respectively. In addition, the chemical composition of the different pellets varies between (85,19 - 95.72%) respectively. dry matter (2.82 - 6.79g/100gMS) of ash content; (2.18 - 4.00g/100gMS) for lipid content; (9.96 - 22.88g/100gMS) for protein content. While the energy parameters oscillate between (67.52-84.00g/100gMS) for carbohydrate content, and (408.45 - 388.66Kcal) for energy value. In terms of rheological characteristics, the buoyancy index of 7 out of 20 samples shows us a buoyancy of 50% and that friability varies between (24.50-35.29%). At the end of our work, it emerges that formulation 7 met as many criteria as possible for the choice of the best formulation both on the physical-chemical results and for the results in terms of rheological characteristics and Incorporating cricket flour into fish feed enhances its protein content and energy value. It appears from the present study that « house cricket » bring principally high proteins and lipids content to fish diets , thus increase significantly energy parameters of the formulated pellets.

RESPONSE OF BROILER CHICKENS FED ON A LOCAL PROTEIN SOURCE WITH OR WITHOUT PROBIOTICS

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The study aimed to determine the effects of two protein sources [cowpea seed (CPS) as a replacement of soybean meal (SBM)] with and without addition of *Bacillus licheniformis* (BL) ATCC 21424 on broiler chickens' performance, ileum, ceca, and excreta microbial populations. A total of 480 one-day-old mixed-sex Ross 308 broiler chickens (initial weight 46.50 ± 0.23 g) were randomly assigned to four groups in a 2x2 factorial design treatments from day 1 to 42. Each group contained 120 birds, with 6 pens of 20 birds each. The experimental diets with BL inclusion (1.0×10^{11} CFU spores g^{-1} feed) significantly improved body weight gain (BWG, $p < 0.05$) during the grower, finisher, and overall study periods. Additionally, the inclusion of BL resulted in significantly lower counts of Coliforms and *E. coli* in the ileum of the CPS groups ($p \leq 0.05$). In the SBM diet, a significant reduction of *Clostridium* spp. and *Enterococcus* spp. in the cecal content was observed ($p \leq 0.05$). Moreover, BL supplementation reduced *Staphylococcus* spp. counts in the excreta of both SBM and CPS groups. In conclusion, our results indicate that the inclusion of BL positively affected zootechnical parameters and favorably modulated gut and excreta bacterial populations in both CPS and SBM diets.

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VALORIZATION OF TITHONIA DIVERSIFOLIA LEAVES IN FISH FEED

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The main objective of this present work is a contribution to the valorization of industrial effluent which is spent grain and legume leaves with the aim of reducing the production costs of fish feed. To achieve this, the following methodology was adopted. Firstly, it was a question of harvesting and drying the fresh leaves of *Tithonia diversifolia*. Subsequently, using Excel VBA software, we were able to generate nine (9) iso-energy formulas. Thirdly, it was necessary to formulate the pellets



themselves, carry out bromatological and rheological analyzes and finally carry out a profitability study. From this approach, it appears that the protein, lipid and crude fiber contents of the dried leaves of *T. diversifolia* were respectively: 26.63g/100g DM and 32.15g/100g DM; 3.93g/100g MS and 4.36g/100g. Furthermore, the physicochemical composition of the different pellets varies respectively between (87.50 - 91.30%) for dry matter; (31.07 - 37.19 g/100gDM) ash content; (8.93 - 13.59g/100gDM) for the lipid content; (21.02 – 34.23g/100gDM) for protein content. While the energy parameters oscillate between (21.8 -38.88g/100gDM) for the carbohydrate content, and (319.19-320.68 Kcal/100g) for the energy value. Regarding the rheological characteristics, the buoyancy index of all 9 pellets presented buoyancy $\geq 75\%$ and friability ranged between 25.82 and 32.34%. At the end of this work, it appears that the P2 pellet has fulfilled as many criteria as possible for the choice of the best formulation both in terms of physico-chemical results and for results in terms of rheological characteristics. Incorporating legume leaves into fish feed increases not only its protein content but also its energy value and its production cost.

PERFORMANCE OF POLYVOLTINE SILKWORM *B. MORI* L. FED ON MULBERRY LEAVES SUPPLEMENTED WITH PROBIOTIC

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The study evaluated the larval and cocoon characteristics of IBV polyvoltine silkworm *B. mori* L. breed fed on mulberry leaves with whey supplementation. Three hundred silkworm larvae (5th instar) were randomly divided into 3 groups (100 larvae/group) and fed with mulberry leaves as control (ML), ML with 3% whey (W3) and ML with 5% whey (W5). Larval traits (weight, length) and silk gland weight (SGW) were measured on different days. Cocoon parameters (cocoon weight, shell weight, shell percentage, pupal weight, longitudinal and transversal axes, and their ratio) were determined. Results showed a significant increase in larval weight ($p=0.047$) and a tendency to increase the SGW ($p=0.077$) in W5 group. The weights of cocoon, shell and pupae tend to be positively affected in W5 group ($p<0.10$), with no effect on the other cocoon traits. Pearson correlations were positive between larval traits and SGW, cocoon weight with shell and pupae weight, and longitudinal axes with the ratio between longitudinal/transversal axes ($p<0.01$). Negative correlations were found among shell percentage with the weights of cocoon and pupae ($p<0.01$). Mulberry leaves supplemented with whey tend to improve certain traits in IBV polyvoltine silkworms.

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COMPARATIVE STUDY REGARDING THE ANCESTRY OF TWO HERDS OF BEEF CATTLE RAISED IN DIFFERENT TECHNOLOGICAL SYSTEMS

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Beef cattle raising in Romania represent a sector in full growth with the desire to ensure a high production for consumer requirements.



The aim of this study is to appreciate the performances of the ancestry in two Angus cattle herds raised in two different systems in order to evaluate the improvement degree and how this breed adapts itself in the studied areas, and how it responds to different breeding systems respectively, extensive and semi-intensive.

MUSTARD BY-PRODUCT PREVENTED THE E. COLI LIPOPOLYSACCHARIDE - INDUCED OXIDATIVE STRESS IN PIGLETS AFTER WEANING

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The importance of zinc oxide in the control of diarrhea increased after the ban on the use of antibiotics in animal feed (2006), but due to the negative impact of zinc on the environment, the EU has proposed the withdrawal of intervention premixes with ZnO by 2023. Alternative solutions are needed. In this context, the objective of this study is to investigate the potential of a mustard by-product (mustard meal, MM) derived from oleaginous industry to replace zinc oxide by reducing intestinal oxidative stress induced by E coli lipopolysaccharide (LPS). An in vivo feeding trial on weaned piglets was conducted for 21 days. Four experimental groups of piglets were used, as follows: (1) piglets fed Control diet (maize-soybean based diet); (2) piglets fed control diet and challenged with LPS; (3) piglets fed MM diet (basal diet with 8% mustard meal included); (4) piglets fed MM diet and challenged with LPS. At the end of feeding trial, samples of jejunum, ileum, colon and mesenteric lymph nodes were collected from all animals and the analysis of lipid peroxidation, protein oxidation (protein carbonyl) and DNA/RNA oxidative damage were assessed using specific methods and kits. Our results demonstrated that 8% dietary MM showed anti-oxidant properties, by prevention of the pro-oxidant response (TBARS, protein carbonyl, DNA/RNA damage) induced by LPS in small intestine (jejunum and ileum), colon and mesenteric lymph nodes collected from weaned piglets. In conclusion, this study demonstrated that mustard meal has anti-oxidant potential, suggesting that this by-product could be used as ZnO replacer in weaning piglet's feed.

Acknowledgements: This research was funded by the project PN-III-P4-PCE-2021-0992 – PCE 40, granted by the Romanian Ministry of Research, Innovation and Digitalization.

EFFECTS OF USING XYLOPIA AETHIOPICA POD POWDER AS A FEED ADDITIVE ON PRODUCTIVE PERFORMANCE OF JAPANESE QUAIL (COTURNIX JAPONICA)

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The present study was conducted from June to July 2023 in Ngaoundéré with the aim to assess the effect of the use of *Xylopiya aethiopica* pod powder as a feed additive on the production



performance and the organoleptic and techno-functional quality of quail (*Coturnix* sp.) meat. A total of 150 quail aged 21 days and of comparable live weight were divided into 15 batches of ten birds (five males and five females). Five inclusion levels (0, 0.25, 0.50, 0.75, and 1%) of *Xylopia aethiopica* pod powder corresponding to treatments T0, T1, T2, T3, and T4 respectively were added to the basic diet containing 20.18% crude protein and 3013.78kcal of metabolizable energy. Each treatment was randomly allocated to three batches in a completely randomized design repeated three times. Feed and water were provided ad libitum throughout the four-week trial. Growth performance data were collected during this period. At eight weeks of age, three males and three females per treatment were slaughtered, and data were collected for carcass characteristics. The main results showed a significant decrease in feed intake and feed conversion ratio in *Xylopia aethiopica* -supplemented batches compared to the control batch. The lowest FI (694.91 ± 2.79 g) and feed conversion ratio (4.36 ± 0.16) were recorded with treatment T4. Regardless of sex, all treatments had similar ($P > 0.05$) final live weight and weight gain. Carcass yield was similar regardless of treatment in females, whereas in males it increased significantly ($P < 0.05$) and the highest value ($73.26 \pm 0.26\%$) was recorded with 1% inclusion level. No significant differences ($P > 0.05$) were observed in the proportions of liver, heart, kidney, gizzard, wings, neck, head, and legs. The same applied to testicular weight and gonadosomatic indexes. It was concluded that *Xylopia aethiopica* pod powder could be used up to 1% to improve growth performance.

**EFFECTS OF USING XYLOPIA AETHIOPICA POD POWDER AS A FEED
ADDITIVE ON SOME HAEMATOLOGICAL AND REPRODUCTIVE
PARAMETERS OF AFRICAN CATFISH (*CLARIAS GARIEPINUS*) (BURCHELL,
1822)**

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In order to contribute to the improvement of the productive potential of African catfish through the use of plants with medicinal properties, a study was carried out from December to May 2024 at the Maroua Agricultural Research Centre (CRA-Maroua), Diamaré Division, Far North Region (Cameroon). It focused on the effect of the inclusion of *Xylopia aethiopica* pod powder as a feed additive on the reproductive parameters and some haematological parameters of *Clarias gariepinus*. To this end, 600 4-week-old *C. gariepinus* fry with an average weight of 4g were randomly distributed in 15 1m³ tanks each with 40 fingerlings. They were subjected to 5 treatments consisting of concentrated feed with added Guinea pepper pod powder (*X. aethiopica*): T0%; T0.25%; T0.5%; T0.75% and T1% *X. aethiopica*. The animals were fed 02 times a day (7H and 18H), at 5% of their biomass.



Results showed that incorporation of *X. aethiopica* at 0.5% into the diet resulted in the highest egg weight (18.17 ± 0.78), number of oocytes/g of eggs (7350.00 ± 382.02) and absolute fecundity (133609.04 ± 9449.34) at 24 weeks of rearing. In addition, the highest testicular value ($3.54 \pm 0.34a$) was observed at T0.25%. On the other hand, *X. aethiopica* pod powder had no significant effect on the relative fertility, oocyte diameter and gonado-somatic index of *C. gariepinus*. In addition, lymphocytes, white and red blood cells, haemoglobin and haematocrit increased significantly with the level of incorporation of *X. aethiopica*. On the other hand, MCV and MCH decreased significantly. It was thus concluded that *X. aethiopica* pod powder can be incorporated at 0.5% to improve the reproductive performance of African catfish.

SECTORAL STRUCTURE OF THE VALORIZATION OF SHEEP AND GOAT MEAT PRODUCTION

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Obtaining and capitalizing on the production of sheep and goat meat are complex processes involving several stages, from animal breeding to marketing of finished products. By effectively managing all stages, farmers can achieve high quality meat production while ensuring the sustainability and profitability of their business. The purpose of the paper is to analyze the territorial structure of the share of family consumption and the capitalization of the production of sheep and goat meat on the market (directly and at the industrialization units), according to recent information, from the year 2023. The calculations were made based on the operational data provided by the Ministry of Agriculture and Rural Development and official statistical data. According to statistical data and specialized literature, in recent years, sheep and goat herds, as well as meat production, have increased in Romania, especially in the mountainous area. This is due to consumption trends as well as sheep and goat meat exports. Research showed that, in the year 2023, the largest number of sheep were in Tulcea county (8% of the total), of goats in Dolj county (12% of the total country). The largest amount of mutton was produced in Tulcea county (27,948 tons), and goat in Teleorman county (4,796 tons). Of the total meat production, 31% is intended for family consumption and the rest representing capitalization under different forms. Of the marketed production, 89% is sold directly on the market and only 11% is delivered to meat processing units. The valorization of products contributes both to ensuring the subsistence of households, development of commercial farms, and stability of the local workforce.

ASSESSMENT OF THE TOXIC EFFECT OF ALTERNARIOL MONOMETHYL ETHER MYCOTOXIN ON PIG INTESTINAL EXPLANTS

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Alternariol monomethyl-ether (AME), together with altenuene and alternariol belong to the *Alternaria* mycotoxins group of dibenzo-pyrone derivatives that can contaminate different substrates including cereals. *Alternaria* mycotoxins cause important economic losses and produces a negative impact on human and animal health (Solhaug et al., 2016; Kowalska et al., 2021). The present study aimed to investigate the effect of AME at the intestinal level in pigs, using an explant model. Explants



were obtained from the jejunum of healthy weaned piglets as described by Pinton et al (2021) and exposed or not to different concentration of AME (5-20mg/mL). After 4h of incubations, explants were used for morphological (villi length and crypt depth) and histopathological analyses as well as for the assessment of the toxin effect on inflammation (inflammatory cytokines TNF-alpha, IL-1beta, IL-6 and IL-8). The mycotoxins tend to increase the crypt depth when the explants were exposed to 10 (p=0.068) and 20 mg/mL (p=0.095) AME. The histological analysis of the intestinal mucosa in the control group and AME 5mg/mL revealed a normal aspect of the mucosa, respectively the intestinal villi, the crypts and the chorion. Exposure to AME 10 µg/mL and AOH 20µg/mL revealed extensively rarefied villi, with diffusely desquamated enterocytes and an alteration of the structure of lamina propria and of the chorion. AME exposure of intestinal explant significantly decreased the IL-6 concentration (p < 0.001) and tend to decrease the concentration of IL-1 beta (p = 0.065), while the concentration of the TNF-alpha and IL-8 remained unchanged as compared with the control. In conclusion, our results have shown that the exposure to alternariol monomethyl ether can interfere with the normal structure and function of the gut and with the inflammatory response in the intestine of weaned piglets.

ISOLATION AND CHARACTERIZATION OF CELLULOLYTIC BACTERIA FROM UNDERGROWTH SOILS IN THE ADAMAOUA REGION (CAMEROON) AND APPLICATION

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Léopold Tatsadjieu Ngoune, K. P. Bogne,

François Djitie Kouatcho, Marian Burducea,

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Cellulases are enzymes that hydrolyze the β -1,4-glycosidic bonds of the cellulose polymer into smaller oligosaccharides and glucose. Today, bacterial cellulases are attracting growing interest due to their potential industrial applications in the detergent, textile, pulp and paper, biofuel and compost industries. The aim of the present study was to characterize cellulolytic bacterial strains in the soils of a number of woodland ecosystems in the Adamaoua region. To this end, twelve (12) soil samples were taken in five (05) departments with forested ecosystems in the Adamaoua region (Vina, Mbéré, Mayo Banyo, Djerem, Faro and Déo). A total of thirty-five (35) strains were obtained from these soil samples and screened for their cellulolytic activities on Carboxymethylcellulose (CMC) agar medium. After screening, twenty-six (26) isolates were able to use cellulose as a sole source of carbon and energy, in particular strains A3, A4, H2, I2 and I3 from the Lycée Classique et Moderne in Ngaoundéré, the Djoumbal district and Pedeng in Bagnou, respectively. The latter stood out for their high cellulolytic activity compared with the other strains, with a ratio ranging from 6.65 to 3.31. This result affirmed that these twenty-six strains possess cellulolytic activity, and the I2a strain with the highest hydrolysis rate will be selected for further characterization. This work leads to the conclusion that the undergrowth soils of the Adamaoua region are sources of cellulolytic bacteria producing cellulases, and their valorization deserves to be investigated.



STURGEON BROODSTOCK REARING IN FLOATING CAGES FOR ADAPTABILITY TO CLIMATE CHANGE CONDITIONS

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In the context of global climate change, which influences the availability of water resources for use in aquaculture and agriculture, impacting food production and ensuring food security. Recent studies have reported promising results in fish farms and hatcheries, despite the challenges of adoption of cost-effective approaches to mitigation and adaptation to climate change in practice. The study aimed to evaluate the adaptation of sturgeon broodstock to climate change conditions, reared in a floating cage. A number of 165 specimens of the species *Acipenser gueldenstaedtii* (Brandt & Ratzenburg, 1833), with an average mass of 1000 g/fish, were reared in a 5x5x3 m cage made of galvanized panels and located in the CM Lunca irrigation canal. At the end of the experimental period, after 45 days, the results obtained showed an individual growth of 800 g and an adequate health status due to the adaptability of this species to the conditions of sturgeon broodstock rearing under climate changes.

THE INFLUENCE OF DIFFERENTIATED FERTILIZATION OF PERMANENT PASTURES ON FLORISTIC COMPOSITION AND PASTORAL VALUE

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In the last decades in the countries of Eastern Europe, a region of which Romania is also a part, political transformations of the late 1980s triggered the large-scale abandonment of permanent meadows, many being left unused and subsequently subjected to degradation. This study investigated the effect of differential fertilization of permanent pastures used with sheep in the Moldavian Plateau area on their floristic composition and pastoral values. The experiences began in 2023 and were carried out within RDSSGB Secuieni Bacău. Four lots of meadows were established with an area of 1.4 ha each, which were fertilized as follows: unfertilized meadow (control lot), meadow fertilized with chemical and organic fertilizers, meadow fertilized with organic fertilizers, and meadow fertilized with organic fertilizers plus overseeding. The obtained results attest the net superiority of the experimental lots compared to the control lot both in terms of floristic composition and pastoral value.

INFLUENCE OF CONVENTIONAL AND SLOW GROWTH FARMING SYSTEM OF CHICKEN BROILER ON CERTAIN MEAT TRAITS

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Are the textural and histological features of poultry meat affected by the rearing system? Two hundred ROSS-308 broiler chickens, slaughtered at 42 days (conventional) and 63 days (slow growth) were used for the research and histological analyzes were performed on the size of myocytes and the



proportion of tissue categories in the thigh and breast muscles. Chickens raised in the conventional system had the muscles with the finest fiber thickness. The thinnest fascicles were identified in semimembranous muscles. The percentage of pure muscle tissue was 71.32% in the slow growth system and 79.74% in the conventional system. The findings show that muscles in white meat areas have more connective tissue than muscles in red meat areas. In addition, the results showed that red muscle tissue (thigh muscles) is more tender than white muscle tissue (breast), but this theory needs to be tested by analyzing the textural profile of the meat using instrumental tests for shear force, the proportion of collagen and deformation of the tissues involved. Thus, based on the collected data, it can be concluded that the growth system influences the dimensional characteristics of the white (chest muscles) and red (lower and upper thigh muscles) muscle fibers in a proportion of more than 95%. In the future, it is recommended to increase the sampling base and use mixed analysis with histological and instrumental methods of textural profile in the case of poultry meat to obtain more consistent and more realistic results. It is also recommended to work on several muscle subgroups to better distinguish the quality of the meat from the limbs, especially in the case of the upper leg, and to analyze the samples separately by sex.

STUDY OF THE AGE AT FIRST CALVING IN ABERDEEN ANGUS BREED

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The aim of this paper was to study process of breeding value estimation for age at first calving, using own performance estimating procedure in an Aberdeen Angus cattle population. This breed is the most widespread and appreciated beef cattle in the world. The age at first calving is an important economic trait and influences the production traits in beef breeds. Aberdeen Angus cows are characterized by precocity. The data were collected from 329 cows reared in Aberdeen Angus Association Romania farms. The mean value and standard error for age at first calving in the studied population were 830.34 ± 4.86 days. This trait depends on the management of the farm. The information source for breeding value estimation was own performance and the breeding values for age at first calving ranged between -21.868 and 33.932 days. The method of selection of cows for age at first calving from the studied population was based on information collected from population who made object of selection (own performances). The improve of this trait can be realized by choice of the best cows for reproduction.

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POLYPHENOLIC EXTRACT DERIVED FROM MUSTARD MEAL BY-PRODUCT LED TO SIMILAR EFFECT WITH ZINC OXIDE IN ALLEVIATING THE NEGATIVE EFFECT INDUCED BY E. COLI LPS ON EPITHELIAL INTESTINAL BARRIER.

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In the present study, epithelial intestinal Caco-2 cells were culture together with HT29-MTX producing mucus cells and used as a cellular model which mimics intestinal physiological conditions to investigate the ability of a polyphenolic aqueous extract derived from a mustard seed meal to counteract the effects produced by E. coli endotoxin lipopolysaccharide (LPS) at the level of the intestinal epithelium in terms of renewal, integrity, changes in innate immune response and signaling pathway. For co-culture experiments, the cells were seeded in a ratio of 9 (Caco-2) to 1 (HT29-MXT) and treated with mustard meal extract-ME (dilution 1/50, corresponding to the final concentration of 15 μ /ml polyphenols) and ZnO (50 μ M) after reaching 80% of confluence for 2h. Then, cells were challenged with 5 μ g/mL E. coli-LPS and incubated for another 4h. The results showed that LPS did not altered cells viability, but decreased their proliferation when compared to control and experimental treatments, (ME and ZnO) which were able to counteract the epithelial renewal impairment. LPS altered also the epithelial membrane integrity and consequently epithelium permeability by decreasing on the one hand transepithelial electrical resistance and tight junction protein expression and on the other hand by increasing LDH activity and Toll like receptors expression. Several signalling molecules were also modulated. Pretreatment with ME and ZnO succeeded in counteracting all these LPS negative effects.

TRADITIONAL AND MODERN FARMING PRACTICES FACING FOOD SECURITY CHALLENGES

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Hunger is on the rise in the world and continues to claim millions of victims. More than 828 million people worldwide are currently affected by hunger. If nothing is done, the number of victims is likely to double or even triple in the years to come. Faced with this situation, there is an urgent need to build resilience to solve this thorny problem. It is even more necessary to find ways and means of ensuring the availability and accessibility of safe food for consumption. Livestock breeding, as well as agriculture and fishing, are priority sectors because of their contribution to the production of the food needed to cover the population's needs, create jobs and generate foreign currency. However, traditional practices do not encourage good production yields to meet demand. However, there are tools and techniques that can boost livestock production yields. Genetic selection of livestock, combined with the biotechnology of artificial insemination, represents a favorable gateway to food security.



STUDY REGARDING THE NUTRITIONAL QUALITY OF MANGALITA MEAT

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The Mangalita breed is known as a breed with superior quality properties from which unique and high-quality meat products can be manufactured. Mangalita is one of the most well-known breeds of rustic pigs popular in Europe (Pârveu et al., 2012). This type of breed is a characteristic representative of a fat pig breed, so that of the total body weight, the majority is represented by adipose tissue in a proportion of 65-70%, and the remaining 30-35% by muscle tissue. Mangalita pork is an extraordinary source of vitamins and trace elements, providing between 10% (vitamin B5) and 65% (vitamin B1) of the recommended daily dose. At the same time, it is also an excellent source of various soluble vitamins necessary for the development of a healthy metabolism, such as Vitamin B3, B6, B7 and B12. The minerals found in pork are in the proportion of 9%, represented by iron and 36% of zinc from the recommended daily dose, as well as phosphorus and magnesium. The fat content found in meat from Mangalita pigs is 12-16% less for saturated fatty acids and 8-10% higher for unsaturated fatty acids than in modern pig breeds. When consumed in weighted quantities, Mangalita pork is an excellent source of energy, with beneficial effects on the skin, eyes, nervous system, bones.

THE INFLUENCE OF FOOD ON THE QUALITY OF THE MEAT OF FARMED COMMON CARP (CYPRINUS CARPIO L)

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In aquaculture, the use of suitable diets for the fish species is fundamental to promote efficient and healthy growth. In the present context, the analysis of the chemical composition of diets becomes essential, especially when using locally sourced ingredients. In the research we focused on the preparation of four fodder recipes intended for Common Carp (*Cyprinus Carpio L*), using only local ingredients to ensure solidity and convenience such as: wheat, corn and sunflower meal, in well-preserved quantities to satisfy nutritional value of the diets, which will mean an improvement in the growth performance of common Carp (*Cyprinus Carpio L*). Therefore, the development of fodder diets suited to local conditions contributes to the promotion of an increase in the fishing industry.

USAGE OF A BINDER TYPE FEED ADDITIVE IMPROVING PELLETED FEED MANUFACTURING PROCESS

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One of the ways to optimize the combined feed granulation process, is the use of technological feed additives called binders. Consequently to testing such a binder in our study, the production of granules showed a series of improvements in several aspects achieving savings in electricity consumption (by 3.8 to 9%); extending the operating life of the machines, by protecting the windings of the motor winding and the mechanical subassemblies, due to the operation at lower amperages; the use of electric motors in a more uniform regime, without sudden jumps in energy consumption and temperature, which also ensures greater reliability of the machines; improving the hourly quantitative



production of granules by about 2.23-4.70%; reduction of commercial losses, by improving the granule durability index by 1.55-2.21%. Therefore, it is recommended to use binders to optimize the production process of combined fodder, in inclusion rates of 0.5-1% in the structure of combined fodder, to generate the decrease in electricity consumption required for the technological process and to improve quantitatively and qualitative production of granules. Although the present study has a number of limitations (small number of readings, short time interval for monitoring production dynamics), it can be extended on a larger scale and can be continued by comparative testing of the productive effects of manufactured pelleted fodder, under farm conditions.

CONSUMING BEHAVIOR ANALYSIS OF SOME PORK DISHES

**Elena - Oana Roșca (Parfenie), Bianca Petruța Tihiniuc-Popa,
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Eating pork dishes has become a dietary habit for consumers, as it is a tasty, filling and quick choice. By consuming them, they bring the necessary supply of nutrients to the human body. In order to identify the consumption behavior of certain categories of pork preparations, a study was carried out over the course of 45 days, with different categories of people. It was found that most consumers come from the urban environment and a smaller share from the rural environment. Their consumption behavior is influenced by different factors such as age, gender, environment of residence, way of life, characterised by daily activities, interests, attitudes and opinions. A total of 126 consumers participated in the study. It was concluded that the majority of consumers are women, come from urban areas, have higher education, consume pork dishes weekly, preferring packaged specialty dishes.

NEUROPROTECTIVE POTENTIAL OF AJUGA GENEVEISIS AND AJUGA REPTANS EXTRACTS AGAINST MEMORY DYSFUNCTIONS AND COGNITIVE DECLINE IN ANIMALS

**Florin Andrei Păduraru, Sorina Păduraru Sorina,
Alexandra Bârsan (Bujor), Hrițcu Lucian, Brezuleanu Carmen Olguța**
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Cognitive dysfunction, also known as dementia, is a disease that mainly affects dogs and cats and is directly related to the aging of the animal, being marked by a decline in brain functions and occurs in 28% of cats and 50% of dogs over 11 years of age. The signs and symptoms of dementia are easily visible by simply observing the animal's behavior: it will learn very difficult new behaviors or they will not learn at all, and the dispositions and commands will be executed with difficulty compared to how they were done before the disease set in. In the present study, we investigated the potential of some extracts from the plant species *Ajuga genevensis* and *Ajuga reptans* to counteract cognitive dysfunctions, respectively of short-term memory (STM) and long-term memory (LTM). The behavior of seeking food (reward) and of immobility operationalize the concept of motivation for survival and are directly associated with the functionality of the central dopaminergic pathways and inversely associated with cognitive decline. Motor dementia is associated with cognitive dementia, and from the realization of a motor behavior to the activation of the neurogenesis process, studies have shown a direct relationship. A number of 30 white, male Wistar rats, aged 4 months, with a



weight of 320 ± 10 g at the beginning of the experiment, were used for the research. According to the data obtained in the in vivo tests, in the three-arm maze test (Y-maze) all groups treated with extracts of *Ajuga* sp. prove an improvement in STM. The group treated with *Ajuga reptans* at a high dose (75 mg/kg body weight) showed the most intense STM-improving activity, comparable to that of healthy control animals. Regarding LTM, all groups treated with extracts of *Ajuga* sp. have had improvements. The batch treated with *Ajuga genevensis* extract in a low dose (of 25 mg/kg body) showed the most intense action of improving both LTM and STM, the intensity of the effect remaining relatively constant during the 7 days of administration. The obtained results open new directions of intervention in the case of cognitive decline and memory disorders in animals based on natural plant extracts.

INFLUENCE OF DIETARY WHITE LUPIN (*LUPINUS ALBUS*) SEEDS ON EGG ALBUMEN PROPERTIES

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A 6-week study on laying hens (162 Lohmann Brown, 30 weeks of age), divided into 3 groups was conducted to evaluate the effects of dietary inclusion of white lupine seeds (WLS0%; WLS15% and WLS32.5%) on fresh egg albumen as an alternative protein source in laying hens' nutrition. Every 2 experimental weeks, 18 eggs/group were collected to evaluate the albumen quality (foaming capacity, HU and pH value). The foaming capacity results showed a significant increase value on WLS15% and WLS32.5% compared to WLS0% group, which maintain during the storage time (at 14 and 28 days). These results are positively correlated with pH values which significantly decreased concomitantly with an HU albumen values increasing. To conclude, the dietary inclusion of white lupin seeds in laying hens' diet can enhance egg albumen quality demonstrating a significant interaction between diet and storage time.



WORKSHOP SESSIONS
ANIMAL SCIENCES & FOOD SCIENCES,
AGROTOURISM & ECONOMICS

➔ Emil Honoriu Roșu (E28) Auditorium, 1st floor

9:00 – 12:45

Chairpersons: Prof. Daniel SIMEANU, PhD
Assoc. Prof. Mihaela IVANCIA, PhD

Secretariat: Assist. Alexandra Mădălina DAVIDESCU, PhD

9:00 – 10:45

BIOSECURITY AND PRODUCTION CHALLENGES IN SWINE FARMS

Workshop presented by the experts of the PREMIUM PORC GROUP

COFFEE BREAK

10⁴⁵ – 11⁰⁰

11:00 – 12:45

**ONE HEALTH – AN OPTIMAL HEALTH FOR HUMANS, ANIMALS,
VEGETALS, SOIL & ENVIRONMENT**

Workshop presented by the experts of the ONE HEALTH ASSOCIATION

CLOSING CEREMONY AND CONGRESS AWARDS
FACULTY OF FOOD AND ANIMAL SCIENCES SECTIONS

➔ Emil Honoriu Roșu (E28) Auditorium, 1st floor

13:00 – 13:30

Chairpersons: Prof. Daniel SIMEANU, PhD
Prof. Răzvan Mihail RADU-RUSU, PhD



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1842

**LIFE SCIENCES TODAY
FOR TOMORROW**
24-25 October 2024



VETERINARY MEDICINE



THURSDAY, OCTOBER 24th, 2024

**FIRST SECTION
FUNDAMENTAL SCIENCES**

→ Pharmacology laboratory, 1st floor, building 5

PLENARY SESSION

**Chairpersons: Prof. Valentin NĂSTASĂ, PhD
Assoc. Prof. Dragoş ANIŢĂ, PhD**

14:00– 14:10

**A PRELIMINARY COMPARATIVE HISTO-MORPHOMETRICAL
DESCRIPTION OF THE FEMORAL DIAPHYSIS IN THREE MEDIUM-SIZED
ANIMALS**

**Maria-Catalina Matei-Latiu, Vasile Rus,
Tiberiu Voicu, Adrian Florin Gal**

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

Compact bone tissue is the body's most widespread type of bone, representing approximately 80% of the skeletal mass. In animals, the histological structure of the compact bone presents a high interspecific variability, being influenced by several internal and external factors.

The aim of the present study was to characterize the structure of the femoral diaphysis from a histological and morphometric point of view, taking into consideration some internal factors.

Samples from the middle third of the femurs from three medium-sized animals were histologically processed. The microscopical images were assessed from a morphometric point of view and the obtained data were statistically analyzed using one way ANOVA and Tukey's multiple comparisons tests, statistically significant results being considered if $p < 0.05$. The histological assessment of the femoral diaphysis suggested a mixed architectonics, with differences between the individuals. For the ram, the predominant tissue was the incomplete lamellar type, for the goat the complete laminar, while for the Vietnamese sow, the femoral diaphysis was formed by a mix between incomplete laminar and Haversian. The morphometric results suggested that the biggest osteons are found in ram (area of $70599 \pm 23344 \mu\text{m}^2$), while the goat has the smallest ($27119 \pm 11854 \mu\text{m}^2$). Also, the values obtained for the ram presented statistically significant differences when compared with the other two animals ($p < 0.0001$). The current preliminary study suggests that the compact bone structure may be subjected to several internal factors that can influence its aspect. Accordingly, a thorough histological evaluation may serve as a stepping-stone for species identification.



14:10– 14:20

**A DECADE OF RESEARCH AND ACHIEVEMENTS
IN THE ASSISTED REPRODUCTION LABORATORY FROM
HORIA CERNESCU RESEARCH UNIT**

Călin Mircu, Ioan Huțu

Faculty of Veterinary Medicine, University of Life Sciences Timișoara, Romania

At the end of January 2014, it was created the Laboratory for assisted reproduction in the Horia Cernescu Research Unit (IVF-CLCHC). Our immediate concern was to put together, from the scratch, all especially techniques which are usual in such a lab. The Assisted reproductive techniques we have put together, regarding the degree of difficulty and all the necessary steps were IVP (in vitro production), IVF (in vitro fertilization), ICSI – intracytoplasmic sperm injection and NT (nuclear transfer). PCR, rt-PCR, or qPCR were used for the assessment of the gene expression levels in all the selected genes in gametes, zygotes, or embryos. Despite all inherent difficulties, we were able to put together all the forementioned techniques and obtain satisfactory results. We were able to increase the difficulty degree of used techniques gradually, gaining skills and good experience. The obtained results, in some cases represented the starting point for PhD thesis research. The proper number of personnel working in the lab ensures a continuous flow of work and appointed research themes. The creation and existence of the Laboratory for assisted reproduction in the Horia Cernescu Research Unit (IVF-CLCHC) does represent a success, opening a lot of opportunities for those interested in the field of assisted reproduction and also for our University itself.

14:20– 14:30

LECTINES HISTOCHEMISTRY IN THE HEART OF A NEWBORN CAT

Irina Constantin, Romelia Pop, Alexandru-Flaviu Tăbăran

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

Lectins are carbohydrate-binding proteins widely used in histochemistry to identify specific glycoproteins in tissues. Concanavalin A (Con A) and Wheat Germ Agglutinin (WGA) are two lectins known for their affinity for specific carbohydrate moieties. This study aimed to evaluate the distribution and binding specificity of Con A and WGA in the heart of a newborn cat.

A heart was harvested from a newborn cat during necropsy and dissected using the four-chamber technique for detailed observation. After paraffin embedding, histochemical staining was performed using Concanavalin A and Wheat Germ Agglutinin. Additionally, Hematoxylin & Eosin (H&E) staining was employed for standard histological examination. The H&E slides revealed clear identification of all major cardiac components. Wheat Germ Agglutinin showed strong positivity across all heart tissues, indicating a widespread presence of its target glycoproteins. In contrast, Concanavalin A exhibited weaker reactivity, suggesting a more selective binding pattern. The histochemical analysis highlighted that WGA has a broader affinity in the newborn cat heart compared to Con A, which may reflect differences in glycoprotein distribution. These findings provide insights into the lectin-binding properties of cardiac tissues and could inform further studies on heart glycoproteins.



14:30– 14:40

**SCREENING OF LIVER SAMPLES IN CATS AND DOGS:
IS IT WORTH IT?**

**Raluca Ioana Rizac, Teodoru Soare, Elvira Gagniu,
Oana-Alexandra Gheorghe, Iasmina Luca, Manuella Militaru**

*University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
University of Life Sciences “King Mihai I” from Timișoara, Romania*

The present study is a screening of liver samples obtained from routine necropsy exams of 24 cats and 26 dogs. The purpose was to establish the macroscopic and microscopic diagnosis and to assess the correlations with other organs' pathologies, in order to provide useful information regarding the implication of the liver in overall pathology. Therefore, for all 50 cases the evaluation involved the complete necropsic examination, liver sampling, routine histopathology, HE, HEA and PERLS staining. Hepatocyte multinucleation was also assessed by counting 1000 hepatocytes/case. The results emphasized the diversity of liver pathologies. In cats, the main lesions were represented by lipidosis correlated with either obesity or intestinal pathologies (n=13), lymphocytic cholangitis (n=5), liver congestion and hemorrhage (n=6), cholestasis (n=4) and liver fibrosis (n=3). In dogs, the lesions were more diverse. The main ones were represented by congestion and occasional hematoma in correlation with cardiac lesions (n=10), hepatic lipidosis (n=6), liver fibrosis and regenerative nodules (n=6), hemosiderosis (n=2), cholestasis and occasional bile cyst (n=4), hemangiosarcoma (n=2), cholangiocarcinoma (n=1). Hepatocyte multinucleation (two or three nuclei) count revealed that higher percentages (5.8-6.5%) occur only in correlation with severe lesions such as lipidosis, regenerative nodules and fibrosis, lymphocytic cholangitis. The study reveals and emphasizes the diversity of hepatic lesions in domestic carnivores, underlining the different incidences of the main encountered lesions, together with the importance of histopathology as a vital tool in pathology, since many of the aforementioned lesions were not diagnosed macroscopically.

14:40– 14:50

**PERCEPTION OF VETERINARY MEDICINE STUDENTS REGARDING THE
IMPLEMENTATION OF COLLABORATIVE LEARNING METHODS**

**Raluca Ioana Rizac, Bogdan Gabriel Fuerea,
Oana-Mărgărita Ghimpețeanu,
Gheorghe Valentin Goran, Manuella Militaru**

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Collaborative learning methods include teamwork and peer-to-peer learning, both of which were used within the Faculty of Veterinary Medicine. Teamwork was used in the Pathology course and involved creating teams of 4-5 students who answered questions posed by the teacher. Peer-to-peer learning was used during the practical works of Pathology and Forensic Pathology and Diagnostic Necropsy. In this approach, one group of students takes on the role of tutors, while another group serves as tutees. They volunteered to attend scheduled practical sessions of senior years, with upper-year students acting as tutors. For both activities, at the end of the semester the participants voluntarily offered feedback, either expressed freely for the teamwork activities, or by filling in a confidential survey regarding their peer-to-peer activities. For the latter, the questions were similar for both student categories and covered a comprehensive overview of the learning experience. Junior



students appreciated how different subjects are interconnected and complementary, and 100% of them assessed the initiative as “Very important”. Senior students’ answers relied the importance of this experience on acknowledging the need to review previously acquired information and advocated for the expansion of peer-assisted learning within the curriculum, suggesting a range of additional disciplines. In conclusion, the interpretation of the answers suggested positive feedback, both methods being successful in motivating the students and increasing confidence in the strength of the team.

14:50– 15:00

**DIFFERENTIAL CHARACTERISTICS OF BONES IN THE COMMON
BUZZARD (BUTEO BUTEO) AND THE
WESTERN MARSH HARRIER (CIRCUS AERUGINOSUS)**

**Alina Lupu, Sorina-Andreea Mihai, Cristian Belu,
Cristian Marin, Petronela Roșu, Nicoleta Drăguț,
Ștefania Mariana Raita**

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Achieving a high degree of accuracy in identifying the bones of different bird species requires a solid knowledge of avian osteology and above all intensive and sustained study. Confusions may be due to the large number of species that belong to this class of vertebrates. Identifying species based on various skeletal characters is not only useful to archaeologists and taxonomists. Practically, legal medicine is also faced with problems that require such identification skills, especially in the case of settling disputes following acts of poaching. Different species of birds have different harvesting periods and in some cases poachers try to mislead the authorities entitled to examine the biological samples. The study material was represented by two corpses each of the species common buzzard (*Buteo buteo*) and western marsh harrier (*Circus aeruginosus*) from specimens collected between August 2023 and January 2024 from the perimeter of the Henry Coandă International Airport – Bucharest. The bones of the appendicular skeleton and the sternum have been described in detail, because these are the bones that most clearly and consistently show the species characters. The rest of the bones show differences, but are difficult for non-specialists to assess. It was concluded that between the two species the most important morphological contrasts appear in the case of the bones of the pelvic limb, this can be explained by the different method of capturing their prey.

15:00– 15:10

**RESEARCH REGARDING THE DISTRIBUTION OF THE CELIAC ARTERY IN
THE DUCK (ANAS PLATYRHYNCHOS)**

**Costin Gabriel Boarcăș, Sorina-Andreea Mihai,
Cristian Belu, Iulian Dumitrescu,
Petronela Roșu, Anca Șeicar, Gabriel Predoi**

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Birds have developed a highly specialized cardiovascular system to meet the rigorous energy demands of running, flying, swimming or diving in different environmental conditions, some of them extremely harsh. Although the bibliographic study showed the interest of anatomists in researching the cardiovascular system in birds, the structure and functions of this system are far more limited than in mammals. It was found that individual morphological variants appear in any new research. This



represents a motivation in carrying out a morphological study of the celiac artery in duck, in order to complete the data from the literature, through original descriptions and images. The studies were carried out on ten duck corpses (*Anas platyrhynchos*), by the injection method with plastic contrast material. Some results corresponded to the data from the literature, but it was also possible to identify elements for the first time, such as an anastomosis observed between the dorsal and ventral proventricular arteries in 70% of the cases. Also as novel elements, peculiarities of the topography of the origin of some arteries were identified in some specimens, as well as different sources of irrigation for certain segments of the digestive tube in this species.

15:10– 15:20

STUDY ON THE HEMATOLOGICAL ALTERATIONS IN HEMORRHAGIC SHOCK

Răzvan Nicolae Mălăncuș

"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania

Hemorrhagic shock, characterized by significant blood loss, triggers a cascade of hematological and physiological responses that aim to maintain tissue perfusion and oxygen delivery. The study was performed on a total number of 15 pets, canine and feline, provide an in-depth analysis of the hematological changes associated with hemorrhagic shock, focusing on the alterations in blood cell counts, coagulation pathways, and oxygen-carrying capacity. Key aspects include erythrocyte depletion, platelet dysfunction, coagulopathies, and the role of biomarkers like hemoglobin, hematocrit, and lactate levels in diagnosing and assessing the severity of shock. The article also explores compensatory mechanisms, such as increased erythropoiesis and the influence of inflammatory responses, revealing a reticulocytic reaction in 14 patients while increased granulocytes levels were found in 7 pets. A better understanding of these hematological parameters can aid in early diagnosis, effective resuscitation strategies, and improved patient outcomes in hemorrhagic shock management.

15:20– 15:30

HISTOPATHOLOGICAL ASPECTS IN TESTICULAR TUMORS IN DOGS

Ozana-Maria Hritcu, Aurelian-Sorin Pașca

"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania

Tumors are one of the most frequent lesions of testicles, affecting especially the cryptorchid ones. We identified 7 cases of testicular neoplasia out of 680 tumor samples from dogs received at the Laboratory of Pathological Anatomy of the Faculty of Veterinary Medicine of Iasi, over 4 years (2020-2024): 2 interstitial cell tumors, 1 seminoma and 4 sertoliomas. All of them caused an increase in volume and distorted the shape and surface of the organs. Histopathologically, the sertoliomas displayed an intratubular development, with extensive fibrosis, the seminoma a diffuse, disseminated pattern with sporadic necrotic areas, and the Leydig cell tumors proliferated in between and adjacent to the seminiferous tubules, causing numerous necrotic and hemorrhagic foci. In all cases compression atrophy was observed, caused either by the neoplasia or the strong proliferation of fibrous connective tissue. Although testicular tumors are not very frequent in dogs, it is important to



determine their type and aggressiveness and also to differentiate them from inflammation that could indicate an infectious disease with zoonotic potential, to establish proper treatment and prognosis.

15:30– 15:40

**LONG-TERM ORAL ADMINISTRATION OF HYPERIMMUNE EGG-DERIVED
IGY FORMULATIONS INDUCES TH2- AND TH17-MEDIATED IMMUNE
RESPONSES IN C57BL/6 MICE**

**Valentin Nastasa, Bogdan Minea, Aurelian-Sorin Pasca,
Andra-Cristina Bostănaru-Iliescu, Alina-Elena Stefan,
Daniela Gologan, Robert Capota,
Liliana-Georgeta Foia, Mihai Mareş**

*"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania
"Grigore T. Popa" University of Medicine and Pharmacy of Iasi, Romania
University of Agronomic Sciences and Veterinary Medicine, Bucharest, Romania
Department of Research and Development, Themis Pathology SRL, Bucharest, Romania
Politehnica University, Bucharest, Romania*

This study evaluates the long-term effects of three hyperimmune egg-based formulations rich in immunoglobulin Y (IgY) on the immune system of C57BL/6 mice. The formulations were orally administered for up to 90 days, without microbial challenge, and immune responses were assessed through serum cytokine profiling, histopathological analysis, and blood tests. IgY treatments induced mucosal and systemic immune responses, with significant increases in Th2- and Th17-type cytokines. At 30 days, the fresh hyperimmune egg (HE) formulation elevated IL-6 ($p = 0.0172$), G-CSF ($p < 0.0001$), and Eotaxin ($p = 0.0010$), reflecting a Th2- and Th17-skewed response. Similarly, the IgY extract (Yext) formulation increased IL-21 ($p = 0.0034$) and IL-25 ($p = 0.0064$), supporting Th17 and Th2 activity. After 90 days, IL-2 ($p < 0.0001$) and IL-13 ($p = 0.0001$) were significantly elevated in HE-treated mice, further highlighting Th1 and Th2 involvement. Histopathological analyses revealed lymphohistiocytic infiltrates in the liver, digestive tract, and lungs, which intensified over time. Blood analysis confirmed systemic inflammation, with elevated pro-inflammatory cytokines, serum proteins, and liver enzymes. These findings suggest that orally administered IgY interacts with gut-associated lymphoid tissue, triggering both local and systemic immune responses. This research underscores the immunomodulatory potential of IgY formulations, even in non-infectious contexts, and their capacity to stimulate Th2- and Th17-type immune pathways over prolonged periods.

15:40– 15:50

**MORPHOLOGICAL PARTICULARITIES OF THE VERTEBRAL COLUMN IN
THE TIGER (PANTHERA TIGRIS)**

Alexandra-Andreea Chersunaru, Mihaela Claudia Spataru, Constantin Spataru
"Ion Ionescu De La Brad" Iasi University of Life Sciences, Romania

The spine of the tiger (*Panthera tigris*) represents a fundamental part of the axial skeleton, playing a crucial role in supporting the body, protecting the spinal cord, and facilitating rapid and precise movements, essential for its hunting efficiency. The present study was designed to analyze the morphological adaptations of the spine that provide the tiger with exceptional hunting and survival abilities. The anatomical analysis was conducted on two adult tigers. The first two cervical vertebrae,



the atlas and axis, are heavily modified to allow a wide range of head movements, including rapid rotations and tilts. The atlas (C1) has a ring-like shape, lacking a proper vertebral body, with large, concave articulation surfaces. Sharp notches resulting from the transformation of the alar foramina help reduce weight and improve head mobility. The axis (C2) is specially adapted to allow the rotation of the head around the atlas, which is crucial for the tiger during hunting and its swift movements.

Thoracic vertebrae, longer and less flexible than the cervical ones, provide stability to the body. The lumbar segment is highly flexible due to the length of the vertebral body, the height of the articular processes which exceed half the height of the spinous processes, and the specific orientation of the transverse processes. These features allow the tiger to quickly arch and extend its body, giving it a tactical advantage in hunting. The lumbar and sacral vertebrae provide the flexibility and strength needed for swift attacks and rapid running. This complex structure is essential for the tiger's predatory abilities and for its survival in the wild.

15:50– 16:00

ADVANTAGES OF USING MALDI-TOF TECHNIQUE IN VETERINARY CLINICAL MICROBIOLOGY

Dragoş Constantin Aniţă, Adriana Aniţă

„Ion Ionescu de la Brad” Iaşi University of Life Sciences, Romania

The Matrix-Assisted Laser Desorption/Ionization Time-of-Flight (MALDI-TOF) technique presents considerable advantages in veterinary clinical microbiology, improving the way microbial pathogens are identified and managed. Based on the analysis of protein spectra, MALDI-TOF enables rapid, precise, and cost-effective identification of a wide array of microorganisms, including bacteria and fungi. Unlike traditional methods that can be time-consuming and labor-intensive, MALDI-TOF dramatically reduces diagnostic time, facilitating quicker decision-making and intervention. One of the key benefits of MALDI-TOF is its efficiency in streamlining laboratory workflows. The technique requires minimal sample preparation and offers high-throughput capabilities, which not only speeds up the identification process but also enhances the overall productivity of veterinary laboratories. This efficiency translates to improved diagnostic accuracy, as the detailed protein profiles allow for precise differentiation between closely related species and strains. Furthermore, MALDI-TOF supports more timely and informed treatment decisions, as the rapid turnaround time ensures that veterinarians receive crucial diagnostic information promptly. This timeliness is particularly critical in managing infections and outbreaks in animal populations, where early intervention can prevent the spread of disease and improve animal health outcomes.

16:00– 16:10

TARGETING IRON ACQUISITION MECHANISMS DURING INVASIVE FUNGAL INFECTIONS: OLD AND NEW INSIGHTS

Marian Mariana, Mihai Mareş

„Ion Ionescu de la Brad” Iaşi University of Life Sciences, Romania

The development of antifungal drugs encounters a significant challenge due to the close phylogenetic relationship between fungi and mammals, both being eukaryotic organisms that share many similar cellular and molecular processes. The toxicity of antifungal compounds is bilaterally distributed, complicating the development of highly selective therapeutic agents. The four classes of



antifungals for treating invasive fungal infections—polyene macrolides, azoles, pyrimidine analogs, and echinocandins—offer therapeutic benefits but also have limitations regarding their spectrum of activity, route of administration, drug interactions, toxicity, limited ability to target multiple fungal sites, resistance to monotherapy, and short half-life. These limitations, alongside the emergence of antifungal-resistant strains and new multi-resistant species like *Candida auris*, contribute to inadequate therapeutic effects and rising mortality rates. Research into the pathogenic mechanisms of potentially invasive fungi, particularly the pharmaceutical exploitation of their nutritional vulnerability to iron, is driven by the need to diversify antifungal „armamentarium” as iron is crucial for their survival and virulence in the host. The challenge of developing new antifungal drugs has shifted research toward improving existing ones. This promising approach targets the synergy between conventional therapies and strategies of iron acquisition, potentially lowering therapeutic doses and addressing multiple targets, which could slow the development of resistance.

16:10– 16:20

**FUNCTIONALITY OF THE MASTICATORY SYSTEM AND THE
MEASUREMENT OF BITE FORCE IN DOGS. REVIEW**

Maria – Delia Nechitoi, Mihaela – Claudia Spataru

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

This present study provides an in-depth analysis of the canine masticatory system and examines the methods for measuring bite force, based on existing specialized literature. The primary objectives include a detailed description of the anatomy involved in mastication, such as teeth, jaw muscles, and the temporomandibular joint. Additionally, the paper discusses the importance of bite force measurement in various contexts, such as feeding, defense, and gripping behaviors, as well as the factors influencing bite force, including breed, size, age, and health status. Comparisons with other carnivorous mammals highlight the specific characteristics of the canine masticatory system. The conclusions emphasize the practical relevance of understanding bite force, which can aid in optimizing veterinary care, developing more effective diagnostic and treatment methods, and improving knowledge of canine dietary and defensive behaviors

16:20-16:30

**A SHORT SURVEY THROUGH THE ROMANIAN POPULATION
REGARDING THE USE OF ANTIOXIDANTS IN MEAT PRODUCTS**

**Oana-Mărgărita Ghimpețeanu, Georgeta Ștefan,
Raluca Ioana Rizac, Raluca Aniela Gheorghe Irimia,**

Carmen Daniela Petcu, Oana Diana Mihai,

Dana Tăpăloagă, Cristin Borda

USAMV of Bucharest, Romania

USAMV Cluj Napoca, Romania

In the last decade, consumers want to be aware about the additional ingredients in meat products, especially those used as preservatives. The goal of the present study was to present a short survey of Romanian population knowledge, attitudes and perceptions regarding the use of antioxidants in meat products. A cross-sectional survey based on a Google form questionnaire was conducted among the general population of Romania from September to November 2022, with 605



responses. Out of the total of 27 questions, 9 evaluated the general knowledge related to antioxidants and their use in meat products. The results showed that most consumers are aware of the potential harmful effect of long-time consumption of artificial antioxidants, causing allergies, cancer and other conditions. Also, they would not buy a meat product if the natural antioxidant used would cause significant changes of product's colour and taste. In conclusion, research methods such as surveys can provide valuable information about consumers' attitudes regarding the use of natural and artificial antioxidants in meat products.

Key words: survey, antioxidants, meat products

16:30-16:40

EVALUATION OF NITRATE AND NITRITE CONTAMINATION IN WATER SOURCES FROM LIVESTOCK FARMS: IMPACT ON ANIMAL HEALTH AND SAFETY

**Gheorghe Valentin Goran, Emanuela Badea,
Ana Daniela Tanasă, Nicoleta Ciocîrlie**
UASVM of Bucharest, Romania

The use of nitrogen fertilizers, while enhancing agricultural output, has contributed to significant environmental pollution, particularly in water sources, posing risks to both human and animal health. The accumulation of nitrates and nitrites in the soil-water-plant-animal chain has raised growing concerns among veterinary toxicologists due to their potential to cause subclinical poisoning, impairing animal productivity and reproduction. Current regulations limit nitrate concentrations in drinking water to 50 mg•L⁻¹, although experts recommend levels below 25 mg•L⁻¹, while nitrite concentrations should not exceed 0.5 mg•L⁻¹. This study monitored nitrate, nitrite, and ammonia levels in water sources from various livestock farms (cattle, sheep, pigs, poultry), a trout farm, and a European bison facility over two years. Water samples were analysed using spectrometric techniques to assess contamination risks. The results revealed that nitrite and ammonia levels were consistently below detection limits in all samples, indicating minimal pollution. The highest nitrate concentrations were found in the cattle farm water, while the lowest were recorded in the trout farm. Importantly, all nitrate levels remained well below the maximum permissible limits, reflecting prudent fertilizer use and the natural protection offered by deeper wells in the region. The absence of ammonia suggests limited use of organic fertilizers like manure, while the lack of nitrite contamination points to high water quality. These findings underscore the importance of ongoing monitoring and responsible agricultural practices to protect animal health and prevent toxicological risks.

16:40-16:50

HISTOLOGIC EVALUATION OF CADMIUM AND LEAD NEUROTOXICITY IN ZEBRAFISH (*DANIO RERIO*)

Gabriela Alexandra Daneleț, Carmen Solcan
"Ion Ionescu de la Brad" Iași University of Life Sciences, Romania

Heavy metals such as lead, mercury, cadmium and arsenic are known for their neurotoxic properties. The study was conducted on 50 zebrafish (*Danio rerio*) divided into 5 groups as follows: Batch 1 - Control; Batch 2 - 5 µg L⁻¹Cd (the standard cadmium solution used is Centipur® cadmium nitrate - Cd (NO₃)₂ (1000 mg/L-1, 119.77),) for 48 h; Batch 3 - 15 µg L⁻¹Cd for 21 days; Batch 4 -



60 µg Pb (Lead nitrate - Pb (NO₃)₂ - Certipur® standard solution (Pb, 1000 mg L⁻¹, 119.77)) L for 48 h; Batch 5 - 90 µg Pb L for 21 days. For histologic examination, tissues were fixed in formaldehyde, paraffin-embedded, sectioned, HE stained and examined microscopically.

The lesions were different depending on the concentration and duration of fish exposure only in the experimental batches. The tissue changes frequently observed following cadmium exposure consisted of vacuolar degeneration, necrosis, hemorrhage, congestion and edema in different areas of the nervous system. In addition, lead chloride had a very deleterious effect on brain tissues and chronic exposure leads to irreversible histologic damage.

16:50-17:00

OBSERVATIONS OF FENOTIPIC AND GENOTIPIC RESISTANCE FOR STAPHYLOCOCCUS AUREUS IN MILKERS

**Bianca Lungu, Daniel Bratu, Iuliu Torda,
Irina Spataru, Calin Mircu, Ioan Hutu**

*University of Life Science "Regele Mihai I", Timisoara, Romania
Horia Cernescu Research Unit – University of Life Science "Regele Mihai I", Timisoara, Romania*

Staphylococcus aureus is recognized worldwide as one of the major agents of dairy cow intramammary infections and cause a wide variety of clinical diseases in humans. Staphylococcus aureus can be transferred during milking from milkers (especially from their hands that come into contact with the udder) to cows. The exchange of resistance genes is very effective during colonization or infection of host organisms. The aim of this study was to determine the prevalence of Staphylococcus aureus isolated from the nasal cavities of milkers. In this study were taken 30 samples from nostrils of milkers and 66.6% of them were confirmed as Staphylococcus aureus. For these isolates, 25 antibiotics were tested using the PBC29 panel and all isolates (100%) were found to be resistant to ampicillin and penicillin. Through the qPCR reaction, 6 resistance genes (bla_Z, cfr, ermB, ermC, mecA, and tetK) were tested and 13 antibiotics were associated with them. For each gene it was calculated the penetrance (P%) and diagnostic odds ratio (DOR) to see if the phenotypic expression of resistance/susceptibility is also found in genes. In this study, overall penetrance was P%=52%, the penetrance had values between 22% (tetK) and 80% (bla_Z) and DOR had superunitary values in mecA gene (DOR=1.21), cfr (DOR=1.53), ermB (DOR=2.54) and ermC (DOR= 5.44). This approach can enhance the understanding of plasmid-borne resistance and improve diagnostic accuracy, ultimately contributing to better management of antimicrobial resistance in veterinary settings.

17:00-17:10

STUDY OF LEAD ABSORPTION RATE FROM EXPERIMENTALLY CONTAMINATED FEED INTO EDIBLE INSECTS

**Ioana Mădălina Georgescu, Oana Evelina Stroie,
Ovidiu Valentin Zvorişteanu, Carmen Daniela Petcu,
Oana Diana Mihai, Emilia Ciobotaru-Pîrvu**

*Sanitary Veterinary and Food Safety Directorate, Bucharest, Romania
University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania*

The consumption of insects, such as the house cricket (*Acheta domestica*) and mealworm larvae (*Tenebrio molitor*), is an increasingly debated topic in the media. This discussion is driven by



changes in food traditions influenced by inter-ethnic cultural exchanges. Additionally, there is a growing need to identify new nutritional sources with increased energy intake, which is also related to recent legislative development. The research was carried out in an authorized veterinary sanitary and food safety laboratory and aimed to study the absorption rate of lead from experimentally contaminated feed at the value of 0.15 mg/kg in edible insects fed for 14 days. Quantitative determinations of lead in insects were made at the initial moment, later at 7 days and 14 days, on 6 analytical batches for each type of insect. The method of lead determination was graphite furnace atomic absorption spectrometry. Analytical results demonstrated that the insects under study responded relatively uniformly to the degree of lead absorption during the first 7 days, namely an increase in lead levels of 41.6% in house crickets versus 40.2% in mealworm larvae. The novelty of the situation comes from the results of the 14-day analytical series, which showed a decrease in lead concentration in both types of insects. However, there was a significant difference of 11.07% between them. In house crickets, the lead concentration decreased by 32.67%, while in mealworms, it decreased by 21.6%.

17:10-17:20

MACROSCOPIC LESIONS CAUSED BY PESTE DES PETITS RUMINANTS IN SHEEP FROM THE COLLECTION CENTERS OF TULCEA COUNTY

Mircea Lazăr, Ioana Buzdugan, Silviu Musaclu, Roxana Lazăr

“Ion Ionescu de la Brad” University of Life Sciences Iasi, Romania

DSVSA Tulcea, Romania

Peste des petits ruminants (PPR) is a highly contagious viral disease that severely impacts sheep and goats, leading to significant morbidity and mortality. This study focuses on the macroscopic lesions (oral, lung, gastrointestinal) identified in sheep from collection centers in Tulcea County, an area at high risk for PPR transmission. The aforementioned lesions were documented in animals suspected of PPR infection and linked to the disease's characteristic clinical signs. The insights gained from these observations are critical for early differential and then presumptive diagnosis, these steps being crucial for guiding effective control strategies to limit the spread of the virus.

17:20-17:30

PESTE DES PETITS RUMINANTS: A NEW EPIDEMIOLOGICAL THREAT IN TULCEA COUNTY

Mircea Lazăr, Ioana Buzdugan, Mara Trifan (Știrbu),

Diana Neghină (Cibotariu), Gheorghe Savuța,

Silviu Muscalu, Roxana Lazăr

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

LSVSA Iasi, Romania

DSVSA Tulcea, Romania

Peste des petits ruminants (PPR) is a severely contagious viral disease affecting sheep and goats, characterized by a high morbidity and mortality rate. This study describes the epidemiological playground of the virus, focusing on the favorable conditions and clinical aspects observed in small ruminants (sheep) centers in Tulcea county, a region with high risk for the spread of this disease. Observations were made on animals suspected of PPR infection, and the observed lesions were



correlated with the specific clinical manifestations of the disease. This information is essential for early diagnosis and the implementation of appropriate control measures in the context of preventing the spread of the virus.

17:30-17:40

EVALUATION OF BLOOD BIOCHEMICAL CHANGES IN THE GENERAL ADAPTIVE RESPONSE TO STRESS IN DOMESTIC RABBITS

Mircea Lazăr, Geta Pavel, Roxana Lazar

“Ion Ionescu de la Brad” University of Life Sciences Iasi, Romania

This study examines the biochemical changes in the blood of domestic rabbits within the general adaptation syndrome, focusing on the effects of stress on blood parameters. The research involved monitoring glucose, cortisol, serum proteins, and electrolyte levels to assess the impact of the stress response on the body's homeostasis. The results indicate significant changes in these parameters in line with the general adaptive response, suggesting a clear correlation between the severity of stress and the observed biochemical fluctuations. The study provides valuable insights into the physiological reactions of domestic rabbits to prolonged stress conditions.

17:40-17:50

ARE VETERINARY ANTIBIOTICS USED PRUDENTLY IN THE EU?

**Alina Draghici, Razvan Dobre, Georgeta Stefan,
Daniela Tirsinoaga, Mariana Dumitrache,
Andreea Maftai, Simona Sturzu**

*Institute for Control of Biological Products and Medicines for Veterinary Use- Bucharest, Romania
Faculty of Veterinary Medicine- Bucharest, Romania*

The notable and ongoing rise in the prevalence of bacteria that exhibit resistance to multiple antibiotics has emerged as a significant public health concern on a global scale. This situation is particularly alarming given the limited therapeutic options available for effectively treating specific infections caused by these resistant strains. In light of this pressing issue, the veterinary sector has demonstrated a strong and unwavering commitment to addressing antimicrobial resistance (AMR) through a comprehensive 'One Health' approach. This approach emphasizes the importance of scientific evidence in guiding efforts to tackle this challenge.

In order to effectively combat the problem of AMR, there is an urgent need for coordinated actions that promote the prudent and responsible use of antibiotics across various sectors. Recent legislative changes, including the new Regulation - Regulation (EU) 2019/6 enacted by the European Parliament and the Council concerning veterinary medicinal products, have had a profound impact on efforts to mitigate antibiotic consumption in the treatment of animals.

The establishment of reliable data regarding sales and the use of antimicrobial medicinal products in veterinary medicine is crucial, as it helps to identify emerging trends and potential risk factors that could affect both human and animal health. Recent data collected by national authorities and reported by the European Surveillance of Veterinary Antimicrobial Consumption (ESVAV) indicate a significant reduction in the sales of veterinary antibiotic medicinal products throughout Europe.



17:50-18:00

**MODERN AND COMPREHENSIVE SOLUTIONS FOR THE STUDY OF
CELLULAR FUNCTIONS**

Ovidiu Geicu, Alexandra Livescu

Dialab Solutions

Many experimental approaches use as a starting model the cell. Either we study prokaryotic cells or eukaryotes, the cell represents a good starting point to model and understand defense mechanisms, immune responses, viral expansion, mechanisms of drug therapies etc.

To generate an accurate experimental cellular model, which can be further translated to in vivo models, it is very important to assess accurately the number of cells (as starting experimental sample), the integrity and viability, and to study mechanisms of cellular activity such as cell growth, proliferation, migration, apoptosis, expression of various markers such as specific antibodies.

In order to achieve such goals, Dialab Solutions, in partnership with high profile producers, such as Bio-Rad Laboratories and Sartorius BioAnalytics proposes to researchers instruments that incorporate modern and top technologies for cell counting (TC20 Automated Cell Counter, Bio-Rad), cell imagers to visualize cells in various fluorescence channels (ZOE Cell Imager, Bio-Rad) and to monitor live any small changes over-time of the cell growth and cellular functions, without disrupting the cells (Incucyte systems, Sartorius), and ZE5 Cell Analyzer, Bio-Rad, the best in class, innovative flow-cytometer.

Making our goal to offer tailor-made and complete solutions designed specifically for the workflow of your laboratory, Dialab Solutions partnered with reputed producers in the scientific and medical field, in order to ensure high quality products and services.



SECOND SECTION CLINICAL SCIENCES

→ 1st Lecture room (A1)

PLENARY SESSION

Chairpersons: Prof. Solcan Gheorghe, PhD

Assoc. Prof. Ciornei Stefan, PhD

14:00 – 14:10

LEISHMANIA - A NEW CHALLENGE IN VETERINARY MEDICINE

Daniela Mihaela Crețu

BioSystems Diagnostic Romania

Leishmaniasis, caused by protozoan parasites of the genus *Leishmania*, is emerging as a significant challenge in veterinary medicine. Primarily transmitted by sand flies, this zoonotic disease affects a wide range of animal species, particularly dogs, which serve as key reservoirs for human infection. The clinical manifestations in animals, including cutaneous and visceral forms, pose diagnostic and therapeutic difficulties, especially in endemic regions. As climate change and global travel contribute to the spread of vectors and pathogens, veterinary professionals must be equipped to manage this growing health threat.

14:10 – 14:20

PROGESTERONE ANALYSIS IN CANINE BREEDING MANAGEMENT ANALIZA PROGESTERONULUI ÎN MANAGEMENTUL REPRODUCERII CANINE

Dorin Țogoe, Nicoleta Mincă

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Progesterone plays a crucial role in establishing pregnancy in dogs, being considered an important clinical biomarker for estimating the time of ovulation and the ideal period for insemination. Additionally, progesterone level assessment is useful in monitoring luteolysis before delivery. At the "Prof. Univ. Dr. Alin Bîrțoiu" University Emergency Hospital, we selected a group of 52 females, aged between 1 and 5 years, in various stages of the reproductive cycle, to monitor progesterone concentrations. Between January and July 2024, we collected 52 blood samples using K3 EDTA vacutainers. For increased accuracy, the analyses were conducted using the Vcheck® device at the clinic. Additionally, we used ultrasound to monitor ovarian appearance from the preovulatory period to ovulation, correlating the results with progesterone levels. The results were categorized into three stages: anestrus (outside the reproductive period), preovulatory (30-50 hours after reaching the peak concentration of luteinizing hormone), and ovulatory. During anestrus, progesterone levels were below 1 ng/ml, in the preovulatory period they ranged between 1-5 ng/ml, and for ovulation, the optimal value was considered to be between 5-8 ng/ml. Based on these values, artificial inseminations were performed, with 46 out of the 52 females successfully inseminated.



14:20 – 14:30

PRELIMINARY DATA ON MOLECULAR TESTING FOR *Anaplasma phagocytophilum* INFECTION IN CATTLE AND HORSES, ROMANIA

Mariana Ionita, Andreea Monica Bogdan,

Emanuel Mitrea, Anca Maria Zisopol, Ioan Liviu Mitrea

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Ticks and tick-borne pathogens are among the most important group of causative agents of vector-borne diseases in Europe. Over the last two decades, numerous reports strongly emphasize on the spreading and increased abundance of ticks in Romania. Moreover, molecular reports have also documented on the diverse tick-borne pathogens circulating at the domestic and wild host-tick interface. Among them, (re)-emerging tick-borne pathogens, including causative agents of zoonotic diseases, with high impact on the animal and human health are reported. *Anaplasma phagocytophilum*, the causative agent of granulocytic anaplasmosis in humans and animals is also regarded as an emerging tick-borne pathogen with a growing concern. Little is known about its occurrence in domestic animals in Romania. Therefore, the present study aimed on molecular testing for *A. phagocytophilum* infection in cattle and horses, Romania. For this, blood samples were tested by using a Real-Time PCR technique. The results were interpreted based on the cut-off cycle threshold of $Ct < 45$. Following the amplification protocol, the methods was validated (the positive controls showed the average $Ct = 27.4285$); of the tested samples, for two cattle amplification curves with the $Ct < 45$ were registered, while one equine sample was inconclusive. These preliminary molecular data document the presence of the investigated pathogen. Further studies are planned to asses the prevalence and genetic characterization of *A. phagocytophilum* variants circulating in domestic animals, in Romania.

14:30 – 14:40

**SEROLOGICAL INVESTIGATION ON EXPOSURE TO *ANAPLASMA* SPP.
INFECTION OF CATTLE AND WATER BUFFALOES, ROMANIA:
PRELIMINARY DATA**

Emanuel Mitrea, Andreea Cristina Paltin,

Dana Cerbu, Ioan Liviu Mitrea, Mariana Ionita

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Anaplasmosis is one of the most common tick-borne diseases worldwide, caused by *Anaplasma* species (Rickettsiales: Anaplasmataceae), associated with considerable economic losses in livestock. However, little is known about *Anaplasma* spp. infection in ruminants in Romania. Therefore, a serological study was conducted to detect antibodies specific to *Anaplasma* spp. in cattle and water buffaloes originated from different geographical areas of Romania. For this, serum samples were collected from 182 cattle and 30 buffaloes and subjected for analyzes by a competitive enzyme linked immunosorbent assay (cELISA) that uses recombinant major surface protein 5 (MSP5) of *Anaplasma* spp. Subsequently, an overall prevalence of 42.3% (95% CI: 35.03 - 49.84) in cattle and 20.0% (95% CI: 7.71–38.57) in buffalo was registered. Significant difference ($p < 0.05$) of mean seropositivity, varying from 22.2% (95% CI: 13.26-33.57) to 72.0% (95% CI: 57.50-83.77) was registered in cattle, according to their originating area. Overall, the findings revealed the natural



exposure to *Anaplasma* spp. infection of both cattle and buffaloes in the investigated areas of Romania. Since the economic impact of anaplasmosis in ruminants is of increasing relevance, further extended investigations are planned to assess the eco-epidemiology of *Anaplasma* species infecting animals in Romania and the associated risk factors.

14:40 – 14:50

COMMON HELMINTHS OF DOMESTIC CARNIVORES AND ASSOCIATED EPIDEMIOLOGICAL RISKS: A SYSTEMATIC REVIEW

**Anca Maria Zisopol, Emanuel Mitrea,
Ioan Liviu Mitrea, Mariana Ionita**

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Domestic carnivores are hosts for various helminth parasitic species that impact their health, but also with relevance for humans since some of these parasites have a zoonotic potential. Knowledge about occurrence and distribution of helminth infections in domestic carnivores are of high interest as a base for better understanding the epidemiology for the both animal and public health. Therefore, the present paper aimed to analyze the current status and associated risks for animal and public health of intestinal helminth infections in domestic carnivores. For this, evidence-based knowledge from specialized literature and original epidemiological studies reported over the last two decades searched in international databases following specified inclusion predefined eligibility criteria were selected for analysis. The findings emphasized that helminth infections in domestic carnivores have large distribution with prevalence varying, according to different variables, from 7.9% up to 93.3% in dogs, and from 7.2% up to 51.84% in cats respectively. Among the common helminths reported in dogs were *Ancylostomidae* (2.2% - 61.36%), *Toxocara canis* (0.57% - 53.84%), *Trichuris vulpis* (0.3% - 34.09%), while in cats the most common was *Toxocara cati* (4.7% - 40.2%), including species with serious public health implications due to their zoonotic potential. These aspects strongly suggest for a high need of continuous monitoring and increased awareness among the both veterinarians and animal owners about the occurrence of the parasitic helminths in domestic carnivores and the associated risk factors.

14:50 – 15:00

PRELIMINARY RESEARCH ON THE PREVALENCE OF TRICHINELLA INFECTION IN THE RED FOX (*VULPES VULPES*) IN NORTH-EASTERN ROMANIA

Olimpia Iacob, Gianluca Marucci, Laura Andreea Olariu

„Ion Ionescu de la Brad” Iași University of Life Sciences Romania

European Union Reference Laboratori for Parasites, Department of Infectious Diseases,

Instituto Superiori si Sanita, Italy

Velmavet Veterinary Clinic, Botoșani, Romania

In a general epidemiological context, wild carnivores constitute an important natural reservoir regarding the preservation of *Trichinella* infection in the sylvatic environment, and the risk of extension to domestic animals and humans. In the North-East of Romania, there is a large population of red foxes (*Vulpes vulpes*) which is not included in the epidemiological surveillance of trichinellosis. The purpose of this research is to find out the prevalence of *Trichinella* infection in the red fox and



the *Trichinella* species involved.. The research was carried out between March and July 2023 on 222 muscle tissue samples taken from 74 red foxes, shot as part of the rabies epidemiological surveillance activity. From each fox, three muscle tissue samples (tongue, diaphragm and intercostal muscles), of 50 g each, were taken, which were preserved at -80°C. Examination of samples and selection of positive cases was done by direct trichinelloscopy. Positive muscle fragments were collected and stored in Eppendorf tubes at -80°C for further molecular biology studies. The identification of *Trichinella* species was done at the European Union Reference Laboratories for Parasites, Istituto Superiore di Sanità, Rome, Italy, through the Multiplex PCR test. The overall prevalence of *Trichinella* infection was 52.7% (39/74) and the species identified was *Trichinella britovi* (T3). From the preliminary studies it is observed that the high prevalence of *Trichinella* infection in the red fox ensures the preservation and perpetuation of the *Trichinella* genus in the sylvatic environment with unpredictable consequences for animal and human health, requiring further studies.

15:00 – 15:10

MORPHOLOGICAL PECULIARITIES OF *TRICHINELLA BRITOVI* CYSTS IN THE STRIATED MUSCLE TISSUE OF THE RED FOX (*VULPES VULPES*)

Olimpia Iacob, Laura Andreea Olariu

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Velmavet Veterinary Clinic, Botoșani, Romania

The trichinelloscopic examination of muscle tissue samples (tongue, diaphragm, masseter muscles) taken from 74 foxes (*Vulpes vulpes*) from North-Eastern Romania, revealed a pronounced polymorphism of *Trichinella* cysts induced by *T. britovi*. Different stages of cyst development were highlighted, from early stages to partial or total calcification. We believe that the reported aspects are conditioned by numerous factors, including the age, local and general reactivity of the examined specimen. The morphological study of *T. britovi* cysts allows differentiation from cysts of other *Trichinella* species parasitizing the red fox (*Vulpes vulpes*) and avoiding confusion in the direct diagnosis of *Trichinella* infection.

15:10 – 15:20

CLINICAL OUTCOMES OF EXTRA-ARTICULAR CRANIAL CRUCIATE LIGAMENT RECONSTRUCTION IN A CANINE USING AN ULTRA-HIGH-MOLECULAR-WEIGHT POLYETHYLENE IMPLANT:

A SIX-MONTH FOLLOW-UP

Eusebiu-Viorel Șindilar, Iulian Mihăilă, Alexandra Ciubotariu

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The extra-articular reconstruction of the cranial cruciate ligament (CrCL) using ultra-high-molecular-weight polyethylene (UHMWPE) implants shows promising results based on the case of a dog with an acute complete CrCL rupture. This method, though not yet widely adopted, demonstrates several advantages: Immediate Functionality: The dog was able to bear weight immediately post-surgery, which is a significant benefit in terms of recovery and quality of life. Clinical Outcome: By one month post-surgery, the dog exhibited normal standing posture and gait, with only mild pain on stifle manipulation. This suggests that the UHMWPE implant effectively restored stifle stability and function relatively quickly. Long-Term Results: At three and six months, the dog showed minimal



muscle atrophy and cranial translation, indicating that the implant provided stable and effective support. The stifle joint was painless, and there were no significant adverse effects noted. Radiographs confirmed that the articular surfaces remained congruent and there was no worsening of osteoarthritis. Joint Effusion: The moderate joint effusion remained stable over the follow-up period, which is an important factor in assessing the long-term success of the implant. Considerations for Future Use: Confirmation with Larger Studies: While the results in this case are promising, further prospective studies with larger sample sizes are needed to validate the efficacy and safety of UHMWPE implants in a broader population of dogs. Potential Benefits: The UHMWPE implant could offer a viable alternative for CrCL rupture treatment in large dogs, particularly if it continues to demonstrate positive outcomes in future studies. Overall, the UHMWPE implant for CrCL reconstruction shows potential as an effective treatment option, but ongoing research is essential to confirm its reliability and benefits across a wider range of cases. The use of an UHMWPE ligament for extra-articular CrCL reconstruction resulted in good functional outcomes in this case. The promising results warrant further investigation through prospective studies with larger populations to confirm the technique's efficacy and long-term benefits for CrCL repair in dogs.

15:20 – 15:30

UROLITHIASIS VESICAE URINARIAE CANIS, CASE REPORT

Igor Učajev, Bojana Učajev, Ivan Pavlović

Veterinary Ambulance "ŠAPA", Belgrade, Serbia

Scientific Institute of Veterinary Medicine of Serbia, Belgrade, Serbia

Urolithiasis is a relatively common finding in dogs, and depending on which part of the urinary system it is in, the clinical picture of the patient will depend. Routine examination includes ultrasound diagnostics, X-ray imaging, microscopic examination of urine with urine culture, and blood analysis. In this paper, we present a case of urinary bladder urolithiasis in a dog. The most common urinary stones in dogs are composed of struvite. The mineral composition is mostly struvite ($MgNH_4PO_4 \cdot 6H_2O$). In most cases, struvite uroliths form in association with urinary tract infections with urease-producing *Staphylococcus* or *Proteus* spp. This was also proven in our case by a laboratory analysis during which *Staphylococcus pseudintermedius* was found in the urine culture.

15:30 – 15:40

NUTRITIONAL DERMATOSES CAUSED BY ZINC AND COPPER DEFICIENCIES IN FARM ANIMALS

Gheorghe Solcan, Alina Anton

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Faculty of Veterinary Medicine, University of Life Sciences, Ion Ionescu de la Brad, Iași, Romania

Nutritional dermatoses caused by zinc and copper deficiencies in farm animals are causing important economic losses, the diagnosis being difficult, on the basis of clinical signs. Clinical and paraclinical exams (haematology, blood biochemistry, spectrophotometry determination of Cu and Zn) were made in a dairy cattle farm and in a pig farm. Due to the continuous growth and renewal of the skin, nutritional deficiencies translate early into clinical skin signs. Zinc and copper are essential trace elements involved in numerous metabolic processes. Their deficiency, induced especially by the



inhibition of absorption by some competitors (excess calcium and other divalent ions, moldy feeds, rich in phytic acid and phytates) causing important economic losses. Zinc deficiency is clinically expressed relatively late, through parakeratosis of the epidermis (the visible part of the iceberg) but also of the epithelia of the keratinized mucous membranes: oral, oesophageal, forestomach, oesophageal portion of the gastric mucosa, vaginal, but also immunosuppression, growth retardation, reproductive disorders, etc. Copper deficiency is expressed early by cutaneous dyschromia: achromotrichia, black hair becomes reddish and dark red hair becomes yellow, and in the absence of preventive measures, systemic metabolic disorders progressively set in: anaemia, immunosuppression, reproductive disorders, etc. In farm animals zinc deficiency is expressed by parakeratosis of the epidermis and of the epithelium of keratinized mucous membranes. Copper deficiency is expressed by hair and skin dyschromasia and systemic metabolic disorders.

15:40 – 15:50

PANOSTEITIS IN A BUCOVINA SHEPHERD DOG. CASE REPORT

**Gheorghe Solcan, Vasile Vulpe, Mădălina Elena Henea,
Radu Andrei Baisan, Eusebiu Șindilar**

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Panosteitis is a disease found in young dogs, aged 6-18 months, of medium and large breeds, more commonly diagnosed in large, fast-growing breeds: German Shepherd, Giant Schnauzer, Mastiff, Basset Hound, Shar-Pei, Golden Retriever, Saint Bernard, Airedale Terrier, Doberman, Great Dane, Afghan Hound, Cocker Spaniel, Irish Setter, Labrador Retriever, Mastiff, Rottweiler etc. We report a case of panosteitis in a 16-month-old Bucovina Shepherd dog with intermittent lameness. This is the first report of the disease in the breed in Romania. The disease was initially mistaken considered as rickets, following the clinical exam performed at a previous clinic. On radiological examination there was obvious opacification of the medullary canal of the ulna and discrete opacification of the medullary canal of the radius and humerus in both forelimbs. At the same time, incongruence of the articular heads of the humerus and radius and ulna, respectively, was found in both forelimbs due to asynchronous development of the three bony rays, which may be an additional reason for pain and lameness.

15:50 – 16:00

MONITORING MASTITIS IN COWS -REVIEW

**Diana Bădioi, Dan Drugociu, Ștefan Ciornei,
Petru Roșca, Florin Nechifor**

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Inflammation of the mammary gland leads to a decrease in glandular synthesis, which reduces the concentration of casein and fat in the milk. Subclinical mastitis can alter the milk's composition in varying proportions, depending on the pathogenicity of the causative agent. Detecting subclinical mastitis is a complex operation, as the external appearance of the mammary gland is not altered, the milk secretion shows no visible changes, and it appears physiologically normal. Through milk analysis, somatic cells exceeding the allowable limit can be detected, along with the presence of pathogenic agents, while milk production decreases, and the milk coagulates when boiled. In this animal species, subclinical mastitis control in dairy cows must be carried out regularly. For this



purpose, the following methods are used: the R-Mastitest, the Californian method, the milk electrical conductivity method, and the total somatic cell count. Depending on the severity of the clinical manifestation, parenteral administration of non-steroidal anti-inflammatory drugs, as well as fluid and vitamin therapy, may be used. In general, the recovery rate for clinical mastitis is below 25%, not due to antibiotic resistance, but rather as a result of bacteria being isolated within the infection site.

16:00 – 16:10

ELEMENTS OF PARACLINICAL DIAGNOSIS AND THE IMPACT OF DECONGESTIVE THERAPY IN HEART FAILURE IN DOG

Vasile Boghian

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

In 118 dogs of different ages and breeds with heart failure (HF), the electrocardiographic (EKG) and ultrasound (EcoCord) examination was performed. Left HF in the dog had polymorphic symptomatology with R-wave lengthening (aortic stenosis) and QRS complexes with equal intervals (ventricular tachycardia), presence of F-waves (atrial fibrillation), increased P-wave duration, thickening and hyperechoic appearance of the mitral valve, and enlargement the diameter of the left atrium relative to the diameter of the aorta ($As/Ao > 1$). In the right HF, the increase in the systolic and diastolic diameter of the right ventricle was observed with the nonsynchronous movement of the interventricular septum, the existence of polycavitary effusions, and the thickening of the tricuspid valve. The most common form of HF in the dog was that with preserved left ventricular ejection fraction (LVEF), in the 8-12 year age group, 55% of these cases being females. On the other hand, the percentage of patients with left HF was more than 2/3 of the total HF cases, 72.03% were aged between 8-12 years and 58.47% were male. In young dogs and those over 12 years of age, the highest proportion had HF with intermediate LVEF, and in those aged 8-12 years most had preserved LVEF (33.9%). The ionogram (sodium, potassium, chlorine) performed in 32 patients, correlated with LVEF from the time of diagnosis did not show significant statistical differences compared to the results obtained after decongestive therapy with loop diuretics (Furosemide). However, the serum values of each electrolyte have changed; some markers of cardiac distress such as natriuretic peptides (NT-proBNP) and creatinine (CRTN) were influenced by diuretic therapy. IC in dogs can evolve as a primary disease, without affecting the body's overall physiology in the compensated stage; liver transaminases and mean blood urea nitrogen (BUN) values had normal mean values. Later, in the decompensated stages, clinical or paraclinical signs of organ dysfunction and corresponding blood biochemical changes may also appear.

16:10 – 16:20

ASSESSMENT OF LEFT ATRIAL FUNCTION IN AORTIC THROMBOEMBOLISM OR CONGESTIVE HEART FAILURE SECONDARY TO FELINE HYPERTROPHIC CARDIOMYOPATHY

Mălina-Cristina Maftei, Andrei- Radu Baisan, Vasile Vulpe

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Feline hypertrophic cardiomyopathy (HCM) is the most common myocardial pathology in cats. Clinical signs occur in the decompensation stage of the disease and are determined by congestive heart failure (CHF), marked by the onset of pulmonary edema and pleural effusion. Another clinical sign associated with high mortality is the occurrence of feline aortic thromboembolism (FATE), with



a prevalence of approximately 25%. Among factors predisposing to FATE are increased left atrial dimension and decreased contractility which favour the blood clotting and thrombus formation. The echocardiographic diagnosis of HCM requires measurements of left ventricular and left atrial cavities as well as the determination of progressive diastolic dysfunction, which is characterized by decreased left ventricular compliance, with the development of restrictive diastolic dysfunction resulting in increased left atrial pressure. The determination of left atrial function may become a parameter that determines the clinical course of decompensated cats with congestive heart failure.

The objective of this study is to describe the size and contractility of the left atrium in cats with hypertrophic cardiomyopathy, resulting in CHF or FATE, by determining the left atrial shortening fraction (LAFS%) and ejection fraction (LAEF%). This retrospective study, included patients presenting to the Emergency Department divided into three groups: cats with feline aortic thromboembolism (T), patients with CHF (pleural effusion/pulmonary edema)(CF) and a control group(C) consisting of healthy cats. The clinical importance of left atrial volumetric measurements have been validated in human medicine, but have received little attention in veterinary medicine. The current data show that atrial function (as determined by LAEF%) is reduced in cats with dilated left atrium, with a negative association between LA-EF% and LAVmax, showing the chronicity and severity of diastolic dysfunction associated with feline hypertrophic hypertrophic cardiomyopathy.

16:20 – 16:30

EVALUATING THE RELIABILITY OF RADIOLOGICAL HEART MEASUREMENTS ACROSS DIFFERENT EXPERIENCE LEVELS USING LEARNING TECHNIQUES

Radu Andrei Baisan, Andreea Cătălina Turcu, Ștefan Mihăiță Acomi, Laura Marina Bilboc, Mălina Cristina Maftעי, Vasile Vulpe
„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

This study aims to evaluate the intra- and interobserver measurement agreements for Vertebral Heart Scale (VHS) and Vertebral Left Atrial Size (VLAS) between a reference observer (RO) and nine 4th year veterinary medicine student volunteers with the same experience in radiological examination, randomly selected to participate in this study after completing the radiology module. Seventy right lateral radiographs of healthy dogs and dogs with different stages of myxomatous mitral valve disease (MMVD) retrospectively selected have been further assessed by the students during a learning phase (LP), a test phase (TP) and a re-test phase (RTP). All observers and RO were blinded to the clinical, echocardiographic data and diagnosis of the dogs. Seven types of errors have been considered for each VHS measured image and three types of errors for VLAS measurement, for a total of 540 radiographic measurements performed in the study phase. A total of 581 measurement errors were counted in total, with a mean 1.34 (range 0-6) errors per image for VHS and a mean of 0.8 (range 0-3) errors per image for VLAS. Interobserver and intraobserver analysis revealed substantial to almost perfect agreement. For VHS the interobserver agreement between students and RO was comprised between 0.948 and 0.993, while for VLAS was comprised between 0.819 and 0.978. The intra-observer variability within student for VHS was comprised between 0.959 and 0.995 while for VLAS between 0.71 and 0.994. The high degree of observer agreement for the evaluated heart measurements indicates the reliability and feasibility of the methods. The proposed learning protocol effectively detected cardiomegaly and left atrial enlargement regardless of prior experience in radiological evaluation, with the high number of measurement errors having minimal impact on the overall outcome.



16:30– 16:40

PREVALENCE OF HOLTER-DETECTED ARRHYTHMIAS IN PATIENTS WITH HEART DISEASE

Laura-Marina Bilboc, Vasile Vulpe, Baisan Radu- Andrei
„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Holter monitoring is a 24-hours electrocardiographic technique to determine heart rhythm and the main arrhythmias in patients with cardiac diseases. In veterinary cardiology, this diagnostic technique aims to analyze the heart rhythm as well as to monitor arrhythmias or heart rate variability during all daily activities.

This study aims to analyze arrhythmias and their prevalence in patients diagnosed with heart disease. All patients were subjected to a complete cardiologic examination. Among the cardiac pathologies frequently diagnosed in the Cardiology Clinic of FMV Iasi were: dilated cardiomyopathy, mitral valve degeneration, pulmonary hypertension, aortic and pulmonar stenosis or congenital heart diseases. Also, the rhythmologic diagnosis was established after the Holter examination. The most common arrhythmias diagnosed was: atrio-ventricular blocks, grade II, III, supraventricular tachycardia, ventricular rhythm, atrial fibrillation, sinus pauses or escape rhythms. This study reports the prevalence of arrhythmias detected on 24-hours Holters, associated with cardiac diseases in a single referral center.

16:40-16:50

BONE MARROW MESENCHYMAL STEM CELLS - PROTOCOL FOR ISOLATION AND CULTIVATION FROM RATS

Diana-Alexandra Busuioc, Dan Drugociu,
Eusebiu Viorel Sindilar, Cristina – Elena Horhoge
„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Mesenchymal stem cells (MSCs) can be obtained from different sources, such as adipose tissue, placenta, umbilical cord, etc., however, those obtained from the bone marrow are the main cell source used in tissue repair, tissue engineering and cell-based gene therapy. The methods of harvesting the bone marrow vary according to the specie. Usually, the smaller the subject, the more difficult is the harvesting and the number of cells obtained is more reduced. This paper describes a technique that we considered the most reliable and easy to apply for the isolation and differentiation of mesenchymal stem cells derived from rat bone marrow (BM-MSCs). For this purpose, humerus and femur bones from 16 weeks Winstar rat were used. The characterization of the cultured cells was performed by morphology evaluation using Olympus IX51 microscope and cell viability assay. The nucleated cells that attached to plastic exhibited a spindle shape morphology and all the passages showed a viability percent > 95, with a mean value of 96%. MSCs are emerging as a very promising therapeutic agent for tissue regeneration due to differentiation capacity and immunologic privilege. Their capacity to proliferate during numerous passages, making possible to obtain a large number is making MSCs very attractive from a therapeutic perspective.



16:50-17:00

**PARASITIC DISEASES OF THE DIGESTIVE ORGANS OF WEANED PIGLETS
IN INTENSIVE BREEDING**

**Ivan Pavlović, Jovan Bojkovski, Aleksandra Tasić,
Ivan Dobrosavljević, Slavonka Stokic-Nikolic,
Dragos Constantin Aniță, Adriana Elena Aniță,
Vesna Karapetkovska-Hristova, Renata Relić**

Scientific Institute of Veterinary Medicine of Serbia, Belgrade, Serbia

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„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

University “St. Kliment Ohridski”- Bitola, North Macedonia

Parasitic infections are constant companions of pig production, regardless of the method of keeping. Caused by several parasitic species, they threaten the health of animals and cause significant economic losses due to lower growth, reduction in body weight of fattening animals and loss of daily gain, poorer feed conversion, and finally, a problem appears in the slaughterhouse industry in the form of confiscation or conditionally usable meat. During research carried out in the period 1991-2021, the most common occurrence of protozoan infections in weaned piglets is that we found the average presence of protozoa *Balantidium coli* (95-100%), *Cryptosporidium* sp (17-32%), *Eimeria perminuta* (27-31%), *E. deblickei* (3-24%), *E. polita* (4-9%) and *Isospora suis* (3-13%). Helminth infections *Ascaris suum* (39-41%), *Oesophagostomum dentatum* (6-8%), *Strongyloides ransomi* (1-17%) and *Trichuris suis* (1-7%) were also found. The planned application of parasitological, zootechnical and biosecurity measures is crucial in protecting the health of pigs and the success of production.

17:00-17:10

**STATISTICAL ANALYSIS OF MILK COMPOSITION AND MANAGEMENT
PARAMETERS: INSIGHTS FROM DAIRY COWS**

Bratu Daniel George, Lungu Bianca, Huțu Ioan,

University of Life Science “Regele Mihai I”, Timisoara, Romania.

Horia Cernescu Research Unit – University of Life Science “Regele Mihai I”, Timisoara, Romania

This study investigates the relationship between milk biochemical composition and management parameters in dairy cows, focusing on fat, protein, casein, lactose, urea, beta-hydroxybutyrate (BHB) concentrations, days in lactation (DIM), lactation, age and fat-to-protein (G/P) ratio. Milk samples from 55 cows were analyzed to evaluate the impact of nutritional and metabolic imbalances on milk quality. The fat-to-protein (G/P) ratio and milk urea content served as key indicators of energy balance and protein metabolism. A strong positive correlation was found between fat and protein concentrations ($r = 0.76$, $p < 0.001$), while lactose showed a significant negative correlation with both fat ($r = -0.54$, $p < 0.001$) and protein ($r = -0.45$, $p < 0.001$). The analysis shows that cows with low G/P ratios (indicative of an energy surplus) cluster around 100 and 250-300 days in lactation, but these differences are not statistically significant ($p = 0.4627$, $p = 0.1936$). In contrast, cows in the Protein Excess group (urea > 25 mg/dl) cluster around 100 and 200-300 days, with statistical significance ($p = 0.0046$). This suggests that protein excess varies across lactation stages, highlighting the need for dietary adjustments to optimize protein metabolism during these periods.



17:10-17:20

SWINE EXPERIMENTAL UNITS: A DECADE OF INNOVATIONS AND INSIGHTS IN *HORIA CERNESCU* RESEARCH UNIT

Ioan Huțu, Bianca Cornelia Lungu, Daniel Bratu, Călin Mircu

Horia Cernescu Research Unit – University of Life Science “Regele Mihai I”, Timisoara, Romania

This study aims to evaluate the research impact of the Swine Experimental Unit (SwUEX) infrastructure. Over the past decade (2014-2024), SwUEX has generated 24 scientific papers, 4 patent applications, and established 47 collaborations and networks. The citation impact of these publications varied across databases, with WOS showing an average of 2.21 ± 0.95 citations and Google Scholar showing 3.71 ± 1.49 . Higher-tier (Q1-Q2) publications received more citations than lower-tier (Q3-Q4) and BDI articles in both WOS and Google Scholar. A retrospective analysis of swine management and biomedical research revealed no significant trends in publication levels or citation counts. However, swine biomedical papers in WOS showed significant citation impact by publication type ($\chi^2=15.511$, $p=0.017$). While no significant social impact was observed, there was a notable economic impact ($\chi^2=8.678$, $p=0.033$), which became more significant with the inclusion of patent applications ($\chi^2=10.885$, $p=0.012$). Additionally, the research output of SwUEX contributed to fostering collaborations and networks. The patent applications further underscored the link between these outputs and their socio-economic impact, showing significant associations with social, economic, and collaborative efforts.

17:20-17:40

AGGRESSIVE BEHAVIOR IN DOGS

**Alexandra Grigoreanu, Cojocaru Răzvan, Gașpar Cristina,
Iulia Bucur, Cristian Lăzărescu, Ioan Țibru**

University of Life Sciences “King Mihai I” from Timisoara, Romania

Behavioural problems in dogs are very important in daily practice, such behaviours being one of the most common causes of abandonment. Aggression being the first problem owners mention as a motive of giving up their dogs, and the lack of knowledge on how to extinguish such behaviour. Looking at aggression as a general trait, it is difficult to assess the best method of approach, thus evaluating the aggressive behaviour and the exhibited type can reduce the abandonment caused by undesired traits. This paper’s objective is to evaluate the type of aggressions exhibited in dogs with owners, from several cities in Romania. The assessed dogs were dogs that came in veterinary clinics for consultation purposes in Timișoara, Arad, Oradea and Bucharest. The age of the assessed dogs was at least 18 months, which is known to be the average age of puberty. The method of evaluation was by using a behavioural observation sheet. The total number of evaluated dogs were 100, and in 94 of them some type of aggressive behaviour was shown, 51% exhibited aggressive behaviour towards family members, 65% exhibited aggressive behaviour towards visitors, 40% towards strangers and 76% towards other dogs. These findings further prove the importance of early appropriate socialization and appropriate environment exposure in the critical periods of behavioural development in puppies.



17:40-17:50

**EVALUATING COENUROSIS IN SHEEP USING CT SCANS: HOUNSFIELD
UNIT ANALYSIS OF PARASITIC CYSTS AND TISSUE DAMAGE**

**Daniel Vasile Tomoioaga, Robert Cristian Purdoi,
Ovidiu Iliuta Marcus, Felix Lucaci, Nicușor Oros,
Caroline Maria Lacatus, Sorin Marian Marza,
Codrin Irimescu, Loredana Elena Olar,
Florin Beteg, Radu Lacatus**

University of Agricultural Sciences and Veterinary Medicine Cluj Napoca, Romania

Coenurosis, caused by the larval stage of *Taenia multiceps*, is a parasitic disease that poses a significant threat to sheep populations worldwide, leading to severe neurological impairment and substantial economic losses. The formation of cysts within the central nervous system, particularly the brain and spinal cord, necessitates early and accurate diagnosis for effective management and control. This study evaluates the use of CT as a diagnostic tool in cases of coenurosis in sheep. CT imaging consistently revealed hypoattenuated cystic structures of varying shapes and sizes, easily distinguishable from healthy brain tissue. Hounsfield unit (HU) measurements confirmed that the cystic content was primarily fluid, occasionally containing air, while elevated HU values along the cystic membrane suggested the presence of protoscolices, enhancing diagnostic confidence. Additionally, CT allowed for the evaluation of bone involvement, crucial for determining the extent of structural damage and informing prognosis and surgical planning. The observed improvement in clinical symptoms following surgical drainage of cystic fluid highlights a potential therapeutic approach to managing coenurosis, although further investigation is required to assess the efficacy of complete cyst excision. The study involved 4 cases with observed cyst volumes ranging from 0.65 cm³ to 3.42 cm³, with corresponding Hounsfield Unit values from -65 to 88. Post-operative improvement was confirmed through imaging. This study underscores the diagnostic value of CT in coenurosis and suggests that future advancements may lead to viable treatment options for affected animals.

17:50-18:00

**COMPARATIVE MEASUREMENTS OF CEREBRAL VENTRICLES ON CT
SCAN IMAGES IN YOUNG AND GERIATRIC BICHON DOGS**

**Teodora Sonia Patrichi, Robert Cristian Purdoi,
Sorin Marian Marza, Caroline Maria Lacatus, Ovidiu Iliuta Marcus, Codrin Irimescu,
Cosmin Petru Pestean, Andrei Razvan Codea, Radu Lacatus**

University of Agricultural Sciences and Veterinary Medicine Cluj Napoca, Romania

Cognitive Dysfunction Syndrome (CDS) is a neurodegenerative condition in dogs, often compared to human Alzheimer's disease due to clinical and morpho-pathological similarities. Diagnosis relies on patient history, owner input, clinical examination, cognitive assessment, and paraclinical investigations like CT scans, which can reveal structural brain changes such as cerebral atrophy and ventricular enlargement. Given the anatomical diversity among breeds, breed-specific studies are necessary. This study evaluates ventricular sizes and the ratio between ventricles and corresponding hemispheres in Bichon dogs, comparing individuals under 9 years of age with those over 9. Results indicate that older dogs exhibit larger ventricular measurements, suggesting age-related ventricular enlargement. These findings contribute to understanding age-associated neurodegenerative changes in this breed.



**THIRD SECTION
PUBLIC HEALTH**

→ Pathological anatomy laboratory, building 6

PLENARY SESSION

Chairpersons: Prof. Hab. Nicolae STARCIUC, PhD

Assoc. Prof. Cristina Elena HORHOGEA, PhD

14:00 – 14:10

**DISCOVER, DEVELOP, DEPLOY – APPLYING GENOMICS TO ANIMAL
BREEDING**

Tudor Bogdan Mihai

Affiliate Illumina si Elta 90 Medical Research

In the era of genome, the new technology of sequencing open new opportunities in the veterinary field. Animal Breeding it's faster and much more precise now days then in the traditional way, and in this way veterinary science can help to increase the access to food for people and also decrease the CO₂ production.

14:10 – 14:20

**EXPERIMENTAL STUDY ON THE ASSESSMENT OF THE IMPACT OF NON-
IONIZING ELECTROMAGNETIC RADIATION ON HONEYBEES**

Vasilică Savu, Agripina Şapcaliu, Viorel Fătu, Roxana Zaharia

Research Development Institute for Plant Protection Bucharest, Romania

The research investigated the potential effects of non-ionizing electromagnetic fields with frequencies ranging from 0.9 GHz to 3.2 GHz, at different power densities (S), on bees, utilizing both laboratory and field studies. The study included two apiaries located at distances of 500 m (IF) and 1000 m (TR) from the source of the non-ionizing electromagnetic field emission. The following parameters were monitored over a 5-day exposure period: temperature, humidity (%), bee mass (mg), noise level (dB), emission level (milliwatts/m²), and mortality rate (%), compared to a control group. The electromagnetic emission from the GSM antenna was measured at the studied apiaries at six different distances from the emitting antenna (0-10 m, 100 m, 300 m, 500 m, 800 m, 1000 m). The results highlighted the complexity of the biological and behavioral responses of bees as a defense mechanism against electromagnetic stress. RF-EMF had a direct impact on the exposed bee groups at both locations, with the phenomenon known as "worker piping" being observed, which serves as a signal for swarming in the face of danger or stress, compared to the control group where this phenomenon was not observed. This work was supported by the financial support of ADER 2.1.8/2023.



14:20 – 14:30

POST-VACCINATION IMMUNOLOGICAL EFFICIENCY AGAINST RABIES IN FOXES BY DETECTION OF THE VACCINE MARKER IN THE REPUBLIC OF MOLDOVA

Sirbu Maxim, Nicolae Statrciuc

Technical University of Moldova, Chişinău, Rep. of Moldova

The purpose of the conducted research was to establish the post-vaccination effectiveness in foxes immunized with vaccines applied in the form of baits to reduce the incidence of rabies in wildlife on the territory of the Republic of Moldova. The vaccination was carried out as part of the national prophylactic vaccination program in the period 2020-2023, by the aerial distribution method of the "Lisvulpen" vaccine, manufacturer by Bioveta Company, Czech Republic. As a result of the research with reference to the detection of the vaccine marker, it was established that out of the total of 216 samples taken during the year 2021, 188 samples were positive, and 28 samples were negative. At the same time, from the total of 216 investigated mandible samples, 136 samples were from adult foxes, of which 118 samples were positive for the vaccine marker, and 18 samples were negative, constituting an immunological efficiency of 86.7%. In the same time, from 80 samples collected from young foxes, 70 were positive and 10 negative for the vaccine marker, constituting an immunological efficiency of 87.5%. Thus, the dynamics of the fox population, the breeding season, the maternal immunity and the immunological response of the fox pups are the main criteria for assessing the optimal period for the effective vaccination of foxes against rabies.

14:30 – 14:40

**THE IMPORTANCE OF AFLATOXIN M₁ IN DAIRY PRODUCTS
- A MINI-REVIEW**

Ioana Porosnicu, Luminita-Iuliana Ailincai,

Mirela-Adina Ariton, Andra-Sabina Neculai-Valeanu,

Silviu-Ionut Bors, Vasile Vintila, Mihai Mares

„Ion Ionescu de la Brad” Iaşi University of Life Sciences, Romania

Research and Development Station for Cattle Breeding Dancu, Iasi, Romania

Milk and dairy products are essential nutritious foods for all age groups, especially for infants and children. Their consumption can be dangerous due to a harmful substance called aflatoxin M₁ (AFM₁), the aflatoxin that comes from the conversion of aflatoxin B₁ present in animal feed. Due to ingesting feed contaminated with aflatoxin B₁, cattle can secrete aflatoxin M₁ into their milk. Therefore, dairy products such as milk, cheese, and yogurts have the potential to be contaminated with this toxic substance. Although its toxicity is lower than that of aflatoxin B₁, it is relatively stable during storage, pasteurization, and processing. Aflatoxins are part of the most important group of mycotoxins, mycotoxins being toxic compounds produced mainly by fungi of the genera *Aspergillus*, *Fusarium*, and *Penicillium* and which can contaminate many types of food and feed and through their stability in the food chain can reach the consumer. Nowadays, food contamination with aflatoxin is significant. The objective of this paper is to provide an overview of the importance of mycotoxin M₁, from the occurrence, factors that influence transfer rates, the method of determining mycotoxin M₁, to the harmful effects resulting from the consumption of this mycotoxin. Therefore, aflatoxin M₁ in milk and dairy products poses a major risk to mankind, as these products are regularly consumed in the daily diet.



14:40– 14:50

**MONITORING AND INCIDENCE OF PRESENCE OF SALMONELLA SPP.
BACTERIA IN SOME LIVE BIRD MARKETS**

**Nicolae Starciuc, Olga Juncu, Cristina Sîrbu,
Valentina Cretu, Tatiana Antohii, Natalia Osadci**
Technical University of Moldova, Chişinău, Rep. of Moldova

The proposed research aimed to establish the incidence of *Salmonella* spp. bacteria in flocks of birds of different ages, sold in the poultry market in Chisinau, coming from different districts of the republic. As research material served: the samples taken from the birds' transportation units to the market, from the cells for the maintenance of birds, from the floor, the market inside walls and the fecal matter from birds of different species and ages. For the isolation and identification of bacteria from the genus *Salmonella* spp. were used the culture media such as Bismuth sulfite agar, *Salmonella* Sighella Agar, Brilliance *Salmonella* Agar. For the serological identification were used the polyvalent serums (O and H). The results obtained demonstrate that the bacteriological indices in young chickens compared to adult birds differ significantly, presenting values of 3 to 5 times higher. This fact proves that adult birds kept temporarily in the same market territory with young chickens present a major risk of direct contamination with different bacterial forms, increasing the risk for bacteria of the genus *Salmonella* spp.

The results of the bacteriological research of samples taken from different age categories of birds confirmed that the indices of bacteria from the genus *Salmonella* spp. had values of 0.58 ± 0.13 $24 \log$ CFU/g in chickens with age 0-2 days, increasing up to $1.48 \pm 0.09 \log$ UFC/g ($p > 0.001$) in chickens with age 50-60 days, and in adult birds this index was $3.42 \pm 0.19 \log$ UFC/g ($p > 0.001$), having a difference of 5 times higher compared to small chickens, a fact that demonstrates the epidemiological importance of salmonella for poultry flocks and the risks of cross-contamination of birds kept temporarily in the same market territory.

14:50 – 15:00

**ASSESSMENT OF GROWTH POTENTIAL RISK OF LISTERIA
MONOCYTOGENES IN HUMUS SALAD READY TO EAT**

Georgeta Ştefan, Corina Predescu, Alina Karina Simion, Oana Mărgărita Ghimpeţeanu
University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Institute for Control of biological products and veterinary medicine, Bucharest, Romania

Listeriosis, infection produced by *Listeria monocytogenes* (Lmo), is a foodborne zoonosis that affects humans, especially some risk categories, such as the pregnant women, neonates, immunocompromised patients, elderly. Humus salad, as ready-to-eat products (RTE), presents a risk of contamination with Lmo, especially through the processing environment, considering the increased resistance of this bacteria. The Lmo growth risk throughout shelf life of RTE products represents a food safety issue. Commission Regulation (EC) no. 2073/2005, on microbiological criteria for foodstuffs, sets out specific food safety criteria for LMO in ready-to-eat foods in Annex I for categories 1.1 to 1.3. The obtained results showed that the growth of *Listeria monocytogenes* is possible throughout shelf life of humus salad, since the highest growth potential (δ) among three batches is > 0.5 .



15:00 – 15:10

FOOD WASTE IN ROMANIA

Madalina Belous

Spiru Haret University, Bucharest, Romania

According to debates in EU Parliament “We are poor Europeans, but we actually throw away more food than others”. In general alignment for reducing food waste Romanian Parliament issued Law 217/2016 concerning the decrease of food waste (amended in 2018) includes several measures to reduce food waste across the food supply chain to meeting the Sustainable Development Goal Target 12.3 to halve per capita food waste at the retail and consumer level by 2030 and reduce food losses along the food production and supply chains. The Ministry of Agriculture and Rural Development (MADR) is carrying out initiatives to educate consumers regarding food loss and waste such as awareness raising campaigns, school activities, seminars and trainings, events etc. The aim of the study is to investigate how companies are involved in reducing food waste and which are the measurements to be applied to the environment sustainably. Are these measurements really in accordance with food safety?

15:10 – 15:20

RESEARCH REGARDING THE MICROORGANISMS FROM A VETERINARY CLINIC

**Bogdan Alexandru Taşbac, Tifaine Ninon Marie Allalene,
Ciprian Florin Furnaris**

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

The microbial load in veterinary clinics is an essential topic to be addressed, considering the issue of multiple antibiotic resistance of some microbes. A high level of microbial contamination is often associated with a poor-hygiene of spaces, instruments or personnel, and with an increased incidence of nosocomial infections.

This research aims to analyze some microorganisms present in human and animal carriers and the traits of specific microflora in the rooms of a private veterinary clinic from Bucharest. The focus was on Staphylococcus, Enterococcus, Pseudomonas aeruginosa, and on Enterobacteriaceae family, by using the enrichment techniques, followed by isolation of the strains on specific solid media, and biochemical-enzymatic identification, then performing the antibiograms.

Subsequently, through the quantitative method were established the microorganisms in potential carriers, and also the viable plate count on different surfaces (in samples collected from the door panel and handle, floor and walls, top and bottom surfaces of the consultation rooms' desks, stethoscopes) and in the air of the rooms (settling plates method and Omeliansky-based formula). The results were compared to the reference values in the legislation (Romanian Health Ministry Order 961/2016).

There were detected non-pathogenic Staphylococci, multidrug-resistant Enterococcus strains, Klebsiella pneumoniae, Escherichia coli, yeasts and molds. For the air quality, the values (314 to 550 CFU/m³) ranged within the acceptable limits. However, concerning the room surfaces and instruments' contamination, some critical values were noticed. It is recommended better disinfection and biosecurity protocols and new technical solutions for minimizing the bacterial growth on some critically-used surfaces (Nanoseptic self-cleaning covers/skins).



15:20 – 15:30

**CROSS-BORDER COLLABORATION BETWEEN ROMANIA AND REPUBLIC
OF MOLDOVA FOR FOOD-BORNE PATHOGENS DETECTION
IN RETAIL MEAT**

Adriana Aniță, Cristina Mihaela Rîmbu,

Valentina Crețu, Maxim Bîrsa,

Nicolae Starciuc, Dragoș Constantin Aniță

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Technical University of Moldova, Chișinău, Rep. of Moldova

In an era where food safety and public health are of paramount importance, the current cross-border collaboration between Romania and the Republic of Moldova stands as a powerful initiative aimed at enhancing the research capabilities of scientists from both countries in the field of infectious foodborne pathogens. This partnership focuses particularly on retail fresh meat and poultry, with the goal of improving the speed and accuracy of detecting zoonotic infectious agents. The pathogens of concern—both viruses and bacteria—are especially significant due to their potential to cause widespread foodborne illnesses. By sharing resources, expertise, and knowledge, the network not only enhances diagnostic standards but also creates valuable opportunities for training the next generation of researchers. Young scientists involved in this project will benefit from access to cutting-edge techniques, allowing them to consolidate their professional roles and advance their careers.

15:40 – 15:50

**WEST NILE VIRUS AND THE BIRDS OF PREY FROM ROMANIA A NEW
APPROACH ON THE BIODIVERSITY CONSERVATION**

Luanda Elena Oslobanu, Savuța Gheorghe,

Vesna Milicevic, Ana Vasic

„Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Institute of Veterinary Medicine of Serbia, Serbia

West Nile Virus (WNV) is a mosquito-borne flavivirus with a zoonotic character that affects a wide range of bird species, including birds of prey such as hawks, eagles, and owls. Birds are the primary reservoir for WNV, and birds of prey are particularly vulnerable due to their predatory behavior, which may expose them to infected prey species like songbirds or other small animals that carry the virus. In birds of prey, the clinical manifestations of WNV infection can vary from mild or asymptomatic to severe, with symptoms such as weakness, disorientation, inability to fly, and neurological deficits. Some birds may succumb to the infection, especially juvenile or immunocompromised individuals, while others may recover. The susceptibility to WNV makes them useful for monitoring the spread of the virus across regions. However, they do not typically serve as major amplifiers of the virus, compared to some passerine birds, which tend to have higher viremia levels. The spread of WNV among birds of prey raises ecological and conservation concerns, particularly for endangered or vulnerable raptor species. Monitoring WNV outbreaks and managing mosquito populations in wildlife rehabilitation centers and conservation areas are critical strategies to reduce the impact of the virus on raptor populations. Additionally, studying the virus's effects on these predators provides insight into broader ecosystem health. The study aims at analyzing the current situation and findings regarding the WNV infection in birds of prey in Romania.



15:50 – 16:00

BLUETONGUE IN EUROPE THE NEW SEROTYPES OF CONCERN

Luanda Elena Oşlobanu, Ioana Raţoi, Savuţa Gheorghe

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Historically, BTV has been established in Southern Europe since 1998, with serotypes introduced via animal trade and vector movements. Bluetongue virus (BTV) has been a growing concern in Europe, particularly with the spread of various serotypes across the continent. Notably, BTV-3 led to an epidemic in the Netherlands in 2023, spreading to neighboring countries and highlighting the difficulty of controlling this disease, especially without an available vaccine. Several outbreaks of BTV-3 and BTV-4 have been recorded across Europe, prompting restrictions on livestock movement and intensified surveillance. Expansion of a new strain of BTV-8 which has been circulating in southern France since August 2023, was signaled. The European Union has implemented regulations, emphasizing vaccination, surveillance, and vector control to manage the spread of BTV. This paper aims at raising awareness about the continuous spreading of the virus in the last years in the Eastern Europe and to analyse Recent outbreaks in Germany, Great Britain, Spain and underscore the need for continued vigilance and research to combat this persistent threat to European livestock.

16:00 – 16:10

PRELIMINARY DATA REGARDING DOGS AS WNV SENTINELS

Luanda Elena Oşlobanu, Ioana Buzdugan,

Luciana Crivei, Anca Dascălu, Andreea Cozma,

Savuţa Gheorghe, Stephane Marot, Şerban Morosan

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Sorbonne University, INSERM, UMS 28, France

Sorbonne Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique (iPLESP),

Assistance Publique-Hôpitaux de Paris (AP-HP), Pitié Salpêtrière Hospital, Paris, France

West Nile Virus (WNV) is a mosquito-borne flavivirus that has a zoonotic character determining an inapparent infection, mild unspecific symptoms as flu like manifestations or a severe encephalitis, and can also affect other mammals, including dogs. Most dogs exposed to WNV exhibit mild symptoms such transient fever, lethargy, or loss of appetite. Severe neurological manifestations, including ataxia, seizures, and paralysis, are rare but can occur in immunocompromised or highly exposed animals. The role of dogs as amplifying hosts is minimal due to low-level viremia. However, despite the relatively low risk to dogs, the presence of WNV in canine populations reflects broader environmental and public health concerns, as it can serve as a marker for potential human exposure.

This preliminary study aimed to verify the hypothesis of dogs as indicators of WNV evolution. Samples collected in 2023 and 2022 from a public dog shelter and a veterinary private clinic from Iasi County were tested for the presence of specific anti WNV antibodies.

The results showed an overall prevalence of 42,4% [(IC 95% (32,29 - 52,49))] in the dog samples collected from the dog shelter and a 15,2% [(IC 95% (7,88 - 22,56))] in the samples collected from the private practice. Those are in accordance with the epidemiological situation in humans in 2023 and 2022 in the County. The study is preliminary and intend to add data to the international research. Further analyses are needed to clarify if dogs can be considered sentinels for WNV infection in humans.



16:10 – 16:20

NEONATAL TETANUS IN A GOAT KID: A CASE REPORT

**Mihaela Anca Dascalu, Florentina Daraban Bocaneti,
Mihai Musteata, Octavian Soreanu, Paul Tutu,
Andreea Cozma, Serban Morosan, Oana Tanase**
“Ion Ionescu de la Brad” University of Life Sciences, Romania

Tetanus is a non-contagious infectious disease caused by a specific neurotoxin produced by *Clostridium tetani*. The diseases have a worldwide distribution both in animals and humans and is characterised by spastic paralysis. Infection is produced after the contamination of deep puncture wounds, providing suitable anaerobic environment for multiplication of the spores of *Clostridium tetani*. A three weeks' autochthonous Romanian goat kid breed was presented to the Faculty of Veterinary Medicine, Infectious Diseases Clinic with history of anorexia, lack of appetite, lockjaw and the inability to move for 3 days. At the physical examination, fever, tachycardia, tachypnea, opisthotonus, hyperesthesia, "wooden horse appearance", trismus, elevated tail and vertical position of the ears, general muscle stiffness and signs of pulmonary oedema were noticed. The diagnosis was confirmed based on the clinical signs. As no way of entry was identified, after a detailed anamnesis, the owner confirmed the lack of hygienic measures in the backyard, with unhygienic cutting of the umbilical cord of the kid, directly on the soil, after kidding parturition. Treatment consisted in administration of tetanus antitoxin, penicillin, diazepam, fluid therapy and vitamin therapy. After 3 weeks of hospitalization, small improvements were achieved, but unfortunately the kid did not survive.

16:20 – 16:30

HISTOPATHOLOGICAL CHARACTERIZATION OF SKIN AND ORAL LESIONS IN DOMESTIC CATS (*FELIS CATUS*)

**Paul Tutu, Irina Oana Tanase, Mihaela Anca Dascalu,
Aurelian Sorin Pasca, Ozana Maria Hritcu, Octavian Dumitru Soreanu,
Florentina Daraban Bocaneti, Mihai Mareş**
“Ion Ionescu de la Brad” University of Life Sciences, Romania

Oral and cutaneous lesions are often diagnosed in cats and are associated with various pathogens.

The objective of this study is the histological characterization of the cutaneous and oral lesions in cats. During 2023-2024, 11 cutaneous and oral lesions were identified, collected and analyzed at the Infectious Diseases and Pathological Anatomy Clinic of the Faculty of Veterinary Medicine of Iasi. The samples were collected from European breed cats, 6 female and 5 male cases. Lesions were more frequent in cats older than two years (n=7), followed by cats under 6 months of age (n=3) and cats aged between 6 months and 1,5 years (n= 1). At the same time, concurrent viral infections with Feline Parvovirus (n=5), Feline Calicivirus (n=3), Feline Herpesvirus (n=3), Feline Leukemia Virus (n=2) and one suspicion of Feline Perionitis Virus were associated prior the histopathological evaluation. Histopathologically, the inflammatory lesions were consisting in Gingivostomatitis (necrotic and lymphoplasmacytic) (n=6) and in one case of cutaneous mastocytosis. Among neoplastic lesions, oral squamous cell carcinoma was the most common (n=2), followed by cutaneous cell carcinoma (n=1) and hemangiopericytoma (n=1). These results contribute to the understanding



of feline cutaneous and oral pathology and show the importance of histopathological examination in their accurate diagnosis.

16:30 – 16:40

INSIGHTS INTO THE VIROME OF *HYALOMMA MARGINATUM* IN DANUBE DELTA: A MAJOR VECTOR OF CRIMEAN-CONGO HEMORRHAGIC FEVER VIRUS IN EASTERN EUROPE

**Bianca Elena Bratuleanu, Delphine Chretien, Thomas Bigot,
Beatrice Regnault, Philippe Pérot, Gheorghe Savuta,
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Bioinformatics and Biostatistics Hub, Institut Pasteur, Université Paris Cité, Paris, France
*ANSES, INRAE, Ecole Nationale Vétérinaire d'Alfort, UMR BIPAR, Laboratoire de Santé Animale,
Maisons-Alfort, France*
Ecole Nationale Vétérinaire d'Alfort, University of Paris-Est, Maisons-Alfort, France

Ticks are significant vectors of pathogens, including viruses, bacteria, and protozoa. With approximately 900 tick species worldwide, many are expanding their geographic range due to changing socio-economic and climate factors. The Danube Delta, one of Europe's largest wetlands, is an ecosystem that, despite its ecological importance, remains understudied concerning the risk of introducing new tick-borne viruses. This region serves as a critical habitat for migratory birds, which can carry ticks over long distances, potentially introducing exotic tick species and their pathogens into the local ecosystem. *Hyalomma marginatum* ticks, the primary vector of Crimean-Congo Hemorrhagic Fever Virus (CCHFV), are of particular concern due to their expanding presence in Europe and potential to spread other arboviruses. In addition to being the primary vector for CCHFV, *hyalomma* sp. ticks are capable of transmitting other medically and veterinary important pathogens, including Dugbe virus, West Nile virus, African Horse Sickness virus, and Kyasanur Forest Disease virus. Therefore, it is essential to monitor the presence of *hyalomma* sp. ticks while simultaneously surveilling arbovirus circulation in tick populations to mitigate the risk of arboviral outbreaks.

In this work, we used agnostic metatranscriptomics to analyze the virome of *H. marginatum* ticks collected from the Danube Delta Biosphere Reserve, Romania, one of the major bird migration hubs from Africa to Europe. Among the viral taxa detected in *H. marginatum* ticks, sequences belonging to Volzhskoe tick virus (VTV), Balambala tick virus (BMTV) and Bole tick virus 4 (BTV4) were identified. In addition, we report the first identification of a novel Rhabdoviridae-related virus named *hyalomma marginatum* rhabdovirus (HMRV). No CCHFV nor any CCHFV-related Nairovirus were detected in this study. To summarize, detecting new viruses is essential for monitoring potential viral outbreaks. Our research expands the understanding of virus diversity in Eastern Europe, including the identification of novel viruses. This insight is crucial for monitoring viruses that may pose risks to both animal and human health, such as CCHFV.



16:40 – 16:50

RECENT STUDY ON THE OTIC MICROBIOTA AND SUSCEPTIBILITY PROFILE TO ANTIMICROBIALS USED IN THE TREATMENT OF OTITIS IN PET CARNIVORES

Cristina Mihaela Rîmbu, Cristina Elena Horhoge, Daniel Bejinariu, Danuț Bratu· Dragoș Constantin Aniță, Cătălin Carp-Cărare, Carmen Solcan, Mariana Grecu, Adriana Elena Aniță, Gheorghe Solcan
"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania
TRIO.VET Veterinary Clinic, Botoșani, Romania

In veterinary practice, otitis is the most commonly encountered condition in pet carnivores. Contributing factors and polyfactorial etiopathogenesis frequently lead to therapeutic failure in medical interventions. Using a limited range of topical medicinal products intended for these conditions inevitably results in resistance to these active substances. Our study, conducted on otic exudates (n=100) collected from dogs and cats, highlighted the complex polymicrobial etiology and the decrease in sensitivity to otic antimicrobials, culminating in the establishment of the multidrug resistance phenomenon. In vitro testing of the isolated bacterial strains across a broad spectrum of antimicrobials provided valid alternatives that prevented relapse. The obtained results are useful for practicing veterinarians and highlight the need for continued research to develop new therapeutic options for a favorable prognosis.

16:50 – 17:00

AFLATOXIN B1 VALUES AND MYCOLOGICAL CONTAMINATION OF DOG DIETS CONTAINING INSECTS AS PROTEIN SOURCES

Andrei Radu Szakacs, Laura Cristina Ștefănuț, Alexandra-Diana Gavrilaș, Claudiu-Nicușor Ionică, Sorana Daina, Adrian Maximilian Macri
University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

The main objective of the paper is to evaluate the risks of mycological contamination as well as the level of Aflatoxin B1 of dogs feeds containing insects as a source of protein (e.g. *Hermetia illucens*). A number of 12 fodder samples were collected, representing 10 animal feedstuffs collected from different pet shops, a dry insect larvae and a fresh insect sample Black soldier fly (BSF). The mycological examinations of analyzed samples were carried out by insemination on Sabouraud sterile medium, two per each dilution. The total fungi count was assessed and identified the genera using a binocular magnifier. The results were expressed in CFU/g product. Identification of prevailing fungi was carried out by stereomicroscopic examination of the cultural characters of colonies and microscopic preparations on slides, stained with Bleu Cotton. The quantitative identification of the Aflatoxin B1 from feedstuffs and insect samples was performed by means of ELISA using a commercial available kit. RIDASCREEN®FAST Aflatoxin - a competitive enzyme immunoassay. The obtained results highlight a medium and high intensity contamination with fungi of 90% of the analyzed samples, contamination ranging from 22×10^3 CFU/g to 755×10^3 CFU/g. The fungi observed through the analysis of cultural aspects belong to genera: *Penicillium* spp., *Aspergillus* spp., *Fusarium* spp., *Mucor* spp. and *Rhizopus* spp. All the analyzed samples were contaminated with Aflatoxin B1 with values between 1.8 and 4.61 μg/kg, levels which, however, do not exceed the



maximum limits allowed by the European Community legislation. The samples of insects species *Hermetia illucens* contained Aflatoxin B1 in the range of 3,45 -3,51 µg/kg.

17:00 – 17:10

OCCURRENCE OF DEOXYNIVALENOL IN BAKERY PRODUCTS AND FLOUR IN COVASNA COUNTY

**Sorana Daina, Andrei Szakacs,
Viktoria Toth, Adrian Macri**

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

Fusarium graminearum and *Fusarium culmorum* are two of the field fungi that produce deoxynivalenol (DON), a type-B trichothecene mycotoxin that has a wide range of harmful effects on both people and animals. DON is the most common trichothecenes toxin and is present across the world, especially in cereal crops like wheat and the products made from them, such as flour, bread, baby food, noodles, breakfast cereals. In an effort to decrease the amount of DON that is consumed through food, European legislation has set maximum limits for bread (500 µg/kg) and flour (750 µg/kg), as well as a temporary tolerated daily intake (TDI) of 1 µg/kg body weight. DON may be categorized as a genotoxic substance that can induce apoptotic cell death. It has an impact on the health of both humans and animals, causing acute acute nausea, vomiting, diarrhea, stomach discomfort, headaches, dizziness, and fever. The objective of the study was to determine the presence and the level of mycotoxin DON. The quantitative identification of DON was performed by ELISA using a commercial kit, RIDASCREEN®DON - a competitive enzyme immunoassay. We detected the presence of deoxynivalenol in all 9 samples analyzed with values ranging between 29 and 166 µg/kg, values that did not exceed the maximum limit allowed by the European Union (500 µg/kg). One of the most important aspects of mycotoxin risk assessment is to determine the human exposure to these compounds. The Tolerable Daily Intake (TDI) was calculated and the value ranged between 10.15% and 58.15%, values that although not high, should not be disregarded, taking into account that the average body weight taken into account was 70 kg. Although the products analyzed were safe for consumption in normal amounts, certain groups of people are at higher risk of being exposed, such as those with below-average body weight, children and the elderly.

17:10 – 17:20

NUTRITION AND ITS IMPACT TO ORAL HEALTH IN DOGS

**Sorana Daina, Andrei Szakacs,
Anamaria Blaga-Petrean, Adrian Macri**

¹University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

Oral health is a strong indicator of the general overall health of dogs. Even though changes in feeding methods have improved dog health by reducing or preventing diseases associated with nutritional deficiencies and excesses, dental issues, especially periodontal disease (PD), remain among the most common oral health concerns. The study was based on a questionnaire survey as well as an evaluation of the oral health of dogs that had been presented to a veterinary clinic. 130 dogs were examined for oral health, and 100 respondents (dog owners) filled the questionnaire. The time required to complete the questionnaire was approximately 4 minutes and it included simple questions so that there were no problems of misunderstanding the questions/answers. The survey consisted of a



total of 7 questions, designed to cover the proposed objectives, with single or multiple answer options. The questions focused on the age of the dogs, sex, type of diet (dry, wet, mix), frequency of diet administration, use of dental rewards, dental hygiene at home, oral health problems. It was concluded that the majority of dogs over 3 years of age that were fed dry food had oral health problems ($p \leq 0.05$), as well as those dogs that received home dental hygiene had significantly fewer oral problems. It was also observed that oral problems in dogs fed once a day were significantly fewer than those of dogs fed twice or three times a day ($p \leq 0.05$). Although additional research is needed to understand the potential benefits for dogs, dietary modifications may have an impact on the management of periodontal disease.

17:20-17:30

THE IMPACT OF VEGAN DIETS ON FECAL CHARACTERISTICS AND APPARENT DIGESTIBILITY IN DOGS

**Andrei Radu Szakacs, Laura Cristina Ștefănuț,
Brian Constantin Gîrlă, Sorana Daina,
Adrian Maximilian Macri**

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

The aim of this study was to provide a comprehensive assessment of the impact of 2 vegan commercial dry dog foods with different chemical composition on the apparent digestibility, body condition score and fecal parameters in dogs. Two vegan dry diets for dogs were analysed. A total of 7 adult healthy dogs aged between 7 year and 12 years old entered in the study. The dogs were of common breed. Animals were consuming the investigated diets so preparation period for the digestibility trial was not necessary. Owners filled the fecal score sheet (by Purina) to assess the fecal characteristics for 5 days. Fecal pH, smell, were also evaluated. The parameters studied for the digestibility were: dry matter, crude protein, crude fat, crude fiber and nitrogen free extract. The results were compared with ones found in scientific literature. The animals consume a vegan diet for more than 6 months' prior the trial so it was important to evaluate the body condition score. The results from the study indicate that feeding vegan meals to dogs gives close results of apparent digestibility coefficient with diets containing animal protein sources. Average crude protein digestibility of vegan diets was 87.39%, as for the crude fat the value reached 92.08%. The modifications in feces parameters were limited, reflecting a healthy intestinal function and efficient digestion.

COFFEE BREAK

17²⁰-17³⁰

17:30-17:40

COMPARISON OF TWO COMERCIAL ELISA KITS FOR THE DETECTION OF WNV SPECIFIC ANTIBODIES IN DOGS

Luanda Elena Oșlobanu, Luciana Alexandra Crivei
"Ion Ionescu de la Brad" Iasi University of Life Sciences, Romania

Dogs can be a good indicator of WNV transmission and the international scientific community tend to consider them as sentinels for flavivirus circulation. In this study two commercial competition ELISA kits used for the detection of specific flavivirus antibodies were used to test dog samples. The



results for samples tested under different conditions and times, showed a 100% correlation between the results obtained using the ID Screen WNV Competition kit and the Ingezim WNV kit Compaq. This denotes the accuracy of the results obtained and identical intrinsic diagnostic values of the two kits.

17:40-17:50

**ANIMAL RESCUE AND REHABILITATION CENTER –
POSSIBILITIES AND LIMITS**

**Gaşpar Corneliu, Gabor Nina,
Ailincăi Luminița-Iuliana**

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Today's world is a world of (perhaps excessive) urban, road, anthropogenic, etc. technological development, with direct and indirect consequences, more and more visible both on humans and wild animals in particular. The drastic loss of habitat, pollution, road accidents and other accidents, abandonment, isolation, poaching, etc. mean that many animals are affected by various traumas. An alternative in rescuing them through treatment, housing, rehabilitation and later, when possible, their relocation into the wild. The present paper refers to the basic conditions and requirements of such a center (still very few in Romania) located near the capital, the species of animals housed, taxonomically differentiated, and its strategic, administrative and integrative possibilities and limits.

17:50-18:00

**MICROBIOLOGICAL INVESTIGATIONS ON THE QUALITY OF MEAT IN
SOME SPECIES OF WILD ANIMALS**

Rita Golban

Technical University of Moldova, Chişinău, Rep. of Moldova

The scientific microbiological laboratory investigations reflected in this study constituted the determination of microorganisms in some categories of meat from different species of wild animals used in human consumption. The recorded results of the number of bacterioscopic microorganisms, microbial colonies were evaluated according to the results obtained of the microbiological values according to the standards of assessment. The bacterioscopic and bacteriological values obtained recommend consumers to use these types of meat in food after carrying out microbiological laboratory investigations, making sure that the animals are healthy.

18:00 – 18:10

**IDENTIFICATION OF SOME MICROBIAL SPECIES IN CONJUNCTIVE
DISEASES IN PETS**

Rita Golban

Technical University of Moldova, Chişinău, Rep. of Moldova

The microbiological investigations were carried out on canine pets. This study aimed to highlight the microbial species involved in conjunctival diseases by means of classic laboratory microbiological methods. Microbiological research of conjunctivitis pathologies in pets triggered by various microbial species demonstrated the presence of important bacterial microflora consisting of



staphylococci, streptococci, coliform bacteria with an important role in these pathologies with a prevalence in the Doberman dog breed followed by the Pudel dog breed and German Shepherds, where the number of bacteria constituted varied confirmatory indices.

18:10 – 18:10

**BACTERIAL DISEASES OF THE DIGESTIVE ORGANS OF WEANED PIGLETS
IN EXTENSIVE AND INTENSIVE BREEDING**

**Jovan Bojkovski, Sreten Nedić, Sveta Arsić,
Dragos Constantin Aniță, Adriana Elena Aniță,
Luanda Elena Oslabanu, Ivan Pavlović,
Branislav Kureljušić, Nemanja Zdravković,
Ana Vasić, Ivan Dobrosavljević, Branko Angelovski,
Aleksandra Mitrović, Radiša Prodanović**

University of Belgrade, Serbia

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Scientific Institute of Veterinary Medicine of Serbia, Belgrade, Serbia

Specialistic Veterinary Institute, Požarevac, Serbia

University in Skopje, North Macedonia

Very intensive expansion of breeding capacities, early weaning of piglets from inadequate microclimatic conditions, and inadequate nutrition in different production categories caused the appearance of production-related technological diseases. Diseases of the digestive organs are a significant part of pig pathology. Of the enteric diseases, great importance belongs to dysentery. It is characterized by long-term germination and a large number of vectors. Two diseases that were previously considered to be atypical forms of dysentery, resulting from a shortened period of medication and resistance of the causative agent to an exemplary antibiotic, today appear as separate entities. The first is so-called proliferative enteropathy, and the second is spirochetal colitis. Both of these diseases are present in pig herds with different management, often in pig herds with high health status, after the elimination of the causative agent of dysentery. Coli infections are present mainly in weaned piglets and appear in the second week after weaning. In our conditions, the disease is diagnosed on the basis of clinical symptoms, rarely on the basis of pathomorphological changes. On controlled farms (5 commercial farms and 10 extensive breeding farms), a clinical examination of the herd of pigs was performed. Rectal swabs were taken. We separated the sick animals into special boxes and monitored their health. The number of weaned piglets in the weaned category was variable. The number of dead pigs in the fattening category is particularly surprising. The aim of this review is to provide information on bacterial diseases of the digestive organs of weaned piglets in two housing systems and to provide a solution.



WORKSHOPS
THURSDAY, OCTOBER 24th, 2024

**WORKSHOP SESSION – 14:00-18:15, Day 1: COMPETENCE CENTER FOR
CLIMATE CHANGE DIGITAL TWIN FOR EARTH FORECASTS AND
SOCIETAL REDRESSMENT DTECLIMATE**

A1 TPPA

Chairperson: Prof. Liviu Dan MIRON, PhD

To understand, anticipate and fight vector-borne emerging animal and zoonotic infectious diseases, it is necessary to develop an integrated One-Health approach considering the links between human health, animal health, and environmental health. This notably involves setting up a surveillance system combining human and animal surveillance (detection of human/animal cases and animal virus reservoirs), entomological surveillance (identification of vectors and the associated vector risk) and environmental monitoring).

VeBDisease Schedule		
14:00 – 14:10	Details regarding DTEClimate project evolution –	Mihai DATCU – Director project
14:10 - 14:20	TESTUL qPCR VS dPCR	Mihai Turcitu, Ionuț Pavel
14:20 – 14:30	ASSESSMENT OF SENTINEL-2 OBSERVATIONS FOR MONITORING THE LAKE IZVORUL MUNTELUI: PRELIMINARY RESULTS	Catalin-Andrei Miu, Mihai Datcu, Corina Vaduva
14:30 – 14:40	PREDICTING MOSQUITO HABITATS USING SENTINEL-2 DATA AND CLIMATE VARIABLES: PRELIMINARY INSIGHTS	Cristian Damian, Mihai Coca, Daniela Faur
14:40 – 14:50	THE VIROLOGY AS PART OF AN INTERDISCIPLINARY APPROACH	Serban Morosan, Andreea Cozma, Anca Dascalu, Stephane Marot
14:50 - 15:00	CURRENT SITUATION REGARDING TICK INFESTATIONS IN DOGS FROM TULCEA COUNTY	Raluca Mîndru, Gabriela-Victoria Martinescu, Larisa Ivănescu, Olimpia Iacob, Lavinia Andronic, Dumitru-Mihai Acatrinei, Liviu Miron
15:00 - 15:10	THE WORLD OF VIRUSES AND THEIR CRITICAL ROLES IN SHAPING ECOSYSTEMS, DRIVING EVOLUTION, AND IMPACTING HUMAN HEALTH	Serban Morosan, Andreea Cozma, Anca Dascalu, Stephane Marot



15:10 - 15:20	DIAGNOSIS OF HEARTWORM DISEASES THROUGH DETECTION OF ANTIBODIES	Anca Maftai, Larisa Ivănescu, Lavinia Andronic, Raluca Mîndru, Gabriela-Victoria Martinescu, Dumitru Acatrinei, Olimpia Iacob, Liviu-Dan Miron
15:20 - 15:30	HOW METAGENOMICS HAS REVOLUTIONIZED OUR UNDERSTANDING OF VIRUSES	Serban Morosan, Andreea Cozma, Anca Dascalu, Stephane Marot
15:30 - 15:40	THE EVOLUTION OF THE MAJOR VECTOR-BORNE DISEASES IN ROMANIA: CONSEQUENCES OF CLIMATE CHANGES	Gabriela-Victoria Martinescu, Larisa Ivănescu, Olimpia Iacob, Lavinia Andronic, Raluca Mîndru, Dumitru Acatrinei, Liviu-Dan Miron
15:40 - 15:50	DIVERSITY AND ECOLOGICAL IMPORTANCE OF VIRUSES IN THE MARINE ENVIRONMENT	Serban Morosan, Andreea Cozma, Anca Dascalu, Stephane Marot
15:50 - 16:00	ECOLOGY AND PATHOGENICITY OF SANDFLY VECTORS IN ROMANIA	Bianca-Lavinia Andronic, Larisa Maria Ivănescu, Gabriela-Victoria Martinescu, Raluca Mîndru, Liviu-Dan Miron
16:10 - 16:15	COFFEE BREAK	
16:15 - 16:25	VIRUSES THAT BENEFIT ANIMALS AND PLANTS	Serban Moroşan, Andreea Cozma, Anca Dascalu, Stephane Marot
16:25 - 16:35	MOLECULAR DETECTION OF BABESIA SPP. IN ASYMPTOMATIC SHELTER DOGS FROM CONSTANTA COUNTY-ROMANIA	Andrada Hermina Rusu (Lazăr), Larisa Ivănescu, Gabriela Martinescu, Raluca Mîndru, Dumitru Acatrinei, Olimpia Iacob, Liviu-Dan Miron
16:35 - 16:45	THE VIRUSES THAT RESIDE IN THE HUMAN BODY: THE HUMAN VIROME	Serban Morosan, Andreea Cozma, Anca Dascalu, Stephane Marot
16:45 - 16:55	ESTABLISHING THE RISK OF WEST NILE VIRUS TRANSMISSION THROUGH MOSQUITO BITES USING THE DIGITAL PCR AND REAL-TIME PCR METHODS	Larisa Ivănescu, Gabriela Martinescu, Raluca Mîndru, Olimpia Iacob, Bianca Andronic, Dumitru Acatrinei, Liviu Miron
16:55 - 17:05	SEROLOGICAL EVIDENCE OF CRIMEAN-CONGO HEMORRHAGIC FEVER IN LIVESTOCK IN DANUBE DELTA: PRELIMINARY RESULTS IN 2022-2023 PERIOD	Serban Morosan, Daniel Maftai, Paul Bria, Andreea Cozma, Anca Dascalu, Luciana Crivei, Cosmin-Teodor Mihai, Cristina Hristodorescu, Smaranda Hristodorescu, Stephane Marot
17:05 - 17:15	PRELIMINARY DATA REGARDING THE INFLUENCE OF SOIL MOISTURE AND TEMPERATURE TO HARD TICKS ACTIVITY	Dumitru Acatrinei, Larisa Ivănescu, Alexandru Cătălin, Raluca Mîndru, Lavinia Andronic, Gabriela Martinescu, Liviu Miron



Scientific presentations :

14:10 – 14:20

TESTUL qPCR VS dPCR

Mihai Turcitu, Ionuț Pavel
Omnivet

14:20 – 14:30

**ASSESSMENT OF SENTINEL-2 OBSERVATIONS FOR MONITORING
THE LAKE IZVORUL MUNTELUI: PRELIMINARY RESULTS**

Catalin-Andrei Miu, Mihai Datcu, Corina Vaduva
National University of Science and Technology POLITEHNICA Bucharest, Romania

Water, as one of the world's most critical resources, is deeply affected by climate change. The quality and availability of water sources are more and more threatened by the increasing frequency and intensity of droughts, heavy downpours or runoff of pollutants and sediment. Adaptive measures require inclusive monitoring of water bodies and their surrounding environmental conditions coupled with a comprehensive understanding of the phenomena that affect them. Fortunately, technological progress allows us to gather continuous information with minimum effort using satellite observations and weather station measurements. In this context, we present a preliminary study focusing on the analysis of Lake Izvorul Muntelui, also known as Lake Bicaz, the largest artificial lake on the interior waters of Romania servicing economic activities in sectors like energy, forestry, agriculture or tourism. The proposed approach relies on the assessment of bio-chemical parameters extracted from Sentinel-2 observations over the past decade. To this aim, a Satellite Image Time Series of Sentinel-2 was analyzed, detecting the loss or composition change of the Izvorul Muntelui lake water. To evaluate the spatio-temporal context we propose the use of causal modelling methods with incomplete data to assess the actual situation. The analysis is extended to the spatio-temporal context. By studying the behaviour of specific water quality indicators, anomalies not justified by the usual seasonal changes will be detected and further assessed in correlation with surrounding environmental conditions. Vegetation indices, canopy height, build up area indexes are learned from Earth Observation data and used to identify anthropogenic factors, while meteorological parameters from nearby weather stations are used to perform temperature and precipitation analysis of the time period, compute a Standardized Precipitation Index (SPI) and determine the risk of drought occurrence.

14:30 – 14:40

**PREDICTING MOSQUITO HABITATS USING SENTINEL-2 DATA AND
CLIMATE VARIABLES: PRELIMINARY INSIGHTS.**

Cristian Damian, Mihai Coca, Daniela Faur

This paper presents a preliminary study aimed at predicting the potential habitats of *Aedes albopictus* mosquitoes using Sentinel-2 multispectral data and meteorological variables. The invasive species, known for transmitting vector-borne diseases such as dengue fever, is strongly influenced by environmental conditions including temperature, precipitation, and land cover. Our approach integrates Earth observation data with climate parameters to develop a machine learning model capable of identifying areas suitable for mosquito proliferation. By utilizing satellite data from Sentinel-2 and climate datasets like temperature and precipitation, we calculate various indices critical for understanding vegetation health and soil moisture—factors relevant to mosquito breeding sites. The combination of environmental data, wind patterns, and historical climate data allows for the modeling of mosquito spread in high-risk areas, with a specific focus on the Danube Delta region.



Preliminary results indicate that the model can effectively map potential habitats, providing insights for targeted surveillance and intervention strategies to mitigate the public health risks posed by these mosquitoes in the context of climate change.

14:40 – 14:50

THE VIROLOGY AS PART OF AN INTERDISCIPLINARY APPROACH

Serban Morosan, Andreea Cozma,

Anca Dascalu, Stephane Marot

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Sorbonne University, INSERM, UMS 28, France

*Sorbonne Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique (iPLESP),
Assistance Publique-Hôpitaux de Paris (AP-HP), Pitié Salpêtrière Hospital, Department of Virology, Paris,
France*

Virology, the study of viruses and viral diseases, plays a crucial role within an interdisciplinary approach to addressing complex health, environmental, and societal challenges. By integrating knowledge from various scientific fields, virology contributes to a more comprehensive understanding of how viruses interact with hosts, ecosystems, and populations.

14:50 – 15:00

CURRENT SITUATION REGARDING TICK INFESTATIONS IN DOGS FROM TULCEA COUNTY

Raluca Mîndru, Gabriela-Victoria Martinescu,

Larisa Ivănescu, Olimpia Iacob, Lavinia Andronic,

Dumitru-Mihai Acatrinei, Liviu-Dan Miron

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

The importance of ticks in the context of One Health is well known, as they represent a significant vector for a variety of pathogens for both animals and humans. Climate change has influenced in a significant way the distribution of different species of ticks throughout the world, especially through the increasing temperature. The aim of this study was to determine a preliminary situation of tick distribution in dogs from Tulcea county, between May 2023 and June 2024. Feeding ticks were collected from dogs, during peak season of tick activity (May-July; September-November), summing up a total of 860 ticks of all biological stages (larva, nymph, male, female). Morphological identification was subsequently performed under a stereomicroscope and resulted in the differentiation of 3 genera: Rhipicephalus- the predominant genus, 94.06%, (n=809 individuals), Ixodes, 4.41%, (n=38 individuals), Dermacentor, 1.51%. (n=13 individuals). These findings emphasize the presence of various genera of ticks, with a high potential of transmission of different pathogens, which pose a real threat to both human and animal health. The present study is a preliminary one, as further investigations will be carried out on the identified ticks in order to assess their pathogen load.



15:00 – 15:10

THE WORLD OF VIRUSES AND THEIR CRITICAL ROLES IN SHAPING ECOSYSTEMS, DRIVING EVOLUTION, AND IMPACTING HUMAN HEALTH

Serban Morosan, Andreea Cozma, Anca Dascalu, Stephane Marot

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Sorbonne University, INSERM, UMS 28, France

Sorbonne University, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique (iPLESP),

Assistance Publique-Hôpitaux de Paris (AP-HP), Pitié Salpêtrière Hospital, Paris, France

The world of viruses is vast and diverse, influencing nearly every aspect of life on Earth. Although invisible to the naked eye, viruses are among the most abundant entities on the planet, outnumbering all other life forms combined. Found in every environment—from the depths of the oceans to the human body—viruses play critical roles in shaping ecosystems, driving evolution, and impacting human health.

15:10 – 15:20

DIAGNOSIS OF HEARTWORM DISEASES THROUGH DETECTION OF ANTIBODIES

Anca Maftai, Larisa Ivănescu, Lavinia Andronic,

Raluca Mîndru, Gabriela-Victoria Martinescu,

Dumitru Acatrinei, Olimpia Iacob, Liviu-Dan Miron

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Climate change is expected to have a significant impact on human and animal health worldwide, from the tropics to the temperate zones, so at the moment we are not facing an increase in vector-borne diseases. Among others, Romania has seen a significant increase in the number of filariasis in recent years, with an increase in cases in many regions of our country. Currently, filaria infections are diagnosed using several methods, including microscopy, serology and molecular methods. Taking into account the impact of climate change on vector-borne diseases, the regional expansion trend and the increasing trend in the number of cases at European level, the aim of this study was to increase knowledge on the diagnosis of dirofilariasis through the detection of dirofilariasis antibodies in dogs. We provide an up-to-date update for south-eastern Romania. To achieve this goal, blood samples were collected from dogs in areas considered at risk, taking into account the geographic location and the way of movement of migratory birds. Therefore, 45 samples were collected from dogs with various diseases examined in farms, private homes and clinics in April-May 2024. The collection areas were chosen due to their proximity to the Danube River, the main stopover for birds heading from Africa to Europe, and therefore 4 locations in Tulcea County were selected: Niculitel, Beștepe, Sabangia and Tulcea. Blood samples were tested for the qualitative detection of antibodies against *Dirofilaria immitis* using the Anigen Rapid FeliCheck-3 test kit. For the qualitative detection of antibodies against *Dirofilaria immitis* in dogs, 6 samples (13%) out of a total of 45 samples tested were positive. Cumulative prevalence of *D. immitis* infection was 13%. This study highlights the importance of implementing heartworm surveillance and control programs in dogs in Romania



15:20 – 15:30

**HOW METAGENOMICS HAS REVOLUTIONIZED OUR
UNDERSTANDING OF VIRUSES**

**Serban Morosan, Andreea Cozma,
Anca Dascalu, Stephane Marot**

“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

Sorbonne University, INSERM, UMS 28, France

Sorbonne University, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique (iPLESP),

Assistance Publique-Hôpitaux de Paris (AP-HP), Pitié Salpêtrière Hospital, Paris, France

Metagenomics, the study of genetic material recovered directly from environmental samples, has revolutionized our understanding of viruses, particularly those that were previously undetected or difficult to study. By analyzing entire communities of organisms (including viruses) in their natural habitats, metagenomics provides deep insights into the diversity, abundance, and ecological roles of viruses in various environments.

15:30 – 15:40

**THE EVOLUTION OF THE MAJOR VECTOR-BORNE DISEASES IN
ROMANIA: CONSEQUENCES OF CLIMATE CHANGES**

**Gabriela-Victoria Martinescu, Larisa Ivănescu, Olimpia Iacob,
Lavinia Andronic, Raluca Mîndru, Dumitru Acatrinei, Liviu-Dan Miron**

„Ion Ionescu de la Brad” Iași University of Life Sciences, Romania

Vector-borne pathogens impact both humans and animals; once established in a specific region, zoonotic diseases spread by vectors are considerably more challenging to control, particularly when wild animals serve as the natural reservoir. Prevention and control of vector-borne diseases are significantly affected by global warming. Therefore, increasing temperatures will contribute to the incidence rise of vector-borne diseases as well as the distribution of vectors. The processed data was taken from the National Institute of Public Health - National Centre for Communicable Diseases Surveillance and Control, as well as from the national literature. Therefore, 5 diseases of particular importance were introduced into the study. According to INSP-CNSCBT, between 2009-2022 the most confirmed positive cases were: Lyme Disease - 4918, West Nile Encephalitis - 722, Malaria - 336, Dengue Fever - 68 and Tick-borne Encephalitis (TBE) - 18. West Nile encephalitis entered into the national surveillance program in 1997. However, the highest prevalence was reported in 2018, when 277 cases of West Nile encephalitis were confirmed in humans in Romania. Cases of West Nile Encephalitis, as well as those of Dengue Fever, increased during 2018-2019, followed by a decrease, possibly related to the COVID-19 pandemic. Determining the level of risk of the most significant vector-borne diseases must be a priority because climate is a crucial factor. Understanding the dynamics of the vector-borne diseases and preventing epidemics in the upcoming years requires the support of local multidisciplinary research programs for integrated human, animal, and vector epidemiologic surveillance.



15:40 – 15:50

**DIVERSITY AND ECOLOGICAL IMPORTANCE OF VIRUSES IN THE
MARINE ENVIRONMENT**

**Serban Morosan, Andreea Cozma,
Anca Dascalu, Stephane Marot**

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Sorbonne University, INSERM, UMS 28, France

Sorbonne University, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique (iPLESP),

Assistance Publique-Hôpitaux de Paris (AP-HP), Pitié Salpêtrière Hospital, Paris, France

Viruses play a critical role in the marine environment, where they are the most abundant biological entities, vastly outnumbering other microorganisms like bacteria, archaea, and phytoplankton. This immense diversity of marine viruses, particularly bacteriophages (viruses that infect bacteria), is vital to the functioning and balance of marine ecosystems. Their ecological importance is seen in their influence on nutrient cycling, population dynamics, and the evolution of marine organisms.

15:50 – 16:00

ECOLOGY AND PATHOGENICITY OF SANDFLY VECTORS IN ROMANIA

**Bianca-Lavinia Andronic, Larisa Maria Ivănescu,
Gabriela-Victoria Martinescu, Raluca Mîndru, Liviu-Dan Miron**

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The risk of vector-borne disease transmission has been increasing due to climate changes observed in recent decades. While most studies on vector-borne diseases focus on identifying their etiological agents, fewer address the vectors responsible for transmission. These vectors are typically arthropods, such as mosquitoes, ticks, or sandflies. In the case of sandflies, information about these often-overlooked vectors is limited and difficult to find. Sandflies are the primary vectors of leishmaniasis, a widespread zoonotic disease caused by protozoa of the genus *Leishmania*. However, they are also responsible for transmitting other diseases, such as viral infections (e.g., Toscana virus, Pappataci fever) and bacterial infections (e.g., bartonellosis). In Romania, eight species of sandflies have been reported in various regions, contributing to an increased risk of disease transmission within the country. These species include *Ph. perfiliewi*, *Ph. neglectus*, *Ph. balcanicus*, *Ph. papatasi*, *Ph. alexandri*, *Ph. sergenti*, *Ph. longiductus*, and *Sergentomyia minuta*. Regarding the pathogenicity of sandfly species in Romania, indigenous cases of Toscana virus infection, Pappataci fever, and leishmaniasis have been identified in the country. Among the listed species, those responsible for transmitting leishmaniasis are *Ph. neglectus*, *Ph. balcanicus*, *Ph. papatasi*, *Ph. perfiliewi*, *Ph. alexandri*, and *Ph. sergenti*. *Ph. perfiliewi* is responsible for transmitting Toscana virus, while *Ph. papatasi* and *Ph. perfiliewi* are responsible for transmitting the phleboviruses that causes Pappataci fever. This review highlights the pathogenic potential of sandfly species identified in Romania, their ecology, and their significance for both public and animal health.

COFFEE BREAK

16:00 – 16:15



16:15 – 16:25

VIRUSES THAT BENEFIT ANIMALS AND PLANTS

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The viruses are often associated with disease, not all viruses are harmful. In fact, some viruses provide beneficial functions to animals and plants, enhancing their survival, growth, and adaptation. While viruses are commonly associated with disease, there are several examples where viruses benefit animals in various ways. These viruses can enhance survival, aid in immune regulation, and even support reproduction. plants in various ways, enhancing their survival, growth, and adaptation to environmental stresses.

16:25 – 16:35

MOLECULAR DETECTION OF *BABESIA SPP.* IN ASYMPTOMATIC SHELTER DOGS FROM CONSTANTA COUNTY-ROMANIA

Andrada Hermina Rusu (Lazăr), Larisa Ivănescu, Gabriela Martinescu,

Raluca Mândru, Dumitru Acatrinei, Olimpia Iacob, Liviu-Dan Miron

„Ion Ionescu de la Brad” Iaşi University of Life Sciences, Romania

Babesiosis, a tick-borne disease caused by protozoan parasites of the genus *Babesia*, poses a significant health threat to dogs worldwide. In Romania, the incidence of this disease in shelter dogs has garnered increasing attention over recent years. This study was designed to evaluate the prevalence of *Babesia spp.* in shelter dogs from Constanța, a south-eastern county from Romania. In order to assess, in 2022, blood samples were collected from 244 asymptomatic stray dogs from a private shelter in Cernavodă, using EDTA tubes. The samples were tested using the Real-Time PCR technique (qPCR) to identify the genome of *Babesia spp.*, which is a quantitative technique with high specificity and sensitivity. The results revealed that only 6/244 samples were positive (2.46%), in which the *Babesia spp.* genome was identified by qPCR and melting curve analysis. The CT value obtained in 5 out of 6 samples, showed an average parasite load of the detected pathogen, and in one out of 6 samples, showed a high parasite load of the pathogen. These results show the pressing need for improved tick control measures, increased public awareness and improved veterinary care to mitigate the impact of babesiosis on shelter dogs.



16:35 – 16:45

THE VIRUSES THAT RESIDE IN THE HUMAN BODY: THE HUMAN VIROME

Serban Morosan, Andreea Cozma,

Anca Dascalu, Stephane Marot

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The human virome refers to the collection of viruses that reside in and on the human body. This includes viruses that infect human cells (such as those causing diseases) and viruses that live in the human microbiome, particularly those affecting bacteria. The human virome plays a complex and sometimes beneficial role in health and disease.

16:45 – 16:55

**ESTABLISHING THE RISK OF WEST NILE VIRUS TRANSMISSION
THROUGH MOSQUITO BITES USING THE DIGITAL PCR AND REAL-TIME
PCR METHODS**

Larisa Ivănescu, Gabriela Martinescu,

Raluca Mîndru, Olimpia Iacob, Bianca Andronic,

Dumitru Acatrinei, Liviu Miron

„Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania

West Nile virus (WNV) is a re-emerging zoonotic pathogen which is a threat to both human and animal health. In Europe, there has been a marked expansion of WNV outbreaks in recent decades, causing more than 2000 symptomatic cases in 2018 alone. Winter temperatures between 2°C and 6°C were one of the strongest predictors of annual West Nile virus infections; a possible explanation for this result is that successful overwintering of infected adult mosquitoes (probably *Culex pipiens*) is the key to the intensity of outbreaks in the following year. The aim of the study was to compare the two diagnostic methods Real-Time PCR and dPCR, used in the detection of West Nile virus in mosquito vectors. Between April 2023 and June 2024, mosquitoes were captured from the Danube Delta area and from the north-eastern part of Romania in the city of Iasi, using the New Standard Miniature Incandescent Light Trap, model 1012. After morphological identification, mosquitoes were separated according to *Culex pipiens* species. Pools of 30 mosquitoes per pool were made, being tested for the presence of the West Nile virus. The advanced dPCR method was used to detect West Nile virus. Digital™ PCR (dPCR™) is an innovative technology that provides ultrasensitive nucleic acid detection and absolute quantification. It is very effective for resolving low-abundance targets, such as very small amounts of virus inside mosquito vectors.



16:55 – 17:05

**SEROLOGICAL EVIDENCE OF CRIMEAN-CONGO HEMORRHAGIC FEVER
IN LIVESTOCK IN DANUBE DELTA:
PRELIMINARY RESULTS IN 2022-2023 PERIOD**

**Serban Morosan, Daniel Maftai, Paul Bria, Andreea Cozma,
Anca Dascalu, Luciana Crivei, Cosmin-Teodor Mihai,
Cristina Hristodorescu, Smaranda Hristodorescu, Stephane Marot**
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Crimean-Congo Hemorrhagic fever (CCHF) is an important zoonotic disease transmitted to humans both by tick vectors and contact with fluids from an infected animal or human. Although animals are not symptomatic when infected, they are the main source of human infection. This study was started with the aim of determining the prevalence of CCHFV and WN virus in domestic ruminants and its potential vector ticks in Delta Danube region. Seroprevalence studies of Crimean-Congo Hemorrhagic Fever are vital for understanding the epidemiology of the disease, assessing the impact of public health interventions, and identifying areas at higher risk of transmission.

17:05 – 17:15

**PRELIMINARY DATA REGARDING THE INFLUENCE OF SOIL MOISTURE
AND TEMPERATURE TO HARD TICKS ACTIVITY**

**Dumitru Acatrinei, Larisa Ivănescu,
Alexandru Cătălin, Raluca Mîndru, Lavinia Andronic,
Gabriela Martinescu, Liviu Miron**
“Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
ASAS - The Research and Development Station for Viticulture and Winemaking, Iași

Hard ticks are known for their incredible resistance to harsh environmental conditions, starvation and a huge vector potential. These small creatures can find a suitable host using smell and/or optic detection and are very tenacious in climbing when reaching a host. All stages feed with blood from vertebrate hosts and the entire process is complicated and takes from several hours to several days, depending on the stage, size, sex and host. Fed adult females search for a suitable place to lay eggs, the number of eggs can vary from 1000 to 18000 depending on the species, size and how much blood they ingested. In our study we determined the air temperature, superficial soil temperature and moisture and the quantity of rain that fell monthly in the last two years in a specific region from Iasi County. In the same period, we collected hard ticks from vegetation by flagging & dragging and identified the species, stage and sex of each tick specimen. Analyzing the raw data, we can make positive correlations between the high number of hard ticks harvested in April 2023 and the rainfalls or soil humidity as well as the lack of precipitations linked with hard ticks disappearance for a long period of time in the summer and fall of 2024.



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24-25 October 2024



**WORKSHOP SESSION: 14:00-18:00, Day 1: LEISHMANIA - A NEW
CHALLENGE IN VETERINARY MEDICINE**

Lecture Room – Hygiene Laboratory

Chairperson: Dr. Phd student Daniela Mihaela Crețu
Representative from SC BIOSYSTEMS DIAGNOSTIC SRL

Practical session of indirect immunofluorescence testing with real canine samples, analysis and interpretation of the results. Workshop for students organized by Biosystem Company



FRIDAY, OCTOBER 25th, 2024

**WORKSHOP SESSION – 07:30-19:30, Day 2 - COMPETENCE
CENTER FOR CLIMATE CHANGE DIGITAL TWIN FOR EARTH
FORECASTS AND SOCIETAL REDRESSMENT DTEclimate**

A1 TPPA

Chairperson: Prof. Liviu Dan MIRON, PhD

Working visit to Izvoru Muntelui Bicaz Lake - - Neamt County (distance approx. 160 km).
The trip will have as its objective the on-site development of lacustrine ecological diagnosis procedures.

**WORKSHOP SESSION – 10⁰⁰-13⁰⁰ - CURRENT ASPECTS ABOUT
EMBRYO-TECHNOLOGIES IN ROMANIA**

Lecture Room A1MV [hybrid format]

**Chairperson: Prof. Mihai Cenariu, PhD– U.S.A.M.V. Cluj-Napoca
Assoc Prof. Ștefan Ciornei, PhD – I.U.L.S. Iasi**

This workshop provides an opportunity to participate together in discussions on reproductive biotechnologies applied to domestic animals.

Invited: interested students and graduates, experienced teachers, specialists, practitioners and researchers in the field of embryo transfer, assisted reproduction, embryology and fields associated with domestic animals.

10:00 – 10:15

EMBRYO TRANSFER PROTOCOLS IN SMAL RUMINANTS

**S.G. Ciornei, Alexandra Ciubotariu, Clara Macuc,
Liliana Ciornei, I. Mihaila, F. Nechifor, D. Drugociu, P Roșca**
"Ion Ionescu de la Brad" Iași University of Life Science, Romania

Embryo transfer to meat ruminants is a well-known and insufficiently applied reproductive biotechnology both in our country and worldwide. Therefore, there is a need for continuous optimization and improvement of these embryo technologies.

In vivo embryo production (IVD) is the new term for "multiple ovulation and embryo transfer" (MOET) and involves ovarian overstimulation of the donor female, insemination or mating, uterine washing for embryo retrieval, and either cryopreservation or transfer of the collected embryos to receptors. This study aimed to evaluate: ovarian response and polyovulation protocol (POV) in meat



sheep acclimatized in Romania (10 Suffolk and 10 Ile de France); embryo recovery rate (RR); in vivo embryo production (IVD); and conception rate (CR) after transfer to indigenous recipients.

In the Suffolk breed at 60% completed ovarian hyperstimulation, continuing the IVD protocol, the average ovulation was 9.16 CL/ewe with a recovery rate (embryos/CL) of 83.3% and 72.9% transferable embryos (code 1 and 2), the receptors conception rate was 62.85%. In the Ile de France breed, all donors completed the polyovulation scheme with an average ovulation of 29 CL. As with Suffolk, a predilection for hyperstimulation and polyovulation persists for the left ovary (15.3 CL) over the right (13.6). The polyovulation difference for the left ovary was 5.86% greater, yielding an average of +1.7 CL. RR at 6.5 days, by laparotomy uterine flushing was 86.2% with 76.6% transferable embryos, the conception rate being 68,7%

The research aimed to represent a model for sheep farms with low genetic background that want a rapid improvement of productive traits.

Keywords: embryo transfer (ET), polyovulation, embryos, genetic progress, MOET/IVD.

10:15-10:30

INTEGRATED REPRODUCTION MANAGEMANT FOR THE SUSTAINABILITY OF DAIRY FARMS WITH TYPE A2 MILK APPLIED REPRODUCTION BIOTECHNOLOGIES FOR THE SUSTAINABILITY OF TYPE A2 DAIRY COW FARMS

**S.G. Ciornei, Alexandra Ciubotariu, Clara Macuc,
Liliana Ciornei, I. Mihaila, F. Nechifor, D. Drugociu, P. Roșca**

"Ion Ionescu de la Brad" Iași University of Life Science, Romania

Studies show that human consumption of type A2 milk has several advantages, including better digestibility, does not produce a digestive inflammatory reaction, does not produce betacasomorphin 7 (BMF-7) peptide incriminated in certain digestive disorders, and would be hypoallergenic. Cow's milk contains specific proteins such as betacasein A1 and A2. A2 milk represents a certain type of milk, which contains a protein whose amino acids at position 67 contain Proline. There are certain companies producing type A2 milk that sell at a price 3-4 times higher than conventional milk (A1 or mixed A1 and A2).

Essential to this is identifying the genetic value of cows, allowing personalized reproductive biotechnology procedures to be applied based on the level obtained. Genetically, dairy cows can carry various allelic variants at the kappa- casein and beta-casein loci.

Reproductive management aims to utilize the latest methods of dairy cow selection and to use accelerated breeding programs only for groups of genetically valuable cows. It is well known that reproduction, genetics, and feeding, combined with welfare and health factors for ruminants, form the basis of dairy farm production and sustainability. The tool that can efficiently personalize results is the consistent use of reproductive biotechnologies, such as: selecting pairs based on genetic value, scheduling artificial inseminations (AI) with sex-sorted semen, obtaining embryos (ET) from high-performing individuals, and transferring them to cows without genetic merit.

For a dairy farm to be sustainable, it is necessary to implement efficient reproductive management in order to exploit the productive genetic potential according to market demand.

The purpose of this study is to realize the opportunity to produce and sell A2 type milk through reproductive biotechnologies. The implementation of such a program begins with the testing of cows according to genetic (A2A2) but also phenotypic and gynecological criteria. Once a group of



milk cows with known genetics has been created, they can be multiplied controlled by reproductive biotechniques, to obtain a homogeneous batch of cows with A2 milk, the collection of separate milk and its marketing. The stages of reproductive biotechnologies refer to the matching of pairs according to genetic criteria, the selection of sperm with A2A2, programmed insemination with sorted semen (FTAI) and obtaining transferable embryos (ET).

Keywords: A2 milk, reproductive management, casein, embriotransfer, sex-sorted semen

***WORKSHOP SESSION – 12:00-16:00, Day 2: LEISHMANIA - A NEW
CHALLENGE IN VETERINARY MEDICINE***

Lecture Room – Hygiene laboratory

Chairperson: Dr. Phd student Daniela Mihaela Crețu

Representative from SC BIOSYSTEMS DIAGNOSTIC SRL

Practical session of indirect immunofluorescence testing with real canine samples, analysis and interpretation of the results. Workshop for teachers and veterinary doctors organized by Biosystem Company

***WORKSHOP SESSION – 16:00-17:00 BIOCHEMICAL ANALYSIS IN
VETERINARY MEDICINE WORKSHOP
VETERINARY BIOCHEMICAL ANALYSIS - NOW SIMPLER THAN
EVER***

Lecture Room – Lab Exam - Emergency Hospital

Chairperson: Chim. Corina Traistaru

Representative from SC BIOSYSTEMS DIAGNOSTIC SRL



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