
***"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN
APPLIED LIFE SCIENCES"***

***Section - "Young people and scientific research in Animal Husbandry and
Biotechnology"***



**Green Energy,
Technologies and Innovations**

UNIVERSITY OF LIFE SCIENCES "KING MIHAI I" from TIMIȘOARA

***"Young People And Multidisciplinary Research In Applied
Life Sciences"***

November 17 – 18, 2022



***Section: Young people and scientific research in Animal Husbandry and
Biotechnology***

FACULTY of BIOENGINEERING OF ANIMAL RESOURCES



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**"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN
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**Section - "Young people and scientific research in Animal Husbandry and
Biotechnology"**



GENERAL PROGRAMME

Thursday, November 17, 2022

"Iulius Mall" - Conference Center, Timișoara

9³⁰ – 10⁰⁰ – Participants admission

10⁰⁰ – 10¹⁵ – *Opening conference*

Prof. univ. Cosmin Alin Popescu, PhD

ULST Rector

–Opening speech

Prof.univ. Isidora Radulov, PhD

ULST Vice rector for research and innovation

10¹⁵ – 10⁴⁰ **Mr. Laszlo Borbely**, State Counselor Government of Romania, Department for Sustainable Development

10⁴⁰ – 11⁰⁰ **MP Thierry Siteny Randrianasoloniaiko**, president of JU Africa

11⁰⁰ – 12³⁰ Ceremony of awarding the *Honoris Causa* title to **Mr. Ioan Cosmescu**

12³⁰ – 13⁰⁰ Questions and discussions

13⁰⁰ – 14⁰⁰ Lunch

14⁰⁰ – 15⁴⁵ Presentations of scientific papers by sections

15⁴⁵ – 16⁰⁰ –Coffee break

16⁰⁰ – 17³⁰ -Presentations of scientific papers by sections

Friday, November 18, 2022

9⁰⁰ – 12⁰⁰ – Posters presentation

12⁰⁰ – Thematic Excursion

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Symposium Programme

Thursday, 17 November, 2022

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- 12³⁰ – 13⁰⁰** **Questions and discussions**
- 13⁰⁰ – 14⁰⁰** **Lunch**
- 14⁰⁰ – 15⁴⁵** **Presentations of scientific papers by sections**
- 14⁰⁰ – 14¹⁵** **OC1** – Gabriel Dumitru MIHU, Ana URSU, Manuela FILIP, Denis ȚOPA, Gerard JIȚĂREANU - *The influence of tillage systems on nutrients supply in soil on corn crop at the Ezareni Farm, Iasi County, University of Life Sciences Iasi*
- 14¹⁵ – 14³⁰** **OC2** – **Aryan AHMADI-KHOIE** - *Potential of biofuels in the European transition to sustainable energy, University of Life Sciences "King Mihai I" from Timisoara*
- 14³⁰ – 14⁴⁵** **OC3** - **Elena Iulia LAZĂR**, Ovidiu TIȚA - *Studies on the use of new technologies to improve the technological process of grain sorting, "Lucian Blaga" University of Sibiu*
- 14⁴⁵ – 15⁰⁰** **OC4** – Cristina Elena TOȚA, **Cristina Anamaria CÎNPEANU**, Aurelia MIHUȚ, Cristian BERAR, Casiana MIHUȚ - *The influence of soil and climate factors on*

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- 15⁰⁰ - 15¹⁵** Plumbago Auriculata, University of Life Sciences "King Mihai I" from Timisoara
OC5 - Natalia CUC, Magdalena Mihaela DAN, Lorena Ligia SATMARI, Aurelia Ioana CHEREJI - *Access analysis of Submeasure 6.1 Young farmer installation related to NRDP 2014-2020. Case study - Mountain area, Bihor County*, University of Oradea
- 15¹⁵ - 15³⁰** **OC6 - Timea Andrea BOCHIȘ**, Alexandra GRIGOREANU, Sorin Octavian VOIA, Viorel HERMAN, Narcisa MEDERLE, Ioan ȚIBRU - *Using the serotonin and cortizol values as a tool for wel-beeing assessment in dogs*, University of Life Sciences "King Mihai I" from Timisoara
- 15³⁰ - 15⁴⁵** **OC7 - Luka TURALIJA, Juraj PERKOVIĆ**, Alka TURALIJA - *Organic agriculture, biodynamic agriculture, quantum agriculture and permaculture - differences and similarities*, Josip Juraj Strossmayer University of Osijek
- 15⁴⁵ - 16⁰⁰** **Coffee break**
- 16⁰⁰ - 16¹⁵** **OC8 - Teodora TOADER**, Dana-Iuliana NEAȚĂ, Teodor VINTILĂ - *Conducting a transient-state anaerobic digestion process at start-up phase of an on-farm biogas plant*, University of Life Sciences "King Mihai I" from Timisoara
- 16¹⁵ - 16³⁰** **OC9 - Laurentiu-Adrian URUCU**, Dana Gina RADU - *Interactions between endospore forming bacteria and other species in soil and human gastrointestinal tract*, "Aurel Vlaicu" University of Arad
- 16³⁰ - 16⁴⁵** **OC10 - Mihaela MĂLĂESCU**, Alina DOBREI, **Narcisa STRUGARI**, Talita HELER, Alin DOBREI - *Cultivation technological features of grapevine in a vineyard holding in Arad County, Romania*, University of Life Sciences "King Mihai I" from Timisoara
- 16⁴⁵-17⁰⁰** **OC11 - Mehmet ULUSAL, Iasmina IOSIM, Cosmina TOADER** - *Antalya province in tourism of Turkey*, Isparta University of Applied Sciences, Turkey
- 17⁰⁰ - 17¹⁵** **OC12 - Sebastian Alexandru POPA**, Adriana MORAR, Viorel HERMAN, Narcisa MEDERLE, Alexandra BAN-CUCERZAN, Bianca Gabriela VÂNĂTORIU, Kalman IMRE - *The survey of the isolation frequency of Foodborne Pathogen Campylobacter spp. in poultry origin samples*, University of Life Sciences "King Mihai I" from Timisoara
- 17¹⁵ - 17³⁰** **OC13 - Claudia PAȘCA, Cristina Gabriela MATHE and Daniel Severus DEZMIREAN**, Alternative Techniques For Prevention And Control Of Honeybee Gut Parasite (*Nosema Ceranae*), Department Of Apiculture And Sericulture, Faculty Of Animal Science And Biotechnology, University Of Agricultural Science And Veterinary Medicine Cluj Napoca, Romania

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**Section "Young people and scientific research in Animal Husbandry
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Posters

- P1 ASSESSMENT OF FEED QUALITY BY NON-DESTRUCTIVE METHODS, Ariton Adina-Mirela, Neculai-Văleanu Andra-Sabina, Sănduleanu Cătălina, Ioana-Cristina Crivei, Alina-Narcisa Postolache**
Research and Development Station for Cattle Breeding Dancu, Iași - Ungheni Alley No. 9, 707252, Iași, Romania
- P2 QUALITY ASSESMENT OF BOVINE COLOSTRUM AND POSSIBLE APPLICATIONS IN THE DAIRY INDUSTRY**
Ariton Adina-Mirela^{1*}, Neculai-Văleanu Andra-Sabina¹, Poroșnicu Ioana¹, Elena Ungureanu², Lucia Carmen Trincă²
¹ Research and Development Station for Cattle Breeding Dancu, Iași - Ungheni Alley No. 9, 707252, Iași, Romania; ²Faculty of Horticulture, Iasi University of Life Sciences, Mihail Sadoveanu Alley No. 3, 700490 Iasi, Romania
- P3 EFFECT OF MASTITIS ON MILK PRODUCTION AND COMPOSITION IN DAIRY COWS,**
Neculai-Văleanu Andra-Sabina, Ariton Adina-Mirela, Aursei Alina, Radu Ciprian
¹ Research and Development Station for Cattle Breeding Dancu, Iași - Ungheni Alley No. 9, 707252, Iași, Romania
- P4 TEAT CONDITION SCORING AS A MANAGEMENT TOOL FOR MONITORING UDDER HEALTH**
Neculai-Văleanu Andra-Sabina, Ariton Adina-Mirela, Madescu Maria-Bianca, Porosnicu Ioana, Radu Ciprian
¹ Research and Development Station for Cattle Breeding Dancu, Iași - Ungheni Alley No. 9, 707252, Iași, Romania
- P5 ASSESSMENT OF HEAT STRESS IMPACT ON DAILY ACTIVITY PATTERN OF DAIRY CATTLE**
Radu Ciprian, Ariton Adina-Mirela, Neculai-Văleanu Andra-Sabina, Vintila Vasile
¹ Research and Development Station for Cattle Breeding Dancu, Iași - Ungheni Alley No. 9, 707252, Iași, Romania
- P6 THE ORIGINS OF THE TURCANA SHEEP BREED VARIETIES AND THE MIGRATION OF THE POPULATIONS TO THE MAIN BREEDING AREAS**
Dana-Iuliana Neață¹, Teodor Vintilă²

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- P7 THE STUDY OF BIOCHEMICAL MARKERS OF GOAT MILK IN SHIRAK REGION, REPUBLIC OF ARMENIA**
Hasmik Grigoryan¹, David Navasardyan¹, Gayane Marmaryan¹, Sargis Gevorgyan^{1,2}, Garegin Hambarzumyan¹
¹Armenian National Agrarian University, 0009, 74 Teryan str., Yerevan, Republic of Armenia
²Hochschule Weihnstephan Triesdorf, 91746, Weidenbach, Markgrafenstraße 16, Federal Republic of Germany
- P8 THE EFFECTS OF DIFFERENT SPECIES OF RUMEX LEAF POWDER IN LAYING HENS’ DIETS ON PHYSICAL PARAMETERS AND YOLK COLOUR**
Cristina-Camelia Matache¹, Tatiana Dumitra Panaite¹, Gabriela Maria Cornescu¹, Mara-Ioana Muntiu- Rusu¹ and Vasile Bunduc²
¹National Research Development Institute for Animal Biology and Nutrition (IBNA), 1 Calea Bucuresti, 077015 Balotesti, Ilfov, Romania
²SC Avicola Lumina SA, Street Tulcei no. 111, 907175, Lumina, Constanta, Romania
- P9 PERCENTAGE OF WATER IN ACACIA AND MEADOW HONEY IN THE PERIOD FROM 2019 TO 2021.**
Tanja Bijelić^{1*}, Aleksandra Tasić¹, Đorđe Radojičić¹, Ivan Pavlovic¹
¹Scientific Institute of Veterinary Medicine of Serbia, 11107, Janisa Janulisa, 14, Belgrade, Serbia
- P10 POSSIBLE BENEFITS OF GROWING GM CROPS IN THE EUROPEAN UNION**
Aryan Ahmadi-Khoie¹, Miruna Morariu², Mirela Ahmadi-Khoie¹
¹University of Life Science „King Mihai I” Timisoara, Faculty of Bioengineering of Animal Resources, 300645 – Timisoara, Calea Aradului 119, Romania
²Victor Babes University of Medicine and Pharmacy, Faculty of Medicine, 300041 – Timișoara, Piata Eftimie Murgu, no.2, Romania
- P11 ATIMICROBIAL EFFECTS OF BEE DEFENSIN-1**
Alexandru Nan¹, Marioara Nicoleta Carabă^{2*}, Mariana Adina Matica², Ion Valeriu Carabă¹, Roxana Popescu³, Gabi Dumitrescu¹
¹Faculty of Bioengineering of Animal Resources, University of Life Sciences “King Mihai I” from Timisoara, Calea Aradului, 119, Timisoara, 300645, Romania; ²Faculty of Chemistry, Biology, Geography, West University of Timisoara, Pestalozzi, 16, Timisoara, 300115, Romania; ³Faculty of Medicine, “Victor Babes” University of Medicine and Pharmacy of Timisoara, E. Murgu, 2, Timisoara, 300041 Romania
- P12 EFFECTS OF ADMINISTRATION OCHRATOXIN A ON BIOCHEMICAL PARAMETERS IN LABORATORY ANIMALS**
Benea Georgiana Daiana¹, Mane Bianca Dorina¹, Marioara Nicoleta Carabă^{1*}, Ion Valeriu Carabă², Roxana Popescu³
¹Faculty of Chemistry, Biology, Geography, West University of Timisoara, Pestalozzi, 16, Timisoara, 300115, Romania; ²Faculty of Bioengineering of Animal Resources, University of Life Sciences “King Mihai I” from Timisoara, Calea Aradului, 119, Timisoara, 300645, Romania; ³Faculty of Medicine, “Victor Babes” University of Medicine and Pharmacy of Timisoara, E. Murgu, 2, Timisoara, 300041 Romania

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Denisa Chindriș¹, Ion Valeriu Carabă^{1*}, Marioara Nicoleta Carabă², Gabi Dumitrescu¹, Roxana Popescu³
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- P14 CHITOSAN-BASED MEMBRANES AS SUSTAINABLE MATERIALS WITH ENHANCED ANTIMICROBIAL PROPERTIES**
Mariana-Adina MATICA¹, Gheorghita MENGHIU^{2,3}, Diana-Larisa ROMAN^{2,3}, Bianca-Constantina VULPE², Vasile OSTAFE^{2,3}
¹Department of Chemistry-Biology, Institute for Advanced Environmental Research, West University of Timisoara, 4C Oituz, 300086, Timisoara, Timiș, Romania; ²Advanced Environmental Research Laboratories, 4 Oituz, 300086, Timisoara, Timiș, Romania; ³Department of Biology-Chemistry, Faculty of Chemistry, Biology, Geography, West University of Timisoara, 16 Pestalozzi, 300115 Timisoara, Timiș, Romania
- P15 ASSESSMENT OF TRIAZOLE FUNGICIDES REGARDING THEIR TOXICITY TOWARDS THE COMMON DUCKWEED**
Boros Bianca-Vanesa, Roman Diana-Larisa, Isvoran Adriana
Department of Biology-Chemistry, Faculty of Chemistry, Biology, Geography and Advanced Environmental Research Laboratories, West University of Timisoara, 16 Pestalozzi, 300315 / 4 Oituz, 300086, Timisoara, Romania
- P16 CHITOOIGOSACCHARIDES AS SUSTAINABLE TOOLS FOR BIOMEDICAL APPLICATIONS: A COMPUTATIONAL STUDY REGARDING THEIR IMPORTANCE IN WOUND HEALING PROCESS**
Diana Larisa Roman^{1,2}, Mariana Adina Matica³, Vasile Ostafe^{1,2}, Adriana Isvoran^{1,2*}
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- P17 PRELIMINARY RESULTS REGARDING USING OF MICROORGANISMS IN DECONTAMINATION OF MINING WATER POLLUTED WITH COPPER**
Menghiu Gheorghita^{1,2*}, Vulpe Bianca Constantina^{1,2}, Matica Mariana Adina^{1,2}, Kovacevic Renata³, Ostafe Vasile^{1,2}
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Eleonora-Timea Fazekas, Mihaela-Ioana Mărtari, Carina-Rebeca El Ouazzani-Pop, Silvia Elena Erina, Ludovic Toma Csiszter
Faculty of Bioengineering of Animal Resources, University of Life Sciences "King Mihai I" from Timisoara, Calea Aradului, 119, Timisoara, 300645, Romania
- P19. INFLUENCE OF FARM PRODUCTION LEVEL ON MILK PRODUCTION IN ROMANIAN SPOTTED DAIRY COWS**
Mihaela-Ioana Mărtari, Eleonora-Timea Fazekas, Carina-Rebeca El Ouazzani-Pop, Silvia Elena Erina, Ludovic Toma Csiszter
Faculty of Bioengineering of Animal Resources, University of Life Sciences "King Mihai I" from Timisoara, Calea Aradului, 119, Timisoara, 300645, Romania
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Carina-Rebeca El Ouazzani-Pop, Mihaela-Ioana Mărtari, Eleonora-Timea Fazekas, Sorin Octavian Voia, Ludovic Toma Csiszter
Faculty of Bioengineering of Animal Resources, University of Life Sciences "King Mihai I" from Timisoara, Calea Aradului, 119, Timisoara, 300645, Romania
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Culda Alex Răzvan ¹, Zaharia Ana ¹, Csiszter Ludovic ¹, Claire Morgan-Davies ², Dumitrescu Gabi ¹, Voia Octavian Sorin ¹
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²Scotland's Rural College: Edinburgh, Edinburgh, GB
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Annemaria Ludwig ¹ Ioana Donat ¹, Pavel Cionca ¹, Gabi Dumitrescu¹, Erina Silvia¹, Marioara Nicula-Neagu^{1*}
¹University of Life Science "King Mihai I" from Timisoara, Calea Aradului, 119, Timisoara, Timiș, România
- P23 STUDY ON THE INFLUENCE OF THE CORIANDER (*CORIANDRUM SATIVUM*) ON THE CHEMICAL COMPOSITION OF THE MUSCLE IN EUROPEAN CATFISH (*SILURUS GLANIS*)**
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University of Life Sciences „King Mihai I” from Timișoara, Address – 300645, Timișoara, 119 Calea Aradului, Romania
- P24 RESEARCH ON THE PRODUCTION CAPACITY OF BARLEY FODDER VARIETIES LAVERDA AND SUE ELLEN, IN THE CONDITIONS OF THE LOW PLAIN OF TIMIS**
Popescu Dragoș-Ion¹, Peț Ioan¹, Ferencz Alexandra-Maria¹, Popescu Dumitru¹, Feier-David Saida-Roxana¹
¹University of Life Sciences „King Michael I” from Timisoara, Faculty of Bioengineering of Animal Resources, Calea Aradului, 119, 300645, Timisoara, Romania

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Feier-David Saida-Roxana¹, Popescu Dumitru¹, Bora Marinela¹, Paven Medeea-Iris¹, Peț Ioan¹

¹University of Life Sciences „King Michael I” from Timisoara, Faculty of Bioengineering of Animal Resources, Calea Aradului, 119, 300645, Timisoara, Romania

**P26 The impact of humic substances as an organic feed additive on ruminal
fermentation**

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BOOK OF ABSTRACT

***"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH
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November 17 – 18, 2022, Timișoara

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FACULTY OF BIOENGINEERING OF ANIMAL RESOURCES



TIMIȘOARA, 2022

**OC2 POTENTIAL OF BIOFUELS IN THE EUROPEAN TRANSITION TO
SUSTAINABLE ENERGY**

Aryan Ahmadi-Khoie¹

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Abstract

With the growing energetic uncertainty surrounding Europe and calls for a swift reduction of the European dependence on fossil fuels, it is important to look for sustainable alternatives that could replace these in an accelerated timeframe. For this task, biofuels have an essential advantage over most other renewable energy sources, in that it can make use of much of the existing energy infrastructure. For this reason it could play an important role in the transition to a sustainable and energetically independent Europe. The main focus of this study is to review and compare the important biofuel synthesis processes which are applicable to the European region and to evaluate the possible extent, benefits and drawbacks of their expanded usage in the European Union. Results suggest that certain biofuels could have a big positive impact; however while current production can still be successfully increased, scaling it to its potential can prove problematic until newer biofuel technologies mature.

Key words: Biofuel, Energy, Europe, Sustainability

**OC8 CONDUCTING A TRANSIENT-STATE ANAEROBIC DIGESTION
PROCESS AT START-UP PHASE OF AN ON-FARM BIOGAS PLANT**

Teodora Toader¹, Dana-Iuliana Neață¹, Teodor Vintilă^{1*}

University of Life Science "King Mihai I", Timisoara, 300645, Romania

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Abstract

In a biological start-up phase, caused by the opening of digesters for technical revisions, the biological process collapsed. The digesters from an on-farm biogas plant were incorrectly fed during the start-up phase with high-organic contents feedstock, including high carbohydrate substrate (silage, milled cereals). As a result of this type of operation, the values of the essential parameters that indicate the equilibrium state of the microbiological and biochemical process have deteriorated. Samples were taken and analyzed in the laboratory. During a two-months period of monitoring and conducting the anaerobic digestion process, a steady state of the biotechnological was reached. Subsequently, mixture recipe for feeding the digesters after reaching the neutral pH and the maximum FOS/TAC value of 0.4, have been established according to the materials available on the farm. Cow manure will constitute the main substrate with important microorganic input, this organic material being available in large quantities in biogas operator's own farm. As co-substrate, maize silage is available as feedstock with high energy input. To increase economics and improve ecological footprint of the process, it is recommended to feed the digester with residual raw materials, available in the area of the biogas plant operator

Keywords: anaerobic digestion, biogas plant, start-up, transient-state process

**OC13. ALTERNATIVE TECHNIQUES FOR PREVENTION AND CONTROL
OF HONEYBEE GUT PARASITE (*NOSEMA CERANAE*)**

Claudia PAȘCA¹, Cristina Gabriela MATHE¹ and Daniel Severus DEZMIREAN¹

¹ *Department of Apiculture and Sericulture, Faculty of Animal Science and Biotechnology,
University of Agricultural Science and Veterinary Medicine Cluj Napoca, Romania*

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Abstract:

Nowadays, the number of bee colonies has been decreasing due to the weather conditions, environmental stress, use of pesticides and heavy metals and the susceptibility for various pathogens, including *Nosema spp.* Nosemosis is one of the most serious diseases of adult honeybees occurring in nearly every country with beekeeping practices and it affects honeybee productivity and reproduction. It is thought that Nosemosis opens the infection route for BQCV (Black queen cell virus) by damaging the epithelial cells of the midgut. Beekeepers have some control options for bee diseases, antibiotics such as oxytetracycline, sulfathiazole and fumagillin, or biological active extracts, probiotics from gut microbiota of honeybees, or feed like a honey or beebread. In this context of increasing multidrug resistance and the demand for organic products, the search for alternative drugs based on the pharmacological and phytochemical properties became a priority in honeybee colony health research.

Bioactive compounds from different parts of the plants (*Agastache foeniculum*, *Artemisia absinthium*, *Evernia prunastri*, *Humulus lupulus*, *Laurus nobilis*, *Origanum vulgare* and *Vaccinium myrtillus*) were extracted, analysed, optimized concentrations and tested *in vitro* on honeybee infected with *Nosema* spores. The effectivity against *N. ceranae* was evaluated.

In the other hand, the gut microbiota of healthy honeybees and probiotic potential from raw honey and beebread were evaluated. Probiotic bacteria from these can be useful in prevention and control of some honeybee's gut parasite.

The present study shows an overview regarding the alternative techniques for prevention and control of honeybee gut parasite (*Nosema ceranae*) and is part of the extended study entitled: *The nosemosis prevention and honeybee's colonies development using a probiotic product.*

Keywords: Nosemosis, honey bees, natural alternative, gut microbiota.

References

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2. Huang Q., Evans J.D. (2020), Targeting the honey bee gut parasite *Nosema ceranae* with siRNA positively affects gut bacteria, Huang and Evans *BMC Microbiology*, 20:258 <https://doi.org/10.1186/s12866-020-01939-9>

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P1. - ASSESSMENT OF FEED QUALITY BY NON-DESTRUCTIVE METHODS

**Ariton Adina-Mirela, Neculai-Văleanu Andra-Sabina, Sănduleanu Cătălina,
Ioana-Cristina Crivei, Alina-Narcisa Postolache**

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Abstract

For the optimal optimization of feed ration, it is crucial to assess the quality of the forage feed to dairy cows. To have a good production of milk and meat on a cattle farm, the farmers must collaborate with the nutrition and feed control laboratories in order to formulate in a timely manner feed that is nutritionally sound. Non-destructive procedures provide benefits such as high sensitivity and minimal sample preparation. The portable instruments of near-infrared spectroscopy can be utilized in "on-line" and "live" modes, removing the need for lengthy response times and allowing for fast intervention in the prevention and/or correction of disorders. When determining the feed ratio for dairy cows, one of the physical parameters that are considered is nitrogen, and implicitly the protein level, which can also be readily measured using the Dumas analysis method. In this work, nondestructive methods for evaluating the physico-chemical properties of feed and the advantages of its implementation in the zootechnical industry are discussed.

Keywords: dairy cows, feed ration, non-destructive methods, physico-chemical properties.

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**P2 - QUALITY ASSESMENT OF BOVINE COLOSTRUM AND POSSIBLE
APPLICATIONS IN THE DAIRY INDUSTRY**

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Abstract

Colostrum is a mammary gland fluid that is produced and secreted throughout the last trimester of pregnancy and the first few days following calving. Colostrum aids in the growth, development, and protection of the newborn calves' immune system. In order for the immunoglobulins to be effective, colostrum it must be given to the newborn within the first few hours of life. Lab tests for IgG levels may be quite precise, but they are time-consuming and not always accessible to farmers. Hydrometers and refractometers could be foreseen as promising tools in the estimation of IgG for distinguishing colostrum of high quality. This paper describes quick methods for evaluating colostrum quality and prospective uses of colostrum in the dairy industry.

Keywords: bovine colostrum, dairy industry, physico-chemical properties, rapid methods

**P3 - EFFECT OF MASTITIS ON MILK PRODUCTION AND COMPOSITION
IN DAIRY COWS**

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Abstract

Bovine mastitis is considered the leading cause of economic losses in dairy farms worldwide due to the associated treatment costs, reduced cow performance, milk quantity, and quality decline, as well as early culling. The purpose of this study was to examine the relationship between somatic cell count (SCC), and physicochemical milk parameters in Romanian Black and White spotted dairy cows. In the study conducted between March and September of 2022, on a farm from the northeast of Romania, a total of 62 cows, with ages ranging from 3 to 5 years, average

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days in milk (DIM) 75 +/- 35 days, and milk production 22 +/- 1.8 kg (mean +/- SD) and clinical signs of mastitis were enrolled. Cows were clinically examined and milk samples were collected in order to evaluate milk SCC and physicochemical parameters such as fat, protein, lactose, casein, dry matter percentage, and density using the fluoro-optic method (Combiscope, Delta Instruments). Statistical analysis was carried out using Graphpad Prism software. A correlation matrix was computed to establish the relationship between the number of somatic cells, and the physicochemical parameters of milk. The SCC was found to have a significant impact on overall milk production, percentages of fat, protein, lactose, and casein. In conclusion, bovine mastitis has a negative impact on both milk production and composition.

Key words: dairy cows, mastitis, somatic cells, physicochemical parameters

**P4 - TEAT CONDITION SCORING AS A MANAGEMENT TOOL FOR
MONITORING UDDER HEALTH**

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Abstract

When the end of the teat is smooth and undamaged, and the skin is soft and elastic, the teat can ensure its function, as a natural barrier against the intrusion of microorganisms that cause mastitis. Any type of stress applied to a teat, even for a very short period of time can cause the teat's inherent ability to withstand bacterial stress to decrease. Teat skin dryness may favor the development of teat-end hyperkeratosis, a condition that, in turn, increases the likelihood of new intra-mammary infections in dairy cows. This condition also causes pain and discomfort for the cows, thus leading to a decline in milk production. Monitoring the level of teat end hyperkeratosis using a four-point system as well as other types of teat lesions in a dairy herd, on a consistent basis, may be an extremely helpful management tool for determining whether or not the milking routine is appropriate and the risk of mastitis is controllable.

Keywords: dairy cows, teat condition, udder health, hyperkeratosis, mastitis

**P5. - ASSESSMENT OF HEAT STRESS IMPACT ON DAILY ACTIVITY
PATTERN OF DAIRY CATTLE**

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Abstract

Given the significant impact that elevated temperature and heat stress have on the health and performance of dairy cows, it is reasonable to anticipate that the climate conditions for cattle farming will decline over the course of the next few decades. The behavior of dairy cattle changes when they are exposed to settings that cause heat stress. As a result, the analysis of changes in behavior may serve as an indicator of abnormalities in either the environment or the body itself. In addition, precision livestock farming tools enable the individual and ongoing monitoring of animal behavior, which might serve as a method for determining whether or not animals are treated properly. The goal of this study was to assess the effect that heat stress has on the behavior of dairy cows. The research was conducted during the summer of 2022, in a dairy farm located in the north-east of Romania. A total 40 cows, with ages ranging from 3 to 5 years, average days in milk (DIM) and milk production of 85 +/- 35 days, respectively 21 +/- 2.2 kg (mean +/- SD) were included in the study. Temperature and Heat Index (THI) were computed each day, for the entire period of the study. Data regarding the individual activity pattern of each animal were provided by the AfiFarm software. The findings indicated that heat stress impacted animal behavior. As the THI increased, the general activity and resting pattern were modified, implicitly impacting animal welfare. Precision livestock farming sensors and analysis of daily patterns may be excellent tools for monitoring animal behavior and detecting heat stress-related changes.

Key words: dairy cows, heat stress, activity pattern, livestock precision farming

**P6. THE ORIGINS OF THE TURCANA SHEEP BREED VARIETIES AND THE
MIGRATION OF THE POPULATIONS TO THE MAIN BREEDING AREAS**

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Abstract

The insular breeding system dictated by the area in which the populations of Turcana sheep breed were formed and by the way in which the selection activities were oriented, in these geographical Romanian areas, has created a series of colour varieties, with certain performance characteristics, which are significantly different from each other. Thus, depending on the use of related individuals of the same colour for reproduction, the following ecotypes were formed: Turcana bucalaie, Turcana bala, Turcana breaza, Turcana oachesa, Turcana neagra, Turcana brumarie. All these varieties, related and reproductively isolated from each other, have the chance and can become in time self-sustaining breeds, which can improve the genetic heritage of the sheep species in Romania and in the world.

Key words: ecotypes, herd book, sheep, transhumance

**P7. - THE STUDY OF BIOCHEMICAL MARKERS OF GOAT MILK IN
SHIRAK REGION, REPUBLIC OF ARMENIA**

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Abstract

The aim of the research is to look into the biochemical markers of goat milk at various lactation stages from the perspective of quality and purpose to study the efficiency of the pasteurization process in the supply chain from raw materials to finished products and, from the point of view of shelf-life targeted to the future research. The goats have been bred in the Shirak region of the Republic of Armenia. Differences have been observed between lactations in relation to the quantity of urea and Lactatdehydrogenase activity, *i.e.* a decrease in the third lactation as opposed to the first lactation. During the three lactations, under standard milk pH (5,8-6.2) conditions, steady enzyme indices have been observed in Lactoperoxidase and Alkaline Phosphatase activity, *i.e.* 0,66-0,71 U/ml and 6,9-7,03 U/l respectively. These data indicate that the absorption of food proteins and carbohydrates intensifies with age, which is directly linked to the level of lactation, while the identified steady indicators of Lactoperoxidase and Alkaline Phosphatase enzymes set grounds for further research to establish their levels of activity at different stages related to pasteurization

Key words: Alkaline phosphatase, goat, lactoperoxidase, milk, urea

Acknowledgement: Our appreciation to purebred goat breeding farm owner Mr. Artur Stepanyan for supporting research program and ANAU rector Dr. Vardan Urutyun for financial support

**P8. - THE EFFECTS OF DIFFERENT SPECIES OF RUMEX LEAF POWDER
IN LAYING HENS' DIETS ON PHYSICAL PARAMETERS AND YOLK
COLOUR**

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Abstract

The experiment studied the effects of different levels of *Rumex* spp. leaf powder inclusion in laying hens' diets on their physical parameters and yolk color intensity. The study was conducted on 168 Hy-line laying hens (age 30 weeks), assigned in 3 treatment groups (C, E1 and E2) and housed in an experimental hall equipped with Big Dutchman cages, placed on 3 tiers with digestibility cages (3 treatments x 28 replicates x 2 birds per cage). Feed and water were administrated ad-libitum. During the entire 5-wks experimental period (one week of accommodation), performance parameters were recorded: feed intake (g/day), feed conversion ratio (g feed /g egg), laying intensity (%), average egg weight (g) and eggs classification (%). Eggs yolk color is generated by carotenoids as a nutritional response, which depends on the amount, kind, and ratio of carotenoids. One of the most important aspects in how consumers rate the quality of food is color. The experimental results demonstrated that an inclusion rate of 1.5% and 3% *Rumex* species leaves powder can significantly increase yolk color intensity without negative effects on production performances and egg quality parameters.

Key words: egg quality; laying hens; performance; *Rumex* spp leaves; yolk color

**P9 PERCENTAGE OF WATER IN ACACIA AND MEADOW HONEY IN THE
PERIOD FROM 2019 TO 2021.**

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Abstract

Honey is a naturally occurring material made by bees from the sweet, fragrant nectar of flowers. More than 200 substances have been identified in honey, the majority of which are sugars and water. Certain physical characteristics of honey, such as crystallization and viscosity, are substantially affected by moisture. The honey may be stored for a longer period of time because of the low water content, which shields it from microbial activity. Honey from around Pozarevac, the place in Serbia with the largest production of honey, was controlled.

A refractometer from A.KRÜSS Optronic GmbH was used for this research. In the period from 2019 to 2021, 99 samples of acacia honey and 114 samples of meadow honey were analyzed. The average values of water percentage in the indicated period in both types of honey were between 16% and 17%. Based on this research, it can be concluded that the percentage of water in acacia and meadow honey was below the maximum allowed values according to national and European regulations. Below 17% water content, honey fermentation is inhibited. Honey with a water percentage above 17% is sensitive to fermentation, while honey with a water content above 19% is extremely vulnerable.

Key words: Percentage of water, acacia honey, meadow honey, refractometer

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**P10. - POSSIBLE BENEFITS OF GROWING GM CROPS IN THE EUROPEAN
UNION**

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Abstract

The European Union has been very slow to embrace GMOs in comparison with most other countries, requiring extensive authorizations for use and especially crop cultivation, where only one Maize variety is currently approved. However with more testing, recent advances in Genetic Bioengineering and the current concerns regarding the global and european food supply, it is important to question whether the european scepticism surrounding GM crops is justified. Hence the aim of the paper is to review the studies regarding GMO safety for use in food and feed and discuss the benefits of their large scale use in the European Union. Our results conclude that the extensive use and cultivation of GM crops in the European Union would be both beneficial and safe.

Key words: European Union, crop regulation, GMO

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P11 - ATIMICROBIAL EFFECTS OF BEE DEFENSIN-1

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Abstract

Honey is known to be among the most nutritious natural products that provide us with healthy nutrition, but which also has the potential to be an alternative treatment option for various pathologies, from metabolic diseases to microbial infection. The antimicrobial mechanism of honey is based on a series of components that contribute to the activity against microbial diseases. The antimicrobial activity is due to the following components: high sugar content, high osmotic pressure, low water concentration, low pH, hydrogen peroxide (H₂O₂), phenolic compounds (phenolic acids, flavonoids), methylglyoxal (MGO), specific protein - bee defensin-1. All these components inhibit the development of pathogenic microorganisms, as they act synergistically to achieve the antimicrobial activity of honey, giving it the ability to act against a wide spectrum of microorganisms: Gram- bacteria, Gram+ bacteria, fungi, including antibiotic-resistant bacteria. Defensin-1 peptide secreted by the hypopharyngeal glands of bees, shows activity against many Gram+ and Gram- bacteria. Based on this property, the protein could be used to treat infections, but also in the development of new drugs that could fight antibiotic-resistant bacteria.

Keywords: honey, bee defensin-1, antibacterian properties.

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**P12. - EFFECTS OF ADMINISTRATION OCHRATOXIN A ON
BIOCHEMICAL PARAMETERS IN LABORATORY ANIMALS**

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Abstract

Mycotoxins are agents with complex chemical structures that can be present in feed and food. Although in small quantities, mycotoxins have a negative effect on animal and human health. Ochratoxins are mycotoxins that exhibit nephrotoxic, immunotoxic and myelotoxic, neurotoxic and carcinogenic effects. Thirty male rats of the Sprague-Dowley breed were divided into 3 groups who received through feed doses of 0.5 mg OTA/kg BW (B, n=5), 1 mg OTA/kg BW (C, n=5) and none OTA (A-control group, n=5). The analyzed parameters of serum included alanine aminotransferase (ALT), aspartate aminotransferase (AST), albumin (ALB), total protein (TP), serum creatinine (C), serum urea (U), blood urea nitrogen (BUN) and bilirubin (BLB), which were determined using an automatic analyzer. The quantitative variations of urea and uric acid content, significantly reduced or increased compared to the control group, indicate the alteration of renal function as a result of OTA administration. The administration of feed contaminated with OTA causes increases in the content of ALT and AST in rats from the experimental groups compared to those from the control group, which indicates the existence of functional alterations at the liver level.

Keywords: rat, ochratoxina A, biochemical parameter

**P13. - VARIATIONS OF HEMATOLOGICAL PARAMETERS IN RATS
TREATED WITH OCHRATOXIN A**

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Abstract

Mycotoxins are metabolic products of fungi that alter the body's ability to react and cause illness or even death in animals and humans. The analysis and effects of mycotoxins is viewed from the perspective of economic losses related to the effects on animal productivity, human health, but especially national and international trade. Thirty male rats of the Sprague-Dowley breed were divided into 3 groups who received through feed doses of 0.5 mg OTA/kg BW (B, n=5), 1 mg OTA/kg BW (C, n=5) and none OTA (A, control group, n=5). The blood samples collected on the anticoagulant were subjected to the analysis of the main components of the blood count represented by: erythrocytes (RBC), leukocytes (WBC), thrombocytes (PLT), Hct (%), Hb (mg/dl). The feed contaminated with OTA caused variations in the rats from the experimental groups in the sense of increasing or decreasing the values of the hemoleucogram parameters depending on the administered concentration. The most obvious effects being an increase in the number of WBC and a decrease in the number of PLT, at the highest dose of OTA administered.

Keywords: ochratoxin A, rat, hematological parameter

**P14 - CHITOSAN-BASED MEMBRANES AS SUSTAINABLE MATERIALS
WITH ENHANCED ANTIMICROBIAL PROPERTIES**

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Abstract

The versatility of chitosan has made this polymer one of the most important tools in various fields, from wastewater management, agricultural industry, to food preservation and biomedical application. The sustainable source as well as biocompatibility and biodegradability are the most important features that make chitosan one of the most used biopolymers in the development of innovated ecofriendly materials. Although chitosan proves to be antibacterial, this property is influenced by the physico-chemical characteristics, such as degree of deacetylation, molecular weight, pH and chitosan formulation and derivatives. The use of antimicrobial peptides to enhance the antibacterial effect of chitosan has become a common practice to avoid the use of conventional antibiotics, to which bacteria have already gained resistance². Nisin, a GRAS molecule³, is a cationic peptide with a pronounced antibacterial effect against Gram-positive bacteria, which for the past years has been investigated for its application in biomedical field, as an alternative to common antibiotics. Chitosan-based membranes were prepared by solvent casting method, and nisin was incorporated in order to enhance the antibacterial properties of the biomaterials. The physico-chemical characteristics as well as antibacterial effect against Gram-positive and Gram-negative bacteria were investigated and the results showed that chitosan-based biomaterials were suitable candidates in biomedical industry, such as developing bioactive dressings for wound healing applications. The physico-chemical characteristics of chitosan-based membrane revealed good swelling capacity and permeability, while the biodegradability assay indicated a good stability of the membranes under enzymatic degradation. The optical measurements showed that chitosan-nisin membranes could provide protection against UV radiation. Nisin addition increased significantly the antibacterial effect of the membranes against Gram-positive bacteria and the chitosan-nisin film-forming solutions exhibited synergistic effect on both Gram-positive (*Staphylococcus aureus*) and Gram-negative (*Pseudomonas aeruginosa*) bacteria. The use of chitosan, a waste byproduct generated by the seafood processing industry, as antimicrobial systems with medical applications, is a topic that lines up with the interest of current scientific research to enhance exploitable resources in the context of the circular and sustainable economy.

Keywords: chitosan, nisin, membranes, antibacterial effect, sustainable materials

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**P15.- ASSESSMENT OF TRIAZOLE FUNGICIDES REGARDING THEIR
TOXICITY TOWARDS THE COMMON DUCKWEED**

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Abstract

Triazole fungicides are used for the treatment of fungal diseases of various crops, being able to reach the aquatic environment and have ecotoxic effects on the present aquatic organisms. In this study, the potential ecotoxicological effects of some triazole fungicides on the common duckweed (*Lemna minor*) were analyzed. *Lemna minor* was exposed to flutriafol, metconazole, myclobutanil, tebuconazole, tetraconazole and triticonazole fungicides, through a growth inhibition assays. For all six triazole fungicides the plotting of dose-response curves was possible, along with the calculation of EC₅₀ values. The lowest EC₅₀ value was observed for metconazole, while flutriafol had the highest value, being approximately 50 times higher than the value of metconazole. The U.S. EPA aquatic toxicity categories were used for the classification of the six analyzed fungicides based on their EC₅₀ values. Metconazole was classified as being highly toxic, tebuconazole and tetraconazole were moderately toxic, while the other three fungicides were slightly toxic against duckweed.

Keywords: triazole fungicides, common duckweed, ecotoxicity.

**P16. CHITOLIGOSACCHARIDES AS SUSTAINABLE TOOLS FOR
BIOMEDICAL APPLICATIONS: A COMPUTATIONAL STUDY REGARDING
THEIR IMPORTANCE IN WOUND HEALING PROCESS**

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Abstract

Chitooligosaccharides (COs) are oligomers containing N-acetyl-D-glucosamine and/or D-glucosamine units, obtained from chitin and chitosan, sustainable biomaterials generated mainly by marine crustacean waste. Their applicability in biomedical fields is of great importance due to their numerous beneficial properties. Using computational tools, we analyzed the implications of chitooligosaccharides in all the phases of the wound healing process. The molecular targets and biological activities of COs, reliant to the wound healing process were predicted and a molecular docking study was performed in order to assess the implications of COs the inflammatory process. Regarding the main molecular targets of COs, galectins and selectins were identified for the totally and partially acetylated COs and growth factors were most common for COs containing totally deacetylate units. Results from the molecular docking study showed that there are strong interactions between COs and MD-2 protein, a key molecule for the inflammatory response. Based on the degree of acetylation, these types on interaction varies, from hydrogen bonds, for totally deacetylated COs, to both hydrophobic interactions and hydrogen bonds for partially and totally acetylated COs. Moreover, the interaction energies are influenced not only by acetylation degree, but also by molecular weight and pattern of acetylation. Giving the importance in developing natural products from sustainable sources, we conclude that COs should be considered as suitable compounds for developing materials directed to biomedical applications, such as wound healing.

Keywords: chitooligosaccharides, MD-2 protein, computational tools.

P17. PRELIMINARY RESULTS REGARDING USING OF MICROORGANISMS IN DECONTAMINATION OF MINING WATER POLLUTED WITH COPPER

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Abstract

Safe and readily available water is important for public health, whether is used for drinking, domestic use, or food production. The quality of water strongly depends on natural resources and the surface that surrounds it. Mining areas are anthropized areas that, through acid mine drainage, pollute the waters in the respective area. Bioremediation of mining water using microorganisms has generated interest for researchers, for their advantages, such as the quality of being more accurate and environmentally friendly. In our research, the efficiency of copper accumulation was determined using various genetically modified strains of *Escherichia coli*, *Saccharomyces cerevisiae*, and *Pichia pastoris*. These experiments were performed using synthetic water containing a known concentration of copper. The growth rate of strains grown in a specific liquid medium containing a concentration of 1 mM copper sulfate was analyzed by measuring the optical density of the cultures at 600 nm. Inductively coupled plasma atomic emission spectroscopy (ICP-AES) analysis was performed on supernatant samples in order to identify the concentration of copper accumulated in the cells. The results showed that the tolerance of bacteria strains on 1 mM copper-containing media was lower than the tolerance of yeast strains on the same concentration of copper. ICP-AES analysis shows that *E. coli* BL21 (DE3) RIL strain has the best copper accumulation efficiency. *S. cerevisiae* BJ5465 yeast strain is most efficient in the accumulation of copper from a total of six yeast strains used. When an *E. coli* strain that produced different peroxidase enzymes was tested, results showed that the cells which expressed an internal peroxidase were more efficient in the accumulation of copper than the cells which expressed the peroxidase in periplasmic spaces. Therefore, genetically modified yeasts and bacteria could be successfully used for the bioremediation of water polluted with copper.

Keywords: copper accumulation efficiency, *Escherichia coli*, *Saccharomyces cerevisiae*, growth rate.

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**P18. STUDY ON DYNAMICS, GROWTH AND FEEDING EFFICIENCY IN
CHAROLAIS SUCKLING CALVES**

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Abstract

The aim of this study was to assess the suckling calves number dynamics, as well as their performance and concentrates and hay feeding efficiency along 3 years in a Charolais cow-calf farm. The average number of cows in the farm was 200 heads, and calvings took place all year round. All the data was collected from the farm in years 2019-2021. Effect of calf sex, year, and month of calving on growth performance and feeding efficiency was studied. On average, more females were born monthly than males (48.61 vs. 44.47), but males were heavier and had a higher average daily gain (198.88 kg and 1022.89 g/d vs. 189.29 kg and 936.99 g/d). Monthly number of calves increased from 2019 to 2021, while the average weight was higher in 2020 and the average daily gain was higher in 2019. More calves were born in autumn and winter than in summer and spring, average calf weight was higher in winter (205.85 kg), and average daily gain was higher in autumn born calves (1099.29 g/d). The highest feed consumption was observed in 2019 (3233.42 kg hay and 2721.8 kg concentrates) and the lowest in 2021 (3084.83 kg hay and 2148.08 kg concentrates). The most efficient use of feedstuff was observed in year 2020, when was spent only 0.17 RON/kg ADG/month, while in the other two years this figure was 0.21 RON.

Key words: Charolais, feed efficiency, growth performance, season, suckling calves, year

**P19. – INFLUENCE OF FARM PRODUCTION LEVEL ON MILK
PRODUCTION IN ROMANIAN SPOTTED DAIRY COWS**

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Abstract

The aim of this study was to highlight the influence of farm management on the milk production dynamics by month of calving. Thus, a database made of 2764 lactations from Romanian Spotted breed cows was set up from three different farms with various management levels, from 2017 to 2021. Distribution of lactations per farms was as follows: 1649 lactations in farm 1, 445 lactations in farm 2 and 670 lactations in farm 3. The milk production indices were: lactation length (days), milk yield (kg), fat percentage (%) and fat yield (kg) per normal lactation. ANOVA was used to test the effect of farm on the milk production indices in each month. The milk yield was significantly influenced ($p < 0.05$) by the farm, the highest production was obtained in farm 1, 3287.93 kg, followed by farm 2, 2752.53 kg and the lowest in farm 3, 2541.13 kg. The average days in milk was similar in the three farms, 292.67 days, 291.63 days and 294.25 days, respectively. There was a similar trend of milk production dynamics according to the month of calving in all three farms. Milk production was higher in winter/spring calving months than in summer/autumn. The highest milk production was obtained by cows that calved in January in farm 1 (3451.87 kg), in February in farm 2 (2943.31 kg) and in March in farm 3 (2617.12 kg).

Key words: Farm management level, milk production, month of calving, Romanian Spotted

**P20. STUDY ON LACTATION CURVE FOR MILK PRODUCTION INDICES
IN MONTBELIARDE DAIRY COWS**

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Abstract

The aim of this paper was to highlight the effect of parity on the shape of the lactation curve for milk yield and composition in Montbeliarde cows. Researches were carried out on 367 lactations obtained from 115 Montbeliarde dairy cows. Data was obtained using the standard method of the official milk recording system. Only those lactations were used that had at least 11 controls. Test-day data was modelled using Wood's incomplete gamma function. Lactations were divided into three classes according to the parity of the cow: primiparous, secundiparous and multiparous. Parity had a significant influence ($p < 0.001$) on the milk production. Milk production of multiparous cows (third lactation or higher) was 16-18% higher than in primiparous cows and 10-14% higher than in secundiparous cows. There were no significant ($p > 0.05$) differences for milk production between primiparous and secundiparous cows. The shape of the lactation curve was significantly influenced ($p < 0.05$) by parity in Montbeliarde dairy cows for milk yield, fat percentage, protein percentage and lactose percentage. Generally, primiparous cows had flatter lactations curves for all indices and lower test-day values, compared to multiparous cows that had sharper lactation curve with higher test-day values.

Key words: dairy cows, lactation curve, milk production, Montbeliarde, parity

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APPLIED LIFE SCIENCES"**

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Biotechnology"**

**P21. EVALUATION OF MILK PRODUCTION IN THE LACAUNE
SHEEP BREED**

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Abstract:

The study regarding the evaluation of milk production was carried out on a group of 14 primiparous ewes of the Lacaune breed. The estimation of lactation capacity was performed on the basis of the increase in total weight gain of the lamb, until weaning, using coefficient 6. The lambs were weaned at an average age of 32 days (± 4 days). Determination of milk yield was performed daily. We mention that Lacaune sheep are maintained in an intensive system and milking is mechanical. For 6 lambs from single births, three male and three female lambs, the lactating capacity of Lacaune sheep was 61.44 litres in the first month of lactation. The group of ewes with twin lambs was 8 primiparous, gave birth to 5 pairs of female and male (F-M), 2 pairs of F-F and one pair of M-M lambs. The lactation capacity of ewes with twin lambs was 78.88 litres per day, 22% higher than in ewes with single lambs. From the 14 Lacaune breed ewes a total of 5608.3 litres of milk was obtained, meaning 400.59 litres per ewe and 1.74 litres milk per ewe per day, during 230 days of lactation. If we add the estimated suckled milk during the lactation period, we achieve a total milk per lactation of 461 litres for ewes with a single lamb and 474 litres for ewes with twin lambs.

Key words: milk production, evaluation, Lacaune sheep breed

Acknowledgment

The study was carried out with the support of the profile disciplines from BIAR and Tech Care project.

**P22. - TESTING THE DETOXIFYING POTENTIAL OF CORIANDER IN
LEAD POISONING IN *CRASSIUS GIBELIO* BLOCH**

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Abstract:

Our research was conducted to emphasize the histological alterations of some tissue of Prussian carp's specimens, subjected to sub lethal Pb-intoxication with and without freeze-dried coriander dietary supplementation. 90 fish weighing between 10 and 12 gr were distributed in 3 experimental groups as follows: C (without treatment), E1 (75 ppm Pb into water), E2 (75 ppm Pb into water+2% freeze-dried coriander leaves in feed). Gonads and muscle tissue were sampling and analyzed in light microscopy at the end of a 21 days experimental period. QuickPHOTO Micro 2.2 software has been used for the histological study. Our findings were: severe histological alterations in experimental Pb-poisoned group; less severe injuries in E2 group, coriander ameliorating Pb-induced tissue damages; however, some histological changes have persisted in varying degrees of severity, suggesting that chelating and antioxidant agents in coriander can only partially counteract the lead - induced functional alterations.

Key words: *Coriandrum sativum*, experimental lead intoxication, freshwater fish, histological alterations

**P23. STUDY ON THE INFLUENCE OF THE CORIANDER (*CORIANDRUM
SATIVUM*) ON THE CHEMICAL COMPOSITION OF THE MUSCLE IN
EUROPEAN CATFISH (*SILURUS GLANIS*)**

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Abstract:

European or wels catfish (*Silurus glanis*) plays an important role in aquaculture due to its fast growth rate, its resistance to different environmental conditions, its adaptability to different rearing systems and the high nutritional and qualitative properties of the meat. Studies by many researchers have proven that coriander (*Coriandrum sativum*) has beneficial biological effects in fish, but studies regarding its or other phyto-additives influence on the meat quality of European catfish are sparse. The current study aimed to evaluate the influence of coriander seeds powder as phyto-additive (2 and 4%) in dry food pellets given to the European catfish, on chemical composition of its muscle. The coriander seed powder was administered 14 weeks in fish feed in two trials in duplicate: 2% and 4% to one-year-old European catfish. Three hundred fish were randomly selected and stocked into 6 tanks, 50 fish per tank. At the end of the experiment, 5 fish were collected from each tank, euthanized and used for the evaluation of the muscle quality. A piece of epaxial muscle from the highest part of the body was sampled, and subjected to the assessment of the crude protein and crude fat content, crude ash and moisture. The results revealed that coriander do not have a significant influence on muscle quality in general, but led to a significant ($p \leq 0.01$) decrease of crude fat content.

Key words: phyto-additives, coriander, muscle quality, European catfish

**P24 RESEARCH ON THE PRODUCTION CAPACITY OF BARLEY FODDER
VARIETIES LAVERDA AND SUE ELLEN, IN THE CONDITIONS OF THE
LOW PLAIN OF TIMIS**

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Abstract

Part of the annual cultivated grasses from the botanical family of *Gramineae (Poaceae)*, barley (*Hordeum Vulgare*) is considered as a important cereal crop worldwide, especially regarding its use in animal feed, as being known for its many benefits, such as a well-balanced energy and calories intanke and its high protein content.

The large scale use of cereals in human and animal nutrition presents a series of special advantages, such as the possibility of long-term preservation of the quality of the grains, the easy forms of transportation, the multitude of uses, or the potential of cultivating these species in various geo-pedo-climatic conditions. Thus, all these advantages have determined the very high share of cereals globally, not only in terms of the agricultural sector, but also in terms of the world trade. In animal feed, barley occupies a special place, especially in cattle feed, as it could be consumed in different forms: grains (concentrates), green fodder, hay, coarse fodder, or autumnal mash, is cultivated in a mixture with peas or autumnal sleet.

Due to their particular characteristics, such as very good tolerance to the main foliar diseases and high tillering capacity, the new fodder barley varieties have determined the wide spread of this crop, as one of the main cultivated cereal species, known for its reliable and constant productions and which, together with the two-row barley, exceeds 50 million cultivated hectares worldwide.

key words: barley, fodder, varieties, productions

**P25. RESEARCH ON THE BEHAVIOR OF TWO AUTOCHTHONOUS
VARIETIES OF ALFALFA UNDER THE CONDITIONS OF TORMAC PLAIN**

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Abstract

Being considered as the "queen of fodder plants" due to its great fodder and economic value, alfalfa (*Medicago sativa*) is one of the traditional legumes species cultivated in our country. The fodder value of this species is reflected by a series of distinguished nutritional characteristics, such as a balanced energy-caloric intake, high protein and vitamin content and high degree of consumption and digestibility. Also, alfalfa is widely used in the nutrition of most animals, in different forms, such as: soilage (green mass), hay, silage, granules or mixed fodder. At the same time, this species also presents great importance from an economic point of view, due to many advantages, such as: high productions obtained, great ecological plasticity, special agro-biological properties, the ability to enrich the soil in nitrogen and being a main component of the green conveyer for the feed of milk cows and young taurine. The importance of alfalfa for the agricultural sector of our country is major. This can also be quantified through the continuous development activity of new autochthonous varieties, such as Mihaela and Dobrogea (4AG07), which show increased resistance to drought and to common diseases, as well as a improved productive potential. By cultivating these two Romanian varieties (Mihaela and Dobrogea) in the pedo- climatic conditions of the Tormac Plain, considered as a favorable area for this culture, this research paper aims to identify the production capacity, respectively the harvest of green mass and hay, obtained by two mowns, without the application of irrigation. Following the research undertaken in the two experimental years, 2020 and 2021, on a vertic preluvosol type of soil with a medium loamy-clay texture and good physical, hydrophysical and chemical properties, the productions of soilage and hay were high, making this crop profitable for the farmers from the studied area

Key words: alfalfa, autochthonous, soilage, hay, productions

**P26. THE IMPACT OF HUMIC SUBSTANCES AS AN ORGANIC FEED
ADDITIVE ON RUMINAL FERMENTATION**

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Abstract:

The rumen is settled with a complex microbial ecosystem where feeds consumed by animals are digested with the help of rumen microorganisms, which play an important role in contributing nutrients to the host animal. This study focused on investigating the effect of humic substances (HS) dietary inclusion on the protozoal community in the rumen and qualitative parameters of the ruminal fluid. In the presented research, three cannulated beef cows were housed in individual pens and were fed with the basal diet enriched with the organic feed additive Humac®Natur AFM (comprise: 65 % humic and 5 % fulvic acids, minerals Ca 42.28, Mg 5.11, Fe 19.05 g/kg; macroelements Cu 15, Zn 37, Mn 142, Co 1.24, Se 1.67, Mo 2.7 mg/kg of DM) in 3 different concentrations: 60 g/day (4,8 g/kg of DM) and 110 g/day (8,9 g/kg of DM) and 200 g/day (16,1 g/kg of DM). The rumen liquor of each animal was collected two times per week via a rumen cannula with a probe connected to a vacuum pump for further laboratory analyses. Test of rumen fluid included: measurement of pH, physical characteristics, the concentration of nitrogenous compounds and ammonia, determination of rumen protozoa activity, and counting of the total number of protozoal ciliates; the motility of ruminal ciliates was also observed. The rumen pH level was affected by the sampling period, but diet treatment had no significant impact on rumen pH. The pH values in rumen fluid samples were within the normal range, the same as physical characteristics (color, odor, consistency, and sedimentation time). In conclusion, dietary HS supplementation significantly reduced protozoal activity in the rumen in all tested concentrations, which was also in correlation with lower protozoal motility and ammonia concentrations.

Key words: animal nutrition; humic substances; protozoa; ruminants

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