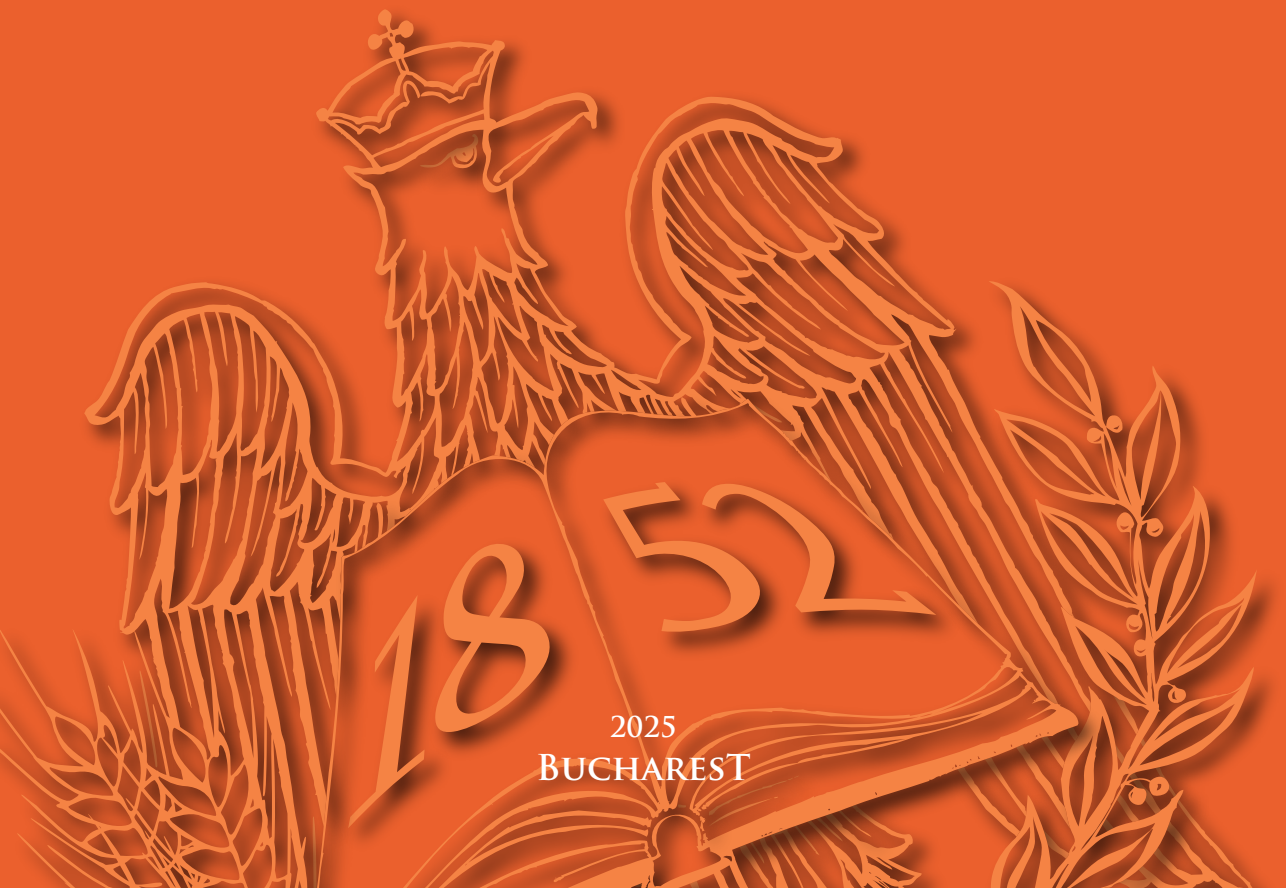
University of Agronomic Sciences
and Veterinary Medicine of Bucharest
Faculty of Animal Productions
Engineering and Management

International Conference
"Agriculture for Life, Life for Agriculture"

BOOK OF ABSTRACTS

Section 3

ANIMAL SCIENCE



2025
Bucharest

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SUMMARY

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GENETICS
AND BREEDING

POLYMORPHISM IN SNP G1 OF THE GDF9 GENE IN RAMS FROM TWO BULGARIAN SHEEP BREEDS

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Abstract

Fertility is of great importance for the profitability of sheep farming as its traits are under the genetic control of several key genes known as fertility genes (Fec) among which is GDF9 (Growth Differentiation Factor 9). The aim of this study is to determine the presence or absence of polymorphism in SNP G1 of the GDF9 gene in rams of two Bulgarian breeds with different productive direction. 43 rams from the Bulgarian dairy synthetic population (breed for milk, with good fertility) and 44 rams from the North-East Bulgarian Merino breed (for wool and meat, with lower fertility) were included in the study. Using the PCR-RFLP method, 462 bp fragments of exon 1 of the gene were amplified and with subsequent treatment with the restriction enzyme Hhal, two alleles were identified in both breeds - wild G and mutant A. All three possible genotypes - GG, AG and AA - were found in rams from the more fertile BDSP breed, while only GG and AG were found in rams from the less fertile NEBM breed.

Key words*: GDF9 gene, SNP G1, rams, Bulgarian Dairy Synthetic Population (BDSP), North-East Bulgarian Merino breed (NEBM).*

DYNAMICS OF GROWTH AND DEVELOPMENT OF ANGLO-NUBIAN GOAT KIDS UNTIL THE WEANING PERIOD

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Abstract

The present work focuses on investigating the growth of Anglo-Nubian goat kids from birth to weaning at 90 days of age. The study includes a total of 40 goats kids of the Anglo-Nubian breed and was carried out in the farm of the RIMSA - Troyan, Bulgaria. Key performance indicators such as birth weight, weaning weight and average daily gain were determined and exterior measurements were taken. The average daily growth for the first, second and third months for males is (0.129; 0.192; 0.155 kg) and for females (0.112; 0.184; 0.176 kg), respectively. At the age of 3 months, singles are reliably superior in both weight and size to twins and triplets, and their average daily growth for the period is 0.160 kg. In terms of weight and exterior data, males outperform females in all measurements. For the needs of the selection, it is important to follow the key factors that influence the productivity. Growth rates, body mass and weight dynamics are very good indicators that reflect the genetic potential of animals and directly affect the quality of the obtained produce.

Key words*: body measurement, goat kids, meat, productivity, weight.*

IMPORTANCE OF DNA SAMPLING METHODS FOR ASSESSING GENETIC DIVERSITY IN BIRDS – A BRIEF REVIEW

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Abstract

In studies involving various bird species, DNA analysis is crucial due to the valuable data it can provide. Experiments on genetic diversity have become common in many areas of biodiversity science. Although obtaining high-quality DNA from samples is critical, surprisingly few reviews focus on effective field sampling techniques to preserve DNA before laboratory extraction. Research on wild bird populations often relies on DNA samples collected from easy sources such as blood, saliva, or cloacal swabs. DNA provides a wealth of information for researchers. Analyzing it can yield various insights, ranging from the identity of individuals (such as determining their sex and parental relationships) as well as gathering data on entire populations (like estimating population sizes and understanding the significance of gene flow between them). This paper aims to evaluate the specialized scientific articles and highlight the methods used to produce less stress on populations.

Key words*: DNA methods, wild bird, sampling techniques, DNA extraction.*

TESTING GENETIC ASSOCIATIONS OF THE SNP C.1053C>T POLYMORPHISM FROM DGAT1 GENE WITH MILK QUALITATIVE PARAMETERS IN RIVER BUFFALO (*Bubalus bubalis*)

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Abstract

Improving milk yield and milk composition are objectives of interest in the selective breeding of animals. Milk fatty acids and proteins are important in the manufacturing of many buffalo dairy products, the best-known being mozzarella cheese. DGAT1 is part of the DGAT gene family (diacylglycerol acyltransferases) that codify key enzymes involved in the final step of triacylglycerol biosynthesis in various tissues and milk. In many cattle breeds the non-synonymous polymorphism K232A, from the 8th exon of the DGAT1 is a genetic marker, with major effects on milk yield and composition. In river buffaloes, the presence of the fixed K allele strongly indicates an increase in milk fat content as a result of selection. To date, only a few polymorphisms from the buffalo DGAT1 gene have been associated with milk composition. This study aims to test the associations between the synonymous polymorphism c.1053C>T from the

13th exon of the buffalo DGAT1 gene with milk qualitative parameters (fat percentage, protein percentage, and lactose content) in the Romanian buffalo breed. The properties of 200 milk samples were analysed using a mixed-effect model applied to longitudinal data spanning four seasons. Results indicated that the season had a significant impact ($p < 0.001$) on the fat and protein percentage, as well as lactose content in the milk. Additionally, a noteworthy association ($p < 0.001$) was observed between buffalo age and fat percentage. However, no significant association was found between genotype and milk quality.

***Key words**: buffalo, DGAT1 gene, polymorphisms, milk composition, genetic associations.*

POLYMORPHISM DETECTION IN MTNR1A GENE AND ASSOCIATION WITH LITTER SIZE IN AWASSI SHEEP

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Abstract

In sheep, melatonin has a significant effect on the reproductive system, acting through specific receptors - one of which is melatonin receptor 1A (MTNR1A). It regulates reproductive traits such as seasonality and litter size. The aim of this study was to identify polymorphic variants in exon 2 of the MTNR1A gene and to analyze their association with litter size in Awassi sheep breed in Bulgaria. The two alleles (wild C and mutant T) and the three possible genotypes (homozygous CC, heterozygous CT and homozygous TT) were established in the studied group of ewes. The wild allele C and the heterozygous genotype CT showed a higher frequency (0.61 and 0.51, respectively) than the mutant allele T (0.39) and the homozygous genotypes CC (0.36) and TT (0.13). No statistically significant difference in litter size was observed between the different genotypes of the MTNR1A gene – CC (1.35), CT (1.29) and TT (1.24).

Key words*: Awassi sheep, genetic polymorphism, litter size, MTNR1A gene, PCR-RFLP.*

ESTIMATION THE GENETIC PARAMETERS FOR BIRTH WEIGHT AND WEANING WEIGHT IN LIMOUSINE BREED

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Abstract

The objective of this study was to estimate the breeding values and genetic parameters for birth weight and weaning weight in Limousine cattle breed with multivariate maternal animal model for selection. Data consisted of records of 1207 cattle from Romanian Breeding Association for Beef cattle. The direct breeding values for birth weight were between -7.890 and 7.049 and for weaning weight -55.381 and 60.818 kg. The maternal breeding values for birth weight ranged between -1.701 and 1.810 and for weaning weight -22.453 and 20.747. The direct and maternal heritability for birth weight were 0.105, respectively 0.035, for weaning weight 0.662, respectively 0.246. The total heritability for birth weight was 0.92 and 0.655 for weaning weight.

Key words*: birth and weaning weight, breeding values, genetic parameters, multivariate maternal animal model.*

GROWTH INTENSITY OF LAMBS WITH A DIFFERENT SEX AND TYPE OF BIRTH FROM THE COPPER-RED SHUMEN BREED

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Abstract

The aim of the research was to study the growth intensity of lambs of different sexes and types of birth from the Copper-Red Shumen sheep breed. Subject of the research were 30 lambs born during the 2024 lambing season. Four (4) groups of lambs were formed, equalized according to the method of analogues by type of birth (singles, twins), gender (male, female) and age. Live weight was recorded at birth, 10 days, 30 days, 70 days and 90 days. It has been established that the Copper-Red Shumen sheep breed is characterized by a good growth intensity of lambs until weaning. The average live weight at birth for both sexes was close in values, after which female lambs reached an average of 21,171 kg and male lambs - 25,120 kg at 90 days. The average daily gain of lambs ranged from 0.162 kg to 0.203 kg for females by periods and from 0.184 kg to 0.253 kg for male lambs. Female lambs had the highest gain in the period 30-70 days, and male lambs during the 70-90 days. The results indicate that the Copper-Red Shumen breed has good potential for the production of quality lamb meat.

Key words*: Copper-Red Shumen sheep breed, live weight, average daily gain, sex, type of birth.*

INVESTIGATING C.260G>A MUTATION IN THE GROWTH DIFFERENTIATION FACTOR 9 GENE IN BREZNIK, BLACK-HEADED PLEVEN AND BULGARIAN DAIRY SYNTHETIC POPULATION SHEEP BREEDS

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Abstract

Growth differentiation factor 9 (GDF9) contains multiple mutations related to the fecundity in sheep. In the present experiment was studied the genetic variation in exon 1 (G1) and investigating of mutation c.260G>A, related to litter size in three sheep breeds raised in Bulgaria (Breznik, Bulgarian Dairy Synthetic Population and Black-headed Pleven). A total of 99 ewes were genotyped trough PCR-RFLP method. Results proved polymorphism in all of the three breeds. The highest genetic diversity was calculated in the BDSP population (0.385), where all three possible genotypes GG, AG and AA were identified with frequencies of 0.54, 0.41 and 0.05, respectively. The other two breeds are local breeds and as expected the genetic variation in them was lower. Genotypes GG and AG were found with very closed frequencies in both breeds. The statistical analysis manifested that all tested population were consisted with Hardy-Weinberg equilibrium.

Key words*: fecundity, genetic diversity, polymorphism, GDF9.*

RESEARCHES REGARDING THE OPTIMIZATION OF THE MILK RECORDING IN ROMANIAN SPOTTED CATTLE BREED

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Abstract

This study aimed to determine the optimal number of records required to estimate the breeding value for milk production in Romanian Spotted cattle during the first and second lactations. Data from 9,235 test-day records (1,270 cows) for the first lactation and 9,984 records (1,409 cows) for the second were analyzed using the Best Linear Unbiased Prediction (BLUP) method in a Test-Day Random Regression model. Heritability estimates for milk yield, fat, and protein content ranged from 0.194 to 0.381 in the first lactation and 0.184 to 0.372 in the second. Although 10 test-day records were initially considered, results indicated that focusing on the first five intervals was sufficient, as they showed higher heritability. Reducing the number of test-day records to those with the highest genetic determination improves selection accuracy while lowering the costs of official milk performance recording. This streamlined approach enhances breeding efficiency, supporting genetic progress in Romanian Spotted Simmental cattle.

Key words*: BLUP, heritability, milk recording, regression model, Test-Day.*

RESEARCHES ON MODELING OF THE LACTATION CURVE IN ROMANIAN SPOTTED SIMMENTAL CATTLE BREED

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Abstract

Milk production in dairy cattle is influenced by multiple genetic and environmental factors, making precise lactation curve modeling essential for accurate milk yield estimation and genetic evaluation. In recent decades, numerous scientific studies have focused on improving these models to enhance the accuracy of milk production estimates for standard lactation. This study aims to identify the most suitable model for predicting breeding values using a limited number of test-day records at different lactation stages. Data from two lactations were analyzed. For the first lactation, 9235 test records from 1270 Romanian Spotted Simmental cows were examined, while the second lactation included 9984 test records from 1409 cows of the same breed. Production and pedigree data were modeled using three biometric functions: Legendre Orthogonal Polynomial, Natural Cubic Spline, and P-Spline Function. Among these, the P-Spline Function provided the most accurate results. These findings are particularly valuable in animal breeding, enabling more precise genetic evaluations and contributing to improved selection strategies for dairy cattle.

Key words*: genetic progress, heritability, optimization of genetic selection, P-Spline, Test-day model.*

GENETIC INSIGHTS GUIDE CONSERVATION OF LESSER KESTREL POPULATIONS IN BULGARIA

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Abstract

The genetic diversity and population structure of the Lesser Kestrel (Falco naumanni), a threatened migratory falcon, were assessed to inform conservation strategies under the LIFE project for the species' reinforcement in Bulgaria, by means of neutral microsatellite markers and non-neutral candidate gene markers associated with migratory behavior. The Core European populations (Spain, Italy, Greece) exhibit high genetic diversity and low differentiation, making them suitable sources for conservation translocations. In contrast, peripheral populations (e.g., Mongolia, Limnos Island) are genetically distinct and less suited for reinforcement due to potential risks of outbreeding depression. Non-neutral markers showed minimal genetic differentiation among populations, suggesting a lack of disruptive adaptive divergence within the species' range. These findings emphasize the importance of genetic similarity and diversity in translocation strategies and highlight the potential for maintaining adaptive potential while avoiding maladaptive outcomes. This integrated approach offers a framework for enhancing the genetic resilience and long-term stability of Lesser Kestrel populations in Bulgaria.

Key words*: conservation translocation, genetic diversity, genetic management, microsatellite markers, population structure.*

CHARACTERISTICS OF GENETIC AND PRODUCTIVE QUALITIES IN KARAKUL SHEEP

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Abstract

At a Karakul sheep farm was carried out the study of the genetic qualities of the lambs at birth and the productive indices of the whole flock. As a result of the controlled mating, lambs of different colors and shades were obtained, which were appreciated according to the bonitation instruction. The flock primarily consisted of lambs from elite and first-class rankings, with the majority having flat and ribbed types of lambskin curls. The lambs' pilosity is characterized by excellent density and with the intense gloss. The sheep from the breeding selection nucleus during the fall period inventories were characterized with a good body development intensity and the animals exceed the breed standard.

Key words*: body weight, curl type, density, gloss, ranking.*

ESTIMATION OF THE GENETIC PARAMETERS ON SPOTTED ROMANIAN CATTLE-SIMMENTAL TYPE, FOR PRODUCTION AND EXTERIOR TRAITS

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Abstract

Romanian Spotted cattle, a Simmental-type breed, play a significant role in Romania's livestock industry due to their dual-purpose nature, combining milk and beef production. Estimating genetic parameters such as heritability, genetic correlations and breeding values is critical for designing effective breeding programs. This review synthesizes findings from various studies on production traits (milk yield, fat, and protein content) and exterior traits (conformation, body measurements). The focus is on methods like Best Linear Unbiased Prediction (BLUP), Restricted Maximum Likelihood (REML) and genomic selection, highlighting their applications and comparative efficiency. The review identifies trends, challenges in genetic evaluations, and future directions for enhancing breed productivity and resilience, offering insights for sustainable breeding strategies that balance production and adaptability.

Key words*: genetic parameters, Romanian Spotted cattle, heritability, production traits, exterior traits.*

PARTIAL RESULTS REGARDING THE ESTIMATION OF THE GENETIC DETERMINISM OF THE ROMANIAN SPOTTED SIMMENTAL CATTLE FOR PRODUCTION CHARACTERS

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Abstract

This study investigates milk production traits in dairy cattle from Harghita County, emphasizing heritability and correlations among milk yield, fat content, and protein content. A dataset of 2,823 cows, including detailed pedigree, production records, and environmental factors, was analyzed to estimate genetic and phenotypic variability. Heritability values for milk yield (0.1), fat yield (0.09), and protein yield (0.102) reveal limited genetic influence, indicating that genetic progress will be gradual, requiring multiple generations for substantial improvement. Strong phenotypic and genotypic correlations between milk yield and its compositional traits were observed, supporting simultaneous trait enhancement through targeted breeding. Environmental correlations were relatively low, underscoring that genetic factors predominantly govern these traits, with minimal shared influence from environmental conditions. This study concludes that integrating selective breeding with superior management practices offers the best strategy for optimizing milk production. The findings align with previous research, reinforcing the importance of genetic selection as a long-term solution for sustainable productivity and enhanced quality in dairy farming systems. These insights contribute to designing effective breeding programs for improving milk yield, fat content, and protein yield in dairy cattle.

Key words*: milk production, heritability, genetic correlations, phenotypic variability, selective breeding.*

PRELIMINARY RESEARCH ON THE PHENOTYPIC CHARACTERIZATION OF THE TSURCANA BREED, FOR PRODUCTION AND TYPE TRAIT

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Abstract

The aim of the present paper is the phenotypic characterization of the varieties of the Țurcana sheep breed, for exterior and production characters, in order to answer the question of whether or not these herds represent different subpopulations of the same sheep breed. The study was conducted on a flock of 1165 Țurcana sheep breed, within the DACIA Association located in several farms in the country, structured on four varieties: Oacheșă, Belă, Breazăă, Bucălae, 7 exterior characters (height at withers, average width of chest, average length of rump, oblique length of trunk, chest depth, perimeter of the whistle) and 2 production characters (wool weight and average daily weight gain) were analysed. Simple population statistics (arithmetic mean, standard deviation, coefficient of variability) were used for phenotypic characterization. The results obtained on comparison pairs revealed, in most characters, very significant differences between the four varieties. To the extent that the experimental results will show that the four varieties are also significantly different from the genomic point of view, for the future the possibility of developing separate breeding programs for each variety will be considered.

Key words*: phenotypic characterization, type traits, production traits, variety, breeding program.*

EFFECT OF ABCG2 GENE POLYMORPHISM ON MILK PRODUCTIVITY IN AWASSI EWES

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Abstract

The ABCG2 gene is responsible for transporting many molecules across cell membranes and is expressed in various tissues, including the mammary gland. In this regard, the ABCG2 gene has been considered as a candidate gene related to the quantity, composition and quality of milk yield in sheep. The purpuse of present study was to establish the genetic diversity in this gene in connection with the study of possible dependencies of genotypes in ABCG2 with milk production in the ewes of the Awassi breed reared in Bulgaria. A highly polymorphic state of the ABCG2 gene was found, with the presence of two alleles - wild "+" and mutant "-" with frequencies of 0.49 and 0.51, respectively, and three genotypes - homozygous +/+ (0.31), heterozygous +/- (0.36) and homozygous -/- (0.33). Regarding milk productivity, no statistically significant differences were found between the different genotypes of the ABCG2 gene.

Key words*: Awassi sheep, ABCG2 gene, PCR-RFLP, genetic polymorphism, milk productivity.*

ESTIMATION THE GENETIC PARAMETERS FOR MILK YIELD AND WOOL IN TURCANA BREED

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Abstract

The objective of this study was to estimate the breeding values and genetic parameters for milk yield in population of Țurcana breed and wool yield with animal model for selection. Data for milk yield consisted of records of 315 sheep and for wool yield records of 431 young sheep aged one year from Dacia County Association of sheep breeders. The mean for milk yield in milking period from sheep was 59±0.816 kg. The mean for wool yield for young sheep was 3.95±0.03 kg. The studied population for milk yield of Turcana breed had two variety: Bălă, 228 ewes with records and Breaza, 87 ewes with records. For wool yield the young sheep were 271 from Bălă variety and 160 from Breaza variety. The breeding values for milk yield in milked period for sheep with records were between -3.56 and 5.55 and ranged between -5.65 and 5.55 in Turcana population. The breeding values for wool production ranged between -0.412 and 0.631. The heritability for milk yield in milking period for Țurcana population was 0.21. The heritability for wool production was 0.34.

Key words*: milk yield, wool production, sheep, animal model, genetic parameters.*

SESSION
NUTRITION

INFLUENCE OF CMP-3 PREPARATION ON THE QUAIL GROWTH AND DEVELOPMENT

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Abstract

The scientific paper presents the experimental results of the use of a biologically active complex microbial preparation (CMP-3) for the growth of quail chicks. The experiment lasted 30 days and was carried out on two groups of Phoenix quails. During the period of 1-30 days the quails in the control group consumed combined feed, and those in the experimental group - combined feed with the addition of the 0.5% complex microbial preparation. The adding of the complex microbial preparation in the daily ration of quails ensured the viability of chicks of 100% compared to 91% in the control group, a significant increase in the body mass of chicks by 13.46% compared to the control, achieving economic efficiency of 0.23 €/head.

Key words*: body mass, microbial preparation, quails, weight gain, viability.*

IMPACT OF STIMULATION DIETS DURING PRE AND POSTPARTUM PERIODS ON SHEEP LACTATION

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Abstract

The prepartum period (last 4-6 weeks of gestation) and the postpartum period (first 6-8 weeks after calving) are critical for the success of lactation. Sheep require adequate nutrition for optimal lamb development, preparation of the mammary glands for lactation, avoidance of metabolic problems (ketosis, hypocalcemia). A stimulation diet must provide: sufficient energy (through quality hay, organic cereals), good quality proteins (alfalfa, forage legumes, organic soybeans), essential vitamins and minerals (vitamin E, selenium, calcium, phosphorus). The aim of this study was to monitor the effect of administering a feed complex prepared in an organic dairy sheep farm and a supplement of organic concentrates and vitamin-mineral premix to determine the increase in production and quality of milk produced. Organically raised ewes fed with peripartum and postpartum stimulation diets achieved significantly higher milk production compared to ewes not receiving supplementary feed, the differences being highly statistically significant. The values of the physicochemical parameters analyzed in milk from ewes with supplementary feed indicated an improvement in milk quality, with an optimal milk composition (fat, protein, lactose, casein).

Key words*: concentrate supplements, dairy sheep, milk production, nutrition.*

ESTIMATES OF METHANE ENTERIC EMISSIONS FROM THE ROMANIAN DAIRY CATTLE SECTOR BETWEEN 2015-2024

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Abstract

The aim of this paper was to estimate methane emissions resulted from the enteric fermentation of dairy cattle, between 2015 and 2024 in Romania. The number of dairy cattle used in this paper was reported by the National Institute of Statistics, with enteric emissions being estimated using Tier 1 and Tier 2 methodologies provided by the International Panel on Climate Change Guidelines (IPCC, 2006) and expressed as Gg CH_4 yr^{-1} and t CO_2-eq. The gross energy intake (GE), digestible energy (DE), and methane conversion factor (Y_m) values for Tier 2, were calculated according to national reference values. Total methane emissions estimated for dairy cattle, decreased from 2.972.264 t CO_2-eq/year to 2.672.010 t CO_2-eq/year for Tier 1 and from 2.745.591 t CO_2-eq/year to 2.468.235 t CO_2-eq/year for Tier 2, from 2015 to 2024. The decrease in methane emissions was attributed to the decrease of dairy cattle numbers. The results can provide information on the status quo of the dairy industry, when the environmental footprint is concerned, as well as benchmark information in order to develop appropriate future strategies to reduce carbon footprint of the cattle sector.

Key words*: dairy cattle, methane emissions, enteric fermentation.*

EFFECT OF DIETARY INCLUSION OF QUINOA SEED ON PRODUCTIVITY, EGG QUALITY AND INTERNAL ORGAN TRAITS IN QUAILS

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Abstract

This study examined the effects of dietary quinoa seed (Chenopodium quinoa Willd.) supplementation on production performance, egg quality and internal organ traits in Japanese quails (Coturnix coturnix japonica). A total of 90 six-week-old quails were randomly divided into three groups: a control group and two treatment groups receiving diets supplemented with 5% and 10% quinoa seeds, respectively. Over a 8-week trial, key performance indicators were evaluated, including egg weight, feed conversion ratio, internal organ development, and egg quality traits. Results indicated that 5% quinoa inclusion significantly improved egg weight, feed conversion ratio, and small intestine development ($P<0.05$). Additionally, both quinoa-supplemented groups showed enhanced yolk pigmentation, with increased yellowness (b) and lightness (L), but a decrease in yolk index. No adverse effects were observed on overall egg production, feed intake, or internal organ weights ($P>0.05$). These findings suggest that quinoa, particularly at 5% inclusion, is a valuable feed additive for enhancing quail productivity and egg quality without compromising health or performance, supporting its use as a functional and sustainable alternative ingredient in poultry nutrition.

Key words*: quinoa seed, production performance, egg quality traits, Japanese quails.*

EFFECT OF MICROCAPSULES OF NONI FRUIT EXTRACT ON ANTIOXIDANT LEVELS OF LAYER PHASE SENTUL CHICKEN

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Abstract

This study aims to determine the effect of the addition of microcapsules of noni fruit extract (Morinda citrifolia L.) on antioxidant levels in Sentul chickens in the layer phase. A total of 40 female Sentul chickens aged 24 weeks were divided into five feed treatments with various levels of noni extract microcapsules: Control (T0), 50 mg/kg Zinc bacitracin (T1), 75 mg/kg MEBM (T2), 150 mg/kg MEBM (T3), and 225 mg/kg MEBM (T4). The results showed that MEBM treatment significantly increased the levels of GR (Glutathione Reductase) and SD (Superoxide Dismutase). This study concluded that the use of microcapsules of noni fruit extract in Sentul chicken feed can increase antioxidant levels in the body of livestock so as to improve livestock health.

Key words*: Sentul chicken, microcapsules, noni fruit extract, blood biochemistry.*

MICROBIOLOGICAL SAFETY ASSESSMENT OF SOME RAW MATERIALS USED IN COMPOUND FEED PRODUCTION

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Abstract

The aim of this study was to microbiologically asses some raw materials (maize and wheat) from a representative feed mill in Romania, in two consecutive years, both for the raw materials received and for those in the unit's stock; the microbiological contaminants that were analyzed were yeasts and molds. Regarding the maize samples taken upon receipt in first year, it was found that 90.9% had positive results, with an average value of 2600.8 cfu/g; in second year the proportion of positive samples was 84.3%, with an average value of 2132.5 cfu/g. Of the total wheat samples taken in first year upon reception, 89.1% were positive, with an average value of 2554.8 cfu/g; in second year the proportion of positive samples increased, reaching 93.3%, with an average value of 2171.4 cfu/g. The application of all measures capable of preventing contamination prevented the contaminated batches from entering the production process, while avoiding the possibility of contamination of other batches of raw materials and finished products (compound feed).

Key words*: food safety, feed safety, yeasts and molds.*

SUSTAINABLE NUTRITIONAL SOLUTIONS FOR ANIMAL PRODUCTION: OPTIMISING NUTRITION TO REDUCE POLLUTION

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Abstract

The contribution of animal production to environmental pollution is a pressing global issue. This study aims to evaluate the chemical composition of selected feeds and explore the relationship between feed composition and pollutant emissions generated by animals. Chemical analyses of 10 feed samples assessed parameters such as protein, cellulose, fat, and nitrogen-free extractive contents. The goal was to identify some connection with pollutant emissions and propose nutritional strategies to reduce emissions, improve nutrient utilisation, and promote the sustainable management of animal resources. The results revealed potential links between feed composition and different emissions from animals with considerable environmental impact. High-protein feeds were associated with elevated nitrogen residues, while feeds with greater digestibility showed potential for reduced pollutant emissions. Future efforts should focus on adjusting feed composition and integrating optimised feed formulations to support a sustainable approach to animal nutrition, and reducing pollution from livestock production systems, benefiting both the environment and public health.

Key words*: pollution, environment, livestock, feed composition.*

CANINE OBESITY: A CASE STUDY OF ROTTWEILERS AND THE IMPACT OF DIETARY MODIFICATION

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Abstract

Obesity is a disease that is increasingly recognised as a threat to pets, and organisations have been formed to raise awareness and prevent weight gain in dogs and cats. One of the breeds most affected by obesity is the Rottweiler, with studies confirming that obesity is the second most common disease in this breed. In the current study, a group of eight female Rottweilers from northern Romania were examined medically and nutritionally. The monitored females of the Rottweiler breed were divided into two categories according to the modification of the nutritional plan; therefore, for the first group of four females, both the type of food and the amount of food given were modified, and for the second group of females, the type of food was maintained, but the amount of food given daily was reduced. The study highlights that both reducing daily calorie intake and the use of specialized foods can be effective solutions for managing excess weight.

Key words*: obesity, Rottweiler, female, food, nutrition, dogs.*

RED PEPPER: NUTRITIONAL VALUE, CAROTENOIDS, ANTIOXIDANT CAPACITY, AND ITS USE IN BROILER DIET

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Abstract

Red pepper is a widely consumed vegetable, renowned for its impressive nutritional profile and significant health benefits, especially for its high content of vitamins and antioxidants. With a rich content of vitamin and essential carotenoid, red pepper plays a vital role in supporting immune function, improving iron absorption, and maintaining skin and eye health. The abundant carotenoid content of red peppers, which includes compounds such as capsanthin and capsorubin and gives the vegetables their characteristic red colour, significantly contributes to their antioxidant capacity. By effectively combating free radicals, these carotenoids lower the oxidative stress and inflammatory variables linked to the onset of chronic illnesses. Although there are many health benefits linked to consumption, there are still debates over their magnitude and the ways in which they work. Ongoing research continues to explore the bioavailability of carotenoids and their potential interactions with other dietary components, as well as the optimal ways to incorporate red pepper into various diets, both for its nutritional benefits and especially for improving the colour of meat in broiler.

Key words*: red pepper, antioxidants, capsanthin, carotenoids.*

INSECTS AND ALGAE AS ALTERNATIVE PROTEIN SOURCES IN BROILER CHICKEN FEED: AN ANALYSIS OF THEIR IMPACT ON MEAT QUALITY

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Abstract

Poultry meat is one of the most accessible and popular sources of protein globally, projected to account for 41% of meat consumption by 2030. To meet the increasing demand for animal protein, more feed cereals are needed, putting pressure on agricultural resources and the environment. The poultry sector must explore sustainable alternatives for broiler feed. One solution is the use of alternative protein sources, such as insects and algae, which offer significant advantages in terms of efficiency and sustainability. This review examines the integration of these protein sources into broiler diets, evaluating their effectiveness and sustainability. The studies reviewed show that combining insects and algae can have a synergistic effect, improving feed conversion efficiency and enhancing the nutritional profile of the meat. In conclusion, adopting innovative and sustainable strategies in animal feed production is essential to meet growing global demand for chicken meat and reduce environmental impact. This review emphasizes the potential of alternative protein sources in improving the sustainability and efficiency of poultry production.

Key words*: poultry meat, alternative protein sources, insects, algae, meat quality.*

THE BENEFITS OF NATURAL ANTIOXIDANTS ADMINISTRATION IN BROILER CHICKEN GROWTH – A BIBLIOMETRIC ANALYSIS

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Abstract

Facilitating the transition from current production and consumption models to circular ones represents one of the global challenges that the agri-food sector must face. The application of bioeconomy principles in animal husbandry can bring real benefits both at the agricultural producer level and in terms of the environment. Several categories of agriculture by-products have a high potential for their use in animal feed, providing a high supply of antioxidants, which has an positive impact on safety and security issues. Vegetal waste utilization in natural antioxidants production is a solution for producers in order to satisfy the preferences of meat consumers as well as the trends that have occurred among them, but it will also bring positive contribution related to the environment resource preservation. In this context, many studies, both at national and global level, where published în the scientific literature field related to the use of natural antioxidants benefits, at the livestock farm management. This paper aims to present from a bibliometric perspective the main outcomes of the previous studies, offering a qualitative analysis related to the most relevant works.

Key words*: Circular Economy Plan, natural antioxidants, livestock farm, broiler chicken.*

A REVIEW: EXPLORING STRUCTURED FATS, MICROENCAPSULATED OILS, AND FUNCTIONAL OILS: ADVANCING SUSTAINABLE INNOVATIONS IN FOOD PRODUCT OPTIMIZATION

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Abstract

In the context of increasingly stringent consumer demands for quality, sustainability, and nutritional benefits of food, dietary fats and oils have become a major area of interest for research and innovation. This review explores three key directions in their utilization in food implementation. Structured fats represent an emerging category of lipids obtained through chemical or enzymatic modifications, providing customized functionalities. They are used to replace "trans" fats and to reduce caloric content, contributing to development of more sustainable food products. Microencapsulated oils might have significant benefits in food preservation by protecting active compounds from oxidation and degradation while ensuring controlled release of bioactive compounds. These technologies are successfully applied, extending shelf life and improving food safety. Additionally, functional oils, fortified with natural antioxidants or vitamins, have become a cornerstone of the functional food industry. They contribute to reducing the risk of chronic diseases and improving overall health. This review highlights the potential of structured fats, microencapsulated oils, and functional oils in optimizing novel food products, while emphasizing the need for further research to integrate in sustainable and efficient strategies.

Key words*: structured fats, microencapsulation, functional oils, food preservation, antioxidant fortification.*

RESEARCH STUDIES ON MORPHO-PRODUCTIVE PERFORMANCES OF SILKWORMS *Bombyx mori* L. ALB ORSOVA 33 USING *Rhodotorula glutinis* SUPPLEMENT

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Abstract

The study aimed to evaluate the morpho-productive parameters of Alb Orsova-33 Bombyx mori monovoltine line as effects of using R. glutinis yeast supplementation to mulberry leaves during the 5th instar. There were used 300 larvae randomly grouped in: 1) C group fed mulberry leaves; 2) T1 fed C diet and yeast (1x107); 3) T2 fed C and yeast (1x109). The morpho-productive parameters were determined at 1st, 5th, 7th, 9th days, and silk gland weight at 5th,7th,9th days. Results shown that at 9th days (D9) of the trial, the T2 fed group larvae had higher length (>7.87%, P=0.001), body weight (>10.57%, P<0.05), and average daily gain (>13.91%, P=0.03) than the C group. Silk gland had significant increase in D9, T2 group compared with C had a growth of 1.37%. R. glutinis had no impact over the cocoon characteristics. The increase of the silk shell was 2.3% at T2 compared with C (P>0.05). R. glutinis has the potential to influence beneficially specific traits of the Alb Orsova-33 silkworm line.

Key words*: cocoon, larvae traits, mulberry leaves, R. glutinis, silk gland.*

MEALWORM (*Tenebrio molitor*) AS A PROTEIN SOURCE: EFFECTS ON GROWTH PERFORMANCE, CARCASS TRAITS AND NITROGEN EXCRETION IN QUAILS

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Abstract

This study aimed to assess the impact of substituting soybean meal with mealworm (Tenebrio molitor L.) as the primary protein source in compound feeds on growth performance, carcass traits, nutrient digestibility and nitrogen excretion in Japanese quails. A total of 120 one-day-old quails were assigned to four groups, each with 10 replications, and the experiment lasted 35 days. The control group was fed a 34% soybean meal-based diet, while the experimental groups had 1.4% soybean meal replaced with 2.8% or 5.6% mealworm meal. Lowest body weight gain and feed consumption occurred in the 1.4% mealworm group ($P<0.05$), with mealworm content displaying a cubic effect. The 5.6% mealworm group exhibited significantly improved feed efficiency ($P<0.05$). Furthermore, mealworm supplementation significantly increased the digestibility of dry matter, crude ash, and metabolizable energy ($P<0.001$). Moreover, fecal nitrogen excretion and nitrogen retention rates increased linearly with mealworm supplementation ($P<0.001$). In conclusion, Mealworm can replace 5.6% soybean meal in quail diets, improving growth and protein use as a sustainable alternative.

Key words*: mealworm (Tenebrio molitor L.), growth performance, digestibility, nitrogen excretion, broiler quails.*

EFFECTS OF BORIC ACID AND BORAX PENTAHYDRATE ON PERFORMANCE, EGG QUALITY TRAITS AND BONE MINERALIZATION IN LAYING HENS

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Abstract

This study evaluated the effects of dietary supplementation with boric acid and borax pentahydrate at two levels (50 and 100 mg/kg) on production performance, egg quality traits, and bone mineralization in laying hens. A total of 315 Atak-S hens were randomly assigned to five groups: a control group and four treatment groups. The inclusion of 100 mg/kg borax pentahydrate in the diet significantly improved egg production, reduced feed intake, and resulted in the most efficient feed conversion ratio ($P < 0.05$). Moreover, boron supplementation significantly increased eggshell thickness, particularly in the borax pentahydrate group ($P < 0.05$), while internal egg quality parameters (Haugh unit and albumen index) remained unaffected ($P > 0.05$). A slight reduction in yolk redness was observed at higher boron levels. However, dietary boron supplementation had no significant effect on bone mineralization parameters ($P > 0.05$). Overall, the findings suggest that dietary boron, especially in the form of borax pentahydrate, can enhance productivity and eggshell quality in laying hens without negatively affecting internal egg characteristics.

Key words*: boric acid, borax pentahydrate, productive performance, egg quality traits, laying hens.*

ENCAPSULATED ESSENTIAL OILS AND THEIR EFFECTS ON GROWTH PERFORMANCE, GUT HEALTH, AND MICROBIOTA IN JAPANESE QUAILS

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Abstract

This study examined the effects of dietary supplementation with encapsulated fennel and oregano essential oils on growth performance, intestinal morphology, and bacterial populations in broiler Japanese quails. A total of 160 one-day-old quails were divided into four groups: a control group and three experimental groups receiving 250 mg/kg of fennel essential oil, oregano essential oil, or their mixture. While body weight gain showed no significant differences ($P>0.05$), oregano essential oil reduced feed intake and improved feed conversion ratio ($P<0.05$). In female quails, oregano supplementation increased Lactobacillus spp. counts ($P<0.05$), but no significant bacterial changes were observed in males ($P>0.05$). Fennel essential oil improved duodenal villus height, width, area, and villus height/crypt depth ratio ($P<0.05$), whereas the fennel-oregano mixture reduced villus dimensions in the jejunum and ileum ($P<0.05$). Oregano essential oil increased ileal villus height and area ($P<0.05$). These findings suggest that fennel and oregano essential oils are more effective individually than in combination, and further research should explore different levels and combinations with other phytogenics.

Key words*: encapsulated fennel essential oil, encapsulated oregano essential oil, gut health, microbiota, quails.*

RESEARCH REGARDING THE EFFECTS OF REPLACING SUNFLOWER MEAL WITH FLAXSEED CAKE IN DAIRY COW DIETS ON THE PRODUCTION AND CHEMICAL COMPOSITION OF MILK

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Abstract

This study investigates the effects of substituting 30%, 60% and 100% sunflower meal concentrate mixture with flaxseed meal on milk production and chemical composition, with special emphasis on lipid profile and fatty acid content. The research was conducted over a 30-day period on a herd of 28 Romanian Black Spotted dairy cows, divided into four groups (one control group and three experimental groups). Milk samples were analyzed in an accredited laboratory to determine dry matter, protein, lipid and fatty acid content. The results showed that flaxseed meal supplementation did not negatively affect total lipid or saturated fatty acid content, but significantly increased omega-3 fatty acids and reduced trans and omega-6 fatty acids, thus improving the nutritional quality of the milk. These findings support existing research and highlight the potential of flaxseed cake as a functional ingredient that enhances milk quality for health-conscious consumers. The study opens important perspectives for integrating this nutritional strategy into modern dairy cow farming practices.

Key words*: dairy cows, flaxseed cake, fatty acids, milk, nutrition, sunflower meal.*

ADVANCES IN THE USE OF PROBIOTICS IN OILSEED CAKE-BASED SWINE DIETS: A COMPREHENSIVE REVIEW

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Abstract

Using probiotics with oilseed cakes offers a promising approach to enhancing swine diets. Four cold-pressed oilseed cakes - flaxseed, pumpkin, hempseed, and camelina seed - are recognized for their high protein and lipid content, balanced amino acid profiles, and essential fatty acids. Despite these advantages, antinutritive factors limit their use in pig diets by affecting feed intake and nutrient utilization. Probiotics, such as Bacillus species and lactic acid bacteria, present a viable solution to improving the nutritional value of these cakes, reducing antinutritive effects, and promoting growth and productivity. The use of probiotic-enriched oilseed cakes in swine feeding systems can enhance nutrient digestibility, growth performance, gut health, and product quality, contributing to more sustainable and efficient animal production practices. This review offers a comprehensive overview of the current applications of probiotics in swine nutrition, with a specific focus on their integration into oilseed cake-based diets.

Key words*: probiotic, oilseed cakes, swine, benefits.*

SESSION REPRODUCTION, PHYSIOLOGY, ANATOMY

MODIFICATIONS OF SUPEROXIDE DISMUTASE, CATALASE AND ISOFERMENTATIVE FORMS UNDER THE INFLUENCE OF POLYPHENOLS EXTRACTED FROM DANDELION (*Taraxacum officinale*)

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Abstract

As a result of the vital activity of living organisms through the metabolism of energy substances, the formation and accumulation of reactive oxygen species (ROS) occurs, regardless of the state of bio-objects, that is, with the physiological or pathological course of these metabolic processes. At the same time, living organisms have formed antioxidant protection systems against these invasive and toxic substances. Given that these toxic substances influence negatively on endocellular, exocellular metabolic processes and in general the body`s tissues, they can cause various pathological conditions and disturbances in the stable functioning of the body. In this paper are analyzed some researches on the enzymatic activity of superoxide dismutase, isofermentative forms of this and catalase. Superoxide dismutases (SOD) possess the ability to convert superoxide into hydrogen peroxide, which is then removed by catalase. Analyzing the obtained results of these researches about the role of these enzymes from the first line of antioxidant protection we will obtain information that will demonstrate their activity under the influence of dandelion polyphenols.

Key words*: catalase, enzymes, oxidative stress, reactive oxygen species, superoxide dismutase.*

THE INFLUENCE OF A COMPLEX BIOLOGICALLY ACTIVE PREPARATION ON THE PRESERVATION OF THE REPRODUCTIVE POTENTIAL OF THE SPERM OF STUD RAMS AFTER CRYOPRESERVATION

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Abstract

In sheep farming, the adoption of reproductive technologies remains at a low level. One of the key challenges is the reduced efficiency of using frozen semen from stud rams. This is due to the fact that cryopreservation and subsequent thawing processes result in significant cell losses and structural damage, which greatly affect the quality of the material. To develop a method for long-term storage and preservation of the biological value of spermatozoa during the process of dilution, freezing and thawing of ram sperm, a liquid biologically active microbial preparation (MPSP) containing yeast manoprotein and sulfated cyanobacterial polysaccharides with antioxidant action, introduced into the composition of the synthetic sucrose-citrate-egg yolk (SȚJ) medium in different concentrations, was tested. It was found that the introduction of the drug MPSP into the SȚJ 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.

Key words*: cryopreservation, diluents, motility, ram, sperm.*

CHANGES OF THE GLUTATHIONE CONTENT IN THE BLOOD SERUM OF ROOSTERS UNDER THE INFLUENCE OF POLYPHENOLS EXTRACTED FROM NETTLE (*Urtica dioica*)

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Abstract

Oxidative stress has long been implicated in the development and progress of various disorders of living organisms. Glutathione is a natural antioxidant that possesses a major regenerative and detoxifying potential. Glutathione synthesis occurs continuously in almost all cells to maintain redox balance. Ensuring an adequate level of glutathione is vitally important, therefore the role of the glutathione system in maintaining the antioxidant status of the organism is essential. Normally, the formation of free radicals and underoxidized metabolic products occurs continuously during the body`s biochemical reactions. The balance is maintained by antioxidant enzymes that can neutralize molecules with a high oxidative potential. Glutathione is a unique peptide found in the cells of all eukaryotes. This compound plays a leading role in cellular metabolism, actively maintains the redox potential, regulates the detoxification processes of xenobiotics of endo- and exogenous origin, both directly and as a substrate for a number of enzymes. This paper is an analysis of the results obtained from the administration of polyphenols from nettle and their influence on zinc metabolism.

Key words*: glutathione, nutrition, oxidation, polyphenols.*

REPRODUCTIVE PERFORMANCE AND INTENSITY OF USE OF PRODUCTIVE POTENTIAL IN COWS

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Abstract

The reproductive performances (SP - service period, CI - calving interval, Insemination index, percentage of fertilization at first insemination) and the intensity of use of milk production potential of Holstein breed (HL) cow population were studied. Change of level of milk productivity cows in the direction of increase or decrease of 1000 kg leads accordingly to decrease or increase the indicators of reproductive function. The reproductive performance indicators of cows in herds with milk productivity from 4000 to ≥ 8000 (SRL "Holstein") and from 6000 to ≥10000 kg and more (SRL "Doksancom") revealed two peaks in productivity levels - from 5000 kg milk and from 8000 kg milk. Increasing the service period contributes to increasing the milk yield per normal lactation, but this is not rational because it decreases the average amount of milk per head/day by about 8.1–19.2%, depending on the level of productivity.

Key words*: Holstein breed cows, milk productivity, reproductive performances, use of productive potential.*

PREANESTHETIC GUIDELINES IN SHEEP: ENSURING WELFARE AND SAFETY IN EXPERIMENTAL RESEARCH

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Abstract

The aim of this study was to identify the important preanesthetic factors that could improve anesthesia management in research sheep, focusing on reducing critical complications like regurgitation and aspiration of ruminal contents during general anesthesia, which can lead to serious respiratory risks and potential fatality. Our study was conducted on a group of 13 sheep (Ovis aries), 2-4 years old, selected for different surgical procedures, during September 2022-June 2024 at the Faculty of Veterinary Medicine of Bucharest. For the entire group the protocol involved a 24-hour fasting period, allowing water access until the premedication stage to ensure hydration. A comprehensive clinical evaluation was performed to identify any underlying health issues, and sedatives, along with prokinetic agents, were administered to reduce stress and encourage gastric emptying. Continuous monitoring of vital signs and behavior ensures the stability of the animals during surgical procedures. By following the comprehensive 7-step preanesthetic guidelines, the risk of regurgitation and aspiration, along with other risks can be significantly reduced, thereby improving sheep welfare and safety during general anesthesia.

Key words*: guidelines, preanesthesia, research, sheep.*

ANESTHESIA IN SHEEP: MAINTAINING ETHICAL STANDARDS IN EXPERIMENTAL RESEARCH

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Abstract

Sheep (Ovis aries) are frequently used as experimental models in various fields of biomedical research, necessitating the development of ethical and effective anesthetic protocols. This paper aims to review and evaluate current anesthetic protocols for sheep, focusing on their application in experimental research settings. Emphasis is placed on the importance of ethical treatment, including minimizing pain, distress, and physiological stress while maintaining adequate anesthesia levels for surgical procedures. Several approaches are discussed, including preanesthetic preparation, drug combinations, and monitoring techniques. Special attention is given to the balance between ensuring animal welfare and achieving scientific validity. This review also addresses key considerations for specific protocols, particularly those involving sheep, offering insights into sedation, induction, and maintenance strategies that reduce the risks of complications such as regurgitation and aspiration. The goal is to guide researchers in adopting practices that align with ethical standards and experimental objectives, ultimately enhancing the quality and reproducibility of research outcomes.

Key words*: anesthesia, ethical, research, sheep.*

MORPHOLOGICAL PARAMETERS OF EGGS, PRODUCTIVITY AND SURVIVABILITY OF DOMINANT BLACK AND DOMINANT BLUE CROSS HENS IN THE FIRST PHASE OF EGG-LAYING

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Abstract

It is believed that hens of the Dominant Black and Dominant Blue crosses are highly productive layers, resistant to various conditions. We investigated morphological indicators of eggs, productivity and survivability of Dominant Black and Dominant Blue chickens in the first phase of egg laying. Hens of both crosses laid large two-yolk eggs at the start of egg laying. Meteosensitivity was observed in the majority of hens to sharp temperature changes that lead to decrease in egg production and/or the quality of the eggshell texture. The Dominant Black cross-breed chickens tolerated hyperthermia more easily than Dominant Blue. At the same time, they laid eggs of significantly less weight than at a comfortable temperature, and asymmetric eggs with destructive defects of the shell. The weight of Dominant Blue hens' eggs was almost independent of weather fluctuations, but their shells often had slight non-destructive defects. Eggs productivity was high in both crosses. The quantity of large eggs was higher in Dominant Black hens. Survivability of chickens Dominant Blue – 100%, Dominant Black – 97.5%.

Key words*: Dominant Black, Dominant Blue, egg production, meteosensitivity, morphological parameters of eggs, survivability.*

EVALUATION OF THE ELASTIC COMPONENT IN THE ADVENTITIA OF THE DESCENDING ABDOMINAL AORTA AND ITS COLLATERALS IN THE GOAT (*Capra hircus*)

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Abstract

Fragments of the descending abdominal aorta and its main branches were collected from eight goats that died following accidents, for histological investigations. Verhoeff staining was used, which specifically highlights the elastic components. It was found that all the arteries taken in the study contain well-represented elastic tissue at the level of the adventitia, the least in the descending abdominal aorta and the renal artery, and the most in the external iliac arteries. We believe that these fibroelastic adventitia constitute an elastic sleeve that provides resistance and elasticity to the arteries to cope with the external demands given by the amplitude of the volume changes undergone by the organs in the abdominal cavity, which train and the vessels that serve them. They appeared as adaptive structures mainly due to the presence of prestomachs which undergo extensive and frequent changes during digestion processes.

Key words*: adventitia, arteries, Capra hircus*, *elastic tissue.*

GROWTH DYNAMICS AND SKIN-FUR COVER OF GALLOWAY AND ABERDEEN ANGUS CATTLE FREE-RANGED IN THE REGION OF THE TOWN OF TROYAN

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Abstract

Data are presented on the dynamics and distribution of cattle's skin-fiber cover of two groups of Galloway and Aberdeen Angus heifers, free-ranging beef breeds in the region of Troyan, Central Balkan Mountains. The measurements of the skin thickness in the neck region, at the top of the elbow joint and at the middle of the last rib were recorded during two seasons of the year in (mm), and the weight, structure and percentage of different categories of fur fiber cover - aspen, transitional and down in (g) were also determined. Skin thickness measurements were made using a caliper (caliper) during the summer and winter seasons. The weight of the fur per 1 cm² of fur fibercover was analyzed using an analytical balance and the length of the fur fiber with a ruler in (cm). We determined the structure of the cattle's skin-fiber cover by % ratio fur fiber cover. During the winter period, the studied cattle significantly increased the thickness of the skin, the length and thickness of the fur fiber coat and the amount of down fluffy fiber coat. The animals have adapted well to the technology of rearing in the temperate - continental, mountainous climate of the region of the town of Troyan.

Key words: *adaptation, heifers, growth, skin, technology.*

CHALLENGES AND OPPORTUNITIES IN THE APPLICATION OF ARTIFICIAL INSEMINATION IN SHEEP BREEDING

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Abstract

The use of artificial insemination (AI) in sheep breeding poses both considerable obstacles and exciting prospects. This research delves into the complexities of artificial insemination, focussing on factors influencing fertility rates, semen handling techniques, and the effect of hormone treatments on reproductive success. Several studies reveal that the success of AI is dependent on ideal sperm quality, which can be negatively impacted by cryopreservation procedures; for example, the concentration of sperm upon freezing has been found to influence post-thaw quality and subsequent reproductive outcomes in sheep. Furthermore, the method of insemination used - whether cervical or laparoscopic - is important, with laparoscopic techniques frequently providing greater pregnancy rates due to their ability to avoid anatomical challenges presented by the ewe's cervix. Furthermore, synchronising oestrus with hormonal therapies, such as oxytocin or equine chorionic gonadotropin (eCG), has been found as a critical element in improving the timing and efficiency of AI. However, the unpredictability in conception rates is still a problem, with reported statistics ranging from 20% to 70% depending on the procedures used and the settings under which AI is conducted. Environmental influences, such as temperature and stress, impair reproductive results, especially in the vital early phases of embryo development. The aim of this review is to summarise current research in order to identify best practices and new opportunities for improving the efficacy of AI in sheep breeding.

Key words*: artificial insemination, fertility rates, sheep breeding.*

THE INFLUENCE OF POLYPHENOL EXTRACT FROM NETTLE (*Urtica dioica*) ON THE ZINC CONCENTRATION IN THE BLOOD SERUM OF ROOSTERS

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Abstract

Zinc, being a trace element necessary for vital activity, is indispensable for the survival of living organisms. This element is of major importance in animal nutrition, but it also contributes to the metabolic activity of over 200 enzymes of living organisms, cell division and synthesis of DNA, proteins, tissue growth and development, immune system functioning, bone mineralization, blood coagulation, carrying out spermatogenesis, etc. Through its biological properties, it stimulates digestion, assimilation and has an important role in the activity of the reproductive organs and the metabolism of the digestive tract. It is found that zinc can exert a protective effect against testicular damage and plays an essential role in maintaining reproductive functions. Feed is the main source of zinc for animals, only a small part can be obtained from drinking water. Foods differ in their content of zinc. The daily ration is dependent on gender, age and the general state of the body`s health. Based on these considerations, this study was dedicated to the research of the quantitative changes of this element under the influence of polyphenols from nettle.

Key words*: food ration, microelements, metabolism, zinc.*

ANALYSIS OF COLOSTRUM AND MILK FROM CROSSBRED GOATS – PHYSICOCHEMICAL PROFILE

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Abstract

This study examines the changes in the physicochemical composition of goat colostrum during the first five days postpartum, as well as the composition of goat milk on the 40th day of lactation. A total of 69 colostrum samples and 16 milk samples were analyzed, collected according to a schedule from 16 crossbred goats (Murciana Granadina × Bulgarian White Dairy - MG×BWD). The fat content decreased significantly from 7.13% on the first day to 4.74% on the fifth day and remained relatively stable (4.57%) up to the 40th day. The solid-non-fat content also declined, from 13.08% to 8.51%, with a notable drop during the first five days. Protein content decreased from 8.26% to 3%, and the salts also showed a significant reduction. The total solids decreased from 20.22% on the first day to 13.33% on the 40th day, reflecting an overall decline in other components. The freezing point rose (-0.796°C to -0.528°C), correlating with the reduced concentration of soluble substances. These changes indicate the gradual transformation of colostrum in to milk.

Key words*: colostrum, dairy goats, milk, physicochemical parameters.*

ADVANCING SHEEP REPRODUCTION: THE SCIENCE AND PRACTICE OF LAMBING INTENSIFICATION

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Abstract

The physiological basis for lambing intensification is rooted in the reproductive physiology of ewes, which governs lambing intervals and is influenced by factors such as photoperiod and seasonal breeding patterns. Strategies for intensification include the implementation of accelerated lambing systems, which utilize hormonal treatments and photoperiod manipulation to achieve three lambings within two years. Genetic selection for prolific breeds, such as Finnsheep and Romanov, is emphasized as a critical component of breeding programs aimed at enhancing lamb output. Nutritional management strategies, including flushing and balanced diets during gestation and lactation are also discussed as vital for improving reproductive efficiency. Furthermore, the application of reproductive technologies such as artificial insemination, embryo transfer, and oestrus synchronization techniques is highlighted to achieve tighter lambing windows and increased reproductive rates. Despite the potential benefits of lambing intensification, several challenges and limitations must be addressed. Health and welfare concerns arise from the increased metabolic demands placed on ewes, leading to risks of reproductive exhaustion and poor maternal care. Additionally, the management of diseases associated with higher lambing frequencies, such as mastitis, is critical. Economic constraints, including increased labour demands and costs associated with feed and veterinary care, pose further challenges to the adoption of intensive systems. In conclusion, this paper aims to elucidate the intricate interplay between physiological mechanisms, management strategies, and the challenges faced in advancing lambing intensification, ultimately contributing to the sustainability and productivity of sheep farming systems.

Key words*: ewe management, prolificacy traits, reproductive physiology.*

STUDY OF DIFFERENT PARAMETERS OF THE MICROCLIMATE OF DAIRY COWS FREE-RANGE INDOOR IN THE TOWN OF TROYAN

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Abstract

The study investigated 16 microclimatic parameters in a steel-concrete building for rearing Simmental dairy cattle in the Troyan region. The analyses were carried out with an electronic device "Air Environment Analyzer", electronic environment patent №. 127047, of the Cherkassy Experimental Station of Bioresources of the National Academy of Agrarian Sciences of Ukraine. Measurements were made in the following seasons: spring, summer and winter. Air exchange and heat balance of the building were evaluated. Rectal and body temperature, pulse and respiratory rate of 10 lactating Simmental cows were measured. The comfort indices were monitored and recorded according to Grant, 2009 and the relationship between the studied parameters and the milk production of the animals was analysed.

Key words*: microclimate, comfort index, air exchange, temperature, humidity.*

PERFORMANCE EVALUATION OF 3-PART MULTISPECIES HEMATOLOGY ANALYZERS FOR WHITE BLOOD CELL COUNTING IN SHEEP

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Abstract

This study aimed to assess the accuracy and precision of 3-part multispecies hematology analyzers for white blood cell (WBC) counting in comparison to manual quantification in apparently healthy Sipli sheep (n=60). Blood samples were collected once and analyzed using a hemocytometer with two different dilutions (1:20 and 1:40), referred to as WBC-1 and WBC-2, respectively. Automated WBC counting was performed using two multispecies veterinary hematology analyzers, WBC-R and WBC-B. The mean (± SE) values and reference intervals (RIs) for overall and group-wise data showed that only WBC-R fell within the physiological range for sheep, whereas WBC-1, WBC-2, and WBC-B reported lower values. A weak agreement was observed between the two multispecies analyzers, with a mean bias of -30.97 (upper limit: -14.56, lower limit: -46.77) and a standard deviation of bias of 8.37. The intraclass correlation coefficient (ICC) was also low (0.619), indicating poor consistency. Additionally, Lin's concordance correlation coefficient (LCCC) measured accuracy at 0.086, while precision was determined to be 0.603. In summary, hemocytometer-based manual WBC counting in sheep may lack accuracy. Among the tested analyzers, Rayto RT-7600Vet (China) produced WBC counts closest to the physiological range, making it a more suitable option for clinical use. It is concluded that 3-part hematology analyzers with predefined settings for sheep require calibration with separate set of RIs to ensure accurate analysis of sheep blood.

Key words*: hematological validations, multispecies hematology analyzers, point-of-care-tests.*

INFLUENCE OF PARITY, DAYS POST-CALVING AND MILKING SEQUENCES ON THE FATTY ACID COMPOSITION OF MILK FROM ROMANIAN BUFFALOES

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Abstract

Demand for buffalo milk is on the rise, due to a shift in consumer choices towards healthier, more nutritious, and sustainable foods, this article aims to showcase the qualities of this product, particularly in terms of fatty acid (FA) composition. Romanian buffalo milk samples were collected from a buffalo farm in Mesendorf, Transylvania. The milk samples were individually collected at fixed intervals post-calving, across 3 milking sequences: beginning, middle and end of milking, from both primiparous and multiparous females, and analyzed in the laboratory. The study revealed that milking sequences significantly affected almost all FAs, and significant ($P<0.05$) interactions between days post-calving and milking sequences were observed for 6 out of the 14 fatty acids. Saturated fatty acids (SFA) averaged 74.29%, monounsaturated fatty acids (MUFA) averaged 23.43%, and polyunsaturated fatty acids (PUFA) had a mean of 2.28%. Milk Quality indices, like the Atherogenicity index (AI) or Thrombogenicity index (TI), among others, were calculated. Romanian buffalo milk of with an unsaturated to saturated fatty acid ratio of 0.35, shows a potentially healthy lipid profile.

Key words*: evolution, milk production, NW Region, Romania, trends.*

SESSION TECHNOLOGIES OF ANIMAL HUSBANDRY

CARCASS, MEAT, AND SUBCUTANEOUS FAT PROPERTIES OF OUTDOORS-REARED MANGALIŢA PIGS

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Abstract

Mangaliţa pig meat is renowned for its high quality; however, there is limited information regarding the characteristics of this breed when raised for heavy pig production. The study aimed to assess the effects of sex on the carcass, loin, and lard characteristics (inner and outer layers) of Blonde Mangaliţa pigs. On average, the Mangaliţa pigs exhibited a fat thickness of 69 mm and a loin cholesterol content of 0.683 mg/g. The loin contained 40.0% saturated fatty acids (SFA), 51.3% monounsaturated fatty acids (MUFA), and 7.9% polyunsaturated fatty acids (PUFA). Significant differences were observed between the two lard layers, with the inner layer being brighter and having a higher dry matter content than the outer layer. Regarding fatty acid composition, the inner layer had a lower PUFA content, but a higher SFA content compared to the outer layer. The sex of the pigs did not affect the carcass, meat, or lard characteristics. The findings contribute to the characterization of meat and lard quality in outdoor-reared heavy Mangaliţa pigs, addressing gaps in current knowledge.

Key words*: meat, Mangaliţa, acids, lard, fatty.*

STUDY OF THE DYNAMICS OF THE MAIN QUALITY INDICATORS OF MILK PRODUCTION IN A HERD OF DAIRY COWS BELONGING OF THE ROMANIAN BLACK SPOTTED BREED

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Abstract

The aim of the study is to analyze the dynamic of the main quality indicators of milk production over the period 2023-2024 for a herd of dairy cows belonging to the breed Romanian Black Spotted exploited in condition of a farm from NE Romania. The data were obtained from the Official Production Control and were statistically processed using the computer programs SAVC and SPSS 16.00. The mean annual values of the SCC are 202.56 x 103/ml in 2023 respectively 188.09 x103 /ml in 2024. The milk components show variability with season and different THI thresholds so that, milk fat content is lower in 2023' summer being 3.89% and 3.65% in autumn 2024. The analysis was carried out done from influence of heat stress perspective because it is impacted the milk quality.

Key words*: Romanian Black Spotted, temperature-humidity index (THI), fat, protein.*

ANIMAL WELFARE AND PROTECTION – UNDERSTANDING THE NATURE OF ANIMAL CRUELTY AND INTERPERSONAL VIOLENCE

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Abstract

Veterinarians as professionals play a major role in the wellbeing of their patients. Ensuring the animals` needs and healthcare, however, is not enough when the whole society should be involved in improving animal welfare and preventing maltreatment and animal cruelty. Our study focused on the veterinary practitioners as specialists who should be able to recognize types of animal abuse and understand its role in interpersonal violence. For this purpose, an anonymous written questionnaire was distributed among veterinarians in Bulgaria and Turkey. The results showed that the professionals` understanding on the nature of animal cruelty was influenced by respondents` demographics and over 80% of Bulgarian and Turkish veterinarians agreed on the ability of animals to experience emotions ($P<0.05$). The most recognized type of animal cruelty was physical abuse combined with neglect. The majority of the practitioners in both countries have awareness on the link between animal abuse and violence against people. These perceptions were affected to some extent by factors like gender and pet ownership ($P<0.05$).

Key words*: animal cruelty, animal welfare, interpersonal violence, veterinary practice.*

COMPARISON OF MILK PRODUCTION AND CHEMICAL COMPOSITION IN HOLSTEIN AND MONTBELIARDE BREEDS

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Abstract

The objective of this study is to compare the milk quality and production performance of Holstein and Montbeliarde cows raised under similar conditions. The analysis included 1,942 Holstein cows and 775 Montbeliarde cows. Significant differences were found in key parameters. Holsteins had a higher 24-hour milk yield (30.05 ± 0.10 kg) compared to Montbeliardes (27.22 ± 0.07 kg). However, Montbeliardes showed higher fat content (4.02 ± 0.03%) than Holsteins (3.66 ± 0.02%). The protein content was similar, with 3.61 ± 0.01% for Holsteins and 3.59 ± 0.02% for Montbeliardes. Somatic cell count was lower in Montbeliardes (867.99 ± 41.98 thousand/mL) compared to Holsteins (1849.96 ± 41.98 thousand/mL). Montbeliarde cows also displayed more consistent casein content (2.88 ± 0.02%) compared to Holsteins (2.96 ± 0.02%). These findings highlight the importance of selecting appropriate breeds and adopting specific management strategies to improve milk quality and yield. Better feeding, milking hygiene, and herd management can enhance economic efficiency and maintain a healthy dairy herd.

Key words*: Holstein, milk quality, milk production, Montbeliarde, protein.*

THERMAL RESPONSE TO COLD STRESS IN TWO DIVERGENT STRAINS OF HOLSTEIN DAIRY CALVES – PRELIMINARY RESULTS

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Abstract

Cattle carrying the SLICK mutation (c.1382del; rs517047387) were shown to exhibit increased resistance to heat stress, with limited research on thermal response of carriers under cold stress. The objective of this study was to evaluate the response of un-weaned calves to cold stress exposure in two divergently selected Holstein strains, namely descendants of SLICK carrier bulls (experimental group – EG, n=9) compared to those of Romanian Black and White bulls (controls – CG, n=11). Calves were monitored during a cold weather episode of 3 consecutive days, with lower critical temperatures (<5°C for >12 h/day), for infrared thermography (IRT), growth rates and cortisol levels. Average daily gains were of 792±110 g in the EG and of 928±150 g in CG group (P>0.05). IRT data showed significant differences between groups during the first day of the cold weather event, for both orbital (26.48±0.444°C in EG vs. 28.74±0.472°C in CG calves, P≤0.01) and nasal (18.23±0.820°C in EG vs. 21.05±1.200°C in controls, P≤0.10) regions. Results suggest that calves sired by SLICK carrier bulls are exhibiting lower growth rates and have lower IRT-body temperatures in response to cold stress events.

Key words*: cold stress, dairy calves, growth rates, infrared thermography, SLICK gene.*

SURGE IN FOODBORNE OUTBREAKS AND FATALITIES IN THE EU, A 2008-2022 OVERVIEW OF ZOONOTIC DISEASES, EMERGING THREATS AND WAYS OF MITIGATION

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Abstract

This article examines the significant surge in foodborne outbreaks (FBOs) and fatalities within the European Union from 2008 to 2022, focusing on zoonotic diseases and emerging threats. We highlight the increasing incidence of FBOs linked to pathogens such as Salmonella, Listeria, and Campylobacter, exacerbated by changing agricultural practices, global trade, and climate change. The review identifies critical challenges in food safety management, including gaps in surveillance systems and the need for improved risk assessment methodologies. In addition, this article considers a range of effective mitigation strategies, including traceability, public health education, and regulatory compliance. The findings underscore the necessity for a coordinated collective action to reduce the impact of foodborne zoonoses on public health in the EU.

Key words: *Campylobacter, food safety, Listeria, Salmonella, zoonotic diseases.*

A REVIEW CONCERNING DIFFERENT METHODS OF STUDYING WATER BUFFALO BEHAVIOR, ACCORDING TO DIFFERENT OBJECTIVES

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Abstract

The paper highlights different methods of observing, recording and analysing the particularities of water buffalo behaviour, as to serve different research purposes. Proper understanding of buffalo behaviour is critical for improving welfare and productivity in buffalo dairy farming. Different methodologies have been employed to study these behaviours, mostly from communities were intensive farming is practiced and buffalo have to deal with and adapt to these technologies. from housing conditions to qualitative assessments of emotional states. Qualitive behaviour assessment (QBA) is of the most interesting applied. Most studies employed Scan sampling technique for direct observations in farms or on the field, since it better suited the aims of the studies in assesing group behaviour. Continuous observation is less used than in the past because new solutions like QBA or NEDAP tags prove adequate.

Key words*: water buffalo behaviour, different methods of recording.*

PRECISION LIVESTOCK FARMING: MONITORING MICROCLIMATE PARAMETERS IN DAIRY COW SHELTERS

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Abstract

Knowledge of microclimate parameters in dairy cow shelters allows farmers to monitor animal welfare and production process. The use of precision instruments offers facilities: economic, by increasing profit; farmers who can take real-time measures to adjust microclimate parameters. The purpose of this study was to monitor the microclimate parameters in a dairy cattle barn using precision livestock farming tools over a period of 9 months. This study aims to provide information about the environmental conditions in the barn and to identify potential issues to optimize the welfare and productivity of the cows. The data was collected and processed using the BlueMonitor software platform. For each analyzed parameter - temperature, relative humidity, carbon dioxide concentration, particle concentration, and dew point - central tendency statistics (mean) and dispersion statistics (SEM, SD, CV %) were calculated. Differences between monthly averages were tested for significance using the Fisher test, revealing significant variations across all parameters. Monitoring microclimate parameters using precision instruments in animal husbandry enables farmers to take real-time measures, ensuring dairy cows are provided with optimal conditions to express their productive potential.

Key words*: animal welfare, farm animal, microclimate parameters, precision farming.*

APPLICATION OF MEDICINAL PLANTS, PROBIOTICS AND SYNBIOTIC PRODUCTS IN PREVENTIVE CARE AND ALTERNATIVE THERAPY FOR FARM ANIMALS IN MODERN VETERINARY MEDICINE. A REVIEW

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Abstract

Sustainable production of high-quality animal and plant production for feeding the growing world population of consumers is a key challenge for the future industry. New animal farming methods are introduced, focusing on enhancing meat and milk quality and safety, in parallel taking into account welfare and preservation of natural environment. Selection conducted towards high growth rate results in breeds and hybrids characterized by fast growth but in the same time by delayed morphological and functional maturity and by an underdeveloped immune system. Antibiotics and other medicinal products are widely used, mainly to modify the digestive microbiota, to increase the productivity and growth of animals and to compensate for low immunological activity. The long-term use of these substances has led to the development of drug-resistant microorganisms, posing a threat to consumer health and having a negative impact on the environment. This review studies the ways of limiting the use of antibiotics in animal husbandry, alternative strategies to improve production and animal health – the use of probiotic, prebiotic and symbiotic preparations, as an effective treatment against pathogens.

Key words*: antibiotic resistance, farm animals, medicinal plants, prebiotics.*

EVALUATION OF HYGIENIC BEHAVIOR IN HONEY BEES (*Apis mellifera* Linnaeus, 1758) FOR GENETIC SELECTION

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Abstract

The hygienic behavior of honey bees (Apis mellifera Linnaeus,1758*) is a critical defensive mechanism for colony health, reducing the spread of diseases and infestations by parasites such as Varroa destructor. This study assessed the brood cleaning capacity of 10 honey bee colonies in two different locations from Western part of Romania (Arad County and Timis County) using a freeze-killed brood test. Honeycomb sections containing 100 dead brood cells were reintroduced into the hives, and the cleaning progress was monitored at predefined intervals (6, 12, 18, 24, 28, and 34 hours). Colonies with superior hygienic behavior cleaned over 90% of the cells within the first 24 hours, demonstrating significantly higher efficiency compared to colonies with reduced hygienic behaviour, which cleaned less than 50% of the cells. Statistical analyses (ANOVA, t-test, and linear regression) confirmed significant differences between the groups, with high-performing colonies showing a strong correlation between time and cleaning rate ($R^2 = 0.96$). The results underscore the importance of hygienic behavior as a genetic trait for selection to improve the health and productivity of bee colonies. Colonies exhibiting superior hygienic performance are ideal candidates for breeding programs, contributing to reduced chemical treatment use and promoting sustainable beekeeping practices.*

Key words*: Apis mellifera* Linnaeus,1758*, colony health, genetic selection, hygienic behavior, honey bees.*

GROWTH PERFORMANCE AND BODY PARAMETERS EVALUATION IN YOUNG FEMALE SHEEP FROM THE MEAT LINE

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Abstract

The research conducted aimed to evaluate the growth intensity of a population of crossbred sheep resulting from the crossing of Karakul of Botoșani breed females with Palas meat breed rams. For this purpose, two experimental groups were established, one consisting of young crossbred sheep females and the other of young females belonging to the Karakul of Botoșani breed. Both groups benefited from the same maintenance conditions and the same experimental treatment. The research was carried out during 2024, the young females being of similar age. The results obtained highlight the fact that although, at birth, the group consisting of lambs of the Karakul of Botoșani breed had an average weight higher than that of the crossbred females, the latter reach the age of 1 year to have, on average, 12 kg more than the Karakul of Botoșani ones. The results obtained are important and relevant both for activities aimed at obtaining meat production and for farms producing reproductive material. Young sheep is very important in the sheep herd as the improvement and consolidation of future generations of sheep depends on them.

Key words*: body weight, Botoșani Karakul sheep, crossbred, young sheep.*

ASSESSMENT OF THE COURSE OF CALVING AND MATERNAL QUALITIES OF FIRST-BORN COWS OF THE ZNAMIANSKY TYPE OF POLISSYA BEEF BREED DEPENDING ON THE LEVEL OF FEEDING DURING REARING AND SEASONAL CHANGES

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Abstract

The course of calving and maternal qualities of first-born cows of the Znamiansky type of Polissya beef cattle, which were raised with different levels of feeding, were studied. Heifers with intensive feeding (group 2) came into heat, were fertilised and calved easily 5 months earlier than their counterparts with traditional feeding (group 1). Their calving season was in spring, which had a positive impact on their milk yield, calf growth and welfare. In heifers with traditional feeding, the calving season was in summer (average air temperature +35-40°C). As a result of hyperthermia, these first-born heifers were forced to stand in a standing position during the prenatal period and during calving to cool their bodies. This had a negative impact on their welfare. The calving process in these first-born cows required staff assistance. Their calves had lower birth weights and lower weight gain in the first two months of life than calves in group 2. This is due to a shortage of grass due to the hot summer.

Key words*: calving and season, heat stress, intensively reared heifers, maternal qualities, milk yield, udder condition, Znamianskyi type of Polissya beef breed.*

STUDY OF THE RELATIONSHIP BETWEEN THE TEMPERATURE-HUMIDITY INDEX AND THE SURFACE TEMPERATURE OF THE EYE AND THIGH OF HOLSTEIN-FRESIAN COWS USING INFRARED THERMOGRAPHY

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Abstract

The report aimed to present our study of the relationship between the temperature-humidity index (THI) and the surface temperature of the eye, and the thigh of Holstein-Friesian cows raised on a farm in southeastern Bulgaria, using infrared thermography (IRT). Measurements were conducted twice a month, May, June and July, twice a day at 10:00 AM and 5:00 PM, respectively. The correlation coefficient between the maximum eye temperatures and the temperature-humidity index was 0.7. The correlation coefficient between the surface temperature of the skin of the cows in the thigh area and the temperature-humidity index was 0.92. With an increase in the temperature-humidity index values, the rate of increase in the maximum eye temperature values was the highest (Slope=0.136). The rate of increase of minimum thigh surface temperatures with rising THI values is around 0.30 (Slope=0.297). The increase in the values of the temperature-humidity index leads to an increase in the temperature of the eyes and the surface temperature of the thigh in dairy cows, which is a result of an increase in the heat load on their body. The temperature of the thigh increases faster than the temperature of the eyes when the THI increases because the thigh is an area with massive muscles, which, in addition to its other role, is probably used for increased heat loss under conditions of heat stress.

Key words*: infrared thermography, temperature–humidity index, dairy cows, skin temperature.*

IMPROVEMENT OF GROWTH RATE AND CARCASS QUALITY IN LAMBS FROM TSIGAI BREED – RUSTY VARIETY

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Abstract

The objective of the research was to assess the impact of diet on the growth rate and carcass quality of Tsigai lambs, specifically the rusty variety, fed with different diets to enhance meat production and quality. A total of 24 male lambs (L1 and L2, n = 12 lambs per group) were subjected to a 100-day fattening trial following weaning. Notable differences ($p<0.01$) were observed between the two groups regarding final weight, total gain, and average daily gain. However, the diet did not have a significant effect ($p>0.05$) on carcass quality characteristics between the L1 and L2 groups (warm carcass yield, cold carcass yield and commercial yield), but had significantly influenced ($p<0.001$) the share of the main parts of carcasses (cutlet and shoulder + arm). The diet administered to the two lots of lambs influenced significantly ($p<0.05$) the share of bone and fat in carcasses, also, the carcasses from L1 were fatter, while the ones from L2 were more bony. No significant differences were recorded with regard at meat share in carcasses ($p>0.05$).

Key words*: bone, fat, lamb, meat, Tsigai – rusty variety.*

ACCLIMATIZATION OF THE JAPANESE WAGU BEEF BREED IN THE MIDDLE BALKAN MOUNTAIN IN BULGARIA

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Abstract

The study was conducted in 2023 in the village of Palitsi, at the Elena Vaga cow farm. Two groups of animals of the Wagu breed were formed. The first group was 19 heifers calved in Bulgaria in 2022. The other was 18 female calves born in 2022. The yield of fresh and dry grass mass, botanical composition and chemical analysis of the herbage have been studied. Female calves at three months weighted 95 kg, at 6 months - 178 kg, at 9 months - 225 kg, and at 12 months - 312 kg. In September, February and April, there was a negative increase in cows. The highest positive increase was in May, June and October. The yield of fresh and dry mass with hay maturity was higher than that of pasture maturity. A high percentage of participation in the grain group in the spring was established. Grass plantings in spring were characterized by a lower CB content and a higher NFE, and in hay maturity were higher values of SP, minerals, Ca and better in vitro digestibility of dry matter.

Key words*: Wagu, live weight, acclimatization, grass stand, botanical and chemical composition.*

GROWTH INTENSITY AND FATTENING PERFORMANCE OF PUREBRED PIGS OF DIFFERENT BREEDING LINES AND CROSSBRED AND HYBRID ANIMALS BASED ON THEM

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Abstract

The article analyzed growth intensity, feed efficiency, fattening costs and profitability of pigs of maternal, paternal and hybrid genotypes. The study found that the pigs of the synthetic parental line outperformed their maternal counterparts in daily and absolute gains by 25.1 to 28.8% and in final weight by 24.9 to 28.9% and reached 120 kg 14.6 to 16.5% earlier due to index selection for fattening traits. These pigs also had 13.3-13.8% better feed conversion and 80.4-92.5% higher total fattening index, albeit with a slightly lower survival rate (0.04-0.73%). Hybrid piglets showed 17.6-21.2% higher gains, reached 120 kg 10.2-11.5% earlier and had a 16.4-18.8% higher final weight. They also had 2.2 to 3.4% better feed conversion, resulting in 41.7 to 51.7% higher fattening indices than purebred dam genotypes, with no clear survival trend. The results underline the advantages of hybridization and targeted selection to improve growth performance and feed efficiency in pig production.

Key words*: breeding methods, genotype, income, pigs, profitability.*

THE IMPACT OF SUPPLEMENTING FEED WITH OMEGA-3 FATTY ACIDS ON THE NUTRITIONAL AND TECHNOLOGICAL CHARACTERISTICS OF POULTRY MEAT. A REVIEW

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Abstract

Supplementing feed with omega-3 fatty acid sources is a promising strategy for improving the lipid profile of poultry meat. The study analyzes the effect of diets enriched with flaxseed oil, fish oil and microalgae on the content of polyunsaturated fatty acids, oxidative stability and sensory characteristics of meat. The results indicate a significant increase in the content of EPA and DHA in meat, but oxidative stability was negatively affected, necessitating the use of natural antioxidants to prevent rancidity. These findings highlight the potential of nutritionally enhanced diets to produce healthier meat, but emphasize the need to balance nutritional benefits with product stability.

Key words*: poultry meat, omega-3, polyunsaturated fatty acids, oxidative stability, functional diet.*

EVALUATION MANAGEMENT CAGE BANGKOK CHICKEN IN TALIKURAN KAWANGKOAN VILLAGE MINAHASA DISTRICT, NORTH SULAWESI PROVINCE

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Abstract

This study aims to evaluate the management of Bangkok chicken coops in Talikuran Village, Kawangkoan District, Minahasa Regency. The observed parameters include cage model, cage size, location, and construction materials. The research used a quantitative descriptive method, based on primary and secondary data collected through surveys, observations, and interviews. Data were analyzed using Excel for descriptive statistics, correlation, and simple linear regression to examine relationships between breeder characteristics and coop parameters. Results show that among 30 breeders, 60% use stilt coops, 23% postal coops, and 17% umbaran coops. Cage sizes vary: 43.3% are under 8 m², 26.7% between 8-10 m², and 30% above 10 m². Most coops (93%) are located within 100 meters of the breeder's home. Construction materials include bamboo (67%), wood (17%), wire/iron (10%), and mixed materials (7%). Correlation analysis indicates a weak negative relationship between age and education, and a strong positive correlation between the number of chickens and both cage size and land area. The findings suggest that breeders in Talikuran Village demonstrate good understanding of coop management and resource utilization.

Key words*: Bangkok chickens, cage, management.*

RESEARCH ON MILK PRODUCTION IN MURCIANO-GRANADINA GOATS UNDER DIFFERENT FARMING CONDITIONS

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Abstract

The Murciano-Granadina breed, known for its remarkable milk production, is attracting increasing interest in Romania due to its ability to provide high quality milk throughout the year (deseasoned). The present study aims to follow the evolution of milk production in 150 goats of the Muciano-Granadina breed, included in the pure-bred breeding program of the Genealogical Register of the breed. The milk production of the 150 goats from three farms with different rearing systems, traditionally modernized in lot 1 (in Vaslui County), intensive in lot 2 (in Timiș County) and semi-intensive in lot 3 (in Călărași County) was followed over five years (2020-2024), highlighting the productive potential under different rearing and nutrition conditions. The results indicate a variation in average milk production for the 5 years analyzed of 237.68 kg/257.96 lactation days in the semi-intensive system, 301.04 kg/267.4 lactation days in the modernized traditional system and 474.36 kg/281.92 lactation days in the intensive system. Irrespective of the farming system, the milk production of Murciano-Granadina goats is lower in the specific geo-climatic conditions of our country than in the subtropical and temperate Mediterranean climates.

Key words*: goat, milk, farming conditions, quantity.*

ANALYSIS OF MILK PRODUCTION EVOLUTION IN THE COW FARMS FROM ROMANIA - NECESSARY MEASURES TO INCREASE THEIR COMPETITIVENESS

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Abstract

In the context of the European single market, a competitive and sustainable increase of dairy farms in Romania is essential for securing their activity continuity and long-term development. Between 2015-2024 the evolution of dairy cows in Romania (number, production yield, quality) was analysed compared to the number and size of farms and farmers' age structure. Dynamics of total national milk production vs milk for processing and EU milk production was evaluated. From income perspective, evolution of raw milk supply prices in Romania (source Milk Market Observatory of European Union) was analysed vs European Union market and compared to price evolution for main feed categories. The results were compared to the dynamics of similar indicators from Poland, a country in Central & Eastern Europe with a remarkable development of milk production. The main conclusions regarding the current level of competitiveness of milk production in Romanian cow farms were highlighted, respectively the long-term risk factors for the national activity of milk production and processing. The necessary measures and related technical-economic levers to consolidate their long-term performance were expressed.

Key words*: competitiveness, measures, risks, production, yields.*

EFFECTS OF BEHAVIOUR DURING MILKING ON PRODUCTION AND REPRODUCTION INDICATORS IN ROMANIAN WATER BUFFALOES

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Abstract

The aim of this study was to evaluate the effects that behaviour during milking has on production, reproduction and welfare indicators in water buffalo cows reared under loose housing system. The study was conducted in a private farm, on 102 dairy buffalo cows (6.4±0.1 lactations) at the beginning of their lactation (100 days in milk, DIM). The behaviour during milking was evaluated using a 5-point subjective scale (1 – calm to 5 – nervous), using two individual trained observers placed at 0.5-1 m behind the animals, using an 8x2 herringbone milking parlour. The animals were grouped based on their behaviour as 'calm' (scores 1, 2 and 3; n = 76) or 'nervous' (scores 4 and 5; n = 26). Milk yield and milking speed were significantly influenced by the behaviour during milking (p>0.05), with calmer buffaloes outperforming their nervous counterparts. No significant influence of the behaviour during milking was found on body condition score, calving interval, age at first calving or animal-based welfare indicators. Current findings suggest that incorporating behavioural assessments during milking into management practices could enhance productivity in dairy water buffaloes.

Key words*: animal-based indicators, animal welfare, milking behaviour, water buffaloes.*

ALTERNATIVES FOR MINIMIZING THE USE OF ANTHELMINTICS IN FARM ANIMALS. A REVIEW

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Abstract

Pasture livestock systems have an essential role in promoting sustainable farming practices in Europe, but they have disadvantages, especially in terms of animal health, as grazing animals are highly susceptible to parasitic infections. They can apply a significant economic weight to the production process, so the most frequently used control method is the administration of anthelmintics. This review summarizes the research on the use of alternative anthelmintics on global scale, reprising the policy for helminth control with envisage of more sustainable solutions including safety, quality and risk assessment. This is in line with the objectives of the national and international plans on resistance to medications. The competitiveness in the livestock sector should stimulate us to look for more efficient and profitable alternatives for their farming. Helminths can cause chronic and sometimes fatal diseases that infect an estimated two billion people worldwide, but the misuse and overuse of antiparasitic drugs can cause serious global drug resistance problems as well. This necessitates the isolation and identification of new anthelmintic drugs for veterinary and human medicine.

Key words*: anthelmintics, drug resistance, livestock.*

THE EFFECT OF ADMINISTRATION OF A VITAMIN-MINERAL COMPLEX ON THE GROWTH PROCESS IN YOUNG KARAKUL OF BOTOŞANI SHEEP

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Abstract

The objective of this research was to evaluate the effect of administering a vitamin and mineral supplement on the growth and body development of young sheep. The biological material consisted of two groups (L1 and L2) of young ewes, and the experimental factor was the supplementary administration of the vitamin-mineral complex (VM), given only to the L2 group. At the time of breeding, the live weight in L2 was 4.67% higher compared to L1 ($P \leq 0.001$). Evaluation of body condition showed that VM supplementation did not have a significant influence but directly contributed to better body development in L2. For croup height, chest circumference, body width, chest depth, and croup length, the statistical differences between the groups were highly significant ($P \leq 0.001$). In L1, the proportion of non-pregnant and aborted maiden ewes was higher (20% vs. 12%).

Key words: *body condition, body weight, Botoşani Karakul sheep breed, diet influence, reproductive traits.*

INTELLIGENT SYSTEM FOR SUSTAINABLE BEEF CATTLE FARM MANAGEMENT FOR GHG AND AP REDUCTION

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Abstract

Livestock farming is a vital component of global food production, supplying essential resources such as meat and dairy. However, it is also a major contributor to environmental challenges, particularly greenhouse gas (GHG) and atmospheric pollutant emissions. The beef cattle sector is responsible for significant methane (CH_4) and nitrous oxide (N_2O) emissions due to enteric fermentation and manure management. Additionally, inefficient resource utilization and suboptimal farm practices exacerbate environmental degradation and economic losses. As global demand for livestock products grows, there is an urgent need to adopt sustainable farming practices that optimize production while minimizing ecological impact. We propose an innovative approach to sustainable livestock farming by integrating Internet of Things (IoT), blockchain, and artificial intelligence (AI) technologies. IoT sensors will monitor critical environmental and livestock parameters, The collected data is securely stored and managed using blockchain technology, ensuring transparency, traceability, and stakeholder trust. AI-driven models analyse input data to optimize feeding practices, manure management, and overall farm productivity. These technologies will form the backbone of a decision-support system designed to enable farmers to reduce emissions while improving operational efficiency.

Key words*: blockchain, greenhouse gas emissions, IoT, livestock management, sustainability.*

PARTIAL RESULTS REGARDING THE MORPHO-PRODUCTIVE EVALUATION OF THE ROMANIAN TROTTER - THE ENERGETIC CAPACITY

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Abstract

This study represents another stage of a large-scale research regarding improving the racing performances of the Romanian Trotter. Regarding the productive potential (speed) of the Romanian Trotter, the specialty literature presents some results that highlight the inferior level of this breed compared to its competitors. In order to carry out the analysis of the productive potential of the individuals that make up the reproductive nucleus of the Romanian Trotter, only the productive performances of the native individuals were taken into account. It was analyzed career records (the best performance achieved in the career, expressed in minutes, seconds and hundredths/kilometer) of the entire reproductive nucleus of Romanian Trotter (60 individuals). The results obtained in assessing energetic capacity were then analyzed in accordance with the national standards for appreciation and ranking of Romanian Trotter horse, and in comparison with the results of other authors recorded some time ago (in order to demonstrate progress). The average value of the productive performance, in the reproductive nucleus, was 1'25"77/km.

Key words*: hippodrome, horse, racing, Romanian Trotter.*

PARTIAL RESULTS REGARDING THE MORPHO-PRODUCTIVE EVALUATION OF PURE ARABIAN HORSES FROM NATIONAL STUD FARM MANGALIA

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Abstract

This study is just a part of an ample research which aims to create a monography of the Pure Arabian horses in Romania. At this stage, in this article, we present the results of research on energetic capacity (speed). Unfortunately, the Pure Arabian horses from the Mangalia National Stud do not perform competitive activities on the racetrack (as would be the case). Due to this situation, we had to use the times recorded in the qualifying races on the stud's racetrack. Certainly, if more performances had been recorded for each individual, the situation would have been completely different.73 Pure Arabian horses were studied, including 12 sire stallions and 61 broodmares. These 73 horses represent the entire reproductive nucleus of the Pure Arabian horse breed from the Mangalia stud farm. The results obtained from the statistical analyses were evaluated in accordance with the national criteria for grading and ranking of Purebred Arabian horses. The average performance of individuals from reproductive nucleus of the breed was 1'17"45/km, 1'17"53 for broodmares, amd 1'17 for sire stallions.

***Key words**: Arabian, hippodrome, horse, Mangalia, Pure.*

POLLINATORS IN ROMANIA – ECOLOGICAL AND ECONOMIC CONCERNS

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Abstract

The place and role of pollinators as key elements of the biosphere are well known, as well as their decline and effects at the global level regarding food and economic security. The aim of this paper is to summarize the existing information regarding the species of pollinating invertebrates in Romania, both from an ecological and economic perspective. The information about pollinators comes in unequal proportions from studies carried out in protected and unprotected natural areas, agricultural crops, studies on the effect of some chemicals on the biology and viability of pollinators and from the current legislation. Current information shows that in Romania the situation of pollinators is as alarming as in the rest of the world. Improving the status of pollinators is possible through further scientific efforts, improving the legislation and its application by the book and raising the awareness of civil society, through information, regarding pollinators, starting with the decision makers.

Key words: *common pollinators, ecological and economical interest, invertebrate pollinators, legislation, protected species.*

FARMERS ATTITUDE TOWARDS COMMON PRACTICES OF BUFFALO CALVES REARING IN ROMANIAN DAIRY FARMING - A SURVEY STUDY

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Abstract

The overall objective of this study was to evaluate the results of farm size influence regarding the management practices from dairy buffalo farms. The current study was based on a survey conducted by online interviews between 2020 and 2021, with a number of 81 dairy farms from Romania. This survey aimed to establish current buffalo calves management technics in Romania along with farmer perceptions surrounding different farm size. The descriptive analysis of farm size influence on calves practices was calculated, with chi-squared tests to assess associations between variables. Concerning the colostrum administration time in buffalo calves, there were significant differences ($p \leq 0.05$) between small farms and large farms, with 0% of the large farms who feed them in first hour of life; and 80% of then small farms who use the same interval. Regarding the calves housing, cow-calf separation and milk quantity offered, we obtained that the size farm it's not a parameter to influence those variables. These results underscored how farm size plays a methodical role in shaping the management strategies employed in rearing dairy buffalo calves.

Key words*: buffalo, calf management, dairy calves, farm size, survey.*

FACTORS INFLUENCING THE QUALITY OF TURKEY MEAT

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Abstract

Genetic, technological, nutritional, and breeding factors influence the quality of turkey meat. In terms of its biochemical composition, turkey meat is characterized by a high protein content and a favourable ratio between unsaturated and saturated fatty acids, which makes it a valuable nutritional source. Also, turkey meat is lower in fat compared to other types of meat. Regarding the quality of turkey meat, it varies depending on the anatomical part used (breast and thighs) and has distinct nutritional values. Processing factors, storage temperature, and post-mortem pH of the meat affect sensory properties such as texture, taste, and colour. Improving the quality of turkey meat involves optimizing growing conditions, as well as correctly managing the slaughtering and preservation processes to prevent damage to organoleptic characteristics and food safety.

Key words*: quality meat, turkey, antioxidants.*

LIVESTOCK OWNERS` ROLE IN ANIMAL AND FARM REGISTRATION THROUGH NEW ELECTRONIC FUNCTIONALITIES

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Abstract

Current strategies for control of contagious animal diseases rely on traceability of all animal movements. For this purpose, the identification and registration (I & R) of animals and animal holdings is of crucial importance. In Bulgaria, all data on animal I&R are maintained by the integrated information system VetIS, operated by the national competent authority Bulgarian Food Safety Agency. For the improvement of the system new functionalities have been developed, giving active access to farmers. Through an anonymous survey we investigated livestock owners` perceptions on their new role in VetIS. The results showed that one-third of the respondents believed their active access will raise their compliance with the legislative requirements through facilitating the paper work on the farm and avoiding error entries on the animal status related to birth, movement, slaughter or death.

Key words*: animal registration, electronic identification, farmers, livestock, VetIS.*

ANATOMICAL FEATURES OF PHEASANT CARCASSES FROM DIFFERENT REARING SYSTEMS: A LITERATURE REVIEW

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Abstract

The anatomical features of the pheasant carcasses vary considerably depending on the rearing system, the major influences being attributed to the feeding system, sex and age. This review aims to synthesize recent data from the literature on the anatomical features of pheasant carcasses reared in natural and controlled rearing systems. This study draws on recent and relevant studies evaluating parameters such as proportions of anatomical regions and body indices according to rearing system, age and sex. Data were collected and synthesized from reputable online sources. The results show that pheasants raised in the wild reveal larger breast proportions in males, compared to those raised under controlled conditions, where was observed an important increase of subcutaneous fat and abdominal fat content. The study shows that the rearing system plays a determining role in the anatomical development of pheasants, and underscore the contributions of comparative studies on understanding its impact on carcass quality and usability. These insights can inform future strategies in pheasants rearing for economic and food production purposes.

Key words*: pheasant, anatomical profile, rearing system, carcass quality.*

THE EFFECT OF USING NATURAL BIOSTIMULATORS IN BROILER CHICKENS ON SLAUGHTER PARAMETERS AND MEAT QUALITY

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Abstract

The study aimed to evaluate the improvement in broiler chicken meat quality through the administration of natural biostimulators. The research involved 4,500 Ross-308 chickens, divided into three groups (1,500 birds/group), each consisting of five replicates. The control group (C-G) did not receive any biostimulator. In the experimental group L-E, the Esstence product was administered during the first 15 days of life (8.0 ml/liter of water), while in group L-HS, the Herba Safe product was administered during the first 10 days of life (2.0 ml/liter of water). No antibiotics were used; only the two mandatory PPA vaccines were administered. Slaughter parameters were assessed by determining the carcass yield and identifying the proportions of the cut portions that make up the carcasses. Meat quality parameters included measurements of water, protein, lipids, ash, fatty acids, cholesterol content, and the meat's energy value. The general conclusion was that the administration of the Esstence product to Ross-308 chickens resulted in an improvement in both slaughter indicators and the quality of the meat obtained, under conditions where no pharmaceutical support was provided during the rearing period.

Key words*: broiler chicken, biostimulants, slaughter yield, meat quality.*

REARING SYSTEMS AND THEIR IMPACT ON PRODUCTIVITY IN TURKEY FARMS: A REVIEW

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Abstract

Turkey farming is a significant sector of the poultry industry, greatly influenced by the rearing systems employed. This review explores the effects of different rearing systems intensive, free-range and extensive, on turkey production performance, including growth parameters, feed conversion efficiency, carcass quality, and meat characteristics. Existing global studies indicate that intensive systems provide the highest productivity but are associated with challenges related to animal welfare and sustainability. Conversely, extensive and organic systems improve animal welfare and meat quality but result in lower production levels and higher costs. The review also examines the role of turkey genotypes, the influence of diet and environmental conditions on performance, and the trends toward adopting sustainable systems, including the use of renewable energy and efficient waste management. Challenges, such as high costs and the need for strict regulations, are highlighted alongside opportunities for improvement through precision technologies and the integration of ecological practices. This review underscores the need for future research to identify best practices that balance productivity, animal welfare, and sustainability in turkey farming.

Key words*: animal welfare, production performance, rearing systems, sustainability, turkeys.*

RESEARCH ON FATTENING PERFORMANCE OF HYBRID LAMBS OBTAINED FROM CROSSING PALAS MERINO WITH SPECIALIZED MEAT BREEDS

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Abstract

In the conditions of the orientation for meat production of sheep breeding in Romania, the meat production performance of hybrid lambs obtained from 2 crossbreeding variants Palas Meat Breed x Palas Merino and Suffolk x Palas Merino were studied at ICDCOC Palas Constanța and a private farm. The research carried out on 80 lambs (40 hybrids and 40 Palas Merino) subjected to fattening aimed to increase the productive performance of hybrid lambs expressed through growth rate, feed conversion into growth gain and carcass quality obtained from experimental slaughter. The results obtained revealed that hybrid lambs achieved significantly higher weight gains ($p<0.001$) compared to Palas Merino lambs (328 g in hybrids with the Palas Meat Breed and 280.84 g in hybrids with Suffolk), better conversion of nutrients into growth gain and higher carcass quality indices compared to the maternal breed, respectively the leg of mutton muscularity index by 34.46% and the leg of mutton compactness index by 34.78% higher in hybrids with the Meat breed and by 21.64% muscularity index and 30.29% leg of mutton compactness in hybrids with Suffolk.

Key words*: cross breeding, fattening, lamb meat.*

COMPARATIVE STUDY OF BIOLOGICAL AND TECHNOLOGICAL TRAITS IN *Bombyx mori* L. FED ARTIFICIAL FOOD AND ADDED PLANT EXTRACTS

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Abstract

Bombyx mori (Linnaeus, 1758) cultivation and cocoon production is an old and traditional industry in the country. With the creation and application of artificial nutrition, it is possible to grow them in any season of the year, regardless of the external climatic conditions and the stage of development of the mulberry. The purpose of this research is to add thyme and peppermint extracts to artificial food as plant stimulants. To follow the absorption of food and the most important biological and technological signs of the silkworm and the resulting cocoons. Larvae accept artificial food and add extracts with great willingness. In the experimental groups, exceptionally satisfactory results were observed in the larvae fed with artificial food and added thyme extract, and significantly poorer results in those with meat.

Key words*: artificial feeding, Blueberry silkworm, Mentha piperita, plant extracts, Thymus vulgaris L.*

INFLUENCE OF SEX AND PRE-SLAUGHTER WEIGHT OF PIGS ON THEIR CARCASS QUALITY

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Abstract

In order to study the influence of pig sex and pre-slaughter weight on carcass quality, experimental studies were carried out on 120 pigs of Irish origin: 30 gilts with a pre-slaughter weight of 100 kg, 30 gilts with a pre-slaughter weight of 120 kg, 30 barrows with a pre-slaughter weight of 100 kg, 30 barrows with a pre-slaughter weight 120 kg. After fattening the pigs were slaughtered and their carcass qualities were evaluated. The analysis showed the influence of pre-slaughter weight on slaughter yield: in gilts by 1.7%, in barrows – no effect; on chilling losses: in gilts by 44.00%, in barrows by 26.32%; on fat thickness above the 6-7 thoracic vertebrae: in gilts by 21.19%, in barrows by 24.76%; on fat thickness in buttocks: in gilts by 22.65 %, in barrows – no effect; on fat thickness in withers: in gilts by 13.47%, in barrows by 14.9%; on carcass length: in gilts by 8.28%, in barrows by 4.62% and on the Loin eye area MLT: in gilts by 6.0%, in barrows by 13.50%.

Key words*: carcass length, fat thickness, meat content, carcass, slaughter yield.*

ANTIBACTERIAL ACTIVITY OF MIKROENCAPSUL NONI FRUIT EXTRACT ON PERFORMANCE AND MEAT CHOLESTEROL OF SENTUL CHICKEN

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Abstract

Microencapsul Noni fruit extract (MNFE) is an herbal plant that has can be used as additional feed to replace Antibiotic Growth Promoters (AGP). This research was aimed at studying the antibacterial properties of noni extract on performance and meat cholesterol of Sentul chicken. The experiment used 100 day old chicks of Sentul chickens were raised in cages until 12 weeks old. The research used completely randomized design (CRD) and the effect of the treatment used Anova followed by the DMRT test. The treatments consisted of P0 (the basal ratio), P1 (P0+50 mg/kg zinc bacitracin), P2 (P0+125 mg/kg MNFE), P3 (P0+ 250 mg /kg MNFE), and P4 (P0+ 375 mg/kg MNFE). Variable analysis was feed consumption, Staphylococcus aureus and Escherichia coli bacteria in, body weight, feed conversion, carcass weight, abdominal faty weight, and meat cholesterol. The results showed that basal ratio enriched MNFE could inhibit staphylococcus aureus and Escherichia coli bacteria, and meat cholesterol decreased. Ration added 250 mg/kg MNFE gave the best performance and it was recommended to use the feed additive to replace AGP.

Key words*: microencapsul noni fruit extract, Sentul chicken, performance, meat cholesterol.*

THE EFFECT OF CROSSBREEDING PROLIFIC PALAS EWES WITH ROUGE DE L`OUEST AND TEXEL RAMS ON IMPROVING THE QUANTITY AND QUALITY OF CARCASSES FOR LAMBS SUBJECTED TO FATTENING

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Abstract

This study evaluates the performance of F1 hybrids obtained by crossbreeding Rouge de L'Ouest x Prolific Palas and Texel x Prolific Palas breeds under controlled fattening conditions, compared to the purebred Prolific Palas sheep. The results demonstrate the clear superiority of the F1 hybrids in several key performance indicators: enhanced daily weight gain, improved feed conversion efficiency, higher slaughter yield, and a favorable carcass tissue composition characterized by increased meat content and reduced bone proportion. Additionally, the F1 hybrids showed a significant advantage in the thigh muscle index, recording values 14.5-17.3% higher than those of the Prolific Palas breed. The findings align with the diversity of high-performance meat breeds and hybrids present within the European Union, including 42 breeds and 7 hybrids in the United Kingdom, as well as numerous specialized breeds in countries such as Spain, France, Germany, Belgium, and the Netherlands. These results underscore the potential of hybrid breeding strategies to enhance meat production efficiency and carcass quality in sheep farming systems.

Key words*: new breed, hybrids, Prolific Palas breed.*

COMPARATIVE STUDY ON THE INTENSIVE FATTENING OF PALAS MERINO LAMBS AND PALAS MERINO × PALAS MEAT BREED HYBRIDS

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Abstract

Given the rising interest in sheep meat, this study aims to explore fattening technologies and improve meat production by crossing local breeds with specialized meat breeds. Research was conducted at R.D.I.S.G.B. Palas - Constanța to test the fattening performance of F1 hybrids (Palas Meat Breed x Palas Merino) compared to Palas Merino lambs. Two groups were intensively fattened for 100 days using granular feed with 87.9% dry matter, 2570 Kcal, and 16% digestible crude protein. Initial body weights were similar (20.48-22.78 kg), with no significant differences ($p<0.05$). At the end, body weights ranged from 36.14 kg to 45.07 kg, with hybrids weighing 24.71% more ($p<0.01$). Average daily gain was 157-223 g, 42.04% higher in hybrids. Specific energy and protein consumption were 27.66% and 27.54% lower, respectively, in the F1 hybrid group. Conformation and constitution indices were superior in hybrids compared to Palas Merino lambs.

Key words*: merino, meat, hybrids, yield.*

BALANCING PRODUCTIVITY, WELFARE, AND SUSTAINABILITY IN LAYING HEN FARMING: A REVIEW OF REARING SYSTEMS

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Abstract

Rearing systems play a crucial role in shaping the productivity, welfare, and sustainability of laying hen farming. This review examines the effects of different rearing systems - cage systems (conventional and enriched), barn systems, free-range, and organic systems - on key production parameters, including egg yield, feed conversion efficiency, egg quality, and hen welfare. Studies at the global level reveal that conventional cage systems achieve the highest productivity but often raise concerns about animal welfare. Conversely, free-range and organic systems promote better welfare and consumer trust in product quality but are associated with lower productivity and higher production costs. This review also analyses the impact of environmental factors, genotype selection, and management practices on laying hen performance within each system. Additionally, it discusses emerging trends such as the adoption of enriched cages, precision farming technologies, and sustainable feed alternatives, as well as challenges like disease management and compliance with increasingly strict animal welfare regulations. By synthesizing current global research, this paper aims to highlight best practices and provide a roadmap for balancing productivity, animal welfare, and environmental sustainability in laying hen farming.

Key words*: animal welfare, egg production, laying hens, rearing systems, sustainability.*

ENDOPARASITE FAUNA OF DOMESTIC WATERFOWL IN THE CENTRAL REGION OF THE REPUBLIC OF MOLDOVA

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Abstract

The research on the endoparasite fauna of domestic waterfowl (ducks and geese) from the Anatidae family in the Central Zone of the Republic of Moldova revealed the presence of several endoparasitic species. In ducks (Anas platyrhynchos domesticus), the following parasites were identified: Class Trematoda: 4 species (Echinostoma paraulum, Echinostoma revolutum, Echinostoma robustum, Prosthogonimus ovatus); Class Cestoda: 2 species (Drepanidotaenia lanceolata, Retinometra giranensis); Class Secernentea: 2 species (Amidostomum acutum, Ganguleterakis dispar); Class Conoidasida: 2 species (Eimeria anatis, E. danailovi). In geese (Anser anser domesticus), the following endoparasites were found: Class Trematoda: 1 species (Catatropis verrucosa); Class Cestoda: 1 species (Drepanidotaenia lanceolata); Class Secernentea: 4 species (Amidostomum anseris, Ascaridia galli, Heterakis gallinarum, Ganguleterakis dispar); Class Conoidasida: 4 species (Eimeria anseris, E. nocens, E. truncata, E. stigmosa). The study reveals a diverse range of endoparasites in both ducks and geese, with a greater variety found in geese. This highlights the need for effective parasite control in domestic waterfowl populations, given the potential impact of these parasites on the health and productivity of the birds.

Key words*: endoparasite fauna, habitat, mixtinvasions, monoinvasions, waterfowl.*

COLLECTION, PROPHYLAXIS, AND BIOLOGICAL TREATMENT PROCEDURE FOR ECTOPARASITES IN PHEASANTS

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Abstract

The procedure refers to veterinary medicine, particularly parasitology, and can be used for the prophylaxis and treatment of ectoparasites in pheasants from various natural and anthropized biotopes. This procedure involves treating pheasants by spraying them with the Ectogalimol 5% preparation – a 5% aqueous solution of natural extract obtained by hydroalcoholic extraction from the aerial parts of Dalmatian chamomile (Pyrethrum cinerariifolium Trev.), followed by drying, at a dose of 50 ml per pheasant. For diagnostic and prophylactic purposes, the treatment is carried out in one session, while for therapeutic purposes, it is performed in two sessions with a 14-day interval. It has been found that the Ectogalimol 5% preparation possesses high therapeutic efficacy against various species of ectoparasites in pheasants from the following families: Family Philopteridae (Cuclotogaster cinereus, Cuclotogaster heterographus, Goniocotes chrysocephalus, Goniocotes microthorax, Goniodes colchici, Goniodes dissimilis, Lipeurus caponis); Family Menoponidae (Amyrsidea perdicis, Menacanthus stramineus, Menopon gallinae); Family Ceratophyllidae (Ceratophylus gallinae, Ceratophylus hirundinis); and Family Dermanyssidae (Dermanyssus gallinae, Dermanyssus hirundinis). The clinical condition of the pheasants improved after treatment, the birds became calmer, and their appetite and behavior increased.

Key words*: pheasants, infestation, parasitic agents, collection, prophylaxis, treatment.*

RESEARCH ON THE APTITUDES FOR FATTENING IN A SEMI-INTENSIVE SYSTEM OF F1 CROSSBRED LAMBS OBTAINED BY CROSSING LOCAL TSIGAI SHEEP WITH FRENCH MEAT BREED RAMS

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Abstract

Simple industrial crossbreeding of local sheep breeds with specialized breeds for meat production is the fastest method to increase the quantity and quality of meat production. Our research aimed to study the fattening abilities in a semi-intensive fattening system of F1 crossbred lambs obtained by crossing Tsigai sheep of the rust variety with rams of meat breeds from France, namely Vendeen, Blanche du Massif Central, and Berrichon du Cher. The experiment was carried out at the biobase of the SCDCOC Secuieni - Bacău research station during 2020-2021. At the beginning of fattening, the lambs were 70 days old and had an average body weight ranging from 16 kg for the Tsigai breed batch to about 20 kilograms for the three batches of F1 crossbred lambs. The semi-intensive fattening system lasted 100 days, and at the end of it, it was found that the lambs belonging to the F1 crossbred lots had superior fattening performances (the increase in total weight gain being 21-23% higher) compared to the lambs of the local Tsigai breed.

Key words*: crossbreeding, local breed, French meat ram breeds, meat production, semi-intensive fattening system.*

THE USE OF "CHLORAMICOB" BIOSTIMULATOR IN THE FEEDING OF NURSE BEES TO OBTAIN ROYAL JELLY

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Abstract

Royal jelly is a secretion of the hypopharyngeal and mandibular glands of young nurse bees, used to feed larvae in the first three days throughout the larval period. The research evaluated the impact of the biostimulator "Chloramicob" on royal jelly production. It was established that the optimal dose is 2.25 ml/L administered to nurse bees (1 L sugar syrup/day for three days). In the first stage, it increased the larval acceptance rate by 12.5-27.5%, the mass of the brood by 2.4-14.4% and the total royal jelly production by 25.45-40.04%. In the second stage, increases of 10.0-24.3% in the number of larvae raised, 1.49-1.79% in the diameter of the queen cells and 41.14-93.38% in total royal jelly production. In the third stage, there were increases of 1.12-1.32% in the diameter of the queen cells, 1.13-3.30% in their length and 4.82-27.82% in the total royal jelly production obtained compared to the control group. The conclusion highlights that the use of the biostimulator "Chloramicob" in the feeding of nurse bees leads to an increase in the number of larvae accepted by 7.27-16.36% and in the total royal jelly production by 21.11-48.06% compared to the control group.

Key words*: bee families, biostimulator, sugar syrup, morpho productive indices, royal jelly.*

REVIEW OF DAIRY COWS LONGEVITY AND INFLUENCING FACTORS

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Abstract

Dairy farming is considered to be one of the most significant livestock activities on both globally and nationally. Despite the field's overwhelming importance, we face a growing problem: animal longevity. The concept of "longevity" in the context of dairy cows encompasses not only the duration of their lives, but also the extent of their productivity. The purpose of this paper is to emphasise the importance of keeping animals on the farm for as long as possible. At the same time, the paper will highlight the factors that lead to a reduction of longevity. A substantial number of papers have been analysed in order to achieve the proposed goals, to highlight the common influencing factors, but also to observe the dynamics of longevity over time. The main factors contributing to reduced longevity are: feet/claw disorders, udder disorders, metabolic and digestive disorders, fertility problems, trauma and accident, respiratory and infectious diseases, dystocia. Therefore, analysis of the influencing factors, and more specifically how to control them, is recommended for farmers to enable informed decision-making with regard to the longevity of dairy cows.

Key words*: dairy cows, longevity, factors of disorders.*

RESEARCH ON PRODUCTIVE PERFORMANCE IN THE DIRECTION OF QUANTITATIVE AND QUALITATIVE MEAT PRODUCTION OF YOUNG GOATS FROM INDIGENOUS BREEDS FATTENED IN SEMI-INTENSIVE SYSTEM

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Abstract

The objective of the study is to quantify the quantitative and qualitative performances in the direction of meat production, at slaughter, of young goats from the native Carpathian and Alba de Banat goat breeds, fattened in a semi-intensive system depending on several influencing factors, namely breed, calving type and product sex. To evaluate the slaughter performances, a series of determinations were made regarding: live weight at slaughter, hot carcass weight, cold carcass weight, hot slaughter yield, cold slaughter yield, commercial yield, weight of butchery regions, and weight of edible internal organs. The study was completed by an assessment, by subjective methods, of the quality of the carcasses, taking into account the fattening stage and carcass conformation. The best results, in terms of quantitative and qualitative parameters in the direction of meat production (slaughter weight, slaughter yield, commercial yield, and carcass quality) were obtained by young goats of the Alba de Banat breed.

Key words*: slaughter weight, slaughter yield, slaughter regions, semi-intensive system, young goats.*

DYNAMICS OF THE CHEMICAL COMPOSITION OF MILK FROM ROMANIAN BUFFALOES COWS DEPENDING ON THE LACTATION CURVE

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Abstract

The aim of this study was to analyze the dynamics of fat, protein and lactose content in fresh milk from Romanian Buffaloes cows according to the different stages of lactation. Samples were collected from 20 buffaloes in four phases of lactation: early lactation (1-30 days), plateau phase (30-50 days), end of plateau (180-200 days) and end of lactation period (200-270 days). The variation of the parameters monitored in this study was also highlighted by following their changes throughout the lactation. The results indicated a decreasing trend of all three parameters as lactation progressed. The fat content decreased slightly but steadily, from 7.87% in early lactation to 7.46% in the last phase. Protein levels followed a similar pattern, decreasing from 4.51% to 4.22%, while lactose content decreased from 4.56% to 4.19%. These results highlight the natural variations in the composition of fresh buffalo raw milk during lactation, with implications for optimizing management, increasing efficiency in buffalo milk production, both for milk processing and for its nutritional value.

Key words*: buffaloes, chemical composition, lactation, lactation curve, milk.*

ANALYSIS OF MILK PRODUCTION AND MILK QUALITY IN MONTBELIARD COWS FROM A FARM IN SOUTHEASTERN ROMANIA

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Abstract

Milk has had a fundamental importance in nutrition over the centuries, mainly due to its high nutritional value, which results from a diversified chemical composition, including fat, protein, lactose, and mineral content. This study aims to monitor milk production and the evolution of the main milk quality parameters such as fat, protein, lactose, dry matter, and somatic cell count. The study was carried out on a farm in southeastern Romania, on Montbeliard cows raised in an intensive system. The study was conducted over 12 months, covering both the warm and cold seasons. The results highlighted the importance of monitoring milk production and that a well-balanced nutrition, which includes high-quality feed, is essential for maximizing milk yield, but also for its chemical composition.

Key words*: cow farm, dairy cows, fat content, milk quality, protein content.*

RESEARCH ON THE RELATIONSHIP BETWEEN THE CALVING CALENDAR PERIOD OF ROMANIAN BUFFALO CALVES AND THE AVERAGE DAILY GAIN RECORDED

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Abstract

Tracking and recording the average daily gain of Romanian buffalo calves has a major impact on the profitability of Romanian buffalo farms, buffalo meat being successfully used in the preparation of sausages. The aim of this study was to investigate the average daily growth recorded in Romanian buffalo calves, calved in different calendar periods and the possible correlation between the recorded measurements and the calendar period of calving due to the different biochemical composition of the colostral phase and milk. The measurements were performed at birth, then monthly until the age of 18 months. They were accommodated in the same conditions and benefited from the same feeding conditions, thus they were given dry fiber, green meal, fodder corn, corn silage, water ad libitum. Average values of SMZ were recorded from the value of 742.6 g to 758.8 g.

Key words*: Romanian buffalo, calf, average daily gain.*

EFFECTIVENESS OF ADDING AVOCADO SEED FLOUR (*Persea americana* Mill) IN THE RATION ON PERFORMANCE IN GROWER PHASE VILLAGE CHICKENS

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Abstract

100 native chickens in the grower phase of 10 weeks were used in the study. Five feed treatments, five replications, each group of four replications. The treatments were R0 = 100% basic ration + 0% avocado seed flour; R1 = 95% basic ration + 5% avocado seed flour; R2 = 90% basic ration + 10% avocado seed flour; R3 = 85% basic ration + 15% avocado seed flour; R4 = 80% basic ration + 20% avocado seed flour. 8-week study, data on feed consumption, weight gain, feed conversion, live weight, chest percentage, thigh percentage, back percentage, wing percentage. Data were analyzed by one-way variance (ANOVA). The results of the study showed no difference in all treatments compared to the R0 treatment (control). The conclusion is that avocado seed flour can be used as an alternative material for native chickens in the grower phase to replace commercial feed at a usage level of up to 20% without causing negative effects on meat quality.

Key words*:village chicken, seeds avocado, meat.*

EFFECT OF *Patanga succincta* ABDOMINAL PEPTIDE AS POTENTIAL IMMUNO-STIMULANTS ON LOCAL GOAT KIDS REARED IN COMMUNAL GRAZING SYSTEM

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Abstract

In traditional farming systems, particularly those utilizing communal grazing, local goats often consume fresh forage voluntarily. However, these systems are frequently associated with high mortality rates. To address this issue, the present study explores the potential of immuno-stimulant peptides derived from abdominal region of Patanga succincta to enhance immune response in goat kids. Specifically, the study aims to perform molecular characterization of a local strain of P. succincta and to evaluate the effects of these ISPs on circulating Immunoglobulin G (IgG) levels in young goats. Twelve two-month-old goat kids were randomly assigned to four treatment groups: T1 (0 µl ISPs), T2 (5 µl ISPs), T3 (10 µl ISPs), and T4 (15 µl ISPs), with each group consisting of three animals. The experiment followed a Completely Randomized Design (CRD) and data were analyzed using one-way ANOVA. ISPs were administered via subcutaneous injection at the superior dorsal cervical region. Serum IgG levels were quantified using the Single Radial Immunodiffusion (SRID) method. Results indicated that the T3 treatment group exhibited a statistically significant increase in IgG levels ($P<0.05$) compared to the other groups.

***Key words**: immuno-stimulant, serum, abdominal peptides, Patanga succincta.*

SESSION TECHNOLOGIES OF THE AGRO FOOD PRODUCTS PROCESSING

ADVANCES IN SPECTROSCOPIC RAPID DETECTION TECHNOLOGIES FOR MICROBIAL CONTAMINATION IN MEAT

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Abstract

Microbial contamination is a critical factor affecting quality and safety control in global meat production. In recent years, rapid and non-destructive detection technologies for microbial contamination in meat have garnered increasing attention. Among these, spectroscopic techniques, including Raman spectroscopy, infrared spectroscopy, and hyperspectral imaging, have demonstrated significant advantages in rapid and non-invasive analysis. This review first outlines the critical control points during meat slaughtering, storage, and transportation that are prone to microbial contamination, and analyzes the composition of major microbial communities along with their spectroscopic characteristics. Subsequently, the applications of Raman spectroscopy, infrared spectroscopy, and spectral imaging in monitoring microbial growth patterns and predicting meat shelf life are systematically summarized. Particular emphasis is placed on the latest advancements in spectroscopic hybrid techniques for the specific and rapid detection of pathogenic bacteria. Finally, the progress of various algorithms in spectroscopic model construction is discussed, along with an exploration of the future potential of artificial intelligence in developing spectroscopic models.

Key words*: spectroscopic techniques, microbial contamination, model construction, artificial intelligence.*

PRELIMINARY STUDIES REGARDING THE CYTOTOXICITY OF RED POLYKETIDES USED AS A DYE IN THE FOOD INDUSTRY

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Abstract

Red yeast rice is currently used in Asia as a dye for meat, fish, and other food products, as well as a food supplement due to its statin content. Reports worldwide have documented adverse effects, particularly in individuals with pre-existing health conditions. In this context, we conducted in vitro tests to assess the cytotoxicity of three red dyes derived from different types of red yeast rice. In our study, a normal human standardized cell line was exposed to these red dyes for 24 and 48 hours. The results obtained during these studies revealed that the red polyketides derived from Monascus ruber and Monascus purpureus display cytotoxicity for the studied cell line after 24 hours of exposure, cytotoxicity that persists after 48 hours of exposure only for Monascus purpureus. Red polyketides obtained from high-productivity Monascus sp do not exhibit cytotoxicity in vitro for the studied cell line.

***Key words**:* cytotoxicity, *Monascus sp*., red polyketides.

EVALUATION, MEASUREMENT, AND STABILITY OF FRESH PRODUCT SHELF LIFE: IMPLICATIONS FOR REDUCING FOOD WASTE AND PROMOTING SUSTAINABLE FOOD PRODUCTION

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Abstract

This research analyses the assessment, quantification, and stability of fresh product shelf life, emphasizing their impact on food waste mitigation and sustainable food production. Given that food waste presents considerable environmental and economic concerns worldwide, it is essential to comprehend and enhance the shelf life of perishable goods. The research examines multiple evaluation techniques, such as shelf life testing, sensory assessments, and prediction modelling, to ascertain freshness and quality. Furthermore, it underscores the significance of sophisticated preservation methods, including active packaging and refrigeration technology, in prolonging shelf life and preserving product integrity. By enhancing shelf life, food makers, merchants, and consumers can more effectively manage stocks, decrease spoilage, and mitigate waste. This research seeks to enhance a sustainable food system by ensuring the delivery of fresh items to consumers while minimizing the ecological consequences of food waste.

Key words*: evaluation, food waste, shelf life, stability, sustainability.*

ASSESSMENT OF NUTRITIONAL AND FUNCTIONAL PROPERTIES OF YOGURT ENRICHED WITH ARONIA POMACE POWDER

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Abstract

Aronia pomace powder, obtained as a by-product of juice production through pulp exhausted, is rich in bioactive compounds like anthocyanins, flavonoids, and polyphenols, known for their antioxidant and health-promoting properties. Incorporating aronia pomace powder (APP) into yogurt at 4% and 6% levels offers a novel approach to enhancing its nutritional, sensory, and functional attributes. This study evaluated the effects of Aronia powder on yogurt's physicochemical properties, phytochemical profile, texture, color and sensory acceptability. APP-enriched yogurts exhibited increased total phenolic content (2.50-2.94 mg GAE/g) and antioxidant activity (17.47-19.27 µmol Trolox/g), alongside a visually appealing reddish-purple color due to anthocyanins. The sensory evaluation highlighted 6% APP as the optimal concentration, balancing taste and nutritional benefits. Furthermore, APP demonstrates significant potential for the development of functional dairy products, aligning with consumer preferences for health-oriented and sustainable options.

Key words*: antioxidants, Aronia by-products, functional dairy products, polyphenols, value-added ingredient.*

INNOVATIVE PACKAGING AND LABELING SOLUTIONS FOR PRESERVATIVE-FREE READY-TO-EAT MEALS: ENHANCING SHELF LIFE AND SUSTAINABILITY – STUDY CASE ROMANIA

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Abstract

The increasing consumer demand for healthier ready-to-eat (RTE) meals with fewer or no preservatives has created a pressing need for innovative packaging and labeling solutions that maintain product quality and extend shelf life. This study investigates advanced packaging technologies, including active packaging, modified atmosphere packaging (MAP), and nanotechnology-based materials, to minimize microbial growth and preserve sensory attributes. Additionally, the integration of intelligent labeling systems, such as time-temperature indicators (TTIs) and freshness sensors, is explored to enhance consumer confidence and reduce food waste. The review also evaluates the environmental implications of these solutions, prioritizing sustainable materials and design. By synergizing cutting-edge packaging methods with transparency in labeling, this study aims to develop a comprehensive framework for enhancing the safety, quality, and sustainability of RTE meals. Particularly, some good practices related with enhancing shelf life and sustainability for RTE meals in Romania are addressed in this paper.

Key words: *ready-to-eat meals, active packaging, intelligent labeling, shelf-life extension, sustainable materials.*

EMERGING TRENDS IN FOOD WASTE REDUCTION AND RESIDUE VALORIZATION: ADVANCING SUSTAINABILITY IN THE FOOD SERVICE INDUSTRY - STUDY CASE IN ROMANIA

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Abstract

The food service industry faces a growing challenge of managing food wastage while transitioning toward sustainable practices. This research explores emerging trends in food residue valorisation, focusing on innovative techniques for transforming food waste into valuable by-products such as bioenergy, animal feed, and bio-based packaging materials. Key advancements in bioprocessing technologies, including anaerobic digestion, composting, and enzymatic treatments, are evaluated for their efficiency and scalability. Additionally, this study examines the role of digital tools, such as AI-driven waste tracking and optimization systems, in minimizing waste generation. The integration of circular economy principles within the food service sector is highlighted as a pivotal strategy to address environmental, economic, and social sustainability. By identifying and analysing these new trends, the research provides actionable insights for stakeholders aiming to reduce waste and valorise residues effectively as well in agrifood industry and in food service industry, particularly in Romania's case.

Key words*: anaerobic digestion, circular economy, zero waste, sustainable food service, upcycling.*

THE IMPACT OF USING OLEOGEL AND BUCKWHEAT FLOUR ON THE PROPERTIES OF SEMI-SMOKED SAUSAGES

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Abstract

Semi-smoked sausages are a valued food product in Romania, but their high fat content raises significant public health concerns. This study proposes an innovative solution by replacing pork fat with oleogel and adding buckwheat flour, aiming to improve the physicochemical, organoleptic, technological, and functional properties of the product, thus offering a healthier and nutritionally balanced alternative. Oleogel, used as a substitute for animal fat, represents a modern alternative with the potential to reduce the saturated fat content in meat products. Through its structure, oleogel ensures a texture similar to traditional fat, contributing to the maintenance of desired organoleptic properties, such as juiciness and aroma. Additionally, the use of buckwheat flour adds functional benefits due to its rich content of fiber, proteins, and bioactive compounds with antioxidant properties. This combination promises an improvement not only in nutritional value but also in the stability and safety of the product. The study analyzes the impact of these changes on the main characteristics of semi-smoked sausages, such as texture, color, aroma, and technological behavior during processing and storage. The obtained results could contribute to the development of healthier meat products, tailored to current consumer demands, without compromising their quality or acceptability. This approach opens new perspectives in the food industry, promoting innovation and sustainability in food production.

Key words*: semi-smoked sausages, oleo gel, buckwheat flour, organoleptic properties, nutritional value.*

EMERGING TECHNOLOGIES FOR REFORMULATING MEAT PRODUCTS - A REVIEW

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Abstract

In the ever-evolving landscape of the food industry, the application of innovative technologies has become a crucial aspect of reformulating meat products to meet the changing demands and preferences of consumers and sustainability requirements. This review examines recent technological advancements in the production of innovative meat formulations, emphasizing improvements in safety, preservation, nutritional characteristics, and sensory properties while minimizing the use of synthetic additives. Furthermore, the review highlights challenges faced by the industry, including consumer acceptance, regulatory hurdles, and the need for cost-effective production methods. The potential of these innovative technologies to revolutionize the meat industry is also evaluated, with an emphasis on achieving a balance between health benefits, product quality, and sustainability.

Key words*: innovative technologies, meat formulations, sustainability.*

THE IMPACT OF THE THERMAL PROCESS APPLIED ON POLYCYCLIC AROMATIC HYDROCARBONS IN WILD BOAR MEAT

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Abstract

Thermal processes applied to meat significantly influence its chemical composition. Thus, meat is considered an essential food due to its high nutritional value, good digestibility and appreciated culinary quality. PAHs in preserved products vary significantly, due to differences in preservation processes, chemical composition of the product, fat and water content. These organic compounds are formed from aromatic nuclei combined during pyrolysis or incomplete combustion of organic matter. The HPLC method was used to analyze polycyclic aromatic hydrocarbons. Following the study conducted on wild boar meat, it was found that all PAHs had the lowest values in the case of the boiling process. The highest average content was represented by the following hydrocarbons: phenanthrene (95.43 µg/kg) followed by naphthalene (46.55 µg/kg), fluoranthene (18.16 µg/kg), pyrene (10.24 µg/kg) and chrysene (9.78 µg/kg), all identified in wild boar meat (in sunflower oil). The aim of the study was to analyze polycyclic aromatic hydrocarbons in wild boar meat under the influence of thermal processes and under the influence of the vegetable (sunflower oil) and animal (lard) sources used for cooking.

Key words*: PAH, wild boar meat, thermal processes, oil, lard.*

ARONIA ENHANCED CACIOTTA AS A DAIRY ALTERNATIVE WITH IMPROVED FUNCTIONAL PROPERTIES

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Abstract

The study aimed to assess the impact of incorporating 5% aronia powder on the physicochemical and functional properties of two varieties of caciotta: one with homogenized aronia powder and another with aronia powder layered throughout. The results indicated an overall decrease in fat and crude protein content for both aronia variations compared to the control, while carbohydrate levels exhibited a slight increase. A substantial enhancement in antioxidant activity was seen in both varieties of enhanced caciotta (40.61 ± 0.32 µMol Trolox/g dw for the homogenized version and 39.3 ± 0.30 µMol Trolox/g dw for the layered variety) in comparison to the control (2.7 ± 0.52 µMol Trolox/g dw). Anthocyanins varied between 0.91 ± 0.014 mg C3G/g dw (homogenized) and 0.82 ± 0.01 mg C3G/g dw (layered), whereas polyphenols increased from 1.1 ± 0.01 mg GAE/g dw to 3.4 ± 0.01 mg GAE/g dw. Consequently, the integration of aronia powder into caciotta is an effective approach for creating a functional product with antioxidant properties and beneficial health effects, aiding in the mitigation of oxidative stress and the prevention of chronic diseases.

Key words: *antioxidant activity, dairy products, functional yogurt, plum pomace, pigments.*

CONSUMER PREFERENCES AND TRUST IN TRADITIONAL ROMANIAN FOOD PRODUCTS: A STUDY ON LABEL INFORMATION AND PURCHASING DECISIONS

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Abstract

This study explores consumer behavior towards traditional Romanian food products, focusing on purchasing patterns, trust in product labelling, and the influence of socio-demographic factors. A sample of 238 Romanian consumers was surveyed, with results indicating a strong preference for Romanian produced traditional foods, while interest in similar products from the European Union and non-EU countries was lower. Age and education level were found to significantly influence purchasing decisions, with older and more educated consumers showing a higher tendency to buy traditional products. Trust in the truthfulness of label information was generally moderate, with many consumers actively verifying product details, including shelf life. The findings suggest the importance of promoting the authenticity of Romanian products and fostering consumer confidence through clear, transparent labelling. Marketing strategies should consider socio-demographic differences, with targeted campaigns for various age, education, and geographic segments to increase consumer engagement. By emphasizing quality, tradition, and transparency, producers can enhance brand loyalty and boost the market presence of traditional Romanian food products.

Key words*: consumer preferences, European Union products, food authenticity, food labels, traditional product marketing.*

QUALITATIVE CHARACTERISTICS OF THE FAT FRACTION OF SHEEP YOGHURT AND A LOCAL PRODUCT – "KATAK" FROM KARAKACHAN SHEEP REARED IN THE MIDDLE BALKAN MOUNTAINS REGION

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Abstract

The studies were pooled sheep milks obtained from Karakachan sheep, pasture-raised without nutrition in the farm of the Research Institute of Mountain Stockbreading and Agriculture (RIMSA)-Troyan, Bulgaria. Samples of raw sheep milk for analysis were taken during the the months of April, May and June. Sheep yoghurt and ,,local product katak" were produced from the pooled samples and the fatty acid content of the products was analysed by gas chromatography. Saturated fatty acids were found to decrease from 63.01 g/100 g in raw sheep's milk to 62.28 g/100 g in yoghurt on day 10. Monounsaturated fatty acids and polyunsaturated fatty acids predominated in the ,,local product-katak"-29.54 g/100 g;7.0 g/100 g. The ratio of essential omega-6/omega-3 fatty acids is less than 5 according to health recommendations. The atherogenic index (AI) of milk fat is in the range-1.75-1.83, with a decrease from raw milk to dairy products, indicating that the products are healthier in terms of lipid content. Low trans fatty acid content was reported from 0.45 g/100 g in raw milk to 0.73 g/100 g product in sheep's yoghurt at day 10 and 0.92 g/100 g product in ,,local product-katak"

Key words*: fatty acids, lipid indices, local product-katak, sheep's yoghurt.*

REDUCING FOOD WASTE: STRATEGIES, IMPLICATIONS, AND FUTURE DIRECTIONS

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Abstract

Food waste is a critical global issue with environmental, economic, and social consequences. This article explores the causes of food waste across the supply chain, from production and processing to distribution and consumption, highlighting its regional and global impacts. Using data from sources like the United Nations Environment Programme (UNEP), Eurostat, and national studies, it provides statistical insights into regional disparities and the effects of policies, economic factors, and social behaviors. The analysis focuses on the European Union and Romania, offering comparative perspectives. To combat food waste, the article proposes strategies, including technological innovations, to enhance supply chain efficiency and minimize losses. Policy interventions at local and national levels are emphasized to establish sustainable practices. Consumer education is identified as essential for raising awareness and fostering better habits. By addressing these key areas - technology, policy, and education - the study advocates for sustainable food systems to reduce waste and its harmful effects on the environment and society.

Key words*: consumption, distribution, food waste, strategies, supply chain.*

USING CHIA (*Salvia hispanica* L.) SEEDS FOR VEGAN APPETIZERS WITH FUNCTIONAL POTENTIAL

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Abstract

In recent years, we are witnessing a growing consumer demand for plant-based foods that are as unprocessed and free of synthetic additives as possible, providing the human body with as many bioactive compounds as possible to prevent various diseases. Chia (Salvia hispanica L.) seeds have gained increased attention from researchers and nutritionists, with numerous studies clearly highlighting their high functional potential, due to their rich composition especially in dietary fiber, polyphenols, ω-3, ω-6 and ω-9 fatty acids, proteins that provide all essential amino acids. The aim of this work was to obtain two varieties of vegan appetizer based on chia seeds: one using almond milk, green onion, carrots, lemon juice, flaxseed oil (CSA1), and the second one using soy milk, red onion, seaweed, baked capia peppers, lemon juice, olive oil (CSA2), and to characterize the obtained products in terms of vitamin C content, total polyphenols, carotenoids, antioxidant activity, proximate composition and sensory properties.

Key words: *antioxidant activity; carotenoids; chia seeds; polyphenols; vitamin C.*

A CRITICAL REVIEW ON INNOVATIVE STRATEGIES FOR BREWERY WASTEWATER VALORIZATION: ADVANCING SUSTAINABILITY IN THE FOOD INDUSTRY

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Abstract

Brewery wastewater, a waste of the brewing process, presents significant environmental and operational challenges due to its high organic load, nutrient content, and volume. However, its valorisation offers a promising avenue for sustainable resource recovery, particularly in the food industry. This study explores innovative treatment technologies and circular economy strategies to transform brewery wastewater into valuable resources. Anaerobic digestion and membrane bioreactor systems enable the recovery of clean water for reuse in cleaning and cooling processes while generating biogas as a renewable energy source. Nutrient recovery technologies facilitate the extraction of nitrogen and phosphorus, which can serve as biofertilizers for agricultural use or as growth substrates in food-grade fermentation processes. The integration of brewery wastewater valorisation pathways mitigates environmental impacts while enhancing brewery industry profitability and contributing to food industry innovation. This study underscores the potential of brewery wastewater as a resource, highlighting the importance of technological advancements and interdisciplinary collaboration in achieving sustainable food systems.

Key words*: agriculture, anaerobic fermentation, brewery wastewater, food, organic acids.*

NON-*Saccharomyces* YEAST AS AN ALTERNATIVE SOURCE FOR PROBIOTICS AND PREBIOTICS – A REVIEW

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Abstract

The incorporation of probiotics and prebiotics as food ingredients derived from sustainable microbial sources has gained increasing attention in the food industry. These bioactive compounds play a pivotal role in promoting gut health, improving food quality, and facilitating the development of functional food products tailored to different consumer demands. This study explores the biotechnological potential of probiotic yeasts, including Kluyveromyces marxianus, Kluyveromyces lactis, Yarrowia lipolytica, Pichia kudriavzevii, Pichia kluyveri, and Pichia fermentans, in modulating gut microbiota composition and improving food formulations. In addition, prebiotic compounds from K. marxianus and K. lactis - particularly fructans (fructo-oligosaccharides, inulin) and galactans (galacto-oligosaccharides) - are recognised for their ability to selectively stimulate the growth of beneficial bacterial populations. The integration of these probiotic and prebiotic ingredients into food systems offers significant opportunities for innovation, sustainability, and nutritional improvement, contributing to the advancement of health-promoting and functional foods.

Key words*: non-Saccharomyces yeast, unconventional sources, sustainable food ingredients, probiotics, prebiotics*

REFORMULATION OF AN ORGAN-BASED MEAT PRODUCT WITH PUMPKIN POWDER: A STRATEGY FOR FIBER ENRICHMENT

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Abstract

The development and manufacturing of food products, across all sectors of the industry, that align with contemporary dietary habits and meet consumers' nutritional requirements have become a permanent interest of the food industry. This study aims to combine elements of sustainability, superior valorization and the concept of functional products by optimizing the valorization of poultry organs through the reformulation of conventional Leberwurst. To achieve this, pumpkin powder (Cucurbita maxima) was incorporated at concentrations of 0.1%, 3%, and 5% into the product made with liver and chicken thigh, to enrich the product with dietary fibers - an essential nutritional element absent in conventional meat products - while preserving its sensory acceptability and improving its functional and nutritional profile. After production, the batches were subjected to physicochemical evaluations, and characterized in terms of pH, color, texture, and sensory perception. The addition of pumpkin powder results in an improvement in the fiber content, with a good sensory acceptability for all the formulations. This research supports the development of functional meat products with improved nutritional quality and sustainability by valorizing underused ingredients.

Key words*: fiber-rich food, meat product innovation, pumpkin flour.*

ANALYSIS OF BETA-CAROTENE AND MICROSTRUCTURE OF DUCK NUGGETS USING PROVIT A1 CORNSTARCH AS FILLER

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Abstract

This study aims to determine the levels of beta-carotene, carbohydrates, cholesterol and microstructure of duck nuggets with corn flour filler Provit A1. The method used was an experiment with a complete randomized design (RAL) of 4 treatments and 4 replicates. The treatment in this study was; P10 = Corn Flour Provit A1 10%, P20 = Corn Flour Provit A1 20%, P30 = Corn Flour Provit A1 30% and P40 = Corn Flour Provit A1 40 %. Statistical analysis was performed with ANOVA and mean differences were tested using the Tukey test. The observation parameters were beta-carotene content, carbohydrate content, cholesterol content and microstructure by the Electromagnetic Scanning (SEM) method. The results of this study are that Nuggets with a concentration of 20-30% Provit A1 cornmeal provide the best balance between beta-carotene content, a concentration of 20% provides a good balance between protein from duck meat and carbohydrates from fillers, while a concentration of 30-40% Provit A1 cornstarch provides a significant reduction in cholesterol.

Key words*: duck nuggets, cornstarch, beta-carotene, SEM.*

FOOD SECURITY IN THE REPUBLIC OF MOLDOVA: AN ANALYSIS BASED ON FAO DATA

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Abstract

Food security in the Republic of Moldova has been increasingly challenged in recent years due to low household incomes and regional geopolitical instability. Using FAO data and related sources, this study evaluates five key food security indicators recommended by international agencies: Average Dietary Energy Supply Adequacy (ADESA), GDP per capita (PPP), Average Protein Supply (APS), Prevalence of Undernourishment (PoU), and Food Supply Variability (FSV). The results reveal significant improvements in dietary energy availability and income levels, while highlighting persistent vulnerabilities related to food affordability and nutritional quality. With 27.2% of the population experiencing food insecurity, effective implementation of national food policies, including anti-waste legislation and support for local producers, is essential. Strengthening resilience and ensuring access to a diverse, healthy diet remain national priorities.

Key words: *ADESA, APS, FAO-UN, Food security, FSV, PoU.*

ANALYSIS OF TECHNOLOGICAL, SENSORY AND FOOD SAFETY CHARACTERISTICS OF SEMI-PREPARED PRODUCTS MADE FROM CHICKEN INNER FILET

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Abstract

This paper provides a comparative evaluation of three semi-prepared products made from chicken inner fillet, differentiated by the type of coating applied: classic breadcrumbs, corn flakes, and pumpkin seeds. The study integrates technological, sensory, and food safety perspectives to assess the impact of each variant on thermal behavior, oil absorption, structural stability, and consumer acceptance. Technological parameters such as core temperature during thermal treatment, freezing dynamics, and the performance of critical control points (CCPs) were analyzed in relation to the crust type. Microbiological and chemical analyses confirmed the safety of all products, with results complying with current European regulations. Nutritional profiling revealed the superior functional value of the pumpkin seed variant, while sensory evaluation favored the corn flakes product due to its crispy texture and appealing flavor. These findings support the optimization of technological workflows and the development of safe, high-quality products tailored to the demands and preferences of consumers.

Key words*: inner fillet, functional coatings, food safety, sensory evaluation, nutritional profile, critical control points.*

IMPACT ON QUALITY CHARACTERISTICS OF A PLANT-BASED MEAT ANALOGUES ENRICHED WITH BIOACTIVE COMPOUNDS RECOVERED FROM OLIVE MILL WASTE WATER

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Abstract

The paper presents a preliminary study on the effect of phenolic extract obtained from olive mill waste water (OMWW) in meat analogues based on vegetable proteins. For the first time, meat analogues enriched with phenolic extract, recovered from OMWW through filtration systems and spray-dry technology, were made. The antioxidant activity as well as the sensory properties of three different samples (control, ascorbic acid - 0.5%) and phenolic extract (3%) from (OMWW), were evaluated. The results obtained are promising, opening up new opportunities for research on the exploitation of the use of olive powder in the production of foods rich in bioactive compounds, contributing to the sustainability of the environment and the circular economy.

Key words*: antioxidant activity, phenolic extract, polyphenols, sensory analysis, sustainability.*

TRANSITION AND SENSORY CHARACTERISTICS OF MEAT ANALOGUES BASED ON VEGETABLE PROTEINS WITH TOMATO POWDER, OBTAINED FROM TOMATO PROCESSING

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Abstract

The paper presents a preliminary study of the realization of meat analogues based on vegetable protein with tomato powder. The bibliographic study, a means of reference for the realization of the meat analogue based on vegetable proteins with tomato powder, led in the first step to the obtaining of the tomato powder and to the performing of its physicochemical characterization. Subsequently, the sensory properties of the newly manufactured meat analogues were characterized, which represented the transition to the first plant-based meat analogues enriched with olive powder obtained from the vegetation waters of olive mills, by using spray-drying technology. The results obtained opening up new opportunities for research, contributing to the sustainability of the environment and the circular economy.

Key words*: antioxidant activity, sensory analysis, sustainability, tomato powder.*

HARNESSING BLOCKCHAIN FOR ENHANCED RISK MANAGEMENT IN THE FOOD SUPPLY CHAIN

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Abstract

The paper aimed to present the potential of blockchain technology in enhancing food safety and transparency across the global food supply chain. Blockchain's decentralized, immutable ledger enables end-to-end traceability of products, addressing critical issues of food fraud, contamination, and inefficiency. Through case studies, including IBM Food Trust initiatives at Walmart and Carrefour, this research demonstrates how blockchain can streamline traceability, improve operational efficiency, and bolster consumer trust by providing access to verified information on product origins. Despite these benefits, challenges such as high implementation costs, interoperability issues, and regulatory concerns remain barriers to widespread adoption. This paper offers insights and recommendations to facilitate blockchain's integration in the food industry, advancing toward a safer, more transparent, and sustainable food system.

Key words*: control, digital ledger, food safety, quality, traceability.*

CULTURED MEAT – CONTROVERSIAL INNOVATION IN A CHANGING WORLD

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Abstract

The production and marketing of artificial meat remain contentious subjects, generating ongoing debate. This paper evaluates the topic by presenting a balanced overview of the arguments for and against artificial meat, categorized into four main dimensions: technical, economical, environmental and social. On the scientific front, abundant data from recent studies highlights significant advancements over the past decade. Numerous start-ups have enhanced the original bio fermentation technologies, striving to replicate the natural development of striated muscle tissue. Nevertheless, a critical challenge persists: scaling production from laboratory experiments to industrial-level capacities. Politically, the discourse revolves around the tension between biotechnological innovation and traditional animal husbandry practices. While prior reviews have optimistically addressed environmental sustainability, antibiotic resistance, and ethical considerations, these perspectives often underestimate the socio-cultural challenges associated with this paradigm shift.

Key words*: animal husbandry, artificial meat, consumer acceptance, ethics, muscle tissue.*

IMMUNOSTIMULATORY PHYTOADDITIVES AND THEIR BENEFITS FOR FISH

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Abstract

Derived from plants, phytoadditives are emerging as a sustainable solution to enhance fish health and aquaculture practices. These compounds, including essential oils, herbal extracts, and polyphenols, improve immunity and reduce antibiotic use. Their antioxidant, antimicrobial, and immunomodulatory properties improve immune system and increase disease resistance on fish. The effectiveness of these additives depends on plant type, extraction methods, and dosage. Additional research is required to refine their use and evaluate the long-term effects on fish health and the sustainability of aquaculture.

Key words*: fish welfare, herbal extracts, oxidative stress, phytoadditives, sustainable aquaculture.*

ASSESSING THE ANTIOXIDANT PROPERTIES OF SOME FUNCTIONAL FOODS, FORMULATED WITH RED AND BLACK RICE

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Abstract

Functional foods such as yoghurt made with red or black rice, previously developed, exhibit in vitro an antiproliferative effect on the colorectal cancer cell line. In this context, these studies aimed to assess the antioxidant properties of these types of bioproducts, to establish if this behaviour is due to their antioxidant properties. The postbiotics obtained from these functional foods were analysed by chemiluminescence, and the resulting antioxidant activities were compared with normal yoghurt used as a control. The results revealed that the functional yoghurts with 2.5% fat, containing red or black rice, exhibited high antioxidant activity. In conclusion, the antitumour effect exhibited on the human colorectal tumour cell line in vitro, as shown in previous studies, may also be attributed to the superior antioxidant activity of the new functional foods formulated with black or red rice.

Key words*: functional foods, antioxidant properties, red rice; black rice.*

EXPLORING THE NUTRITIONAL BENEFITS OF USING CARROT POMACE POWDER IN FONDANT CANDY PRODUCTION

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Abstract

Carrots, or Daucus carota L., are a type of root food that are known for being very healthy. Carrot pomace is a useful by-product abundant in dietary fiber and carotenoids that can be economically beneficial for enhancing culinary products, showing this waste's diversity and potential uses. This research examined the effect of carrot pomace (CP) powder at different concentrations (5% and 7%) on the improvement of fondant candies quality. This study aimed to assess the impact of these elements on the physicochemical and phytochemical characteristics, color, and sensory attractiveness of the fondant candies. Our study's results indicate that adding CP powder greatly improves the nutritional composition by increasing the fiber content and providing advantageous antioxidants. An analysis of sensory evaluations revealed that fondant candies containing up to 7% CP were favored for their taste and texture without any noticeable negative impact on consumer acceptance. The research findings indicate that carrot pomace powder is a feasible natural component for manufacturing nutritionally superior fondant candies with enhanced health advantages. This ingredient achieves a harmonious combination of increased nutritional content and preserving favorable sensory characteristics.

Key words*: carrot pomace, phytochemical characterisation, carotenoids, antioxidants, food applications, fondant candies.*

NEW CHOCOLATE FORMULATIONS WITH IMPROVED FUNCTIONALITY BY USING CAROB AND ROSEHIP POWDERS AS PARTIAL COCOA SUBSTITUTES

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Abstract

In this study, the bioactive potential of unconventional materials, such as carob powder (CP) and rosehip powder (RP), was exploited as partial substitutes for cocoa to design new chocolate formulations. Nine formulations were prepared under laboratory conditions by substituting cocoa (w/w), as follows: 0% (control sample), 10% CP, 20% CP, 30% CP, 40% CP, 30% CP and 10% RP, 20% CP and 20% RP, 10% CP and 30% RP, respectively, 40% RP. Changes in the proximate composition and bioactive profile of chocolate were assessed based on total phenolic content (TPC), total flavonoid content (TFC) and antioxidant activity. Progressive increase in the level of CP led to improvements in the bioactive properties. The addition of CP and RP mixture resulted in a more pronounced boost in bioactive attributes with increasing RP level. The highest bioactive profile was achieved for the 40% RP formula. High levels of TPC and TFC strongly contributed to the improvement of chocolate's antioxidant activity. These findings recommend fortifying chocolate with phenolic compounds provided by CP and RP to extend the range of functional confectionary products.

Key words*: antioxidant activity, bioactive compounds, carob and rosehip powder, chocolate formulations.*

MILK`S HIDDEN TREASURE: EXPLORING WHEY PRODUCTION IN COWS, SHEEP, BUFFALO, AND GOATS

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Abstract

This study examines whey production from cow, sheep, buffalo, and goat milk, emphasizing species-specific differences in yield and nutritional composition. Drawing on recent scientific research and industry data, the analysis evaluates whey yield, protein content, and fat composition across these species. Cow milk processing emerges as the largest source of whey, while whey derived from sheep and buffalo milk exhibits higher protein concentrations (1.1-1.2%). The study provides a review of advanced whey processing technologies, including ultrafiltration, fermentation, and spray drying, as well as novel applications in functional foods, biofertilizers, and other high-value products. The findings highlight the potential of optimizing processing methodologies and implementing sustainable utilization strategies to maximize the economic and environmental value of whey. The study concludes that adopting innovative technologies and addressing key challenges such as processing costs and resource efficiency could position whey as a pivotal resource within the framework of the circular economy.

Key words*: dairy byproducts, milk, sustainability, whey.*

KINETICS OF NUTRITIONAL DEGRADATION OF APPLE JUICE INFLUENCED BY STORAGE CONDITIONS

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Abstract

The stability of nutrients in apple juice during storage is critical for maintaining its nutritional quality and shelf life. This study investigated the kinetics of vitamin C (ascorbic acid) and polyphenol degradation in pasteurized apple juice under varying storage temperatures (4°C, 25°C, and 35°C) over 60 days. Degradation followed first-order reaction kinetics, with rate constants (k) determined experimentally. The Arrhenius equation was applied to model the temperature dependence of degradation, revealing activation energies (E_a) for vitamin C and for polyphenols, indicating higher thermal sensitivity of vitamin C. A Q10 analysis was used in order to evaluate the vitamin C and polyphenols acceleration of degradation with time and temperature. The results highlight the importance of refrigerated storage (4°C) to minimize losses, with vitamin C retention exceeding 85% after 60 days at 4°C, compared to <40% at 35°C. These findings provide actionable insights for optimizing apple juice storage conditions and predicting shelf life using accelerated shelf-life testing (ASLT).

Key words**:** *apple juice, Arrhenius kinetics, nutrient degradation, pasteurization, vitamin C.*

BEETROOT POMACE POWDER AS A BIOACTIVE POWDER INGREDIENT IN MAYONNAISE FORMULATION

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Abstract

Beetroot pomace powder (BPP), a by-product of beetroot processing, is a rich source of bioactive compounds, including phenolics and betalains These compounds provide antioxidant, anti-diabetic, anti-inflammatory, and antiproliferative activities. The integration of beetroot pomace powder (BPP) as a bioactive component in mayonnaise formulation signifies an innovative method for improving mayonnaise's nutritional and functional attributes. This research examines the impact of BPP incorporation (with varying BPP concentrations) on the physicochemical characteristics, phytochemical, color, sensory qualities, and texture of BPP-enriched mayonnaise. The findings indicated that BPP markedly improved the antioxidant activity (7.66-9.75 µmol TE/g dw) and betalain contents (2.18-3.93 mg/g) of mayonnaise while maintaining sensory acceptability, with an optimal 3% BPP inclusion level. Moreover, BPP enhanced mayonnaise's aesthetic properties. The results indicate that beetroot pomace is a feasible natural coloring ingredient, consistent with consumer demand for healthier and more sustainable food products. Subsequent investigations may examine the wider applicability of BPP in food systems and its long-term storage effects.

Key words*: agro-industrial by-products; phytochemicals; betalains; antioxidants; value-added food products.*

QUALITY ASSESSMENT OF BREAD BASED ON COMPOSITE FLOURS FROM AVOCADO SEEDS FLOUR AND WHEAT FLOUR

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Abstract

The main purpose of this study was to explore the potential of avocado seeds flour (ASF) as a novel source of bioactive components and its valorization in the development of bread formulations with enhanced sensory, nutritional, functional and technological properties. ASF was used to replace wheat flour (WF) at percentages of 0% (control sample), 5%, 10%, 15% and 20% (w/w). Standard methods were used to examine the proximate composition, physical and sensory characteristics, total phenolic content and antioxidant activity of the resulting bread formulations. The results of the sensory analysis showed that the bread sample with a 15% ASF incorporation was the most appreciated by the evaluators. The obtained results also showed an improvement in the nutritional profile of the breads, proportional to the increase in the percentage of ASF in the composite flour mixes, as well as a significant increase in functional attributes. These findings provide conclusive evidence of the potential of ASF to be used as a partial replacement of WF in the formulation of innovative flour products with improved functional properties.

Key words*: avocado seeds flour, functional bread, nutritional profile, sensory evaluation, total phenolic content.*

THE USE OF TUNA BY-PRODUCTS IN CROISSANTS: INNOVATION, TECHNOLOGY, AND BENEFITS

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Abstract

Fish by-products have low economic value but present potential for use in increasing added value, reducing losses, and mitigating global food waste. The present study aims to develop innovative products that utilize tuna by-products by integrating them into human consumption. Thus, two types of butter croissants with tuna by-product fillings were created. The croissants were developed at the University of Agronomic Sciences and Veterinary Medicine of Bucharest in the Pilot Bakery Station. After creating the recipes and production technologies for the croissants containing fish by-products, consumer acceptance was assessed through sensory analysis tests. The evaluation criteria included taste, aroma, colour, overall appearance, and texture. The results showed that the created and tested products are suitable for large-scale consumption. The study`s findings demonstrated that the innovative products developed represent an effective alternative for valorising fish by-products.

Key words*: blue transformation, consumer, fish, innovative product, nutritional value, sustainability.*

CHEMICAL AND MICROBIOLOGICAL PROPERTIES OF SYMBIOTIC YOGURT ICE CREAM WITH THE ADDITION OF WHITE OYSTER MUSHROOM JUICE (*Pleurotus ostreatus*)

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Abstract

This study aims to analyze the effect of symbiotic yogurt with the addition of white oyster mushroom juice on the chemical and microbiological properties of symbiotic yogurt ice cream. This study used a complete randomized design (RAL) with white oyster mushroom juice concentration treatment consisting of 0%, 2%, 4%, 6% and each treatment was repeated 4 times then yogurt as much as 60% of each treatment was added to ice cream. Based on the results of the study, protein levels and fat and crude fiber levels, there was a very real difference (P≤0.01) to the average protein levels between the treatment of symbiotic yogurt ice cream with the addition of white oyster mushroom juice (Pleurotus ostreatus). The results of the study of total lactic acid bacteria and the viability of lactic acid bacteria showed that there was a very noticeable difference (P≤0.01). The conclusion of this study is that symbiotic yogurt ice cream with the addition of white oyster mushroom juice (Pleurotus ostreatus) chemical and microbiological properties is a highly nutritious drink.

Key words*: protein, fat, crude fiber, total BAL, viability.*

THE BOTTLED WATER QUALITY INFLUENCED BY PACKAGING MATERIALS AND STORAGE CONDITIONS. A MINI REVIEW

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Abstract

The quality of bottled water is significantly influenced by packaging materials and storage conditions, both of which have direct implications for human health. This mini-review explores how common packaging materials - such as polyethylene terephthalate (PET), polycarbonate (PC), glass, and aluminium affect water safety through chemical migration and leaching. Hazardous compounds like antimony, bisphenol A (BPA), phthalates, and microplastics can migrate from the container into the water, posing potential risks to endocrine, neurological, and reproductive health. Storage conditions further exacerbate contamination risks. High temperatures, prolonged storage periods, and exposure to light accelerate chemical leaching and microbial growth, increasing the likelihood of waterborne illnesses. This review highlights the critical need for regulatory frameworks that address both material selection and proper storage guidelines. Public education on optimal storage practices and further research into alternative packaging materials with minimal environmental and health impacts are essential to ensuring bottled water safety.

Key words*: chemical migration, contaminant exposure, environmental impact, food contact materials, water safety.*

INVESTIGATING THE BENEFITS OF PLUM POMACE POWDER AS A NUTRITIOUS ADDITION TO YOGURT

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Abstract

The objective of the study was to examine the impact of enriching yogurt with plum pulp powder (PP) on the physicochemical, antioxidant, and sensory traits of the final product. The milk was sourced locally, and the bioactive ingredients were extracted via the ultrasound-assisted method. The findings indicated a significant enhancement in the antioxidant capacity of the fortified yogurts, achieving values of up to 20.98±1.19 µmol TE/g d.w. at the highest concentration of PP (BPP3). The incorporation of PP enhanced the texture, colour, and smell of the yogurts, which was favourably received by the panellists. The incorporation of PP also resulted in a uniform pink hue and enhanced firmness of the yogurt, without adversely affecting acidity or syneresis during storage. While the most significant advantageous effects were identified at a concentration of 12% PP, an increase in acidity and whey separation was also recorded with time. The results obtained underscore the potential of plum powder as a bioactive component for the formulation of functional dairy products, hence facilitating the advancement of functional products and supporting the principles of a circular economy.

Key words*: antioxidant activity, dairy products, functional yogurt, pigments, plum pomace.*

DETERMINATION OF SULFONAMIDE, DAPSONE AND TRIMETHOPRIM RESIDUES IN EGGS BY LC-MS/MS TECHNIQUE

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Abstract

The analysis of sulfonamide and other drug residues is essential to increase consumer confidence in food products and to confirm that the product in question meets all the required conditions both in terms of drug residues and the quality and safety of these products. High-performance liquid chromatography coupled with mass spectrometry (LC-MS/MS) was used for the determination of twenty sulfonamides, epson and trypzone sulfonamides. Control hen egg samples were analyzed and any interferences (signals, peaks) were controlled in the region of interest where the analytes under study are expected to elute. Control hen egg samples were then fortified to relevant concentrations with analytes.

Key words*: eggs, sulfonamides, dapsone, trimethoprim.*

STATISTICAL ANALYSIS OF COLOR FEATURES FOR QUALITY EVALUATION OF HONEY USING OPTICAL DEVICES

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Abstract

Statistical analysis for evaluation of nine quality parameters of honey samples using two optical devices is presented in the paper. Honey from 14 regions of Bulgaria formed a set of 29 samples included in the study. The presence of heavy metals - arsenic (As), cadmium (Cd), lead (Pb), iron (Fe), Hg and pH, amount of pH, reducing sugars, sweet disaccharide and water content are preliminary evaluated in the certificated laboratory. The color digital images of the honey samples are obtained using camera of mobile phone and document camera and the data are transformed into Lab and HSV color spaces, the feature vector includes 9 color features. Correlation matrices, descriptive statistics and histograms are included in the statistical analysis. Using of document camera allow to apply more informative color features that could increase the assessment accuracy. The results show that there are informative features for quality assessment of honey samples using their color images. The identified informative signs will be integrated into developed mathematical and neural models for the quality assessment of honey through their color images.

Key words*: chemical parameters, descriptive statistics, honey, image analysis.*

VALORIZATION OF BY-PRODUCTS FROM THE FRUIT AND VEGETABLE INDUSTRY: NUTRITIONAL AND TECHNOLOGICAL PERSPECTIVES

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Abstract

The food industry generates a significant amount of by-products, and their valorization represents a sustainable solution for reducing waste and optimizing natural resources. This study explores the nutritional and technological potential of by-products from fruit and vegetable processing, seeds, pomace, peels and pulp. The method used consists of analyzing the specialized literature, to identify the primary nutritional benefits and technological applications used in the valorization of fruit and vegetable by-products. The results show that these raw materials are rich in bioactive compounds and can be used in functional food products and industrial ingredients (pectin for thickening, essential oils for flavors, extract for preservation).

Key words: *food by-products, nutritional potential, technology, industry, valorization.*

COMPARATIVE ANALYSIS OF THE NUTRITIONAL PROFILE OF PHEASANT MEAT BASED ON REARING SYSTEM: NATURAL ENVIRONMENT VS. INTENSIVE SYSTEM

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Abstract

Pheasant meat is a valuable food, with a superior nutritional value compared to other types of meat. The aim of this study was to compare the nutritional profile of pheasant meat raised in two distinct systems: the natural environment and the intensive system. The study assessed the chemical composition of the meat, including concentrations of proteins, fats, essential fatty acids, vitamins, and minerals. The methodology involved collecting samples from both rearing environments, followed by laboratory analyses using standardized methods. The results emphasize the different effects of the rearing environment on the nutritional value and quality of the final product, providing useful insights for sustainable practices and the optimization of food production.

Key words*: Phasianus colchicus, chemical composition, quality, nutritional value, anatomical portions.*

HEAVY METALS CONTAMINATION OF SHEEP'S MILK

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Abstract

Contamination with heavy metals and metalloids represents a danger to animal and human health. The most important sources of contamination are attributed to water and soil due to their potential for propagation in the trophic system. The process of contamination with heavy metals is based on a water-soil-plants-animals-human circuit, which is why it is particularly important to carefully monitor all influencing factors. Their presence even in small quantities affects the processes of cellular homeostasis of organisms with direct implications on renal and hepatic functions. The purpose of this article was to present the toxicity of heavy metals in sheep's milk focused on the sources of contamination, the possibilities of metabolism as well as the influence of age and lactation on the accumulation of heavy metals. In order to ensure an optimal level of security, it is recommended to perform periodic analyses of soil, water, feed and carefully monitor the management processes of dairy products.

Key words*: heavy metals, contamination, milk quality, toxicity, dairy products.*

CHARACTERIZATION OF THE PHYSICOCHEMICAL COMPOSITION AND FATTY ACIDS OF WALNUTS

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Abstract

Walnuts contain all the major macronutrients: proteins, fats, carbohydrates, bioactive compounds: vegetable proteins, fibers, minerals, tocopherols and phenolic compounds. Walnuts are rich in unsaturated fatty acids, MUFA, PUFA n-3 and n-6. Linolenic acid (18:2n-6) and alpha-linolenic acid (18:3n-3) are two essential acids for the human body and are precursors of C20 and C22 polyunsaturated fatty acids. The average protein content in the studied nuts is 16.85%. The most representative fatty acids were: C18:2 (39.89%), C18:1 (35.56%) and C16:0 (10.58%). The antioxidant capacity of the nuts varied in the range (54.39-57.48 mmol/100 g).

Key words*: protein, ash, moisture, antioxidant capacity, fatty acids.*

THE INHIBITION OF HETEROCYCLIC AROMATIC AMINE (HAAs) FORMATION AND MODIFICATION OF THE VOLATILE FLAVOR PROFILE IN ROAST BEEF: A REVIEW

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Abstract

Heterocyclic aromatic amines (HAAs) are potential carcinogens that are formed during thermal processing, particularly when meat is exposed to elevated temperatures such as grilling or roasting. The importance of ingredients and marinades, rich in antioxidants properties (like tea, bay leaf, star anise, red chili, oregano), for inhibit the formation of these harmful compounds. Reducing lipid oxidation and Maillard reaction compounds formation, while improving the nutritional quality, safety and sensory preference of grilled meats. The aim of this study was to determine the inhibitory effects of natural and synthetic antioxidants, seeds, spices, fruit, and plant extracts on HAA formation in roast beef meat.

***Key words**: heterocyclic aromatic amines, antioxidants, carcinogen, beef, flavour.*

KEY FACTORS AND QUALITY CRITERIA IN FISH PURCHASING AND PROCESSING IN RESTAURANTS

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Abstract

This study examines key factors influencing the purchasing and processing of fish in the restaurant industry, emphasising quality standards and sustainability. Addressing critical challenges such as fish perishability, ethical sourcing, and food waste, the research employs a suitable methodology, including supplier surveys, interviews with chefs and managers, and waste management analysis. The investigation explores quality assurance systems aimed at preserving freshness, texture, and product quality during fish processing. Key findings reveal that selecting suppliers with sustainability certifications, transparency, and consistent quality is essential for operational success. Moreover, effective processing techniques, such as precise portioning and the utilisation of fish by-products, are shown to significantly reduce food waste and enhance efficiency. Staff training emerged as a critical factor in optimising fish handling and management practices. This study underscores the importance of integrating sustainability and quality standards into purchasing and processing workflows, offering practical recommendations for restaurant owners and authorities. These findings contribute to a deeper understanding of how the restaurant industry can improve operations while addressing environmental and ethical challenges, aligning business practices with sustainability goals.

Key words*: ethical sourcing, fish, quality, sustainability, waste reduction.*

CHEMICAL COMPOSITION AND BIOGENIC AMINES IN WILD BOAR MEAT DEPENDING ON STORAGE PERIOD: A REVIEW

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Abstract

The quality of boar meat also depends a lot on the food ingested during the fattening period. Boar meat, compared to domestic pig meat, is richer in protein, lower in lipids and richer in mineral salts. Studies have shown a reduced calorie content of wild boar meat compared to domestically raised pork, a large amount of essential amino acids, vitamin B12, D and mineral salts (iron, zinc, selenium). Since the meat of young boar is more difficult to digest, it is recommended to prepare meat from mature boar. A peculiarity of the biochemical processes in venison is represented by connective tissue proteins, which have a high degree of densification and polymerization, myofibrillar proteins being abundantly represented. The proteins in game meat are resistant to enzymatic denaturation, and that is why it is difficult to mature game meat. The purpose of this study is to characterize the composition of wild boar meat and the biogenic amine content depending on the storage period.

Key words*: boar meat, fat, protein, quality, biogenic amines.*

QUALITATIVE-COMPARATIVE RESEARCH OF IMPROVEMENT OF APERITIF CAȘCAVAL WITH ADDITION OF CURCUMIN

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Abstract

This study aims to assess the technological, organoleptic, and physicochemical quality of two dairy products, Aperitif Caşcaval and the same type of cheese with curcumin added, manufactured by a production unit in Romania. The research was conducted through a comprehensive evaluation of milk collection, processing, and cheese production techniques. Standard analytical methods were applied to determine moisture, fat, protein, acidity, and salt content. Sensory evaluations provided insights into consumer acceptability. The results highlighted significant differences between the two products in terms of texture, composition, and microbial safety. Aperitif Caşcaval exhibited a firm consistency due to its thermal processing and lower moisture levels. The addition of curcumin improved organoleptic properties and shelf life, due to its specific colour and antibacterial and antifungal properties. The study confirms the high quality of both products, aligning with national and European dairy standards. These findings support the importance of optimizing production methods to enhance product quality and consumer satisfaction.

Key words*: dairy products, physicochemical analysis, organoleptic analysis, cheese processing, curcumin.*

QUALITY ASSESSMENT OF SELECTED MEAT PRODUCTS FROM A LEADING ROMANIAN PRODUCER

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Abstract

This study aims to evaluate the quality parameters of selected meat products, specifically Bănățean Salami and Chicken Breast Frankfurters, produced by a meat processing company in Romania. The research includes a comprehensive assessment of the technological, physicochemical, microbiological, and sensory characteristics of these products. Standard laboratory methods were used to determine moisture, protein, fat, salt content, acidity, and microbial safety. Sensory evaluations were also conducted to assess consumer acceptability. The results revealed significant differences in composition and textural attributes between the two products, influenced by their distinct processing methods. Bănățean Salami exhibited a higher fat content and intense aroma, while Chicken Breast Frankfurters had a lower fat percentage and a more delicate texture. The study confirms the compliance of these meat products with national and European quality standards, highlighting the importance of optimizing production techniques for enhanced consumer satisfaction.

Key words*: meat products, physicochemical analysis, microbiological safety, meat processing, food quality control.*

THE INFLUENCE OF HERBS AND SEASONING OILS ON THE SHELF LIFE OF MEAT PRODUCTS

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Abstract

In the context of the current economy, marked by population growth and limited natural resources, controlling the shelf life of meat products is essential to limit losses. At the same time, the food industry is invaded by food additives that, in most cases, create harm to the health of consumers and the orientation towards the use of natural ingredients is more than important. The paper aims to analyze the influence of the addition of natural spices and spice extracts on the shelf life and storage stability of meat products. The experiments carried out showed that the use of thyme and basil, both in dried form and in the form of extracts, limited the spoilage processes, the oils proving to be more effective than the dried plants. Sensory analysis of the experimental samples showed a better appreciation of the products in whose composition the dried plants were used.

Key words*: seasoning herbs, conservation, essential oils, meat products.*

STUDY ON THE SHELF LIFE OF VACUUM-PACKED MATURED BEEF

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Abstract

The research conducted on the quality and safety characteristics of matured beef, packaged in polyethylene foil, aimed to optimize the shelf life of this food product. The investigations were carried out on samples taken from the local producer and the organoleptic properties (external appearance, cross-sectional appearance, consistency, odor and color) which present appreciable characteristics, and the physicochemical indices (pH value, protein, fat content, peroxidase and peroxidase reaction, etc. were evaluated) demonstrated the requirements in parametric terms. Following microbiological investigations, no pathogenic microorganisms were detected such as: Salmonella spp., E. coli beta-glucuronidase positive, UFC/g, Listeria monocytogenes, etc., which would affect the health of consumers. Heavy metal residues (Cd, Pb) do not exceed the maximum permitted limits for this product, which proves the conformity and safety of matured beef during the shelf life.

Key words*: mature beef, shelf life, heavy metal residues.*

SENSORY, PHYSICO-CHEMICAL AND MICROBIOLOGICAL CHARACTERISTICS OF DRY-CURED PRODUCTS

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Abstract

Dry-cured meat products are highly esteemed by consumers due to their unique sensory profiles and extended shelf life. This study synthesizes recent research to provide a comprehensive overview of the sensory, physicochemical, and microbiological properties of dry-cured products. It explores the interrelationships among these characteristics and their collective influence on product quality. Key parameters analyzed include sensory attributes, moisture content, pH, total aerobic plate count, and populations of lactic acid bacteria. This study offers novel insights into the optimization of maturation processes, based on the latest findings. The outcomes are expected to advance production practices, ensuring superior product quality that aligns with evolving consumer expectations.

Key words*: maturation, quality, dry-cured products.*

ADVANCES IN FOOD SAFETY MANAGEMENT: CURRENT MONITORING STRATEGIES AND IMPLEMENTATION CHALLENGES IN FOOD PROCESSING UNITS

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Abstract

The implementation of food safety management systems (FSMS) is essential for ensuring food quality, consumer health, and regulatory compliance in food processing units. This review examines current monitoring practices, highlighting both established approaches such as Hazard Analysis and Critical Control Points (HACCP) and modern technologies like blockchain, Internet of Things (IoT) sensors, and real-time data analytics. These advancements enable more precise control, traceability, and risk management across the food supply chain. Despite technological progress, several barriers hinder effective FSMS implementation. Key challenges include insufficient staff training, limited financial resources, regulatory complexity, and difficulties in integrating advanced monitoring systems into existing workflows. Small and medium-sized enterprises (SMEs) are particularly affected due to constrained budgets and technical expertise. This review underscores the importance of overcoming these barriers through targeted interventions. Future research should focus on cost-effective, scalable solutions tailored to diverse food processing environments, ensuring that FSMS implementation becomes more efficient, sustainable, and globally standardized.

Key words*: compliance challenges, food safety culture, risk assessment, technology integration, traceability systems.*

CURRENT TRENDS AND INNOVATIONS IN IMPROVING THE NUTRITIONAL, SENSORY, AND RHEOLOGICAL PROPERTIES OF TRADITIONALLY PRODUCED PASTA: AN OVERVIEW

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Abstract

The growing demand for healthier and more appealing pasta products has driven extensive research into enhancing the nutritional, sensory, and rheological properties of traditionally produced pasta. This review explores recent advancements in ingredient selection, processing technologies, and formulation strategies aimed at improving pasta quality. Key innovations include the incorporation of functional ingredients (whole grains, legumes, bioactive compounds and protein-rich flours) to boost nutritional value. Advanced processing methods (extrusion optimization, drying techniques), have also contributed to better texture, cooking performance, and shelf stability. From a sensory perspective, the challenge lies in balancing nutritional content with consumer acceptability regarding taste, texture, and appearance. Rheological properties like elasticity, viscosity, and extensibility, are affected by flour composition and processing conditions, influencing the final product`s quality and cooking behavior. This review highlights current research findings, emerging trends, and future prospects for sustainable and health-oriented pasta production.

Key words*: dough rheology, functional ingredients, nutritional enhancement, textural optimization, traditional pasta.*

ASSESSMENT OF THE NUTRITIONAL CHARACTERISTICS AND GASTRONOMIC PATTERNS OF CULINARY DISHES FROM SOME MEDITERRANEAN COUNTRIES

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Abstract

This study investigates the eating habits of consumers from main regions of some Mediterranean countries, focusing on nutritional patterns and food preferences. Gastronomy in Mediterranean countries has been shaped by a variety of cultural influences, largely due to historical interactions among neighboring states, which led to a blending of local traditions, cultural practices and lifestyles. The study presents traditional culinary dishes from the most representative regions of Italy, Spain, Greece and France. The nutritional values of the most consumed dishes in each country have been calculated. The gastronomic preparations were structured as starters, liquid dishes, main dishes, dessert and drinks and the energy and nutritional values were calculated for one dish from each category, considered as the most relevant for each country studied. Our results reveal that in all food preparations of the four countries studied, the predominant ingredients are meat, fish, seafood, and vegetables. The calculated nutritional profile of the menus specific to Spain, France, Italy, and Greece is well-balanced and has moderate calories values.

Key words*: gastronomic patterns, traditional dishes, Mediterranean countries, nutritional profile, energy value.*

RESEARCH ON THE QUALITY OF PIG CARCASSES BASED ON DIFFERENT INFLUENCE FACTORS

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Abstract

Each pig breed has different characteristics and composition of meat and carcasses. After slaughter, the quality of animals for meat, respectively the assessment of carcass quality, is established by assessing elements such as conformation, fattening status, fineness, color and consistency of the muscles. All of these elements used to assess the quality of a carcass depend on invariable and variable factors. The invariable factors taken into account are species, breed, sex, age, these determining the "classes" for the carcass. The variable factors are the maintenance conditions, nutrition, section, etc. and participate in determining, for each class, the carcass qualities. The aptitudes of the animals for quality carcasses are established after cutting, summing up several essential criteria such as the conformation of the carcass, the weight of the carcass and the portions in the carcass, the yield, the characteristics of the muscle and adipose tissue that form the meat and define the quality of the meat, as well as their distribution according to the slaughtering region.

Key words*: pigs, carcass, quality, influence factors.*

A CRITICAL REVIEW ON THE INFLUENCE OF BIOACTIVE COMPOUNDS ON MEAT AND THEIR EFFECT ON *Salmonella* CONTROL: PROMOTING FOOD SAFETY AND QUALITY

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Abstract

Meat, an essential component of the human diet, is susceptible to contamination by pathogens such as Salmonella, posing significant public health risks. In this context, bioactive compounds offer innovative solutions for enhancing food safety through their antimicrobial and antioxidant effects. This study explores the influence of bioactive compounds on meat, with a focus on preventing and controlling Salmonella contamination. Studies show that their application in surface treatments or active packaging materials inhibits the development of pathogenic bacteria, including Salmonella, thereby reducing contamination risks. In addition, plant extracts rich in polyphenols and flavonoids contribute to meat stabilization by preventing lipid and protein oxidation. Modern processing methods allow the incorporation of these bioactive substances into meat products through techniques such as marination, injection, or active packaging. This study highlights the importance of technological advancements and interdisciplinary collaboration for harnessing the potential of bioactive compounds for combating Salmonella and ensuring safe and high-quality food.

Key words*: meat, contamination, Salmonella, bioactive compounds, essential oils.*

RESEARCH ON THE QUALITY OF CATTLE CARCASSES BASED ON DIFFERENT INFLUENCE FACTORS

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Abstract

Among animal products, meat ranks first due to its high content of high-quality protein, high digestibility, and complex chemical composition that covers the needs of the human body. The notion of `quality` represents a combination of several factors such as sensory, nutritional, technological and hygienic. Regardless of the breed, the quality of cattle carcasses is influenced by internal factors related to the animal, namely the age of the animal - young animals have more tender meat at slaughter, sex - males give a greater amount of meat in the carcass, but the quality is superior to females, as they have a better feed conversion, the meat-to-fat ratio being better, health status - sick cattle lose weight, thus producing carcasses of poorer quality, and external factors such as nutrition - this influences the quality both through the type of feeding and its level, microclimate and exploitation conditions, the method of slaughter - starting from transport to slaughter.

Key words*: cattle, carcass, quality.*

ANALYSIS OF A FUNCTIONAL PRODUCT FROM CARP (*Cyprinus carpio*) WASTE IN THE CONTEXT OF THE CIRCULAR ECONOMY

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Abstract

According to the data provided by the representative organization of the Romanian aquaculture sector, a production of 10,000 tons of fish is estimated for 2024. The fish processing industry is known for its high quantities of by-products, and in these circumstances, it is necessary to adopt the most correct approach to their disposal or recycling to prevent the challenges related to environmental management. The circular economy has been of increasing interest in recent years as the exploitation of fish waste represents a sustainable strategy for realizing a circular bio-economy by producing high-value-added compounds. The study aimed to obtain a concentrated soup from fish waste (bony skeleton, head, and skin) and to incorporate this concentrate in a paste obtained from processed fillets. Determinations were carried out to establish the gross chemical composition, color, and pH of the experimental batches, as well as the acceptability of this product to potential consumers.

Key words*: circular economy, fish waste, concentrated soup, value-added product.*

THE USE OF CARROT JUICE AS AN AGENT TO IMPROVE THE QUALITY ATTRIBUTES OF A PRODUCT OBTAINED FROM CHICKEN BREAST (*Musculus pectoralis*)

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Abstract

The increasing demand for the consumption of chicken meat products imposes the need for continuous and complex research in this area of application. Thus, healthier alternatives are being sought by developing preparations with bioactive compounds from natural sources in their structure to improve their intrinsic properties. The current study focused on the injection of carrot juice in different percentages (5%, 10%, and 15%) in three experimental groups, using the anatomical region of the Musculus pectoralis. Experimental batches were subjected to an enzymatic wet aging process using vacuum wet aging under refrigerated conditions, followed by heat treatment. Following the analysis of the data obtained, significant results were recorded. Carrot juice can be considered as a bioactive component in optimizing the overall quality of the finished product, bringing changes in both the nutrient profile, physico-chemical indicators, and sensory properties.

Key words*: meat product, carrot juice, bioactive compounds, quality.*

THE USE OF HONEY AS A BIOACTIVE AGENT FOR OPTIMIZING THE BEEF MATURATION PROCESS AND THE IMPACT ON THE SENSORY PROPERTIES OF THE FINAL PRODUCT

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Abstract

In human health concerns and diet diversification, food science research focuses on developing functional products, using sustainable and health-promoting methods. Beef, an important source of nutrients, is often rejected due to its sensory characteristics and tough texture, which is a challenge for consumers with dental problems. This study aimed to evaluate the effectiveness of honey as a bioactive agent in optimizing the beef maturation process, considering its beneficial effects on health and the environment. Three different concentrations of honey (10%, 20%, and 30%) applied in the wet-aging process for 48 hours were tested, followed by a thermal process and a detailed sensory evaluation. The results showed a significant influence of honey on the maturation process, improving both the texture and flavour of the meat, with a positive impact on the sensory characteristics of the final product.

Key words*: beef, honey, maturation process, quality.*

SUSTAINABLE STRATEGIES FOR THE USE OF ANIMAL BY-PRODUCTS IN MEAT PRODUCTS WITH HETEROGENEOUS STRUCTURE: APPROACHES TO COMBAT FOOD WASTE

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Abstract

Food waste is a major problem that has negative effects on the environment and the global economy. In recent years, research has focused on promoting food circularity and sustainability. Animal by-products, with a valuable nutritional profile, offer significant potential to replace synthetic additives. This study examines the integration of beef fat from the meat industry bone by-products into heterogeneous meat products. Various fat proportions (2%, 4% and 6%) were investigated to assess the impact on the overall quality. Although some segments of the population reject fat-added meat products due to health concerns, the research aims to identify sustainable solutions that are both environmentally and health beneficial, thus contributing to a significant reduction in food waste.

Key words*: food waste, by-products, meat products.*

FUNCTIONAL EFFECTS OF VEGETABLE BIOINGREDIENTS IN FISH-BASED PRODUCTS: A SYSTEMATIC REVIEW

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Abstract

This systematic review analyzes the scientific literature on the functional effects of vegetable bioingredients in fish products, exploring the mechanisms by which they may influence food quality and health. Studies have highlighted the synergy between vegetable components, such as polyphenols, flavonoids, omega-3 fatty acids and antioxidants, proteins, fatty acids and nutrients in fish, which may lead to improved nutritional profile and reduced risks associated with chronic diseases. The research also suggests that the integration of these vegetable bioingredients into fish products may enhance the bioavailability of nutrients, have antioxidant and anti-inflammatory effects and promote a better balance of intestinal microbiota. The conclusions of this review highlight the potential of functional fish products enriched with plant bioingredients to contribute to the prevention and management of various diseases, providing important support for the development of innovative and sustainable functional foods.

Key words*: vegetable bioingredinets, fish-based products, sustainable functional foods.*

FORMULATION OF A FUNCTIONAL MEAT PRODUCT WITH A COMPACT STRUCTURE BY INCORPORATING *Cetraria islandica*, A UNDEREXPLOITED INGREDIENT, AND EVALUATION OF ITS POTENTIAL IN THE MEAT INDUSTRY

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Abstract

Nowadays, consumer demands for more natural products have forced the food industry to increasingly exclude synthetic compounds from its products and to explore natural sources of bioactive ingredients such as natural antioxidants. All parts of plants, such as fruits, nuts, seeds, leaves, roots and barks, contain antioxidant compounds, making them potentially valuable ingredients for the food industry in the production of products with functional properties. In order to improve the functional properties of meat products, we have developed a meat product assortment with a compact structure, incorporating lichen (Cetraria islandica), an antioxidant ingredient that is unconventional for this type of products, thus exploring new ways of innovation in the meat industry. In order to compare the effect of the addition of Cetraria islandica, we manufactured three batches (1%, 3%, 5%) and a control batch. The resulting products were analyzed internally and externally for physicochemical quality and antioxidant capacity, with highly significant differences ($p<0.001$) observed between the internals and externals, and sensory evaluations were performed on the whole product.

Key words*: meat products, functional food, antioxidants, sensory analysis, quality analysis.*

QUALITY CHARACTERISATION AND CONSUMER PERCEPTION OF A NOVEL FUNCTIONAL BEEF SNACK ENRICHED WITH MACA (*Lepidium meyenii*)

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Abstract

Maca is a plant-based superfood that enjoys great popularity for its bioactive effects. Although the benefits of its use are well documented in peer-reviewed articles, studies on its addition to meat are extremely limited, with almost no research on adding the superfood maca to meat products. Considering the popularity of snacks among the younger generation, we thought to create such a food that represents a quick and healthy alternative to classic snacks by enriching beef with maca. This innovative alternative increases the antioxidant capacity of beef, providing a nutritious and attractive food for today's consumers. In order to evaluate the impact of maca in beef snacks, we made 3 batches, one without maca addition and 2 batches with 1 and 3% maca addition. These were subjected to detailed physico-chemical and sensory analyses to characterize the product in terms of quality and consumer acceptability. The data obtained were statistically analyzed in order to identify significant differences and to determine the influence of maca concentration on the finished products.

Key words*: functional meat products, superfood, antioxidants, sensory analysis, food innovation.*

SUBSTITUTION OF SOYBEAN WITH CHICKPEA IN THE DEVELOPMENT OF A FUNCTIONAL POULTRY MEAT PRODUCT

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Abstract

Healthier meat foods are gaining in popularity and consumers are receptive to various plant-based protein sources, especially pulses. Pulses are highly versatile and a rich source of essential nutrients. They are also a source of high-quality protein, suitable for people of all ages and comparable to other protein-rich foods. Soya, which is the legume most commonly used in meat products, and its derivatives are among the most allergenic of a variety of foods that can cause negative reactions. Although chickpeas also belong to the same class as soya, the legumes, they are such a very common allergen. For this reason, we substituted soybean with chickpea in poultry meat products with heterogeneous and emulsion structure to observe the qualitative differences imprinted on the final products and the behaviour upon heat treatment. The obtained products were studied by physico-chemical analyses (pH, colour-texture, fat, protein, protein, moisture, salt content) and the obtained results were subjected to statistical tests to observe the existing differences.

Key words*: meat product development, chicken meat product, food formulation, experimental design, meat processing.*

APPLICATION OF RED ALGAE (*Palmaria palmata*) IN BRINE-INJECTED PORK LOIN: IMPACTS ON PRODUCT QUALITY PARAMETERS

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Abstract

The trend in the meat industry towards healthy products, coupled with growing concerns about the nutritional and ethical aspects of meat consumption, has led to an increased interest in new approaches to formulate meat products that contain non-meat ingredients. The use of natural marine-derived ingredients as functional additives in meat products is due to their ability to enrich the nutritional value and provide antioxidant properties. The purpose of this study is to evaluate the functional potential of red algae (Palmaria palmata) as a natural additive in smoked meat products. This study focused on the effects of red algae extract in brine injection solutions in the formulation of 3 batches of pork loin (injected with 10% [w/w]): 1 control (with a standard brine) and 2 experimental batches (brine with 1% and 2% extract of Palmaria palmata). Batches were heat-treated and evaluated in terms of physicochemical composition, color parameters, texture profile and sensory perception. The experimental batches showed an improvement in protein content, a reduction in fat and salt content and color changes by increasing lightness (L∗) parameter and reduction of red color intensity (a∗).

Key words*: meat product formulation, brine injection, Palmaria palmata, meat quality.*

ENHANCING PORK TENDERLOIN QUALITY PARAMETERS THROUGH SOY PROTEIN ISOLATE BRINE-INJECTION

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Abstract

This study aimed to evaluate the influence of soy protein isolate on the quality parameters of pork tenderloin to obtain a product with improved characteristics. Four experimental batches were prepared: a control batch (without soy protein isolate) and three batches injected with brine containing 1%, 2%, and 3% soy protein isolate, based on the weight of the meat. The injection process was carried out under controlled conditions. All batches were analysed from a physico-chemical perspective, and sensory evaluation was conducted by a panel of 50 semi-trained evaluators to assess product acceptability. The addition of soy protein isolate had a positive effect on water retention capacity and texture improvement. Treated batches showed increased values for parameters associated with mechanical resistance and a decrease in cohesion. CIELab colorimetric analysis indicated a significant increase in the treated samples` L (lightness) values, while the a* (redness) component decreased. Overall, the results demonstrated that injecting pork tenderloin with up to 3% soy protein isolate leads to qualitative changes, with sensory acceptability being more favorable for the 1% and 2% treated batches.*

Key words*: pork tenderloin optimization, plant-based protein additives, brine injection.*

SESSION WILD LIFE MANAGEMENT, FISHERY AND AQUACULTURE

HEAVY METALS IN SOME FISH SPECIES FROM BLACK SEA: A HEALTH RISKS ASSESSMENT

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Abstract

Consumption of fish contaminated with heavy metals poses a significant risk to human health, particularly with prolonged intake. This study investigates the concentrations of heavy metals in fish caught from the Black Sea and evaluates the associated health risks. The content of toxic metals and trace elements was determined in the muscle tissue of 15 different Black Sea fish species. The highest concentrations of specific metals were observed in the following species Pb in piked dogfish; Cd in European sprat; Zn in European sprat and Mediterranean horse mackerel; Cu in leaping mullet; Fe in European sprat and Atlantic bonito; Mn and Al in European sprat; Cr in Atlantic bonito; Ni in Atlantic bonito and bluefish; As in round goby; and Hg in bluefish and piked dogfish. In general, metal concentrations in muscle tissue were below the maximum permissible limits established by EU Commission Regulation, except for cadmium in Mediterranean horse mackerel. A human health risk assessment was conducted using target hazard quotients (THQ) and the hazard index (HI). The HI values were below 1 for all species, except for mercury in piked dogfish, indicating no significant health risk from consumption of these fish under typical dietary exposure.

Key words*: fish, food safety, risk assessment, toxic metals, ICP-OES.*

SOIL PROPERTIES IN BRATEȘ FISH FARM: EFFECTS OF AGRICULTURAL USE ON PHYSICOCHEMICAL PARAMETERS

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Abstract

This study aimed to investigate the physicochemical properties of soil from the Brateș Fish Farm, focusing on the effects of converting fishponds into agricultural land. The research examines explicitly how aquaculture practices impact key soil properties. To achieve this, soil samples were collected using standard procedures during the summer season and stored in polythene bags. Using standard analytical methods, these samples were analyzed in the laboratory for several physicochemical parameters, including pH, electrical conductivity, total soluble salts, and the concentration of Mg^{2+} and Ca^{2+} ions. In addition, the study assessed moisture content and soil porosity to evaluate the impact of land use changes on soil quality. The results of this study provide valuable insights into the long-term effects of aquaculture on soil characteristics and offer important considerations for the future agricultural use of such converted lands.

Key-words*: agricultural use, converting fishpond, physico-chemical parameters, soil.*

EVALUATING KALE (*Brassica oleracea* var. *acephala*) GROWTH IN AN AQUAPONIC SYSTEM

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Abstract

This study explores the growth performance of kale (Brassica oleracea var. acephala) cultivated in an aquaponic system integrated with fish production. The experiment was conducted in a controlled environment using varying planting densities to assess their impact on plant development and overall system productivity. Four densities were evaluated: 14 plants/m², 21 plants/m², 28 plants/m², and 41 plants/m² respectively. Plant growth performance, including plant height, leaf number, and biomass, were evaluated across densities to determine the optimal conditions for kale growth while maintaining water quality parameters for the fish. Results showed significant differences in growth across the stocking densities, with 28 plants/m² achieving the highest productivity, marked by greater biomass and vigorous development. The findings highlight the potential of aquaponics as a sustainable cultivation method, effectively recycling fish-derived nutrients to support the growth of kale.

Key words*: crop yield, nutrients, plant growth, water quality.*

THE STUDY OF DDGS AS FOOD COMPONENT FOR COMMON CARP (*Cyprinus carpio*)

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Abstract

Dried distillers grains with solubles(DDGS), is a product from the ethalon production sector that is effectively used in feed for cattle and pigs because of its relatively high protein and nutrient value and lower cost that grains. The purpose of this research was to determine the best DDGS level that could be added to the diet of common carp. A six-week trial was conducted with common carp starting at a weight of 84 g, using three test diets:P0 (0%), P1 (25%) and P2 (35%). The chemical makeup of DDGS examined with Fourier Transform Near-Infrared spectroscopy revealed a protein level of 28.45% and oil content of 5.86%. the diets containing DDGS did not lead to notable changes in growth measures and meat quality. In terms of oxidative state in the muscle tissue, P1 and P2 significantly decreased, in a dose-dependent way, the specific activity of SOD and GSH, while CAT and GPX remained unchanged. The objective of this study was to evaluate the impact of substituting sunflower meal with DDGS in the common carp diet on key growth measures, meat quality, and oxidative stress.

Key words*: common carp, diets, growth, oxidative stress, protein.*

SEX STRUCTURE AND FECUNDITY OF PONTIC SHAD (*Alosa immaculata*) IN THE ROMANIAN SECTOR OF THE DANUBE RIVER

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Abstract

*The Pontic shad (Alosa immaculata), a migratory fish species of significant ecological and economic importance, is a key component of the ichthyofauna in the Danube River and Black Sea. This study investigates the sex structure and fecundity of Alosa immaculata during its breeding migration, focusing on specimens from the Romanian sector of the Danube River. Sampling was conducted from March to May every year from 2020 to 2024, coinciding with the peak reproductive season. Biological parameters like total length, body weight, and gonad weight will be recorded, while age determination will rely on scale analysis. Absolute individual fecundity (F) will be determined using the weighing method. Relative fecundity (RF) will be calculated by: RF = F*GW/ws, where GW = the gonadal weight of fish and ws = the weight of the sample. The study seeks to fill critical gaps in understanding the reproductive biology of A. immaculata, essential for developing conservation strategies and sustainable fisheries management. The findings will provide insights into population dynamics, aiding in the preservation of this species amid increasing anthropogenic pressures and environmental changes.*

Key words*: conservation, fisheries management, prolificity, reproductive biology, sex ratio.*

INNOVATIVE MODIFICATIONS TO "CARAFA" TYPE INCUBATOR AIMED AT IMPROVING INCUBATION EFFICIENCY IN SILVER CARP *Hypophthalmichthys molitrix* (Valenciennes, 1844)

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Abstract

The success of the fish eggs incubation period is conditioned by the quality of the biological material, the environmental conditions and, last but not least, the device in which the incubation is carried out. At Research and Development Station for Fisheries Nucet (S.C.D.P. Nucet), the incubation of eggs obtained through artificial reproduction of the silver carp Hypophthalmichthys molitrix (Valenciennes, 1844) is carried out in the "Carafa" type incubator. It had some disadvantages, which is why certain improvements were made. After their implementation, an increase in efficiency was observed, such as: reduction of labour, improvement of work quality, obtaining higher indices at the hatching percentage of 92.6%, the survival percentage from hatched larvae to 3-5-day old larvae of 91.3%, as well as the survival percentage from embryonated eggs to 3-5-day old larvae of 84.5%. Thanks to the innovative modifications made to the "Carafa" type incubator, they were implemented and are currently used successfully in the artificial reproduction station within the S.C.D.P. Nucet.

Key words*: fish egg, enhanced, hatcheries, reproduction, spawning.*

RESEARCH ON ACHIEVING HIGHER NATURAL FISH PRODUCTIVITY THROUGH RATIONAL ADMINISTRATION OF CHEMICAL AND ORGANIC FERTILIZERS IN PONDS

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Abstract

Organic fertilizers, through their ability to decompose and release carbon dioxide, ammonia, nitrogen, phosphorus and other nutrients, contribute to the proliferation of phytoplankton and therefore to the amplification of the trophic base in the pond. The need for phosphorus and nitrogen was ensured by fertilization with chemical fertilizers (ammonium nitrate and superphosphate). The paper presents the results of research on the rational use of fertilizers in first summer rearing ponds stocked with carp larvae Cyprinus carpio (Linnaeus, 1758). The experiments were carried out in the rearing ponds located in the South-West region of Dâmbovița County, at the Research and Development Station for Fisheries Nucet, in 3 experimental variants. The distribution of organic and chemical fertilizers in ponds with low nitrogen (below 2 mg N L^{-1}) and phosphorus (below 0.5 mg P L^{-1}) content, determined an abundant development of phytoplankton and a qualitative improvement of zooplankton and benthos, which constitute a food source for carp in the first year of growth.

Key words*: aquaculture, basin, cyprinid, natural productivity, nutrient.*

POPULATION STRUCTURE AND GROWTH DYNAMICS OF *Rapana venosa* (Valenciennes, 1846) FROM THE ROMANIAN BLACK SEA COAST

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Abstract

This study presents the population structure, growth dynamics of the species Rapana venosa (Valenciennes, 1846) with the aim of understanding its response to environmental gradients and anthropogenic pressures, particularly fishing. Data were collected during the 2024 summer expedition, in Romanian coastal area. The sampling depth was between 5 - 35 m and the mean bottom water temperature was 10.81°C. The age composition was formed by 3 to 11 years generations. A total of 3345 specimens were examined, with a mean total length of 63.94 mm and mean total weight of 48.07 g. The length-weight relationship (LWR), characterized by the intercept (a) = 0.00013 and the slope (b) = 3.033, confirmed mostly isometric growth, though some cases showed positive allometry. The high coefficient of determination values (r^2) = 0.937 indicate a strong correlation of LWR. The Von Bertalanffy growth model parameters indicate moderate growth potential for the population. Mortality rates, including natural mortality, fishing mortality and total mortality, showed that fishing is the dominant impact factor. High exploitation rates highlighted intense fishing pressure, indicating the need for sustainable management measures.

Key words: *exploitation rate, length-weight relationship, mortality rate, rapa whelk, Von Bertalanffy growth model.*

DESIGNATING A NATURA 2000 SITE FOR *Leucorrhinia pectoralis* (Charpentier, 1825): PREVENTING FURTHER HABITAT LOSS AND EXPLORING THE ROLE OF TRANSLOCATIONS

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Abstract

Leucorrhinia pectoralis, listed in Annexes II and IV of the Habitats Directive, is a rare Palaearctic dragonfly species. In Romania, populations have severely declined or disappeared, with the only stable population documented at Pilugani, Suceava County. This population thrived in water bodies formed after peat exploitation, benefiting from the favorable habitat structure. Between 2022-2023, restoration efforts aimed at rehabilitating nearby peatland habitats. These efforts included the creation of artificial ponds to support specialized peatland invertebrates. Pilugani was proposed as a Natura 2000 site, covering 10 hectares, with the habitat type "Degraded raised bogs still capable of natural regeneration" (code 7120) and Odonata species like L. pectoralis, Sympetrum danae, Coenagrion hastulatum and Lestes virens. However, field visits in 2024 revealed significant habitat destruction at Pilugani due to anthropogenic activities. The soil was plowed, the breeding ponds were covered, threatening the population's survival. Immediate action is needed to protect L. pectoralis. Priorities include monitoring the population in 2025 and assessing the feasibility of translocating individuals to secure habitats. We give a review on dragonfly translocation and evaluate the methods.

Key words*: conservation management, Libellulidae, peat extraction, reintroduction.*

NEW TYPE CONSTRUCTION OF ARTIFICIAL NEST BOXES FOR LESSER KESTREL USED FOR THE FIRST TIME IN BULGARIA

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Abstract

The Lesser Kestrel often nests in urban areas, as they provide nesting sites and the level of predation there is low. Due to the drastic reduction of natural habitats, the placement of artificial nest boxes provides reliable nesting sites with a low risk of predation. For that purpose, Green Balkans together with Hiltop Ltd. created a new type of artificial nest boxes specially designed for species. The artificial nest boxes were made from PVC flat sandwich panels and aluminium angular plates. The advantage of using these materials is that the materials are extremely lightweight. The used materials provide thermal insulation which protects the birds from the high temperatures in summer. The material is practically indestructible and it is not affected by climatic conditions. The new type artificial nest boxes were installed in the territory of the Lesser Kestrel breeding colony. There, targeted conservation activities are led by a team from Green Balkans as part of project "Life for Lesser Kestrel". During breeding season, it was proven that species easily recognised and occupied new type of artificial nest boxes.

Key words*: Aluminium, Falco naumanni, PVC sandwich panels, Recovered colony, Thermal insulation.*

INTENSITY OF WILDLIFE TRADE FROM THIRD COUNTRIES TO THE EUROPEAN UNION

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Abstract

Wildlife trade is strictly regulated by a range of international conventions and European regulations. As a member state, Bulgaria acts as an entering point to the EU. The current study investigated the intensity of trade with wild fauna based on official data on consignments admitted to the European economic area through Bulgarian border control posts. For the period from 2020 to 2024, we identified the animals by species and categorised them into groups based on their protection status. All consignments with live animals were traced from the country of origin to their final destination within the EU. Emphasis was made on the mandatory requirements when the wildlife trade is concerned with protected species.

Key words*: border control, EU import, protected species, wildlife traffic.*

HARNESSING GREEN MACROALGAE FOR SUSTAINABLE FISH FEED: OPPORTUNITIES AND CHALLENGES

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Abstract

The world faces a critical challenge in ensuring sufficient food production to meet the needs of a growing global population while maintaining nutritional quality and promoting environmental sustainability. Among sustainable food sources, seaweed, particularly the genus Ulva, has emerged as a promising solution due to its nutritional composition, abundance, and accessibility. However, integrating Ulva into animal feeds presents challenges, including nutritional value variability and indigestible polysaccharides, which reduce energy availability. This review explores the potential of Ulva sp. as an ecological and nutritious ingredient for aquaculture. It highlights the need for optimized nutritional strategies and processing technologies to increase protein content and improve nutrient digestibility. The actual status of the biochemical composition of Ulva and its benefits in commercial fish feed are emphasized, focusing on fish growth performance, stress resistance, immune function, and gut microbiota health. Drawing on over 50 studies, the review underscores positive trends. It identifies optimal inclusion levels for Ulva in fish diets, aiming to enhance digestibility and functional properties while addressing sustainability goals in aquaculture.

Key words*: functional compounds, nutritional, Ulva.*

FAUNISTIC STUDY ON SOME TERRESTRIAL INVERTEBRATES WITH CONSERVATIVE VALUE FROM COMMUNITY GALBENA AND VEMEŞOAIA, FĂGĂRAŞ MOUNTAINS-ROMANIA

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Abstract

In 2020, a faunistic study on invertebrate fauna from Galbena and Vemeşoaia Community and its adjacent area, from Făgăraş Mountains was accomplished. Galbena and Vemeşoaia Community is spreading on 893 hectares (which represents 0.15% from the Făgăraş Mountains). Even if this property is spread over a small area, five Natura 2000 invertebrates were identified: Rosalia alpina (Linnaeus, 1758); Carabus (Hydrocarabus) variolosus Fabricius, 1787; Pholidoptera transsylvanica (Fischer,1853); Lycaena dispar (Haworth, 1802); Callimorpha (Euplagia) quadripunctata (Poda, 1761), protected under the Habitats Directive 92/43 / EEC. Another endemic species for Romania was identified: Carabus (Megodontus) planicollis Küster, 1827. The numerical abundance of each species was recorded and their areas of distribution were established. In the same time the species threats and pressures were evaluated. The main conservation measures were defined. The present study wants to highlight that even small unstudied area could represents an important conservation point for invertebrate fauna directly and indirectly on their habitats.

Key words*: conservation, distribution, invertebrates, habitat, pressure, threats.*

BODY INDICES IN COMMON CARP (*Cyprinus carpio*) JUVENILES FED WITH SLUG (*Arion* sp.) MEAL AS AN ALTERNATIVE PROTEIN SOURCE

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Abstract

Research of alternative sources of protein for aquaculture feeds is ongoing for many decades, due to the need to make the aquaculture sector more sustainable. This study explores the incorporation of slug (Arion sp.) meal as an alternative protein source in the diets of juvenile common carp (Cyprinus carpio) and examines its impact on body indices. Carp juveniles were reared in a controlled environment and fed using a feed containing slug meal as a protein source. The performances were analysed in relation to a control feed that used standard fish meal as an animal protein source. Body indices are analysed in this research such as Fulton condition factor (K), profile index and meatiness indices. The results presented in this article show the potential of slug meal to substitute fish meal in aquaculture feeds. Along with the rising need for sustainable aquaculture practices, investigating unconventional protein sources is crucial for improving fish growth and health while decreasing dependence on traditional fish meal.

Key words*: aquaculture, diet, feed, growth, nutrition.*

IS EUROPEAN SEABASS *Dicentrarchus labrax* (Linnaeus, 1758) A BETTER OPTION FOR ROMANIAN MARINE AQUACULTURE?

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Abstract

Romanian marine aquaculture is a recent development, as a consequence of both harsh environmental conditions and a cumbersome legislative framework. The much-awaited settlement of the water concession opened the way for this activity. After the successful testing of rainbow trout Oncorhynchus mykiss (Walbaum, 1792) and gilthead seabream Sparus aurata (Linnaeus, 1758), this research aimed at investigating the potential of European seabass Dicentrarchus labrax (Linnaeus, 1758) for culture under Black Sea conditions. The laboratory experiment demonstrated the possibility of transferring 4-months old juveniles from a salinity of 35‰ directly into brackish water (salinity 15‰), with no mortalities and rapid post-stress recovery (24 hours after transfer glycaemia levels returned to normal, with a mean value of 78 mg·dL^{-1}). A control batch was kept at the original 35‰ salinity. Biomass increase was normal, from 7-8 grams initially to 300 g after nine months (during autumn-winter), with no significant differences between salinities. The species proved its suitability for culture at the Romanian coast especially due to its wide temperature range tolerance, being able to feed and grow during colder Black Sea winters.

Key words*: adaptability, marine aquaculture, salinity, seabass, temperature.*

LAVENDER, A NATURAL ADDITION TO FISH DIET, ENHANCEMENTS IN GROWTH AND IMMUNE SYSTEM

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Abstract

Lavender, widely recognized for its medicinal properties, has gained attention for its potential to enhance fish health in aquaculture. This paper resumes current knowledge on the effects of lavender extracts, highlighting their antioxidant properties and immune-enhancing capabilities on fish. Evidence from recent studies indicates that lavender extracts efficiently reduce oxidative stress and improve immune responses in fish. These findings suggest that incorporating lavender extracts into aquaculture practices could reduce reliance on synthetic additives and antibiotics, supporting more sustainable and environmentally friendly approaches. Overall, lavender emerges as a promising natural alternative for promoting fish health and promoting eco- friendly aquaculture practices.

Key words*: antioxidant effects, essential oil, fish health, lavender extracts, medicinal plants.*

BLOOD PARAMETERS OF RAINBOW TROUT *Oncorhynchus mykiss* (Walbaum, 1792) FED DIETS SUPPLEMENTED WITH NATURAL PHYTOADDITIVES DURING THE COLD SEASON

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Abstract

The use of phytoadditives in animal feeds has been gaining more attention due to their positive effects on growth and health of animals. This study aimed to determine the effects of adding natural phytoadditives to the diet of rainbow trout on its blood parameters during the cold season. One control and three experimental groups consisting of 50 adult rainbow trout each were fed a standard feed and three experimental diets consisting of the standard feed with 2% carrot, tomato, and spinach powders, respectively, for 90 days. Blood parameters were determined. Most parameters changed significantly ($p<0.05$) from the start to the end of the experiment. There were few significant changes among the control and experimental groups at the end of the experiment. Cholesterol and triglycerides increased in the control and experimental group with 2% carrot powder. Some minerals showed different ($p<0.05$) values in the experimental groups (Na, K, and Ca). The study shows that the incorporation of phytoadditives in rainbow trout feed does not produce negative effects on the blood parameters, with some advantages being present, such as a generally better mineral profile of the plasma and the stabilization of hematological parameters.

Key words*: carrot, hematology, plasma biochemistry, salmonids.*

LENGTH-WEIGHT RELATIONSHIPS AND CONDITION FACTORS FOR THE MAIN COMMERCIAL FISH SPECIES FROM THE ROMANIAN BLACK SEA COAST

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Abstract

Fish length-weight relationships (LWR) are essential for estimating biomass and assessing fish population health. This study examined the LWR and condition factors (K) of seven commercial fish species caught along the Romanian Black Sea coast between March and November 2023. A total of 4,698 individuals were analyzed, with the most abundant species being Engraulis encrasicolus (2,248 individuals) and Atherina boyeri (810 individuals). The LWR parameters varied: the intercept "a" ranged from 0.0034 (Trachurus mediterraneus) to 0.0134 (A. boyeri), and the slope "b" ranged from 2.7 (A. boyeri) to 3.32 (T. mediterraneus). The coefficient of determination (r^2) ranged from 0.72 to 0.957. Growth was isometric for 4 species, negative allometric for 1 species, and positive allometric for 2 species. Condition factors (K) indicated suboptimal health ($K < 1$) for most species, except Neogobius melanostomus ($K = 1.3$) and Mullus barbatus ($K = 1.09$). These results are valuable for future fisheries management and conservation efforts.

Key words*: fish biometrics, Fulton index, growth, LWR, regression.*

MORPHOLOGICAL AND GEOGRAPHICAL APPROACH TO *Carabus hampei* IN THE APUSENI MOUNTAINS

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Abstract

Carabus hampei is a Natura 2000 species, primarily distributed within the inner Carpathian arc, predominantly in the hilly areas, but also, albeit in small, often isolated populations, found in alpine regions and lowland areas of Romania. Distinguishing it from Carabus rothi, Carabus incomptus, and Carabus comptus remains challenging, as morphological criteria are not always sufficient for reliable differentiation. In most cases, geographic distribution is used as a distinguishing criterion, but this is only effective in areas where the species` ranges do not overlap. The species identified as hampei in the Apuseni Mountains is morphologically difficult to distinguish from the alpine form of comptus, which occurs in Banat. Previous reports of hampei in this area are outdated, and our attempts to locate the species over the past decade were unsuccessful until 2021. A morphological comparison between hampei from the Apuseni Mountains and comptus was conducted to distinguish the two species. The confirmation of hampei in the Apuseni Mountains highlights the necessity for intensifying habitat inventory efforts in this region. The morphological findings should be further validated through future molecular genetic analyses.

Key words*: Carabus hampei, Carabus comptus, Natura 2000, Apuseni Mountains, conservation.*

NEW FINDINGS OF *Carabus hungaricus* IN WESTERN ROMANIA

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Abstract

Carabus hungaricus is a species of community interest, protected in Romania within Natura 2000 areas located in the southern, western, and northwestern regions of the country. The species` distribution in the southern and northwestern parts is restricted to sandy soils, while in the western region, it has been identified on a very small area near the Romania-Serbia border, close to the town of Jamu Mare. Near Timișoara, the species was first mentioned by Breuning in 1933 at Remetea Mică and Maşloc, locations where it has not been found since that time. In recent years, we have identified and monitored the presence of a population in the southwestern part of Timişoara, within the ROSCI0390 Sărăturile Diniaş area, on lands with habitat 1530, Pannonic salt steppes and salt marshes. The observations contribute to understanding the distribution of a species of conservation interest in Romania, highlighting the significance of a new distribution area that requires specific measures for its conservation.

Key words*: Carabus hungaricus, Pannonic salt steppes, Natura 2000, new distribution records, species conservation.*

NON-BREEDING RANGE IN SAHEL OF LESSER KESTRELS ORIGINATING FROM RECOVERED BULGARIAN POPULATION

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Abstract

The Lesser Kestrel (Falco naumanni) is a long-distance migratory species, with its primary breeding areas in Spain, Italy, and Greece, and smaller populations in Portugal, France, Bulgaria, and other countries. Birds from the three peninsulas (Iberian, Apennine, and Balkan) follow distinct migratory routes to reach their non-breeding areas in the Sahel. This study aims to identify and describe the core wintering areas of the Bulgarian population, focusing on migratory patterns and habitat use during the non-breeding season. We hypothesized that the spatial distribution and individual presence in these areas would reveal patterns of site fidelity and migration strategies. The study was based on satellite tracking data from Lesser Kestrels tagged in Bulgaria, with data from nine individuals tracked over 11 winters. Two core wintering areas were identified: the first, covering about 138,700 km², spans territories in Niger and Nigeria; and the second, covering over 78,458 km², is located in central and southeastern Chad. These two areas are critical zones, showing relatively high concentrations of individuals, indicating their importance for roosting and foraging, and emphasizing the need to protect these habitats.

***Key words**: Balkan population, Falco naumanni, wintering grounds.*

EFFECTS OF CLIMATE CHANGE ON *Cyprinus carpio* (Linnaeus, 1758) IN THE DANUBE RIVER (2021-2024): ANALYSIS OF SEX RATIOS, CONDITION AND LENGTH-CLASS DISTRIBUTION

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Abstract

The common carp Cyprinus carpio (Linnaeus, 1758) is a key species in the Danube River, both ecologically and economically. The carp population in the Danube is affected by a range of factors such as overfishing, loss of habitats, pollution, anthropogenic disturbance and alien species. Climate change is putting an additional strain on these fish populations, altering parameters such as length and sex structure, Fulton's condition factor. This study examines changes in these parameters within carp populations in the Danube based on data collected from 2021 to 2024. By comparing biometric and demographic indicators, this research identifies hydrological trends driven by climatic variations, and how the sex structure was also affected, with sex ratio depending on region and local climatic conditions. Fulton's condition factor was calculated to assess the nutritional status and overall health of individuals in the population. This study highlights the urgent need for sustainable fisheries management and appropriate conservation strategies to address the challenges posed by climate change.

Key words*: Danube River, fisheries management, Fulton's condition factor, global warming, wild fish.*

FIRST RECORD OF KOREAN ROCKFISH *Sebastes schlegelii* (Hilgendorf, 1880), A NON-NATIVE SPECIES, ON THE ROMANIAN BLACK SEA COAST

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Abstract

The aim of this study is to inform about the first recorded specimens of the Korean rockfish Sebastes schlegelii (Hilgendorf, 1880) in the Romanian part of the Black Sea. The first three specimens sampled had total lengths as 30.7, 30.0 respectively 26.5 centimetres and weights of 543, 487 and 352 grams. All of them were males and their size patterns aligns with other records signalled in the Black Sea. Possible interactions of the S. schelegelii with local species should be monitored carefully. The samples collected represent the first records of the species along the Romanian Black Sea coast. This record highlights the need for continuous monitoring of invasive species due to the potential threats to aquatic community structure, affecting biodiversity and disturbing local trophic networks. In addition, the species could even establish a new opportunity in commercial and sport fisheries.

Key words*: invasive species, fish, Black Sea port area, monitoring.*

SCREENING FOR ECTOPARASITISM ON PELAGIC AND DEMERSAL FISH FROM THE ROMANIAN BLACK SEA COAST

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Abstract

Ectoparasites affect the external surfaces of fish, specifically the skin, fins, eyes, and gills. This study analyzes biological samples of pelagic and demersal fish collected between 2016 and 2019 from the Romanian Black Sea coast. Six fish species were examined for ectoparasites: Sprattus spratus (sprat), Engraulis encrasicolus (anchovy), Trachurus mediterraneus (horse mackerel), Platichthys flesus (flounder), Pegusa lascaris (sand sole), and Scophthalmus maeoticus (turbot). Four ectoparasite species were identified: Trichodina domerguei and Cryptocaryon irritans (protozoa), Mazocraes alosae (flatworm), and Cystoopsis acipenseris (nematode). T. domerguei was the most common ectoparasite and had the highest level of infestation, particularly in turbot, which averaged 28 parasites per host, with 27-65% affected. M. alosae was found in sprat, while C. acipenseris and C. irritans affected horse mackerel and sand sole at low levels. Infestations caused by ectoparasites in fish do not have as great an impact as infections with other pathogens (such as viruses and bacteria). Still, it is one of the secondary causes of viral and bacterial diseases.

Key words*: ectoparasites, fish, screening, intensity of parasitism.*

REARING OF ROPȘA CARP, OBTAINED BY SELECTIVE BREEDING AND EPIGENETIC PROGRAMMING, IN AN INTEGRATED MULTI-TROPHIC AQUACULTURE SYSTEM

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Abstract

Integrated Multi-Trophic Aquaculture (IMTA) systems, incorporating carp and mussels, represent a promising approach to aquaculture that enhances environmental sustainability by promoting nutrient recycling and reducing ecological impact. The Ropșa carp was used in the experiment for its adaptability to variable environmental conditions and precocity, reaching sexual maturity at 2-3 years. Selective breeding and epigenetic programming allow fish with improved growth performance and efficient feed conversion, contributing to increased productivity and reduced environmental impact. After selection of the specimens that showed good adaptability to high temperature conditions and a critical concentration of dissolved oxygen in the water, their growth was carried out in eight cages, in polyculture (Ropșa carp and Anodonta cygnea mussels), and in the rest of the water body in the experimental pond the population was mixed (three summers aged fish of various species and Anodonta cygnea mussels). At the end of the experiment, a good percentage of growth and survival in cages was obtained for both studied populations, with monthly recording of production data and testing of water quality parameters.

Key words*: bivalves, cages, epigenetics, fish, IMTA, sustainability.*

DAMAGES CAUSED BY WILD BOARS: A BIBLIOMETRIC REVIEW

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Abstract

Wild boars cause significant damage to agricultural fields and grasslands, leading to millions of Euros in losses each year. Because no existing review or bibliometric study on this topic was found, we conducted this analysis using the Web of Science Core Collection tools, along with VOSviewer, Excel, and Geochart. A total of 197 articles were examined, covering 40 scientific fields, with the most represented being Environmental Sciences-Ecology, Zoology, Agriculture, Veterinary Sciences, and Biodiversity Conservation. The number of publications has grown exponentially since 1978. Authors from 50 countries contributed, primarily from the USA, Japan, and Poland, with affiliations mainly at the United States Department of Agriculture, Consejo Superior de Investigaciones Científicas, and Colorado State University. Among the 124 journals, the most frequent articles on this topic are European Journal of Wildlife Research, Animals, and Plos one. Common keywords include "wild boar", "crop damage", "diet", "patterns", and "management". This analysis is essential for highlighting developments and trends in the field, creating a valuable database for current and future researchers, as this topic will continue to be highly relevant.

Key words*: bibliometric review, keywords, VOSviewer, wild boar.*

UPDATES ON *Lycaena helle* IN ALPINE HABITATS: NEW DATA FROM ROMANIA AND A REVIEW OF MANAGEMENT PRACTICES

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Abstract

Until recently, viable populations of Lycaena helle (violet copper butterfly) from Romania were known from low-altitude areas (below 600 m asl). However, this glacial relict faces heavy threats across its Eurosiberian range, with declines in abundance, distribution and habitat quality frequently reported. Many populations have disappeared, especially from the lowland regions, with the currently known populations being found mainly at higher altitudes. Recent national peatland restoration projects in Romania have led to faunal discoveries, including new populations of L. helle in the alpine bioregion. This current study provides new and original information on population size estimates from Dornelor Depression, describes other areas inhabited by this protected species in Suceava County, and reexamines older museum specimens. Given the limited knowledge about the ecological requirements of high-altitude L. helle populations, we review global conservation practices. Evidence indicates that maintaining meadows at mid-successional stage is essential for supporting this butterfly. Therefore, management should focus on balancing rotational mowing or moderate intensity grazing to maintain heterogeneous vegetation while preventing woody encroachment due to abandonment. These practices ensure appropriate coverage for the larval host plant, Bistorta officinalis.

Key words*: conservation management, extinction threats, protected species, rotational grazing, translocation.*

PARASITE COMMUNITIES OF FISH FROM THE MECHKA RIVER, MARITSA RIVER BASIN

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Abstract

This study aims to examine the component and infracommunity of the bleak, Alburnus alburnus (Linnaeus, 1758), from the freshwater ecosystem of the Mechka River, part of the Maritsa River basin, East Aegean region. For the study, 54 specimens of bleak were caught from the Mechka River - Parvomay biotope (Debar) in the autumn of 2024. The fish were examined for the presence of parasites using standard methods. Species from Trematoda, Acanthocephala, and Nematoda were identified. Representatives of Acanthocephala dominate. The following indices were examined: Brillouin's diversity index (HB), Pielou's evenness index (E), and Simpson's dominance index (C). The studied biotope is a new habitat for the identified bleak parasites.

Key words*: bleak, Bulgaria, East Aegean region, ecological indices, parasites.*

HYDROBIOLOGICAL MONITORING OF THE KAYALIIKA RIVER BASED ON THE BIODIVERSITY OF FISH PARASITES AND ECOLOGICAL INDICATORS OF THEIR COMMUNITIES

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Abstract

This study aims to monitor the state of the water of the Kayaliika River, part of the Maritsa River basin in Bulgaria, based on the diversity of parasites and indicators of parasite fish communities. For the purpose of the study, 45 specimens of bleak, Alburnus alburnus (Linnaeus, 1758), were caught in the autumn of 2024 from the lower reaches of the Kayaliika River. Infection was found in 77.78% of the studied bleak specimens. The following ecological indices were calculated: mean intensity (MI), mean abundance (MA), prevalence (P%), Brillouin's diversity index (HB), Pielou's evenness index (E), and Simpson's dominance index (C). The circulation of the parasite flow in the studied biotope of the river ecosystem was monitored.

Key words*: bleak, Bulgaria, East Aegean region, indices, parasite communities.*

ASSESSMENT OF ECOSYSTEM SERVICES PROVIDED BY WHITE STORK IN REPRESENTATIVE HABITATS FOR THE SPECIES IN BULGARIA

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Abstract

This paper aims to review and assess the potential ecosystem services (ESS) provided by the White Stork and its habitats in the village of Belozem. The village was described in 2005 by Green Balkans as the Bulgarian representative in the European Stork Villages Network. Gradually, stork population in the area of Belozem has increased, reaching about 60 pairs in 2023. The high number and concentration of birds provide good conditions for conducting representative ecological studies of the species and its habitats. Given that the species is characterized as farmland birds, it inhabits the following Ecosystem types – Cropland and Grassland (Agroecosystem), Sparsely vegetated land and Wetlands (Nature), as well as Rivers and lakes (Freshwater) as foraging habitats, and Urban type as a nesting site. The following key ESS provided by White Stork in the target area are identified - cultural and regulating ESS. Particularly diverse and associated with an annual stork festival, an information centre, the only ones in the country, a stork monument and park, etc. are Cultural ecosystem services provided by the species in the area of Belozem.

Key words*: agroecosystem, Belozem, Ciconia ciconia, European Stork Villages Network.*

ANALYSIS OF THE BIOCHEMICAL PARAMETERS AND NUTRITIONAL PROPERTIES OF THE MEAT OF HUCHEN *Hucho hucho* (Linnaeus, 1758)

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Abstract

Hucho hucho (Linnaeus, 1758) is a valuable European salmonid species, endemic to the Danube Basin, and in danger of extinction, which is why it is protected by the specific laws in force. With this article, we aimed to highlight the raw chemical composition, vitamin, and mineral content of the huchen fillets. Chemical analysis of the fillets showed low protein content (19%) and an energy value of ca. 150 kcal/100 g. Nutritional analysis allowed us to demonstrate that huchen meat has a high PUFA content (30.65% total fatty acids) as well as good sanogenic indices (AI = 0.28; TI = 0.19; hFA = 16.21; h/H = 4.27). The proteins of these fish are also of good quality for a healthy diet of young people and adults and good enough for children.

***Key words**: huchen, meat quality, Romanian salmonid.*

RESEARCH ON THE MINERAL AND VITAMIN CONTENT OF BROWN TROUT MEAT DIFFERENTIATED FEED

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Abstract

Trout meat is rich in essential minerals and vitamins that contribute to human health; these nutrients are influenced by various factors, including breed, breeding system, season, age, and diet. In light of these considerations, this paper aims to highlight how the quantity and quality of the feed administered influence the mineral and vitamin content of brown trout meat. The biological material was represented by a number of 30 specimens of brown trout. At the end of the research, among the analysed minerals, the highest values were found in the case of phosphorus (P), which was in the range of 1775.83-2228.39 g.kg^{-1}, and copper (Cu) was in last place, with average values that varied in the range of 0.65-0.91 g.kg^{-1}. In terms of fat-soluble vitamins present in the meat, the highest concentration was of vitamin E, whereas vitamin D3 exhibited the lowest levels across all batches.

Key words*: brown trout, feed, mineral, vitamin content.*

AQUACULTURE IN ROMANIA: AN OVERVIEW OF ECONOMIC DEVELOPMENT

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Abstract

Aquaculture involves the cultivation of aquatic organisms for human consumption, animal feed, or recreational purposes. This practice enhances food availability, protects endangered species, and reduces environmental impact. In Romania, aquaculture has notable potential due to its rich natural resources and increasing demand for sustainable fish products. The sector includes 750 economic operators, generating over €100 million in turnover and €15.8 million in net profit, while employing approximately 2,000 people. Bucharest leads in the number of operators, followed by Ilfov, Braşov, Cluj, and Iaşi. Tulcea County alone contributes over 15% of the sector`s turnover, while Bucharest, Iaşi, and Botoşani concentrate about 25% of the workforce. Tulcea and Constanţa counties are key hubs for freshwater aquaculture, benefiting from favorable geographic and ecological conditions, adequate aquatic resources, and a strong local tradition in aquaculture practices. These regions illustrate the sector's potential for economic growth and sustainability. Freshwater aquaculture represents a distinct component of Romania's economy, with contributions extending beyond local businesses, influencing the national economy while aligning with global efforts to promote sustainable resource management and environmentally friendly food production practices.

Key words*: Romania, freshwater aquaculture, economic impact, fisheries, market concentration.*

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FIELD CROPS AS SUSTAINABLE RESOURCES FOR AQUACULTURE

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Abstract

The literature highlights the increasing use of field crops such as soybeans, corn, and peas in aquaculture feeds due to their high protein and carbohydrate content. Romanian sources emphasize the role of these crops in reducing production costs, while international studies underline their importance in promoting sustainability. This study evaluated three types of crops (soybeans, wheat, and sorghum) grown under controlled conditions, using chemical analyses to determine their protein, fiber, and lipid content. These crops were incorporated into the diets of carp and catfish, with growth parameters and overall health monitored throughout the study. The findings revealed that soybeans and sorghum significantly supported fish weight gain, while wheat offered moderate benefits. Soybeans showed the highest protein digestibility compared to other crops. This research underscores the potential of field crops as sustainable resources for aquaculture feed, focusing on their nutritional composition, availability, and impact on fish health. Field crops provide an economic and ecological alternative to traditional ingredients, supporting the sustainability of aquaculture practices.

Key words*: field crops, aquaculture, sustainability.*

RESEARCH ON THE EVALUATION OF SPERM QUALITY IN THE STURGEON SPECIES *Polyodon spathula* (Walbaum, 1792)

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Abstract

The successful induction of spermiation in sturgeon species is critical for artificial reproduction and aquaculture development. Polyodon spathula (Walbaum, 1792), a commercially valuable fish species, presents challenges in reproductive management under controlled conditions. This study investigates sperm quality parameters in P. spathula males reared in captivity. Five sexually mature males, aged between 9 and 11 years, were selected. Sperm quality was evaluated through macroscopic and microscopic assessments. Hormonal stimulation was performed using Nerestin 5A at doses of 0.05, 0.1, and 0.15 ml/kg body weight in three experimental groups. A fourth male received carp pituitary extract (1.0 ml/kg body weight), and a fifth served as control, receiving physiological saline (0.5 ml/kg body weight). Sperm was collected daily for four consecutive days. The highest sperm yield was recorded with Nerestin 5A at 0.15 ml/kg, producing an average of 2.6 × 10^9 spermatozoa/kg body weight. These findings underscore the superior efficacy of Nerestin 5A in inducing spermiation in P. spathula, compared to traditional carp pituitary extract or saline solution.

Key words*: carp pituitary extract, Nerestin 5A, Paddlefish, spermiation.*

GROWTH PERFORMANCE OF *Acipenser stellatus* Pallas, 1771 IN RECIRCULATING AQUACULTURE SYSTEMS: A SHORT REVIEW

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Abstract

The stellate sturgeon (Acipenser stellatus), a species of significant ecological and economic value, has seen a decline in wild populations due to overfishing, habitat loss, and pollution. This review summarizes current scientific findings on the growth performance of A. stellatus cultured in RAS, focusing on key parameters such as water quality, stocking density, feed composition, and environmental conditions. Optimal growth rates are achieved by precisely controlling dissolved oxygen levels, water temperature, and balanced protein-rich diets. Studies indicate that RAS technology can significantly enhance growth performance while minimizing environmental impacts compared to traditional aquaculture systems. However, challenges remain in optimizing system efficiency and reducing operational costs. Further research is required to refine these parameters for large-scale commercial production. This review is a reference for improving A. stellatus aquaculture practices, supporting conservation efforts and industry growth.

Key words*: growth performance, Acipenser stellatus.*

NEW DATA FOR HELMINTH FAUNA OF *Hyla arborea* Linnaeus, 1758 (Amphibia) IN THE REPUBLIC OF MOLDOVA

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Abstract

In this paper data are reflected with reference to the structure of the helminthic fauna of Hyla arborea Linnaeus, 1758 in dependence on intrinsic and extrinsic factors. The carried out helminthological research allowed the identification of 13 helminth species, including 7 species of trematodes, 5 species of nematodes and one species of acanthocephalans. The quantitative evaluation of annual parasitological indices shows that the infestation with the trematode species Opisthioglyphe ranae was recorded in 28.42 ± 0.15%, Pleurogenes claviger - in 20.14 ± 0.10%, Pleurogenoides medians - in 25.90 ± 0.27%, Diplodiscus subclavatus - in 20.86 ± 0.06%, Strigea sphaerula, mtc. - in 17.99 ± 0.18%, Neodiplostomum major, mtc. in 15.47 ± 0.44%, Strigea falconis, mtc. in 14.75 ± 1.80%, with Cosmocerca ornata in 30.22 ± 0.25%, Oswaldocruzia filiformis in 23.74 ± 0.28%, Oswaldocruzia duboisi in 20.14 ± 0.07%, Icosiella neglecta in 21.58 ± 0.11%, Agamospirura sp. II, larva - in 18.35 ± 0.17%, and Acanthocephalus ranae was recorded in 23.74 ± 0.02% of cases.

Key words: *Hyla arborea, helminth fauna, parasitological indices, Republic of Moldova.*

CARABID FAUNA IN AGRICULTURALLY MODIFIED LANDSCAPES: A CASE STUDY OF THE ARGEȘ RIVER CATCHMENT, ROMANIA, FROM HEADWATERS TO FLOODPLAINS

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Abstract

Riparian zones represent valuable riverine habitats that contribute to regional biodiversity and promote valuable ecosystem services within their catchments. Land use changes historically impacted riparian areas within most agrarian catchments, leading only to small land gains at high cost of ecosystem service loss. Ground beetles represent validated bioindicators and an important group of predators acknowledged as valuable cross-ecosystem trophic links and pest control agents. It was studied the community composition of ground beetles along a land use gradient within the riparian zones of a moderately impacted agricultural catchment. It was emphasized the importance of riparian forested buffers for sustainable agriculture through the support of multiple pest predators and the promotion of higher biodiversity across agrarian landscapes.

Key words*: riparian, land use change, forest buffer, ground beetles, carabids, sustainable agriculture.*

REVIEW ON THE IMPACT OF ELEVATED TEMPERATURES ON THE IMMUNE SYSTEM OF FRESHWATER FISH IN THE CONTEXT OF CLIMATE CHANGE

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Abstract

Climate change has significant effects on aquatic ecosystems, including the health and immunity of freshwater fish. As ectotherms, fish rely on the surrounding environment to regulate their body temperature. Elevated water temperatures impose physiological stresses, and prolonged heat exposure can compromise their immune system, making them more susceptible to infections and mortality. The capacity of fish to cope with these elevated temperatures depends on prior acclimation, but once the thermal threshold is surpassed, the stress becomes critical and may lead to local extinction in vulnerable species. This review analyses the effects of elevated temperatures on fish immune mechanisms. It highlights how rising temperatures influence inflammatory responses, increase pathogen susceptibility, and alter immune gene expression. Additionally, it discusses changes in physiological barriers and adaptive responses essential for fish survival in warming environments. The paper underscores the importance of studying fish immunity in the context of climate change, emphasizing the need for strategies to preserve aquatic biodiversity. Understanding how elevated temperatures impact fish immunity is important for developing sustainable resource management practices.

Key words*: Danube River, fish health, immune system, pathogen susceptibility, thermal stress.*

EVALUATING THE IMPACT OF FISHING HOOKS ON COMMON CARP (*Cyprinus carpio* Linnaeus, 1758): IMPLICATIONS FOR ANIMAL WELFARE PRACTICES

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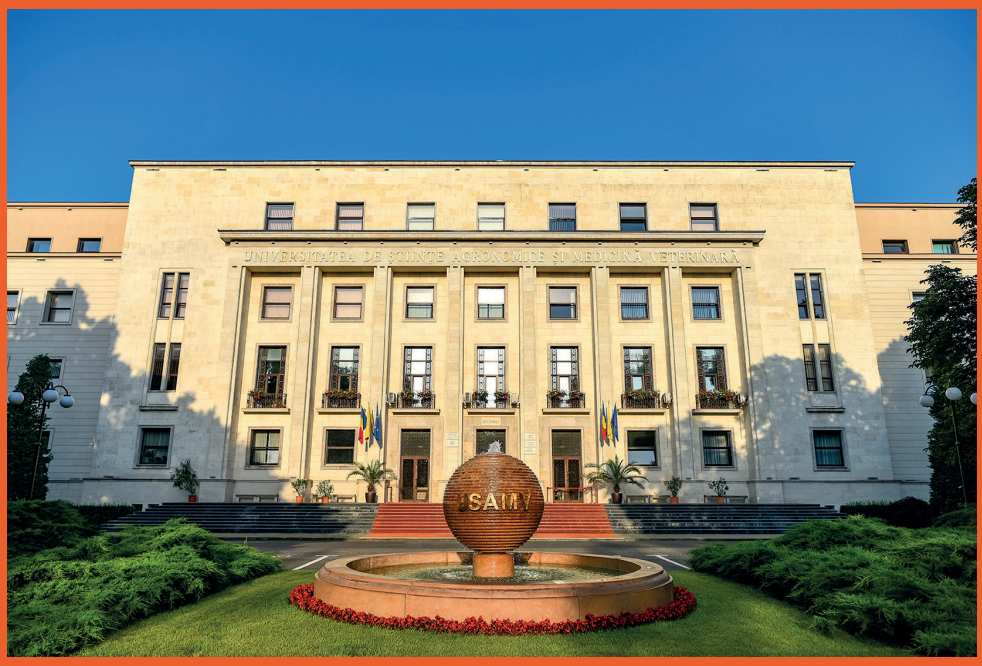
Abstract

The welfare of aquatic animals, particularly fish, has gained increasing attention in recent years. This study evaluates the impact of fishing hooks on the common carp (Cyprinus carpio), focusing on oral cavity injuries in this widely distributed and economically important freshwater species. Injuries were classified based on a surgical manual, and data were collected through controlled angling experiments. The results indicate that hook injuries can cause significant tissue damage, stress responses, and prolonged behavioral disturbances. These findings underscore the need for adopting welfare-conscious practices. The study aims to inform anglers, policymakers, and researchers about strategies to balance recreational fishing interests with ethical considerations for aquatic animal welfare.

Key words*: angling, stress, injury, recreational fishing, practices.*



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