University of Agronomic Sciences
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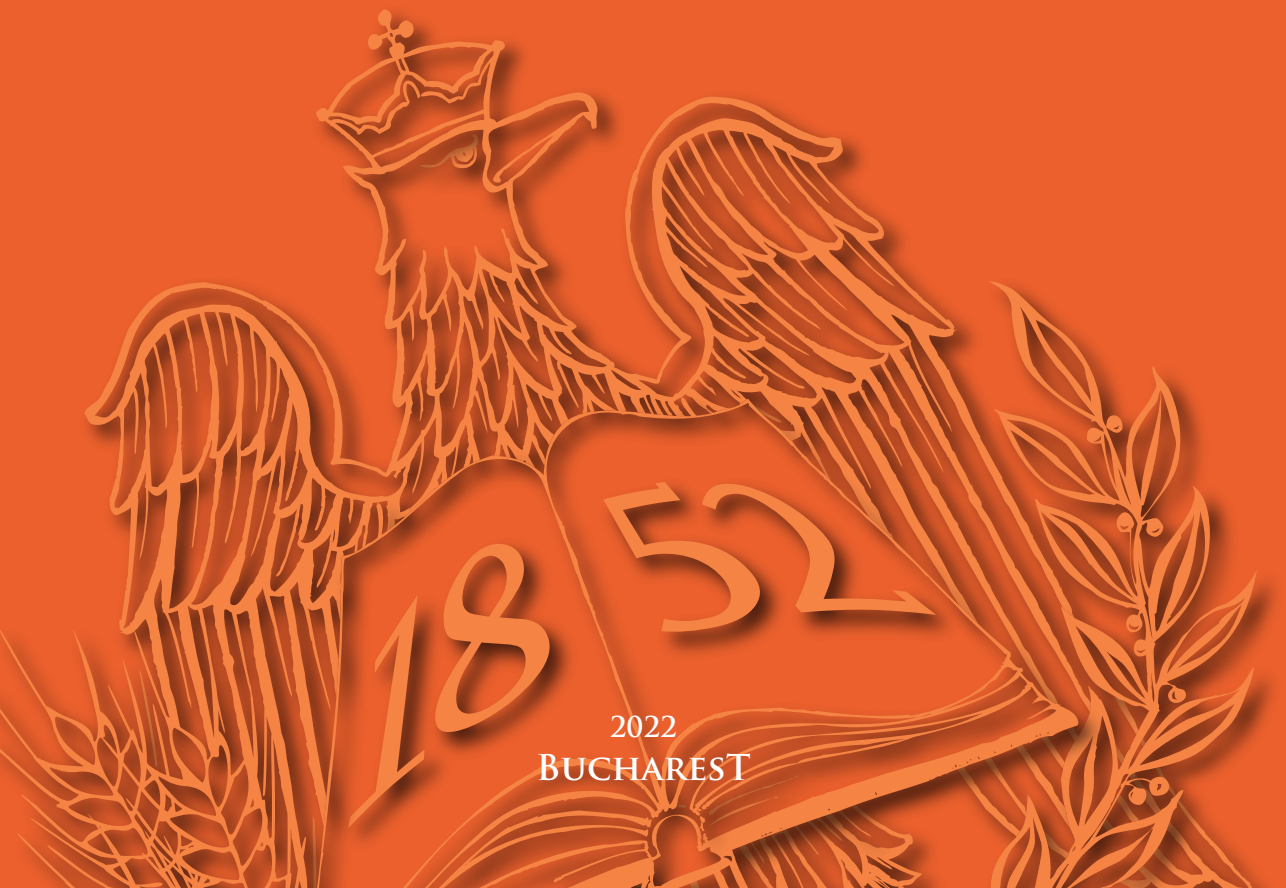
BOOK OF ABSTRACTS

Section 3

ANIMAL SCIENCE



2022
Bucharest

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SESSION
GENETICS
AND BREEDING

THE USE OF DAIRY COWS OF FRENCH BREEDING IN THE CONDITIONS OF UKRAINE

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Abstract

The study of milk productivity of French Holstein and Montbéliard breeds is regarded in the article, the uniformity of lactation is investigated, the lactation activity is assessed, as well as the cows are evaluated by the shape of their udder. The obtained results make it possible to affirm that the breed affects the production efficiency and the quality indicators of milk from cows of different French breeds, which are used in Ukraine. The cows of Holstein breed have a uniform course of lactation, high and constant productivity in terms of lactations and the better milk yield, but their milk quality indicators are inferior to those in the cows of Montbéliard breed. The cows of Montbéliard breed have a constant productivity and a uniform flow of lactation, they give high milk yield immediately after calving, but later they rapidly decrease productivity.

Key words*: breed, fat, Holstein breed, lactation, milk yield, Montbéliard breed, productivity, protein.*

DYNAMIC OF RECTAL TEMPERATURE OF GOAT KIDS OF DIFFERENT TYPE OF BIRTH IN THE FIRST HOUR AFTER BIRTH

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Abstract

Rectal temperature dynamic was studied in newborn kids of different type of birth during the first hour of postnatal life. The study involved 37 goat kids of Bulgarian White Dairy breed and its crossbreeds with Anglo-Nubian and Togenburg - 19 single kids and 36 twins kids. Rectal temperature of the newborns kids was recorded at birth, at 15, 30, 45 and 60 min after delivery. The dynamic of the rectal temperature during the first hour after birth did not differ significantly in single and twins. In both singles and twins, the rectal temperature began to decline, with singles it reached its minimum on the 45th minute and on the 30th in twins. The difference between the highest and the lowest value of the indicator was 0.94ºC in the singles and 0.77ºC in the twins. The established values indicated activation of appropriate thermoregulatory responses responsible for the kid's ability to maintain the body's homeotherm within normal physiological limits during the early postnatal period.

Key words*: goat, newborn, singles, thermoregulation, twins.*

PRODUCTIVITY OF FIRST-HEIFER COWS OF LOCAL BREEDING OF THE HOLSTEIN BREED

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Abstract

There are presented the results of a comparative assessment of milk productivity for 305 days of the first lactation of daughters of the local generation of the Holstein breed of various origins and their mothers, as well as a study of the variability and heritability of milk productivity traits. The studies were carried out in 2020-2021 in the herd of Joint-Stock Company "Aydın", Comrat, Administrative and Territorial Unit Gagauzia, Republic of Moldova. There was established a significant advantage in milk yield of daughters on average for the first lactation over mothers by 530 and 1240 kg of milk, respectively, of Dutch and German breeding, with P <0.001. A weak positive relationship was established between the milk yield and the fat content in milk at the offspring of the local generation of various origins (r +0.069) at first-calf heifers of German breeding also have a weak negative relationship (r -0.186) - first-calf heifers of Dutch breeding. The relationship between milk yield and the amount of milk fat at the descendants of German breeding is positive, the tightness of the relationship is high (r +0.768), which is significantly greater at P <0.001 than at the descendants of the Dutch breeding - the tightness of the relationship is moderate (r +0.366). It should be noted the high degree of heritability in milk yield for the first lactation (mother-daughter) of German breeding - 93.0%, Dutch breeding - this indicator is two times lower - 44.8%.

Key words: *correlation, daughters of local generation, heritability, productivity, variability.*

EVALUATION OF THE EXTERIOR AND PRODUCTIVE QUALITIES OF FIRST-HEIFER COWS OF THE JERSEY

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Abstract

The article presents the results of the study of productive indicators and features of the exterior of the trunk and morphological properties of the udder of first- heifer cows of Jersey breed. The research was carried out in the herd of the breeding farm Society of limited liability "Topal-Bereket", town Comrat on first-heifer cows of Jersey breed. Analysis of milk productivity of the pedigrees of female ancestors of first-calf heifers showed that the highest milk yield and fat content were at the mothers of fathers - 8772 kg of milk and 6.02% of fat. On average, the milk yield of first-calf cows for 305 days of the first complete lactation was 4660 kg of milk with a fat content of 5.96%, the amount of milk fat - 276 kg. Exterior assessment showed that the height at the withers of the first Jersey heifers averaged 126.0 cm, and the height at the croup was 131.1 cm. The chest is deep and wide and averaged 63.7 cm and 40.5 cm, respectively. The bone is thin - the girth of the pastern is 16.6 cm. First heifers of the Jersey breed are characterized by a compact physique with an undercut index of 115.7%, which is characteristic to them during the studied period of development. The relationship between girth and width of the udder and milk yield per lactation of Jersey first-calf cows is weak and positive and amounts to 0.092 and 0.102, respectively. The correlation between the length, width and girth of the udder and the fat content in milk is weak and amounts to +0.123, +0.053 and +0.158, respectively.

Key words*: correlation, exterior, first-heifer cow, Jersey breed, milk yield.*

RESEARCH OF MORPHOPRODUCTIVE PERFORMANCE OF THE MEAT GOAT POPULATION COMPARED TO CARPATINA GOAT BREED

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Abstract

The ever-increasing requirements for goat meat production have led to create and consolidate a specialized goat population for meat production, well adapted to local environmental conditions, within the Research and Development Institute for Sheep and Goat Breeding - Palas. The new R1 population (75% Boer and 25% Carpatina) showed superior attributes compared to Carpatina breed. During the period of intensive fattening of the kids, the R1 males achieved an average daily gain of 152 grams compared to the group of males from the Carpatina breed, in which the increase was 119 grams/day. The R1 hybrids had 2.75 percentage points more muscle tissue in the carcass and 3.11 percentage points less bones than the Carpatina kids. The adult goats in the newly created population had a body compactness index with values between 84.26 and 94.31 and the muscularity index of the gigot had values of 245.58 - 249.01. In regards to our research was observed the superiority of R1 Boer x Carpatina goats compared to the Carpatina breed regarding to the meat production and the quality of carcass.

Key words*: carcass, goat, meat, Romania, yield.*

EVALUATION OF THE PRODUCTIVE AND REPRODUCTIVE QUALITIES OF BLACK MOTTLE COWS WITH THE USE OF FORAGE SORBENTS

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Abstract

Currently, the presence of toxins in the composition of all feed for cattle is recorded as a result of a violation of the technology of harvesting and storing feed. The most famous are aflatoxins, ochratoxins, zearalenone, T2 toxin, deoxynivalenol (DON), fumonisin, which, getting into the blood of an animal, quite negatively affect the body of cows, reducing their productivity and fertilizing ability. Of particular importance is the determination of toxins in feed when feeding highly productive livestock under conditions of intensive milk production technology. The purpose of the work is to establish the degree of influence of different dosages of feed sorbents on the productive and reproductive qualities of cows. The studies were carried out in the conditions of the breeding reproducer of the black-and-white breed LLC Barmino in the Nizhny Novgorod region. The objects of research were cows of the first lactation of the Black-and-White breed, but the subject of research was the milk productivity of animals and the efficiency of insemination of cows. It was found that milk productivity and higher rates of reproductive abilities were the best in cows of the third experienced groups that received the largest amount of feed sorbent - 2 kg per ton of concentrated feed.

Key words*: black-and-white breed, cows, productivity, sorbent, toxins.*

BASIC PRINCIPLES OF SELECTION OF BULLS-PRODUCERS

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Abstract

Improving the methods of their evaluation is one of the most important links in breeding programs to increase productivity and fertility of livestock. The genetic improvement of the next generation and the population as a whole depends on the objectivity and accuracy of determining the tribal value of producers. We analyzed the basic principles of selection of bulls-producers, namely the use of producers of higher quality compared to the uterus; maximum use of the best manufacturers; replacement of the previous manufacturer by an manufacturer of even higher quality; regulation of kinship between the producer and the uterus with which he mates. As a result, it was found that when selecting producers for the herd, it is not rational to justify the choice with a high index of lifetime productivity.

Key words: *bulls-producers, dairy productivity, selection.*

EFFECT OF DIFFERENT SOURCES OF SPECIFIC VARIANCE ON THE WOOL PRODUCTIVITY OF SHEEP FROM THE NORTH EAST BULGARIAN MERINO BREED

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Abstract

Subject of the study were 678 sheep at 18 months from the North East Bulgarian Merino breed, born in the period 2013-2019, ownership of the Scientific Agricultural Center - Targovishte. The following traits were analyzed: wool productivity, staple length, clean wool yield, clean fiber and tenderness of the fibers. The influence of the factors - year of birth, type of mating and breeding line was researched. The variance analysis was based on a multifactor linear statistical model. Year of birth had a highly significant influence of the studied traits. The average wool yield was 8.154 kg., staple length was 11.469 cm, average clean wool yield was 61.634% and clean fiber was 5.101 kg. The genetic factors - selection type and breeding line had no significant effect on the traits for wool productivity. Heritability values for the studied traits were low which indicates a decrease of the genetic diversity and limited abilities for effective selection for increasing wool productivity.

Key words*: clean fiber, clean wool yield, North East Bulgarian Merino sheep, staple length, tenderness of the fibers, wool productivity.*

QUANTITATIVE AND SIMULTANEOUS GAS CHROMATOGRAPHIC DETERMINATION OF VARIOUS FORMS OF LONG-CHAIN FATTY ACIDS IN BIOLOGICAL MATERIAL

Y. RIVIS[1], D. ZABORSKI[2], B. GUTYJ[3], O.O. HOPANENKO[2], O.B. DIACHENKO[1], Olga STADNYTSKA[1], O.Y. KLUM[1], I.I. SARANCHUK[4], V.M. BRATYUK[1], V.D. FEDAK[1]

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Abstract

The literature describes non-quantitative gas chromatographic methods for determining the relative content of various forms of long chain fatty acids in the biological material under study. Our task was to improve the quantitative and simultaneous gas chromatographic method for determining the absolute content of various forms of long-chain fatty acids in the biological material under study (plant and animal tissues and liquids). To do this, the studied biological material, a simple and complex internal standard is treated with various extracting mixtures. Various forms of long chain fatty acids are isolated from extracted lipids and their methyl esters are chromatographed. The results of gas chromatographic studies are calibrated. The improved method for low error allows quantitatively and simultaneously in absolute units to determine the content of total long chain fatty acids, long chain fatty acids of common lipids, esterified, non-esterified and anionic long chain fatty acids in the studied biological material. Thus, using the improved gas-chromatographic method at a lower cost of reagents and time, quantitatively and simultaneously in the biological material under study in absolute units we determine the content of various forms of long chain fatty acids.

Key words*: accurate, biological material, definitions, gas chromatographic method, long chain fatty acids, quantitative, simultaneous, various forms.*

STUDY OF THE GROWTH AND FATTENING ABILITIES OF MALE LAMBS IN DIFFERENT TYPES OF BIRTH FROM THE ILE DE FRANCE BREED

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Abstract

Subject of a scientific experiment were 16 male lambs of the Ile de France breed, divided into 2 groups of 8, with different types of birth, fattened for a period of 60 days. The aim of the experiment was to study the growth and fattening abilities of lambs with different types of birth. Live weight was recorded at birth, at 60, at 75, at 90, at 105 days and pre-slaughter live weight at 120 days. The average daily gain by groups and subperiods was calculated. The quantities of feed consumed and the residual quantities were reported daily. The data were processed by the methods of variation statistics with Data Analysis, EXCEL, 2016 by Microsoft. It was found that male twin lambs of the Ile de France breed started the experiment with 12.81% lower average live weight, but in 60 days achieved 8.74% significantly higher absolute gain of 25,312 kg, compared to the group of singles - 23,100 kg. The twins achieved a 7.42% higher average daily gain of 0.445 g compared to singles for the entire experimental period. The twin lambs achieved 1 kg increase with lower consumption, respectively by 5.57% of dry matter, 6.36% of energy and crude protein by 7.18% of the group of singles, which shows better feed utilization and the indication of compensatory growth in lambs born as twins.

Key words*: average daily gain, live weight, sheep breed Ile de France, type of birth.*

HISTORY GENETIC ANALYSIS OF POLWARTH SHEEP BREED

Cristina Ștefania NEGRE[1], Gabriel Petru VICOVAN[2], Răducu RADU[2], Ana ENCIU[2], Adriana VICOVAN[2], Camelia Zoia ZAMFIR[2], Corneliu-Ion NEACȘU[2], Alina NICOLESCU[2], Maria STANCIU[2]

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Abstract

The research was carried out on a population of Polwarth sheep, intensely inbred belonging to the Research and Development Institute for Sheep and Goats Breeding, Palas - Constanta. Morpho-productive indices, reproduction indices, current number compared to the one acquired in 1995, inbreeding depression, intergenerational depression, inbreeding population, body weight differentiation and quantity of wool in the year of acquisition compared to 2020 were determined. From the presented data it results that the reproduction of the sheep was not affected instead in rams the body weight and the amount of wool decreased. Surprisingly, instead of shrinking and disappearing over time, the herd has increased and continues to grow, contrary to what is known to date from the effect of intense inbreeding on a breed of sheep.

Key words*: effective size, inbreeding, inbreeding depression, relationship in itself.*

PEROXIDE PROCESSES AND BIOSYNTHESIS OF CHOLESTEROL DERIVATIVES IN RABBIT TISSUES AT ACUTE L-ARGININE-INDUCED PANCREATITIS AND ITS CORRECTION

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Abstract

The positive corrective effect of fed flaxseed oil on the condition of the pancreas in acute L-arginine-induced pancreatitis was shown, the development of which was assessed by the number of necrotized acinar epitheliocytes in the head and tail of the pancreas and the activity of lipase and α-amylase in blood plasma. Feeding sunflower oil does not show a similar corrective effect. The normalizing effect of fed flaxseed oil on the state of the antioxidant defense system in rabbits in acute L-arginine-induced pancreatitis, on the content of thiobarbituric acid-positive products and the activity of superoxide dismutase, catalase and glutathione peroxidases in blood. Feeding sunflower oil leads to a deterioration of the oxidative-prooxidant balance. The ability of fed flaxseed oil to prevent disorders of content of non-esterified and esterified cholesterol in blood plasma, liver and skeletal muscle of rabbits in acute L-arginine-induced pancreatitis has been established. Feeding sunflower oil under the above conditions impairs the lipid composition of rabbit tissues. The positive effect of fed flaxseed oil on the ratio of anti-inflammatory polyunsaturated fatty acids of the ω-3 family to proinflammatory polyunsaturated fatty acids of the ω-6 family in the fatty acid spectrum of esterified cholesterol in blood plasma, liver and skeletal muscle of rabbits in acute L-arginine-induced pancreatitis. The result of the fed sunflower oil action on the studied indicators is quite the opposite. In acute L-arginine-induced pancreatitis, feeding flaxseed oil stimulates the conversion of cholesterol to bile acids, 25-OH-vitamin D_3, testosterone, aldosterone and cortisol in rabbits. The stimulating ability of fed sunflower oil in this regard is less pronounced.

Key words*: acute arginine pancreatitis, correction, derivatives of cholesterol, fatty acids, lipids, rabbits.*

BIOLOGICAL ASSESSMENT OF THE CONSTITUTION OF THE POLISSIAN BEEF CATTLE IN THE CONDITIONS OF THE PRECARPATHIAN REGION

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Abstract

The aim of the study was to investigate the growth of body weight, linear development, physiological and biochemical parameters of the blood of the first cows of Polissian beef breed of different constitution before and after weaning calves in the Precarpathians. To achieve this goal provides for the following tasks: to study the growth of live weight of cows of different types of constitution before and after weaning calves; to study the linear development of first-born cows of different types of constitution before weaning; to study the physiological and biochemical parameters of the blood of first-born cows of different types of constitution before and after weaning calves. In terms of body weight growth, linear development of physiological parameters of the blood of the first-born cows of the experimental group, both before weaning and after weaning calves significantly outperformed control peers, on average by 10-12%. In the Carpathian region, the breeding of Polissya meat breed should use animals with high physiological selection index, compared with analogues with low physiological selection index, it will accelerate the selection process in livestock populations and increase the production of biologically valuable beef in the region.

Key words*: body structure indices of Polissian beef cows, cattle breeding, constitution, measurements of the bodies.*

POLYMORPHISM IDENTIFICATION OF FABP3 GENE IN SHEEP OF BULGARIAN DAIRY SYNTHETIC POPULATION

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Abstract

This experiment was conducted in order to be identified the allelic and genotypic polymorphisms of FABP3 (heart-type fatty acid binding protein) gene in 30 ewes from Bulgarian Dairy Synthetic Population breed reared in Experimental base - Tzarev Brod - part of the Agricultural Institute - Shumen. FABP3 gene is a candidate marker that influences milk fat content and marbling of meat. Thirty blood samples were collected from v. jugularis in vacuum tubes with EDTA. Genomic DNA was extracted manually with commercial kit. By means of PCR-RFLP technique with endonuclease BseDI in exon 2 of FABP3 gene (SNP3) were determined the allele and genotype variants of the investigated animals. In this population were observed two alleles - wild allele A with frequency 0.15 and mutant allele G - with 0.85. Two different genotypes were identified - homozygous GG with frequency 0.67 and heterozygous genotype AG with frequency 0.33. Ho (observed heterozygosity) was 0.330 and He (expected heterozygosity) was 0.255. This herd was found to be in Hardy-Weinberg equilibrium (p>0.05).

Key words*: FABP3 gene, PCR-RFLP method, polymorphism, sheep.*

PATTERNS OF LACTATION CURVE IN BULGARIAN MURRAH BUFFALOES FROM TWO FARMS

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Abstract

To assess the different patterns of lactation curve and their parameters, were assigned buffaloes from intensive and pasture farming with respectively 466 and 335 normal lactations. The effects of peak month on overall persistency (PI1), post-peak persistency (PIP) and peak yield (PMY) were tested via LSMLMW and MIXMDL. The curves of lactations with first (LC1), second (LC2), third (LC3) and fourth-plus (LC4) peak month were shaped through conventional statistics. The results show mass deviation from the typical curve, the LC1 lactations being 60%, while LC2 are 1/4. Delaying the peak from 1st to 3rd month, PIP decreases from 88.2 to 86.4% (P< 0.05), but with highest value (90.4%) is LC4 (P< 0.01). Most productive are the lactations with typical pattern (LC2), while LC1 have lower milk yield, despite the higher peak yield, but because of the lower productivity and overall persistency (PI1) after it. It was demonstrated that for the economics of buffalo farming persistency by itself is not the only important parameter, but actually its combination with peak yield and the positioning of the peak.

Key words*: buffaloes, lactation curve, peak month, persistency.*

PARTIAL RESULTS OF GENETIC ANALYSIS IN ROMANIAN TROTTER HORSE FROM DOR MARUNT STUDFARM - REPRODUCTIVE ISOLATION AND AGE STRUCTURE

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Abstract

The paper aimed to present an important part of genetic analysis in Romanian Trotter horse. The sample extracted from the population is represented by entire reproductive nucleus of Romanian Trotter breed from Dor Marunt studfarm. We analyzed the reproductive isolation and the age structure. The reproductive isolation are the most important criteria for a flock to be accepted as a population. The other three are morphological and physiological differences, environmental requirements and genetic size, but all these three criteria evolving according to reproductive isolation coefficient. The age structure have an important role in animal breeding (horse breeding in this case) and also in exploitation. Both analyzed components have a capital importance in animal breeding because there has a directly influence in animal population evolution. The reproductive isolation situation was quantified using the relation elaborated by S. Wright and the age structure situation is based on the age distribution histogram.

Key words*: age structure, reproductive isolation, Trotter.*

CONSERVATION AND VALORISATION OF BEE SPECIES *APIS MELLIFERA CARPATICA* IN CONTEXT CLIMATE CHANGE

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Abstract

The aim of this scientific paper was to identify and highlight the innovative technology of conservation and valorisation of the bee species Apis mellifera carpatica in the conditions of climate change. Scientific research has been conducted on bee populations growth in the experimental apiary of the Institute of Zoology. Research results have shown that the sustainable selection of purebred bee families, with the application of innovative methods of genetic amelioration in climate change, contributes to the conservation of the population with an appropriate level of development of morpho-productive traits. The conservation of bee populations requires their protection from pesticide residues, which are more and more common in the flowers of some entomophilous agricultural plants. Knowledge of the most dangerous and widespread pesticide residues, identification of ecological biotopes, are necessary actions of technology for the conservation of bee populations. The maintenance of bee families in comfortable and ecological hives is one of the technological methods that ensure the conservation of the species and race of bees Apis mellifera carpatica. The hives of vertical models have comfort advantages for bees, compared to the horizontal ones, and ensure an increase of the prolificacy of the queens - by 3.5% (td = 2.07; P <0.05), of the family power - by 6.0% (td = 2.41; P <0.05) and honey production by 19.1% (td = 5.33; P <0.001) and an economic efficiency of at least 23.8 euros per family of bees. Feeding bee families during poor harvesting periods in the wild with nutritious supplements, enriched with biologically active substances of different organic origin, contributes to strengthening the vital activity of bee families, ensuring the increase of queen prolificacy and the number of brood capacity by 7.7-45.9%; family power by 9.3-16.9%; flight intensity of bees by 6.8-7.7%; disease resistance by 5.0-8.4%; winter hardiness by 10.5%; the amount of wax raised in the nest by 36.7-39.3%; the amount of pasture with 23.3-27.6% and the amount of honey accumulated in the nest with 19.6-38.9%. Rational use of Apis mellifera Carpatica species and bee race can be achieved by exploiting bee families not only for obtaining bee products, but also for their use in the directed pollination of entomophilous agricultural crops that contribute to the increase of fruit harvest in orchards by 15-30 % and sunflower seeds with 21.3-36.3%.

Key words*: Apis mellifera carpatica, genetic conservation, organic food, pesticides, protection, selection.*

THE INFLUENCE OF HYPODYNAMICS ON SOME PARTICULARITIES INTERIOR OF SHEEP KARAKUL

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Abstract

The aim of this research was to identify the impact of hypodynamics on the particularities of the interior of Karakul sheep, raised in different conditions of maintenance. The research was conducted on three similar batches of Karakul sheep, 150 heads in each batch. They were raised in different conditions, from the age of 3 months to 32 months. During the winter (December-March), the sheep from all batches were traditionally kept in stables in paddocks and fed with a mixture of chopped fodder, according to the zootechnical norms. During the summer (April-November), the sheep from Batch I (control) were kept grazing with daily movement at a distance of up to 10-15 km. The experimental Batch II sheep were maintained in the summer at the stable with daily active walking at a distance of 2-3 km. The sheep from Batch III were maintained throughout the experiment, at the stable under hypodynamic conditions. Sheep from batches II and III during the summer were fed green mangers, according to the zootechnical norms. It was found that in sheep in Batches III and II, the degree of oxygen saturation of arterial blood was significantly lower, compared to that of sheep in Batch I, by 7.4 and 2.8% (t_d = 5, 81 and 2.89; P <0.001 and P <0.01). At the same time, in sheep in Batches III and II, the degree of oxygen saturation of venous blood was significantly higher, compared to that of sheep in control Batch I, with 64.6 and 29.2% (t_d = 5.52 and 2.35; P <0.001 and P <0.05). In Batches III and II sheep, the level of oxygen utilization by body tissues was significantly lower compared to that of Batch I sheep, respectively by 40.1 and 17.4% (t_d = 7.43 and 3.06; P <0.001 and P <0.01). Sheep in Batch III significantly outnumbered their contemporaries in Batch I by 1.04 kg or 41.1% (t_d = 9.15; P <0.001) of gross internal fat deposited in the body after slaughter, by 1.80 kg or 7.5% (t_d = 2.61; P <0.05), after cutting yield, by 3.17 or 6.6% (t_d = 2.82; P <0.05) and after mass of the omasum, with 28 g or 29.2% (t_d = 5.65; P <0.01). At the same time, the sheep from Batches II and III, yielded significantly to the contemporaries from Batch I, after the development of internal organs, such as: liver, heart, lungs, kidneys, stomach, rumen, abomination and small intestine, by 14.4-37.9% (P <0.05 - 0.01). In the Batch III sheep, there was an obvious tendency to decrease, compared to the control Batch, the quality of the furskins, expressed by the weight of the furskins of Sort I, by 12.9% (t_d = 1.88; P <0.1).

Key words*: blood, furskin Karakul, hypodynamics, internal organs, oxygen, sheep.*

GENETIC PARAMETERS ESTIMATES FOR GROWTH TRAITS OF GOATS FROM THE ARGAN GROVE OF AGADIR IN MOROCCO

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Abstract

The main objectives of this study were to estimate the heritability and genetic advance for growth traits in the Argan grove of Agadir in Morocco goat. Traits included, birth weight (BW), 10 days weight (W10), 30 days weight (W30) and at 70 days weight (W70), average daily gain from birth to 30 days (ADG1) and average daily gain from 30 days to 70 days (ADG2). The measurements concern 81 parent-offspring pair distributed in two generations G1 (maternal parent) and G2 (offspring). Genetic parameters are estimated using the parent-offspring regression method after adjusting data for significant non genetic factors. In G2, the birth weights (BW), 10 days (W10), 30 days (W30) and at 70 days (W70) are respectively 1.75 ± 0.23 kg, 2.42 ± 0.24 kg, 3.57 ± 0.27 kg and 5.54 ± 0.46 kg. The average daily gains (ADG1 : 0-30 d) and (ADG2 : 30-70 d) are 62.38 ± 5.38 g and 50.34 ± 10.62 g respectively. The heritability and genetic advance estimates of different growth traits under study were found moderate in magnitude. Genetic correlations between body weight traits ranged from 0.18 to 0.77, whereas phenotypic correlations ranged from 0.13 to 0.52. these estimates suggest that there is no genetic contradiction between these traits and their assigned genes which were responsible for phenotypic expression. The exploitation of this variability could be used for the selection of better performing goats kids adapted to local breeding conditions.

Key words*: arganeraie (argan forest), genetics parameters, goats, growth trais.*

TESTING THE EFFECTIVENESS OF TWO METHODS OF EXTRACTING DNA FROM BLOOD SAMPLES FROM COWS

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Abstract

This research aims to validate the most effective method of extracting DNA from a number of 20 blood samples collected from cows. Two methods were tested, namely: DNA extraction using a manual extraction kit-Promega and automatic DNA extraction, using the Maxwell 16 LEV Blood DNA kit-Promega. Following the quantification of DNA samples, by spectrophotometry technique, the best results were obtained by applying the automatic extraction method (77.37 ng/µl DNA concentration obtained by automatic extraction compared to 14.95 ng/µl DNA concentration obtained by manual extraction). Therefore, the effectiveness of this technique has been demonstrated, representing a first step in genomic analysis protocols. The accuracy of the subsequent results depends to a large extent on the results obtained by extracting the DNA from the samples. Therefore, the automatic DNA isolation method is recommended because it has a number of advantages: accuracy, reduced analysis time, low costs, reduced labor and ease of application. This technique can be successfully applied in the analysis of genetic diversity of different animal species.

Key words*: blood samples, cows, DNA isolation, genetic analysis.*

GENETIC CHARACTERISTICS OF WERIS (*GALLIRALLUS PHILIPPENSIS*) FROM MINAHASA BASED ON MITOCHONDRIAL-DNA *CYTOCHROME-B* GENES

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Abstract

Utilization of animal genetic resources that live wildly needs to be maintained as well as one of the conservation efforts in a sustainable manner. This study aims to obtain information on genetic characteristics and kinship of Weris (local name) Gallirallus philippensis in several locations in Minahasa through molecular analysis using the Cyt-b gene. Gallirallus philippensis in Minahasa seems to have considerable genetic differences with their relatives from the Philippines and Australia where the results of the analysis show that the species found in Minahasa (Papontolen, Ranoyapo, Tondano, and Wusa) although still have a high genetic diversity based on the existence of 7 different haplotypes and form several branches but still in the same cluster. Alleged Weris in Minahasa may be a separate species (Gallirallus celebensis) need to be considered.

Key words*: cytochrome-B, Gallirallus philippensis, genetic, Minahasa birds.*

SESSION
NUTRITION

RESEARCH ON THE IMPORTANCE OF UREA AT DAIRY COWS AND ITS DYNAMICS

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Abstract

The present research proposed to present the dynamics of urea in Holstein cows milk (as ml/dl), in order to evidence and optimize the main factors affecting this parameter. Large amount of data, including Holstein farms along the whole country was included in the study. Statistical results proved that the feeding level of protein is a main factor influencing milk urea content. Protein intake is highly related to milk market price, therefore large differences in milk urea were revealed between hot and cold season (from 40 mg/dl in the hot season to 18 mg/dl in the cold season). Relation between milk urea level, reproduction indices and the productive life was also studied. The most affected indicator by urea excess was the calving- interval (39 mg/dl – CI of 435 days). As a result, we recommend an interval between 22-32 mg/dl, in order to optimize milk yield and quality, as well as the reproductive parameters and longevity.

Key words*: dairy cows, Holstein, milk production, reproduction, urea.*

THE BENEFICIAL EFFECT OF *BACILLUS* SPP. AS PROBIOTICS IN POULTRY NUTRITION - A REVIEW

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Abstract

Over the last few decades, the use of probiotics as source of feed additives in animal nutrition has increased considerably. As you know, sub-therapeutic levels of antibiotics were used as growth promoters (AGP) in the animal field, with extensive use in poultry industries, but due to their multivarious side effects, it was necessary to find some alternatives in order to satisfy the consumer's demands. Probiotics are considered one of the options as a significant alternative to antibiotics for improving health, growth, and poultry production. In our day, among the extensive number of probiotic products in use are bacterial spore formers, mostly of the genus Bacillus. The current review presents the benefits of probiotic utilization based on Bacillus spp. in poultry feed highlighting their potential to form spores that can withstand harsh environmental stress and transition during poultry gastrointestinal tract. Furthermore, Bacillus spores involve more than 80% survivability during the probiotic in vitro tests, remaining stable in a fairly high concentration. Based on the information found from published articles, this review summarizes stronger information about the properties of Bacillus spp. obtained from in vitro and in vivo screening, which can provide researchers with a better understanding of the use of this species in poultry nutrition.

Key words*: Bacillus spp., poultry, probiotics.*

SIMULATION OF PIG PRODUCTIVITY UNDER FEED CONSUMPTION

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Abstract

The aim of the research is to develop a computer model that makes it possible to predict the productivity of pigs based on the data on their consumption of the exchange energy of feed and the amount of feed loss during storage and operation of technological equipment. Based on the known results, regression relationships have been established between the value of the exchange energy of the given feed and the average daily gain in the live weight of animals, as well as the cost of feed per kilogram of gain. Due to the loss of feed nutrients and the feed itself during the storage of feed in warehouses, during preparation and delivery to animals, as well as throwing away part of the feed when it is eaten by animals, the amount of nutrients consumed by the animal and the accounting of feed consumption do not match.

Key words*: animal weight, feed effect, metabolic energy, pig weight gain model.*

CURRENT ASPECTS REGARDING THE USE OF ZEOLITES IN THE PROPHYLACTIC-THERAPEUTIC MANAGEMENT OF GASTROINTESTINAL DISORDERS IN POULTRY, SWINE, RUMINANTS AND DOGS (REVIEW)

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Abstract

Among the factors that cause gastrointestinal disorders in animals, along with microbial pathogens (bacteria, viruses), a major impact have the factors related to diet and stress. The use of effective alternative treatments of natural origin has really materialized. In recent decades, natural products have expanded and the overuse of synthetic drugs has been reduced because of their decreased therapeutic efficacy. Zeolites are volcanic compounds with a porous structure and a complex chemical composition. Their mineralogical, structural and physicochemical peculiarities underlie several applications in many fields, of which the biomedical one has a major impact on the prevention and therapy of gastric and intestinal pathologies. In gastrointestinal pathology, zeolites are used for their adsorbent and absorbent properties, which have been shown to be effective in the treatment of oral intoxications, diarrheal syndromes, and other digestive pathologies. This review is intended to document and deepen the prophylactic-therapeutic actions of zeolites in gastrointestinal disorders in various animal species, their biomedical potential not being fully explored.

Key words*: gastrointestinal disorders, prevention, therapy, zeolites.*

THE QUALITY OF GREEN MASS AND THE SILAGE FROM PEARL MILLET, *PENNISETUM GLAUCUM,* GROWING UNDER THE CONDITIONS OF THE REPUBLIC OF MOLDOVA

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Abstract

Pearl millet, Pennisetum glaucum (L.) R. Br., is a C_4 climate-resilient plant species, the sixth most important cereal crop of the world, has great potential as grain and multi-purpose forage for arid and semi-arid ecosystems. We studied some agrobiological peculiarities, the concentration of nutrients in green mass and silage prepared from pearl millet, Pennisetum glaucum, grown in an experimental field of the National Botanical Garden (Institute), Chişinău. It was established that the pearl millet plants harvested in the flowering period contained 200 g/kg dry matter, its biochemical composition was:10.19% crude protein, 3.11% crude fats, 31.61% crude cellulose, 40.28% nitrogen free extract, 5.45% soluble sugars 1.79 g/kg starch, 14.80% ash, 6.0 g/kg calcium, 3.9 g/kg phosphorus and 50.0 mg/kg carotene. The quality of the prepared silage was: pH = 4.08, 25.0 g/kg lactic acid, 7.3 g/kg acetic acid, butyric acid - not detected, 7.42 % crude protein, 3.87 % crude fats, 30.56% crude cellulose, 47.29% nitrogen free extract, 1.55% soluble sugars 1.19 g/kg starch, 10.86% ash, 4.2 g/kg calcium 2.7 g/kg phosphorus and 28.0 mg/kg carotene.

Key words*: biochemical composition, green mass, pearl millet, Pennisetum glaucum, silage.*

THE BIOCHEMICAL COMPOSITION AND THE NUTRITIVE VALUE OF FODDERS FROM SOYBEAN, *GLYCINE MAX*, IN MOLDOVA

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Abstract

Soybean, Glycine max, is grown primarily for seed production and has a long history of being grown as a forage crop. The main objective of this research was to evaluate the quality of green mass, prepared hay and haylage from soybean Glycine max cv. 'CLAVERA', cultivated in the experimental plot of the National Botanical Garden (Institute) "Alexandru Ciubotaru", Chisinau, Republic of Moldova. The results revealed that the harvested soybean whole plants contained 26.5 % dry matter. The concentration of nutrients in the dry matter of green mass was: 178 g/kg CP, 286 g/kg CF, 94 g/kg ash, 310 g/kg ADF, 484 g/kg NDF, 49 g/kg ADL, 142 g/kg TSS, 261 g/kg Cel, 174 g/kg HC, with nutritive and energy value 68.6% DMD, 63.4% DOM, RFV = 124, 12.73 MJ/kg DE, 10.48 MJ/kg ME and 6.46 MJ/kg NEl. The biochemical composition, nutritive and energy value of prepared hay: 173 g/kg CP, 303 g/kg CF, 105 g/kg ash, 331 g/kg ADF, 504g/kg NDF, 53 g/kg ADL, 110 g/kg TSS, 278g/kg Cel and 173 g/kg HC, 64.6% DMD, 57.8% DOM, RFV=116, 12.42 MJ/kg DE, 10.20 MJ/kg ME and 6.22 MJ/kg NEl. The haylage is characterized by pH = 4.69, 13.4 g/kg acetic acid, 69.3 g/kg lactic acid, 181 g/kg CP, 319 g/kg CF, 126 g/kg ash, 334g/kg ADF, 510 g/kg NDF, 42 g/kg ADL, 71 g/kg TSS, 292 g/kg Cel, 176 g/kg HC, with nutritive and energy value 63.0% DMD, 55.8% DOM, RFV = 115, 12.40 MJ/kg DE, 10.18 MJ/kg ME and 6.19 MJ/kg NEl. We consider that soybean forage may be used as multi-purpose feed for livestock.

Key words*: biochemical composition, Glycine max, green mass, hay, haylage, nutritive value, soybean.*

THE FORAGE QUALITY OF TIMOTHY GRASS, *PHLEUM PRETENSE,* CULTIVAR 'TIROM' GROWN UNDER THE CONDITIONS OF THE REPUBLIC OF MOLDOVA

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Abstract

Timothy grass, Phleum pratense, belongs to Poaceae family and is one of the most cultivated forage and pasture grasses in temperate regions. The aim of this study was to evaluate the forage quality of green mass and hay, silage and haylage prepared from timothy grass, Phleum pretense cv. 'Tirom', created at the Research-Development Institute for Grasslands, Braşov, and cultivated in the experimental plot of the "Alexandru Ciubotaru" National Botanical Garden (Institute), Chisinau. It has been determined that the dry matter of harvested timothy grass green mass contained 10.4-12.4% CP, 28.9-35.1% CF, 7.5-8.5 % ash, 31.4-36.8 % ADF, 49.5-58.9 % NDF, 3.6-4.1 % ADL, 27.8-37.4 % Cel, 18.1-27.7 % HC, 170-27.3 g/kg TSS, 56.9-61.4% DMD, 54.9-60.0% OMD, RFV=95-121, 11.91-12.60 MJ/kg DE, 9.78-10.38 MJ/kg ME, 5.81-6.42 MJ/kg NEl. The biochemical composition and nutritive value of prepared hay was: 9.3-12.2 % CP, 30.1-36.7% CF, 7.1-9.6 % ash, 33.6-38.4 % ADF, 54.1-62.1 % NDF, 3.7-4.3 % ADL, 29.9-38.3 % Cel, 20.5-26.3 % HC, 165-181 g/kg TSS, 52.8-56.9% DMD, 50.0-53.5% OMD, RFV=88-108, 11.69-12.36 MJ/kg DE, 9.60-10.18/kg ME, 5.62-61.7 MJ/kg NEl. The ensiled timothy grass fodder (silage, haylage) had pleasant color and smell, pH = 4.07-5.61, 1.6-6.9 g/kg acetic acid, 12.9-27.7g/kg lactic acid and free of butyric acid, 9.0-9.5 % CP, 6.7-8.4 % ash, 40.8-41.6 % ADF, 68.1-71.6 % NDF, 2.9-3.8 % ADL, 37.0-38.3 % Cel, 27.3-30.0 % HC, 65-131 g/kg TSS, 51.7-56.0% DMD, 46.7-46.9% OMD, 11.24-11.36 MJ/kg DE, 9.23-9.33 MJ/kg ME, 5.25-5.34 MJ/kg NEl.

Key words*: biochemical composition, cv. 'Tirom', green mass, hay, haylage, nutritive value, Phleum pretense, silage, timothy grass.*

CARCASS AND CUTTING YIELDS, MEAT QUALITATIVE TRAITS AND SENSORY EVALUATION OF BROILER CHICKENS FED DIET CONTAIN CLOVE AND TREATED OF CARROT IN DRINKING WATER

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Abstract

This study was conducted to investigate the carcass and cutting yields, meat qualitative traits and sensory evaluation of broiler chickens fed diet contain clove and treated of carrot in drinking water. A total of 200 D.O.C of broilers were used. The experiment utilized a completely randomized design with 4 treatments and 5 replications. Treatments were carrot juice consist of 0, 10, 20, 30 ml/liter water, respectively. Based diet consist of commercial diet 73%, corn 23%, clove meal 1%, and palm oil 3%. Results showed that water intake was significantly decreased, carcass weight, slaughter weight cutting yield, and giblet were non significantly difference but gizzard was significantly increased. Blood triglyceride was non significantly difference, HDL-cholesterol was significant increased, LDL-cholesterol, blood glucose and SGOT were significantly decreased. Cooking loss, WHC and water content of meat were non significantly difference but tenderness was significantly decreased. The color, aroma, texture and taste of meat were non significantly difference. It can be concluded that carrot juice in drinking water could be acceptable up to 30 ml per liter water when given to broiler chickens fed diet contain clove meal.

Key words*: broiler chickens, carrot, clove, drinking water, meat.*

BASIL, THYME AND SAGE HERBAL PLANTS AND THEIR ASSOCIATED ESSENTIAL OILS AS FEED ADDITIVES IN CHICKEN BROILERS. A LITERATURE REVIEW

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Abstract

The use of different herbal plants and their associate essential oils as feed additives is of great importance for various purposes in poultry production. This trend started since 2006 due to ban on use of certain antibiotics in poultry diets, in the European Union, because they are suspected of contributing substantially to increasing resistance among human pathogens. Some investigations have shown that a number of plant feed additives and their essential oils, have shown significant beneficial effects on animal production, health status and meat quality. These natural feed additives not only act as antibiotic replacements for the animals, but also exert beneficial properties in the poultry products, especially, antioxidant properties in meat. However, the overall efficacy of herbal plants and their associate essential oils, together with their nutritive value with impact on the health status of animals and humans (via the food chain), requires constant research on standardization of correct dosages for particular functions to be studied.

Key words*: broiler chickens, essential oils, feed additives, herbal plants.*

PROBIOTIC CHARACTERIZATION OF *LACTOBACILLUS* SP. IN VARIOUS ENCAPSULATION FORMULA

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Abstract

Research has been carried out on the characterization of the properties of L. paracasei and L. curvatus in several encapsulation formulas. This study aims to obtain the kind of encapsulation material formulation that maintains the viability and probiotic properties of both Lactobacillus. The method used in this research is a laboratory experiment using a completely randomized factorial design. The probiotic characteristics of the Lactobacillus sp. that have been encapsulated with several formulas were carried out by observing cell viability, acid resistance, bile salt resistance, and antimicrobial activity against pathogenic bacteria. The results showed that the bacteria L. paracasei in the cassava flour-alginate and L. curvatus in the alginate - skimmed milk had high viability for three weeks, same as the initial time, with the population reaching 3.52 x 10^{10} CFU/ml and 3,96 x 10^{10} CFU/ml, respectively. Furthermore, Lactobacillus bacteria encapsulated in alginate-skimmed milk formula have high resistance to acidic environments, high bile salt levels, and antimicrobial activity against E. coli and S. typhimurium. Therefore, alginate and skim milk as an encapsulant can protect probiotics survive longer and maintain their probiotics.

Key words*: encapsulation, Lactobacillus, probiotics characterization*

NATURAL AND INEXPENSIVE NUTRITIONAL HERBAL SOLUTIONS TO ALLEVIATE HEAT STRESS IN POULTRY

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Abstract

Heat stress represents the real enemy of the poultry industry all around the world. The World Meteorological Organization (WMO) predicts an increasing temperature by 1.5°C as early as 2024. The normal body temperature of a chicken is about 41°C, and its thermoneutral comfort zone ranges between 18-25°C. To avoid overheating and dissipating the excess heat the poultry's body conducts a demanding struggle, therefore it affects production and immune parameters, and also eggs' quality. Reduced appetite and feed intake due to impaired digestion and metabolism caused by intestinal morphology damage require different strategies against the negative impacts of heat stress. A natural and inexpensive dietary strategy can be considered herbal supplementation. There are globally available, with scientifically demonstrated thermoregulatory effects, and also with antioxidant properties that enhance the production parameters and the health status of poultry. Herbal utilization offers medium and long-term economic and natural potential to minimize the negative effects of heat stress in the local and global poultry industries.

Key words*: diet, heat-stress, herbal, poultry, temperature.*

PERFORMANCE AND EGG QUALITY OF LAYING HENS FED WITH DIETARY RAW MATERIALS RICH IN PUFA Ω3

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Abstract

The effect of dietary flaxseed meal, rapeseed meal and fodder peas on layers' performances and egg quality was investigated in a 6-wk feeding trial on 168 Tetra SL layers (65 weeks) assigned to 4 groups (C, E1, E2, E3). The commercial (C) diet had 2750 kcal ME and 16.4% CP. Compare to diet C, the experimental groups were fed with flaxseed meal (3%, E1), flaxseed meal-fodder peas (3%; 10%; E2), flaxseed meal-rapeseed meal (3%; 10%; E3) which increased the dietary level of the total polyunsaturated fatty acids PUFA ω3 (% of total fat) to 5.72 (E1), 6.87 (E2) and 5.65 (E3) compared to group C (1.19), in diet. At the end of the trial, 18 eggs/group were collected to determine the eggs nutritional and quality parameters. The results showed that egg intensity was lower (P≤0.05) in all experimental groups. Egg weight (g) in E1 (65.39) was higher (P≤0.05) compared to all other groups. Also, yolk colour intensity increased significantly (P≤0.05) in all experimental groups compared to C group. Similarly, the results showed that PUFA ω3 acid content was higher in all experimental groups (3.14%; 3.38% and 3.53%) compared to C group (1.13%). In conclusion, using dietary raw materials rich in PUFA ω3 had a positive influence on laying hens' egg quality.

Key words*: egg quality, flaxseed meal, fodder peas, rapeseed meal, layers' performance, PUFA ω3 acid.*

ADHESION AND ANTAGONISTS PROPERTIES OF *ENTEROCOCUS* MONOCULTURES AND THE OPPORTUNITY OF THEIR USE AS PROBIOTICS

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Abstract

The adhesion and antagonist capacity of some Enterococcus strains isolated from human and animal intestinal contents was investigated. The obtained results demonstrated the increased adhesive capacity of the studied Enterococcus strains, especially those specific to the human digestive tract. At the same time, the high activity of enterococci monocultures in the control of Escherichia and Salmonella bacteria has been established, which indicates their antagonistic property. Based on the adhesive capacity and high antagonistic activity of enterococci, new microbial associations containing enterococci were investigated. The obtained results revealed a beneficial action of the new microbial preparations, which prevented the appearance and development of diarrheal dysfunctions, which argues the opportunity to include enterococci in the composition of associations or probiotic microbial preparations.

Key words*: adhesion capacity, antagonistic activity, Enterococcus, probiotics.*

PREFERENCE TEST OF LOW CHOLESTEROL FUNCTIONAL CHICKEN MEAT

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Abstract

This study was conducted with the aim of measuring the hedonic quality of low cholesterol functional chicken meat through a preference test. The study was conducted on 240day-old broilers with an average body weight of Lohman strain of 44.16 ± 3.72 grams using a 3 x 2 factorial completely randomized design with 4 replications. As factor A is a source of oil, namely A1 fish canning waste oil (FO), A2 coconut oil (CO), and A3 pure lauric acid (LA). Factor B is the level of oil on ration, namely B1 5%, and B2 8%. 6 treatment combinations apply. The feed was given until day 35. There was no interaction between the source of oil and the levels on all variable of hedonic test of chicken meat. The organoleptic test is an assessment measure using the sensory senses and meat quality parameters consisting of colour, aroma, taste, texture tests that are tested subjectively by the panelists. Panelists like the nature and quality of a material with organoleptic testing so that someone can give an assessment. Differences in oil sources and levels do not change consumer preferences for low-cholesterol functional chicken.

Key words*: hedonic quality of chicken meat, oil sources, level of oil.*

THE USE OF NUT KERNEL CAKE IN THE FEEDING OF YOUNG PIGS

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Abstract

The aim of the research was directed to: assess the nutritional potential and the impact on production indices, blood and economic, using in the food of the young pig breeding, the nut kernel cake in different proportions. The results of the analysis of the chemical composition showed that the nut kernel cake contains: 4.19% nitrogen, 26.2% crude protein, 9.34% crude cellulose, 13.6% fat, 12.69 Mj/kg metabolizable energy, 0.33% calcium and 0.44% phosphorus. The results of this study indicate that nut kernel cake represents a viable solution for the partial replacement of soybean meal in the food of the young pigs, because the use of the amount of 4%/t and 8%/t of compound fodder, reduces feed consumption by 3.8% and 5.2%, increases feed conversion rate by 5.3%-4.5%, the average daily increase in the experiment increases by 1.4%, does not negatively affect the state of health and blood indices reduces the cost price of 1kg of compound fodder on average by 21 and 36 bani.

Key words*: blood index; compound fodder; chemical composition; nut kernel cake; nutritional value.*

AGE-RELATED CHANGES IN PERFORMANCE, PLASMA PROTEINS, AND NITROGEN CONTENT OF EXCRETA IN ROSS 308 BREEDERS

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Abstract

The study aimed to evaluate the effect of age on breeders' performance, plasma proteins and total nitrogen (N) content of excreta. The trial was conducted on 150 Ross 308 female breeders' (21-week-old). During 6-weeks, the birds were reared in similar management conditions and fed with standard feeds according to age (21 to 24-weeks, and >25 weeks). At the end of weeks 22, 24 and 26, blood and fresh excreta were sampled for analysis. Plasma proteins were determined by dry chemistry using reagent strips. Total N from excreta was assessed according to the Kjeldahl method. The growth performance results showed that age significantly affects the body weight, feed intake (FI), protein intake (PI) and N intake (NI) of breeders ($P<0.0001$). A dynamic age-related change was noticed inbreeders' plasma proteins by increasing ($P<0.05$) the total protein, albumin, albumin/globulin ratio, uric acid and urea N concentrations. The total N content of excreta registered a significant increasing trend at 24- and 26-weeks compared to 22-weeks of age ($P<0.001$). A significant positive correlation was found between performance variables (FI, PI, NI), plasma proteins and excreta total N.

Key words*: age, excreta nitrogen, performance, plasma proteins, Ross 308 breeders.*

A COMPREHENSIVE REVIEW ON ALGAE AND PROPOLIS-CHARACTERISATION AND THE IMPLICATIONS OF THEIR USE IN THE LAYING HEN DIET

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Abstract

Microalgae represent a new field of interest for laying hens' nutrition as they constitute a novel and valuable nutrient source, due to their nutritional composition and richness in polyphenols, polysaccharides and fatty and amino acids. Many studies have studied the effect of using microalgae in laying hen nutrition and their ability to improve health, production and egg quality. Propolis, like microalgae, is a natural source of nutrients with a long tradition in natural medicine. The literature has shown many benefits of using propolis in the diets of laying hens, such as improved productive performance and egg production, health, egg quality. This review makes it clear that including microalgae and propolis in laying hen diet can be an undeniable future nutritional strategy, enhancing standard feed formulations to the benefit of health and egg quality.

Key words*: diet, egg quality, laying hen, microalgae, nutrients, propolis.*

EFFECT OF POWDER PROBIOTIC ON THE LEUKOCYTE, HETEROPHIL AND LYMPHOCYTE LEVEL ON LAYING HENS

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Abstract

Powder probiotic has a good effect on the digestive tract which improvement of the immune system. This study to know the impact of powder probiotics on the immune system which includes levels of leukocytes, heterophils, lymphocytes, and heterophils to lymphocytes ratio in laying hens age 90 weeks. This study was conducted from February to March 2021 at Laying Hens Farm in Sukarapih Village, Sukasari, Sumedang, Jawa Barat. The object study were 40 laying hens aged 90 weeks. Completely Randomized Design (CRD) was applied which consists of four treatments and five replications. The treatments are basal ration without powder probiotic (T0); basal ration + 2% powder probiotic (T1); basal ration + 3% powder probiotic (T2); and basal ration + 4% powder probiotic (T3). Statically this study showed no significant difference in levels of leukocyte, heterophil, lymphocyte, and heterophil to lymphocyte ratio. However, the administration of powder probiotic 4% has improved the levels of, heterophil, lymphocyte, and heterophil to lymphocyte ratio on laying hens aged 90 weeks near rejected.

Key words*: heterophil, laying hen, leukocyte, lymphocyte, probiotic.*

HEALTH STATUS, PERFORMANCE AND CARCASS CARACTERISTICS OF BROILER CHICKS SUPPLEMENTED WITH YEASTS BIOPRODUCTS

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Abstract

The current study aimed to evaluate the effects of spent brewer's yeast (SBY, Saccharomyces spp.), with or without the addition of Rhodotorula spp. biomass (Rh), as dietary supplements on broiler health status and growth performance. A total of 320 one-day-old, Ross 308 broiler chicks were randomly divided into eight experimental groups with five replicate pens of eight birds/replicate. A 4 by 2 factorial design study was used, with SBY different inclusion levels (0, 0.6, 1 and 1.3 g/kg feed) and Rh supplementation (0 or 0.3 g/kg of feed) as treatments. There were no significant effects between the main factors SBY x Rh on the hematologic profiles (P>0.05) of the broilers. Blood serum biochemical profile of SBY and Rh groups and the interactions between treatments were evaluated and no significant effects were found (P>0.05), except for the glucose (p = 0.023), which was influenced by the SBY addition. Moreover, the SBY addition (0.6 and 1 g/kg) resulted in similar productive performances for weight gain and average daily gain, with the control group (Corn-SBM diet). In conclusion, yeast bioactive, nutritive, and pharmacologic compounds could serve as a suitable low-cost option to conventional supplements used in meat poultry nutrition.

Key words*: brewer's spent yeast, broiler, health, performance, Rhodotorula spp. biomass.*

DESIGNING A METHODOLOGY FOR TRACKING OBESITY CASES IN DOGS AND CATS

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Abstract

Obesity has become one of the main health problems affecting progressively dogs and cats, being one of the essential medical topics in veterinary clinics. Veterinarians and nurses have identified an increase in the frequency of overweight or obese patients presenting at the clinic, and the causes highlighted by them regarding the weight gain of dogs and cats are a sedentary lifestyle, ad libitum food consumption, poor quality food, and associated conditions detected too late, of which the owners are not aware until further medical investigations. Therefore, the creation of a nutritional management plan for patients suffering from obesity or obesity complicated by other conditions was necessary to achieve the goal: a healthy weight for the pet.

Key words*: obesity, dogs, cats, nutritional plan, weight.*

MONITORING OF DAIRY FARMS TO ASSESS THE POTENTIAL LEVEL OF POLLUTION OF ANIMAL FEED AND ANIMAL PRODUCTION

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Abstract

The over pollution in recent years has meant that the relationship between animal husbandry and the environment to be approached in the light of a sustainable vision, focused on animal welfare and ensuring the safety of feed and animal production. Given the influence of pollutants on the environment, this paper aims to outline the relationship between animals and environmental pollution, for assessing the potential level of pollution of feed and animal production. Thus, by correlating with the data from the literature, for three dairy farms, located in different geographical areas, was assessed, by observation and questionnaires, the specificity of activities in relation to monitoring feed and milk pollution.Following the monitoring and application of the evaluation questionnaire, the particularities of each farm and also the specifics of feed within them were highlighted, obtaining important information which allowed the assessment of the relationship between environment and animal husbandry, all of this for evaluating the potential level of pollution of feed and animal production and for classification of the studied farms by expected level of pollution: S - low; M - medium; R - high.

Key words*: animal production, environment, feed, pollutants.*

EFFECTS OF DIETS WITH INACTIVE DRY YEAST ADDITION ON PRODUCTIVITY AND HEALTH STATUS IN DAIRY COWS

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Abstract

This study evaluated the influence of inactive dry yeast in diets of dairy cows on productivity, blood-urine parameters, and faecal score. The research was carried out on a number of 30 Romanian Black and Spotted lactating dairy cows, with 583 ± 16.99 kg live weight, divided into three groups (n = 10), two experimental E_1 and E_2 groups, and one control group (C). The experimental group E_1 received 120g inactive dry yeast/head/day, while the experimental group E_2 received 150g inactive dry yeast/head/day during a 28 days trial. Dietary treatment effects were determined using analysis of variance (ANOVA) for repeated measures (mixed model). Supplementation of the diet with inactive dry yeast generated an increase of milk yield ($P<0.10$) for the E_1 and the E_2 groups, compared with the C group. For the milk lactose percentage, a treatment influence ($P<0.05$) and period influence ($P<0.10$) between the studied groups were observed. Also, for some blood indicators, a dietary treatment influence was recorded. There were no significant effects of the treatments on the other studied parameters. Dry yeast addition in dairy cows diets can have a positive effect on milk yield performance.

Key words*: dairy cows, dry yeast, health, productivity.*

EFFECTS OF MULTI-STRAIN PROBIOTICS ADMINISTRATION ON GROWTH PERFORMANCE AND HEALTH STATUS IN DAIRY AND BEEF-DAIRY CROSSBREED CALVES

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Abstract

The aim of the current study was to evaluate the effects of multi-strain probiotic administration on dairy and crossbreed calves' growth performances and health status. The calves were homogeneously assigned into four groups, as follows: dairy experimental (E_d, n = 12), dairy control (C_d, n = 12), crossbreed experimental (E_c, n = 6) and crossbreed control (C_c, n = 6). All calves were managed identically, being housed individually, with the experimental groups receiving 2 ml of multi-strain probiotic (Enterococcus faecium and Lactobacillus plantarum) per day. Blood sampling and growth performance were assessed at 1st, 14th and 28th days of the trial. Probiotic supplementation had no significant effects on hematologic profile (P>0.05). However, serum blood glucose and total cholesterol were significantly lowered (P<0.05) in the probiotic treated groups. Multistrain probiotic administration had significant effects on calves (P<0.05), improving the weight gain of both dairy and crossbreed groups (E_d and E_c) compared with control groups (C_d and C_c), at the end of the trial. Current results suggest that multi-strain probiotics support calves early-stage development.

Key words*: calves, health, performance, E. faecium, L. plantarum.*

MORPHOLOGICAL TRAITS AT FIRST CUTTING OF FAST GROWING TREE LEGUME *INDIGOFERA ZOLLINGERIANA* UNDER DIFRENT PLANTING SPACING IN COCONUTS BASED FARMING

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Abstract

The objective of this research was to assess the morphological response of Indigofera zollingeriana to differences in planting spacing at first cutting of three months after grown in the field. This study used a Completely Randomized Design consisting of 6 treatments, namely PS1: 100 cm x 50 cm, PS2: 100 cm x 100 cm, and PS3: 100 cm x 150 cm, each treatment was repeated 6 times. The measured variables were: plant height, stem diameter, the highest number of leaves, and number of branches. Further, we have measured also dry weight yield and leaf/wood ratio. The results showed that plant height and stem diameter in PS2 and PS3 treatments were significantly higher than PS. Number of leaves not effected but branches, leaf/wood ratio and total dry weight were significant effected by treatments. Based on the results of this study it can be concluded that the best morphological response of Indigofera in term of leaf/wood ratio and total dry weight at the three months in the fields was obtained in the 100 cm x 100 cm planting spacing.

Key words*: coconuts, cutting, indigofera, morphological, planting.*

NUTRIENTS AND PHYTOCHEMICALS OF WELSH ONION (*ALLIUM FISTULOSUM* L.) AND THEIR IMPORTANCE IN NUTRITION OF POULTRY IN THE FUTURE - A REVIEW

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Abstract

Allium fistulosum L., commonly called spring onion, welsh onion, or Japanese bunch onion, is a clumping, slowly spreading, evergreen perennial type that is mainly grown as a vegetable because of its onion-scented leaves. This species is very similar in taste and smell to the related common onion, Allium cepa, but does not develop bulbs. Welsh onion were detected to contain volatile compounds containing sulfur and and polyphenolic compounds which exhibit various biological activities, and which have anti-fungal, anti-oxidative, anti-hypertensive, anti-platelet, regulation of immune function and anti-obesity effects. This plant is much less known in the world than the traditional onion, A. cepa. This review intends to describe and summarize recent advances the nutrients and phytochemicals of welsh onions for using as a poultry alternative feed additive, their beneficial effects, and the mechanisms underlying their involvement for future in poultry nutrition.

Key words*: nutrients, phytochemicals, poultry, welsh onion.*

RESEARCH ON SOME COMPOUND FEED RAW MATERIALS HAZARDS IN RELATION WITH FOOD SAFETY

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Abstract

Food safety hazards associated with compound feed can be physical, chemical and biological. The paper aims to conduct a study during 2019 and 2020, on the production of compound feed in relation on food safety, by physical analysis of samples of raw materials (corn grains, wheat grains) used in the production of compound feed from two feed mills from Romania, called in the paper "unit A" respectively "unit B". Regarding the hazards identified in unit A, it was found that in 2019, 20 lots of corn grains (68.9%) and 9 lots of wheat grains (31%) were refused, the most common hazard identified (78.5%) being represented by their high humidity. In 2020, 17 batches of raw materials were rejected, represented by corn grains (52.9%) and wheat grains (47%); humidity was also the predominant potential hazard identified (70.5%). In the case of unit B, based on physical parameters, in 2019, 22 batches of corn grains (91.6%) and two batches of wheat grains (8.3%) were refused; the most frequently identified hazard (58.3%) was the presence of sprouted and moldy grains. In 2020, 53 batches of raw materials were rejected, represented by corn grains (79.2%) and wheat grains (20.7%); the most frequently identified hazard was beetle infestation (50.9%). It can be concluded that in the production process of compound feed it is mandatory the physical analysis of raw materials to determine potential hazards; this goal is achieved in the units studied, the results highlighting the effectiveness of specific food safety control processes.

Key words*: compound feed, food safety, hazards, raw materials.*

GROWTH PERFORMANCE OF 'SUPER NATIVE CHICKEN' TREATED WITH A SUPLEMENTATION OF MAGGOT FLOUR OF *DROSOPHILA MELANOGASTER* IN RATION

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Abstract

This research aimed to study the growth performance of super native chickens that treated with D. melanogaster maggot flour supplementation. A total of 64 super native chickens (DOC) reared until they are eight weeks old. This study used a completely randomized design (CRD). Experimental animals were divided into four groups according to the concentration supplementation treatment: T0 0%, T1 0.25%, T2 5%, and T3 7.5%. Each group consisted of four replicate units, each replication unit consisted of 4 chickens. The variables observed were: total of feed consumption, body weight and feed convertion ratio. The results showed that the effect of treatment on feed consumption was non significant while the effect on body weight and FCR value were significant different.

Key words*: growth performances, insect, maggot, native chicken.*

THE EFFECT OF SUPPLEMENTATION OF PATANGA SUCCINCTA FLOUR IN RATION ON INDIGENOUS CHICKENS MEAT PRODUCTION

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Abstract

This study aimed to observed the effect of supplementation of Patanga succincta flour in ration on meat production of local. A total of 48 day old of indigenous chickens were used until eight weeks old. The animals were divided in a same number into two groups: a group as control (CG) and the other group (TG) received a supplementation of P. succincta flour with a concetration of 5kg/100kg of ration. The variables observed were: body weight, feed consumption, FCR and carcass weight. The results indicated that supplementation of P. succincta flour in ration gave a significant effect (P<0.05) on feed consumption; body weight, FCR and carcass weight compared to the control group.

Key words*: indigenous chickens, insect, meat production, Patanga succincta.*

IN VITRO EVALUATION OF *ENTEROCOCCUS FAECIUM* AS PROBIOTIC POTENTIAL IN POULTRY PRODUCTION

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Abstract

Probiotics are important bacteria species due to their benefits to animal health. This study aimed to evaluate some characteristics of Enterococcus faecium (NCIMB 10415) and evaluated its survivability and capacity as a probiotic product. Gram-positive, catalase, antibiotics and haemolysis tests were screened using selective media. The strain was phenotypically characterized and biochemical profile using API 20STREP and identification by apiwebTM (Biomerieux (France) software were done (99.2% very good identification). After 24h of incubation at 37°C, in aerobic conditions, E. faecium exhibits 11.88 Log_{10} with an optical density (OD 600 nm) yield reaching a maximum from 0.2 at the beginning of the exponential growth phase to 1.7 value. The safety of the strain was confirmed by non-haemolytic activity on TSA agar medium. The impact of 16 antibiotics on our strain ranged from intermediate (75%) to susceptible (12.5%), with resistance to colistin sulphate and erythromycin. Regarding the importance of antibiotics such as vancomycin, the analysis of the E. faecium profile revealed intermediate activity. These data suggested that these bacteria do not create a risk to animal health and may be considered a reliable candidate as probiotic source for application in poultry nutrition.

Key words*: Enterococcus, poultry, probiotics.*

STUDY ON THE INFLUENCE OF THE USE OF NATURAL ANTIOXIDANTS SOURCES ON THE BIOPRODUCTIVE PERFORMANCE OF BROILER CHICKENS

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Abstract

A good knowledge of the diet of broilers influences poultry production and is a guarantee of increasing these productions, both in terms of quantity and quality. Antioxidants are a very suitable supplement to be administered during the rearing of broilers, as well as in the key stages of production that involve increased stress (vaccination, transport, heat stress, etc.). The aim of the paper is to detect the plant resources with antioxidant role in the spontaneous and cultivated flora, with antioxidant and antimicrobial activity, which will be introduced in recipes of compound feeds for broilers. All these studies aim to improve the rearing conditions of broilers in order to comply with welfare guidelines and to optimize the costs of feeding chickens by using cheap and effective additives in order to preserve the quality of compound feeds.

Key words*: antioxidant, broiler farm, compound feed.*

SESSION REPRODUCTION, PHYSIOLOGY, ANATOMY

AVIAN TUBERCULOSIS AND COMORBIDITY OF DOMESTIC CHICKENS: POSTMORTEM EXAMINATION

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Abstract

Avian tuberculosis is actively studied by researchers all over the world. But, as a rule, its variants are described as the main disease, when the death of the organism is caused by tuberculosis-specific injuries. At the same time, the predisposition of tuberculosis to a chronic course, allows the emergence of the so-called natural model of its association with other diseases and / or certain pathological processes. This fact is not always taken into account by veterinarians. The method of pathological autopsy of domestic chicken carcasses and the method of analysis of obtained results were used. The diagnosis of "bird tuberculosis" was based on the results of complex studies. There were diagnosed comorbid pathology: Tuberculosis/Reproductive syndrome at Infectious bronchitis of chickens; Tuberculosis / fatty hepatosis of domestic chicken based on analysis of pathological investigation. It was found that pathomorphosis of avian tuberculosis had certain differences due to its associated course with other pathologies.

Key words*: avian tuberculosis, domestic chickens, comorbidity, infectious bronchitis, fatty hepatosis, pathomorphological analysis.*

IMPACT OF VARIOUS FACTORS ON LIVE BIRTH WEIGHT LAMBS - REVIEW

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Abstract

The survival of the newborn in the first days is directly dependent on live birth weight. The indicator is related to the vitality and mortality of lambs, and also plays an important role in the later development of the young organism. Factors influencing live birth weight are genetic (breed, the effect of heterosis) and non-genetic (age, weight, body condition of the sheep, diet, year, season, month of birth, type of birth, sex, etc.). In all mammals, there is an "optimal" birth weight, as a result of which the birth process proceeds naturally and without complications. The objective of this survey is to investigate and summarize the factors that affect live birth weight of lambs.

Key words*: birth weight, factors, lambs.*

EXTERIOR EXAMINATION OF 'LIMOUSIN' COWS REARED IN THE CENTRAL GEOGRAPHICAL REGION OF BULGARIA

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Abstract

A characteristic of the external features of 'Limousin', reared in the Central Geographical Region of Bulgaria is presented. The breed is specialized in beef production. External measurements and body mass indices of 'Limousin' cows reared in herds in the area of vicinity the town of Troyan, Central Bulgaria were made. External dimensions of offspring of cows born in Bulgaria and Hungary were taken. The study was conducted on 50 first-calf heifers raised on 3 different farms for the period 2019-2021. The removal of the external dimensions took place during spring calving, 100-150 days after birth. The country of birth of cows had a significant impact on the rump height at the sacrum and sciatic bones and chest depth of their offspring (P<0.001). Differences in wither height, athwart body length, and cannon circumference were demonstrated in (P<0.05). The cows of offspring born in Hungary were 2.5 cm higher at the withers than those born in Bulgaria, and the difference in chest depth reached 8.3 cm. Pronounced body superstructure was observed in cows, descendants of cows born in Hungary.

Key words*: development, exterior measurements, index, 'Limousin', origin.*

INFLUENCE OF THE ORGANOSELENIUM COMPOUND SELENOPYRAN ON THE ANTIOXIDANT SYSTEM OF LABORATORY ANIMALS WITH TOXICOSIS CAUSED BY CADMIUM COMPOUNDS

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Abstract

The article investigates the effect of an organoselenium compound on the antioxidant status of the body of laboratory animals when they are administered a cadmium compound. Cadmium compounds are widely known eco-pollutants, the toxic effect of which is due to their ability to stimulate free radical processes in the body of animals and humans. The purpose of this work was to identify aspects of cadmium toxicity due to its thiol specificity and features of the short-term adaptation of the antioxidant system to the administration of a toxicant in rats at the stages of ontogenesis. At the same time, the effectiveness of the organic selenium-containing compound was evaluated. In the tissues, the accumulation of lipid peroxidation products, as well as the content of selenium in the blood plasma, liver, and testicles of animals, were evaluated. In the course of the research, it was found that the prophylactic administration of selenopyran to experimental animals reduced the manifestation of toxicosis caused by cadmium. A similar effect of the drug is due to a decrease in the degree of damage to cell membranes and intracellular structures by free radical oxidation products.

Key words*: cadmium, diene conjugates, free radical oxidation, glutathione peroxidase, glutathione reductase, malondialdehyde, selenopyran, selenoprotein, superoxide dismutase.*

RESISTANCE PROPERTIES OF THE ORGANISM UNDER THE INFLUENCE OF THE MINERAL PREMIX "PMVS" AND THERMAL FACTORS

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Abstract

This paper presents the results of the study of low temperature effects of moderate stress intensity and the mineral premix "PMVS" on some indicators of calf defense abilities in postnatal ontogenesis to determine the parameters that can be used as a way of increasing the resistance and the defense abilities of animals to adverse environmental influences. The values obtained from the studied parameters show the change in the resistance of calves in the postnatal period. Thus, the increase of the biological value of the ration, by including the mineral premix "PMVS" and the application of the low temperature of a moderate stress intensity have led to an increased serum phagocytic activity, bactericidal activity and lysozyme activity throughout the experimental period. During the whole research period, the diurnal weight gain in the experimental group was 766 g. Maintenance of the organism's homeostasis within optimal physiological limits is the main task of the animals physiology. Determination of the parameters of influence of the food and heat factors on homeostasis and calf development in postnatal ontogenesis allows to create favorable conditions that can facilitate the acceleration of the functional maturation of vital organs and systems, increase the organism's resistance and adaptive abilities of the organism to the influence of stress factors and the realization of the genetic potential of animals.

Key words*: bactericidal activity, calves, mineral premix, phagocytic activity, temperature.*

THE INFLUENCE OF THERMAL VARIATIONS ON THE INCIDENCE OF RABIES IN ANIMAL BIODIVERSITY

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Abstract

This paper presents the results of the study of the epidemiological situation of rabies in the last 10 years on the territory of the Republic of Moldova. It has been found that the most susceptible animal species to rabies virus are cattle (358 cases), dogs (304 cases), foxes (186 cases) and cats (150 cases), which constitute 91.14% of the total number of cases recorded in animals in the last 10 years. The fox is the rabies-reservoir species and the main vector of its spread in wild animal populations. In the livestock sector, cattle are the most affected and constitute 32.69%. Data obtained from the study show that rabies is developing sporadically. In the population of wild animals other than foxes, cases of the disease are not dependent on the existence of infected foxes in that area. It has also been found that there is no significant correlation of rabies in fox and dogs, fox and cattle, or dogs and cattle. At the same time, there has been found a correlation between the number of fox units and rabies cases and a cyclicity of rabies cases every 4 years (2012-2015 and 2016-2019). The influence of thermal variations on the incidence of rabies in living biodiversity has specific oscillating effects according to the years of study, with multiple divergences, which require a well-founded argument, based on the existing importance of the problem approached through high-performance scientific research.

Key words*: animal biodiversity, rabies, temperature.*

HEMATOLOGICAL AND BIOCHEMICAL BLOOD INDICATORS OF YOUNG GILTS AFTER ESTRUS SYNCHRONIZATION

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Abstract

Synchronization and stimulation are used to obtain large numbers of embryos. Therefore, the studies carried out made it possible to assess homeostasis in the dynamics of metabolism in different phases of regulation of the reproductive cycle when using the proposed drug "Estrosynchron". The drug blocks the secretion of pituitary gonadotropins, which inhibits the growth of follicles and the ovulation process and, accordingly, the manifestation of the phenomena of the sexual cycle. It was found that over the period (18-20 days) of feeding Estrosynchron in gilts after treatment, blood parameters decreased: total protein, globulin fraction, α1-globulin, α2-globulin fraction compared with the indicators before treatment. After treatment, there was an increase in the number of erythrocytes, hematocrit, platelet count and thrombocyte, as well as a significant increase in the average hemoglobin content in an erythrocyte and a decrease in the rate of erythrocyte coagulation. At the same time, studies of blood parameters provide additional information about the characteristics of breeding pigs, depending on the age and physiological state during reproductive use.

***Key words**: estrosynchron, estrus synchronization, gonadotropins, homeostasis, leukogram, stimulation.*

SHEEP GENERAL ANESTHESIA FOR EXPERIMENTAL RESEARCH PROCEDURES

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Abstract

We evaluated an anesthesia protocol for sheep as an experimental animal for surgical procedures. The entire group (10 sheep, breed Tsigai, 4 years old, 60.91 kg mean body weight) underwent experimental dentistry surgery and received a complete anesthetic protocol: intramuscular premedication (midazolam 0.18 mg/kg, ketamine 4.6 mg/kg, butorphanol 0.1 mg/kg), intravenous induction (propofol 4.45 mg/kg), intubation (endo tracheal cuffed tubes, size 7.5 mm and 8 mm), gas maintenance (isoflurane minimum alveolar concentration of 1.5-2%, a standard small animal circle circuit and spontaneous respirations during the procedures). The protocol was completed with analgesia (meloxicam 1 mg/kg) and clinical monitoring during the entire surgical procedure and in the recovery phase. Sheep were infused at a rate of 5 ml/kg/h with Ringer's Lactate solution, during anesthesia. The anesthesia duration varied between 32 -215 minutes, with a mean of 83.7 minutes. No incidents or complications were recorded during anesthesia. One sheep presented myopathy and lameness (right forelimb) in the first 72 hours after anesthesia, possibly associated with the positioning and the length of the procedure (135 minutes).

Key words*: anesthesia, intubation, isoflurane, protocol, sheep.*

A PRELIMINARY STUDY ON LIBIDO AND SEMINAL ATTRIBUTES OF DAJAL BREEDING BULLS

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Abstract

This study aims to deduce a baseline data regarding seminal attributes (fresh and post thaw semen) and libido of indigenous Dajal and Cholistani breeding bulls. Data were collected on weekly basis for three months and a total of 138 ejaculates were attained for analyses. Among fresh semen attributes, mass motility was significantly higher for Dajal bulls as compared to Cholistani bulls being 2.7 ± 0.2 and 2.1 ± 0.1, respectively. Dajal proved to bear the brunt of cryopreservation in a better way in terms of percentage of live spermatozoa (14.7 ± 0.2% damage). The values of libido index score, reaction time and Time Lapsed between Two Ejaculates were also significantly higher for Dajal breeding bulls. This preliminary study is the first of its kind, which furnishes baseline data regarding various reproductive attributes of Dajal breeding bulls. It envisions future studies on Dajal bulls with a larger sample size related to effect of age, season, feeding regimen, various types of extenders on semen quality, and assessment of fertility rate in order to attain an enhanced productivity.

Key words*: breeding bulls, Dajal cattle breed, libido estimation, semen analysis.*

REPRODUCTIVE PERFORMANCE IN ALPINE GOATS ACCORDING TO THE APPLICATION OF A SIMPLIFIED PROTOCOL FOR INDUCING ESTROUS INTO THE REPRODUCTIVE OUT OF SEASON

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Abstract

Studies in the field of goat breeding have shown that the most widely used and effective way to induce and synchronize estrus in the breeding season is the hormonal method with Chronogest sponges and the administration of Folligon and a prostaglandin. In the present study, we looked at the reproductive performance of a batch of 148 Alpina goats synchronized in April with Chronogest sponges maintained intravaginally for 11 days and the injection of 400 IU Folligon without prostaglandin administration. Artificial insemination with frozen semen was performed 43 +/- 2 hours after the removal of the sponges and the following reproductive aspects were established: the degree of the cervix opening at the time of artificial insemination, ultrasound diagnosis of 50 days gestation after artificial insemination with the identification of cases of pseud-gestation (4.05%), the rate of calving (56.76%) and prolificacy (310.71%). In farm conditions, specific to our country, the exclusion of prostaglandin administration decreases the risk of abortions by lysis of luteal bodies in possibly pregnant goats at the time of treatment and insemination.

Key words*: estrous, goats, reproduction indices, synchronization.*

RESEARCH REGARDING THE RAMS INFLUENCE IN TRIGGERING OFF SEASON SEXUAL CYCLES

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Abstract

In order to achieve the fundamental objective, an experimental protocol was developed which was applied at the same level and respecting all the experimental variables for three consecutive seasons, the period of each season being the same, respectively May-June. The experimental batch consisted of 30 adult females of the Karakul de Botoșani breed, aged between three and seven years. In each experimental season the batch of selected adult sheep had a good body condition and was maintained in a separate compartment. In order to study the effect due to the presence of rams on females and on the possibility of initiating the sexual cycle during periods outside the natural breeding season, an adult breeding ram was introduced inside the batch. In order to avoid physical exhaustion, the ram was changed at certain intervals. Adult sheep exhibiting sexual cycles were mounted immediately after detection, with breeding repeated after 10 hours. The data obtained were statistically processed, and analysing the average values shows that the proportion of sheep that manifested heat and were mounted was higher than 56% in each of the three seasons.

Key words*: birth rate, ewe, ram, reproduction season, sheep Karakul of Botoșani*

RESEARCH ON THE IMMUNOMODULATORY EFFECT OF LEVAMISOLE IN SWINE

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Abstract

Immunomodulation is an important alternative in combating many diseases, being considered a potential weapon in the fight against pathological entities that cause major economic losses in pig herds. Levamisole, in addition to its anthelmintic effect, has also an immunostimulatory effect, for which it has also been used as a vaccine adjuvant. The aim of the research was to evaluate the non-specific immune response in modern techniques in pigs given levamisole. The results showed significant differences in the case of the ratio of lymphocyte subpopulations, there was an increasing trend in favor of T lymphocytes (with 10,44%), and the % of T lymphocytes blastic transformation (with 56%). Also, we observed a significant increase of the LTh/LTs ratio (with 65.92%) which supports the immunomodulatory potential of the levamisole and its involvement on the coordination of immune processes.

Key words*: immunomodulation, levamisole, lymphocytes, pigs.*

INFLUENCE OF POLYPHENOLIC COMPOUNDS OF GREEN WALNUT EXTRACT ON SPERMOGRAM INDICES OF BREEDING RABBITS

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Abstract

Lately, the research and study of oxidative stress on the functioning of the male reproductive system has intensified. Free radical oxidation processes play a very important role in the functioning of each living cell, on the one hand, this is a necessary stage of various metabolic processes, but on the other hand, the processes of free radical formation intensify, which can cause various pathological changes in the cells and tissues of living organisms. In living systems there are mechanisms for generating active forms of oxygen, as well as biological systems for protecting intact cells from the influence of active forms of oxygen (ROS). In the norm between these systems there is an equilibrium, which provides a normal functioning of subcellular structures and organs as a whole, but this balance very often can be disturbed in the direction of non-compensation of ROS generation and the appearance of oxidative stress. This is a state of the living cell, in which the discoordination of ROS formation processes and the functioning of the antioxidant protection system takes place. At the same time, under normal conditions, the modified macromolecules undergo regeneration or are destroyed. In the processes of oxidative stress the recovery regimes are insufficient, and as a result damaged molecules accumulate in the body (Повarова et al., 2015). It is currently considered that the balance between the ROS generation system and the antioxidant protection system after their elimination have a decisive significance in regulating the functioning of cells. A significant imbalance of the antioxidant-prooxidant system can cause inhibition of the fertility properties of ejaculate. According to the results of the literature, at present the following main interdependent causes of dysregulation of male fertile function in the process of development of oxidative stress are highlighted. First of all, a decrease in the mobility of male reproductive cells is observed, which occurs due to a decrease in the elasticity of the membrane of reproductive cells, and therefore a decrease in the mobility of the flagellum (Галимова et al., 2016). The involvement of oxidative stress in the pathogenesis of male infertility has predetermined the study and research of the effectiveness of various antioxidants in regulating and proceeding metabolic processes in the process of spermatogenesis.

Key words*: mobility, reproductive sex cells, ROS, stress.*

INFLUENCE OF GREEN WALNUT EXTRACT ON THE ANTIOXIDANT STATUS OF THE ORGANISM OF BREEDING ROOSTERS

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Abstract

In recent times, the use of medicinal plants has significantly increased in correcting the disturbances in the organs and systems of living organisms, which can be caused by climate change, environmental pollution with various wastes, which contain heavy metals and other toxic substances released into the atmosphere as a result of processing of different raw materials et al. Researchers in this field have noticed that a number of plants have antioxidant, detoxifying properties, blocking properties of heavy metals from the internal circuit of living organisms and at the same time prevent the development of many disorders, which can cause different morbidity states of the body. In this paper will be analyzed and processed bibliographic scientific sources of researchers, which deal with the study of the physiological, biochemical, antioxidant, detoxifying, antiradical properties and the influence of biologically active components from "Juglans regia L.". There will be presented some results obtained in the research conducted in our laboratory, on the influence of hydroalcoholic extract from green walnuts (Juglans regia L.), where will be taken into account the antioxidant influence and blocking properties of heavy metals, antiradical activity et al. The purpose of this paper was to determine the influence of biochemical complexes, which are contained in Juglans regia L. on antioxidant activity. From the results obtained after processing the specialized literature we notice that Juglans regia L. possesses high antioxidant properties, contain a series of biochemical compounds, such as vitamin C, flavonoids, quercetin et al. Due to the effect of Juglans regia L. on the amelioration of complications of various functional disorders in biological objects, it is necessary to further conduct complex physiological and biochemical studies on the use of Juglans regia L. components in various disorders in organs and systems of the human and animal organism.

Key words*: active forms of oxygen, antioxidants, antioxidant activity, detoxification, extract.*

INFLUENCE OF HYDROALCOHOLIC EXTRACT FROM GREEN WALNUT ON CERULOPLASMINE CHANGES IN BLOOD SERUM

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Abstract

Cerulopshasmine is a ferment with a high copper content, manifesting an increased ferroxidase activity, which is detected as a soluble isoform in plasma or as a membrane-associated isoform in different cell types. The ceruloplasmin-ferroportin system is the main route of cellular iron exit in vertebrates and is responsible for the physiological regulation of cellular iron levels. Ceruloplasmin is a copper-containing ferroxydase and plays an important role in the ionic state regulation of iron oxidation - Fe^{2+} to Fe^{3+}. As a result, iron is incorporated into transferrin without the formation of toxic iron products. Maintaining the normal transport and metabolism of iron is a function of ceruloplasmin to maintain the vitality of tissues and organs. This review focuses on the structural and functional characteristics of the two proteins, with special emphasis on their coordinated regulation at the transcriptional and post-transcriptional level. Ceruloplasmin (CP) is a glycoprotein that plays an essential role in iron homeostasis. According to the accepted theory, the bivalent iron transported from the cell by ferritin, it is necessary to oxidize certainly by ceruloplasmin in order to slightly facilitate the activity of transferrin. Therefore, the ceruloplasmin-feroportin system is the main pathway of cellular iron metabolism and is responsible for regulating iron levels in the cell. Oxygen is a paradox for cells in that it is both an essential nutrient needed for survival and a precursor for toxic, potentially deadly byproducts. Ceruloplasmin represents a protein with specific domains capable of both facilitating the production of cellular energy and preventing the formation of oxygen radicals. This ability to perform dual tasks lies in the complex shape and structure of the protein and involves strategically placed copper ions, which can help both give and take up electrons from substrates, including iron, oxygen, and iron-binding proteins. Copper is the essential element for the wide range of ceruloplasmin activities that maximizes iron metabolism. A defect or mutation in the ceruloplasmin gene that denies copper incorporation into ceruloplasmin disrupts iron metabolism. Ceruloplasmin is also involved in many redox reactions. Its effect as a pro-oxidant or antioxidant is due to the presence of other factors. In the presence of superoxide (for example, in the inflamed vascular endothelium), it will act as an oxidation catalyst for low-density lipoproteins. About 95% of all copper in the body is found in connection with apoceruloplasmin, therefore, determining the amount of ceruloplasmin is one of the main methods of assessing copper exchange.

Key words*: ceruloplasmin, copper, iron, ferritin, oxidation.*

RESEARCH ON THE DYNAMICS OF ERYTHROCYTIC SERIES IN RELATION TO AGE, IN CHICKENS

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Abstract

In this paper we would like to observe the dynamics of the red blood cell series of chickens, during their growth and development. Research has taken place on two groups made out of 10 chickens: one group (named group 1) containing an industrial hybrid (Cobb 500), and one group (named group 2) containing common breed chicken. The hematological determination has been made at the age of 14, 45 and 75 days. The results obtained showed that at 45 days, the mean corpuscular hemoglobin presented a significant difference ($p<0.05$), higher with 6.26% than the chicken in the group 2. Regarding the determination made at the age of 75 days, we have found a significant increase ($p<0.05$) between the two groups regarding: the red blood cells number (with 18.43% higher than the group 2), the hematocrite value (with 7.64% higher than the group 2), the hemoglobin concentration (with 16.6% in favor of the group 2). Regarding the mean corpuscular volume, it presented a significant increase (with 8.64% higher than the group 1). During the experiment, the concentration of mean corpuscular hemoglobin didn't present any significant changes ($p>0.05$), the values of this parameter falling withwin the physiological values.

Key words*: chicken, eritrocytes, hematocrite, hemoglobin.*

SESSION TECHNOLOGIES OF ANIMAL HUSBANDRY

ALBANIAN AGRICULTURAL ADVISORS AND FARMERS' PREFERENCES ON EXTENSION SERVICE ACTIVITIES

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Abstract

A survey was carried out during the lockdown period (April-May 2020), to assess agricultural advisors' preferences on extension service activities. A questionnaire was mailed to the 66 advisors of the Regional Agencies of Extension Service of Tirana and Korça and the descriptive statistic method was used to analyse the data collected. Before disseminating the innovations, the advisors need more trainings on extension methods & activities, and agricultural practices. "Trainings combined with field visits for the practical side" is their first choice to get new knowledge on topics related to their work, while as a second choice they have preferred "open field days". Extensionists perception is that that "Demonstrations" and "Trainings combined with on-farm visits" are the two main activities that the extensionists think of as the most suitable activities for the farmers and for the realization of their plan of extension activities. As less important activities extensionists listed: "In-country trainings", "Brochure/Leaflet", "Study tours¨ and "Open field days".

Key words*: agricultural advisors, extension service activities, farmers, preferences, survey.*

STUDY REGARDING THE IDENTIFICATION OF SOME ANTIBIOTIC WASTE IN TREATED COWS' MILK

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Abstract

The concept of prudent usage of the antibiotics supposes that their application should have the greatest effect on human and animal health and they should determine the weakest bacteria resistance to the antibiotic used. Among the 48 milk samples assessed, 4 samples (8.33%) were positive according to the test accomplished with the Ecotest device. After 10 minutes of incubation, 91.67% of the samples had enough lactic acid. The lactic acid determined acid pH and phenolphthalein in acid environment is colourless. The test tubes containing the milk from these samples stayed white (the colour of the milk). For the rest of the milk samples (8.33%), because of the presence of antibiotic waste, the active (microbiological) substance did not develop and, since there was no lactic acid, the pH in these test tubes is slightly alkaline or neutral and the phenolphthalein becomes pink. The device used is responsive enough to find the β-lactam antibiotics in milk and it may be used at the farm level. The antibiotic concentration according to the "screening" was under the maximum admitted limit (4 µg/l) and all of the 4 samples were "screen positive".

Key words*: antibiotic, contamination, treatment, waste.*

COMPARATIVE STUDY REGARDING THE PHENOTYPIC PERFORMANCES OF THE ASCENDANCE AND DESCENDANCE OF DAIRY CATTLE FROM HUSBANDRY HOLDINGS IN NEAMȚ COUNTY

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Abstract

In this study, the productive performances of the ascendants and descendants of the cows' herd belonging to the 4 basic breeds were analyzed, as follows: Holstein, Bălțată cu negru românească, Bălțată românească, and Brună de Maramureș, from 7 farms of Neamț county, which were encoded with numbers from 1 to 7. For the analysis of the ascendants' performances - mother (M), paternal grandmother (MT), and maternal grandmother (MM) - and of the offspring' performance, 3 indicators were determined regarding the milk production: the quantity per normal lactation (kg), the percent of fat, and the percent of protein. It was found that the best milk production in normal lactation of offspring was recorded in farm 2 (6161.25 kg), where a mixed herd of Holstein and Bălțată cu negru românească breeds is raised. If we compare the phenotypic performances of the ascendants (mother of mother - MM), which realized an average milk production of 7205.44 kg, with the father's mother (MT) of 11.931 kg, and the mother's mother (MM) of 7949.83 kg we confirm that the phenotypic performance for the milk production in the offspring does not reach the level of those obtained by ancestry. This fact is due to management deficiency regarding the external factors.

Key words*: ancestors, cattle, descendants, milk, production.*

RESEARCH ON PRODUCTIVE PERFORMANCE IN MEAT COW BREEDS FROM NEAMT COUNTY ZOOTECHNICAL HOLDINGS

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Abstract

In this scientific paper, the productive performances of beef cattle belonging to the Aberdeen Angus and Charolaise breeds from 6 farms in Neamț County were analyzed, studying the following indicators: birth weight (kg), body weight (kg), and average daily gain (g) at the age of 200 days (kg), and also 365 days (kg). The data on average values and variability of meat production indices show that the highest performances were 42.33 kg at birth, 246.29 kg and the average daily increase of 1030.71 grams per 200 days, and 433.69 kg with the average daily increase of 1074.33 kg, at the age of 365 days. On the last place was farm 1, which registered an average weight at birth of 30.70 kg, at 200 days this indicator was 188.59 kg, and the average daily gain was 786.20 grams; at 365 days the average weight was 320.84 kg and the average weight was 793.11 kg. Farm 1 raises the Aberdeen Angus breed, and farm 5 raises the Charolaise breed, which has better results due to the constant care of the breeder to improve the genetic material.

Key words*: Angus, beef, Charolaise, performance, production.*

GOAT COLOSTRUM - COMPOSITION AND IMPACT

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Abstract

Colostrum is the first milk that a newborn receives immediately after birth. Its quality and timely intake are the main factors influencing the survival chances of the newborn. The composition of goat colostrum depends on the breed, age, diet and health of the animal. Immunoglobulins from the blood of the mother goat do not cross the placental barrier during pregnancy, at birth the kid does not have antibodies against the surrounding infectious agents. These immunoglobulins are concentrated in the colostrum and provide the passive immunity that the kid acquires. Goat colostrum has been shown to contain twice as much immunoglobulin G, as cattle colostrum. The specific biological properties of colostrum make it a valuable material for the development of food supplements. In recent years, these supplements have become increasingly popular on the world market as a powerful immunostimulant. The objective of the present review is to give a brief overview of the physicochemical and immunological properties of goat colostrum as well as the differences in the different breeds.

Key words*: colostrum, goats, immunoglobulins, immunity, physicochemical parameters.*

THE EFFECT OF DIET ON GROWTH PERFORMANCES, CARCASS AND MEAT QUALITY CHARACTERISTICS OF LAMBS FROM TSIGAI BREED

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Abstract

The aim of this study was to determine the effects of diet on growth performances, carcass and meat quality of Tsigai lambs - rusty variety fed with different diets, in order to improve meat quality and meat sensory characteristics of lambs; forty male lambs (L1 and L2, n = 20 heads/ group) were used in experiment from birth up to 5 months. No significant differences ($p > 0.05$) were found between the two lots with regard at final weight and average daily gain. The diet had a significant effect between L1 and L2 groups in terms of hot carcass weight and hot slaughter yield ($p < 0.001$), cold carcass weight and cold slaughter yield ($p < 0.01$), as well for commercial yield ($p < 0.05$). The juiciness and overall difference were strongly influenced by the diet administered in the present study, significant differences ($p < 0.001$) being recorded between meat from the two groups. The diet administered to L1 influenced positively the eating qualities of lamb meat, resulting in a more juicy and tender meat, in which the specific lamb taste was attenuated.

Key words*: diet, lamb, meat, sensory characteristics, Tsigai.*

THE USE OF THE ROMANOV BREED IN DIFFERENT CROSSBREEDING PROGRAMS

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Abstract

Ewe reproductive rates are under 100 percent in most sheep breeding countries. The efficiency of the sheep industry together with the production of lambs needs to be improved. A great potential exists to increase sheep productivity and efficiency by increasing reproductive rate, largely through the exploitation of genetic variation among breeds. Profitability mainly depends on lamb production and various genetic and management methods exist to increase lamb output which depends on fecundity, prolificacy, lamb survival, and the number of lambings per lifetime. There are a few highly prolific sheep breeds available in the present and the challenge is to exploit this potential commercially. The aim of this paper is to review the Romanov prolific sheep breed and its use in different crossbreeding programs. The fastest way to improve prolificacy in local sheep breeds is by crossing them with rams from prolific breeds, like Romanov breed. Internally, within the I.C.D.C.O.C. - Palas - Constanta, the Prolific Line - Palas was created, following the crossing of Merinos de Palas sheep with rams from Romanov, Friesian, and Finnish Landrace breeds, which are characterized by an average prolificacy of 160-180%. The Romanov breed can be used in practice differently depending on the purpose pursued, namely use in purebred, use for the creation of new populations or lines with high prolificacy, use in simple industrial crosses to increase meat production (Romanov females x males meat), or use in double or triple industrial crosses (obtaining prolific hybrid females F1 in the year I - females of local breed x male of Romanov breed, which in the second year are crossed with males of specialized breeds of meat).

Key words*: crossbreeding, litter size, prolific breed, reproduction rates, Romanov breed.*

PROTEIN METABOLISM IN EPITHELIOCYTES OF THE LARGE INTESTINE IN FETUSES OF BLACK-SPOTTED CALVES

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Abstract

The article shows the dynamics of total proteins and the features of protein metabolism at the fetal stage of calf development. This is important for diagnosing intestinal diseases in newborn calves due to their rather high mortality from such diseases. It was revealed that at the early fetal stage of development, a villous-cryptal gradient of the distribution of total proteins in the cytoplasm of epithelial cells is formed. With the growth of the fetus, at the midfetal stage of development, an increase in the content of total proteins is observed in the epithelial cells of the villi. In a differentiated study, it was found that the decrease in the color of total proteins in 4-5-month-old fetuses is due to the action of acidic proteins. The intensity of the reaction to the main proteins does not decrease, but even increases. In fetuses of 6 months, acidic proteins are again accumulated in epithelial cells, by birth, the ratio of acidic and basic proteins levels off. The epithelium of the large intestine at the neonatal stage undergoes adaptive histochemical restructuring.

Key words: *epitheliocytes, fetal stage of development, large intestine, protein metabolism, total proteins.*

ANIMAL WELFARE AND ITS ASSOSSIATIONS WITH FARM SIZE AND STOCKMANSHIP CHARACTERISTICS ON EUROPEAN BREEDING-TO-FINISHING PIG FARMS

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Abstract

Animal health and welfare (AHW) has become an important aspect for sustainable development in livestock farming. Therefore, this paper aims to analyse the AHW performance of 27 breeding-to-finishing pig farms across six European countries and to investigate associations with number of sows in production, number of sows per worker and percentage of family labour. AHW indicators were aggregated to themes, namely "Hunger and thirst", "Comfort", "Injuries and disease", "Pain by management", "Appropriate behaviour" and "Human-animal relationship". On a scale from 0 to 100 (worst to best AHW), lowest median theme score was found for "Comfort" (39) and highest for "Human-animal relationship" (78). AHW performance varied considerably between farms, indicating a potential for improvement, especially regarding "Comfort". Number of sows per farm in production correlated negatively with "Hunger and thirst" (r_s = -0.81), "Comfort" (-0.44) and "Appropriate behaviour" (-0.61). Number of sows per worker also correlated negatively with "Hunger and thirst" (-0.56). Family labour did not correlate with any of the themes. We conclude that some aspects of animal welfare especially regarding comfort (e.g., space allowance and enrichment material), require improvement measures across these six European countries. These problems may increase with farm size and number of sows per worker. Therefore, incentives to implement animal welfare improvement measures are needed for all farms to encourage farmers to construct housing systems above the minimum legal requirements.

Key words*: animal-based indicators, comfort, family labour, farm size, multi-criteria analysis.*

IMPROVING THE FORMIC ACID - BASED FORMULAS USED IN VARROOSIS CONTROL BY BROOD BRUSHING PROCEDURE

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Abstract

The paper aims to present some preliminary results regarding the effectiveness of different lower concentration of formic acid formulas, used by brushing procedure, in killing the varroa mites (Varroa destructor) which are found in the reproductive phase in the capped brood. To perform the experiments, honeybee capped brood combs from untreated colonies were collected and treated in two experimental groups with different dilutions (20%, 30%, 40%, 50%) of concentrated formic acid (85%) used in water-based and alcohol-based dilutions. The measurements were focused on the evaluation the varroa mite mortality, as response variable, at 72 hours from the treatment application. Out of the obtained results one could remark that the mortality of mites increased as the concentration of formic acid increased in different formulas. Highly significant differences were established between the two experimental groups as well as between the mortality of different categories of varroa. The results clearly show that the use of formic acid is very effective in varroosis control also when used in lower concentrations (30-40%) by brushing procedure. The results also show that new formulas could be further optimised by setting up a standard protocol to evaluate the critical stages of mites inside brood and their vitality, which are affected following the application of treatments.

Key words*: brushing procedure, capped brood, formic acid, honeybee, varroa, varroosis.*

QUANTITATIVE AND QUALITATIVE VARIATION OF SAANEN GOAT MILK KEEPED IN EXTENDED LACTATION FOR TWO YEARS

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Abstract

Saanen goats, specialized in milk production, improved in terms of quantity and quality (protein and fat content), are normally milked for 270-300 days with an annual production of 650-1050 l of milk/lactation and an average protein content of 2.9% and fat content of 3.2%. This study was conducted in the first goat farm in Romania that initiated prolonged lactation of goats. The research was carried out on a batch of primiparous goats, maintained in an intensive exploitation system, which after the first calving were subdivided according to milk production measured for a week. Two batches of 128 goats with a production of 3-4 liters/day and 94 goats with a production of over 4 liters / day were established. By modulating the diet and the light regime, the goats were milked continuously for 690 to 742 days, monitoring the amount of milk, protein and lipid levels on a monthly basis. Along with controlled breeding programs, prolonged lactation contributes to ensuring on the domestic market a continuity in the supply of goat's milk, throughout the year.

Key words*: goats, milk quantity, prolonged lactation.*

A STUDY OF THE INFLUENCE OF ENVIRONMENTAL FACTORS AND THE PREVALENCE OF PASTEURELLOSIS IN RABBITS

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Abstract

We studied the influence of environmental factors on the prevalence and clinical manifestations of pasteurellosis in rabbits of the California and New Zealand breeds over a period of one year. It was found that the minimum temperatures in winter and the maximum in summer were out of the optimal values: 4-7 and 16-18^{O}C, respectively. The relative humidity during most of the year was out of the recommended levels (60-70%), both at the average and at the maximum measured values. The concentration of ammonia exceeded the average values by about 16 mg/m³, and the maximum values by about 30 mg / m³. The dust content varied from 0.9 to 6 mg/m³ with average values of 3.6 mg/m³. The total number of isolated microflora in m³ air was 6.83 x 10³ (6.5-7.3 x 10³). Dominant in the biological material and washes / from cages, walls and inventory / were the representatives of Salmonella, Staphylococcus, Streptococcus, Pasteurella and Colibacteria; and from the molds Aspergillus /flavus, fumigatus/, Penicillium, Alternaria and Mucor. Antibodies against Pasteurella multocida were found in 60% of the population. Exacerbation of the disease and higher mortality was observed during pregnancy and during the suckling period. The main complications were - respiratory disorders (51%) followed by inflammation of the conjunctiva. About a quarter of the affected animals (26.4%) suffered from the mixed form of the disease. We found that Inflammation of the ears was extremely rare (0.2%). A relationship has been established between the number of environmental factors and the incidence of respiratory diseases. We can conclude that environmental factors are actively involved in the development, form and severity of pasteurellosis in rabbits.

Key words*: environmental factors, pasteurellosis, rabbit.*

INFLUENCE OF CERTAIN ENVIRONMENTAL FACTORS ON BASIC PHYSIOLOGICAL, HEMATOLOGICAL AND BLOOD CELL PARAMETERS IN FREE-RANGE DAIRY COWS

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Abstract

We studied the influence of the temperature-humidity index (THI) on some basic physiological, hematological and blood cell parameters in free-range dairy cows from three cattle farms with different capacity and breeding techniques for a period of one year. Weak to significant variations in the hematological parameters and indices were found in connection with changes in THI. Despite the reported high THI during the light part of the summer days, the animals retain their immune protection: respiration increased by 10-13%, but the heart rate and body temperature remained within the upper reference range, the erythrocytes increased by 7-8%, the leukocytes by 6%, hemoglobin by 10-15% as well as the eosinophils and the monocytes. The values of the blood cell index (BCI), the lymphocyto-granulocyte index (LGI) and the neutrophil-lymphocyte index (NLI) also increased. Almost all studied physiological parameters, blood cell types and indices were dependent on the season and the type of farm ($P < 0.05$ - $P < 0.001$).

Key words: *basic physiological, dairy cows, hematological and blood cell parameters, temperature-humidity index.*

STUDY OF THE PROFILE OF FATTY ACIDS DETERMINED FOR HUBBARD CAPONS

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Abstract

The present study looked at the effect of applying the orchidectomy operation, in Hubbard roosters, on the fatty acids profile. In this regard, two groups of roosters were formed, an experimental group (Exp. B), consisting of castrated birds at the age of 7 weeks, and a control group (C.B.) consisting of uncastrated roosters. The results obtained by reporting the values of saturated fatty acids (SFA) to unsaturated fatty acids (UFA) illustrated that in case of pectoral muscles the experimental group recorded a value of 0.58, while in the case of the whole legs, the result was 0.57. Regarding the ratio between polyunsaturated fatty acids (PUFA) and monounsaturated fatty acids (MUFA), the value calculated for the chest muscles, resulting from the capons, was 0.60, and for the whole thighs muscles, for the same batch, was 0.61. The Ω6/Ω3 ratio was calculated to be 5.06 for the breast of the castrated roosters, respectively 4.91 for their whole thighs. Additional research in this area is recommended.

Key words*: capons, fatty acids, Hubbard, Ω6/Ω3 ratio.*

REVIEW OF THE FATTY ACID CONTENT OF DOMESTIC MILK AND ITS IMPORTANCE

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Abstract

The fatty acids in milk from various species of domestic animals have many important benefits for the human body. The physical chemical characteristics of milk are influenced by many factors: animal nutrition, lactation period, storage conditions and treatments to which it has been subjected. Milk fat is directly determined by the characteristics and the different proportion of fatty acids in its composition. The fat contains over 70 different fatty acids, which sets it apart from all other animal fats. Fats are of vegetable and animal origin, vegetable fats are generally liquid (oils) and animal fats are solid (lard, butter). Fatty acids are of two types saturated and unsaturated. The saturated ones have only simple sigma type bonds (butyric, capronic, caprylic, capric, lauric, myristic, palmitic, stearic acid, etc.). Unsaturated acids contain a pi bond and have longer chains (palmitoleic, oleic, linoleic, etc.). It was found that cow's milk has a low fatty acid content of about 2-3%. This paper is a review of the fatty acid content of milk from different species and their importance.

Key words*: benefits, factors, fatty acids, milk fat, species.*

REVIEW OF THE HEALTH BENEFITS OF LACTOFERRIN

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Abstract

Lactoferrin (LF) is a protein contained in raw milk. It was found that the highest content of lactoferrin is found in human milk, but the milk of other species also contains this protein (cow, goat, buffalo, sow, mare, mouse). Lactoferrin may improve the immune system or provide an iron supplement. It has the task of transporting iron, appreciated for the first time as a mediator of iron absorption. Potential applications of lactoferrin have prompted scientists to develop this nutraceutical protein for use in animal feed, human food and pharmaceutical applications. It is known that there are currently concerns in the world about obtaining a higher amount of lactoferrin from the milk of different animal species. This paper is a review that aims to highlight the biologically active role of lactoferrin.

Key words*: composition, lactoferrin, lactoferic milk, role.*

ANALYSIS STUDY REGARDING THE INFLUENCE OF FARM SIZE ON CALF HEALTH IN ROMANIA

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Abstract

Calves' health is among the most commonly investigated field for the dairy research field, considering that the age up to the weaning is more susceptible to a great range of issue. Given the lack of knowledge on the effects of farm size on the health practices of calves, the aim of the current study was to evaluate husbandry practices in small (5-25 heads), medium (26-100 heads) and large (>100 heads) dairy farms from Romania. The current survey was conducted online interviews in 2020 and 2021, on a number of 81 dairy farms, representing an overall number of 15.425 dairy cattle heads. Regarding the incidence of enteritis, there were significant differences ($p \leq 0.05$) between medium and large farms, with 45.45% of the medium farms and 37.03% of the large farms recorded incidents of less than 5%. Concerning the respiratory diseases, it has an incidence of <5%, with a rate of 46.87% in small farms, while 59.09% in medium farms and up to 59.25% in large farms, with a significantly higher proportion ($p \leq 0.05$) between small farms and large farms. The incidence of rickets and navel disorders in dairy calves, were not influenced ($p > 0.05$) by the size of the farm. These results highlighted the differences in rearing practices of dairy calves, based on farm size.

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

INFLUENCE OF CLIMATE CONDITIONS AND BEE GRAZING ON THE STRENGTH AND PRODUCTIVITY OF BEE FAMILIES

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Abstract

Honey bees are extremely intelligent creatures that form an indispensable segment of the planet's ecosystem. Their lives are closely linked to environmental conditions. Mostly with climatic conditions, honey-bearing vegetation in the area of the apiary in which they are grown, cultivation technology and many other factors. Good knowledge of honey resources and proper organization of their use are crucial for the development of beekeeping and increase the productivity of bee colonies. The leading factor for the life and development of bees are the environmental conditions - climate, flora and fauna, food base, useful and harmful to bee colonies living organisms. Most of these conditions one cannot make an impact, this can be achieved through large unjustified costs. Another group of factors that determine the development of the bee family are created inside the nest as a result of the vital activity of individuals in it. These include the collection, processing and preservation of food supplies, regulation of temperature, humidity and gas exchange within the bee colony, beneficial and harmful organisms associated with the bee colony, microorganisms involved in digestion and preservation of perga and others. These factors are related to the productivity of the bee family and in them it is possible, to some extent, altered by man. Climate change affects the development and productivity of bees to varying degrees, with weak families and higher mortality. The aim is to trace the influence of climatic conditions and bee grazing on the strength and productivity of bee colonies.

Key words*: bee family, bee grazing, climatic factors, honey bees, productivity, strength of bee colonies.*

PARTIAL RESEARCH ON THE EFFICIENCY OF DAIRY COW FARMS BY DIMENSION AND GROWTH SYSTEM

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Abstract

In the context in which the number of dairy cows in our country is constantly declining in recent years, a complex analysis (technical and economic) of dairy farms was necessary to determine the optimal size and exploitation mode of these categories of cattle in order to obtain a maximum profit. After conducting the three case studies and analyzing the three breeding and maintenance systems, the intensive dairy farming system seems profitable, but it requires the biggest investment, the largest number of staff and well-developed feed bases, based on generous land areas, for the realization of the vast majority of fodder within the unit, thus having the fewest inputs. Without large areas of land and high-performance dairy animals, the intensive system is losing ground to the semi-intensive system, especially as it poses major problems in terms of environmental protection, creating a lot of waste and pollutants.

Key words*: bovines farm, economic efficiency, milk production.*

STUDY ON THE VIABILITY OF THE YOUNG IN THE SPECIES *APIS MELLIFERA* ACCORDING TO THE SECRETORY CAPACITY OF ROYAL JELLY

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Abstract

The growth of the bee brood (the stage of the decapitated larva) is directly influenced by the ability of the nurse bees to secrete royal jelly. The secretion of the main precursors of royal jelly is made in the hypopharyngeal glands, located in the bee's head. After the nursing stage (bee capable of raising new generations of larvae), the hypopharyngeal glands regress and are responsible only for the secretion of invertases that ensure the transformation of nectar into honey. The study aimed to establish the degree of variation in the viability of the brood, correlated with the feeding with royal jelly from nurse bees, fed on diets with low protein intake (low in pollen). The study conducted in an apiary with 20 bee families, Apis mellifera carpatica, in autumn, with a lack of pollen in nature. A positive correlation established between the two factors studied. The degree of development of the hypopharyngeal glands that influence the condition of bee larvae as well as their viability. Monitoring in practice the level of protein in the feeding of nurse bees and the periods with greater or lesser need may be a criterion for determining the strength of bee families.

Key words*: Apis mellifera carpatica, hypopharyngeal glands, larval brood, viability.*

THE INFLUENCE OF PROTEIN LEVEL IN DAIRY COW FEED ON THE PRODUCTION

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Abstract

Cattle are the most widespread category of domestic animals, with a special importance for the economy and agriculture of any country. Cattle produces 96% of the world's milk consumption, over 30% of meat and 90% of leather production. An important category in cattle is the "dairy cow", considered a living plant that transforms feed into animal products with a special nutritional value for human consumption. It is also an increasingly powerful "animal machinery", whose efficiency and productivity depend on its genetic background, diet and management. The present study showed that the level of protein in food can influence milk production.

Key words*: cow, feed ingredients, fresh category, milk.*

COMPARATIVE STUDY ON HOLSTEIN CALVES FEEDING TECHNOLOGY

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Abstract

The Holstein-Friesian breed is the best known and most representative breed that produces large quantities of the best quality milk. A healthy Holstein calf weighs 40 kg at birth. Holstein bulls can weigh up to 1180 kg. The growth and development of calves are influenced by environmental conditions, but also by feed. For this study, the calf breeding group from the 0-3 months category was used. Calves were tested from a nutritional point of view, both in terms of the lactating diet and the concentrate mixture at different protein levels. The consumption of the mixture of concentrates per animal was measured, following the development of calves in this category and metabolic problems. The rations were differentiated by protein level. It was found that there are statistically significant differences in feed consumption due to the different ratios applied and the type of milk administered according to the feeding schedule.

Key words*: calf, cow, diet, feed ingredients, milk, substituent.*

RESEARCH ON MORPHO-PRODUCTIVE INDICATORS OBSERVED OF AUBRAC AND ABERDEEN ANGUS CATTLE BREEDS

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Abstract

The purpouse of this paper was to highlight the morpho-productive indicators of Aubrac and Aberdeen Angus cattle breeds exploited in Romania. Data were collected from a number of 40 cattle, following the weaning weight (age of 7 months) and the average daily gain increase of the animals, which benefited from similar exploitation conditions. Also, based on the results obtained, a statistical interpretation was performed. At the age of 7 months, an average body weight of 216.6 kg was observed in Aubrac cattle, with an average daily gain increase of 912 g/day, while in Aberdeen Angus cattle an average body weight of 184.3 kg was observed, the animals recorded an average daily gain increase of 799 g/day. In conclusion, in the case of both breeds of cattle, the satisfactory parameters specific to the breeds of meat were highlighted, but making a comparison we can appreciate that the results observed in the Aubrac breed are superior.

Key words*: beef cattle, indicators, performances.*

RESEARCH OVER CARCASSES QUALITY OBTAINED BY THE USE OF ROMANIAN BREEDS IN CROSSING WITH MEAT RAMS

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Abstract

The research aim was to assess the possibility of increasing the quality of carcasses provided by young sheep undergoing fattening. In this sense, the biological material used was represented by industrial half-breeds from several forms of crossbreeding between Romanian sheep breeds and meat rams' breeds. The maternal form that was the basis on suppling biological material subject to fattening was represented by F1 crossbred females resulting from the crossing of Blue faced Leicester (BL) rams with local Merino of Palas (MP) and Țigaie (TI) females. In obtaining fattened lambs, Suffolk (S) rams were used as a terminal breed. In order to meet the objectives, set by the experimental protocol, research batches were organized that benefited from the same experimental treatment. Control sacrifices were performed to determine the carcass quality at the end of fattening. The assessments made indicate that in the case of two control groups, made up of individuals belonging to the local Merino and Ţigaie breeds, no situations were reported in which the exterior of the carcasses met the requirements for classification in the S.E.U. The assessment of the degree of development of the muscles on the upper line indicates clear differences between groups. In the case of determining the area of the muscle eye in carcasses obtained by slaughtering lambs from batches S x (BL x MP) shows that the average value is approximately 3 cm^2 higher than the control batch, and in batch S x (BL x TI) the difference expressed in absolute values is + 3.43 cm^2.

Key words*: carcass conformation, lamb, meat sheep, muscle mass, Romanian sheep.*

RESEARCH ON CURENT EVALUATION STAGE OF CURL TYPE IMPROVEMENT FOR KARAKUL OF BOTOȘANI

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Abstract

The aim of this research was to perform an objective analysis of improvement process for the type of curls on the pelt surface. The research importance is special because in improving this character the desire of the breeder is different. The biological material belonged to the Karakul of Botoșani breed and the entire herd from which the evaluated lambs came is registered in the Genealogical Register of the respective breed. The method applied in assessing the quality of skins was based on the technical norms specified in Section 1.4 and 1.5 of the MADR Order no. 22/20.01.2006. Statistical processing of the data was based on the use of the computer program S.A.V.C. (Statistics Analysis of Variance and Covariance 2003). The assessment of the degree of improvement indicates that the desired curl represented by the shape of long and medium tubes is in an advanced stage as that type increased from 65.11% in 2005 to 66.66% in lambs' subject to assessments in in 2020. During this time, as a result of the improvement, the proportion of lambs with medium and long tube curls increased by more than 1.5% in the black and greyish variety, the difference being significant for $p<0.01$.

Key words*: curl, genetic improvement, Karakul of Botoșani, pelts.*

PERFORMANCE OF NATURE CHICKEN WAS GIVEN RATION CONTAINING MEAL OF BREAD WASTE

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Abstract

Nature chicken is Indonesian local chickens that widely maintained and are very popular in community, because of their distinctive taste and flavour. Expired bread is a food factory waste that has the potential to be used as a feed ingredient for corn substitute rations, because it contains high gross energy and crude protein. The objective of this research was knowing the optimal dosage level of expired bread meal on nature chicken performance. The completely randomized design-based research used 100 one week old nature chicks, with five treatments and four replications. The ration treatments used were of R1 (ration with 10% Expired Bread Meal), R2 (ration with 15% Expired Bread Meal), R3 (ration with 20% Expired Bread Meal), R4 (ration with 25% Expired Bread Meal) and R5 (ration with 30% Expired Bread Meal. Parameters measured were feed consumption, final body weight, feed conversion, carcass, giblet and inedible organs. The result can be concluded that ration with 25% expired bread meal gave the optimum performance, therefore it can be used as alternative on nature chicken.

Key words*: expired bread meal, performance, internal organ, nature chicken.*

STUDY OF PRODUCTIVE PERFORMANCE IN THE PINZGAU BREED EXPLOITED IN THE DORNELOR BASIN, SUCEAVA COUNTY

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Abstract

The paper aims to highlight the productive performance of the Pinzgau breed exploited in the Dornelor Basin, Suceava County. In this sense, a herd of 12 head of cattle, belonging to the Pinzgau breed, was studied, both the red variety and the black variety, which were followed by the productive performances at the ascendancy and descent of the nucleus from the farm. Also, the parameters regarding the quality of milk obtained from the studied cattle were analyzed. The ancestry of the studied herd is valuable with productions in the mother (M) of 5496 kg of milk, 4.22% fat and 3.39% protein, in the mother of the father (MT) of 5562 kg of milk, with 4.095% fat and 3.45% protein , and in the mother's mother (MM) of 5613 kg milk with 4.21% fat and 3.49% protein. The milk production in the offspring had an increasing evolution as follows: on total lactation 5922 Kg milk in lactation I and 6474 Kg milk in lactation II, and on normal lactation of 4820 Kg milk in lactation I and 4843 Kg milk in lactation II with average values of 4.26% fat and 3.24% protein in lactation I respectively 3.91% fat and 3.29% protein in lactation II. Regarding the quality of the milk, it had an average value of 86,000 thousand / ml milk in the total number of somatic cells (NCS) which shows us a quality milking, in hygienic conditions, respectively keeping the milk after milking in hygienic conditions, which shows the farmer's care for the cattle on the farm.

Key words: *cattle farm, Dornelor Basin, improvement program, mountain area, Pinzgau.*

STUDY OF THE MAIN BODY DIMENSIONS USED IN THE SELECTION PROCESS, IN THE REPRODUCTIVE NUCLEUS OF PURE ARABIAN HORSES FROM NATIONAL STUD MANGALIA

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Abstract

Study of average performances in a population have a huge importance because, regarding to a population, the average of phenotypic value is equal with average of genotypic value. So, the studies of the average value of characters offer us an idea about the population genetic level. This study have the principal purpose to analyse main body dimensions who are used in selection process: withers height, thoracyc perimether and cannon bone perimether, through the integration of individs in an evaluation class, in accordance with selection methodology (Maftei et al - 2015). The biological material is represented by 73 Pure Arabian horses, 12 males and 61 females, at different ages, owned by Mangalia stood farm, representing the entire reproductive nucleus. The average performances of characters are presented in the paper. We can observe a small grade of variability with some differences between sexes. The average performances of the characters are between characteristic limits of the breed.

Key words*: Arabian, breed, height, horses, selection.*

REPRODUCTIVE ISOLATION AND AGE STRUCTURE IN THE NUCLEUS OF PURE ARABIAN HORSES FROM NATIONAL STUD MANGALIA

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Abstract

The elaboration of strategies in the field of conservation of animal genetic resources (and not only) had, have and will be based on genetic analysis studies. Without conducting these studies, it is practically impossible to develop management strategies for inbreeding or to develop effective breeding programs. In this paper we present two important indicators of genetic analysis in horse population and not only the reproductive isolation coefficient and the age structure. This parameter has a capital importance in animal breeding because there has a directly influence in animal population evolution. More than that, to be accepted as a population, a herd must fulfill four criteria: reproductive isolation, morphological and physiological differences, environmental requirements and genetic size. The reproductive isolation is the most important criteria for population because only reproductive isolated populations have an own evolution. Regarding the age structure, this parameter has a double importance: for exploitation (influenced directly average age), and on the other hand, for animal breeding (influenced the generation interval and population variability).

Key words*: Arabian horses, genotype, reproduction, structure.*

STUDY ON THE OFFICIAL PERFORMANCE CONTROL FOR MEAT PRODUCTION OF ABERDEEN ANGUS CATTLE BREED IN ROMANIA

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Abstract

It is weel known that in order to increase progress on cattle farms it is necessary to monitor animals in order to determinate the genetic quality of animals, by assessing the quantitative and qualitative characters of the animals, estimating breeding values and setting up a database on these aspects. In our country, as a result of favorable factors, such as natural pasture potential, european subsidies, government programs for the purchasing animals, estensive-intensive growth technology systems, the price of bovine meat, population trends towards the consumption of meat obtained in ecological conditions, in Romania were imported a series of specialized breeds for meat production, including Aberdeen Angus, Galloway, Highland, Aubrac, Charolais, Limousin. Thus, in order to expand the database and monitoring the qualitytative and quantitative characters of the animals, specific breeding programs to each breed were developed. Regarding the Aberdeen Angus breed, the genealogical register is held by the Aberdeen Angus Association from Sibiu county, wich also leads the activity of official performances control on national level. Recordings are made in accordance with legislative framework, in herds of pure breed Aberdeen Angus cattle and also cross-breeding programs with Aberdeen Angus terminal bulls. The control purpose is to record the weights of calves between three and fourteen months old, observing the specific characters of Aberdeen Angus breed and managing all purebred bulls. Data is collected in order to provide farmers with information useful for herd management and raw data for genetic evaluations. Gennerally in this paperwork it wiil be studied the legislative framework, the control technique, the control methods, the nationl evolution of performances, the stock evolution and the appreciation of the bulls.

Key words*: Aberdeen Angus, breeding values, herds, official performance control, Romania.*

INTERFERENCES BETWEEN MILKING BEHAVIOUR OF WATER BUFFALO COWS AND PRODUCTION OUTPUTS

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Abstract

Water buffaloes (Bubalus bubalis) are susceptible to environmental negative stimuli during milking, therefore disrupted milk ejection due to low blood oxytocin levels are common in this species. Previous investigations outlined that pre-milking stimulation and avoidance of stress during milking are prerequisites for the alveolar milk fraction ejection in buffaloes, which represents 90% of the milk yield. Aim of this study was to evaluate the effects that milking temperament (MT) of dairy water buffaloes has on milking traits and reproductive outputs. The study was conducted at the Research and Development Station for Buffaloes Sercaia, on 60 multiparous buffalo cows at the beginning of their lactation (100 days in milk). The milking reactivity of buffalo cows significantly influenced ($p \leq 0.05$) milk yield, milking speed, body condition score and claws overgrowth, with animals classified as calmer and less excitable outperforming their more reactive and nervous counterparts. However, no significant influence ($p > 0.05$) of the MT was found on fertility related traits. Current results show that MT in water buffaloes has significant effects on milking related traits, such as yield and milking speed.

Key words*: animal-based indicators, behavioral reactivity, milking temperament, water-buffalo.*

CONTRIBUTIONS TO STUDY OF MULBERRY LEAF USE BY *BOMBYX MORI* LARVAE

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Abstract

In order to assess the efficiency of use of mulberry leaf by the hybrid Băneasa Super of Bombyx mori larvae, during a series of growth, some determinations were made related to the nutritional value and digestibility of the three varieties of leaf. The results showed that the advanced vegetation stage and during each period of growth of silkworm larvae, the mulberry leaf undergoes an aging process, translated by the quality decrease regarding the chemical composition. According to this aspect, in most mulberry leaf nutrients other than cellulose, a continuous decrease in digestibility was observed throughout the growing period. The results show that for the Bombyx mori larvae, from mulberry leaf, an average of 10.38 grams of dry matter is ingested and 5.92 grams of digested dry matter is required for each gram of silky coating, which indicates an efficient conversion into silk of 9.65% of the intake (ECI), and 17% of digest (ECI).

Key words*: capitalization, energy, larvae, leaf, mulberry.*

THE EFFECT OF ADDING CHICKEN CLAW GELATIN ON THE PHYSICOCHEMICAL AND ORGANOLEPTIK TEST OF MEATBALLS FROM CULLED LAYER CHICKEN

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Abstract

This study aims to examine the effect of adding chicken claw gelatin on the physicochemical and organoleptic test of meatballs from culled layer chicken. The main ingredients used in this study were culled layer chicken meat and chicken claw gelatin. This study used a completely randomized design (CRD) 4x4 with various gelatin concentrations (R0 0%, R1 2.5%, R2 5%, R3 7.5%) each treatment was repeated four times. The variables analyzed were pH value, cooking loss, water holding capacity, tenderness and sensory test of meatballs. The results showed that the addition of various concentrations of gelatin in the treatment R0, R1, R2 and R3 gave a significant effect (P<0.05) on the pH value, cooking loss, water holding capacity, tenderness and organoleptic tests. It can be concluded that the addition of 5% gelatin resulted in optimal physicochemical properties of culled layer chicken meatballs (pH value 5.7, cooking loss 4.35%, water holding capacity 53.12% and tenderness 4.20 mm/minutes), but for the organoleptic test, the panelists preferred the addition of 7.5% gelatin to the meatball dough.

Key words*: chicken claw gelatin, culled layer chicken, meat balls.*

ASSESSMENT OF PLASMA BIOCHEMISTRY AND INTESTINAL MICROFLORA IN TRANSYLVANIAN NAKED NECK BREED COMPARED WITH COMMERCIAL BREEDERS'

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Abstract

This study assessed to compare the plasma metabolic status and intestinal microflora of different breeders' genotypes. A total of 110 healthy female breeders (25-week-old) were divided into three groups: Transylvanians Barred Naked Neck (30 birds) and Black Naked Neck (30 birds) vs commercial Ross 308 breeders (50 birds). During a 5-weeks trial, the birds were reared on the floor system in climate-controlled conditions. They were fed a standard commercial laying breeder diet (15.26% crude protein and 11.30 MJ/kg metabolizable energy). Blood and intestinal content samples were collected at 30 weeks for analysis. Results revealed significant differences in plasma protein profile: total protein, albumin, globulin, total bilirubin increased, and uric acid decreased in the Naked Neck varieties vs Ross 308 breeds. Energy profile showed higher glucose and lower HDL-Cholesterol levels in Naked Neck varieties. Plasma mineral profile archive highest calcium and phosphorus values for Naked Neck varieties vs commercial breed, with no significant change in Ca/P ratio. There was no genotype effect on plasma enzyme activities. Cecum microflora was significantly affected by genotype, the Enterobacteriaceae (ENT) and Coliforms population count decreased, while the beneficial population Lactobacillus (LAB) spp. and LAB: ENT ratio increases in the Naked Neck breeds vs commercial breeds.

Key words*: intestinal microflora, laying breeders, plasma biochemistry, Transylvanian Naked Neck.*

MODALITIES TO REDUCE NITROGEN EMISSIONS IN SWINE FARMS: REVIEW

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Abstract

The gas emissions have increased in recent years, which has exacerbated the greenhouse effect. In the livestock sector the main sources of emissions are considered to be the production, processing and transport of animal feed, manure decomposition, processing and transport of animal products (post-slaughter transport, refrigeration and packaging of animal products). A significant emission reduction, including nitrogen, are within the reach of animal producers. Adopting current best practices and technologies for feeding, raising and maintaining animal health, manure management, and greater use of biogas and energy-saving technologies would help the livestock sector to grow. reduction of greenhouse gases. This review aims to highlight the possibilities that pig farmers have in order to adopt strategies to reduce nitrogen emissions from farms.

Key words*: greenhouse gas, nitrous oxide emission, pig farm.*

POSSIBILITIES TO REDUCE CO_2 EMISSIONS BY USING ELECTRIC MOTORS WITH HIGH ENERGY EFFICIENCY

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Abstract

The latest Intergovernmental Panel on Climate Change (IPCC) report said that without immediate and deep emissions reductions across all sectors, limiting global warming to 1.5°C is beyond reach. According to a new IEA (International Energy Agency) analysis, CO_2 emissions rose by 6% in 2021 to 36.3 billion tonnes, their highest ever level, as the world economy rebounded strongly from the Covid-19-pandemic crisis. The direct greenhouse gas emissions (CO_x, CH_4, NO_x) come mostly from agriculture (crops cultivation) and the livestock sector. Indirect reduction of CO_2 emissions in livestock farms and the food and beverage industry can involve using electric motors with high energetic efficiency. Electric motors represent worldwide, around 50% of electricity consumption. A recent study highlights that if the world's 300 million industrial motor-driven systems were replaced with optimized, high-efficiency equipment, global electricity consumption could be reduced by 10%. This paper analyses the International and European Commission Regulations for efficiency and the new Ecodesign measures for electric motors.

Key words*: carbon dioxide emissions, energy efficiency class, energy policies and regulation, induction motor.*

STUDIES CONCERNING THE EFFECT OF THE INBREEDING ON THE VIABILITY OF LARVAE AND LIVE PUPAE PERCENTAGE (*BOMBYX MORI* L.)

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Abstract

The silkworm amelioration program based on the use of the genetic resources and the inbreeding methods applicable in the case of Bombyx mori L. species targets mainly the creation of races and hybrids with superior traits. The improvement process by inbreeding is practiced in the creation of new populations and it requires the use in crossings of the inbred lines that meet the most valuable biological and productive characteristics, with a high combinative value. The possibility of rearing more silkworm generations per year, the physiological particularities and the variability of species characters constituted the base of the formation of silkworm races, lines and hybrids with high productive capacity.

Key words*: inbred lines, live pupae percentage, silkworm, viability of larvae.*

THE INFLUENCE OF THE ADDITION OF OIL SEEDS IN THE DAIRY COW RATION ON CO_2 EMISSIONS

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Abstract

The aim of the research undertaken was to highlight that emission reductions can be made available to producers in the steer farming sector and the adoption of current best practices and technologies for the rearing and health of animals, feed rations can be a tool that would help the dragline sector reduce greenhouse gases, and was realized on the Moara Domneasca farm on a flock of 29 dairy cows at different stages of Montbeliarde's lactation between January 2021 and September 2021. Daily milk production was established per lactation cycle, within the lactation cycle of 3 distinct stages and the establishment of two seasons, summer and winter. The influence of feed strategies applied on milk production, manure chemical composition and CH_4 and CO_2 emissions were analyzed. The milk production of cows was not influenced by the addition of vegetable oils, ranging between 22.04 l/head in the ascending phase of lactation, 19.86-20.96 l/head in the plateau phase and 19.45 l/head in the descending phase of lactation. The methane emission from enteric fermentation shows the highest values for variants 4 and 3, when 0.2 l/head/day of rapeseed oil were administered in each variant, and in version 4, 0.1 l/head/day of sunflower oil was also administered (methane emissions are 1.41 kg CH_4/year and 1.39 kg CH_4/year, respectively). The lowest emissions are recorded for nutrition variant 5 (in which equal doses, sunflower oil and rapeseed oil were administered: 0.1 l l/head/day). Also, the trend of CO_2 equivalent emissions closely follows the line of CH_4 emissions from enteric fermentation, being directly dependent.

Key words*: emissions, enteric fermentation, manure, milk production.*

CURRENT WAYS TO IMPROVE BROILER PRODUCTION TECHNOLOGIES

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Abstract

Broilers production aims to obtain meat in a short time and with maximum economic efficiency. The demographic explosion, the substantial enrichment of the volume of knowledge regarding the rational human nutrition, as well as other socio-economic considerations have led to the intensification of the broilers production and to the elaboration of technologies leading to the externalization of production capacities. Poultry is a remarkable practical achievement of genetics and nutrition, constantly trying to find ways or possibilities to achieve a large and constant production of meat in a short time, with a minimum of investment and expense. Raising broilers is a complex activity, being in an extremely tough competition. The aim of the paper was to analyze the possibilities of improving production technologies and ways of feeding broilers to raise the productive potential of chickens in order to obtain the expected product in a shorter time, by substantially improving the technological conditions of operation.

Key words*: broiler production technology, improving, meat.*

SESSION TECHNOLOGIES OF THE AGRO FOOD PRODUCTS PROCESSING

STUDY OF ADDITION OF PURPLE SWEET POTATO FLOUR (*IPOMOEA BATATAS* L.) ON ANTIOXIDANT ACTIVITY AND QUALITY CHEMISTRY OF CHICKEN NUGGETS AS FUNCTIONAL FOOD

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Abstract

This study aims to examine the effect of adding purple sweet potato flour (Ipomoea batatas L) on antioxidant activity and chemical quality of chicken nuggets as a functional food. The research was carried out in 3 stages, namely (1) making purple sweet potato flour, (2) making chicken nuggets with the addition of purple sweet potato flour, (3) testing chicken nuggets including antioxidant activity tests, and chemical quality consisting of water content tests, content tests. protein, fat content test and dietary fiber test. This research was carried out experimentally using a completely randomized design with 4 additional treatments of purple sweet potato flour, namely P1 = 10 g, P2 = 20 g, P3 = 30 g and P4 = 40 g, with 4 replications. The results showed that the addition of purple sweet potato flour had a very significant effect (P<0.01) on the antioxidant variables and the chemical quality of chicken nuggets. In conclusion, the addition of purple sweet potato flour up to 30 g resulted in antioxidant activity and good chemical quality of chicken nuggets as a functional food.

Key words*: antioxidant, chemical quality, chicken nuggets, purple sweet potato.*

THE ENRICHMENT OF BREAD WITH ALGAE SPECIES

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Abstract

The goal of this paper was to highliht the use of some algal species in bread fortification. Using data fom scientific literature, two directions were followed: highlighting the role and nutritional value of algae species; the analisys of potential benefits of the bread fortification. Food enrichment consists in the incorporation of food resources, rich in proteins, desired lipids or micronutrients, in a widely consumed and accessible basic food, to improve its nutritional balance. Bread, which is a high carbohydrate food, is habitually traditionally consumed with almost all foods in our country. White bread contains 35-43% moisture, 6-16% proteins, 45-58% carbohydrates, 0.5-1.5% lipids, 0.5-1.5% ash, and 1-1.5% salt, and 100 grams bread has approximately 250-270 calories. Nutritional value of the traditional bread types is increased by adding them foods additives such as walnuts, grapes, and sunflower seeds. Also, the micro and macroalgas are valuable sources for the bread fortification. The algal biomass shows promising qualities as a novel source of protein for bread. Compared to conventional bread, the average nutritive quality of most of the breads enriched with algae was superior, or at least equal. According with the analized data all the enriched breads presented a good global acceptability, even though the lower levels of the algae contents were more appreciated for color.

Key words: *algas, bread, health, nutritive value.*

PHYSICOCHEMICAL COMPOSITION AND FATTY ACIDS IN KEFIR FROM MILK OF "BULGARIAN WHITE DAIRY" GOAT BREED AND ITS CROSSINGS

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Abstract

The physicochemical parameters of kefir on the 3rd and 14th day of the storage process produced from the milk of 'Bulgarian White Dairy' (BWD) goat breed and its crossings with 'Toggenburg' (TG) and 'Anglo-Nubian' (AN) were studied. The main groups of fatty acids in kefir on the 14th day of storage were identified and a qualitative assessment of milk fat was made based on lipid indices. The highest content of protein, fat and dry matter in kefir on the 3rd and 14th day was found in BWDxAN breed (5.42%, 5.34%; 4.77%, 4.66% and 15.84%, 15.74%), and the lowest in kefir from BWD (5.07%, 4.99%; 4.14%, 4.05%; 14.92%, 14.15%). Kefir from the milk of BWDxAN has the highest content of saturated fatty acids (SFAs), and monounsaturated fatty acids (MUFAs) and polyunsaturated fatty acids (PUFAs) predominate in kefir from BWD. The content of SFAs in the studied kefir was from 3.0 g/100 g to 3.59 g/100 g. Therefore, kefir products are determined as high in content of saturated fatty acids (over 1.5 g/100 g product) and low content of trans fatty acids (0.12-0.17 g/100 g product).

Key words: *fatty acids, goat milk, kefir, lipid indices, physicochemical composition.*

BIOLOGICAL EFFICIENCY AND CHEMICAL COMPOSITION OF COW MILK FROM 'BULGARIAN RHODOPE CATTLE' WITH DIFFERENT GENOTYPE

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Abstract

The milk productivity of cows from 'Bulgarian Rhodope cattle', reared on the farm of the Experimental Base of the Research Institute of Mountain Stockbreeding and Agriculture, Troyan and the farm of Deyan Filipov, in the town of Strazhitsa, was analyzed. Milk productivity, physicochemical composition, dry matter, dry fat-free residue (DFR) and energy value of milk were studied. The percentage of dry matter is a generalizing, constant feature that determines the concentration of cow's milk. The live weight of the studied animals was also determined. The biological efficiency and the coefficient of biological sufficiency of milk were calculated by formulas. The physicochemical parameters of milk of the studied animals of both genotypes showed different values. Live weight of cows bred in the area of the town of Troyan is higher than that of those reared in the area of the town of Smolyan by 27.55 kg. The coefficients for biological efficiency and biological sufficiency show that cows with a genotype typical of the region of the town of Strazhitsa gave more food production per 1 kg of live weight.

Key words: *Bulgarian Rhodope cattle, genotype, milk yield.*

ASPECTS REGARDING THE PRODUCTION AND THE HYGIENE-SANITARY CONTROL OF THE DORNA SWISS CHEESE

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Abstract

The pastures and hayfields from the Dorna area are characterized by rich floristic biodiversity, which favors the production of organic milk with high content of bioactive principles and propionic bacteria, specific to the production of a local Swiss cheese. The Dorna Swiss cheese is a very demanding product that requires particular knowledge to process Emmental cheeses. In this paper, we have analyzed the current state of some traditional procedures, specific to the Dorna Swiss cheese production. Moreover, the present research documents and describes a procedure characteristic of the area, which consists of the selection, verification, and processing of the raw material, until obtaining the finished product. The processing is based on obtaining "wheels" of cheese (12-13 kg) from a mixture of raw milk (60%) with pasteurized milk (40%) at a temperature of 70°C, by pressing and salting, followed by ripening in three rooms, differentiated by the time interval, temperature and humidity provided. The entire procedure lasts for 60-70 days, throughout this interval the evolution of temperature and humidity being monitored. All these characteristics of biodiversity and processing give the Swiss cheese the characteristics of a highly appreciated assortment of Emmental cheeses.

Key words*: Dorna Swiss cheese, Emmental cheeses, mountain biodiversity.*

THE INFLUENCE OF ESSENTIAL OILS ON THE PHYSICAL-CHEMICAL AND ORGANOLEPTIC PROPERTIES OF ACACIA AND LINDEN HONEY

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Abstract

Bee honey contains vitamins, amino acids, organic acids, polyphenols, enzymes and minerals, which give it a very high therapeutic and nutritional value. Each variety of honey has special properties that depend on the chemical composition and sensory characteristics. Polyphenols, represented by flavonoids, phenolic acids and their derivatives, are responsible for the antioxidant properties of honey. Honey supplementing with essential oils rich in polyphenols also contributes to improving the anti-inflammatory, immunostimulatory, oxidative stress modulation and antitumor properties. The objective of the present study was the modification of the physical-chemical and organoleptic properties of acacia and linden honey on the influence of essential oils with anti-aging and immunostimulatory properties. Materials and methods. Each type of honey was analyzed in terms of physical-chemical (acidity, hydroxymethylfurfural (HMF) and colorimetric index) and organoleptic properties (appearance, consistency, color and taste) according to SR 784/2009 and internal standards. Mixtures of essential oils with anti-aging and immunostimulatory properties have been made. These blends of essential oils have been introduced into two types of honey: acacia and linden. The obtained variants were physical-chemically and organoleptically analyzed at four time intervals, over a period of two months, at the temperature of 35°C, compared to honey without essential oils. Results and discussions. The results of the physical-chemical and organoleptic analysis of the acacia and linden honey matrices were within the limits allowed by the SR 784/2009 standard. The analyzed variants showed an increase in acidity (from 1.16 to 1.56 mL NaOH 1N/100 g honey) and in the amount of HMF (from 1.19 to 11.73 mg/100 g honey). The colorimetric index registered a decrease in linden honey mixtures and an increase in acacia honey. The acidity was within the maximum prmitted limit of 4 mL NaOH 1N/100 g honey and the amount of HMF exceeded the maximum limit of 4 mg/100 g honey due to the temperature. Conclusions. From the variants made and analyzed, two variants were selected based on acacia honey and linden from each category of mixtures (anti-aging and immunostimulators). Acknowledgments. This work was supported by a grant of the Romanian Ministry of Research and Innovation, CCCDI-UEFISCDI, project number PN-III-P3-3.5-EUK-2016-0016 and PN 19.23.01.01 within PNCDI III.

Key words*: chemical properties, essential oils, honey, organoleptic.*

EFFICIENT VALORIZATION OF DEFATTED WHEAT GERMS IN BREAD MAKING BASED ON DOUGH PROPERTIES AND BREAD QUALITY

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Abstract

Wheat germs rich sources of biologically active compounds and are therefore among the most valuable by-products of the milling industry. Effect of defatted wheat germ powder addition on dough rheological properties and bread quality prepared with white wheat flours with different gluten index was investigated in this study. Different percentages of defatted wheat germ powder (5 and 10 g/100 g flour) were added to the white wheat flour samples, and dough rheological properties were tested using various Mixolab protocols. Defatted wheat germ powder addition increased the water absorption, dough development time, stability and weakening. Significant positive correlation between dough weakening or stability and Wixo parameters were registered. The Chopin+ torque values associated to starch gelatinization and retrogradation decreased from 2.03 to 1.90 Nm and from 3.21 to 2.68 Nm, respectively. Finally, the baking test indicated that bread samples with 10% defatted wheat germ powder had significantly lower specific volume and higher crumb firmness compared to the controls. Overall, the results indicated that the addition of 5% defatted wheat germ powder to the wheat flour allows preparing bread with acceptable quality.

Key words*: bread quality, defatted wheat germ, rheological properties, white wheat flour.*

IMPROVING THE QUALITY OF PRODUCTS IN FOOD INDUSTRY. APPLICATION OF QUALITY FUNCTION DEVELOPMENT METHODOLOGY FOR CHICKEN LIVER PÂTÉ

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Abstract

Quality Function Development (QFD) is a systematic approach specific to quality management that facilitates product development by ensuring consumer requirements meeting "customer voice", these being taken into account from the design phase, then during the entire technological process, being reflected in the quality characteristics of the finished product. The purpose of this study was to apply the QFD methodology to improve the quality of products in the food industry, taking into account the technological process of chicken liver pâté (designing a new product that meets the requirements of consumers), thus providing a synthetic model. The working method consisted in the participation of a number of 250 consumers, aged between 20-24 years, who provided the list of consumer requirements, prioritizing and weighting them based on a standardized score from 1 to 5 points. The following stages were represented by the transposition of consumers` voice in quantifiable technical requirements, their correlation using predefined symbols, establishing the direction of improving the quality of the new product, assessing current competition and determination of target values. Following the analysis, the most important consumer requirements for chicken liver pâté were: the taste (15.63%), the smell (15.63%), the appearance/ color (15.63%), the small amount of saturated lipids/ without added lard (12.5%), the fine texture and spreadable (12.5%), without synthetic colorants (12.5%), food preservatives (9.37) and flavor enhancers (6.24%). Thus, in order to meet consumer requirements, the replacement of sodium nitrite with turmeric powder (Curcuma longa L.), as alternative natural colorant and preservatives (curcumin the principal bioactive substance of turmeric) led to a healthy product, but which will have a higher price compared to the products currently available on the market. However, applying the level II/ III of QFD methodology the low cost was provided by mitigation of price of raw material's.

Key words*: chicken liver pâté, Quality Function Development, turmeric.*

RESEARCH ON THE INFLUENCE OF LACTATION STAGE ON GOAT'S MILK CHARACTERISTICS

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Abstract

Goat's milk is a very important food for human nutrition and is also an important raw material for a whole series of dairy products. This paper aims to investigate the qualitative variations of goat's milk during the lactation period. For this purpose, milk samples at different times of the lactation period were collected and analysed, such as: density, total dry matter, percentage of fat, protein substances and lactose. The obtained results, compared to the second month of lactation, showed significant decreases ($p<0.05$) in milk production with 9.9% in the fourth month and with 42.84% in the eighth month. Significant decreases were also obtained in the case of milk density with 0.38% in the fourth month and in the case of milk total dry matter with 9.53% in the fourth month and with 10.42% in the sixth month. Regarding the percentage of fat, significant decreases were observed ($p<0.05$) for the fourth months (with 18.68%) and for the sixth month (with 20.94%), compared to the second month of lactation. Significant decreases ($p<0.05$) in milk protein were also observed in the fourth months (with 10.68%), in the sixth month (with 9.50%) and in the eighth month (with 5.7%), compared to the second month. Regarding the percentage of lactose, significant increases were observed ($p<0.05$) for the fourth months (with 0.91%) and for the eighth month (with 1.37%).

***Key words**: fat, goat, lactose, milk, proteins.*

REMARKS ON CONSUMER AWARENESS OF FOOD ADDITIVES IN CHILDREN FOOD PRODUCTS

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Abstract

Food additives (commonly known as E) are substances that are not normally consumed as a stand-alone food and are not used as characteristic food ingredients with or without nutritional value. The aim of the paper was to observe the presence of food additives in some products, such as cold cuts and spreads, more frequently used in children's food, which have high visibility on the shelf, due to the attractive packaging, but also advertising messages in the media. The method applied was the observation of components from the label of products for children and the determination of those that are harmful to human consumption. A questionnaire was also developed to determine consumer opinion. This study was conducted in the Bucharest area, in three large shopping centres. Sodium nitrite (E 250) is found in all foods for children under study. The parents have the obligation to choose the right nutrition for their children. 52.9% of adults admitted that they did not read the label of the food they bought. It is necessary to continuously educate consumers about potentially dangerous ingredients, added to food, reading the label, to determine their presence in the chosen product on the shelf, giving up buying food on the principle of quantity or reduced price to the detriment of quality.

Key words*: children, consumer, food additives, food products*

RESEARCH ON THE GELLING AND EMULSIFYING CAPACITY OF PECTIN OBTAINED BY SEMISYNTHESIS AND USED IN THE FOOD INDUSTRY

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Abstract

The chemical composition and nutritional value of food products are determined both by the raw materials from which they come and by the contribution of auxiliary materials. These substances, for the most part, are added in order to improve some properties of the products. Respecting the legislation regarding the allowed limits of additives in food products, it is necessary to pay special attention in order to maintain the safety and health of the population. The generic term pectin includes polygalacturonic acids (acid polysaccharide) whose carboxylic groups are esterified in varying proportions with methyl alcohol and partially neutralized with calcium or magnesium ions. The specific properties of pectic substances, due to which they have uses in the food industry, are the gelling capacity and the stabilizing capacity of emulsions. Also, the gel does not show the phenomenon of syneresis, does not absorb moisture from the external environment and is resistant to sugaring. In our country, pectin is obtained industrially from apple pomace, a by-product resulting from obtaining juices and has multiple uses. The functional properties are largely determined by the degree of methoxylation of polygalacturonic acid, which determine the degree of esterification of this polysaccharic acid.

Key words*: emulsifying, food industry, gelling, pectin.*

STUDY ON CONSUMER CONFIDENCE IN THE FOOD PRODUCTS LABELLING SYSTEM

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Abstract

The research revealed that when consumers read this information, they are most interested in the list of ingredients, substances causing allergies or intolerance, the date of minimum durability or use-by date and the net quantity on the food. In addition to the descriptive analysis that revealed how these factors influence consumer confidence in the information read on labels, the results of the study showed gender differences in the importance of reading label information. The frequency of reading label information is influenced by people who engage in daily physical activity. Regarding the frequency of reading label information, the χ2 test revealed significant differences between food poisoners and healthy people. The results of this study may be useful to companies and institutions dealing with food safety. They, through specially designed programmes (as exist in other countries for the uninformed, in our case discussing men, the elderly and those with no formal education), can improve the frequency of reading and confidence in label information.

Key words*: consumer information, food products, frequency of reading information, labels.*

THE CHARACTERISTICS OF COWSKIN GELATIN PRODUCED FROM CURING ACETIC ACID CONCENTRATION

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Abstract

Gelatin is a denaturalized protein that is derived from collagen by acidic or alkaline hydrolysis and is an important functional biopolymer that has a very broad application in many industrial fields. This research was aimed to determine the effect of acetic acid concentration on characteristics of cowskin gelatin. The experiment used Completely Randomized Design (CRD) with two factors and three replicates of treatment. The first factor was concentration of acetic acid solution, consisted of (2.5, 5 and 7.5%. The second factor was soaking time in acetic acid (12, 24 and 36 hours). The result showed that concentration acetic acid solution had no significant effect (P>0.05) on the viscosity value but had significant effect (P<0.01) on the gel strength, yield, protein content and sensory test of cowskin gelatin. The soaking time had no significant effect (P>0.05) on the yields, gel strength, viscosity and protein content of gelatin. It was concluded that the best characteristics of cowskin gelatin was produced from curing 5% acetic acid concentration with soaking time 36 hours due the gel strength value, viscosity, yield and protein content of gelatin which are optimal and sensory test acceptable by panelists.

Key words*: acetic acid, cowskin, gelatin.*

RESEARCH ON THE SAFETY AND RESILIENCE OF THE MEAT AND MEAT PRODUCTS SECTOR IN ROMANIA

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Abstract

The FAO defines food security as "the direct access of all people to the food they need to fulfill their vital functions and to lead a healthy and active life". In order to ensure the security and resilience of the meat and meat products sector in Romania, in the current geopolitical context, this sector must contribute substantially to providing food for the internal population, for refugees and for those who cross the country. Through resilience, Romania aims, through the meat and meat products sector, to prepare for what it means to think, plan and exercise in order to absorb, return and then adapt existing productive capacities to adverse and disruptive events. The aim of the paper is to analyze the security and organizational resilience of the meat and meat products sector in Romania.

Key words: *authorized production capacity, food security, livestock, resilience.*

RESEARCH ON THE MILK SECTOR TO REALIZE ROMANIA'S RESILIENCE

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Abstract

Ensuring security and resilience in the Romanian dairy and dairy sector is possible only through thought, planning and exercise to absorb, return and then adapt existing production capacity and warehouses to disruptive threats. As it is known, milk is a universal food that is administered both in the first days of birth and throughout life, to children, adolescents, the elderly and adults, to people with various diseases but also to the healthy. Ensuring the safety and resilience of milk is linked to a highly developed animal husbandry, located as close as possible to large urban agglomerations. Investments in this sector are the key to successfully overcoming threats of any kind. The aim of the paper is to analyze the current situation regarding the territorial distribution, by development regions, of the investments made in the milk and dairy products industry, as well as their use, in order to establish areas of interest for possible new investments in this field.

Key words: *development regions, processing capacity, production achieved, resilience.*

IMPACT OF USING DEHYDRATED FRUITS POWDER AS NATURAL ANTIOXIDANT ON SENSORY PROPRIETIES OF NITRITE-FREE SALAMI FORMULAS

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Abstract

The present study aims to evaluate the effects of dehydrated fruits powder as natural antioxidant used to substitute the nitrites in the manufacture recipe of a cooked and smoked salami type on its sensory proprieties. For this purpose were used sour cherries (SC), cranberries (C) and black currants (BC) which in advance were subjected to a dehydration process for 15 hours at a moderate temperature of 55-60°C, 5 hours daily, three days in a row. The powder obtained from each dehydrated fruit was used at three levels of concentration in order to ensure a dose of polyphenolic compounds equally with 90, 200 and 300 mg gallic acid equivalents (GAE)/kg raw processed meat. The minimum dose of polyphenolic compounds coming from dehydrated fruits powder was chosen according to the nitrites content added to a kg of raw processed meat (90 mg nitrites/kg processed meat). Thus, nine salami formulas were prepared by addition of SC, C and BC powder at the three established concentrations. The sensory properties such as appearance, taste, odor, aroma of designed salami formulas were investigated in relation with those of the salami control samples prepared with the nitrites addition, respectively without nitrites. The substitution of nitrites by dehydrated fruits powder led to changes in the section appearance of obtained salami formulas, whereas the taste, odor and aroma were not affected. The information derived from this study is useful for the development of innovative nitrite-free meat products, in accordance with the consumer requirements, by exploiting the bioactive potential of some local fruits.

Key words*: dehydrated fruits powder, sour cherries, cranberries and black currants, natural antioxidants, nitrite-free salami formulas, sensory properties.*

ANTIOXIDANT AND NUTRITIONAL CHARACTERISTICS OF TWO INNOVATIVE SUGAR FREE FRUIT JELLIES

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Abstract

Fruit jellies are very popular sweets for all ages, but due to the significant amounts of sugar added in classic jellies (54-58%), they have begun to be avoided by more and more consumers, either for health reasons or to prevent certain diseases or to control weight. The first aim of this paper was to obtain two varieties of jellies: one from orange (OJ) and the other from kiwi fruit (KJ), using dried Stevia rebaudiana leaves powder as sweetner. A second aim of the paper was to determine the content of vitamin C (titrimetric iodometric method), total polyphenols (Folin-Ciocalteu assay), antioxidant activity (CUPRAC method) of the finished products compared to the raw materials, as well as the analysis of the nutritional and sensory characteristics of the two types of jellies. Among the raw materials, kiwi fruit was noted for the highest content of vitamin C (90.82 ± 3.22 mg/100 g) and for the strongest antioxidant activity (9.68 ± 0.31 mg Trolox/g). From the two finished products, KJ was the richest in ascorbic acid 80.25 ± 2.44 mg/100 g and have had the higher antioxidant activity (8.98 ± 0.28 mg Trolox/g). In terms of total polyphenols, they were present in larger quantities in oranges (4.93 ± 0.08 mg gallic acid/g) and in OJ (7.90 ± 0.12 mg gallic acid/g). Stevia rebaudiana used as a sweetener has a very high content of total polyphenols (34.22 ± 0.83 mg gallic acid/g) and a very good antioxidant activity (112.75 ± 2.28 mg Trolox/g). Both types of jellies are distinguished by a low energy intake (53.82 kcal/100 g for KJ, respectively 41.76 kcal/100 g for OJ), a significant dietary fiber intake (8,58 g/100g for KJ and 6.03 g/100g for OJ) and a low sugar content (8.35 g/100 g for KJ, respectively 7,89 g/100 g for OJ - and this is natural fruit sugar). The two types of jellies were very well appreciated from an organoleptic point of view (hedonic scoring method from 1 to 5), OJ having slightly higher scores in terms of taste and aroma, compared to KJ.

Key words: *antioxidant activity, jelly, kiwi fruit, oranges, polyphenols, Stevia rebaudiana.*

UNDERSTANDING THE PERCEPTION AND BEHAVIOUR OF ROMANIAN CONSUMERS REGARDING THE USE OF NANOTECHNOLOGY IN FOOD AND FOOD PACKAGING

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Abstract

The lack of a consistent number of studies to indicate the benefits and safety of using food nanotechnology more accurately, as well as the novelty of the field, lead to reluctance from the consumer's side. At the same time, researchers may feel discouraged by the intransigence of the consumer perception, coupled with a restrictive legislative framework. This results in a circular argument in which all actors in the food field are involved: consumer resistance to change leads to the demobilization of the scientific and academic community. This quantitative research was based on a questionnaire used to explore the acceptance of Romanian consumers (n = 359) of food products obtained or packaged using nanotechnology. In this sense, the extent to which consumers are informed about the use of nanotechnology in the agri-food sector has been determined. The research has been designed in such a way to identify the factors that influence consumers' perceptions in accepting nano-food or food packaged using nanotechnology. The aim was also to identify the demographic characteristics of consumers that would accept foodstuffs obtained or packaged using nanotechnology. The results of this research showed that consumers would more easily accept nanotechnology if it were applied to packaging rather than when it is directly applied to food. Familiarization with the term "nanotechnology" may lead to stronger opinions, either positive or negative. Food industry players could turn their attention to the presentation of concepts and benefits, as well as the risks associated with nanotechnology, to encourage consumers to form their own educated opinions. Such results may reveal an early openness from the consumers' side towards nanoengineering in general and a first step in overcoming food neophobia.

Key words*: nanotechnology, nanomaterials, consumer studies, food packaging, food innovation.*

THE INFLUENCE OF TEMPERATURE ON THE STABILITY OF REFERENCE MATERIALS

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Abstract

The paper presents the influence of temperature on the stability of the reference material, wheat flour matrix, MR001F-IBA. Experimentally, the stability of the candidate reference material units MR001F-IBA were evaluated in different storage conditions using a temperature of 4°C and, respectively, a range between 25-30°C. The 3 batches of candidate reference material evaluated were produced according to the requirements of the ISO 17034: 2017 "General requirements for the competence of reference material producers". The results obtained by testing the MR001F-IBA reference material units according to the ISO 2171: 2007 standard indicate that there are no differences in the ash content in the analysed samples. The results are interpreted statistically according to the recommendations from the ISO 35: 2017 guide, these substantiating the information necessary for the MR001F - IBA certification. The purpose of the paper was to establish the conditions in storage, transport of MR001F-IBA for ash content.

Key words*: ash content, reference material, stability, wheat flour.*

THE INFLUENCE OF FOOD MATRIX IN THE DEVELOPMENT OF REFERENCE MATERIALS

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Abstract

The paper presents the influence of the raw material (matrix) in the homogeneity and stability assessment of two batches of candidate reference material MR001F - IBA produced at an interval of 30 days and evaluated for three months. The statistical interpretation of the moisture content of wheat flour type 650 indicates the need to carry out feasibility studies for each batch made under the same processing conditions. The feasibility study carried out followed the implementation of the recommendations from the ISO 35: 2017 guide regarding the risk in the stability of the reference material produced in successive batches. Stability has been assessed according to section 8.3.2.1 - Classical stability studies - Repeatability conditions of measurement from the ISO 35:2017 guide.

Key words*: homogeneity, reference material, stability, wheat flour.*

INFLUENCE OF INJECTION LEVEL AND QUANTITIES OF BRINE INGREDIENTS ON THE SENSORY QUALITY OF BEEF PASTRAMI

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Abstract

The study aimed to sensory evaluate and compare the colour, aroma, texture and taste attributes of six beef pastrami samples. The experimental batches were obtained in the Meat Processing Microsection of the University of Life Sciences Iasi and were formed to differ by two variation factors: the level of brine injected into the product (F1) and the amounts of ingredients introduced (salt/rapeseed oil/alfalfa powder) into the brine solution (F2). The most evident and significant differences ($P < 0.01$) were due to the increase in the percentage of brine introduced into the product. Thus, the sensory attributes for colour, aroma, texture (especially tenderness and juiciness) and saltiness were significantly influenced by the amount of brine injected. The batch that stood out with superior sensory characteristics was batch A because it showed favourable average scores for the attributes of tenderness, juiciness, elasticity, and the specific flavours of the brine additives did not negatively influence the characteristic flavour of the product.

Key words: *alfalfa powder, beef pastrami, injection, rapeseed oil, sensory evaluation.*

INFLUENCE OF QUANTITIES OF RAW MATERIALS AND MATURATION TIME ON THE SENSORY QUALITY OF DRIED BABIC SAUSAGES

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Abstract

This paper aimed to evaluate the differences between six experimental batches of babic sausages from a sensory point of view. The six samples have been differentiated by the ratio of meat raw materials introduced in the composition (mutton, beef, fat) and by the maturing time (20 days, 40 days). The products were manufactured in the Processing Microsection of the University of Life Sciences Iasi and the sensory evaluation was carried out with the help of 8 tasters, in three repetitions, in the Sensory Analysis Laboratory of the Faculty of Agriculture Iasi. The sensory attributes evaluated were appearance, colour, aroma, texture and taste of the experimental lots. The ageing time had major influences from a sensory point of view on the intensity of aroma, salty taste and texture attributes. In terms of the quantities of raw materials, lots L1 and L3 showed the smallest differences, with lot L2 standing out due to its higher fat and beef content.

Key words*: comparison, meat products, sensory analysis.*

STUDY OF BEHAVIOR OF SCHOOL CHILDREN ON MILK CONSUMPTION IN SCHOOL PROGRAM

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Abstract

The paper is based on the study of various reports and different type of articles regarding the milks in school programs. In order to determine the Romanian consumers` perception regarding the milk consume, a questionnaire was prepared which was completed during a school year by scholar from Romania. We want diversity in the milk assortments served in the Milk and Horn program. One-third of respondents suggested that milk be replaced with yogurt or fruit yogurt and various herbal dairy products. The concern of young people for a healthy diet should be made from infancy and this is reflected in the answers provided.

Key words*: children, food choose, milk, school program.*

STUDY ON THE INCIDENCE OF GLUTEN INTOLERANCE ASSOCIATED DISEASES WITH CONSUMPTION OF AGLUTENIC FOODS

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Abstract

Celiac disease (CD) is an immune condition that patients have to deal for lifelong. It affects almost 1% of the general population and determines lifestyle and social changes due to diet control and restrictions. The ingestion of gluten in patients with CD determines bloating, abdominal pain, constipation, nausea and vomiting but complications like anemia, osteoporosis, neurological problems, herpetiform dermatitis can occur later in life. Researchers found that the incidence of this disease in the 21st century increased especially for women (with 17.4 cases of 100,000 for one year); for men, the incidence is 7.8 per 100,000 people in one year. More and more children are also diagnosed with celiac disease, 21.3 per 100,000 person-years compared to 12.9 per 100,000 in adults. Wheat allergy, gluten sensitivity and celiac disease represent medical conditions that are correlated with cereal consumption and become of increased interest for consumers in order to have an appropriate diet or a preventive one. Gluten free diet (GFD) become more popular among consumers and its popularity is continuously increasing, health practitioners started to question if there is a real health benefit for everyone or just a medical nutrition therapy for those in need.

Key words*: allergy, celiac disease, gluten allergy, gluten sensitivity, gluten free diet.*

ANTIBIOTIC RESIDUES IN MILK AND ASSESSMENT OF HUMAN HEALTH RISK IN ROMANIA

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Abstract

Antimicrobial resistance is expected to make many more victims in the future than cancer, which requires constant, rigorous and thorough control of all factors that contribute to the growth of this particularly worrying phenomenon. Animal products and in particular milk, especially the one obtained in the households of the population, it is particularly contaminated with antibiotic residues. The present paper aims at the qualitative and quantitative screening of 284 samples sold by individual producers from the entire territory of Romania, in a period of 3 months (January-March this year). The qualitative test was a microbiological test in tubes with spores of Geobacillus stearothermophilus. Of the 6.33% (n = 18) samples confirmed positively in the qualitative test, the quantitative test performed using chromatography showed the presence of beta-lactams and tetracycline in quantities exceeding the maximum residue limit (MRL), (21, 50 μg/kg milk for penicillin and on average 115 μg/kg milk for oxytetracyclines). Among aminoglycosides, gentamicin was on average 294.5 μg/kg milk far exceeding the MRL.

Key words*: antibiotic residues, health, milk, Romania.*

STUDIES REGARDING MARKET TRENDS A GLUTEN-FREE ORGANIC PRODUCTS

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Abstract

A gluten-free lifestyle has become one of the most popular diet trends. For this reason, consumers, food manufactory and healthcare professionals are being influenced by the growing popularity of the gluten-free diet. Next-generation food manufacturers have understood the scale of the problems related to gluten intolerance and especially the potential of the market for organic gluten-free products. This translates into creating a new market with potential, that of green gluten-free products. Interest in this type of food is constantly growing, due to its health benefits, nutritional and sensory characteristics, as well as the demand for quality food produced in a sustainable way. The paper presents the impact that the new trend has on the bakery industry and on the health of the final consumer.

Key words*: bakery, food, gluten-free.*

RESEARCH ON OBTAINING COOKIES WITH AMARANTH FLOUR AND ORGANIC PUMPKIN PULP

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Abstract

Pumpkin pulp (Curcubita maxima), from organic farming, is an extremely versatile product that can be a basic ingredient in obtaining gluten-free cookies. In this paper, a cookie was obtained using amaranth flour and pumpkin pulp in two forms: fresh and baked. Following the analyses, the aim was to obtain a product with appropriate characteristics. Dough with amaranth flour and pumpkin pulp is characterized by a good ability to bind the dough and retains its shape when pouring. In the sensory analysis of the gluten-free cookies with organic baked pumpkin obtained in the product testing phase, the taste was better appreciated. From the analysis of the average values, it is observed that the products obtained with the basic ingredient prepared in advance (baked pumpkin) showed a more intense perception on the attributes of smell, taste and aftertaste.

Key words*: amaranth, cookie, gluten-free, pumpkin pulp.*

OBTAINING AN ASSORTMENT OF FRESH CHEESE BY COAGULATION WITH LETTUCE (*LACTUCA SATIVA*) EXTRACT

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Abstract

The aim of this work was to evaluate the milk-clotting potential of lettuce (Lactuca sativa). Two extracts from this plant were obtained, by dissolving in a cold water, first, by a simple aqueous extraction and the second, by a concentration of simple extract. These two extracts were compared in their milk-clotting activity with a commercial animal rennet, chymosin. The analysis consisted in the characterization of raw cow's milk used by physico-chemical and microbiological analyses and characterization of the fresh cheese curd obtained by physico-chemical, microbiological and sensory analyses. The yield of the process was calculated in each of the three cases and a comparison between them was performed. The obtained results revealed a good milk-clotting activity for both tested plant rennets.

Key words*: cheesemaking, milk-clotting activity, Lactuca sativa, plant rennet.*

TECHNOLOGICAL ADVANTAGES OF METHODS FOR THE SIMULTANEOUS DETECTION OF SEVERAL CLASSES OF ANTIBIOTIC RESIDUES IN CHICKEN MEAT

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Abstract

Antibiotics are routinely used to treat and prevent infections in humans as well as in animals. Excessive use of antibiotics in animals, especially in poultry, leads to the accumulation of residues in the meat and their organs beyond legal limits. The large number of classes of antibiotics and types of antibiotics in each class often used in the poultry sector raises problems in quantitative detection methodologies. These methodologies must be economical, comply with the requirements of international standards for the maximum residue limits detection as well as sensitive, reproducible and reliable. Given the complexity of the requirements that such a methodology must meet, the study presents the technological advances of modern technology such as High-Performance Liquid Chromatography (HPLC), Liquid Chromatography-Mass Spectrometry (LC-MS), Ultra-High Performance Liquid Chromatography (UHPLC) in the simultaneous detection of several antibiotic residues belonging to different classes. The aim of the paper is to facilitate the simultaneous detection of as many antibiotic residues in chicken meat in the spirit of the One Health concept.

Key words*: antibiotic residues, chicken meat, detection, multiclass.*

SESSION WILD LIFE MANAGEMENT, FISHERY AND AQUACULTURE

BOOSTING BIOMASS GAIN AND MEAT QUALITY OF RAINBOW TROUT *ONCORHYNCHUS MYKISS* (WALBAUM, 1792) - AN APPROACH FOR FOSTERING ROMANIAN AQUACULTURE

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Abstract

Rainbow trout Oncorhynchus mykiss (Walbaum, 1792) is one of the most widely cultured fish species, with a high market value. Although in the Black Sea there is a well-established tradition of cage farming in Turkish waters, in Romania rainbow trout farming has been limited to inland mountain areas. Whereas there is an increasing interest of Romanian economic operators to engage in sea cage farming, this research aimed at testing the adaptation of rainbow trout to the Romanian Black Sea marine environment, determining its growth rate, establishing the optimal size for transfer to saltwater, and increasing meat quality. The research was performed for 7 months, during the cold season, and comprised two batches of O. mykiss individuals transferred to marine water from a mountain trout farm (with initial mean biomasses of approximately 300 g and 180 g, respectively). Upon completion of the experiment, growth parameters showed values much higher compared to freshwater culture, and the biomass gain was remarkable in both batches (reaching final biomasses of approximately 1,700 g and 1,600 g, respectively), the results indicating smaller fish as best fitted for transfer to marine water. The carotenoid-enriched feed provided to the fish resulted in a highly nutritious meat, with the much-appreciated pink colorization.

Key words*: biomass, Black Sea, marine water, meat quality, rainbow trout.*

ACAROLOGICAL CHARACTERISATION (ACARI: MESOSTIGMATA) OF AN URBAN GREEN AREA IN BUCHAREST, ROMANIA

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Abstract

The objectives of the study were to assess and compare mite communities from the biggest urban area in Bucharest- Morii Lake, in relation to the soil environmental variables (soil and air temperature; soil pH; soil and air moisture content; soil penetration resistance) and the type of habitats/transects (park area, natural area-island, grassland). The study was made in June 2017. For soil fauna, sixty soil samples were collected, using a MacFadyen core. Seventeen mite species were identified, with 55 individuals. We observed that soil and air temperature, air humidity and soil acidity varied highly significantly between the three transects. Soil temperature, soil moisture content, air humidity influenced significantly the structural composition of the mite populations. Certain parameters were used: numerical abundance, dominance, constancy, species diversity and equitability. Using these indices, we demonstrated that the transect T1-park area offered the most favourable conditions, with the least favourable being T2-island. Acarological characterisation of an urban green area in Bucharest, Romania, revealed that, even at the local scale, the type of habitat and environmental variables influenced significantly the structural composition of the mite populations.

Key words: *environment, habitat, local scale, mite, urban.*

MACRONUTRIENTS MODIFICATION IN THE MUSCLE OF COMMON CARP (*CYPRINUS CARPIO*) DURING WINTER

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Abstract

Climate change can affect the life cycle of fish reared in earthen ponds, especially in winter, when the metabolism is reduced and the fish no longer feeds due to low temperatures. In Romania, in recent years, winter temperatures have been higher than normal, justifying the need to assess biochemical changes in fish meat. The biochemical characterization of macronutrients in carp meat was performed by monitoring during the winter, the following parameters: moisture, proteins, lipids, ash, fatty acids in fish meat, temperature and oxygen of the water. The experiment was conducted between November 2020 - March 2021, the biological material being represented by common carp (Cyprinus carpio), aged one summer. At the beginning of winter, saturated fatty acids (25.80%) and monounsaturated fatty acids (49.03%) were found in a higher proportion compared to the end of winter, when polyunsaturated fatty acids had the highest percentage (55.38%) of the entire amount of lipids. The amount of protein, fat and ash during the winter period decreased but insignificantly, while the water content of the meat increased. The biological material recorded a physiological loss of 27.28% of the initial average mass.

Key words*: biochemistry; Cyprinus carpio; fatty acids; macronutrients.*

RESEARCH ON THE FULTON CONDITION FACTOR, THE HEPATO-SOMATIC INDEX AND THE BIOCHEMICAL COMPOSITION OF CARP (*CYPRINUS CARPIO*) FROM THREE DIFFERENT SOURCES, IN ROMANIA

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Abstract

This study was conducted to evaluate the Fulton condition factor, the hepatosomatic index and the biochemical composition of carp meat (Cyprinus carpio) from aquaculture, reared in earthen ponds (CB), in floating net cages (CV) and in the wild, represented by the Danube River (CD). Significant differences were observed (P <0.05) between the mean values of the Fulton condition factor for fish from the three sources. Regarding the hepatosomatic index and visceral fat, the lowest values were obtained for the CD samples, and the highest in CV. The highest mean value of the protein content (18.55 ± 1.01%) was obtained in the specimens reared earthen ponds (CB), but the values did not differ significantly (P = 0.29) from the CD samples. The differences in lipid content of aquaculture fish meat reared in floating net cages (CV) and in the wild (CD) were statistically significant (P <0.05). In conclusion, fish from aquaculture has a better state of maintenance than that in the wild, fact demonstrated by the values of the Fulton Index. However, wild specimens have a much lower hepatosomatic index and visceral fat values than aquaculture fish.

Key words*: aquaculture, biochemistry, Cyprinus carpio, Fulton, wild.*

FISHERY VALUE OF THE CHANNEL WATER-LIFTING POND-TYPE RESERVOIRS ON THE TRUEV RIVER IN PENZA REGION (RUSSIA)

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Abstract

Many regions of central Russia are characterized by a low water fund of large water bodies in the presence of a wide network of small watercourses - streams and rivers. In addition to the classical reservoirs located on them, there are a large number of partially regulated channel sections formed by water-retaining structures and other artificial obstacles, which differ significantly from natural channels in terms of morphometry, species composition and productivity of hydrobionts. The article discusses the state of the food base and fish fauna in a similar reservoir in the Penza region, classified as a pond-type water-lifting reservoir, using the example of the Truev River section in comparison with the natural riverbed. There is a higher fish productivity of the regulated area and the possibility of its use for aquaculture.

Key words: *fishery, pond-type, reservoirs, water-lifting.*

THE SYNERGISTIC EFFECT OF TECHNOMOS® PREBIOTIC AND BETAPLUS® PROBIOTIC ON THE GROWTH AND BIOCHEMICAL COMPOSITION OF NILE TILAPIA JUVENILES (*OREOCHROMIS NILOTICUS*, LINNAEUS, 1758)

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Abstract

This study aimed to evaluate the effect of additives used in tilapia feed and represented by TechnoMos® prebiotic (Saccharomyces cerevisiae) and BetaPlus® probiotic (Bacillus subtilis and Bacillus licheniformis) on the growth and biochemical composition of biological material. The analysis of the results obtained on the principal growth indicators shows a positive correlation between the applied feeding regime and the biomass gain. In the first experimental stage, there was an upward trend of biomass gain depending on the feeding regime applied, obtaining values between 1439 ± 18.29 g in the control variant (V0) and 1774.61 ± 47.65 g in the experimental variant with synbiotic (V3). In the second experimental stage, the biomass gain obtained varied from 3286 ± 15.05 g in the control variant to 4078.52 ± 69.84 g in the synbiotic variant. Biochemical analysis of tilapia muscle tissue showed an increase in the content of proteins, lipids in biomass of the samples fed with the probiotic Betaplus® correlated with the increase in biomass weight, compared to the control variant. In conclusion, the analysis of growth indicators shows the beneficial effect of symbiotic variant through their synergistic action and the influence of probiotic applied on improving biomass gain and biochemical composition.

Key words*: biochemical composition, growth, prebiotic, probiotic, tilapia.*

EXPERIMENTAL RESULTS REGARDING THE GROWTH OF PIKEPERCH (*SANDER LUCIOPERCA* - LINNAEUS, 1758) IN THE FIRST YEAR IN PONDS

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Abstract

The pikeperch (Sander lucioperca, L.-1758) is a valuable fish species, with a high demand among human consumers, due to its superior nutritional and organoleptic characteristics such as: white flesh, soft texture, lack of intramuscular bones and pleasant taste. One of the main challenges of the pikeperch rearing technology is encountered during the first summer of the production cycle. The main desideratum during this period is to obtain large quantities of fingerlings per unit area, with the highest possible survival rate and low production costs, under the conditions specific to the rearing units. Therefore, the aim of the present study was to apply 2 different feeding regimes for the rearing of one summer old pikeperch in earthen ponds, as it follows: V1- with pelleted fish feed and V2- with live fish food. Thus, the experiments were performed at S.C.D.P. Nucet during three different rearing seasons (2018, 2019 and 2020), in triplicate. The best results were obtained in variant V2 (live food administration) and the followed indicators were survival rate, individual growth rate and production per unit area.

Key words*: earthen ponds, fish feed, live food, productivity, Sander lucioperca.*

INNOVATIVE TREATMENT TO COMBAT PHILOPOD CRUSTACEAN (*CYZICUS* SP.) IN FISH NURSERIES

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Abstract

The paper includes the results of experiments on the combat of philopod crustacean (Cyzicus sp.) which cause significant economic losses to the post-embryonic development of common carp and Asian cyprinids (silver carp, bighead carp and grass carp). To combat them, the effectiveness of the insecticide Proteus-OD 110 was tested, correlated with the application of technological procedures for the preparation of the ponds adapted for the growth of fish larvae. The experiments were conducted at S.C.D.P. Nucet, within the Mircea-Vodă experimental base. In order to ensure a profitable harvest, before the stocking of 3-5 days old fish larvae, the ponds were prepared according to the technological procedures. Disinfection and loosening of the bottom of the ponds was achieved by administering quicklime (CaO) in the amount of 200-1000 kg/ha and to increase the productivity of the ponds, manure (5000-10000 kg/ha) and rice bran were administered. In conclusion, in order to obtain optimal results in the period of post-embryonic development and growth in first year of cyprinids, we recommend that the technological instructions be adapted to each type of technology.

Key words*: cyprinids fry, Cyzicus sp., Proteus OD 110 treatment.*

COMPARATIVE STUDY ON THE GROWTH AND DEVELOPMENT OF THYME AND BASIL HERBS IN AQUAPONIC SYSTEM AND HYDROPONIC SYSTEM

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Abstract

This experiment aimed to compare the growth and development of two aromatic herbs, thyme (Thymus vulgaris) and basil (Ocimum basilicum var Aristotle) in an aquaponic system with Carassius auratus, versus a hydroponic system. The experiment took place at the pilot system from "Dunărea de Jos" University of Galați, Faculty of Food Science and Engineering. The system consists of six rearing units for fish and twelve units for plants (filled with substrate light expanded clay aggregate L.E.C.A.), led lamps for plants with purple light (36 W), biological and mechanical filters, and pumps for water recirculation. Three rearing units were populated with Carassius auratus at a stocking density of 20.93 ± 0.11 kg m^{-3} and the other three were left without fish. For the hydroponic treatment, a nutritive solution was added daily to support plant growth. Plants units were populated with seedlings of thyme and basil. The physico-chemical parameters of water were measured twice per week during the trial. At the end of the trial, the fresh weight of the plants was measured, and it was concluded that the productivity of the plants was higher in the aquaponics units comparing the hydroponic units.

Key words*: aromatic herbs, integrated aquaculture, nutrient supplementation, plant productivity.*

HEALTH PROFILE OF SOME FRESHWATER FISHES COLLECTED FROM DANUBE RIVER SECTOR (KM 169-197) IN RELATION TO WATER QUALITY INDICATORS

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Abstract

Evaluating the fish parasitic fauna should constitute a major concern, especially in the climate change context because the parasites have a significant impact both on the natural fish population and the farm yield, economic viability, or sustainability. In this context, this study aimed to present the influence of water quality parameters upon the distribution and variety of parasites of 14 freshwater species, belonging to 5 systematic families: Cyprinidae, Percidae, Siluridae, Clupeidae, Esocidae. Parasitofauna analyses were performed through classic methods and the results were expressed as the prevalence of parasitic fauna and their intensity grades. Although the experimental groups have a similar environment, they present a distinct parasitofauna which shows a strong influence of the environmental factors upon its development. Adequate knowledge and periodic monitoring of the prevalence of parasites on the fish populations can have multiple implications and can be used as an indicator of anthropogenic impacts on other aquatic environments.

Key words*: ectoparasites, endoparasites, water's physical-chemical factors, wild fish.*

ESTIMATION OF GROWTH PARAMETERS AND MORTALITY RATE FOR COMMON CARP AND PRUSSIAN CARP FROM DANUBE DELTA

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Abstract

The purpose of this study was to determine the relationships between total length and weight (L-W), to estimate the growth parameters (von Bertalanffy) L∞, k, and the mortality rates (Z, M, F) for the common carp (Cyprinus carpio, Linneaus, 1758) and Prussian carp (Carassius gibelio, Bloch, 1782). Sampling was carried out monthly, from March to September 2021. The relationship between length-weight (L-W) in the study period for common carp was $W = 0.0574 \times Lt^{2.6437}$, respectively $W = 0.0391 \times Lt^{2.7831}$ for Prussian carp. The growth parameters for common carp were L∞ = 86.10 cm and K = 0.87 per year, respectively L∞ = 40.95 cm and K 0.67 per year, for Prussian carp. The total (Z), natural (M) and fishing (F) mortality rates were 1.47, 0.82 and 0.65 per year, for common carp, respectively Z = 1.65, M = 0.85 and F = 0.80 for Prussian carp. Regarding the exploitation rate (E) this was 0.44 for the common carp population, respectively 0.48 for Prussian carp, suggesting that both fish population were not in over-exploited condition.

Key words*: fisheries resource, fresh water fish, Length-Weight relationship, von Bertalanffy's equation.*

GROWTH OF BREAM, *ABRAMIS BRAMA* (LINNAEUS, 1758), IN THE ROMANIAN SECTION OF THE DANUBE RIVER

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Abstract

The main aim of the paper is to investigate the condition of the population of this fish species in a sector of the Romanian Danube River. The common bream is an important species in commercial catches, therefore the knowledge of its growth parameters is important for management of the multi - species fishery. The study is based on a sample of 1580 specimens caught with a total biomass of 197.66 kg. The study took place between 2018 and 2019. Our objective was to estimate the growth parameters (von Bertalanffy) L∞, k, t and the mortality rates (Z, M, F) for the bream population (Abramis brama, Linnaeus, 1758) in the Danube. The relationship between length-weight (L-W) in the study period for common bream population is $W = 0.0201 * Lt^{2,9212}$. *Von Bertalanffy growth parameters were found as, asymptotic length* $L_{\infty} = 49.35$ *cm, growth coefficient (K) = 0.37* yr^{-1}. *The estimated values of the mortality rates for the studied population are: total mortality (Z) is 1. 51, the natural (M) reaches 0.55. and fishing mortality (F) is .0.96.*

Key words*: growth parameters, mortality rates, von Bertalanffy's equation.*

ANALYSIS ON THE USE OF NEW INGREDIENTS IN TROUT FEED

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Abstract

The fodder for captive-bred trout contains ingredients such as fish oil, fishmeal, blood meal, peas, soybeans, wheat, oats, rapeseed, animal protein. The quality of the ingredients is the basis of healthy, mineralizing, protein and vitaminizing feeds. Excessive use of fishmeal in the market puts pressure on the fisheries sector, which is struggling to meet demand. Algae, crustaceans, aquatic plants, insects and seeds are ingredients that could replace fishmeal by helping the fishing industry as well as sustainability of the aquatic environment. In the process of feeding trout with new, experimental feed, research has highlighted the importance of several factors for the development and growth of fish. The level of protein in the feed directly affects the body weight of the trout and the replacement of fishmeal and fish oil with other types of flour and oils can lead to a change in the taste of trout meat. Feeding and control can be of particular importance in reducing losses and increasing environmental sustainability.

Key words*: environment, feed, fish, innovative, sustainability.*

MEAT BIOCHEMICAL COMPOSITION OF SOME FISHES FROM DANUBE RIVER, ROMANIA

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Abstract

Fish represent a good source of animal protein which contains all the essential amino acids. Also, fish meat is an important source of valuable lipids, micronutrients, vitamins, and minerals with several benefits for human health. In this context, the biochemical composition of common carp (Cyprinus carpio), white bream (Blicca bjoerkna), barbel (Barbus barbus), asp (Aspius aspius), common bream (Abramis brama), ide (Leuciscus idus), Prussian carp (Carassius gibelio), European perch (Perca fluviatilis), and Pontic shad (Alosa immaculata) from the Danube River was studied to evaluate their nutritional value. Fish were captured in the year 2020, during the spring season (march-may), between km 169 of the river (Brăila) and km 197 of the Danube River (Gropeni). Fish samples were analyzed for water, protein, fat, moisture and ash, at the Nutrition Laboratory of Faculty of Food Science, University Dunărea de Jos, from Galați. From the obtained results we can conclude that the analyzed fish meat of some species from the Danube River represents a valuable source the consumers healthy.

Key words*: freshwater fish, lipids, proteins, proximate composition.*

BIODIVERSITY AND STRUCTURE OF THE HELMINTH COMMUNITIES OF *CARASSIUS GIBELIO* (BLOCH, 1782) FROM THE TUNDZHA RIVER, BULGARIA

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Abstract

In 2021, ecologoparasitological research was done based on the helminths and helminth communities of Prussian carp - Carassius gibelio (Bloch, 1782) - from the freshwater ecosystem of the Tundzha River, Aegean Water Basin. As a result of the examined twenty-one specimens of Prussian carp, three taxa of helminths were found: Nicolla skrjabini (Iwanitzky, 1928) Dollfus, 1960; Pomphorhynchus laevis (Müller, 1776) Porta, 1908; Contracaecum sp. The dominant structure of the helminth communities was determined. N. skrjabini is a core species for helminth communities of C. gibelio (P% = 23.81). New data on the helminth communities of the Prussian carp from the studied area of the freshwater ecosystem are presented. The basic ecological indices of the helminth populations and communities were determined. The bioindication role of the established helminth species as well as an assessment of the ecological status of the studied biocenoses was presented.

Key words*: bioindication, Carassius gibelio, helminth communities, river Tundzha.*

RESEARCH STATE OF *ALOSA IMMACULATA* (BENNETT, 1835) STOCKS FROM ROMANIAN SECTOR OF DANUBE - SHORT OVERVIEW

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Abstract

Shad (Alosa spp.) is an important fish species and has high economic value. Commonly, it is found in the Black Sea basin and is represented by four species and one subspecies: Alosa maeotica, Alosa tanaica, Alosa immaculata, Alosa caspia, which are distributed in the Black Sea. For the Romanian fishery sector, the Pontic shad (Alosa immaculata) is an important fishery resource. The attractiveness of the Pontic shad fishery, both in the sea and especially in the Danube River (during the migration period), depends on the seasonal nature of this activity but also the interest of consumers for these species. Consumers' interest for Pontic shad is due to both the flavor of the meat and its nutritional qualities. According to IUCN, Pontic shad is estimated as a vulnerable fish species, stocks being affected by the construction of the Iron Gates I and II hydroelectrical dams. In this context, this paper aims to present an overview of the current stocks state of the Pontic shad in the context of environmental and exploitation conditions in Romania.

Key words*: exploitation, fish catch, migratory fish species, shad.*

OBSERVATION ON THE FEEDING BEHAVIOR OF ORPHANED BABY RED SQUIRRELS *SCIURUS VULGARIS* RAISED IN CAPTIVITY BETWEEN 3 AND 12 WEEKS

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Abstract

The feeding habits of a three orphaned red squirrel Sciurus vulgaris were observed during spring, in Western part of Romania, Arad county. Observations on the behavior of squirrel baby were made from 3 weeks to 12 weeks, when the squirrels were released into the wild. The baby squirrels were found fallen from the tree, together with the nest. At about 3 - 4 weeks of age, the feeding takes place 9 times a day, at 6 weeks of age, the number of feeds begins to decrease, is the period when diversification begins by introducing some seeds and nuts in the diet. In terms of weight, the baby weighed about 50 g when they were found, and will reach a weight of 100 g in week 8, and a weight of about 200 grams at about 10 weeks. The paper provides information regarding feeding pattern the first day after finding an orphaned baby squirrel until release into the wild.

Key words*: captivity, feeding behaviour, Sciurus vulgaris.*

THE EFFECT OF DIETS WITH ADDED GRAPE MARC ON GROWTH PARAMETERS AND MEAT QUALITY OF CARP (*CYPRINUS CARPIO*)

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Abstract

Nutrition is a determining factor in the growth potential of fish. The high costs of fodders have created the need for research of substitutes that will contribute to improving the growth performance and that will achieve high-quality fish products. Many by-products in the food industry are rich in bioactive nutrients, with the potential to serve as functional food ingredients for fish fodder. The aim of this study is to determine how the growth parameters and composition of carp meat (Cyprinus carpio), reared in a recirculating system and fed with diets that have grape marc as a fodder component, are influenced. The inclusion of grape marc in fodders ensures increased growth performance compared to diets without the addition of grape marc, and a feed conversion ratio (FCR) with better values in the experimental lots (1.48 for lot T2, 1.67 for lot T1, 1.62 for lot T3) compared to the control lot C (1.86). Grape marc used as supplement in diets, determined the accumulation of protein and lipids in carp meat, an increased intake of fatty acids, an improvement in the ω3/ω6 ratio, causing an increase in the nutritional value of fish.

Key words*: Cyprinus carpio, grape marc, growth parameters, fatty acids.*

GROWTH AND SURVIVAL RATE OF STURGEON HYBRID BESTER ♀ × BELUGA ♂ JUVENILES REARED IN A RECIRCULATING AQUACULTURE SYSTEM

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Abstract

Growth performance and survival rates of backcrossed hybrids of bester females × beluga males were assessed after 28 days of rearing. Hybrid larvae were obtained in the conditions of the reproduction station from the Horia branch of Danube Research Consulting SRL. Three experimental groups were created, corresponding to three classes of sizes: V1 - the initial weight of 3.2-5.2 g, V2 - initial weight of 1.4-2.5 g, and V3 - the initial weight of 0.7-1.4 g. To minimize the effects induced by the increase of the degree of heterogeneity among the fish, after 20 days the fish biomass was divided into two classes of sizes: VA: 25.8-32.8 g, respectively VB: 7.3-16.8 g. The obtained results showed better values of the individual weight gain in V1 compared to V2 and V3, while at the second stage of the experimental period, the values of the individual growth gain for each of the two experimental variants (VA, VB) were almost similar. Due to the high growth performance, as well as the good survival rate obtained in the two stages of the hybrid rearing, the crossing of these two species can be recommended for commercial fish producers for maximum yield and higher profit.

Key words*: aquaculture, growth, hybridization, sturgeons.*

ECOLOGICAL IMPACT OF EUROPEAN BEAVER, *CASTOR FIBER*

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Abstract

Beavers are large, semiaquatic rodents in the genus Castor native to the temperate Northern Hemisphere. The European beaver (Castor fiber) has an undoubtedly positive impact on the environment: it is a key species, which means that it plays a critical role in the biodiversity of ecosystems and that many species, some endangered or threatened, rely on beavers and the landscapes they build. In this way, there are many benefits that humans and other animal species can get from beavers. Also, dam construction has the potential to alter the hydrology, geomorphology, biogeochemistry, and ecosystems of river corridors and the feedbacks between them, thus the beaver is also recognized as an 'ecosystem engineer'. However, beavers can also generate conflict situations because not all watercourses can withstand the intense construction of dams. Thus, in many contexts, the engineering activities of the beaver may come into direct conflict with other priorities: agriculture, urban land use, forestry, irrigation. Beavers occasionally damage selected trees, but the worst damage is caused by their burrows, which raise water levels in streams, ponds or lakes, flooding the ground and frequently killing large areas of valuable trees in the forest. There are proven costs to agriculture that result from the impact of beavers, and these will have to be fully taken into account in future decisions to manage the beaver population. The ecological impact of the Eurasian beaver on habitat structure has been little investigated in Europe and includes in particular the changes that take place during dam construction activities. The purpose of this study was to summarize the publications that analyse the ecological impact of beaver (Castor fiber).

Key words*: beaver, dam, ecological, impact.*

DIFFERENT TYPES OF NEST BOXES USED BY LESSER KESTREL (*FALCO NAUMANNI*) AFTER BEING RECOVERED AS A BREEDER IN BULGARIA

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Abstract

Lesser Kestrel often nests in urban areas surrounded by agricultural areas. This makes the species largely dependent on human activity to availability of nesting places. The loss of natural nesting sites was one of the main reasons the species to become extinct in the late 20th century in Bulgaria. After it was recovered as a breeding species in country, one of the main goals of the expert is to make the colony stable. For implementation of these goals, it is necessary to provide a suitable nesting place for the species. Field studies show that the provision of artificial nest boxes for Lesser Kestrel resulted in increasing of numbers and strengthening existing colonies. There are different types of artificial nest boxes like: Classic wall, cavity wall, under-roof and etc. Conducting daily observations of the birds, the colony's nesting territory was determined - concentrated around the Lesser Kestrel Release and Adaptation Module. In the past years large proportion of the Lesser Kestrel population in Bulgaria nested in artificial nest boxes thus proving that species easily occupies artificial nests designed for it.

Key words*: endangered species, Falcon, raptors, Sakar SPA.*

EFFECT OF SOME WATERBORNE PHARMACEUTICALS ON FISH HEALTH

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Abstract

Pharmaceutically active compounds (PhACs) occurred in aquatic environments and have the potential to adversely affect the homeostasis of the endocrine axis leading to immunological, developmental, neurological and reproductive disarray at the organism level. These compounds are frequently discharged or run-off into the water stream and consequently is an increasing concern in research for the threat posed by PhACs on aquatic fauna. Fishes are vulnerable to different compounds, but the effects depend on specie, toxic concentration and exposure time. The concentrations of PhACs detected in the aquatic environment are relatively low but depending on the compound, they can reach up to a few hundreds of ng/g. The detection of pharmaceuticals in the aquatic environment has predominantly been reported in the developed world (USA, EU, Japan, and Australia) which are dominant countries in global pharmaceutical sales, but their presence tends to become ubiquitous. The aim of this paper is to highlight the main adverse effects of most common PhACs found in Danube river on fish health in order to assess the PhAC with the higher risk for fishes.

Key words*: Endocrine disruptors, fish health, pharmaceutically active compounds.*

OBSERVATION ON SOCIAL BEHAVIOUR OF OSTRICH (*STRUTHIO CAMELUS*) IN CAPTIVITY

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Abstract

The ostrich, the flightless Ratite, is the world's largest bird. Ostrich has been reared in Romania for many years, but we have limited information on this species. The aim of this paper is to provide information on the social behavior of the ostrich (Struthio camelus) in captivity. Ostrich products, meat skin, and eggs are considered luxury products not only in Romania but also abroad. Observations on the social behavior of captive ostrich were made on two extensive farms in Romania in Arad County. The most common behavior patterns are walking, sitting, standing, foraging, pecking, dancing, coprophagia and aggression. The captive ostriches spend most of their time standing, resting or bathing, and nest-making. In the summer period, ostriches show the greatest difference in their behavior, they are more inactive and sit more in rainy weather than in dry periods. In the breeding season, they become more aggressive. They are violent toward humans, juveniles, even each other and other species. Some individuals may be showing abnormal behavior such as feather pecking, anorexia, coprophagy, and dietary indiscretion. Understanding the feelings in animals through behavioral observations is a vital step in improving their welfare.

Key words*: captivity, social behaviour ostrich, Struthio camelus.*

THE IMPACT OF THE COVID 19 PANDEMIC ON THE PRODUCTION PRICE OF CARP RAISED ON FLOATING CAGES

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Abstract

Fish is an important food in human nutrition, with high biological value, which does not produce adverse side effects, being easily digestible. In this study, it is examined how the Covid-19 Pandemic and the measures taken to limit the spread of the virus affect and transform the production costs of the carp raised on floating cages, having a direct effect on the sales price. The sector is expected to resume expansion known in 2019 over the next four years, although rising costs are a challenge to be overcome. As a result of comparison, we find a considerable increase in the production price, which is largely given by the increase in the feed price.

Key words*: aquaculture, economy, fish, management, production costs.*

CASE STUDY - THE MANAGEMENT OF HUNTING COMPLEX `NEGRU VODĂ` FROM CONSTANTA COUNTY

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Abstract

The management of hunting complex "Negru Vodă" from Constanta County it is just the first step in an ample research regarding the rearing systems for wild boar. The management is different from a fence area to another even if the main idea is to sell the animals (for hunting, for populate hunting areas or for slaughtering). "Negru Vodă" complex have the main purpose to produce wild boars for hunting between its fences. What is curious in this "farm" is the absence of separations, especially because in these fence area is rearing also roe deer, red deer, fallow deer and mouflons. We do not meet here not even separation for reproduction and for growth of wildboars. The natural condition for feeding is poor. The forest represents about 99.5% from surface and consists in a mixture of young oaks and acacias which are not capable to ensure the feeding for 367 wild boars. The wild boar feeding it is based on grain purchases which means more costs. All this situation contributes to produce an expensive wild boar.

Key words*: farm, hunting complex, wild boar.*

STUDY REGARDING THE EVOLUTION OF WILD BOAR IN ROMANIA - DOBROGEA AREA, BETWEEN 2018-2021

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Abstract

The aim of this study is to reveal the massive involution of wild boar herds in Romania and especially in Dobrogea area. Everybody knows about the effects of the African swine fever on wild boar herds, but no one talks about the impact it has on the environment. In the current conditions, there would have been the possibility to intervene and to populate with animals raised in these hunting complexes. The study focused on the Dobrogea area because it was the first and most affected area of the country. We analyze the official data from national evaluation of sedentary game in Dobrogea area, more exactly Constanta and Tulcea County. Hunting territories in these two counties are managed by National Forest Authority, county associations of hunters and other associations for conservation of biodiversity and management of hunting territories. We analyze wild boar real effective between 2018 and 2021 by counties, by sexes, and in comparison with optimal effective (maximal number of individuals who can leave in a hunting area, without causing damage to the agricultural fields or in the forest).

Key words*: African fever, hunting, wild boar.*

STUDY REGARDING THE EVOLUTION OF SOME SEDENTARY GAME POPULATIONS IN GIURGIU COUNTY

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Abstract

The purpose of this paper is to analyse the situation of some native game species in Giurgiu County, based on official assessments, using data from the Ministry of Environment. The analysis of the official data from the evaluations of sedentary game will give the possibility to assess if the data presented at the evaluations are correct and if the hunters' fears are justified. The analyses also took into account the creditworthiness keys of the hunting areas in order to perform a comparative analysis between the real and the optimal number. Following the analyses performed, and the resulting conclusions, some recommendations were formulated, among which we mention: the active involvement of the administrator of the national hunting fund by participating and supervising the evaluation actions of the sedentary game herds, or the obligation of the managers of the hunting areas to maintain an ascending trend until the optimum number is reached.

Key words*: hunting, pheasant, sedentary game, wildlife.*

THE INFLUENCE OF THE POPULATION DENSITY ON THE DEVELOPMENT OF THE SPECIES *SANDER LUCIOPERCA* (LINNAEUS, 1758) IN THE POSTEMBRYONIC PERIOD

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Abstract

The pikeperch (Sander lucioperca L., 1758) is one of the freshwater species recently introduced in intensive aquaculture. In the last decade there have been made great efforts in the direction of developing the intensive culture of this species. The population density is a very important technological parameter for fish growth, in all stages of development and is specific to the species, age and technology applied, the most difficult to achieve and with the most significant losses being recorded in the post-embryonic period. Therefore, the growth of the pikepech in the post-embryonic period was experienced in "Evos" type fiberglass pools, in three experimental versions, with three different population densities like: V1 - 1000 ex./basin, V2 - 2000 ex./basin and V3 - 3000 ex./basin. There were two critical moments in the post-embryonic development period: the first was at the beginning of exogenous feeding time, and the second during the swelling of the gas bladder. The experiments were performed at S.C.D.P. Nucet, in triplicate, during three growing seasons (2018, 2019 and 2020). The best results were obtained in V1 version, where the survival rate was 69.5% in 2020, the average individual growth rate in 2019 was 1,555 g/ex., and the Fulton coefficient was between 0.93 - 1.13.

Key words*: density, fry, pikeperch, survival weight.*

THE INFLUENCE OF THE POPULATION DENSITY ON THE SURVIVAL RATE OF THE PIKEPERCH DURING THE COLD SEASON (*SANDER LUCIOPERCA*, LINNAEUS, 1758) IN INDUSTRIAL AQUACULTURE SYSTEMS

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Abstract

The one summer old pike perch's (Sander lucioperca L., 1758) survival rate during the cold season is low (50-75%) due to temperatures decrease which lead to a decrease in metabolism. It is food sources become scarce and as a consequence the fish consume their long time accumulated fat tissue, their reserves from the warm season, becoming prone to disease due to losing weight. The researches took place during the years 2018, 2019 and 2020, at the Research-Development Station for Pisciculture Nucet. Wintering was done in ponds, in two experimental versions: variant V1 - no food was administered and variant V2 - live food was administered (species without economic importance). The experiments for each variant were performed in three densities, as follows: D1 density was 200 kg/basin (2000 kg/ha), D2 density was 500 kg/basin (5000 kg/ha) and D3 with density of 700 kg/basin (7000 kg/ha). The best results for survival rate were obtained in variant V2 in 2020 which had a density of D1 98.8% and for weight gain rate in V2 variant in 2018 at density D2, it was obtained a growth increase of 137 kg. The survival rate of one summer old pike perch's (Sander lucioperca L., 1758) during the cold season is low (50-75%) due to lower temperatures that lead to lower metabolism. The feed sources are becoming scarce and, as a result, the fish are consuming their adipose tissue accumulated during the hot season, becoming prone to disease due to weight loss.

Key words*: density, pikeperch, survival, wintering.*

LENGTH-WEIGHT RELATIONSHIPS OF THE MONKEY GOBY (*NEOGOBIUS FLUVIATILIS*, PALLAS, 1814) FROM THE SOMEȘ RIVER CATCHMENT

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Abstract

The monkey goby (Neogobius fluviatilis) is a species present in the ichthyofauna of Romania, which naturally inhabits the seaside area, the mouths of the Danube, the Danube, and the Danube tributaries lower sections. The species currently expands its range across the European continent, and it is now inhabiting new aquatic environments, including the Someș River catchment, in the Transylvania region of Romania. The purpose of this study is to analyse the biometric aspects regarding the Neogobius fluviatilis populations from the Someș River catchment. Specimens of Neogobius fluviatilis were collected from 9 locations situated on the main course of the Someș River and from a lake built on a small river from the Someș catchment, the Țaga Lake. The collected specimens were preserved, and morphometric analysis was conducted in the laboratory with the following biometric aspects being analysed: length classes distribution and the length-weight relationships (LWR), such as the Fulton condition factor (K) and the allometric growth. In the present research work, we managed to obtain important information regarding the biometric aspects of the monkey goby (Neogobius fluviatilis) population from the Someș River catchment.

Key words*: Fulton, ichthyology, morphometry.*

LENGTH-WEIGHT RELATIONSHIPS AND FULTON CONDITION FACTOR (K) OF FRESHWATER FISH SPECIES FROM THE RUSCOVA RIVER, SPAWNING GROUND OF DANUBE SALMON - *HUCHO HUCHO*, LINNAEUS, 1758 (PISCES: SALMONIDAE)

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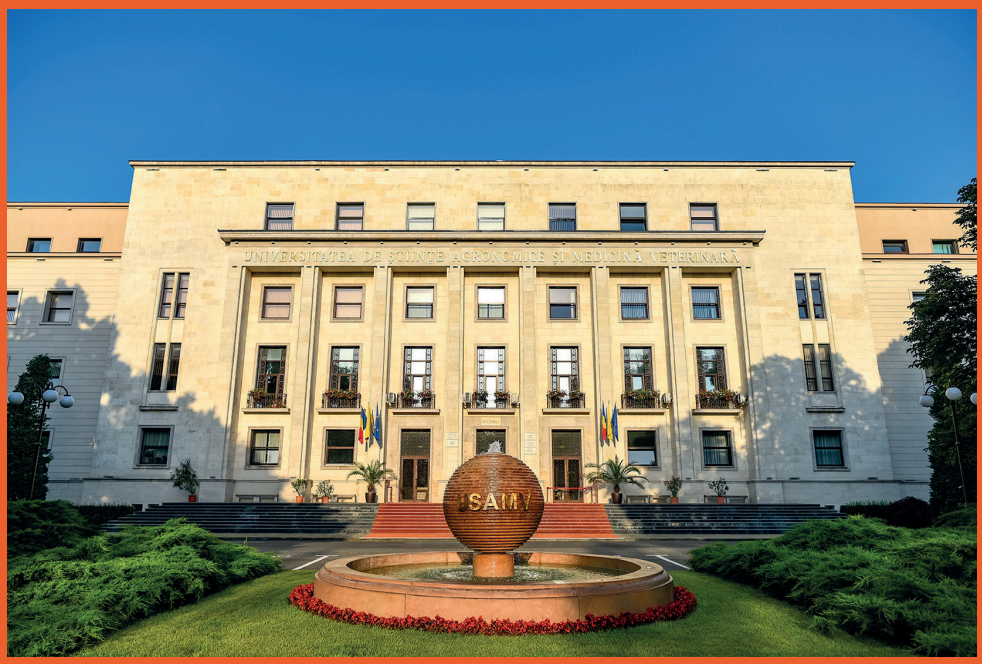
Abstract

This study is the first reference regarding the length-weight relationships of freshwater fishes inhabiting one of the most important spawning waters of the endemic endangered Danube salmon (Hucho hucho). Fulton condition factor (K) was calculated for 1366 individuals belonging to 16 species from Ruscova River, north of Romania. Length-weight relationships were determined for 1362 specimens from 14 species. The smallest slope value (b) was determined for Romanogobio uranoscopus (b=2.2437) and the highest value for Telestes souffia (b = 3.6058). The Danube salmon (Hucho hucho) showed positive allometric growth, having the calculated value of the slope of 3.3879. The mean values of Fulton condition factor (K) for the captured specimens were: Cottus gobio (1.161), Alburnus alburnus (0.3726), Alburnoides bipunctatus (0.8142), Barbus barbus (0.9434), Barbus carpathicus (0.9202), Chondrostoma nasus (0.8867), Romanogobio uranoscopus (0.8196), Phoxinus phoxinus (0.9888), Squalius cephalus (1.137), Telestes souffia (0.898), Barbatula barbatula (0.6693), Eudontomyzon danfordi (0.1293), Hucho hucho (0.8454) and Thymallus thymallus (0.9522).

Key words*: allometry, electrofishing, endangered species, ichthyofauna, LWR.*



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