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

International Conference
"Agriculture for Life, Life for Agriculture"

BOOK OF ABSTRACTS

Section 3

ANIMAL SCIENCE

2023
Bucharest

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THE EFFECT OF ALFALFA MEAL USED IN BROILER CHICKEN DIETS ON PRODUCTION PERFORMANCES, EFFICIENCY FACTORS, ORGANS DEVELOPMENT AND INTESTINAL MICROFLORA - **Petru Alexandru VLAICU, Tatiana Dumitra PANAITE, Mihaela DUMITRU, Arabela Elena UNTEA, Mihaela SARACILA** 60

THE FEEDING EFFECTS OF URONIC ACID EXTRACTION FROM *Sargassum crassifolium* ON UNSATURATED FATTY ACIDS AND THE IMMUNITY OF LOHMAN CHICKEN EGGS - **Veybe KEREH, Ivonne UNTU, Cherly PONTOH, Tilly LUMY, N.J. KUMAJAS, M. R. IMBAR** 61

RED YEAST β-CAROTENE CONTENT: DEVELOPING EXTRACTION AND DETERMINATION FOR IMPROVING POULTRY NUTRITION - **Daniela-Mihaela GRIGORE, Narcisa Elena POGURSCHI, Ionut RANGA, Narcisa BABEANU** 62

FORMULATION OF HIGH-NUTRITION COMPOSITE FLOUR FROM GERMINATED SORGHUM AND CATERPILLAR (*Cirina butyrospermi*) FOR FIGHTING CHILD MALNUTRITION - **Natia Joseph KOUADIO, Soro TIEKOUNGO MARIAM, N'gbesso EKISSI AMOS, Sea TEHI BERNARD** 63

MICROALGAL OIL AS AN ALTERNATIVE SOURCE OF DHA AND EPA ACIDS (OMEGA 3) IN ANIMAL DIETS: AN OVERVIEW - **Alina ANTACHE, Ira-Adeline SIMIONOV, Valentina CĂLMUC, Mădălina CĂLMUC, Aurelia NICA, Ștefan-Mihai PETREA, Cătălina ITICESCU, Puiu Lucian GEORGESCU, Alin CIOBÎCĂ** 64

RESEARCH ON THE EFFECT OF SOME NUTRITIONAL SUPPLEMENTS ON QUANTITATIVE AND QUALITATIVE PARAMETERS OF GOAT'S MILK - **Oana Diana MIHAI, Simona NICOLAE (CĂLIN), Alina-Daniela MARCU, Diana-Nicoleta RABA, Iuliana CODREANU, Emilia CIOBOTARU-PÎRVU** 65

INFLUENCE OF FEEDING TYPE ON GROWTH AND BLOOD PARAMETERS OF BLACK BARBUS, *Puntius nigrofasciatus* - **Nataliia PRYSIAZHNIUK, Anna HORCHANOK, Oksana KUZMENKO, Oksana SLOBODENIUK, Yriy FEDORUK, Olga KOLOMIITSEVA, Inna POROTIKOVA, Oleksandr MYKHALKO** 66

INNOVATIVE FEED PREPARED FOR IMPROVING PRODUCTIVE, REPRODUCTIVE PERFORMANCE, QUALITY ON DAIRY PRODUCTS AND REDUCING ENVIRONMENTAL POLLUTION IN COW FARMS - **Călin JULEAN, Lavinia STEF, Ioan PEȚ, Adela MARCU, Ducu STEF, Nicolae PĂCALA, Valeriu Ion CARABA, Voichita GHERASIM** 67

VITAMIN AND MINERAL NUTRITION OF DAIRY COWS AND ITS INFLUENCE ON RUMINAL METABOLISM AND MILK PRODUCTIVITY - **Mariia VOROBEL, Vasyl KAPLINSKYI, Oleg KLYM, Olha STEFANYSHYN, Alla HUNCHAK, Oksana SMOLYANINOVA, Nataliia PAKHOLKIV, Halyna BILOVUS** 68

MINERAL OIL HYDROCARBONS (MOH) ANALYSIS IN ANIMAL FEED: A CHARACTERIZATION BASED ON MODERN POLLUTION - **Mădălina MATEI, Ioan Mircea POP** 69

THE COMPOSITION OF HEAVY METALS AND THE CONTENT OF ESTERIFIED FATTY ACIDS IN BEE TISSUES DEPENDING ON THE ENVIRONMENTAL CONDITION

Yosyp RIVIS[1], Volodymyr POSTOYENKO[2], Oleg STASIV[1], Olga STADNYTSKA[1], Bogdan GUTYJ[3], Svetlana USENKO[4], Bogdan SHAFERIVSKYI[4], Tetyna KARUNNA[4], Olena BEZALTYCHNA[5], Valentina YASKO[5], Olga HOPANENKO[6], Oleksandr DIACHENKO[1], Oleg KLUM[1], Ivan SARANCHUK[7]

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Abstract

The work aimed to record the content of heavy metals, including toxic and esterified forms of fatty acids in tissues, and the honey productivity of bees in different natural zones of the Carpathian region. Experimental apiaries of clinically healthy honey bees of the Carpathian breed (Apis mellifera (L.) carpatica) were selected based on the private mountain (Slavsko village, Stryi district), foothills (Nizhnya Stynava village, Stryi district) and forest-steppe (village Myklashiv, Lviv district) zones of Lviv region. It was established that the total content of the studied heavy metals in the tissues of honey bees in the foothills and forest-steppe zones of the Carpathian region, compared to the mountain zone, is higher. The level of dangerous elements of the first class of toxicity - Lead and Cadmium - increases significantly in the tissues of honey bees of the foothills and forest-steppe zones, compared to the conditionally clean mountain environment. At the same time, the intensity of transformation of the esterified form of linoleic acid into its longer-chain and unsaturated derivatives of the omega-6 family is sharply reduced in the tissues of the breast of honeybees of the forest steppe and head of the foothills of the Carpathian region. In addition, the intensity of conversion of the esterified form of linolenic acid into its longer-chain and unsaturated fatty acids of the omega-3 family in the

tissues of the head of honeybees in the foothills and especially in the forest-steppe zones is sharply reduced. As a result of the accumulation of heavy metals in tissues, the energy, the structural, biological, and antimicrobial value of esterified forms of fatty acids for the body of honey bees that are kept in hives located in the foothills and especially forest-steppe zones of the Carpathian region decreases, compared to the tissues of bees that are kept in apiaries, situated in the mountainous area. The honey productivity of worker bees per beehive per season is lower in the foothills and forest-steppe zones of the Carpathian region compared to the mountainous ones.

***Key words**: natural zones of the Carpathian region, heavy metals, fatty acids, tissues, and honey productivity of bees, bioindicator.*