CONFERÊNCIA FACTA
WPSA-BRASIL 2023

BRASIL O SUPERMERCADO DO MUNDO

FUNDAÇÃO DE APOIO À CIÊNCIA E TECNOLOGIA AVÍCOLAS
FACTA

Annals

PRÊMIO LAMAS

facta@facta.org.br

ONLINE

09 A 11 DE MAIO

Dados Internacionais de Catalogação na Publicação (CIP)
(Câmara Brasileira do Livro, SP, Brasil)

Conferência FACTA WPSA-Brasil 2023 (1.: 9-11 maio 2023:On-line)
Conferência FACTA WPSA-Brasil 2023 [livro eletrônico] : Brasil, o supermercado do mundo : annals. -- Campinas, SP : Facta, 2023.
PDF

Vários autores.
Bibliografia.
ISBN 978-65-991079-4-8

1. Artigos - Coletâneas 2. Avicultura 3. Pesquisa científica 4. Trabalhos científicos - Coletâneas I. Título.

23-161739 CDD-636.506

Índices para catálogo sistemático:

1. Avicultura : Congressos 636.506

Eliane de Freitas Leite - Bibliotecária - CRB 8/8415

SPONSORS

FACTA

DIAMOND

ADISSEO
A Bluestar Company

Phibro
ANIMAL HEALTH CORPORATION TM

GOLD

Aviagen™

SILVER

EVONIK
Leading Beyond Chemistry

Vaccinar
NUTRIÇÃO ANIMAL

vaxxinova

BRONZE

ABVista

biocamp

CINERGIS
SAÚDE E NUTRIÇÃO ANIMAL

Elanco

F&S
Consultoria Agropecuária | Indústria

PLASSON
Livestock

zoetis

CONFERÊNCIA FACTA
WPSA-BRASIL 2023

BRASIL
O SUPERMERCADO
DO MUNDO

MAINTAINERS

FACTA

FACTA WPSA-Brazil 2023 Conference
Brazil, the world's supermarket!

In its 40th edition, the FACTA WPSA-Brazil Conference brought as its main theme "Brazil, the World's Supermarket!" FACTA, always connected to the current issues and concerned with the formation and training of those involved in all segments of the poultry chain, has prepared together with its technical staff, a rich program, addressing the various aspects related to poultry.

The José Maria Lamas da Silva Award, whose scientific papers were presented during the three-day event, aimed to bring together researchers and those interested in applying technical and scientific knowledge to improve the Brazilian poultry industry. During the event there was the traditional awarding of the winning papers, chosen by committees formed by technicians and researchers from different areas of knowledge. This was an excellent opportunity to present your ideas and research results, as well as to introduce your team to the productive sector.

The FACTA Award - Technical and Scientific Merit was also presented during the FACTA WPSA-Brazil 2032 Conference, when a professional with outstanding performance in poultry production was honored. Several participants were present, such as agribusiness technicians, producers, consultants, entrepreneurs, researchers, professors, postgraduates and undergraduates involved in the national and international poultry sector.

Thank you for being with us at the 40th FACTA WPSA-Brazil 2023 Conference!

"Brazil, the world's supermarket!"

Prof. Dr. Ariel Antônio Mendes
FACTA's President

A pioneering initiative by FACTA to stimulate poultry research: LAMAS AWARD Originally created as the APINCO Poultry Science and Technology Award in the late 1980's, was changed to Prof. Dr. José Maria Lamas da Silva Award in 1993, as a tribute to the most respected technician of Brazilian poultry industry, master of the Veterinary School of the Federal University of Minas Gerais and trainer of hundreds of technicians that are active in the Brazilian poultry industry today, who died prematurely that year.

The Lamas Award aims - much more than the award itself – towards the dissemination of the results of intense research and experimentation developed in universities and research centers throughout the country in order to answer questions (raised by the productive sector itself) in various areas specialized in the production and processing of poultry products to the poultry industry.

It is interesting to note that in its first versions, the current Lamas Award had no more than half a dozen papers registered, a number that has been growing over time and ended up transforming the FACTA Conference in the main means of dissemination of poultry research developed in the country.

The best thing, however, is that this pioneering venture set a precedent. To the point that most of the pro-agriculture events currently held in Brazil also register and award prizes for poultry research work. It was yet another FACTA initiative that has been bearing good and growing fruit.

In its f irst versions, the Lamas Award was granted to only one research work. But with the multiplication of the registered works, it was observed that there are multiple areas object of poultry research, all fundamental for the achievement of better production of chickens and eggs. This observation led to the unfolding of the Award. Currently, the laurel is awarded to the best work presented in four distinct areas: Health, Nutrition, Production, and Other Areas.

EVALUATION COMMISSION

Adriano Sakai Okamoto

Ana Vitória Fischer da Silva

Angélica Signor Mendes

Caio Cesar dos Ouros Christiane

Silva Souza

Claudia Marie Komiyama

Danilo Gonçalves Vieira Douglas

Emygdio de Faria Eduardo

Correa Muniz

Elis Regina de Moraes Garcia Eva

Laurice Pereira Cunha Hunka

Érika Rosendo de Sena Gandra

Eveline Berwanger

Fabiano Dahlke

Gerson Neudí Scheuermann

Ianglio Márcio Travassos Duarte Jácome

Ivan Mota Lee

Jacqueline Boldrin de Paiva

José Roberto Sartori

Marcos Livio Panhoza Tse

Maria Fernanda de Castro Burbarelli

Paulo Raffi

Rodrigo Borille

Rodrigo Garofallo Garcia

Romilton Ferreira de Barros júnior

Sebastião Aparecido Borges

Thamires Silva Ferreira

TRUSTEE COUNCIL

President – Ivan Pupo Lauandos

Edir Nepomuceno da Silva

Antônio Mário Penz Jr.

Ariovaldo Zani

Érico Antonio Pozzer

Everton L. Krabbe

Flavio Henrique Araujo Silva

Irenilza de Alencar Nääs

Jairo Arenázio

José Paulo Meirelles Kors

José Antonio Ribas Junior

Ricardo João Santin

Rodrigo Torres

EXECUTIVE BOARD

TECHNICAL BODY

Invited Members

- Alberto Back
- Alberto Bernardino
- Alberto Inoue
- Alessandro Campos
- André Viana
- Angélica Signor Mendes
- Anselmo Micheletti
- Antonio Geraldo Silva
- Antonio Guerreiro
- Antonio Guilherme M de Castro
- Antonio J. Piantino Ferreira
- Artur Schlick
- Caio César dos Ouros
- Douglas Emygdio de Faria
- Edir Nepomuceno da Silva
- Eduardo Villas Boas Leffer
- Eva Hunka
- Fabio Tavares Zancan
- Fernando Guilherme Perazzo Costa
- Gabriel Jorge Neto
- Gerson Neudi Scheuermann
- Godofredo Miltenburg
- Ibiara C L A Paz
- Inaldo Sales Patrício
- Irenilza de Alencar Nääs
- Ivan Mota Lee
- Jônatas Wolf
- José Fernando M Menten
- Josiane Griebeler
- Josiane Schuvank Maculan Salvo
- Josiane Tavares de Abreu
- Leikka Iwamura
- Leonardo Vega
- Liris Kindlein
- Luciano Lagatta
- Luiz Felipe Caron
- Marcelo Fagnani Zuanaze
- Marcos Macari
- Maria Aparecida Melo Iuspa
- Matheus Ramalho de Lima
- Neyre Shiroma
- Paulo César Martins
- Paulo Lourenço da Silva
- Paulo Roberto Raffi
- Rafael Belintani
- Raphael Lucio Andreatti Filho
- Roberto Mülbert
- Rodrigo Garófallo Garcia
- Rosecler Alves Pereira
- Sandra Bonaspetti
- Tatiana Carlesso dos Santos
- Vanessa Haeck
- Vanessa Michalsky Barbosa
- Vinicius Duarte
- Walbens Siqueira Benevides

Members representing Maintainers

- Alexandre Barbosa de Brito (AbVista)
- André Viana (Polinutri)
- Anselmo Micheletti (Aviagen)
- Antonio Geraldo da Silva (Petersime)
- Cassiano Bevilaqua (Cobb)
- Claudio Machado (Vencomatic)
- Eduardo Muniz (Zoetis)
- Gustavo Schaefer (Vaxxinova)
- Heytor Garcia Borges (Ilender)
- Humberto Bussada (Inata)
- Jorge Augusto do Amaral Werlich (MSD)
- Juliana Vieira Marques de Souza Pereira Batista (Nutron)
- Lenise Souza (Pas Reform)
- Leticia Dal Berto (Elanco)
- Luiz Eduardo Conte (Suiaves)
- Nei Arruda (Evonik)
- Patricia Rocha (Phibro)
- Sebatião Aparecido Borges (Vaccinar)
- Ulisses R. Toccheton de Moraes (Pancosma)
- Wanderley Quinteiro-Filho (Adisseo)

Summary

Nutrition	Code	1st Author	Page
Hydrolysable Tannin on Broiler Performance (Vencedor)	NU 10	*Eveline Berwanger*	15
Investigation of Broilers Hepatic Proteome Supplemented With Levels of Passion Fruit Seed Oil (Menção Honrosa)	NU-17	*Joyce Andrade da Silva*	16
Results of an Ast (Anticoccidial Sensitivity Test) Foreimeria Maximain the State Of Paraná	NU-05	*Josias Rodrigo Vogt*	17
Use of Different Oil Sources on the Shelf Life and Meat Composition of European Quail	NU-07	*Ana Julia Martins Garcia*	18
Performance of Broilers (Growth-Phase) Fed With Corn and Soybean Meal With Different Nutritional Value	NU-08	*Alana Bruna Serraglio*	19
Energy Utilization and Nutrient Digestibility By Broilers Fed With Corn and Soybean Meal With Different Nutritional Value	NU-09	*Alana Bruna Serraglio*	20
Hydrolysable Tannin on Broilers Carcass Yield	NU-11	*Eveline Berwanger*	21
Performance of Tenebrio Molitor Larvae Fed Olive Pomace	NU-12	*Caio Cesar dos Ouros*	22
Quality of Eggs From Laying Hens in the Final Stage of Production Supplemented With Probiotic and Organic Acid	NU-13	*Josilene Correa Rocha*	23
Blood Parameters of Broilers Fed Diets Using Soy Gum and Different Levels of Fat	NU-14	*Caio Cesar dos Ouros*	24
Performance of Broiler Chickens Supplemented With Tannin-Based Extract	NU-15	*Vivian Aparecida Rios Castilho Heiss*	25
Tannin-Based Extract Influences the Occurrence of White Striping and Wooden Breast	NU-16	*Vivian Aparecida Rios Castilho Heiss*	26
Effect of Limestone Particle Size in Diets Made With Phytase on the Productive Performance and Morphometry of the Gastrointestinal Tract of Broilers Subjected To Enteric Challenge	NU-18	*Laura Gubert*	27
Effect of Limestone Particle Size and Phytase on Bone Development in Broilers Subjected Or Not To Enteric Challenge	NU-19	*Carlos Eduardo Benito*	28
Subchronic Oral Toxicity of Pracaxi Oil in Rattus Norvegicus (Lin. Wistar)	NU-20	*Maria Fernanda de Castro Burbarelli*	29
Characterization of the Chemical Profile of Pracaxi Oil For Use in Animal Feeding	NU-21	*Maria Fernanda de Castro Burbarelli*	30

Metabolizability of Nutrients and Energy Values of Unconventional Lipid Sources in the Diet of Meat Quails.	NU-22	*Alexander Alexandre de Almeida*	31
Use of Tannin-Based Extract Improves the Tenderness of Breast Chicken Meat	NU-23	*Claudia Marie Komiyama*	32
Breast Muscle Histomorphometry of Broiler Chickens Fed With Tannin-Based Plant Extracts	NU-24	*Claudia Marie Komiyama*	33
Eggs Quality of Japanese Quail Supplemented With Tannin-Based Extract	NU-26	*Joao Ricardo Rodrigues Ferreira Vieira*	34
Performance of Japanese Quail Supplemented With Tannin-Based Extract	NU-27	*Joao Ricardo Rodrigues Ferreira Vieira*	35
Unconventional Lipid Sources in the Diet of European Quails Affect the Birds' Qualitative Characteristics	NU-28	*Jean Kaique Valentim*	36
Quality of Eggs From Japanese Quails Fed With Pracaxi Oil (Pentacletrha Macroloba)	NU-29	*Felipe Cardoso Serpa*	37
Essencial Oils Lavander (Lavanda Dentata L.), Eucalyptus (Eucalyptus Citriodara), and Lemongrass(Cymbopogon Citratus) in the Starter of Broiler Chickens on Small Intestine Morphometry	NU-30	*Maria Marta Loddi*	38
Antioxidant Activity and Biochemical Profile of Broilers Supplemented With Tannin-Based Extract	NU-31	*Felipe Cardoso Serpa*	39
Effect of Diet Physical Form on Performance of Laying Hens in the Breeding and Rearing Phases	NU-34	*Herta Silva*	40
Effect Ofacacia Mearnsiiextract (Nutreset Pnt) Onsalmonella Heidelbergincidence in Broilers	NU-35	*Danielle Dias Brutti*	41
Effect on the Performance of Broiler Chickens Supplemented With Hydroxy Chloride Copper in Replacement of the Agp	NU-36	*Karolina Von Zuben Augusto*	42

Production

Production and Chick Quality in incubations With Low and High Temperatures (Vencedor)	PR-16	*Izabela Lorena Azevedo*	43
Performance of Broilers and Quality of Drinking Water Treated With Potassium Monopersulfate (Menção Honrosa)	PR-10	*Adriano Franco*	44
Effects of the Linoleic Acid to Alpha-Linolenic Acid Ratio (La:Ala) on Body Weight, Bodycomposition, and Relative Organ Weight of Female Japanese Quail Breeders	PR-01	*Allanna Hayane Rebelato Corsino*	45
Use of Different Ratios of Linoleic Acid and Alpha-Linolenic Acid Associated With Vitamin E Levels on the Bromatological Composition and Antioxidant Activity of Japanese Quail Egg Yolk	PR-02	*Rafaella Scaboro dos Passos*	46
Evaluation of the Effectiveness of Two Vaccination Programs on the Zootechnical Parameters of Broilers	PR-03	*Antônio José de Lima Neto*	47
Impact on the Cost of Production and Zootechnical Performance of Broilers Submitted to Two Different Vaccination Programs	PR-04	*Antônio José de Lima Neto*	48
Impact of the Use of Plastic Flooring on the Quality of Broiler Meat	PR-05	*Cassia Regina Teodoro*	49

Factor Analysis of Mixed Data to Relate Production Factors to Slaughtering Characteristics of Broiler Chicken	PR-06	*Cassia Regina Teodoro*	50
Use of Artificial Shading in Semi-intensive Rearing of Free-Range Broiler Chickens	PR-07	*Mônica Patrícia Maciel*	51
Skin Lesions and Myopathies in Broiler Chickens Using Plastic Flooring As Litter Material.	PR-08	*Elivelton de Salles da Silveira*	52
Carcass and Cuts Yield of Broiler Chicken Using Plastic Flooring As Litter Material	PR-09	*Elivelton de Salles da Silveira*	53
Zootechnical Performance of Ross Ap91 Griller Type Broilers Reared in Different Types of Aviaries	PR-11	*Thiago Gonsalo da Silva*	54
Zootechnical Performance of Ross Ap95 Griller Type Broilers Reared in Different Types of Aviaries	PR-12	*Thiago Gonsalo da Silva*	55
Cage-Free Vs Free-Range: Evaluating the Impact on Behavior and Physiology of Laying Hens	PR-13	*Jean Kaique Valentim*	56
Total Bone Mineral Density and Femur and Tibia Morphology of Different Types of Broilers Carcasses	PR-14	*Juciê Leite dos Santos*	57
Effects of Feeding Tenébrio Molitor Meal to Growing Pigs on Production and Economic index	PR-15	*Gabriel Nascimento de Souza Paulo*	58
Bone Development of Embryos and Broiler Chicks incubated at Different Temperatures	PR-17	*Izabela Lorena Azevedo*	59
Machine Learning Applied to Predict the Weather Impact on Pig Carcass Condemnation	PR-18	*Fábio Mascarenhas Dutra*	60
Use of Computerized Images to Assess Bone Mineral Density in Broiler Chickens	PR-19	*Andressa Silva Jacinto*	61
Probiotics: An Alternative For Improving Production Rates of Broilers	PR-20	*Natalia Lopes Vargas*	62

Sanity

Understanding the Chicken Embryo as a Model ofcampylobacter Jejuniinfection Beyond Death (Vencedor)	SA-18	*Maria Victoria Pereira De Souza*	63
Evaluation of “Vaccine Take” in Broilers Vaccinated With a Vaccine Against infectious Bronchitis Virus Gi-23 Lineage in Brazil (Menção Honrosa)	SA-13	*José Emílio de Menezes Dias*	64
Effects of Mixing of Commercial Probiotic Products With infectious Bronchitis Vaccine Solution	SA-01	*Jorge Luis Chacón Villanueva*	65
S1 Gene Complete Sequencing of Br-I infectious Bronchitis Virus Reveals Important aspects on Phylogenetic and Phylodynamic of Virus Circulating in Brazil	SA-02	*Jorge Luis Chacón Villanueva*	66
Temporal Evaluation of Salmonella Positivity With the Use of Live Vaccine in Broiler Farms - Field Study.	SA-03	*Josias Rodrigo Vogt*	67
Identification of Eimeria Spp. in Alternative and industrial Chicken Production Systems From the States of Santa Catarina and São Paulo	SA-04	*Marcelo Vasconcelos Meireles*	68

Phenotypic and Genotypic Characterization of Antimicrobial Resistance Profiles ofescherichia Coliisolated From Chicken Carcasses in Brazil	SA-05	*Giulia Von Tönnemann Pilati*	69
Adaptation of the Spot on the Lawn Techinique in the Analyses of Probiotic Bacteria in inhibiting Pathogenic Bacteria Growth	SA-06	*Gabriele Silva Dias*	70
Occurrence of Avian Pathogenic Escherichia Coli (Apec) in Broilers in the States of Minas Gerais and Bahia	SA-07	*Eduardo Correa Muniz*	71
Co-infection Between Avian Metapneumovirus (Ampv) and Avian Pathogenic Escherichia Coli (Apec) in Broilers in Different Regions of Brazil	SA-08	*Eduardo Correa Muniz*	72
Anticoccidial Sensitivity Test (ast) as a Tool for Choosing Anticoccidial Programs Based on the Sensitivity of Molecules	SA-09	*Gleidson Biasi Carvalho Salles*	73
Evaluation of Zootechnical indices of Broiler Chickens After the Use of a Live Escherichia Coli Vaccine	SA-10	*Gleidson Biasi Carvalho Salles*	74
Antimicrobial Resistance Profile ofcampylobacter Jejuniisolated From Chicken Carcasses	SA-11	*Saruanna Millena Dos Santos Clemente*	75
Correlation Between Spray Dye Level in Broilers Body and Viral Load in the Trachea of Broilers 6 Days After Vaccination Against infectious Bronchitis Virus	SA-12	*José Emílio de Menezes Dias*	76
Diversity of Avian-Pathogenicescherichia Coliisolated From the Broiler Breeds	SA-14	*Fernanda Borges Barbosa*	77
Lactobacillus Plantarumandl. Acidophilusorbacillus Subtilisare Efficient in Controllingsalmonellaheidelberg in Broilers	SA-15	*Caroline Teixeira Dreyer*	78
Reduction of Spores of Bacillus Subtilis Or B. Thurigiensis After Treatment With Orthophthalaldehyde by Dry Fumigation Or Solution of Ammonia and Glutaraldehyde by Spray	SA-16	*Maria Vitoria Mendes Felix Costa*	79
A Blend of Lactic Bacteria andsacchaomyces Boullardiior Spores ofbacillus Subtiliscan Present An Immunomodulatory Effect Followed by Challenge Withsalmonellaenterica Serovar Heidelberg	SA-17	*Caroline Teixeira Dreyer*	80
Phylogenetic Profile ofescherichia Coliisolated From Broiler Chicken Farms	SA-20	*Maísa Fabiana Menck-Costa*	81

Other areas

Does incubation Temperature Affect the Utilization of Egg Components and Bone Mineralization by the Embryo? (Vencedor)	OA-12	*Tais Pinheiro Borges Silva*	82
Probiotics: A Tool to Improve the Welfare of Broiler Chickens (Menção Honrosa)	OA-15	*Andressa Silva Jacinto*	83
Virulence Profile of campylobacter Jejuniisolated From Chilled and Frozen Broiler Chicken Carcasses	OA-01	*Saruanna Millena dos Santos Clemente*	84
Anatomopathological Aspects of Colibacillosis in Broiler Chicks	OA-02	*Josilene Correa Rocha*	85
Consumer Perceptions, Preferences and Attitudes Related to the Welfare of Broiler Chickens Considering Two Catching Techniques	OA-03	*Rodrigo Garofallo Garcia*	86
Economic Feasibility Analysis of Broiler Chicken Mechanized Catching in Brazil	OA-04	*Rodrigo Garofallo Garcia*	87

Analysis of the Economic Feasibility of Two Production Systems for Laying Chickens Raised in Different Housing Densities	OA-06	*Alexander Alexandre de Almeida*	88
Visual Acceptance of Chicken Meat Fed A Blend of Organic Acids and Microencapsulated Bioactive Compounds	OA-07	*Laura Gubert*	89
A Combination of Active Biofilm Based on Essential Oil of Oregano and Curcumin With Antimicrobial Photodynamic therapy Prevents Protein Oxidation in Chilled Chicken Breast	OA-08	*Carlos Eduardo Benito*	90
Economic Viability of Tenebrio Molitor Meal in Growing Pigs Diets	OA-09	*Gabriel Nascimento de Souza Paulo*	91
Morphological Aspects of Pectoral Muscle in Broilers Affected With Wooden Breast	OA-10	*Nathália Luísa Carregari Benelli*	92
Physico-Chemical Aspects of Water in Griller Chicken Farms in the South Central Region of Paraná	OA-11	*Maria Marta Loddi*	93
Effect of incubation Temperature on Calciotropic and Thyroid Hormones in Day-Old Chicks	OA-13	*Tais Pinheiro Borges Silva*	94
influence of Different thermographic Device on Body Surface Temperature Measurements of Broiler Chickens	OA-14	*Fábio Mascarenhas Dutra*	95
Use of Essential Oils and Bacillus-Based Probiotics for the Return of Eubiosis in Laying Hens	OA-16	*Ingrid Grazieli Althman dos Santos*	96
Digestibility of Ether Extract in Broiler Diets Supplemented With Kraft Lignin	OA-17	*Francine dos Santos Mota*	97

Hydrolysable Tannin on Broiler Performance (NU-10)

Eveline Berwanger, André Neves Mayer, Neyre Norie Shiroma, Ronnie Luiz Dari, Jovanir Inês M. Fernandes, Ana Clara P. Ferreira, James da Silva Barbosa
Universidade Federal do Paraná - UFPR
e-mail: eveline.berwanger@salusgroup.com.br

Abstract:
Tannins are plant-derived polyphenolic compounds, that can be classified into condensed and hydrolysable. Recent reports have shown that low concentrations of some tannin sources can control diseases and improve animal performance. The aim of this study was to evaluate the effects of the hydrolysable tannin additive (HTA) from Chestnut tree (Kingbrown®) on broiler performance under health challenged conditions. The trial was conducted at the Federal University of Paraná (UFPR). A total of 1,720 Cobb male chicks were housed and distributed in a completely randomized design in 4 treatments with 10 replicates of 43 birds each. The treatments were negative control (T1), positive control (T2: diet with 16.5 ppm of virginiamycin), diet containing 0.5 kg of HTA per ton off feed (T3), and diet containing 1,0 kg HTA per ton off feed (T4). Broilers of all the treatments were challenged with overdose of coccidiosis vaccine at 7 and 8 days of age, and C. perfringens inoculation (108CFU/bird) at 11 and 12 days of age. Weight Gain (WG), feed intake (FI) and feed conversion ratio (FC) were assessed at 42 days of age. Data were analyzed using the PROC GLM of SAS (2011). Means were compared using the Tukey-Kramer test, and differences were considered significant at P

Keywords: Chickens, Chestnut Tree, Gut Health Challenges

Investigation of Broilers Hepatic Proteome Supplemented With Levels of Passion Fruit Seed Oil (NU-17)

Joyce Andrade da Silva, Pedro de Magalhães Padilha, Andrey Sávio de Almeida Assunção, Renata Aparecida Martins, José Roberto Sartori, José Cavalcante Souza Vieira
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: joyce.silva@unesp.br

Abstract:
Passion fruit seed oil has been used in animal nutrition since it has antioxidant substances and possibly promotes better production and animal welfare. Therefore, the aim of the present study was to investigate the effect of passion fruit seed oil (PFSO) supplementation on the differential profile of proteins expressed in liver tissue of broilers subjected to cyclic heat stress. For this, 225 1-day-old male chicks were housed in cages arranged in a climatic chamber, where they were kept under cyclic heat stress for eight hours a day, from the beginning to the end of the experiment. Five experimental diets based on corn and soybean meal were formulated, a control diet (without the addition of PFSO) and four diets in which different levels of PFSO were included (0.30; 0.50; 0.70, and 0.90%). At 36 days of age, nine birds from each treatment were slaughtered to collect liver samples. From pools of liver samples from each treatment, fractionation of the liver proteome was performed by two-dimensional electrophoresis (2D-PAGE) and characterization of proteins by liquid chromatography–tandem mass spectrometry (LC–MS/MS). Supplementation with 0.90% PFSO increased the expression of seven heat shock proteins, while lower expression of six antioxidant proteins was observed. Proteins involved in lipid and carbohydrate metabolism also showed changes in expression. These results suggest that, PFSO supplementation positively influences the activation of damage repair mechanisms caused by cyclic heat exposure through increased expression of molecular chaperones in liver tissue.

Keywords: Antioxidant, Proteomics, 2D-Page

Results of an Ast (Anticoccidial Sensitivity Test) Foreimeria Maximain the State of Paraná (NU-05)

Josias Rodrigo Vogt[1], Eduardo Correa Muniz[1], Gleidson Biasi Carvalho Salles[1], Antônio José de Lima Neto[1], Antonio Leonardo Kraieski[1], Giovanna Fernandes Esteves[2]
[1] Laboratório Saúde Animal – Zoetis; [2] Centro de Amparo a Pesquisa Veterinária – Capev
e-mail: josias.vogt@zoetis.com

Abstract:
The Anticoccidial Sensitivity Test (AST) is a tool that assists in the choice of anticoccidials programs used in broilers. The efficacy of the various anticoccidials is evaluated by in vivo analyses of weight gain (WG), feed conversion (FC) and injury scores in birds that were inoculated with viable oocysts collected from the field. The objective of this work was to perform the AST, in front of a field isolate of Eimeria maxima (EM), in broiler farms of an agroindustry in the state of Paraná. Approximately 5kg of feces were collected in 4 distinct farms. After feces collection, the oocysts were purified, sporulated and quantified for inoculum formation. The inoculum was administered at a dose of 1mL/bird at 14 days of oral life. Each AST test was composed of 4 replicates and 6 birds per treatment. The birds received a standard initial ration (without anticoccidials) up to 12 days of age. After, received rations with the following treatments: T1 – Negative control (non-medicated and unchallenged), T2 – Positive control (non-medicated and challenged), T3 – Lasalocid (90ppm), T4 – Nicarbazin + Salinomycin (100ppm), T5 – Decoquinate (30ppm), T6 – Nicarbazin + Semduramycin (66ppm), T7 – Monensin (120ppm), T8 – Salinomycin (72ppm), T9 – Nicarbazin + Narasin (100ppm) and T10 – Nicarbazin (125ppm). At 20 days of age, the birds and the leftover feed were weighed to perform the calculation of FC and WG, in addition, after the sacrifice of the birds, the scores of intestinal lesions for EM were classified. The T5 treatment was the only one that presented statistically different injury scores from the T2 treatment and, therefore, obtained the best result in this parameter (Duncan"s test). The T5 treatment also presented the best result in WG, the T10 treatment presented the worst result in this parameter. The anticoccidials of groups T3, T4, T5, T6, T7 and T8 presented the best FC indices, obtaining identical statistical results (Tukey´s test). The AST demonstrated differences in efficacy between anticoccidials tested for EM field isolate. It is concluded that AST can be used as an indicative tool of which anticoccidials can make up future control programs for Coccidiosis for agroindustry.

Keywords: Ast, Anticoccidials, Feed Conversion, Weight Gain, Intestinal Lesions.

Use of Different Oil Sources on the Shelf Life and Meat Composition of European Quail (NU-07)

Ana Julia Martins Garcia[1], Allanna Hayane Rebelato Corsino[1], Rafaella Scaboro dos Passos[1], Vinicio dos Santos Cardoso[1], Leticia Aline Lima da Silva[1], Tatiana Carlesso dos Santos[1]
[1]Zootecnia - Universidade Estadual de Maringá - UEM
e-mail: anajuliamgarcia@hotmail.com

Abstract:
Soybean oil is widely used in poultry diets, but it has high concentrations of Linoleic, impairing the relationship with alpha-linolenic, as it competes for the same metabolic pathways. Thus, the use of alpha-linolenic -rich sources is beneficial, as it improves the birds" metabolism and is deposited in meat and fat. Therefore, the effects of including three sources of oil in the diet of European quails on shelf life and meat composition were analyzed. A total of 420 European quails were used, distributed in DIC with 3 treatments (2.6% soybean oil, canola oil, and linseed oil), with 7 repetitions and 20 birds each. The diets met the requirements for growing quails, and the birds were fed ad libitum from 1 to 35 days. At the end of the experiment (35 days), 2 birds per replication, 1 male and 1 female (14 birds per treatment) were slaughtered. Lipid oxidation analyses were performed at 0, 3, 6, and 9 days of storage under freezing and were determined by TBARs test in thigh meat samples. Meat composition analyses were performed on breast samples and determined the percentages of dry matter (DM), mineral matter (MM), crude protein (CP), and ether extract (EE). Data were performed using an ANOVA and tests of the mean model with GLM procedures of SAS (SAS Inc., 2010) and considered significant when $P < 0.05$. In the analyses of lipid oxidation of the meat, there was no interaction among oil sources, storage days, and sex, and the oxidation was similar among oil sources (1.153 MDA mg/kg) and between males and females (1.155 MDA mg/kg). The storage period increased the lipid oxidation of the meat (P

Keywords: Flaxseed, Linseed, Breast

Performance of Broilers (Growth-Phase) Fed With Corn and Soybean Meal With Different Nutritional Value (NU-08)

Alana Bruna Serraglio[1], Vivian Izabel Vieira[1], Ana Carolina Britto Doi[1], Suzete Paes de Melo Neta[1], Lucas Schmidt Bassi[1], Geovani Costa Senger[1], Simone Gisele de Oliveira[1]
[1] Department of Veterinary Science – Universidade Federal do Paraná - UFPR
e-mail: serragliobrunaalana@gmail.com

Abstract:
Corn is the main energy ingredient used in broiler feed (Lee, 2016). Some variables that affect the nutritional value of the ingredient are controllable, such as grain storage, transport, and drying (Real et al., 2013). Soybean meal is the main protein source in broiler feed, and its inclusion is up to 35% in the diet. (Rostagno, 2017). Considering the nutritional value of soybean meal, thermal processing is one of the most critical aspects. In this sense, the KOH protein solubility test is an important indicator of nutritional quality (Araba and Dale, 1990), it is directly linked to the availability and digestibility of amino acids and protein present in the ingredient. The objective of the study was to investigate how ingredients of different nutritional compositions can influence the performance of growing broilers. A total of 240 broilers of 14 to 26 days of age were housed in metabolic cages, distributed in a randomized block design in a 2x2 factorial scheme (Brazilian and Argentinian corn x soybean meal of 85% and 75% KOH solubility) with 6 replicates of 10 birds each. At 14, 21 and 26 days all birds were weighed, as well as the feed leftovers to estimate feed consumption (FC), weight gain (WG) and feed conversion ratio (FCR). The data obtained were submitted to ANOVA at 5% significance level. Birds fed the 85% soluble soybean meal had higher GP from 14 to 21 days of age, as well as better FCR. For birds fed the Brazilian corn, the FCR from 14 to 21 days of age was more efficient, regardless of the soybean meal used. For the other variables, the CA from 21 to 26 days was influenced only by the type of soybean meal used. In the total period, 14 to 26 days of age, there was no effect of the studied factors, as well as interaction between them on the performance variables. Birds fed with Brazilian corn presented better FC in the 14-to-21-day period, as well as those fed with soybean meal of better nutritional value.

Keywords: Animal Nutrition, Feed Intake, Feed Conversion, Solubility,Animal Nutrition, Feed Conversion, Feed Intake, Solubility

Energy Utilization and Nutrient Digestibility by Broilers Fed With Corn and Soybean Meal With Different Nutritional Value (NU-09)

Alana Bruna Serraglio, Alana Bruna Serraglio, Vivian Izabel Vieira, Italo Santos Reis Pereira, Guilherme Francisco Deda, Marley Conceição dos Santos, Isabella de Camargo Dias, Simone Gisele de Oliveira
Universidade Federal do Paraná - UFPR
e-mail: serragliobrunaalana@gmail.com

Abstract:
The importance of soy for the Brazilian poultry industry is evident. However, despite its numerous nutritional qualities, the grain has antinutritional factors that, when not inactivated, can compromise digestibility and metabolizability in poultry. One alternative is to perform heat treatment for inactivation of these antinutrients, for this reason, techniques have been developed to measure the inactivation of antinutritional factors, protein solubility being one of the most widely used for this purpose. Corn is another ingredient of singular importance that suffers the action of the particularities of the environment, causing differences in nutritional composition when planted in different regions (CORTE REAL, 2013). A total of 360 Cobb 500 male broilers were housed in metabolic cages from 14 to 26 days, distributed in randomized blocks following a 2x2 factorial scheme (Brazilian and Argentine corn x soybean meal with 85% and 75% solubility in KOH) in 4 treatments of 9 repetitions with 10 animals each. After 5 days of adaptation, partial fecal samples were collected on days 19, 20 and 21 of age. At 26 days of age, birds were euthanized by cervical dislocation to collect ileal contents. The dry matter (DM), crude protein (CP) and gross energy (GE) of the experimental diets and the ileal contents were analyzed. For the excreta, the DM and GE contents were analyzed. With the data obtained, the metabolizability coefficient and digestibility were estimated. The results were subjected to ANOVA at a 5% level of significance. There was a significant effect for corn type only for apparent metabolizable energy (AME) and ileal digestible energy (IDE) (P

Keywords: Animal Nutrition, Metabolizability, Solubility, Thermal Processing

Hydrolysable Tannin on Broilers Carcass Yield (NU-11)

Eveline Berwanger, Eveline Berwanger, André Neves Mayer, Neyre Norie Shiroma, Ronnie Luiz Dari, Jovanir Inês M. Fernandes, Ana Clara P. Ferreira, James da Silva Barbosa
Universidade Federal do Paraná - UFPR
e-mail: eveline.berwanger@salusgroup.com.br

Abstract:
Tannin has received considerable attention as feasible alternative to antibiotic growth promoters or anticoccidial use in poultry nutrition. The aim of this study was to evaluate the effects of the hydrolysable tannin additive (HTA) from Chestnut tree (Kingbrown®) on broiler carcass and cuts yield. The study was conducted at the Federal University of Paraná (UFPR). A total 1,720 Cobb male chicks were housed and distributed in a completely randomized design in 4 treatments with 10 replicates of 43 birds each. The treatments were negative control (T1), positive control (T2: diet with 16.5 ppm of virginiamycin), diet containing 0.5 kg of HTA per ton off feed (T3), and diet containing 1.0 kg HTA per ton off feed (T4). Chicks of all the treatments were challenged with overdose of coccidiosis vaccine at 7 and 8 days of age, and with Clostridium perfringens inoculation (108CFU/bird/day) at 11 and 12 days of age. At 43 days of age, 5 birds per pen were slaughtered. Carcass yield was obtained by weighing the chickens before slaughter and after being eviscerated without the head, neck, and feet. The yield of breast, legs, and wings and the deposition of abdominal fat were expressed in relation to the weight of the carcass at the time of slaughter. Data were analyzed using the PROC GLM of SAS (2011). Means were compared using the Tukey-Kramer test, and differences were considered significant at P0.05). However, breast weights were higher for broilers fed with HTA than those fed to positive and negative controls (P

Keywords: Chickens, Breast Yield, Chestnut Tree

Performance of Tenebrio Molitor Larvae Fed Olive Pomace (NU-12)

Caio Cesar dos Ouros[1], Rodrigo Garofallo Garcia[1], Gabriel Nascimento de Souza Paulo[2], Magnos Maioli Volpato[2], Ingrid Manfio de Castro[2], Caren Paludo Ghedini[3], Rodrigo Borille[2]
[1]Fundação Universidade Federal da Grande Dourados – UFGD, [2]Universidade Federal de Santa Maria – UFSM, [3]Universidade Federal Do Rio Grande Do Sul – UFRGS
e-mail: caio_ouros@hotmail.com

Abstract:
Insects production has gained space in the supply of protein to animal production chains. The high nutritional value of insects together with the practicality of insects breeding and its ability to optimize resources by transforming material of low biological value into high-quality protein raise expectations regarding high-scale production of insects for animal feeding. Therefore, this study was carried to investigate the effects of replacing wheat bran (WB, conventional substrate) by incremental levels of olive pomace (OP, originated from olive oil produced at Rio Grande do Sul) on growth performance of Tenebrio molitor larvae. A total of 1.200 Tenebrio molitor larvae (previously fed wheat bra initial weight 38,46mg/larvae) were manually selected, homogeneously distributed into 30 plastic boxes (5.5 x 9.5 x4.0 cm) and placed in a controlled environment (26.5ºC and 65% relative humidity). The study was carried as a completely randomized design with 6 treatments: T1: control, 100% W T2: 80% WB e 20% O T3: 60% WB e 40% O T4: 40% WB e 60% O T5: 20% WB e 80% OP e; T6: 100% OP). There were 5 replications with a total of 30 experimental units (40 larvae). Data were collected every 7 days (28-day long study). The Tukey test was performed to test for significant differences among treatments at 5%. Larvae fed substrate made up of 40% WB e 60% OP presented the highest daily body weight gain (BWG; T4 = 0,629mg), which did not differ from T1 (0.544mg) and T3 (0.517mg). Regarding substrate intake, T3 had the highest intake (4.313mg) and was not different from T4 (4.038mg). The lowest mortality was reported for T1 (22%), which did not differ from T5 (30%), T2 (31.87%) and T4 (33.12%). The production of frass in relation to substrate intake was higher in T6 (107.87%) compared to the remaining treatments. Therefore, it is possible to conclude that the use of WB results in lower mortality and frass production compared to OP. Substrates made up 60% WB and 40% OP (T3) and 40% WB e 60% OP (T4) maximize weight gain and substrate intake of Tenebrio molitor larvae.

Keywords: Edible Insects, Mealworm, Olive By-Products

Quality of Eggs From Laying Hens in the Final Stage of Production Supplemented With Probiotic and Organic Acid (NU-13)

Josilene Correa Rocha, Raphael Rodrigues dos Santos, Ana Maria de Souza Almeida, Nadja Suzana Mogyca Leandro, Fabyola Barros de Carvalho, José Henrique Stringhini, Marcos Barcellos Café
Universidade Federal da Goiás – UFG
e-mail: josi.rochacorrea@gmail.com

Abstract:
The objective of this work is to evaluate the quality of stored eggs from laying hens at the end of the production cycle supplemented with additives. The experiment was carried out in the experimental aviary of the School of Veterinary and Animal Science of the UFG. The present study was approved by the Committee for Ethics (Nº 058/21 CEUA-UFG). A total of 120 eggs from Hy-line W80 laying hens at 97 weeks of age, from four treatments during the final production phase (81 to 97 weeks of age). Treatments were distributed in a completely randomized design: basal ration without additives (control); basal feed + probiotic (Pro); basal ration + sodium butyrate (But) and basal ration + zinc bacitracin (AMD), totaling four treatments, ten replications. Eggs were stored in cardboard packages and kept under ambient conditions. The eggs were evaluated at 14 and 30 days of storage (15 eggs/treatment/storage period). The evaluated variables were: egg weight, egg weight loss, % albumen and yolk, albumen and yolk index. Variables were submitted to analysis of variance, and means compared by orthogonal contrasts, at 5% probability. The quality of eggs stored for 14 days revealed that the egg weight of the Pro group was higher when compared to the control group. For the yolk index, there was a reduction in the result for the But group in relation to the AMD group. For the albumen index, the control and Pro groups were statistically equal, showing lower indices in relation to the But and AMD treatments. For yolk percentage, a smaller percentage of yolk can be observed for the Pro and But groups in relation to the control group. For albumen percentage, the Pro group was higher than the control group. For the quality of eggs stored for 30 days, it was observed that the weight of eggs selected for storage evaluation was lower for the But group when compared to the Control and Pro groups and higher for the Pro group when compared to AMD. For the yolk index, the AMD group was higher than the Pro and But groups. For the albumen index, the But and AMD group were higher than the Pro group. Regarding the internal quality of eggs stored up to 30 days under ambient conditions, from hens fed with probiotic or protected butyric acid, both additives improved the albumen index.

Keywords: Additives,Stored Eggs, Light Laying Hens, Additives, Weight Loss, Yolk Percentage, Light Laying Hens, Stored Eggs

Blood Parameters of Broilers Fed Diets Using Soy Gum and Different Levels of Fat (NU-14)

Caio Cesar dos Ouros[1], Gabriella Costa Ribeiro[2], Antonio Carlos Laurentiz[2], Rosemeire Silva Filardi[2], Rosangela Silva Laurentiz[2], Claudio Donizete Silva Junior[3], Mariana Fogale Andrade[2]
[1]Fundação Universidade Federal da Grande Dourados – UFGD, [2]Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP, [3]Universidade do Oeste Paulista – Unoeste
e-mail: caio_ouros@hotmail.com

Abstract:
Brazil is the world"s largest producer of soybeans and, as a result, produces a large quantity of soy gum, equivalent to approximately 1 million tons in the 22/23 crop. Considering the environmental impact that this by-product can cause, an alternative use for it is in animal feed. Because it is composed of a complex of phosphatides, it can have an emulsifying effect on the animals" diet. To verify the possibility of using soy gum as an emulsifying additive, this study aimed to determine changes in the blood parameters of broiler chickens fed soy gum at different levels of fat inclusion (swine). For this, 600 male broiler chicks were divided into a 4x3 factorial scheme, totaling 12 treatments with 5 repetitions, with the factors being: four levels of fat inclusion in the diet (0.0; 1.3; 2.6, and 3.9%) and three levels of soy gum inclusion (0.0; 1.25, and 2.5%). The diets were formulated to be isoenergetic and isoproteic. Blood parameters were measured in one animal from each repetition, using Labtest® serological kits following the manufacturer"s protocols. The parameters evaluated were: glucose, cholesterol, triglycerides, gamma glutamyl transferase (GGT), and aspartate aminotransferase (AAT), which involve variations of the liver system; and amylase related to the pancreatic system. Interactions were found between factors for cholesterol (fat x gum P=0.0285), in which the inclusion of gum within the increasing levels of fat inclusion generated a reduction effect on blood cholesterol, except for the level with 3.9% fat, where the inclusion of gum did not result in changes. There was also an interaction between factors for AST (fat x gum P=0.0117), in which the treatments with 3.9% fat showed an increase in the blood concentration of AST compared to the treatment without the use of soy gum. This increase was not sufficient for the levels to be outside of normal range. Therefore, it was concluded that the use of soy gum does not compromise the blood parameters of broiler chickens and may have a beneficial effect on animal health by reducing circulating cholesterol levels.

Keywords: Cholesterol, Phosphatides, Lipids

Performance of Broiler Chickens Supplemented With Tannin-Based Extract (NU-15)

Vivian Aparecida Rios Castilho Heiss, Claudia Marie Komiyama, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Bruna Barreto Przybulinski, João Ricardo Rodrigues Ferreira Vieira, Daniela Ferreira de Brito Mandú
Fundação Universidade Federal da Grande Dourados – UFGD
e-mail: viviancastilho@live.com

Abstract:
Tannins, from the polyphenol class, are being increasingly studied due to their antioxidant and antiinflammatory properties. However, its action on performance is still not well elucidated, since its action depends on adjusted doses. The aim of this study was to evaluate different levels of tannins-based extracts in the diet of broiler chickens and their implications on performance. For the trial, 1,280 day-old chicks were housed, distributed in a completely randomized design consisting of a basal diet (Control) and three different levels of the commercial product described as a tannin-based extract: 250, 500, 1,000 g/ton, with eight repetitions, with 40 birds each. The diets were provided ad libitum and formulated according to the productive phase (pre-starter, starter, growth and final). The performance of the batch was evaluated cumulatively in the period from 1 to 42 days, analyzing feed intake (g), body weight gain (g), feed conversion ratio (g/g), production efficiency index (PEI) and mortality (%). The statistical assumptions of normality of residues and homogeneity of data variances were verified using the Shapiro Wilk test. Mortality data did not meet the statistical premises, so a logarithmic transformation was performed, and then the Shapiro Wilk test was performed. Data were subsequently subjected to analysis of variance using the SAS MIXED procedure, and significant estimates were subjected to regression analysis. Feed intake showed a decreasing linear behavior, according to the regression equation ($y=-0.00032669x+5.84633$. $r^2=0.3724$), that is, it decreased with increasing tannin levels. The body weight gain variable showed a quadratic behavior ($y=-0.000000345436x^2+0.00045933x+3.46758$, $r^2=0.4006$) with a maximum gain point at the level of 664 g/ton. The adjusted feed conversion ratio equation showed a minimum point at the level of 763 g/ton of extract addition ($y=0.0000002793934x^2-0.00042691x+1.70185$, $r^2=0.5797$). The PEI demonstrated that the maximum point of inclusion of the extract for the level of 650 g/ton. There was no significant difference for the addition of tannins in the birds'' diet on mortality. We conclude that the addition of 650 g/ton of tannins supplied in the diet from 1 to 42 days of age contributes to improve broiler’s performance.

Keywords: Phytochemicals, Polyphenols, Bioactive Extracts

Tannin-Based Extract Influences the Occurrence of White Striping and Wooden Breast (NU-16)

Vivian Aparecida Rios Castilho Heiss, Claudia Marie Komiyama, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Bruna Barreto Przybulinski, Felipe Cardoso Serpa, Daniela Ferreira de Brito Mandú
Fundação Universidade Federal da Grande Dourados – UFGD
e-mail: viviancastilho@live.com

Abstract:
The idea that pectoral myopathies develop from oxidative stress is plausible. In this sense, the phytochemicals of the polyphenol class have systemic effects associated with the improvement of endogenous antioxidant activity in different organs, such as the tannins. It is hypothesized that the inclusion of tannins in the diet may positively influence the decrease in the occurrence and development of pectoral myopathies through inhibition or reduction of oxidative stress. The objective of this study was to evaluate the influence of the addition of tannin-based extract on the incidence of White striping (WS) and Wooden breast (WB) myopathies. For the trial 1,280 day-old chicks were distributed in a completely randomized design with four treatments composed of different levels of a commercial product denominated tannin-based plant extract, namely: control (no addition), 250 g/ton, 500 g/ton and 1000 g/ton. Each treatment consisted of eight repetitions, with 40 birds each. The diets were provided ad libitum according to the productive phase (pre-starter, starter, growth and finish). At 21, 28, 35 and 42 days, two birds per replicate were selected for slaughtering and subsequent evaluation of the incidence of WS and WB myopathies after deboning the breasts. The results obtained for the assessment of myopathies were based on scores, and these data do not present a normal distribution. Thus, the theory of generalized linear models was used and the SAS GLIMMIX procedure was applied (SAS, 2003). The inclusion of different doses of tannin-based extract only influenced the onset of WB myopathy at 21 and 42 days of age (p

Keywords: Broiler Chicken, Pectoral Myopathy, Phytochemicals

Effect of Limestone Particle Size in Diets Made With Phytase on the Productive Performance and Morphometry of the Gastrointestinal Tract of Broilers Subjected to Enteric Challenge (NU-18)

Laura Gubert, Giselle Dayana Gallio, Larissa Priscilla da Silva Melo, Bianca dos Santos Roldan Lara, Isadora Pegorar Pallaoro, Beatriz Tiemi Onishi, Jovanir Inês M. Fernandes
Universidade Federal Do Paraná – UFPR
e-mail: lauraagubert@gmail.com

Abstract:
The limestone particle can contribute to longer retention of digesta in the gizzard, leading to an increase in the dissolution and availability of calcium. The calcium has the capacity to interact with phytate-P to form Ca-phytate complexes and decrease the ability of exogenous phytase to degrade phytic acid. This study aimed to evaluate the effect of limestone particle s and phytase levels on productive performance, development of the gastrointestinal tract, and morphometry of the intestinal mucosa of broiler chickens subjected or not to an enteric challenge. Male broiler chicks (n=768) were randomly assigned to a 2 x 2 x 2 factorial completely randomized design (fine limestone: 411 µm; coarse limestone: 940 µm; 500 FTU phytase; 1,500 FTU phytase; challenged and unchallenged) totaling 8 treatments, 12 repetitions of 16 birds per cage. The challenge was carried out with the inoculation by gavage of 30 mg/kg body weight of 1% enrofloxacin at 12 days of age and inoculum of Escherichia coli (ATCC® 8739™) with a calculated concentration of 109 CFU/bird at 14 days of age. The limestone source with the largest particle negatively affected ($p<0.05$) the body weight and consumption of birds at 21 and 28 days of age. The enteric challenge negatively affected ($p<0.05$) all the productive parameters evaluated, regardless of the phytase level and the evaluated limestone particle . Gizzard and proventriculus weight, and intestine length were decreased ($p<0.05$) in response to the enteric challenge. The experimental challenge affected ($p<0.05$) the morphometry of the intestinal mucosa, reducing the villus: crypt ratio of the duodenum, jejunum, and ileum, due to the increased crypt depth found in the three segments, in an attempt to increase the proliferation and differentiation of cells to recovered the intestinal villi. Enteric challenges reduce the productive performance of birds due to the increase in metabolic expenses in cell proliferation and regeneration, in addition to reducing the supply of essential nutrients for growth. The diets supplemented with coarse-grained limestone negatively affected broiler performance. Increasing the level of phytase supplementation did not change the productive performance and morphometry of the intestinal mucosa.

Keywords: Villus: Crypt Ratio, Weight Gain, Gizzard

Effect of Limestone Particle Size and Phytase on Bone Development in Broilers Subjected Or Not to Enteric Challenge (NU-19)

Carlos Eduardo Benito, Jovanir Inês M. Fernandes, Isadora Pegorar Pallaoro, Beatriz Tiemi Onishi, Ana Clara P. Ferreira, Bianca dos Santos Roldan Lara, Felipe Evangelista de Souza
Universidade Federal Do Paraná – UFPR
e-mail: carlos.benito08@gmail.com

Abstract:
A healthy intestinal mucosa is essential for calcium absorption, and factors that lead to dysbiosis and disrupt the symbiotic relationship of the microbiome, and metabolite production, resulting in stimulation and elevation of immune cells and cytokines can affect the bone mineral density and bone strength. The goal was to evaluate the particle of limestone sources and phytase levels on the bone development of broilers subjected or not to an enteric challenge. Male broiler chicks (n=768) were randomly assigned to a 2 x 2 x 2 factorial completely randomized design (fine limestone – 411 mμ; coarse limestone - 940 mμ; 500 FTU phytase; 1,500 FTU phytase; challenged and unchallenged animals) totaling 8 treatments, 12 repetitions of 16 birds per cage. Animals were housed in 2 different rooms, with and without experimental challenge. The challenge was carried out with the inoculation by gavage of 30 mg/kg body weight of 1% enrofloxacin at 12 days of age and inoculum of Escherichia coli (ATCC® 8739™) with a calculated concentration of 109 CFU/bird at 14 days of age. At 21 and 28 days of age, blood was collected for Ca, P and alkaline phosphatase analysis of 12 birds /treatment and bones were evaluated to length, diameter, weight and cortical thickness, bone breaking strength, bone densitometry and bone ash. The enteric challenge resulted in lower ($p<0.05$) serum levels of Ca and P at 21 days, and lower ($p<0.05$) bone strength. The highest level of phytase increased ($p>0.05$) alkaline phosphatase levels. At 28 days of age, bone-breaking strength and mineral density were lower ($p<0.05$) in challenged birds. Phytase supplementation at 1,500 FTU resulted in higher ($p>0.05$) bone mineral density compared to the 500 FTU. Bone measurements of the tibia at 28 days of age were reduced ($p<0.05$) by the enteric challenge. Enteric challenges result in leaky gut and inflammation, reducing the absorption of essential nutrients for bone development, in addition to the immunogenic stimulus that can negatively contribute to greater bone resorption in broiler chickens. The inclusion of higher levels of phytase may contribute to better bone mineralization. The limestone particle did not affect the bone development of broilers.

Keywords: Bone Fragility, Calcium, Bone-Breaking

Subchronic Oral Toxicity of Pracaxi Oil in Rattus Norvegicus (Lin. Wistar) (NU-20)

Maria Fernanda de Castro Burbarelli[1], Bruna de Souza Eberhart[1], Claudia Marie Komiyama[1], Rodrigo Garofallo Garcia[1], Vivian Aparecida Rios Castilho Heiss[1], Felipe Cardoso Serpa[1], Gisele Aparecida Felix[2]

[1]Universidade Federal da Grande Dourados – UFGD, [2]Centro Universitário da Grande Dourados – UNIGRAN

e-mail: fariakita@gmail.com

Abstract:

Functional oils emerge as an alternative as a substitute for antimicrobial growth promoters due to their richness in bioactive compounds and bioavailability. The aim was to evaluate the effects of including pracaxi oil (Pentachletra macroloba) as possible growth promoters, in a sustainable and safe way, in animal feed. An assay was carried out to evaluate the subchronic oral toxicity of pracaxi oil in 40 rats (20 males and 20 non-gravid females). The functional oil was administered at different doses, orally with the aid of a rigid probe by oral gavage. The treatments were: Group 1 (control, females): 0 mg/kg; Group 2 (females): 300 mg/kg; Group 3 (females): 600 mg/kg; Group 4 (females): 1,200 mg/kg; Group 5 (females): 2400 mg/kg; Group 6 (control, male): 0 mg/kg; Group 7 (males): 300 mg/kg; Group 8 (males): 600 mg/kg; Group 9 (males): 1,200 mg/kg; and Group 10 (males): 2,400 mg/kg. The animals were kept in cages in groups of 4 animals of the same sex, for 28 days. Weight and water and food consumption, changes in behavior, awareness and disposition, assessment of locomotor system activity, skeletal muscles and reflexes, assessment of autonomic activity and rectal temperature were evaluated weekly. At the end of the experimental period, the animals were euthanized for collection of material (kidneys and liver) for histological analysis. As for the results on the daily clinical evaluations of the animals, no behavioral changes or signs of adverse effects were observed during the experimental period. No changes in rat growth (weight gain and feed intake) were observed. We observed lesions of hydropic degeneration, vessel congestion, inflammatory cell infiltrate, multifocal centrilobular degeneration in the liver and moderate hydropic degenerative process lesions, vessel congestion, presence of homogeneous and translucent content in addition to homogeneous eosinophilic content in the kidneys. Organ damage became more aggressive as pracaxi oil doses increased. However, clinical changes did not affect behavior and growth. There were no noticeable adverse effects during daily and weekly assessments of animals within the test period and the levels studied here. The histological assessments indicate the beginning of a possible toxic process at higher doses.

Keywords: Amazonian Oil, Animal Production, Functional Oil, Sustainable Growth Promoter

Characterization of the Chemical Profile of Pracaxi Oil for Use in Animal Feeding (NU-21)

Maria Fernanda de Castro Burbarelli[1], Bruna de Souza Eberhart[1], Claudia Marie Komiyama[1], Rodrigo Garofallo Garcia[1], Vivian Aparecida Rios Castilho Heiss[1], Felipe Cardoso Serpa[1], Claudia Andrea Lima Cardoso[2]

[1]Universidade Federal da Grande Dourados – UFGD, [2]Universidade Estadual de Mato Grosso Do Sul - UEMS

e-mail: fariakita@gmail.com

Abstract:

Functional oils extracted from plants are becoming increasingly important, due to their antimicrobial effects and the stimulating effect on the digestive system of animals, as can be the case with pracaxi seed oil (Pentaclethera macroloba). The aim of this study was to characterize the chemical profile of pracaxi oil for safe use in animal feed. Pracaxi oil was supplied by a commercial company that collects it in the Amazon region of Brazil and processes the seeds to obtain the oil by cold pressing. Analyzes related to hydrolysis reaction and esterification by enzymatic catalysis were carried out; analysis of fatty esters performed by the technique of Gas Chromatography coupled to Mass Spectrometry (GC-MS); in vitro antioxidant assay was carried out by means of antioxidant potential assays using the free radical (DPPH), iron ion reduction method (FRAP) and organic radical scavenging capacity method (ABTS); and, total quantification of phenolic compounds, flavonoids and tannins. All analyzes were performed in triplicate. The results of fatty acid composition showed that pracaxi oil has different fatty acids in its composition, in particular oleic, behenic, linoleic and arachidic acids, which account for more than 90% of its composition. With a smaller percentage, lauric acid, myristic, palmitic, stearic, and linolenic acid were also found. Regarding the levels of total phenolic compounds (67.43 ± 0.08 mg GAE g-1), pracaxi oil showed 1.03 ± 0.01 mg ATE g-1 of tannin concentration and 30.11 ± 0. 03 mg RE g-1 of flavonoids. Thus, pracaxi oil fits the level of high composition of phenolic compounds according to the classification categories: low (5mg EAG /g). According to the results generated by the evaluations on the antioxidant capacity in the DDPH FRAP (5.39 ± 0.03 Mm) and ABTS (2.89 ± 0.02 µg mL-1) tests, it is concluded that pracaxi oil has a high antioxidant capacity. We conclude that pracaxi oil is an important source of behenic acid. It is rich in phenolic compounds, which give it a high antioxidant power.

Keywords: Antioxidant Capacity, Fatty Acids, Functional Oil, Phenolic Compounds

Metabolizability of Nutrients and Energy Values of Unconventional Lipid Sources in the Diet of Meat Quails (NU-22)

Alexander Alexandre de Almeida[1], Jean Kaique Valentim[1], Rodrigo Garofallo Garcia[1], Maria Fernanda de Castro Burbarelli[1], Arele Arlindo Calderano[2], Ana Luiza Ferreira Patrocínio[2], Luiz Fernando Teixeira Albino[2]

[1]Universidade Federal da Grande Dourados – UFGD, [2]Fundação Universidade Federal de Viçosa – UFV

e-mail: alexanderalmzootec@gmail.com

Abstract:

The evaluation of feeds to update the nutritional values is a necessary practice for the improvement of production processes related to feed formulations, mainly for quails. In this context, the aim of this study was to determine the nutrient content and metabolization coefficients of unconventional lipid sources for meat quails fed with alternative sources of lipids. Six diets (control, soybean oil, conventional corn oil, distilled corn oil, chicken fat and beef tallow) were used in a completely randomized design, with 10 replications per treatment, with 8 quails per experimental unit, totaling 480 quails. European cuts of the commercial lineage Fujikura, of both sexes, 21 days old and average weight of 130.35±0.025g. The evaluation of the nutritional values of the lipid sources was performed using the total excreta collection method, when the birds reached 22 days of age. The experimental diets consisted of T1 - basal diet, T2 - basal diet + inclusion of 8% soybean oil, T3 - basal diet + inclusion of 8% conventional corn oil, T4 - basal diet + inclusion of 8% soybean oil. of distilled corn, T5 – basal diet + 8% inclusion of poultry fat, T6 – basal diet + 8% inclusion of bovine tallow. The metabolic assay started after 5 days of adaptation to the diets and after 5 days to collect 1 excreta, twice a day, at 08:00 and 17:00. The data referring to the energy metabolism of the birds were submitted to analysis of variance and the averages of the treatments were compared by Tukey's test at the 5% level of significance. There was a significant difference in the coefficients of BP and EE metabolism between the lipid sources studied. The bovine tallow diet showed a higher EE metabolization coefficient (84.49%) compared to the soybean oil treatment (81.28%). The metabolizity of PB, the diet containing chicken fat (90.94%) showed a higher value compared to the diet with soybean oil (88.69%). Nutrient contents were EMAn: soybean oil; 8554 kcal/kg, corn oil; 7701 kcal/kg, distilled corn oil; 7937 kcal/kg, poultry fat; 7906 kcal/kg and bovine tallow; 7776 kcal/kg. The CM values were respectively: 88.01% for soybean oil, 79.01% for corn oil, 84.10% for distilled corn oil, 81.43% for poultry fat and 79.28% for tallow for European quails in the rearing phase of 21 to 35 days.

Keywords: Coturniculture, Energy, Metabolism

Use of Tannin-Based Extract Improves the Tenderness of Breast Chicken Meat (NU-23)

Claudia Marie Komiyama, Vivian Aparecida Rios Castilho Heiss, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Jacqueline Rosa Souza, Leticia Cuer Garcia, Daniela Ferreira de Brito Mandú
Universidade Federal da Grande Dourados – UFGD
e-mail: claudiakomiyama@ufgd.Edu.br

Abstract:
The use of tannins in poultry is not well understood, as the literature reports that this product of the secondary metabolism of plants has an anti-nutritional effect on birds. However, there are studies that demonstrates that the action of tannins depends on the part of the plant that is extracted, the level of inclusion in the diet and even the geographical location in which the plant was cultivated. The objective was to evaluate the inclusion of a tannin-based extract on the broiler meat quality. For the trial, 1,280-day-old chicks were distributed in a completely randomized experimental design consisting of four treatments with the inclusion of a commercial tannin-based plant extract product: Control (no addition), 250, 500 and 1,000 g/ton of feed, with eight repetitions with 40 birds each. The diets were formulated according to the pre-starter, starter, growth and finish phases and provided ad libitum. At 21, 28, 35 and 42 days, sixteen birds per treatment were selected to be submitted to slaughter and analysis of the breast meat quality 24 hours postmortem. The variables of length, width and thickness (cm); pH; objective color (L*, a* and b*); Water holding capacity (%); drip loss (%); cooking loss (%) and shear force (kg/force/cm²) were evaluated. Data were subjected to analysis of variance using the SAS MIXED procedure and significant estimates were subjected to polynomial regression analysis. Cooking loss and shear force were influenced by the addition of tannins in the chicken diet only at 42 days. The other analyzes at other ages were not statistically influenced. The analysis of cooking loss showed a decreasing linear behavior (y=-23.169-0.0042x, r^2=0.1167), that is, the higher the level of tannin addition, the lower the weight loss in the cooking process. The shear force showed a quadratic behavior (y=2.17+-0.0009x+7.989773E-7x2, r^2=0.0711) with a minimum point at 500 g/ton. It was concluded that the addition of 500 g/ton of the tannin-based extract improves the tenderness of the meat of broilers slaughtered at 42 days of age.

Keywords: Meat Quality, Shear Force, Drip Loss

Breast Muscle Histomorphometry of Broiler Chickens Fed With Tannin-Based Plant Extracts (NU-24)

Claudia Marie Komiyama, Vivian Aparecida Rios Castilho Heiss, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, João Ricardo Rodrigues Ferreira Vieira, Bruna Barreto Przybulinski, Felipe Cardoso Serpa
Universidade Federal da Grande Dourados – UFGD
e-mail: claudiakomiyama@ufgd.Edu.br

Abstract:
Tannin is one of the most common secondary phenolic metabolites of plants and has been widely studied for its beneficial effects by acting in the regulation of antioxidant enzymes and inhibition of enzymes that generate free radicals, limiting oxidative processes and promoting the productive performance of animals. The aim was to evaluate the morphometry of muscle fibers in the broiler chickens breast fed with different levels of tannin-based extract. For that, 1,280 day-old chicks were distributed into four treatments: Control (without addition), 250, 500 and 1,000 g/ton of commercial tannin-based extract. Each treatment had eight repetitions with 40 birds each. The diets were formulated according to the pre-starter, starter, growth and finish phases and provided ad libitum. At 21, 28, 35 and 42 days, five birds per treatment was selected for collection of the breast muscle fragment, processed in a cryostat microtome and submitted to the hematoxylin and eosin staining technique. The morphometric analyzes were carried out from 10 photomicrographs per sample: count of the number of fibers/field, fiber diameter (μm), fiber area (μm2) and area occupied by fibers/field (%). Data were subjected to analysis of variance using the SAS MIXED procedure and significant estimates were subjected to polynomial regression analysis. The number of fibers/field showed an increasing linear behavior at 21 days ($Y=0.03922x+110.8614$; $r^2=0.6465$) and at 42 days ($y=0.01464x+23.29944$; $r^2=0.6465$), so that the number of fiber increased in birds that received higher levels of tannin in the diet. Fiber diameter at 21 days ($y=-0.0086x+67.34455$; $r^2=0.3853$), fiber area at 21 days ($y=-0.61480x+2439.92836$; $r^2=0.5150$) and at 42 days ($y=-2.29274x+7914.34994$; $r^2=0.3490$) obtained decreasing linear behavior, since the parameters decreased as the tannin level increased. There was no influence of the addition of tannin for the variables of area occupied by fibers/field at 21 and 42 days and for the diameter evaluated at 42 days of age. We concluded that the tannin-based extract caused an increase in fiber number and decreased fiber diameter and area as the tannin level increased.

Keywords: Muscle Fiber, Fiber Diameter, Fiber Area

Eggs Quality of Japanese Quail Supplemented With Tannin-Based Extract (NU-26)

João Ricardo Rodrigues Ferreira Vieira, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Claudia Marie Komiyama, Deyvid Ricardo Schmidt Pazuch, Elivelton de Salles da Silveira, Eduardo Pereira de Souza
Universidade Federal da Grande Dourados – UFGD
e-mail: joaorodriguess369@gmail.com

Abstract:
New technologies related to animal nutrition were studied and incorporated in order to improve production rates. Plant origin compounds are a relatively new class used in industry and include substances derived from medicinal plants or spices (plant extracts). These plant extracts include different types of bioactive components like alkaloids, saponins, polyphenols, polypeptides, thymol and tannins. Thus, the use of natural extracts in the diet of laying Japanese quails may improve the productive performance and feed conversion, which may improve the quality of the eggs. The present study aimed to evaluate the effect of different inclusion levels of extracts rich in polyphenols in Japanese quail diets in order to improve egg quality. A completely randomized design was used in 6 treatments with the inclusion of bioactive extracts rich in polyphenols: Control, 250 g/ton, 500 g/ton, 750, 1,000 and 1,250 g/ton, with nine replications, and 6 quails per experimental unit. Data were submitted to analysis of variance using the MIXED procedure of SAS. When the statistical model was significant, the estimates of the different extract inclusions were subjected to polynomial regression analysis. There was a significant effect for the variable's albumen height and Haugh, where both presented decreasing linear effect. The analyzed variables such as egg weight, yolk weight, albumen weight, albumen percentage, yolk percentage, shell percentage, GE (specific gravity), yolk height, yolk diameter, yolk index, color a* and b* of the yolk by the colorimeter, showed no statistical difference with the inclusion of the extract rich in polyphenols. The eggshell weight and the L* value (luminosity) showed a negative quadratic effect, with maximum inclusions of 500 and 547 g/ton respectively. The use of natural extracts in the diet of laying Japanese quails maintain egg quality, and in the present study, although higher levels are beneficial to shell quality and luminosity, the level of 250g/ton in the diet is the recommended to be used, to maintain better albumen height and unit Haugh.

Performance of Japanese Quail Supplemented With Tannin-Based Extract (NU-27)

João Ricardo Rodrigues Ferreira Vieira, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Claudia Marie Komiyama, Deyvid Ricardo Schmidt Pazuch, Elivelton de Salles da Silveira, Camille Pietra de Jesus Ferreira
Universidade Federal da Grande Dourados – UFGD
e-mail: joaorodriguess369@gmail.com

Abstract:
The main product obtained from raising Japanese quails, the egg, is a source of protein and fatty acids of high biological value and low marketing price, thus, more companies have invested mainly in the nutrition of these birds. However, oxidative stress, which in interferes with the development and quality of the eggs. In intensive livestock systems, animals are exposed to several factors (thermal stress, high metabolism, inflammation) that stimulate excessive production of ROS (reactive oxygen species) with harmful effects. In this sense, the use of phytogenic additives that are composed of derivatives of plants or herbs and have levels of bioactive compounds, when incorporated into animal diets, aim to improve performance and animal health and act as an antioxidant, reducing oxidative stress. The present study aimed to evaluate the effect of different levels of inclusion of extracts rich in polyphenols in the diets of Japanese quails in order to improve the productive performance. Quails were distributed in a completely randomized design with 6 diets with the inclusion of bioactive extracts rich in polyphenols: Control, 250 g/ton, 500 g/ton, 750, 1,000 and 1,250 g/ton, with nine replications, and 6 quails per experimental unit. The experimental diet was provided ad libitum, based on corn and soybean meal, according to the recommendations. The performance variables evaluated were egg production, feed intake, average egg weight, feed conversion per mass and per dozen eggs. No significant difference was observed in the performance of the animals between the treatments, demonstrating that the extract rich in polyphenol had no influence on this variable in the period of 56 days of the experiment. It is concluded that the addition of extract rich in polyphenols does not alter the performance of Japanese quails at any of the analyzed levels and this additive may be included in diets for laying quails due to the possibility of benefits in quail's health.

Keywords: Polyphenols, Oxidative Stress, Antioxidant

Unconventional Lipid Sources in the Diet of European Quails Affect the Birds' Qualitative Characteristics (NU-28)

Jean Kaique Valentim[1], Rodrigo Garofallo Garcia[2], Maria Fernanda de Castro Burbarelli[2], Luiz Fernando Teixeira Albino[1], Arele Arlindo Calderano[1], Rafael de Sousa Ferreira[1], Rosa Aparecida Reis de Léo[1]

[1]Fundação Universidade Federal de Viçosa – UFV, [2]Universidade Federal da Grande Dourados – UFGD

e-mail: kaique.tim@hotmail.com

Abstract:

In poultry nutrition, lipids stand out as sources of fatty acids that act in various metabolic functions of the organism. The objective of this study is to evaluate the performance, carcass, organ characteristics, and meat quality of broiler quails fed with alternative lipid sources. A completely randomized experimental design was used with 5 diets (soybean oil, conventional corn oil, distilled corn oil, poultry fat, and beef tallow) with 10 replicates each and 12 birds per experimental unit, totaling 600 birds, during the period from 7 to 35 days. On the 35th day of life, two birds from each experimental plot were slaughtered to evaluate carcass yield and meat quality. The data were subjected to analysis of variance, and the treatment means were compared by the Tukey test at the 5% of significance. There was no difference in quail performance. The inclusion of distilled corn oil provided a higher carcass yield (%) compared to the diet containing poultry fat. For the other variables related to the weight and carcass yield and carcass cuts, there were no significant differences. Animal-origin fats have a lower degree of unsaturation, which generally causes less digestibility of the lipids. This fact may justify the better results obtained for the carcass yield of birds fed with distilled corn oil compared to poultry fat. Significant differences were observed for the skin and meat color parameters A and B, and L, A, and B respectively. For the other meat quality parameters, there were no diet effects. There was a greater intensity of green/red color in the skin of birds fed with distilled corn oil sources in the diet. For the A color of the meat, there was a higher incidence for animals fed with conventional corn, distilled corn, and beef tallow sources. The positive results for greater skin and meat color from quails fed with diets containing distilled corn oil are mainly related to the high amount of xanthophylls in this lipid source, due to the concentration of carotenoids derived from corn and the distillation process. The distilled corn oil provided greater red color in the skin and meat and increased carcass yield without influences in quail performance.

Keywords: Alternative Oils, Carotenoids, Fatty Acids

Quality of Eggs From Japanese Quails Fed With Pracaxi Oil (Pentacletrha Macroloba) (NU-29)

Felipe Cardoso Serpa, Bruna de Souza Eberhart, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Claudia Marie Komiyama, Cassia Regina Teodoro, Ariérison Nunes Oliveira
Universidade Federal da Grande Dourados – UFGD
e-mail: felipe.c.serpa@gmail.com

Abstract:
Consumers from various countries strongly demand poultry products produced without the use of growth-promoting antibiotics. Due to the potential risk to public health, alternative strategies that may maintain high performance levels. Pentacletrha macroloba (pracaxi) oil is widely used in regional medicine due to its richness in active principles, however, its potential action in animal nutrition is not yet known. The present research aimed to investigate the effects of the inclusion of pracaxi oil in the diets of Japanese quails on the quality of produced eggs. An experiment was conducted in Federal University of Grande Dourados, to verify the effect of the inclusion of different levels of pracaxi oil in diets of laying Japanese quails (Coturnix coturnix japonica) aged from 70 to 140 days. The experimental design was completely randomized, with 5 levels of pracaxi oil inclusion and 7 repetitions with 5 birds per experimental unit. The treatments were: Without the addition of pracaxi oil; addition of 0.045% (11.25 mg/kg/day); 0.090% (22.5 mg/kg/day); 0.180% (45 mg/kg/day) and 0.360% (90 mg/kg/day). The eggs quality analysis was specific gravity, yolk colorimetry, egg, yolk and albumen weight, shell weight, albumen, yolk, and shell percentage, yolk and albumen height, yolk diameter, Haugh unit, yolk index, shell thickness, and yolk pH. The data were subjected to analysis of variance using the MIXED procedure of SAS. When the model was significant, the estimates of different pracaxi oil inclusions were subjected to polynomial regression analysis. The results for both analyzed variables did not show a significant difference $p>0.05$ for the different pracaxi oil levels included in the diets, demonstrating that the use of pracaxi oil may be recommended without causing interference in the quality of produced eggs. The research showed that the inclusion of different levels of pracaxi oil in diets of laying Japanese quails did not affect the quality of produced eggs, indicating that this alternative strategy can be recommended as an option to maintain quail performance without the use of growth-promoting antibiotics. This research contributes to meeting the growing demand of consumers for poultry products produced more naturally and without risks to public health.

Keywords: Antibiotics, Phytotherapy, Amazon Oils, Bird Nutrition, Performance Enhancer

Essencial Oils Lavander (Lavanda Dentata L.), Eucalyptus (Eucalyptus Citriodara), and Lemongrass(Cymbopogon Citratus) in the Starter of Broiler Chickens on Small Intestine Morphometry (NU-30)

Maria Marta Loddi, Juliane Andressa Santos, Amanda da Lapa Silva, Lucas Gabriel Hass, Paulo Vitor Farago
Universidade Estadual de Ponta Grossa – UEPG
e-mail: loddimm@yahoo.com.br

Abstract:
The objective of the study was to investigate the effects of plant essential oils on the morphometry of the small intestine of broilers, in the initial phase (0–14d). Two hundred male one-day-old Cobb-500 broiler chicks were distributed in four treatments:T1-control, T2-lavender (Lavanda dentata), T3-eucalyptus (Eucalyptus citriodora),T4-lemongrass (Cymbopogon citratus). The broilers chicks were allocated into 20 iron cages, 5 repetitions each having 10 birds. All the experimental groups were offered a balanced diet composed of corn, soybean meal formulated of Rostagno et al (2017) nutritional requirements of chickens. To obtain the essential oils, vegetative parts of the plants were extracted through the distillation method and these included in the proportion of 20 ppm in the experimental diet. One broiler was ethically sacrificed (cervical dislocation technique) from each experimental group on d 14, totaling 20 birds in total for the use of histological analyses. Segments of the small intestine (duodenum, jejunum and ileum) were collected and fixed in 10% formalin and made on histological slides to perform the morphometric analyzes of villus height, villus width, crypt depth, number of villi, number of goblet cells, thickness of the mucosa and thickness of the muscular coat. All the datasets obtained in the current experiment were statistically analyzed by using the one-way ANOVA technique following a completely randomized design, using Minitab's®GLM. Tukey’s Multiple Range Test was done to make comparisons between the mean values(P

Keywords: Intestinal Health, Intestinal Integrity, Phytogenic Additive

Antioxidant Activity and Biochemical Profile of Broilers Supplemented With Tannin-Based Extract (NU-31)

Felipe Cardoso Serpa, Vivian Aparecida Rios Castilho Heiss, Rodrigo Garofallo Garcia, Claudia Marie Komiyama, Maria Fernanda de Castro Burbarelli, Paola dos Santos da Rocha, Sarah Lam Orué
Universidade Federal da Grande Dourados – UFGD
e-mail: felipe.c.serpa@gmail.com

Abstract:
Pectoral myopathies in broilers cause economic losses due to condemnation of carcasses and commercial cuts. Studies suggest that hypoxia can trigger the production of nitric oxide, which increases oxidative stress and can lead to muscle tissue inflammation. Although the relationship between myopathies and oxidative stress is still unclear, chickens with myopathies have higher levels of oxidative markers. Tannins, compounds found in plants, have antioxidant properties and can be absorbed from the gastrointestinal tract, resulting in beneficial effects, including improved antioxidant activity in different organs. This research aimed to evaluate the use of tannins in broiler diets and their impact on the antioxidant status and biochemical parameters of the birds. For the trial, 1,280 day-old chicks were housed, distributed in a completely randomized design consisting of a basal diet (Control) and three different levels of the commercial product described as a tannin-based extract: 250, 500, 1,000 g/ton, with eight repetitions, with 40 birds each. The diets were provided ad libitum and formulated according to the productive phase (pre-starter, starter, growth and final). The analyzed variables were markers of oxidative stress and the serum biochemical profile. Data were submitted to analysis of variance using the MIXED procedure of SAS. When the statistical model was significant, the estimates of the different extract inclusions were subjected to polynomial regression analysis. No significant differences were observed for the analysis of malondialdehyde (MDA) as a marker of oxidative stress in muscle tissue from the breast of broilers and blood plasma. It was observed that only the serum levels of the enzyme Creatinokinase (CK) obtained a quadratic behavior and only the dose of 250 g/ton differed from the control treatment. This increase in the creatine kinase pattern may be linked to stress at the collection time due to animal"s immobilization, since for the other inclusion levels CK still within the normal range. Markers of oxidative stress in muscle tissue and blood plasma were not influenced by the diets, the addition of tannins influenced serum biochemical parameters, with an increase in Creatinokinase enzyme levels in relation to the control treatment.

Keywords: Antioxidant, Creatinokinase, Myopathies

Effect of Diet Physical Form on Performance of Laying Hens in the Breeding and Rearing Phases (NU-34)

Herta Silva, Claudio Mauricio Araujo Franco, Rodrigo de Freitas Jacob, Karina Duarte, Tabyta Tamara Sabchuk, Priscila Raijche de Oliveira
Vaccinar Indústria e Comércio LTDA
e-mail: herta.silva@vaccinar.com.br

Abstract:
The objective the study was to evaluate the diet physical form, mash and pellets, on laying hens performance from 1 to 42 days old. The experiment was carried out at the FMVZ, UNESP, Campus Botucatu/SP. 400 Lohmann White 1-day-old chicks were distributed in a completely randomized design with 4 treatments (1. Mash feed; 2. Pelleted and crushed feed up to 15 days of age; 3. Pelletized feed up to 28 days of age; 4. Pelleted feed up to 35 days of age) with 10 replicates of 10 birds each. After 35 days of age, all birds received the same mashed feed. Body weight (BW), Weight Gain (WG) and uniformity were weighed weekly throughout the experiment. Feed was also weighed, and leftovers accounted to calculate Feed intake (FI) and Feed Conversion (FC). At 42 days of age, one bird per replicate was sacrificed by cervical dislocation to evaluate organs weight (liver, spleen, bursa of Fabricius, thymus, heart, proventriculus and gizzard, small and large intestines) and the small intestines length were measured. Data were analyzed with ANOVA using the software SAS 9.3 (SAS, 2019) and, when significant ($P<0.05$), were submitted to Tukey's test at 5% probability. At 7 days of age, birds from treatment 1 had lower CR, lower BW and WG and worse FC than those from other treatments ($P<0.05$). At 14, 21 and 35 days of age, the results were similar to those at 7 days, however there was no difference in CR ($P>0.05$) between treatments. The Birds organs relative weight, liver, spleen, bursa of Fabricius, thymus, heart and pâncreas, at 42 days of age, were not influenced by the diet physical form provided at first weeks ($P>0.05$). At 42 days of age, the birds proventriculus and small intestine weight was higher ($P<0.05$) on treatment 3 compared to treatment 1, however the treatments 2 and 4 was not different of treatment 1 and 3 ($P >0.05$). Also, birds from treatments 1, 2 and 3 had higher ($P<0.05$) gizzard weight than birds from treatment 4. Treatments did not influence ($P>0, 05$) small and large intestines length neither total length of the intestines of birds at 42 days of age. Pelleted feed promotes improvement on laying hens performance in rearing phase, when compared to mashed feed. The diet physical form does not influence laying hens internal organs weight in the rearing phase.

Keywords: Peletization, Performance, Laying Hens

Effect Ofacacia Mearnsiiextract (Nutreset Pnt) Onsalmonella Heidelbergincidence in Broilers (NU-35)

Danielle Dias Brutti[1], Vitória Mendonça da Silva[1], Greicy Sofia Maysonnave[2]
[1]Seta Extrativa Tanino de Acácia Negra, [2]Universidade Federal Rural Do Rio de Janeiro - UFRRJ
e-mail: danielle.brutti@setaoficial.com

Abstract:
The incidence of Salmonella in poultry farms constitutes a public health problem, since it is a source of contamination of meat and eggs. This disease causes relevant economic impacts for the producer and, consequently, the poultry market. The use of natural technologies, such as the inclusion of natural polyphenols in poultry diets, can provide a reduction in the incidence of Salmonella. This study aimed to evaluate the effect of the commercial product NutreSet® (NST) in different dosages, on qualitative and quantitative reductions of Salmonella Heidelberg (HS) in the intestine (cecum) of broilers. A total of 1680 birds of the Cobb strain were used, distributed in randomized blocks in six treatments with eight repetitions of 35 birds each. The basal ration was adjusted according to each life stage of the bird. The treatments were T1: positive control (with HS), T2: HS + 300g NST/ton feed, T3: HS + 500g NST/ton feed, T4: HS + 700g NST/ton feed, T5: HS + 900g NST/ton feed. Inoculation was performed at day 3 of age with 0.5 ml of culture. Thirty percent of the birds in the box were inoculated and contaminated the others. Counting was performed at 14 and 28 days of age by collecting individual cecum and counting the HS in CFU (colony forming units) according to procedure: ISO 6579-1:2017. At 28 and 42 days of age, Salmonella testing was performed on the samples that expressed their result 0.05). However, in the evaluation at 42 days, when comparing the NST-treated birds versus the control (T1), the birds in T2 went from seven HS positives to three birds (p=0.04), in T3 from seven to one bird (p=0.0008) and T4 from seven to two birds (p=0.0089). The use of the commercial product NutreSet PNT up to 700g/ton of feed reduced the number of HS positive birds at 42 days of age.

Keywords: Natural Feed Additives, Poultry Science, Condensed Tannin

Effect on the Performance of Broiler Chickens Supplemented With Hydroxy Chloride Copper in Replacement of the Agp (NU-36)

Karolina Von Zuben Augusto, Gabrieli Andressa de Lima, Paola Aparecida Damázio Rodrigues, Amanda Bertazzoni Cirino, José Roberto Sartori, Elis Omar Figueiroa Castillo, Laís Garcia Cordeiro
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: karolina.augusto@selko.com

Abstract:
Copper (Cu) is an essential trace mineral that can be added to poultry diets by using mineral premixes and the most often used source is Cu sulfate pentahydrate (CSP). However, in recent years, a new concept of trace minerals was elucidated, being the hydroxy chloride (CHC), which are less reactive and more stable in the diet and in gastrointestinal tract conditions when compared to inorganic sources. Also, Cu addition to poultry diets has become very common practice because of its growth promoting activity after the use of antibiotics as a growth promoter (AGP) has been prohibited in many countries. The aim of the present study was to evaluate the effect of hydroxy chloride cooper supplementation in substitution of the AGP (Halquinol). The trial was conducted for 42 d. 270 male Cobb 500 1d-old birds were randomly distributed among 3 treatments with 9 replicates per treatment. Treatments were based on Negative Control (NC) (20ppm CSP in premix), Positive Control (NC + Halquinol 60% 30ppm) and Cu treatment (NC + 130ppm CHC). Weekly and per 4 feed phases (1-7d, 8-21d, 22-35d, 36-42d) all birds were weighed by pen, and Feed Intake (FI) was determined. Feed Conversion Ratio (FCR) was calculated after adjusting for daily mortality. The use of AGP or the addition of 130 ppm of CHC on top of the diet did not have a significant effect ($P > 0.05$) comparing to NC on bird Body Weight (BW), Body Weight Gain (BWG) or FI throughout the trial. Nonetheless, birds fed the diet containing 130 ppm of extra CHC tended to have improved BW, BWG and FI after 22d of age until the 42d. The cumulative FCR in the last two feeding phases and in the overall period was slightly decreased by adding 130 ppm CHC to the basal diet or replacing AGP ($P=0.058$). The lack of a significant growth-enhancing effect of CHC in the present study may be related to the low sanitary and environmental challenges of the experimental facility. The CHC as an option to replace AGP in bird diets, besides not reducing bird performance, has the potential to improve FCR. In conclusion, more research is needed to confirm the technical benefits on performance of broiler chicks.

Keywords: Trace Mineral, Sulfate, Halquinol

Production and Chick Quality in incubations With Low and High Temperatures (PR-16)

Izabela Lorena Azevedo, Tais Pinheiro Borges Silva, Tayana Nery Franca, Nayana Borges Das Mercês, Larissa Kiana Santos Azevedo Martins, Luis Vitor Oliveira Vidal, Vanessa Michalsky Barbosa
Universidade Federal da Bahia – UFBA
e-mail: azevedobella71@yahoo.com.br

Abstract:
The intermediate phase of incubation (INC) is critical because it´s when the metabolic rate and heat production increase, allowing the embryo to develop quickly. Thus, our objective was to evaluate whether variations in eggshell temperature (EST) (above or below the recommended during this phase) affect the INC yield and chick quality. Four incubators (P.Ecológica IP600®) with Cobb 500® broiler breeders eggs were set to maintain EST at 100ºF during INC. Four treatments (TREAT) were formed between the 8th and 18.5th day: one machine was set to mantain EST at 100ºF (T.CONTROL-TC) and the other three at 98ºF (T.LOW-TL); 102ºF (T.HIGH–TH) and 103ºF (T.VERYHIGH–TVH). Each incubator contained seven EST sensors. For the INC parameters, seven trays of 86 eggs per TREAT were used, and the tray was considered the experimental unit. Egg weight loss was determined before INC and at transfer to the hatching trays. At 18.5 days and at hatch, the number of unhatched eggs was recorded and the embryodiagnosis and culls (%) was performed according to Barbosa et al. (2013). Embryonic mortality (%) and hatchability (%) was calculated based on the number of fertile eggs. 14 replications by TREAT were used in the chicks quality analyzes. Egg, embryo or chick was considered the experimental unit. Yolk at the beginning of INC and the residual yolk sac (RY) was measured at 8, 18.5d and at hatch. Absolute chick weight and yolk free body mass (YFBM) were also recorded. The length was measured in the chicks according to Hill (2001) and the navel score according to Tona et al. (2003). The organs (heart, lung, liver, stomach, intestines, pancreas, bursa and spleen) were weighed and expressed related to YFBM. DIC and Tukey"s test determined differences between means ($p \leq 0.05$) using SAS®9.2. Regression analysis was also conducted. For the INC yield parameters, TVH was the most harmful for all characteristics, followed by TL, which promoted worse results than TH. Both at 18.5 days and at hatch, any deviation in EST reduced YFBM and chick length, compared to TC. Similarly, there was an increase in the RY, and the effects became marked with the increase in EST. Variations in EST (above or below standard) during the intermediate phase of embryogenesis worsen INC yield and chick quality.

Keywords: Broilers, Embryogenesis, Hatchability

Performance of Broilers and Quality of Drinking Water Treated With Potassium Monopersulfate (PR-10)

Adriano Franco, Lizandra Amoroso, Paulo Garcia Almeida, Juciê Leite dos Santos, Silvana Martinez Beraldi Artoni, Michele Bernardino de Lima, Rita Brito Vieira
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: adrianofranco2005@hotmail.com

Abstract:
As the water quality interferes in performance and well-being of broilers, the present research was proposed with the objective of evaluating the broiler performance and the chemical and microbiological quality of drinking water after treatment with potassium monopersulfate (PM). A total of 224 one-day-old Cobb 500® male chicks were distributed in a completely randomized design, two treatments, 7 replications in 14 experimental units of 16 chicks each. Water and feed intake, weight gain and weekly feed conversion were evaluated, as well as chemical and microbiological analysis of drinking water treated or not with PM, at a dosage of 1 gram per liter of water, concentration of 0.1% as recommended by the manufacturer. There was no difference in average weekly water consumption between the control and PM-treated groups ($p \geq 0.05$). As for the performance parameters, it was observed that the group treated with MP showed greater weight gain considering the value of $P=0.098$ in relation to the control group. It is numerically observed that feed conversion was lower in the group treated with PM (1.312) compared to the control (1.345). In the chemical analysis carried out before the experimental phase. All data were obtained in mg/L of water, and it was observed that the total alkalinity corresponded to 83.93, 15.712 of calcium, 44 of hardness, 1.1660 of magnesium, 0.6920 of nitrate, 146.00 of total dissolved solids and pH=7.54. It was possible to verify that all the evaluated parameters were in accordance with Brazilian legislation. In the water microbiological analysis, the absence of total coliforms and Escherichia coli was observed after application of PM in the drinking water of the treated group. The results of this research show that PM contributes to improving the weight gain of broilers, which could lead to financial gains for the poultry farmer. After PM application in the water, a significant reduction of microbiological indicators such as fecal coliforms and Escherichia coli is observed, contributing to prevention of enteric diseases and the maintenance of the health of broilers. In this way, the great potential of potassium monopersulfate in poultry is highlighted, due to the improvement in production rates and disease prevention.

Keywords: Disinfectant, Poultry Production, Water Microbiology

Effects of the Linoleic Acid to Alpha-Linolenic Acid Ratio (La:Ala) on Body Weight, Bodycomposition, and Relative Organ Weight of Female Japanese Quail Breeders (PR-01)

Allanna Hayane Rebelato Corsino, Ana Julia Martins Garcia, Leticia Aline Lima da Silva, Vinicio dos Santos Cardoso, Tatiana Carlesso dos Santos
Universidade Estadual de Maringá – UEM
e-mail: allannarebelato@gmail.com

Abstract:
The essential fatty acids linoleic (LA) and alpha-linolenic (ALA) are important for poultry in their development, growth, and production performance. These acids are deposited in the body, and birds use them in different metabolic pathways. Thus, different ratios of LA:LNA were studied in quail broiler breeders and their effects on body composition and organ weights in Japanese quail breeders. Quail breeders with 15 weeks of age (n = 360) were distributed in a DIC, with 5 treatments (ratios of 1.48; 4.57; 7.63; 10.69; and 13.75:1 LA:ALA) and 12 repetitions (cages with 4 females and 2 males). The ratios were obtained using combinations of vegetable oils rich in LA (flaxseed oil) and ALA (soybean oil), which all contained 1.6% oil. At the end of the 28-week performance analysis, all females were weighted, and one female from 10 repetitions was used to obtain organ relative weights in the liver, heart, spleen, oviduct, and ovary. The dry matter (DM), mineral matter (MM), crude protein (CP), and ether extract (EE) contend were determined in three females per treatment. All samples were obtained during the morning period. Data were performed using a regression linear model with GLM procedures of SAS (SAS Inc., 2010) and considered significant when $P < 0.05$. There was no effect of the LA:ALA ratios on the females' breeder body weight (169.56 g) or relative weight of the viscera analyzed ($P > 0.05$). The relative weights observed were 3.51;0.8;0.06; 3.73; and 4.21% for the liver, heart, spleen, oviduct, and ovary, respectively. For body composition analysis, the LA:ALA ratios showed a linearly decreasing effect ($p = 0.001$) on MM%, with the highest content of MM (9.91%) obtained in the ratio of 1.48 (flaxseed oil) and the lowest content (8.96%) in the ratio of 13.75 (soybean oil). A quadratic effect ($p = 0.007$) was observed for the PB%, with the optimal point of the PB% (64.00%) estimated at the ratio of 5.39 LA:ALA. The ratio of LA:LNA of 1.48 obtained using 1.6% of flaxseed oil in the diet of Japanese quail breeders did not affect negatively the live weight and organ weights and increased the body MM%. Thus, the use of flaxseed oil to obtain lower LA:ALA ratios than those normally practiced in laying quail diets is indicated for quail breeders.

Keywords: Omega 6, Omega 3, Flaxseed Oil, Breast

Use of Different Ratios of Linoleic Acid and Alpha-Linolenic Acid Associated With Vitamin E Levels on the Bromatological Composition and Antioxidant Activity of Japanese Quail Egg Yolk (PR-02)

Rafaella Scaboro dos Passos, Leticia Aline Lima da Silva, Brena Cristine Rosário Silva, Maria Tereza Frageri Paulino, Vinicio dos Santos Cardoso, Tatiana Carlesso dos Santos
Universidade Estadual de Maringá – UEM
e-mail: scaborорafaella228@gmail.com

Abstract:
The fatty acids linoleic (LA) and alpha-linolenic (ALA) are considered essential and are highly susceptible to peroxidation, requiring increased amounts of antioxidant substances. The effects of different LA and ALA ratios and vitamin E (vitE) levels in the diet of Japanese quail breeders were studied in egg yolks. A total of 480 Japanese quails (15 weeks old) were used, distributed in a randomized design in a 2 × 3 factorial scheme with 2 LA:ALA ratios (13.75:1 and 9.29:1) and 3 levels of vitE (25, 200, and 250 mg), with 10 repetitions with 8 birds each.The ratios were obtained using refined soybean oil (LA), flaxseed oil (ALA), and alpha-tocopherol (vitE). The analyses were performed in pools of 5 yolks (n =12) and determined the percentages of dry matter (DM), mineral matter (MM), crude protein (CP), and ether extract (EE), the antioxidant activity by capturing the free radical DPPH, and lipid peroxidation by malonaldehyde (MDA). Data were performed using a regression linear model with GLM procedures of SAS (SAS Inc., 2010) and considered significant when P< 0.05. In the yolk bromatological composition analysis, DM% decreased at a ratio of 9.29 and MM% increased in eggs from birds with more vitE in the feed. At the ratio of 9.29 and 250 mg vitE, the highest contents of CP% in the yolk were observed. For EE%, there was an interaction effect, with higher EE% in yolks at 13.75:1 and in 9.29:1 treatments, the EE% decreased in relation to the control with the addition of vitE. DPPH concentration was lower in the ratio of 9.29 (P

Keywords: A-Tocopherol, Fatty Acids, Oxidative Metabolism

Evaluation of the Effectiveness of Two Vaccination Programs on the Zootechnical Parameters of Broilers (PR-03)

Antônio José de Lima Neto[1], Eduardo Correa Muniz[1], Gleidson Biasi Carvalho Salles[12], Josias Rodrigo Vogt[1], Ricardo José Pimenta Felício[3]

[1]Zoetis, [2]Universidade Federal de Santa Catarina – UFSC, [3]Universidade Estadual do Ceará – UECE

e-mail: antonio.neto@zoetis.com

Abstract:

Vaccination in hatchery allowed a more precise and earlier application compared to what was done at field. Nowadays, we can immunize chicks against Gumboro, Newcastle and Marek diseases, for example, with a single application. Vectorized vaccines can induce immunity as against the vector virus (HVT) as against the inserted target gene. Therefore, vaccines with a faster vector (earlier onset of immunity) bring gains to the producer. The aim of this study, in an integration of broiler chickens in Northeastern Brazil, was to contrast two vaccine programs from different laboratories, using different options of immunocomplex vaccines for protection against Gumboro disease, as well as recombinant vaccines for protection against diseases of Newcastle and Marek. In this study, occurred from May to August 2022, 1,865,230 1-day-old broiler chickens were divided in 2 groups. T01 – 905,540; T02 – 959,690. The protocol for T01 was a vaccine containing the V877 strain combined with an rHVT-F vaccine from the same laboratory. In T02, vaccines from another laboratory were used, opting for a W2512 strain together with another rHVT-F vaccine. The vaccination process at hatchery after the chicks were born, observed the best management practices, seeking to guarantee its effectiveness. During housing, there was no sexing, and throughout the life of the birds, the handling and ambience conditions were similar for both treatments. The evaluation was based on zootechnical parameters and cost of production. The summary of the average results by treatment was as follows: T01 – mortality (%) 3.827; body weight (kg) 3.242; age (days) 42.665; ADG (g) 76.022; FCR 1.558; IEP 467.973; cost (BRL/ton) 4,184.890; while T02 presented the following results – mortality (%) 3.962; body weight (kg) 3.240; age (days) 42.662; ADG (g) 76.000; FCR 1.563; IEP 465.811; cost (BRL/ton) 4,204.427. The equivalence between T01 and T02 results for body weight, age, ADG, FCR, IEP and BRL/ton can be achieved with the equivalence margin of 5%; and for final mortality with the equivalence margin of 20%. Better results were observed, in all evaluated parameters, in T01, from which we can infer that this protocol delivered efficacy and safety in the protection of batches, allied with better financial results.

Keywords: Vaccine, Vectorized, Zootechnical

Impact on the Cost of Production and Zootechnical Performance of Broilers Submitted to Two Different Vaccination Programs (PR-04)

Antônio José de Lima Neto[1], Eduardo Correa Muniz[1], Gleidson Biasi Carvalho Salles[12], Josias Rodrigo Vogt[1], Ricardo José Pimenta Felício[3]

[1]Zoetis, [2]Universidade Federal de Santa Catarina – UFSC, [3]Universidade Estadual do Ceará – UECE

e-mail: antonio.neto@zoetis.com

Abstract:

Newcastle disease is among the main officially controlled diseases. Since 1997, there have been no reported outbreaks of the disease in commercial establishments and vaccination is a fundamental tool for its prevention. By removing part of the NDV F protein gene and inserting it into a genetically modified HVT, the researchers created vectorized vaccines with protection against Newcastle and Marek diseases. The aim of this study was to compare production parameters, in addition to cost per ton live weight of two different vaccination programs in an integration of broilers, located in the Northeast of Brazil. The program used in T01 consisted of the application of an antigen-antibody complex vaccine (strain V877) against the infectious bursal disease, plus a vectorized vaccine for Newcastle and Marek"s diseases from the same laboratory. On the other hand, the birds in T02 received a triple vectorized vaccine, with protection against the three diseases mentioned above, in addition to a live attenuated vaccine against NDV, strain C2, applied via spray also in the hatchery. The work took place from April to August 2022 and included a total of 5,645,667 birds (T01- 2,580,720 bird T02- 3,064,947 birds). The summary of the average results by treatment was as follows: T01 – mortality (%) 4.679; body weight (kg) 2.695; age (days) 38.770; ADG (g) 69.520; FCR 1.539; IEP 429.096; cost (BRL/ton) 4,134.785; while T02 presented the following results – mortality (%) 5.015; body weight (kg) 2.752; age (days) 39.640; ADG (g) 69.435; FCR 1.561; IEP 420.404; cost (BRL/ton) 4,264.283. The equivalence between T01 and T02 in results of age, ADG, FCR and IEP could be achieved with margin of 10%. No equivalence between T01 and T02 in body weight and final mortality could be concluded due to greater variability in the data. However, it is noted that T01 was numerically better in all parameters when compared to T02. As a result, statistically significant differences in the cost were detected with p value of

Keywords: Vaccine, Newcastle, Gumboro

Impact of the Use of Plastic Flooring on the Quality of Broiler Meat (PR-05)

Cassia Regina Teodoro, Bruna Barreto Przybulinski, Rodrigo Garofallo Garcia, Claudia Marie Komiyama, Maria Fernanda de Castro Burbarelli, Vivian Aparecida Rios Castilho Heiss, Hindyra Marihellym Folador
Universidade Federal da Grande Dourados – UFGD
e-mail: cassiateodoroca@gmail.com

Abstract:
Poultry production in Brazil is constantly growing and the quality of the meat is closely related to several factors such as genetics, gender, welfare, nutrition, and the production system that the animal is subjected to. The type of material, the composition and quality of the litter are factors that interfere with the welfare and health of the birds. The high demand for alternative types of bedding is justified by the increased production and seasonality of the plant materials used. Thus, this work aimed to evaluate the effect of plastic flooring and wood shavings on the performance, yield, and meat quality of broiler chickens raised from 1 to 42 days of age. 1500 one-day-old male broiler chicks of the Ross 408® strain were used, distributed in a completely randomized design, in 5 treatments: wood shavings (WS); plastic floor (PF); 50% shavings 50% plastic floor (PFWS); plastic floor with antimicrobial additive (PFA); 50% shavings 50% plastic floor with antimicrobial additive (PFAWS), with six repetitions, totaling 30 boxes, with 50 birds each. After euthanasia by cervical dislocation at 42 days of age, the following criteria were adopted to assess the quality of the breast fillet meat: width, length, and thickness measured with a caliper, pH assessment, and color after exposure for 30 minutes at room temperature as to the parameters of luminosity, red content, and yellow content, water retention capacity, loss by exudation, losses by thawing, cooking, and shear force realized after freezing, weight loss by cooking and determination of the shear force of the breast after the baking. The lowest values for breast fillet dimensions were from those chicken reared in PF (with or without antimicrobial P value 0.02 – 0.0001). The fillets from the WS and PFAWS treatment showed higher pH (5.97) (P value 0.0051) and red content (3.50 and 3.11) (P value 0.0028) than those from the PFA treatment (4.19). In terms of yellow content, the fillets from the WS (7.72) and PFAWS (7.74) treatments had lower levels than those from the PF treatment (6.53) (P value 0.0096). The birds reared in PFAWS had redder meat, not presenting major changes in the other variables, which may indicate plastic flooring as an interesting alternative for broiler chicken.

Keywords: Poultry, Food Quality, Acid-Base Imbalance, Poultry Manure, Plastic Floor For The Broiler

Factor Analysis of Mixed Data to Relate Production Factors to Slaughtering Characteristics of Broiler Chicken (PR-06)

Cassia Regina Teodoro, Hagar Gonçalves Borges, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Jean Kaique Valentim, Alexander Alexandre de Almeida, Andreza Aparecida Ferreira Salina
Universidade Federal da Grande Dourados – UFGD
e-mail: cassiateodoroca@gmail.com

Abstract:
The incidence of scratches in birds is one of the factors that generate a loss of product quality and consequent loss of amount. The objective of this study was to relate the production factors such as lineage, type of ventilation, and sex to the slaughtering characteristics of broilers using a factorial analysis of mixed data (FAMD). Data from chicken batches slaughtered between 2018 and 2020 from a company in the state of Mato Grosso do Sul were analyzed. The study considered a total of 82,486,500 birds slaughtered in the analyzed period. The information collected regarding the batches was quantitative and qualitative. Quantitative variables included age and date of slaughter, average weight, percentage of foot calluses, field mortality, scratching, total condemnation for production and slaughtering causes, total condemnation, and generated value of the product ($/Kg). The qualitative analysis included animal or warehouse characteristics such as type of ventilation, lineage, and sex. FAMD was held in the software R. Means, standard deviation, minimum and maximum weight, percentage of scratches, total condemnations, and paw calluses for each lineage, sex, and type of ventilation in broiler aviaries were obtained through descriptive statistics in the R software. The data set for FAMD was further tested by the KaiserMeyer-Olkin sampling adequacy measure. Five main components were found that were responsible for explaining 85.5% of the total data variance. It was identified that the variables of the percentage of scratches and generated value of the product ($/Kg) are negatively related, while age, the value generated ($/Kg), percentage of total condemnation due to production responsibility are positively related. The variables of total condemnation for agricultural reasons (diseases) and general total condemnation are also positively related. The negative pressure ventilation was more closely related to the percentage of calluses on the feet, while the dark house system was more associated with the percentage of overall total condemnations and the percentage of total condemnation due to production causes. The lineage most related to the value generated ($/Kg) was Cobb, as well as for the female sex.

Keywords: Agribusiness Management, Scratch In Broiler Chickens, Broiler Production, Broiler Chicken Strains

Use of Artificial Shading in Semi-intensive Rearing of Free-Range Broiler Chickens (PR-07)

Mônica Patrícia Maciel, Nelson Felipe Nunes Silva, Auriclécia Lopes de Oliveira Aiura, Felipe Shindy Aiura, Hélida Christhine de Freitas Monteiro, Lucas Rodrigues Caires, Ely Caroliny Dias Soares
Universidade Estadual de Montes Claros – UNIMONTES
e-mail: monicapmaciel@hotmail.com

Abstract:
High temperature is one of the environmental factors that can impair the performance and carcass yield of chickens reared in a semi-intensive system, as the birds will be subject to direct sunlight, with natural or artificial shading being an alternative that reduces the load. of radiation on birds. One of the options for artificial shading would be the use of umbrellas that can be installed in the paddocks, serving as an alternative shelter during the hottest hours of the day. The objective of this research was to evaluate the performance and carcass characteristics of free-range broilers reared in paddocks with or without artificial shading. The experiment was conducted at the State University of Montes Claros, Janaúba campus, Minas Gerais, Brazil. Broilers with an initial age of 42 days, females, from the Label Rouge/Pescoço Pelado Vermelho lineage were used. The chickens were raised in a semi-intensive system, with access to paddocks with pasture, feed once a day and water ad libitum. The following treatments were evaluated: T1= Raising in paddock not artificially shaded; T2= Breeding in paddock artificially shaded with shade. The paddocks destined to the treatment containing shading, had an area of 16 m2 (4 x 4 m) covered by a shade screen mesh 80% of weight equal to 110 g/m2 and with 1.5 m of height installed in the grazing area. Daily records of the variables were made: temperature and relative humidity. Performance (feed intake, weight gain and feed conversion) and final weight, carcass yield and cuts (breast, thigh and drumstick) and edible viscera (heart, gizzard and liver) were evaluated. Data were subjected to analysis of variance and means compared by Tukey"s test, at 5% probability. Average temperature was recorded in the paddocks with a shade of 30.9 oC and in those without a shade of 32 oC. The average humidity was 63.4% in the environment without shading and 64% in the environment with shading. There was no significant influence of the treatments on the evaluated variables. The use of artificial shading did not contribute to the improvement in the performance and carcass characteristics of free-range Pescoço Pelado broiler chickens reared in a semi-intensive system.

Keywords: Ambience, Performance, Poultry

Skin Lesions and Myopathies in Broiler Chickens Using Plastic Flooring As Litter Material. (PR-08)

Elivelton de Salles da Silveira, Bruna Barreto Przybulinski, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Claudia Marie Komiyama, Vivian Aparecida Rios Castilho Heiss, Leticia Cuer Garcia
Universidade Federal da Grande Dourados – UFGD
e-mail: elivelton.silveira037@academico.ufgd.edu.br

Abstract:
Genetics, sex, nutrition, breeding systems and pre-slaughter handling are intrinsic factors in broiler production, directly interfering with the quality of the product that reaches consumer"s table. One of the main influencers in the production of broiler chicken is bedding, the use of wood shavings or rice husks is the most common source of litter for chicken, perhaps this sources may be scarce due to other applications in agricultural process. Plastic floor would be an alternative, since it is widely used for pigs, also, reduces the bird"s contact with the excreta, providing better health and welfare conditions. This study aimed to evaluate the effect of plastic flooring on the incidence of carcass lesions and myopathies in broiler chickens. The assay was performed at the Federal University of Grande Dourados experimental poultryhouse, where 1500 day-old male broiler chicks, Ross 408 ® lineage, were housed and distributed in a completely randomized design, with 5 treatments: wood shaving plastic floor; 50% shavings 50% plastic floor; plastic floor with antimicrobial additive; 50% shavings 50% plastic floor with antimicrobial additive, with six repetitions with 50 birds each. The experimental diet was supplied ad libtum , based on corn and soybean meal, according to the productive phase, meeting the nutritional requirements. The analyzed variables were: contact dermatitis, dorsal scratches (recent and old), chest calluses and bruises, wooden myopathies breast and white striping myopathies. The flooring material did not interfere in the occurrence of breast callus, scratches, bruises and carcass dermatitis. There was no influence of the type of flooring on white "s striping of thigh, for wooden breast, birds reared on plastic floors with antimicrobials had lower incidence than those reared on wood shavings and plastic floors with antimicrobials + 50% wood shavings. The occurrence of myopathies is greatly influenced by the accelerated growth in broiler chickens, with environmental factors such as the type of floor being secondary to their occurrence, justifying the findings of the present study. Thus, the plastic flooring may be an interesting alternative in broiler chicken production that has lower influences in the occurrence of skin lesions e myopathies.

Keywords: Carcass Qualiy, Carcass Condemnation, Alternative Materials

Carcass and Cuts Yield of Broiler Chicken Using Plastic Flooring As Litter Material (PR-09)

Elivelton de Salles da Silveira, Bruna Barreto Przybulinski, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Claudia Marie Komiyama, Felipe Cardoso Serpa, Joao Ricardo Rodrigues Ferreira Vieira
Universidade Federal da Grande Dourados – UFGD
e-mail: elivelton.silveira037@academico.ufgd.edu.br

Abstract:
Broiler meat quality is related to genetics, sex, nutrition, rearing conditions including flooring and pre-slaughter management, which directly interferes in the quality of the product that reaches the consumer"s table. The use of a litter material is consolidated by poultry farming worldwide, wood shavings or rice husks have been used for decades as the main material for raising chickens. Alternatively, plastic floor may reduce the bird"s contact with the excreta, providing the bird with better health and welfare conditions. The objective of this work was to evaluate the effect of plastic flooring on carcass and commercial cuts yield of broiler chickens raised up to 42 days of age. The assay was performed at the Federal University of Grande Dourados experimental poultryhouse, where 1500 day-old male broiler chicks, Ross 408 ® lineage, were housed. The chicks were distributed in a completely randomized design, with 5 treatments: wood shaving plastic floor; 50% shavings 50% plastic floor; plastic floor with antimicrobial additive; 50% shavings 50% plastic floor with antimicrobial additive, with six repetitions with 50 birds each. The experimental diet was supplied ad libtum, based on corn and soybean meal, according to the productive phase, meeting the nutritional requirements. The variables analyzed were : live weight, hot carcass weight, chilled carcass weight , hot carcass yield, breast, leg, wing, back, breast and boneless leg yields. At 42 days, birds reared on plastic flooring (with or without antimicrobials) had lower rates of live weight, hot carcass weight and chilled carcass weight. The higher hot carcass yield was achieved by chicken reared on wood shavings as flooring. For commercial cuts yield, no differences were found for chicken reared in the different flooring systems. Performance in broiler chickens is a preponderant factor for obtaining better results in carcass yields and commercial cuts, therefore, probably the plastic floor was not able to provide the best environmental conditions for the expression of maximum performance of the birds. The plastic floor used in this work showed limitations for use with broilers up to 42 days old, negatively influencing live weight, carcass weight and carcass yield.

Keywords: Alternative Floor, Productive Performance

Zootechnical Performance of Ross Ap91 Griller Type Broilers Reared in Different Types of Aviaries (PR-11)

Thiago Gonsalo da Silva[1], Rodrigo Garofallo Garcia[1], Maria Fernanda de Castro Burbarelli[1], Leonardo de Oliveira Seno[1], Claudia Marie Komiyama[1], Fabiana Ribeiro Caldara[1], Ibiara Correia de Lima Almeida Paz[2]
Universidade Federal da Grande Dourados – UFGD, [2]Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: thiagogonsalo@gmail.com

Abstract:
Poultry farming in Brazil undergoes constant technological innovations, aiming at economic and technical viability, in addition to improvements in the productive, sanitary and welfare aspects of the birds. However, the introduction of foreign technologies may not generate the expected results due to climatic and cultural differences. Despite this, Brazil remains the world"s largest exporter of chicken meat and the third largest producer of this protein. Negative pressure aviaries are expanding in the country and promise better zootechnical and economic results compared to positive pressure systems. With the objective of comparing the zootechnical performance between chickens reared in negative and positive pressure aviaries, data from 175 batches of chickens type griller, where 93 batches were reared in aviaries with positive pressure and 82 batches reared in aviaries with negative pressure, with all batches formed by females belonging to the Ross AP91 lineage. At the end of the slaughter of each batch, data on conversion ratio (CR), daily weight gain (DWG), slaughter age and average slaughter weight were tabulated. All data were checked for normality of residuals and homogeneity of variances. Subsequently, the data were submitted to analysis of variance through the MIXED procedure of SAS (SAS 9.3). In the mathematical model used, age at slaughter was used as a covariate. Performance data and slaughter measurements had their averages compared by the F test. The significance level used was 5%. It was observed that for average slaughter weight, DWG and CR, there was difference at 5% of significance. Batches reared in negative pressure aviaries had a higher average slaughter weight than batches reared in positive pressure aviaries, with 1.414 kg in the first and 1.384 kg in the second. For DWG, negative pressure flocks gained an average of 47.531 g/day and negative pressure batches 46.504 g/day, and for CR, negative pressure flocks were also better, with a lower CR of 1.518, while average of batches created under negative pressure was 1.544. Therefore, for the Ross AP91 lineage, the technological level of the aviary in which the chickens are raised interfered in the zootechnical results evaluated, the batches created in negative pressure showed better results.

Keywords: Dark House, Daily Weight Gain, Conversion Ratio

Zootechnical Performance of Ross Ap95 Griller Type Broilers Reared in Different Types of Aviaries (PR-12)

Thiago Gonsalo da Silva, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Leonardo de Oliveira Seno, Claudia Marie Komiyama, Fabiana Ribeiro Caldara, Felipe Cardoso Serpa
Universidade Federal da Grande Dourados – UFGD
e-mail: thiagogonsalo@gmail.com

Abstract:
Poultry farming constantly seeks technological innovations to improve productive, sanitary and welfare aspects of chickens. The introduction of technologies from other countries raises concerns, as Brazilian climate conditions are different from the main countries where we import technologies. However, Brazil is the world"s largest exporter of chicken meat and the third largest producer. In this context, aviaries with negative pressure technology are expanding in the country, allowing greater control of lighting, air quality, temperature and humidity, and better zootechnical and economic indices are expected than in positive pressure aviaries. The present work was carried out with the objective of comparing the zootechnical performance between chickens reared in negative and positive pressure aviaries. Between January 2021 and August 2022, data were collected from 30 lots of Ross AP95 females in partnership with an integrator from the state of Mato Grosso do Sul. Of the 30 flocks, 10 were reared in negative pressure aviaries and 20 in positive pressure. At the end of the slaughter of each batch, data on conversion ratio (CR), daily weight gain (DWG), slaughter age and average slaughter weight were tabulated. All data were checked for normality of residuals and homogeneity of variances. Subsequently, the data were submitted to analysis of variance through the MIXED procedure of SAS (SAS 9.3). In the mathematical model used, age at slaughter was used as a covariate. Performance data and slaughter measurements had their averages compared by the F test. The significance level used was 5%. No statistically significant difference was observed for DWG and average slaughter weight between flocks reared in positive and negative pressure aviaries. For CR there was difference, batches raised in negative pressure aviary showed CR of 1.456 while batches created in positive pressure aviary 1.493. For the Ross AP95 lineage, under the integration conditions evaluated, there is no statistically significant difference in DWG and average slaughter weight, however, the type of technology in the aviaries interfered in the result of CR, and the negative pressure aviaries were better than positive pressure aviaries by 0.037 grams.

Keywords: Dark House, Conversion Ratio, Daily Weight Gain

Cage-Free Vs Free-Range: Evaluating the Impact on Behavior and Physiology of Laying Hens (PR-13)

Jean Kaique Valentim, Ana Paula Cassaro Favarim, Rodrigo Couto Santos, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Felipe Cardoso Serpa, Alexander Alexandre de Almeida
Universidade Federal da Grande Dourados – UFGD
e-mail: kaique.tim@hotmail.com

Abstract:
The use of alternative systems for laying hen production is a controversial reality worldwide, in which the goal is to provide housing that offers welfare without affecting production. In this sense, the objective of this study was to evaluate bioclimatic, physiological, and behavioral parameters of laying hens, considering the relationship between comfort and type of installation, comparing two rearing systems: cage-free and free-range. Both systems had environmental enrichment structures such as a nest, perch, sandpit, and litter. The experimental design was completely randomized, with two treatment arrangements represented by cage-free and free-range rearing systems, in which the experimental units were the birds, with 18 replicates for each treatment during 84 days of data collection, divided in three cycles of 28 days. Physiological parameters evaluated were superficial temperature (thermographic images), cloacal temperature and respiratory frequency. The thermal evaluation was verified using temperature and relative humidity data, using the temperature-humidity index (THI). Data were subjected to analysis of variance using the MIXED procedure of SAS, and means were compared using the F-test. Behavioral data were analyzed using the GLIMMIX procedure of the SAS computational program. The significance level for all analyzes was 5%. The results showed that there was a significant difference only in the superficial temperature of birds in the free-range system, not affecting thermoregulatory performance. Regarding behavioral analyses, both systems provided the expression of natural and comfort behavior, obtaining similar results throughout the cycles, with greater movement during the hottest period of the day. The cage-free system hens showed better performance concerning superficial temperature. Considering the evaluation of bioclimatic, physiological, and behavioral parameters as a response to the welfare of laying hens, both systems studied showed similarities such as both forms of production can offer an adequate environment for the birds, as long as conditions of comfort and well-being are provided, through environmental enrichment and proper temperature and humidity control.

Keywords: Ambience, Animal Production, Behavior, Poultry Installation

total Bone Mineral Density and Femur and Tibia Morphology of Different Types of Broilers Carcasses (PR-14)

Juciê Leite dos Santos, Francine de Campos Silvério, Stéphane Cristyne de Oliveira Estevão, Arthur Vieira Costa, Marcela da Silva Rubio, Lizandra Amoroso, Silvana Martinez Beraldi Artoni
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: jucie.leite@unesp.br

Abstract:
This research was proposed with the objective of evaluating the long bones of 48 carcasses at 42 days old. Carcasses were identified at the slaughterhouse as standard (n=16) (S) – adequate body weight and muscle coverage; uneven (n=16) (U) – lower body weight and less muscle coverage, and cachectic (n=16) (C) – reduced weight, muscular atrophy and prominence of sternum.The carcasses were weighed and scanned in the dual energy X-ray absorptiometry equipament for getting the whole bone mineral density (BMD) and whole bone mineral content (BMC). Then, femur and tibia were dissected, and evaluated macroscopically evaluated. For data analysis, the means were compared by the Tukey test (P≤0.05). The results demonstrated that bone mineral density is reduced in flocks of uneven and cachectic broilers, and cachectic group have lower bone mineral content compared with other groups (P≤0.05). Femur and tibia weight in the standard group differed from the other groups (P≤0.05). The diameters of the proximal epiphysis (S: 7.39; U: 6.52; C: 6.44 cm), diaphysis (S: 3.58; U: 3.24; C: 3.31 cm) and of epiphysis distal of femur (S: 8.11; U: 7.02; C: 6.81cm) had a similar pattern to length, with the standard group with higher mean values (P≤0.05) in relation to the others, which didn't differ from each other (P≥0.05), similarly to the tibia length (S: 11.88; U: 10.19; C: 9.90 cm), and proximal epiphysis of tibia (S:8, 93, U: 7.58 and C: 7.72). It is possible to conclude that long bones showed site-specific morphological variations in different broiler carcasses. After morphometric analysis, it is observed that the bones are sensible to conformational changes, except the tibial diaphysis, that is constituted for compact bone and low muscle covering.It is suggested, with this research, that further studies on the proportion of compact and spongy bone tissue in standard, uneven and cachectic broilers must be carried out with the objective of understanding the effects of bone loss in broilers.

Keywords: Disinfectant, Poultry Production, Water Microbiology

Effects of Feeding Tenébrio Molitor Meal to Growing Pigs on Production and Economic index (PR-15)

Gabriel Nascimento de Souza Paulo[1], Rodrigo Borille[1], Caren Paludo Ghedini[2], Caio Cesar dos Ouros[3], Rodrigo Garofallo Garcia[3], Ingrid Manfio de Castro[1], Magnos Maioli Volpato[1]
[1]Universidade Federal de Santa Maria – UFSM, [2]Universidade Federal do Rio Grande do Sul – UFRGS, [3]Universidade Federal da Grande Dourados – UFGD
e-mail: gabrielnspaulo.zoot@gmail.com

Abstract:
Alternative protein sources for animal feeding are in need to enhance the sustainability of production systems. In this sense, insects have been reported as alternative ingredients in animal diets mainly due to their high nutritional value, high conversion efficiency and their potential to use organic waste as a food source. This study aimed to evaluate, through simulation, the effects of including incremental levels of Tenébrio molitor meal (TMM) in growing pig diets on their performance and economic index. Economic data were performed using zootechnical indexes obtained by simulation data using the Inraporc® software. The simulated scenarios were the inclusion of: 0% (control group), 1.5%, 3%, 4.5% and 6% TMM in growing pig diets. The results indicate that the TMM feeding to growing pigs favors production indices. Including TMM reduced feed intake linearly up to 8.19%. It also reduced the demand for soybean meal (SBM) in the diet by up to 37.17%, showing the potential of TMM to replace conventional protein sources. Feed conversion (CA) improved with TMM and ranged from 2.58 (control) to 2.37 (6% FTM). Diet cost (DC), gross income (GI) and gross margin (GM) of the treatments were also evaluated. The control diet, with no TMM, presented the greatest economic performance. Based on this, the GM of the treatments was set at R$304.03, corresponding to no TMM inclusion. Then, an attempt was made to identify the maximum price of TMM that would enable to maintain GM equal to the control treatment. The results showed that, in order to meet these conditions, the price of TMM, currently market at R$120.00, should reduce by 88% to 92.5%. Despite this, it was reported that increases in productivity increased CD up to 6.1%, with no changes in GM. The estimated breakeven price of the TMM, in which the ingredient would become viable, was R$41.28. Therefore, through market growth, progress in terms of production methods and perspectives regarding its aggregative potential in the product; it is inferred that under a medium and long term vision, TMM can be an important tool to enhance sustainability of the swine chain.

Keywords: Alternative Food, Bioconversion, Mealworm

Bone Development of Embryos and Broiler Chicks incubated at Different Temperatures (PR-17)

Izabela Lorena Azevedo, Tais Pinheiro Borges Silva, Tayana Nery Franca, Nayana Borges Das Mercês, Larissa Kiana Santos Azevedo Martins, Luis Vitor Oliveira Vidal, Vanessa Michalsky Barbosa
Universidade Federal da Bahia – UFBA
e-mail: azevedobella71@yahoo.com.br

Abstract:
Poultry embryos are sensitive to temperature variations. Many authors have observed interference on bone development when modifying the incubation temperature, however both the effects and the temperatures that lead to damage are not an agreement among researchers. Therefore, our objective was to evaluate the morphometric, biophysical and mechanical characteristics of the tibia (TB) and femur (FM) from embryos and newly hatched chicks, incubated at temperatures below and above the standard. Four incubators (P.Ecológica IP600®) with Cobb 500® broiler breeders eggs were set to maintain eggshell temperature (EST) at 100ºF during incubation. Between the 8th and 18.5th day, one machine was set to mantain EST at 100ºF (T.CONTROL-TC) and the other three at 98ºF (T.LOW-TL); 102ºF (T.HIGH–TH) and 103ºF (T.VERYHIGH–TVH), being four treatments (TREAT). Each incubator contained seven EST sensors (TI-33Ri plus®), one per tray. At 18.5 days of incubation and at hatch, the left TB and FM were taken from each of 14 randomly samples per TREAT. After weighing, the bones were measured externally twice by a digital caliper and subjected to a biomechanical test for analysis of force to fracture using the method described by Shim et al. (2012) and 3-point flexion test (EMIC®, Instron, DL 3000) with BlueHill® software. Ash quantification was determined using the method by Yair et al. (2012). The right TB and FM were used for calcification analysis using the differential staining technique in which the samples were stained with Alcian Blue and Alizarin Red (KELLY; BRYDEN, 1983; BLOM; LILJA, 2004). Digital images were taken using a Nikon 5100®. Calcification (%) was calculated using ImageJ®.14 replications were used per TREAT and TB or FM was considered the experimental unit. DIC and Tukey"s test determined differences between means (p≤0.05) using SAS®9.2. Regression analysis was also conducted. All deviations from the incubation standard temperature negatively affected the characteristics evaluated in the TB and FM of embryos and chicks. TVH had the worst results in all variables in both bones, regardless of the moment of evaluation. Compared to 100°F, the EST of 98, 102 and 103°F in the intermediate phase of incubation impair the bone development of embryos and day-old chicks.

Keywords: Eggshell Temperature, Incubation, Poultry Production

Machine Learning Applied to Predict the Weather Impact on Pig Carcass Condemnation (PR-18)

Fábio Mascarenhas Dutra[1], Fábio Mascarenhas Dutra[1], Fabiana Ribeiro Caldara[2], Irenilza de Alencar Nääs[3], Douglas D'Alessandro Salgado[1], Agnês Markiy Odakura[1], Felipe Cardoso Serpa[1], Caio Cesar dos Ouros[1]

[1]Universidade Federal da Grande Dourados – UFGD, [2]Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP, [3]Universidade Paulista – UNIP

e-mail: fabiodutra@ufgd.edu.br

Abstract:

The importance of pig farming in the Brazilian economy stands out due to the fact that the activity represents about 1% of the GDP. However, the hot climate is a limiting factor for pig production, affecting performance and leading to financial losses. Data mining has been used in animal production to classify productive characteristics and predict welfare problems. Therefore, research was conducted to evaluate the correlations of carcass condemnation in commercial slaughterhouses under tropical conditions with the weather conditions at the time of slaughter over a period of 3 years. Data regarding carcass condemnation were obtained from a commercial slaughterhouse and converted into a percentage of the total number of animals slaughtered in the period. Data on weather conditions (temperature and relative humidity) were collected at the meteorological station near the slaughterhouse. All causes (total or partial) of carcass condemnation observed were considered, with the most frequent being grouped into five classes (pleurisy + pneumonia; enteriti arthriti abscesse fractures + contusions + deaths) and correlated with the time of year. A machine learning process was applied to verify the relationship between the time of year and the incidence of carcass condemnation. It was found that during the months of May to September, animals showed thermal comfort (61

Keywords: Pre-Slaughter Management, Respiratory Pathologies, Swine Thermal Environment

Use of Computerized Images to Assess Bone Mineral Density in Broiler Chickens (PR-19)

Andressa Silva Jacinto, Ibiara Correia de Lima Almeida Paz, Natalia Lopes Vargas, Ingrid Grazieli Althman dos Santos, Francine dos Santos Mota, James Eduard Campos, Sant Anna, Bruno Josepette Beghi Luciano
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: andressa.s.jacinto@unesp.br

Abstract:
Poultry welfare is affected by many factors, including metabolic disturbances resulting from exposure of broilers to environments, nutrition, management and genetic selection developed for intensified production. One of the most common disorders that can affect birds is femoral degeneration. It is found in the proximal part of the femoral head, when degeneration of the articular cartilage or even bone occurs. The study was conducted to evaluate the efficiency of image analysis for the early determination of femoral degeneration in broiler chickens. To obtain images and determine bone density, 60 broiler chickens were evaluated at 42 days of age. The standardized region for reading was the head of the right femur of broilers. After the collection of radiological images, the same broilers were evaluated using computed tomography. All images were evaluated using specific software for each type of image, available (radiographic or tomographic) in the software of each device. For all images, the reading window was used with an opening of 5 mm, height and width varying between 20 and 30 mm, depending on the of the bone. Thus, the bone density of the structures in the region of the head and neck of the femur was identified, comparing the pieces without injuries, with initial injuries and severe injuries. Bone density values obtained by tomography and radiography had the same behavior, indicating that the radiography technique can also be used to assess bone density.

Keywords: Radiography, Behavior, Metabolic Disorders

Probiotics: An Alternative For Improving Production Rates of Broilers (PR-20)

Natalia Lopes Vargas[1], Francine dos Santos Mota[1], Ingrid Grazieli Althman dos Santos[1], Ibiara Correia de Lima Almeida Paz[1], Andressa Silva Jacinto[1], Bauer Alvarenga[2], Jacqueline Boldrin de Paiva[2]

[1]Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP, [2]BIOCAMP

e-mail: ngl.vargas@unesp.br

Abstract:

The poultry industry is a highly productive, fast and dynamic sector, due to this, the challenges encountered promote the adaptation of traditional production systems, allowing greater assurance of health, broilers welfare and food safety.In this context, the aim of this study was to evaluate whether probiotic supplementation can be an alternative to performance-enhancing antimicrobial additives, favoring the production rates of broilers. For this, 2600 male chicks, Ross strain, distributed in 5 experimental treatments, with 8 repetitions of 65 birds each, were used. The treatments were: T1- BIO 21 Liquid, sprayed on the 1st day in the hatchery; T2- BIO 21 Mix, added to the feed; T3- BIO 21 Liquid + BIO 21 Mix, spary + feed; T4 – Negative control and T5- Positive control (virginamycin).Weight gain, feed consumption, feed conversion and viability of the flock from 1 to 42 days were evaluated. From the data obtained it was found that birds that received supplementation with T3 – BIO 21 Liquid + BIO 21 Mix, showed greater weight gain and better feed conversion compared to the other treatments, this is justified because when using compounds that act on the balance of the intestinal microbiota, the broilers are able to absorb more efficiently the nutrients provided by the diet, since being in a situation of homeostasis, these animals did not need to divert energy from metabolic routes, using it entirely for weight gain. Regarding consumption, the birds that received supplementation with T2, showed higher consumption g/chick/day, compared to other treatments, this may be directly related to the fact that these animals have received only supplementation via feed, unlike T3, which also received via spray in the hatchery, thus the microbiota of these birds began to be colonized since shipment in the hatchery unlike the birds of T2. It is defined that the establishment of a healthy microbiota from the chicks" first hours of life directly reflects on the production rates in the field. There were no differences in viability between treatments, perhaps because the experiment was conducted in a controlled environment with a low mortality rate, this variable was less expressive.

Keywords: Production, Nutrition, Metabolic Pathways

Understanding the Chicken Embryo as a Model ofcampylobacter Jejuniinfection Beyond Death (SA-18)

Maria Victoria Pereira De Souza, Paula Fernanda de Sousa Braga, Fabiana de Almeida Araújo Santos, Simone Sommerfeld, Alessandra Aparecida Medeiros, Emília Rezende Vaz, Belchiolina Beatriz Fonseca
Universidade Federal de Uberlândia – UFU
e-mail: vicsouza24@gmail.com

Abstract:
Campylobacter jejuni(CJ) is a concern in commercial broiler flocks because it can be rapidly transmitted between chickens and contaminate the meat, posing a risk to humans. This study aimed to evaluate the virulence and infection of strains of CJ isolated from chicken and humans to understand better the pathogen-host relationship of CJ and chicken embryo (CE) with an active immune system. Thus, from this study is possible to classify strains of greater or lesser virulence in this model. We used 177 eggs to evaluate the effect of different strains of CJ on the immune response of CE. Salmonella Typhimurium(ST) was used as a positive control. A pilot test was conducted to understand the mortality rate of bacteria samples better, then we decided to use a lower dose of CJ and ST in the main experiment. Eggs were inoculated with different strains, and viability, gross lesions, and allantoic fluid (AF) were evaluated. Blood, AF, and liver samples were collected for analysis. The experiment also measured the number of lymphocytes CD8+, CD4+ and monocytes/macrophages, and the levels of Interferon Gamma (IFN-γ), Interleukin-1 beta (IL-1β), and Interleukin 10 (IL-10) in the serum of CE. Liver samples were also processed for histopathological examination. When we inoculated 3.7 logs CFU/CE of ST or CJ, there was high mortality in CE. Infection by ST resulted in the most increased embryo mortality (80%). Also, we noticed that, low doses of CJ do not result in high mortality or weight change, but CJ multiplies and leads to macroscopic lesions in CE. Likewise, CJ didn"t cause an increase of blood monocytes and lymphocytes CD8+ but some strains can increase lymphocytes CD4+ or CD4+:CD8+ ratio after 7 days of inoculation. Different strains of CJ don’t change IL-1β and INF-γ but can change IL-10 in CE blood after 7 days of inoculation. Despite that, some strains of CJ can induce discreet or moderate inflammatory changes in CE. In conclusion, at a low dose, CJ generates lesions in CE, and some strains can stimulate the immune system without a defined response pattern, emphasizing that the host-pathogen relationship is strain-dependent. Furthermore, this work shows that the CE may be adequate for studying pathogenicity and response to CJ infection.

Keywords: Immune System, Lesions, Poultry, Virulence

Evaluation of "Vaccine Take" in Broilers Vaccinated With a Vaccine Against infectious Bronchitis Virus Gi-23 Lineage in Brazil (SA-13)

José Emílio de Menezes Dias[1,2], André Marca[2], Daniel Dalla Costa[3], Maurício Braga Puccinelli[2], Vinícius Duarte[4], Leandro Bianchet[4], Eva Laurice Pereira Cunha Hunka[4]
[1]Instituto Federal Catarinense – IFC, [2]Copacol, [3] Lar Cooperativa Animal, [4]Phibro Saúde Animal – PHIBRO
e-mail: jose.dias@pahc.com

Abstract:
Infectious Bronchitis (IB) is a viral disease, highly contagious and is directly and indirectly linked to major economic losses in the world poultry industry. Infectious Bronchitis Virus (IBV) belongs to the Gammacoronavirus genus, and it has high capacity for horizontal dissemination, whose main control tool is vaccination. In 2022, the molecular characterization of Infectious Bronchitis Virus (IBV) strains belonging to the GI-23 (Variant 2) lineage in commercial broiler flocks in Brazil was published. The presence of this viral strain was highly correlated with an increase in condemnations at the slaughterhouse due to airsacculitis and an increase in field mortality from primary and/or secondary causes. In 2023, vaccination with a homologous vaccine had started, with a vaccine strain belonging to the GI-23 lineage, with the aim of helping to control this new variant present in the country. The aim of this study was to evaluate the efficiency of vaccination carried out in the hatchery, based on the detection of the vaccine virus in the trachea from vaccinated chickens. The samples were collected in commercial broilers flocks, from different companies in South Region of Brazil. The flocks received in the hatchery, with 1 day of life, the vaccine against IBV GI-23 lineage (TAbic IBVAR206) via spray (104.1 EID50). Tracheal samples were collected individually from 5 birds per flock, totaling 120 tracheal samples from 6-day-old chickens. These samples were submitted to the RT-qPCR technique (quantitative), using specific primers for strains of the GI-23 lineage, based on glycoprotein S1 (fraction of glycoprotein S present on the surface of the viral envelope). Of the 120 samples collected, 115 (96%) were positive for the vaccine strain of the GI-23 lineage. Among positive samples, the average cycle threshold (CT value) results were 23.6 ranging from 12.9 to 33.3. The average quantification result was 2.05x107copies/mL, varying between 135 and 5.97x108. These results demonstrate good vaccination efficiency, since at least 95% of positive birds are expected 6 days after vaccination. In addition, the CT value results demonstrate the presence of good viral load in the trachea of vaccinated birds.

Keywords: Ibv,Var2,Tabic Ibvar206

Effects of Mixing of Commercial Probiotic Products With infectious Bronchitis Vaccine Solution (SA-01)

Jorge Luis Chacón Villanueva, Ronan Alves, Jefferson Corrêa
Ceva Saúde Animal – CEVA
e-mail: jorge.chacon@ceva.com

Abstract:
To save time and management procedures, many companies are applying probiotics mixed with Infectious Bronchitis (IB) vaccine solutions at the hatchery by spray route. A study was conducted to evaluate the effect of adding different probiotic products into IB vaccine solution containing the Massachusetts and BR-I vaccine strains. The objectives of the study were: 1. Determine the drop aspect of vaccine solutions mixed with probiotics (Physical aspect). Physical effects on final vaccine drop were evaluated by measurement of aspect, quantity and distribution of dro 2. Determine IB titers of vaccine solutions mixed with probiotics (Biological aspect). The effect of each probiotic on the vaccine virus was measured by titration in SPF embryonated eggs. Five commercial probiotics were used. All probiotics and vaccines were prepared strictly according to manufacturer´s recommendations. Vaccine was applied by a Line spray vaccinator. Vaccine solutions mixed with probiotics presented pH values between 4.3 and 6.9 before pH stabilizer addition. Only one probiotic product did not affect the shape, distribution, and quantity of drops (probiotic 1). Probiotics 2 and 3 affected tremendously the physical aspect of drops since they could not be counted. As for probiotics 4 and 5, the number and distribution of drops were different of that in the control. The virus titers of the two vaccine antigens were affected after the mixing of all probiotics tested. Reductions on vaccine titers ranged from 0.15 to 1 log 10EID50 per dose. The study showed: 1) pH values of probiotics are not recommended for mixture with respiratory vaccine, mainly IB. 2) The use of dyer is extremally necessary to guarantee adequate pH for vaccine virus survival. 3) Two probiotics affected tremendously the and shape of drops. 4) Probiotics 4 and 5 caused number of drop different to control. 5) All probiotics affected the vaccine titers of the two IB vaccines. Virus titer losses were between 0,15 to 1 log10 EID50 per dose. The study clearly demonstrated a negative effect of commercial probiotic products on the IB vaccine titer and on the physical aspect of drops when applied mixed by spray route.

Keywords: Vaccine, Spray Vaccination, Ibv

S1 Gene Complete Sequencing of Br-I infectious Bronchitis Virus Reveals Important aspects on Phylogenetic and Phylodynamic of Virus Circulating in Brazil (SA-02)

Jorge Luis Chacón Villanueva[1], Ruy Diego Chacón Villanueva[1], Christian Sánchez[2], Jaime Morín, Claudete Astolfi Ferreira[3], Antonio José Piantino Ferreira[1]

[1]Universidade de São Paulo – USP, [2]Universidad Complutense de Madrid – UCM, [3]Norwegian University of Science & Technology/ Norges Teknisk-Naturvitenskapelige Universitet – NTNU

e-mail: jorge.chacon@ceva.com

Abstract:

S1 partial sequencing of Infectious bronchitis virus (IBV) showed one predominant genotype widespread in Brazilian commercial flocks from different geographic regions called the BR-I genotype. The purpose of this study was to characterize 11 Brazilian IB viruses isolated between 2003 and 2019 by complete sequencing of the S1 subunit. Genetic and phylodynamic analysis were also conducted using sequences of 38 BR-I viruses isolated in a period of 44 years. Samples from eleven commercial flocks were collected from four geographical regions of Brazil between 2003 and 2019. 134 complete S1 sequences of IBV strains from geographically different regions from the five continents were selected for phylogenetic analysis. The strains belonging to the BR-I genotype showed identities of 84.3 to 100% and 83.5 to 100% when their nucleotide (nt) and deduced amino acid (aa) sequences were compared. When compared with other genotypes, the identity values ranged from 57.1 to 82.6% (nt) and from 46.6 to 84.4% (aa). The eleven Brazilian isolates were grouped into the BR-I genotype branch. Selection pressure indicated that S1 in the BR-I strains evolved under purifying selection mode. No recombination events were detected among the BR-I genotype strains and the other genotypes. The time to the most recent common ancestor for the BR-I genotype was estimated in 1944. The Maximum Clade Credibility tree of the BR-I strains reported origin of this genotype in Minas Gerais State. Then, the potential circulation of these strains involved round trips among Minas Gerais and São Paulo States. From this geographical nuclear axis, it was observed a broader dispersion to the south, including other Brazilian states (i.e., Paraná) and southern countries Uruguay and Argentina. This dispersion involved other directions, including the Midwest (Goiás) and the north (Amazonas). The conclusions of the study were: 1) S1 gene complete sequencing of BR-I virus isolated in a period of 44 years reveals ancient circulation of this genotype that explain its huge spreading in Brazil; 2) The genetic analysis confirmed BR-I as a specific genotype different from other genotypes detected in other parts of the world; 3) Genetic comparison predicts the failure of other vaccine genotypes to control BR-I genotype.

Keywords: Genetic Analysis,Ibv S1 Gene,Br-I Genotype

Temporal Evaluation of Salmonella Positivity With the Use of Live Vaccine in Broiler Farms – Field Study. (SA-03)

Josias Rodrigo Vogt[1], Eduardo Correa Muniz[1], Gleidson Biasi Carvalho Salles[1], Antônio José de Lima Neto[1], Antonio Leonardo Kraieski[1], [2]Breno Castello Branco Beirão
[1]Zoetis, [2]Universidade Federal do Paraná – UFPR
e-mail: josias.vogt@zoetis.com

Abstract:
Salmonellosis are among the biggest concerns in the poultry industry because they cause risks related to public health. The Salmonella infection starts in the intestine and, systemic, affects organs such as liver, spleen, cecum and reproductive organs of birds. The objective of this work was to evaluate, under field conditions, the efficacy of a live vaccine produced with sorovar Salmonella Typhimurium (ST). The evaluation was carried out in farms of broilers, over three consecutive years, in a large agroindustry in the state of Paraná. We selected 167 farms with a history of positivity for Salmonella spp., totaling approximately 125 million vaccinated birds in the period. To evaluate the results, 6 farms were randomly chosen as sentinels. In these farms, pools of 5 liver + spleen and pools of 5 ceca were collected throughout the evaluation period, and the samples were collected in the pre-slaughter (between 40 and 45 days of age) of all lots housed in the evaluation period. The samples were sent to the Immunova® laboratory, aiming to evaluate the percentage of positivity for Salmonella spp. In 2020, 245 samples were collected: 300 samples in 2022: 210 samples. The variation in sampling in the respective years occurred due to the execution of specific washing and disinfection procedures relevant to the process. The percentage of liver + spleen positivity in 2020 was 20.00%, in 2021 19.33% and 2022 of 8.57%. The percentage of positivity in ceca in 2020 was 56.80%, in 2021 of 38.67% and 2022 of 18.09%. There was a statistically significant difference between the results, identified through the chi-square test, significant when P

Keywords: Salmonella, Live Vaccines, Liver, Spleen, Ceca, Biosecurity

Identification of Eimeria Spp. in Alternative and industrial Chicken Production Systems From the States of Santa Catarina and São Paulo (SA-04)

Marcelo Vasconcelos Meireles, Bruna Matarucco Sampaio Beretta, José Carlos Soares Junior, Bruno Ferraz Itoyama, Priscila Kataoka, Giane Serafim da Silva, Flávia Lombardi Lopes
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: m.meireles@unesp.br

Abstract:
There are few studies related to the epidemiology of coccidiosis caused by the seven Eimeria species known to infect chickens raised in alternative chicken production systems (ACPS) and industrial broiler production systems (IBPS) in Brazil. Furthermore, none of the studies carried out in Brazil aimed to detect new operational taxonomic units (OTU) and the three novel species recently identified in several countries: E. lata, E. nagambie, and E. zaria. Therefore, this study aims to identify Eimeria spp. in chickens originated from 261 ACPS and 88 IBPS from the state of São Paulo (SP) and 96 IBPS from the state of Santa Catarina (SC). Each sample consisted of pooled fecal samples collected in each farm. All samples were screened for Eimeria spp. by microscopy or a genera-specific polymerase chain reaction (PCR) targeting the ITS-1 gene. Samples positive for Eimeria spp. were further examined by a genera-specific nested-PCR targeting the 18S rRNA gene followed by next-generation sequencing (NGS) to identify Eimeria species and new Eimeria OTUs. Amplicon sequencing libraries were prepared as described in the Illumina 16S Metagenomic Sequencing Library Preparation Guide, using the MiSeq™ Reagent Nano kit v2, and sequenced on the MiSeq™ platform (Illumina). Sequence analyses were performed using MetaAmp Version 3.0 and the chimera.uchime algorithm. OTUs originated from NGS analyses were searched using the BLAST Tool and aligned with reference sequences from Eimeria spp. using BioEdit. Microscopy and genera-specific PCR identified 79/261 (30.3%) samples positive for Eimeria spp. from ACPS and in 77/96 (80.2%) and 88/88 (100%) IBPS samples from SC and SP, respectively. Next generation sequencing identified, in order of prevalence: 1) ACPS: E. praecox, E. acervulina, E. nagambie, E. brunetti, E. maxima, E. mitis/mivati, an unidentified Eimeria sp., E. necatrix/tenella, E. zaria, and Eimeria spp. from other hosts. 2) IBPS: E. acervulina, E. maxima, E. praecox, E. necatrix/tenella (only in SP), and E. mitis/mivati. In conclusion, this study identified, for the first time, the infection by E. nagambie and E. zaria in Brazil. Eight species from domestic chickens and an unidentified Eimeria sp. were detected in APPS. Five Eimeria species were identified in IBPS.

Keywords: Coccidiosis, Backyard Chickens, Broiler Farms, Brazil, Next Generation Sequencing, Coccidiosis, Backyard Chickens, Broiler Farms, Brazil, Next Generation Sequencing

Phenotypic and Genotypic Characterization of Antimicrobial Resistance Profiles ofescherichia Coliisolated From Chicken Carcasses in Brazil (SA-05)

Giulia Von Tönnemann Pilati, Mariane Dahmer, Beatriz Pereira Savi, Gleidson Biasi Carvalho Salles, Eduardo Correa Muniz, Josias Rodrigo Vogt, Gislaine Fongaro
Universidade Federal de Santa Catarina – UFSC
e-mail: giuliavpilati@gmail.com

Abstract:
Colibacillosis, caused by Escherichia coli, remains a major concern in poultry production, as it leads to significant economic losses due to carcass condemnation and clinical symptoms. The development of antimicrobial resistance, which can occur through mutation or horizontal gene transfer, is a growing problem of worldwide concern. This study aimed to phenotypically and genotypically characterize the antimicrobial resistance profile of 63 Escherichia coli isolates from femurs obtained from necropsied chickens in farms distributed across Brazil. Samples were collected between August and November 2021, from 100 broiler batches from Paraná, Santa Catarina, Rio Grande do Sul, São Paulo, Minas Gerais, and Ceará. The diffusion method with discs was used to test the antibiotic sensitivity of antibiotics from different classes. The diameter of the inhibition halos was measured and compared to CLSI breakpoints guidelines. Through whole genome sequencing (WGS), the data obtained were analyzed for the presence of antimicrobial resistance genes using the Abricate 1.0.1 program with the Resfinder database version (2022-May-24). The general resistance rates of 66.67% for Ampicillin, 7.94% for Azithromycin, 44.44% for Ceftriaxone, 44.44% for Ceftiofur, 39.68% for Enrofloxacin, 30.16% for Gentamicin, 19.95% for Lincomycin/Spectinomycin, 69.84% for Nalidixic Acid, 7.94% for Nitrofurantoin, 14.29% for Norfloxacin, and 42.86% for Sulfazotrim. The genes detected in 20% or more of the isolates were sul2 (57.8%), ant(3'')-Ia (51.5%), sul1 (51.5%), aph(6)-Id (32.8%), aac(3)-VIa (35.9%), tet(A)(31.2%), tet(B) (21.8%), floR (20.3%), aadA2 (20.3%) and aph(3'')-Ib (20.3%). Additionally, 78.1% of the isolates harbored at least one of the aminoglycoside resistance genes, 73.4% had predicted sulfonamide resistance genes, 64.06% had predicted resistance genes against β-lactams, and 48% of the isolates had at least one of the tetracycline resistance genes. High levels of antimicrobial resistance were detected, including resistance to commonly used antibiotics in animal production and human infections. The presence of multiresistant strains highlights the urgent need for monitoring and pharmacovigilance to prevent the spread of resistance.

Keywords: Colibacillosis, Brazilian Poultry, Multidrug Resistance

Adaptation of the Spot on the Lawn Techinique in the Analyses of Probiotic Bacteria in inhibiting Pathogenic Bacteria Growth (SA-06)

Gabriele Silva Dias, Guilherme de Brito Viana, Gabriella Costa Ribeiro, Adriano Sakai Okamoto, Rapahel Lucio Andreatti Filho
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: gabriele.dias@unesp.br

Abstract:
One of the main challenges of the global poultry chain is the control of bacterial diseases and the maintenance of good zootechnical indexes linked to the reduction in the use of antimicrobials. There has been an increase in the use of probiotic bacteria. One of the main techniques used to test the capacity of inhibiting the growth of a probiotic bacterium against a pathogenic bacterium is the Spot-on-the-lawn technique. The objective of this study was to test a variation of the Spot-on-the-lawn technique, using filter paper disks containing probiotic bacteria, to make the technique more practical and allow it to be performed on a larger scale. All microorganisms belong to the collection of the Laboratory of Ornitopathology (FMVZ/UNESP). After incubation in 5mL MRS Broth for 18 hours with a strain of Lactobacillus casei (ATCC) to the concentration of 4,5x10^8 CFU, 20µL of the culture were added in 5mm paper discs (previously sterilized at temperature of 120ºC for 30 minutes). The paper discs remained at rest for eight hours at a temperature of 4ºC for complete absorption. Subsequently, the discs were placed on a Petri dish containing MRS agar at three different points. The plate was incubated at 37ºC for 18 hours. Then, coverage was performed with 15mL of Brain Heart Infusion Agar containing 150µL of Salmonella Heidelberg. The culture of Salmonella Heidelberg was obtained by incubating the bacteria in BHI broth for 18 hours to the concentration of 2x10^4 CFU. The Petri dish was then incubated at 37ºC for 24 hours. After which the halos were read and measured. The test was performed in duplicate. The values of the halos measured from the edge of the colony to the margin of inhibition of bacterial growth varied between 9 and 11mm. Studies carried out following the conventional Spot-onthe-lawn method, obtained similar results regarding the formation of inhibition zones determined by Lactobacillus spp. against different serovars of Salmonella. Such results allow us to infer that the adaptation of the Spot-on-the-lawn technique, from the use of filter paper discs soaked in a culture medium of probiotic bacteria, is feasible and maintains the same level of reliability as the original technique, making it more practical and likely to be reproduced on a larger scale.

Keywords: Spot o the Lawn, Salmonella Spp., Probiotics

Occurrence of Avian Pathogenic Escherichia Coli (Apec) in Broilers in the States of Minas Gerais and Bahia (SA-07)

Eduardo Correa Muniz[1], Gleidson Biasi Carvalho Salles[1], Antônio José de Lima Neto[1], Josias Rodrigo Vogt[1], Maria de Fátima Silva Montassier[2], Hélio José Montassier[2]
[1]Zoetis, Universidade Federal de Santa Catarina – UFSC, [2]Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: Eduardo.Muniz@zoetis.com

Abstract:
Despite all the technological advances that have occurred in industrial poultry farming, an increase in the condemnation of broiler chicken carcasses at slaughterhouses has been reported, due to the presence of lesions resulting from colibacillosis. Thus, in the present study, we proposed to investigate the occurrence of avian pathogenic E. coli (APEC) through the detection and characterization of the basic virotype of this bacterium in bone marrow samples from broiler chickens with clinical signs of colibacillosis. Fourteen flocks of commercial poultry farms were accessed with clinical signs suggestive of respiratory and systemic infection by E. coli from farms in the states of Minas Gerais and Bahia, presenting mortalities ranging from 1.26 to 5% and in which the majority (8 out of 14 flocks) was receiving therapy with different antimicrobials. Bone marrow samples were collected from the femurs of 42 chickens (3 samples/flock) and packed for transport in Cary Blair medium. These samples were seeded in enrichment medium so that screening and multiplex PCR analyzes could be performed for 5 virulence genes (iroN, iss, iutA, ompT and hlyF) and then followed by plating in McConkey medium, so that isolated colonies were selected and retested for the presence of these same virulence genes. The results showed that from 13 samples (30.95%) with growth in the initial enrichment medium, 6 isolates have less than 5 virulence genes and 7 isolates (16.67%) have the basic pathogenicity profile for APEC and biochemical characteristics of E. coli; 3 of them originated from samples of broiler chickens from the state of Minas Gerais and another 4 isolates corresponded to samples from the state of Bahia. In conclusion, our results indicate that the presence of potentially pathogenic E. coli isolates (APEC) in bone marrow samples from broiler chickens with signs of colibacillosis is relevant, even though most of these birds have received antimicrobial therapy, the mortality rates of these flocks of birds are significant, suggesting that new approaches to control this pathogen should be adopted.

Keywords: Apec, Escherichia Coli, Poultry

Co-infection Between Avian Metapneumovirus (Ampv) and Avian Pathogenic Escherichia Coli (Apec) in Broilers in Different Regions of Brazil (SA-08)

Eduardo Correa Muniz[1], Gleidson Biasi Carvalho Salles[1], Antônio José de Lima Neto[1], Josias Rodrigo Vogt[1], Maria de Fátima Silva Montassier[2], Hélio José Montassier[2]
[1]Zoetis, Universidade Federal de Santa Catarina – UFSC, [2]Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: Eduardo.Muniz@zoetis.com

Abstract:
Several diseases that affect industrial poultries occur as syndromes, especially respiratory diseases. The synergistic potential is well known when two or more infectious agents are present within the same flock of birds, leading to losses due to reduction of performance, mortality and carcass condemnations. Thus, we proposed in the present study to investigate the occurrence of co-infections between AMPV and avian pathogenic E. coli (APEC) in broiler chickens. Therefore, 14 broiler flocks with respiratory and systemic clinical signs of colibacillosis and not vaccinated against AMPV were sampled, in two states, 5 of these flocks in Minas Gerais and 9 in Bahia. For the detection of AMPV and APEC, nasal swab samples from 10 birds and femur bone marrow from 3 birds were collected for each flock, respectively. The investigation of antibodies against AMPV was also carried out using the ELISA method, with 30 serum samples per flock being analyzed. The results of this investigation showed an association of infections between AMPV and APEC in the analyzed birds, both in farm flocks in the states of Minas Gerais and Bahia. Thus, in birds from Minas Gerais flocks, in which APEC isolates were identified, AMPV subtype B was detected in samples of nasal swabs by the RT-Nested-PCR technique, as well as seroconversion to AMPV by ELISA technique in 76.67% of the birds tested. Furthermore, the association of infections by AMPV and APEC was also found for broilers from one flock in the state of Bahia, since in the serum samples of birds from the flock in which APEC isolates were identified, seroconversion was detected for AMPV by the ELISA technique in 43.33% of the analyzed birds, although in the samples of nasal swabs from the birds of this lot AMPV was not detected by the RT-Nested-PCR technique. Considering that the importance of the association of infections by AMPV and APEC in commercially raised turkeys has already reported in triggering more severe forms of colibacillosis and in increasing the mortality of affected birds, the relevance of the finding of the present study is highlighted on the association between infection in broiler chickens by AMPV and APEC, which can lead to more severe lesions by the synergy between the two etiological agents.

Keywords: Apec, Ampv, Coinfection

Anticoccidial Sensitivity Test (ast) as a Tool for Choosing Anticoccidial Programs Based on the Sensitivity of Molecules (SA-09)

Gleidson Biasi Carvalho Salles, Josias Rodrigo Vogt, Eduardo Correa Muniz, Antônio José de Lima Neto, Jaquiel Bampi
Zoetis
e-mail: gleidson.salles@zoetis.com

Abstract:
The prevention and control of Coccidiosis are fundamental for the success of poultry production worldwide. In general, companies carry out anticoccidial rotations every 6 months, however, they do not always follow technical criteria related to rotation between classes of ionophores. To aid effective rotation, some European countries and the United States use the Anticoccidial Sensitivity Test (AST). The objective of this work seeks to bring a view of which molecule can be used to compose subsequent anticoccidial programs, based on lesion scores and zootechnical indices. To perform the AST 5 kg feces were collected from an integration of broiler chickens in the state of Santa Catarina, Brazil, which showed clinical signs suggestive of coccidiosis challenge. After collecting the feces, the oocysts were purified and identified for E. maxima. Each AST consists of 4 replicates of 6 birds per treatment. The birds received a standard starter feed until they were 11 days old. When they were 12 days old and until the end of the experiment, the birds received the respective rations medicated with different anticoccidials in the treatments/groups (T1: negative control, not medicated and not infected, T2: positive control, not medicated and infected, T3 : Lasalocid, T4: Nicarbazin + Salinominin, T5: Decoquinate, T6: Nicarbazin + Semduramycin, T7: Monensin, T8: Salinominica, T9: Narasin + Nicarbazin and T10: Nicarbazin. At 14 days of life, all groups except T1 received the inoculum of E. maxima diluted to a volume of 1 ml/bird, and at 20 days of life all the birds were euthanized and classified according to the lesion score for E. maxima. body weight and weight gain in relation to the other treatments, being statistically equal to T1. T5 had the lowest feed conversion, however, statistically equal to treatments T4, T6, T7, T9 and T10. Based on these results, we have a indicative of which molecule has greater sensitivity and possible effectiveness to compose a future anticoccidial program, aiming at better zootechnical indices and consequently better financial returns.

Keywords: Coccidiosis, Rotation, Anticoccidials, Decoquinate

Evaluation of Zootechnical indices of Broiler Chickens After the Use of a Live Escherichia Coli Vaccine (SA-10)

Gleidson Biasi Carvalho Salles, Eduardo Correa Muniz, Antônio José de Lima Neto, Josias Rodrigo Vogt, Amanda Borges
Zoetis
e-mail: gleidson.salles@zoetis.com

Abstract:
Since the beginning of large-scale poultry production, few infectious agents of importance to poultry have been present as widespread as APEC (Avian Pathogenic E. coli). This secular disease appears with great frequency, being responsible for causing zootechnical and financial losses related to this bacterium. Both long and short cycle birds are affected by this agent. In slaughterhouses, the losses caused by condemnations caused by this bacterium are also great. Furthermore, APEC has been linked as a zoonotic risk due to the high genetic similarity between certain APEC isolates and (UPEC) urinary tract infections in humans. The reduction of impacts related to Colibacillosis must be evaluated in a very broad way and the use of live vaccines for immunoprophylaxis can be the way to reduce losses related to this disease. The objective of this work was to evaluate the zootechnical performance of batches of broiler chickens vaccinated with a live vaccine to prevent colibacillosis against non-vaccinated batches. The experimental design used 2 groups of different treatments, in group A, 1,877,000 birds receive a dose of live vaccine Poulvac E coli ® by Zoetis via spray in the hatchery, in group B, 2,108,000 birds were not vaccinated, totaling 3,985 .000 birds evaluated in the test, in addition, the Cobb® and Ross® lineages, mixed, were used, similarly distributed in acclimatized and conventional sheds in southeastern Brazil, from September 2022 to January 2023. The average age of group A was 44.00 days, with an average slaughter weight of 3.026 kg, which gave a daily weight gain (GPD) of 68.38 g. In group B, the average age was 44.78 days, with an average slaughter weight of 3.048 kg and daily weight gain of 68.02 g. Regarding mortality, in group A it was 3.80 and in group B 4.20, and the adjusted feed conversion in group A was 1.588 and in group B 1.610, the productive efficiency index was higher in group A, 403 against 394 in group B. The strategic use of the Poulvac E coli® vaccine proved to be very efficient because, in addition to reducing mortality, it contributes to the improvement of zootechnical results, which may contribute to the reduction of production costs in broiler chickens.

Keywords: Colibacillosis, Airsacculitis, Poulvac E Coli, Initial Mortality

Antimicrobial Resistance Profile ofcampylobacter Jejuniisolated From Chicken Carcasses (SA-11)

Saruanna Millena Dos Santos Clemente, Samuel Fernando dos Santos, Andrea Paiva Botelho Lapenda de Moura, Rinaldo Aparecido Mota, Mércia Rodrigues Barros
Universidade Federal Rural de Pernambuco – UFRPE
e-mail: saruannamillena@hotmail.com

Abstract:
Campylobacterspp. represents $270 million in direct medical costs each year, and infections with resistant isolates are more common in low- and middle-income countries [1]. The aim of this study was to evaluate the resistance profile of Campylobacter jejuniisolates from chicken carcasses. The susceptibility of 26 C. jejuniisolates was evaluated by the standard disc diffusion method [2]. The isolates were cultured on Columbia agar (Himedia®) to prepare suspensions adjusted to the MacFarland 0.5 scale. Each suspension was inoculated in Mueller-Hinton agar (Himedia®) supplemented with 5% defibrinated horse blood, incubated at 41.5°C ± 1°C for 48 hours in a microaerobic atmosphere. The following antimicrobials were tested: ampicillin (10µg), ciprofloxacin (5µg), clindamycin (2µg), doxycycline (30µg), erythromycin (15µg). The interpretation of the results followed the cut-off points recommended by the European Committee for Antimicrobial Susceptibility Testing (EUCAST) [2]. All isolates (26/26) were resistant to clindamycin, doxycycline and erythromycin, 88.5% (23/26) were resistant to ciprofloxacin and 57.7% (15/26) to ampicillin. Multidrug resistance to three or more classes of antimicrobials was found in 100% (26/26) of the C. jejuniisolates, referring to the classes: lincosamides, tetracyclines and macrolides. The high rate of multiresistant isolates to antimicrobial classes, used both in veterinary medicine and in human medicine, highlights the need for improvements in the production of animal protein, with the adoption of systems to monitor the consumption of antimicrobials and the use of alternative methods that allow minimize its use in Brazilian poultry.References1. CDC. Antibiotic Resistance Threats in the United States. 2019. Available in: https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf. Accessed 13 april 2023.2. EUCAST. Antimicrobial Susceptibility Testing EUCAST Disk Diffusion Method. 2023. Available in: https://www.eucast.org/fileadmin/src/media/PDFs/EUCAST_files/Breakpoint_tables/v_13.0_Breakpoint_Tables.pdf. Accessed 13 april 2023.

Keywords: Multidrug Resistance, Poultry, Antimicrobials

Correlation Between Spray Dye Level in Broilers Body and Viral Load in the Trachea of Broilers 6 Days After Vaccination Against infectious Bronchitis Virus (SA-12)

José Emílio de Menezes Dias[1], André Marca[2], Mario Luiz Manichi Junior[2], Eduardo Rother[1], Jessica Caroline Staffen Wammes[1], Leandro Bianchet[1], Eva Laurice Pereira Cunha Hunka[1]
[1]Phibro Saúde Animal – PHIBRO, [2]Copacol
e-mail: jose.dias@pahc.com

Abstract:
Vaccination against Infectious Bronchitis Virus (IBV) has been shown to be an effective tool worldwide. However, the success of the vaccination program depends a lot on the vaccination process. Most of broiler producers in Brazil vaccinate the birds against IBV in the hatchery (day-old bird) and the main way to assess the effectiveness of the vaccination process is to assess the presence of dye in the birds, especially in the eyes, nostrils, and tongue. However, many producers correlate the efficiency of the process with the dye level in the bird''s body. The aim of this study was to seek correlation between the level of spray dye present in the body of birds and the viral load present in the trachea after vaccination. The samples were collected in commercial broilers flocks, in South Region of Brazil. The flocks received in the hatchery, with 1 day of life, via spray, the vaccine against IBV GI-23 strain (TAbic IBVAR206) diluted in distilled water containing red dye. Tracheal samples were collected individually from 5 birds per flock, totaling 25 tracheal samples from 6-day-old chickens. These samples were submitted to the RT-qPCR technique, using specific primers for strains of the GI-23 lineage, based on glycoprotein S1. At the time of sampling, birds with different levels of dye in the body were randomly selected. A score from 1 to 3 was created according to the level of dye, being 1 (head with dye); 2 (head and back dyed) and 3 (head, back and wings dyed). The results were submitted to the Spearman's correlation matrix. Of the 25 samples collected, 24 (96%) were positive for the vaccine strain of the GI-23 lineage. Among positive samples, the average cycle threshold (CT value) results were 24.6 ranging from 17.9 to 30.3. No correlation was identified between the results of CT value and dye level in the broilers bodies (r= 0.047; p=0.829). These results suggest that it is not possible to associate the level of dye present in the body of the birds (head, back and wings) with good or poor vaccination. Monitoring the vaccination process in the hatchery through the visualization of the spray dye in the eyes, tongue, and nostrils, and the evaluation of the vaccine "take" (by RT-qPCR), is an important tool for the success of the vaccination program.

Keywords: Ibv, Var2, Tabic Ibvar206, Vaccination, Poultry

Diversity of Avian-Pathogenicescherichia Coliisolated From the Broiler Breeds (SA-14)

Fernanda Borges Barbosa, Victória Galdino Pavlenco Rocha, Terezinha Knöbl
Universidade de São Paulo – USP
e-mail: fernanda.borges.barbosa@usp.br

Abstract:
Avian-pathogenic Escherichia coli (APEC) is the etiological cause of colibacillosis, an infection associated with wide economic losses due to mortality. This study aimed to characterize APEC isolate from broiler breeds in Brazil. Thirty-three strains of APEC were included in this study. APEC identification was carried out according to the method described by Johnson and collaborators (2008), which consists of a multiplex polymerase chain reaction (PCR) to search minimal predictive factors (hlyF, iss, iutA, iroN and ompT genes). APEC was determined by the presence of three or more genes. The phylogenetic determination was performed as described by Clermont and collaborators (2013; 2019), a multiplex PCR (search of chuA, arpA, yjaA, cfaB and ybgD genes and DNA fragment TspE4.C2) to classify the strains into one of the phylogenetic groups (A, B1, B2, C, D, E, F, G and clade I, II, III, IV or V). The ST23 and ST95 determinations were carried out by uniplex PCR, the primers used were described by Doumith and collaborators (2015) Twenty-six strains (78,78%) were classified as APEC. The phylogenetic classification showed that: 19.23% (n=5/26) belong to the B2 group, 11.54% (n=3/26) belong to the G group, 11.53% (n=3/26) belong to the E group, 7.69% (n=2/26) belong to clade I or II. Groups A, B1 and D had the same prevalence of 3.86% (n=1/26) each. Was not possible to determine the phylogenetic group of 38,46% (n=10/26) of the strains, being necessary to perform multilocus sequence typing MLST in the future. The prevalence of ST23 and ST95 was 3.86% (n=1/26) each. The strain classified as ST23, a high-risk clone, belongs to the unknown group. These clones can colonize, endure, spread resistance and raise pathogenicity. The strain classified as ST95 belongs to the B2 group. These results show that the method described by Clermont and collaborators (2019) improves the efficiency of phylogenetic classification, establishing the pattern of occurrence of clones, including high-risk clones circulating in Brazil. It also reinforces the benefits of screening methods to determine ST.

Keywords: Phylogenetic Determination High-Risk Clone; Sequence Type; Group G,Poultry.,Phylogenetic Determination

Lactobacillus Plantarumandl. Acidophilusorbacillus Subtilisare Efficient in Controllingsalmonellaheidelberg in Broilers (SA-15)

Caroline Teixeira Dreyer, Patrícia Giovana Hoepers, Pedro Lucas Figueiredo Nunes, Maria Vitoria Mendes Felix Costa, Simone Sommerfeld, Belchiolina Beatriz Fonseca
Universidade Federal de Uberlândia – UFU
e-mail: carolinedreyer@outlook.com

Abstract:
Free-antibiotic Salmonellacontrol is one of the main challenges in poultry production. Therefore, this study sought to evaluate six probiotics with proven immunomodulatory capacity, including Bacillus subtilisspores (BS), Saccharomyces boulardii(SB), Lactobacillus delbrueckii(LD), Lactococcus lactis(LL), L. plantarum(LP), L. acidophilus(LA), as an inhibition factor for SalmonellaHeidelberg (SH). For in vitroanalysis, each probiotic microorganism was grown in a spot. Then we inactivated the probiotic organisms, inoculated SH and measured the halo of inhibition formed around the spot. For the in vivoexperiment, we placed 100 broiler chicks in four experimental chambers (each chamber with air, temperature and light controlled was a group). The groups were: (i) Negative group (NG): which received a basal diet without supplementation or SH challenge; (ii) BlendSH group which received basal diet supplemented with the blend of non-commercial probiotics (SB (2x105CFU/Kg of feed), LD (3x106CFU/Kg of feed), LL (1,5x106CFU/Kg of feed), LP (1,5x106CFU/Kg of feed), LA (2,2x106CFU/Kg of feed)) during all their life and were challenged with a dose of 0.2 ml orally (6 x 109CFU/ml) of SH per day 4; (iii) BS group which received BS (10x104CFU/Kg of feed) since being 1 day old and were challenged with SH at 4 days old; Positive control (PC) which received basal diet and were challenged with SH. At 7, 14, 21 and 28 days old, cecal samples were collected and the Salmonellawas quantified. In vitrotests showed that LP and LA presented a strong inhibitory effect on the control of SH. While BS demonstrated a weak effect, SB, LD e LL didn't inhibit SH. The in vivotest proved that the blend decreased SH in the cecum with a progressive inhibition of 78,12%, 98,74%, 99.95% and 99.999% at 7, 14, 21 and 28 days old, respectively. The BS spores supplementation decreased the SH by 99,97% at 28 days old. The blend, composed by the selected strains with an inhibitory effect, is a great alternative to control SH. However, spores of BS (presenting a weak inhibition effect in vitro) are an alternative to control SH even at doses lower than the bacteria in the blend. This work shows that probiotic microorganisms are essential alternatives for controlling SH in broiler flocks.

Keywords: Broilers, Probiotics, Salmonella Heidelberg

Reduction of Spores of Bacillus Subtilis Or B. Thurigiensis After Treatment With Orthophthalaldehyde by Dry Fumigation Or Solution of Ammonia and Glutaraldehyde by Spray (SA-16)

Maria Vitoria Mendes Felix Costa, Lidianne Fabricia dos Santos Tomais, Simone Sommerfeld, Arthur Campoi Peluco, Danielle Silva Vieira, Belchiolina Beatriz Fonseca
Universidade Federal de Uberlândia – UFU
e-mail: mariavmfc@gmail.com

Abstract:
Bacilli spores are used as an indicator to evaluate the quality of disinfection and sterilization. Formaldehyde is a highly efficient disinfectant but it has several disadvantages during its use, such as its strong odor and carcinogenic property. Orthophthalaldehyde (ORT) and the solution of ammonia and glutaraidehyde (AG) are formaldehyde alternatives. The work in question sought to evaluate the reduction of the spores of Bacillus subtilis (BS) and Bacillus thurigiensis (BT) after treatment with ORT by dry fumigation and ammonia and AG solution by spray. In the first test, we found the minimum bactericidal concentration (MBC) of ORT and AG on spores of BT and BS by the plate microdilution method. In the second test, the BS and BT spores were soaked in gauze and treated with ORT by dry fumigation (~0. 5mL/m3, being 22.5mg of active product/m3) or AG (1mL of the product diluted 1:000 with 500ug of glutaraldehyde per gauze) by spray for 20 minutes. In the third, the BS spores were treated with ORT (~2.5mL/m3 which is equivalent to 112.5mg/m3 of the active product) for 40 minutes. The MBC of ORT was 11.25mg/mL and 5.62mg/mL in spores of BS and BT, respectively. The MBC of AG was 15.62mg/mL and 7.81 mg/mL on spores of BT and BS, respectively. The AG by spray didn't reduce the spores of BS or BT. However, the spores treated with ORT (~22.5mg/m3) for 20 minutes by dry fumigation presented 82,01% and 99.09% inhibition in BS and BT spores. When we treated the BS and BT spores for 40 minutes at (~112.5mg/m3) with ORT the reduction was 93.5% and 100%. Although the MBC of AG was similar to the ORT, the ORT was more efficient in inhibiting spores when we simulated the field's indication conditions of use. Probably, because during the test by spray, we used sub-doses of glutaraldehyde. To BT, ORT (~112.5mg/m3 for 40 minutes) presented a sporicidal effect showing the high disinfection efficiency of this disinfectant. ORT can be used in disinfection processes in the laboratory or poultry industry replacing already-known disinfectants. Other tests should be performed to test higher doses of glutaraldehyde than those used in this work.

Keywords: Bacillus Subtilis, Bacillus Thurigiensis, Orthophthalaldehyde

A Blend of Lactic Bacteria andsacchaomyces Boullardiior Spores ofbacillus Subtiliscan Present An Immunomodulatory Effect Followed by Challenge Withsalmonellaenterica Serovar Heidelberg. (SA-17)

Caroline Teixeira Dreyer, Patricia Giovana Hoepers, Pedro Lucas Figueiredo Nunes, Emília Rezende Vaz, Paula Fernanda de Sousa Braga, Maria Vitoria Mendes Felix Costa, Belchiolina Beatriz Fonseca
Universidade Federal de Uberlândia – UFU
e-mail: carolinedreyer@outlook.com

Abstract:
Probiotics improve gut health in broilers. This study quantified the population of CD4+ T lymphocytes, CD8+ T lymphocytes and macrophages in the cecal tonsils of broilers challenged with SalmonellaHeidelberg (SH) and treated with probiotics with proven immunostimulatory capacity in vitro. Microorganisms tested: Bacillus subtilisspores (BS) and a blend of Saccharomyces boulardii(SB), Lactobacillus delbrueckii(LD), Lactococcus lactis(LL), L. plantarum(LP), L. acidophilus(LA). For the in vivoexperiment we placed 100 broiler chicks in four chambers (each chamber with air, temperature and light controlled was a group). The groups were: (i) Negative control (NC): received a basal diet without supplementation or SH challenge; (ii) BlendSH received a basal diet supplemented with the blend of non-commercial probiotics (SB (2x105 CFU/Kg of feed), LD (3x106 CFU/Kg of feed), LL (1,5x106 CFU/Kg of feed), LP (1,5x106 CFU/Kg of feed), LA (2,2x106 CFU/Kg of feed)) all their lifes and challenged with a dose of 0.2 ml orally (6 x 109 CFU/ml) of SH on day 4; (iii) BSSH received BS (10x104 CFU/Kg of feed) since 1 day old and challenged with SH at 4 days old; (iv) Blend received a basal diet supplemented with the blend of non-commercial probiotic (v) BS received BS from their 1st day of life; (vi) Positive control (PC) received a basal diet and was challenged with SH. At 28 days old their cecal tonsils were collected. The samples were incubated with the respective antibodies. 2.5 µl of mouse anti-chicken (CD8-FITC, CD4 Pe-Cy7, and Monocyte/Macrophage-PE) and their isotypes were added to the cells as a control to perform gate and analysis strategy, diluted in PBS-BSA5% and incubated for 1 hour at 4°C. The cells were washed twice and centrifuged for 5 min at 1000 rpm. Next, 500µl of PBS1x were added and the cells analyzed. The populations of TCD8+, TCD4+ and macrophages were evaluated. SH or probiotic microorganisms didn"t change CD4+ or macrophage numbers. The challenge with SH increased CD8+ cells in PC. But, the blend or spores of BS decreased the number of CD8+ when birds were challenged with SH, proving their immunomodulatory effects in vivo. Probiotics evaluated in the study are allies to immunomodulate the gut of broilers, improve intestinal quality and control SH.

Keywords: Probiotics, Salmonella Heidelberg, T Lymphocytes

Phylogenetic Profile ofescherichia Coliisolated From Broiler Chicken Farms (SA-20)

Maísa Fabiana Menck-Costa, Ana Angelita Sampaio Baptista, Marielen de Souza, Larissa Justino, Victor Dellevedove Cruz, Vanessa Mitie Kaneko, Renata Katsuko Takayama Kobayashi
Universidade Estadual de Londrina – UEL
e-mail: maisa.menckcosta@uel.br

Abstract:
Escherichiacoli is considered a bioindicator of antimicrobial resistance, a important transmitter of virulence and/or resistance among humans/animals. A classification of E. colis trains within phylogenetic groups allows for inference with regarding their pathogenicity, being strains belonging to the B2 and D groups, usually considered strains with high virulence and group B1 as environmental strains. The goal of this study was to classify E. coliisolates from cloacal swabs of poultry farms in relation to phylogenetic groups within different periods. Birds samples were collected (cloacal swab and meconium) from four broiler chicken farms from the north of Paraná state (CEUA/UEL, n°13142.2019) in three different moments. At the first moment, the cloacal swabs were collected before the birds were housed, to meconium samples were collected from the paper of shipping boxes. The samples were incubated in buffered peptone water at 36.5°C (±1°C) for 18 to 24 hours. After the broth incubation period, all samples were seeded on agar plates, MacConkey: antimicrobial-free, plus ciprofloxacin or cefotaxime and plus ciprofloxacin + cefotaxime (8µg/mL) three colonies from each agar were identified by biochemistry tests (TSI – acid/acid, H2S, citrate, urea and cellobiose – negative, lysine, sorbitol and indole – positive) and six isolates were selected by sample. The DNA of the isolates was extracted and subjected to PCR for phylogenetics classification in groups A, B1, F, B2, C, D or E. 384 isolates of E. coli were obtained from cloacal swabs and four from meconium. Regarding the phylogenetic classification, a higher percentage of isolates belonging to the B1 group in the three periods of the farms. Since in the first moment, it was observed: Group A in 2%, F in 15%, B1 in 33%, B2 in 4%, D in 17% and E in 1%. In the second moment, out of 120 isolates, 8% were A, 11% F, 38% B1, 3% B2, 7% D, 7% E and 9% C. In the third moment of 120 isolates 6% A, 23% F, 35% B1, 2% B2, 8% D, 9% E 4% C. It was concluded that the highest proportion of E. colibelong to the phylogenetic group B1, regardless of the period sampled.

Keywords: Virulence, Pathogenicity, Phylogroup

Does incubation Temperature Affect the Utilization of Egg Components and Bone Mineralization by the Embryo? (OA-12)

Tais Pinheiro Borges Silva, Izabela Lorena Azevedo, Tayana Nery Franca, Nayana Borges Das Mercês, Larissa Kiana Santos Azevedo Martins, Luis Vitor Oliveira Vidal, Vanessa Michalsky Barbosa
Universidade Federal da Bahia – UFBA
e-mail: taispinheiro@live.com

Abstract:
The intermediate phase of incubation (INC) is the moment when the mineral (MIN) utilization of the egg reaches its apex and the skeleton develops in an accelerated way. As the temperature in the INC plays a fundamental role on the metabolism, our objective was to evaluate whether variations in eggshell temperature (EST) (above or below recommended) affect the use of MIN from the eggshell and yolk, as well as embryo and day old chick bone mineralization. 2,464 eggs from Cobb 500® broiler breeders were distributed into four incubators (P.Ecológica IP600®) set to maintain EST at 100ºF. Between the 8th and 18.5th day, one machine was set to EST at 100ºF (T.CONTROL-TC) and the other three at 98ºF (T.LOW-TL); 102ºF (T.HIGH–TH) and 103ºF (T.VERYHIGH–TVH), being four treatments (TREAT). Each incubator contained seven EST sensors. Calcium (Ca), phosphorus (P), manganese (Mn) and magnesium (Mg) were analyzed using an optical emission spectrophotometer with inductively coupled plasma (ICP OES) according to the methodology of Yair and Uni (2011) for eggshells and yolks at the beginning of INC, 8d, 18.5d and at hatch; and Yair et al. (2012) for tibia at 18.5d and at hatch. Blood Ca and P from day-old chicks were obtained by biochemical analyzer. Analyzes were performed in duplicate on 14 samples by TREAT, as an experimental unit. DIC and Tukey''s test determined differences between means (p≤0.05) using SAS®9.2. Regression analysis was also used. Less Ca was removed from the eggshell when EST was increased after 8d, this effect being more drastic in TVH. At hatch, TH and TVH had the highest Mg values retained in the eggshell. Both at 18.5d and at hatch, TH and TVH resulted in higher P and Mn in residual yolk. Mn, however, were also reduced by TL. Both blood Ca and P were lower in chicks subjected to high EST during INC. All MIN evaluated in the tibia were similarly affected by TREAT, being reduced by any change in EST. Lower Ca, P, Mn and Mg contents were found with TVH, followed by TH and then by TL. For the first time it was demonstrated that EST different from TC reduces the mobilization of MIN from egg and interferes with bone mineralization, with this effect being more pronounced at high EST, requiring attention on possible damage to the locomotor system in rearing.

Keywords: Broiler, Embryogenesis, Locomotor System

Probiotics: A Tool to Improve the Welfare of Broiler Chickens (OA-15)

Andressa Silva Jacinto, Ibiara Correia de Lima Almeida Paz, Ingrid Grazieli Althman dos Santos, Francine dos Santos Mota, Jacqueline Boldrin de Paiva, Bauer Alvarenga, Amábili Raíssa Ferroni de Siqueira
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: andressa.s.jacinto@unesp.br

Abstract:
The supplementation of probiotics in the diets can be an auxiliary tool in reducing stress in broilers, this effect is observed in greater intensity when probiotic strains capable of promoting balance of the intestinal microbiota and mucosal integrity are used, and favoring greater serotonin, since most of this is produced in the intestine. The objective of this study was to evaluate whether the use of different probiotics supplied via feed and also via spray, applied to chicks still in the hatchery, are capable of modifying stress indicators in broiler chickens. For this, 2600 male chicks of the Ross strain were used, distributed in 5 experimental treatments, with 8 repetitions of 65 birds each. The treatments were: T1- BIO 21 Liquid, spray on the 1st day in the hatchery; T2- BIO 21 Mix, added to feed; T3- BIO 21 Liquid + BIO 21 Mix, spary + feed; T4 – Negative control and T5- Positive control, performance enhancing additive (virginamycin). As stress indicators, the catch, approximation and latency to lie tests were performed, and the percentage of bruises and scratches was evaluated. From the obtained data, it was verified that the birds submitted to the T3- BIO 21 Liquid + BIO 21 Mix, presented better results in relation to the other treatments for all the stress indicators, demonstrating that the use of probiotics, can be a tool to help ensure adequate levels of well-being. This is justified because, when there is balance in the microbiota of chickens, consequently, there is a better intestinal quality, which reflects on well-being, since 95% of serotonin, one of the main hormones related to well-being, is produced in the intestine. Regarding the percentage of bruises and scratches, the T3-BIO 21 Liquid + BIO 21 Mix was also the one that showed the best results, and this one showed approximately a 20% reduction in scratches, compared to treatment 5 that received the additive conventional performance enhancer. Thus, we conclude that probiotic supplementation is an efficient tool to help maintain the welfare of broiler chickens.

Keywords: Stress, Intestinal Health, Latency to Lie

Virulence Profile of campylobacter Jejuniisolated From Chilled and Frozen Broiler Chicken Carcasses (OA-01)

Saruanna Millena dos Santos Clemente, Samuel Fernando dos Santos, Andrea Paiva Botelho Lapenda de Moura, Rinaldo Aparecido Mota, Mércia Rodrigues Barros
Universidade Federal Rural de Pernambuco – UFRPE
e-mail: saruannamillena@hotmail.com

Abstract:
Campylobacter jejuni is a zoonotic microorganism, responsible for about 88% of cases of campylobacteriosis disease, one of the most reported gastroenteritis in the EU in humans since 2007, with an increase of 2.1% between 2020-2021 [1]. The aim of this study was to identify Campylobacter jejuni and cdtA, cdtB and cdtC genes in broiler chicken carcasses. A total of 24 chicken carcasses, of which 12 were chilled carcasses and 12 were frozen carcasses, were obtained from supermarket chains located in Recife-PE. Skin samples were collected from the neck, chest, wing, cloaca and respective livers and gizzards. The isolation of Campylobacter spp. followed the guidelines of ISO 10272-2. The isolates underwent catalase and Gram color tests for phenotypic characterization and Polymerase Chain Reaction (PCR) for molecular identification of C. jejuni [2] and the cdtA [3], cdtB and cdtC genes [4]. The chi-square test and Fisher's exact test (SAS 9.4) were performed for statistical analysis. The result showed that 376 isolates of Campylobacter spp. were obtained, C. jejuni was detected in 6.9% (26/376), with higher occurrence in cooled carcasses (p

Keywords: Campylobacteriosis, Food Safety, Poultry

Anatomopathological Aspects of Colibacillosis in Broiler Chicks (OA-02)

Josilene Correa Rocha, Nadja Suzana Mogyca Leandro, Ana Maria de Souza Almeida, Allan Gabriel Ferreira Dias, Valesca Ribeiro Lima, Higor Santiago Vieira dos Santos, Marcos Barcellos Café
Universidade Federal de Goiás – UFG
e-mail: josi.rochacorrea@gmail.com

Abstract:
The intestinal microbiota is composed of several microorganisms, beneficial or malefics. Escherichia coli (E.coli) is a predominantly commensal bacterium present in the cecum and colon, but it has an opportunistic behavior and can aggravate previous lesions caused by pathogens. There are also avian pathogenic E. coli (APEC) strains associated with avian colibacillosis. In view of this, the present work aims to describe the macroscopic findings of chicks with colisepticemia from a batch of 180 birds. Necropsies were performed on two chicks from a batch of 180 Cobb 500 chicks that died for an undetermined cause, from October to November 2022. The birds were housed in a metabolism shed at the School of Veterinary and Animal Science of the Federal University of Goiás, Brazil for performance evaluation, however two birds 13 and 14 days old had clinical changes and were found dead in their cages. Necropsies were carried out according to flock mortality. The present study was approved by the Committee for Ethics in the Use of Animals (Nº 21/22 CEUA-UFG). The chicks showed clinical signs such as apathy, drowsiness, hyporexia, dyspnea, ruffled feathers, slightly pale crest and drooping neck. During the necropsy of the 13-day-old chick, adherence of cavitary organs was observed due to the deposition of yellowish-white and friable material (fibrin), opaque air sacs and the presence of moderate foamy material (aerosacculitis), deposition of white and friable material in the serosa liver (fibrinous perihepatitis), pericardium surrounded by fibrin fringes (fibrinous pericarditis) and duodenum with reddish serosa. In view of the observed lesions, the presumptive diagnosis of colisepticemia was established At necropsy of the 14-day-old chick, there was adherence of cavitary organs, due to fibrin deposition, white dots and caseous material in the lumen of the bursa of Fabricius, heart and liver surrounded by fibrin, persistence of the yolk sac and diffuse congestion of the vessels of the intestinal serosa. In light of the appearance of the lesions, colisepticemia was suggested as the cause of death. Macroscopic lesions such as airsacculitis, fibrinous perihepatitis and fibrinous pericarditis are characteristic of APEC infection and suggest colisepticemia as the cause of death.

Keywords: E Coli, Injuries, Necropsy

Consumer Perceptions, Preferences and Attitudes Related to the Welfare of Broiler Chickens Considering Two Catching Techniques (OA-03)

Rodrigo Garofallo Garcia, Fábio Mascarenhas Dutra, Maria Fernanda de Castro Burbarelli, Erlaine Binotto, Jean Kaique Valentim, Felipe Cardoso Serpa, Rafael Martins Noriller
Fundação Universidade Federal da Grande Dourados – UFGD
e-mail: rodrigogarcia@ufgd.edu.br

Abstract:
The replacement of procedures that involve more human-animal interaction for procedures carried out using machinery tends to concern people differently, specially in animal production. The objective of this study was to evaluate how the welfare of broiler chickens is perceived by the Brazilian population and which factors influence the choice between manual or mechanized catching techniques. Sample variation was considered based on socioeconomic and demographic categories, adopted diet, degree of involvement with poultry farming, and willingness to pay more for animal welfare products. Using a structured questionnaire applied to 508 respondents, the variability of responses between categories of respondents was tested using association tests (chi-square). This study is pioneering in investigating the perception of welfare during manual and mechanized catching of broiler chickens in Brazil, the preference for one of the catching methods, the attitude of considering welfare during supermarket purchases, and the willingness to pay a premium for welfare practices. The results revealed a preference for mechanized catching, perceived as better for comfort and less injury to the birds, although it was also seen as the technique that causes the most fear and pain. Concerns about welfare and confidence in maintaining the health of birds during and after catching varied according to a place of residence (urban and rural) but did not vary according to the diet adopted. Although both methods of bird catching were considered to be low in pain and fear, mechanized catching was preferred by respondents. There was no association between animal welfare perception and age, dietary habits, or degree of involvement with poultry farming. Brazilian consumers generally do not consider animal welfare during purchases but agree that reducing bird suffering during catching should be a priority, even if it increases the price of the product. The willingness to pay more for animal welfare is up to 5%. With the dissemination of information about mechanized catching, which received positive evaluations, a pro-animal welfare strategy may be implemented in Brazil.

Keywords: Pre-Slaughter Management, Manual Catching, Mechanized Catching

Economic Feasibility Analysis of Broiler Chicken Mechanized Catching in Brazil (OA-04)

Rodrigo Garofallo Garcia, Fábio Mascarenhas Dutra, Maria Fernanda de Castro Burbarelli, Erlaine Binotto, Jean Kaique Valentim, Marcelo Corrêa Silva, Bruna Barreto Przybulinski
Fundação Universidade Federal da Grande Dourados – UFGD
e-mail: rodrigogarcia@ufgd.edu.br

Abstract:
Machines for broiler chickens have been the subject of study and development for at least 50 years, aiming to improve productivity efficiency, reduce losses, and increase animal welfare (BEA). In Brazil, the catching process is entirely manual, and the results of this practice can be observed in the rates of disqualification in the slaughtering industry. This study aimed to analyze the economic viability of the implementation of a mechanized broiler catching in Brazil, where the activity is entirely manual. The viability indicators used were net present value (NPV), net future value (NFV), net uniform value (NUV), discounted payback (DP), and internal rate of return (IRR). Monte Carlo simulation were also performed in the present study. The results show that the initial investment was US$ 1,868,302.76. The average price paid by the slaughterhouse to third-party manual catching companies was US$ 18.17 per thousand broilers, which was converted into revenue in the project"s cash flow. The cash flow result was positive at US$ 22,256.14 over the entire study period considering a daily catch of 144 thousand broilers. The economic viability analysis results were NPV of US$ 64,786.23, NFV of US$ 333,382.11, NUV of US$ 735.19, DP of 13.82 years, IRR of 0.965 monthly, and MIRR of 0.933 monthly. These values prove the economic viability of implementing the project considering the market conditions at the time of the study. The Monte Carlo simulation highlights a moderate risk of negative NPV, emphasizing the importance of considering this variable when making decisions. Despite these challenges, the potential benefits of mechanized catching, such as increased efficiency and reduced labor costs, make it a promising alternative to manual catching.

Keywords: Poultry Raising, Monte Carlo Analysis, Scenario

Analysis of the Economic Feasibility of Two Production Systems for Laying Chickens Raised in Different Housing Densities (OA-06)

Alexander Alexandre de Almeida, Luanne Escobar do Nascimento Oliveira, Rodrigo Garofallo Garcia, Maria Fernanda de Castro Burbarelli, Claudia Marie Komiyama, Jean Kaique Valentim, Felipe Cardoso Serpa
Fundação Universidade Federal da Grande Dourados – UFGD
e-mail: alexanderalmzootec@gmail.com

Abstract:
Growing world demand for food of animal origin, and the consequent increase in the demand and production of hen eggs, makes it necessary to develop studies to improve the production systems of laying hens, mainly with regard to economic analyzes and egg densities. creation. The general objective of the work was to analyze the economic viability of the production systems of laying hens Conventional (birds raised in cages) and Cage-Free in different housing densities. Specifically, the objective was to demonstrate under what conditions the two systems are economically viable and to discuss the advantages and disadvantages of the two production systems. The analyzed densities were: Conventional System containing cages with 04, 08 and 15 birds, and for the Alternative System, 07 and 13 birds per m². Cash flow was established through market research to survey prices with companies specialized in poultry, as well as through available literature and poultry lineage manuals. The production scenarios were modeled according to values for individuals, and evaluated by determining the Minimum Attractiveness Rate, using the methods of Net Present Value, Internal Rate of Return, Modified Internal Rate of Return, Discounted Payback Method, Profitability Index, Uniform Equivalent Annual Value and Monte Carlo Method. It is concluded that there is economic viability in the commercial production of eggs in all techniques proposed for investment analysis, that is, in both systems and in all analyzed densities, emphasizing that each scenario has its specificities, which can hinder the results relative. The data found show that different evaluation criteria result in different indicators for the proposed scenarios. Each criterion has its limitations. Thus, the best way to guide investors will be to define which scenario best suits their reality (since all simulations show results of viability), in what term, what return they want to have, what is their availability of capital contribution and which evaluation criterion best portrays your expectations.

Keywords: Posture Poultry, Animal Welfare,Agribusiness Management

Visual Acceptance of Chicken Meat Fed A Blend of Organic Acids and Microencapsulated Bioactive Compounds (OA-07)

Laura Gubert, Caio Tellini, Isadora Pegorar Pallaoro, Lays Priscilla da Silva Melo, Ana Clara P. Ferreira, Felipe Evangelista de Souza, Jovanir Inês M. Fernandes
Universidade Federal do Paraná – UFPR
e-mail: lauraagubert@gmail.com

Abstract:
Consumer preferences are directly related to the visual appearance of chicken meat at the time of purchase. Bioactive compounds are known for their potential to protect from oxidative processes and have been currently studied to improve the technological properties and increase the shelf life of chicken meat. This study aimed to evaluate the effect of supplementing broiler diets with a blend of microencapsulated organic acids (OA) and essential oils (EO) on the visual acceptance of chilled chicken breast under commercial conditions. 2016 broiler chicks were used, distributed six treatments (8 rep/ 42 birds). The treatments consisted of the basal diet (no additives), basal diet + growth promoter, basal diet +150g/t blend, basal diet +300g/t blend, basal ration + 450g/t blend, and basal diet +600g/t blend. At 42 days, 6 birds/treatment were slaughtered and the left Pectoralis major were collected, packaged and stored in conditions simulating the Brazilian market and randomly photographed after one day of exposure following the methodology by Passetti et al. (2017). The consumers, 58.3% were male and 41.7% were female. Meat color was considered the most important factor (91.7%) when choosing meat. Consumption two to four times a week (70.8%), supermarket purchases (95.8%), chilled packaged meat (41.7%) and frozen meat (41.7%) were the choices by consumers. The addition of 300g/t blend resulted in acceptance similar to that of the breast that received the basal diet with or without the inclusion of a growth promoter. Breast meat from birds supplemented with the highest blend level had the shortest shelf life (5.38 days), while meat from diets without additives and with the inclusion of 400g/ton blend had a shelf life of 5.89 days. The blend contributed to reducing meat spoilage and increasing acceptance, however, if these compounds are present in excess, they can start to have a pro-oxidative effect and cause consumer rejection, as observed in the treatments with the highest levels. This is important as the maintenance of color makes the meat more attractive by consumers at the time of purchase. Thus, the addition of a blend of EO and OA in broiler diets can therefore contribute to improving the quality of the meat without perceptible changes to the consumer.

Keywords: Purchase Intent,Consumer Preference, Meat Quality

A Combination of Active Biofilm Based on Essential Oil of Oregano and Curcumin With Antimicrobial Photodynamic therapy Prevents Protein Oxidation in Chilled Chicken Breast (OA-08)

Carlos Eduardo Benito, Laura Adriane de Moraes Pinto, Bianca dos Santos Roldan Lara, Beatriz Tiemi Onishi, Pedro Luiz Antoniolli Yamamoto, Ana Paula Müller Fernandes, Jovanir Inês M. Fernandes
Universidade Federal do Paraná – UFPR
e-mail: carlos.benito08@gmail.com

Abstract:
A traditional way to sell poultry meat in Brazil is as cold cuts (lighted display case, plastic packaging, and chilled at ±4 ◦C), given its practicality and high consumer acceptance. However, chicken meat has a highly perishable nature and when exposed to light this is enhanced, making maintaining the quality of chilled meat a constant challenge. Edible coatings can act as a protective barrier against deterioration, in addition, they can act as a vehicle for carrying bioactive compounds and photodynamic potential that, acting in synergism, can contribute to maintaining quality and extending shelf life. The scientific literature on the subject is very limited regarding the selectivity and resistance of microorganisms to antimicrobial photodynamic therapy, which contributes to its application as a coadjuvant in minimizing the deleterious effects of lighting and extending the shelf life of chilled meat. This study aimed to develop an edible photoactive biofilm containing essential oil of oregano and curcumin for application in chilled chicken breast combined with antimicrobial photodynamic therapy as an alternative to reduce protein oxidation and extend the shelf life of chicken meat. Biofilms were prepared according to Pinto et al. (2019) and the concentration of free thiols was determined according to the method described by Ellman (1959). Pectoralis major right without skin, bone and fat from a single batch covered in 8 repetitions (treatment/day) were used in the treatments: CON (meat); STD (meat+biofilm); BCUR (meat+biofilm+curcumin), BOEO (meat+biofilm+oregano essential oil) and BLEND (meat+biofilm+curcumin+oregano essential oil). Meat had its protein oxidation decreased with the use of biofilms added with natural bioactive compounds (BCUR and BLEND) combined with aPDT, when compared to CON at the end of 7 days. When evaluating the effects of the factors, an interaction was observed. The presence of compounds of an antioxidant nature, together with the application of aPDT, made direct lighting act as a precursor of protective reactions, stimulating the formation of compounds with a protective capacity, contributing to reverse the damage caused by illuminated display cases. conventionally used in the Brazilian market.

Keywords: Shelf Life, Chilled Chicken, Conventionally Lit Display

Economic Viability of Tenebrio Molitor Meal in Growing Pigs Diets (OA-09)

Gabriel Nascimento de Souza Paulo[1], Rodrigo Borille[1], Caren Paludo Ghedini[1], Caio Cesar dos Ouros[2], Rodrigo Garofallo Garcia[2], Ingrid Manfio de Castro[1], Magnos Maioli Volpato[1]
[1] Universidade Federal de Santa Maria – UFSM, [2] Fundação Universidade Federal da Grande Dourados – UFGD4e5
e-mail: gabrielnspaulo.zoot@gmail.com

Abstract:
Insects have been considered as sustainable alternative protein sources in animal feeding mainly due to their high nutritional value, feed efficiency and practical rearing systems. In Brazil, Tenebrio molitor meal (TMM) has been marketed at R$ 120 per kg. This high price places concerns on the economic perspectives regarding the use of TMM in animal feeding. Therefore, this study aimed to evaluate the economic viability of TMM inclusion in diets of growing pigs. Economic data were performed using zootechnical indexes obtained by simulation data using the Inraporc® software. The simulated scenarios were the inclusion of: 0% (control group), 1.5%, 3%, 4.5% and 6% TMM in growing pig diets. Economic indexes were than calculated. The greatest productive performance was observed with including 6% of TMM in diets. Whereas, regarding economic performance, diets with no TMM (control group) presented the greatest result. Inclusion of TMM to diets increased total production cost up to 349%, with animal feeding representing up to 93.7% of the costs. Using the greatest productive performance scenario (6% TMM), additional scenarios were elaborated. It was reported that the breakeven point for TMM price is R$ 41.28/kg, while that for pork meat is R$ 13.89/kg. It is noteworthy that TMM inclusion in growing pig diets presents a great potential to add value to final products. Additionally, it may alleviate market pressures which are peculiar to the protein market. Considering the conditions simulated herein, the inclusion of TMM would represent from R$ 4.5 to 60 billion movement in the Brazilian economy. In addition, TMM inclusion in swine chains would mean a reduction in soybean meal (SBM) demand by around 710 thousand tons, which represents 3.7% of the national demand. From a holistic perspective, including TMM in animal diets may correct SBM prices, due to rearrangements of supply and demand; contributing to reduce production costs. In this sense, using TMM plays an important role ensuring sustainability of the swine chain by helping to support the economic, social and environmental pillars, which characterize sustainable enterprises.

Keywords: Sustainability, Edible Insects, Production Cost

Morphological Aspects of Pectoral Muscle in Broilers Affected With Wooden Breast (OA-10)

Nathália Luísa Carregari Benelli[1], Ana Carolina da Silva[1], Francine de Campos Silvério[2], Hirasilva Borba[2], Mateus Roberto Pereira[2], Guilherme Campos Costa[2], Lizandra Amoroso[2]
[1]Centro Universitário de Araraquara – UNIARA, [2]Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: Nathlcb@yahoo.com.br

Abstract:
The intense genetic selection of broiler chickens for accelerated weight gain due to increased meat consumption has caused morphophysiological changes that result in damage to the muscles, especially the breast, which can lead to carcass depreciation. Therefore, the objective of this research was to evaluate the histomorphometric aspects of the pectoralis major muscle in Cobb broilers from a commercial slaughterhouse acquired with wood breast myopathy (WB). The samples were divided into three groups: moderate (n=10); severe (n=10) and normal. The chest muscles were destined for histological processing and stained with Hematoxylin and Eosin (HE) and Masson's Trichrome. The histological slides were passed under the microscope and photographed for histomorphometric evaluation to transmit the diameter, area and contour of the muscle fibers.Through the result of the microscopic analysis, it is possible to verify: number of fibers of the samples of normal muscles (31.9±6.36), moderate degree (23.04±7.60) and severe degree (19.24±5.56) of wooden chest myopathy. Area of the remaining fibers in severe (6879.69±22357μm²), moderate (6523.66±2408μm²) and normal (4594.56±802μm²) samples. Consequently, the fiber diameters of the severe and moderate grade were also statistically larger than the normal group. The connective tissue thickness variable moderate (33.93±10.88μm), severe (36.54±13.13μm) and normal (25.62±6.40μm). From the results obtained, it was evident, through the different stains and histomorphometric analyses, that the macroscopically observed alterations correspond proportionally to what was observed at the microscopic level, since the supported portions have a large amount of connective tissue, loss of the number of muscle fibers, hypertrophy of remnants of muscle fibers and large deposition of collagen.

Keywords: Myopathy, Fibrosis, Histopathology

Physico-Chemical Aspects of Water in Griller Chicken Farms in the South Central Region of Paraná (OA-11)

Maria Marta Loddi, João Pedro Likes, Amanda da Lapa Silva
Universidade Estadual de Ponta Grossa – UEPG
e-mail: loddimm@yahoo.com.br

Abstract:
Water is an indispensable nutrient for animal life, being one of the most basic resources needed in animal production. Thus, the use of water of dubious chemical or microbiological quality can affect productive performance by legislation. Water samples were collected from 13 poultry farms located in the rural region of the municipality of Imbituva/PR, from March 2021 to December 2021 for surface runoff water, the verified sources were artesian wells, unprotected springs and protected springs. Water samples were collected at the source of the farms, the collection was carried out in sterile containers of 250 ml following the methodology for collecting and transporting water from Ordinance no101 of August 11, 1993 of MAPA. The physical-chemical and microbiological parameters evaluated were those established in Annex II of the Joint Circular Letter DFIP/DSA n01/2008. The origin of the water in the evaluated farms in Imbituva/PR is: 23% from an artesian well, 31 from an unprotected source and 46% from a protected source. For chloride, nitrate and sulfate analyses, all analyzed samples are adequate to the requirements of the legislation. Regarding the results of the analysis of total dissolved solids and hardness, 25% are inadequate, both from unprotected springs. The quantification of total dissolved solidsis a parameter in poultry production in relation to water quality, as its value increases, the quality becomes inferior. Water hardness is not harmful to birds, however at high levels it can be toxic. The pH analysis, of the total samples collected, 33% are inadequate, being from an artesian well. The altered pH can influence the productive performance of birds and can be a potential problem. The water samples from griller chicken farms in the Center-South region of Paraná are suitable for Circular Letter Joint DFIP/DSA no1/2008 in terms of chloride, nitrate and sulfate parameters. However, they present inadequacies to total dissolved solids (25%), pH (33%), water hardness (25%). Water is directly related to the performance of broilers in relation to the dynamics of intestinal health, thus recommending the use of limits of water quality parameters used human consumption

Keywords: Microbiological Quality Water, Chemical Quality Water, Ph Water

Effect of incubation Temperature on Calciotropic and Thyroid Hormones in Day-Old Chicks (OA-13)

Tais Pinheiro Borges Silva, Izabela Lorena Azevedo, Tayana Nery Franca, Nayana Borges Das Mercês, Larissa Kiana Santos Azevedo Martins, Luis Vitor Oliveira Vidal, Vanessa Michalsky Barbosa
Universidade Federal da Bahia – UFBA
e-mail: taispinheiro@live.com

Abstract:
The impact of incubation temperature on the locomotor system of newly hatched chicks and broilers has not been fully elucidated because crucial aspects such as hormonal mechanisms during embryogenesis have not yet been explored. With this aim 2,464 eggs (64-66,5g) from Cobb 500® broiler breeders were distributed into 28 trays and four incubators (P.Ecológica IP600®) set to maintain EST at 100ºF. Between the 8th and 18.5th day, one machine was set to EST at 100ºF (T.CONTROL-TC) and the other three at 98ºF (T.LOW-TL); 102ºF (T.HIGH–TH) and 103ºF (T.VERYHIGH–TVH), being four treatments (TREAT). At hatch chicks were euthanized by cervical dislocation and blood samples were collected from the jugular vein according to protocol no.22/17 (CEUA/UFBA). The samples were centrifuged and the serum storaged at -20°C. Hormonal analyzes of triiodothyronine (T3) and thyroxine (T4) were determined by ELISA using commercial kits (Monobind®, Lake Forest, CA, USA) (Morita et al., 2016). Vitamin (D3) was analyzed by the ELISA 1,25-dihydroxyvitamin D3 kit (Elabscience®, Houston, Texas, USA), parathyroid hormone by the chicken kit (PTH) (Elabscience®, Houston, Texas, USA) (Guz et al., 2019); calcitonin (CALC) by the chicken calcitonin kit (MyBioSource®, San Diego, CA, USA) and gamma radiation counter (Gamma-C12, Diagnostic Products Corp®., Los Angeles, CA, USA). Analyzes were performed in duplicate on 14 samples by TREAT, and the day old chick was considered as the experimental unit. DIC and Tukey''s test determined differences between means ($p \leq 0.05$) using SAS®9.2. The incubation temperature had an effect on all blood hormones evaluated. The PTH was reduced equally by the two high EST and, to a lesser extent, by the TL. Vitamin D3 showed decreased levels in TVH, being also reduced by HT, followed by TL. CALC increased similarly at the two high EST TREAT. TVH was responsible for the greatest reduction in T3 and T4. For these thyroid hormones, HT and TL were equally harmful, corroborating the importance of EST on embryonic metabolism stated in the literature. These data showed an influence of EST on calciotropic hormones in newly hatched chicks that has not yet been reported. The role of these hormones and their consequences, especially at high EST, demands more investigation.

Keywords: Broilers, Embryogenesis, Locomotor System

influence of Different thermographic Device on Body Surface Temperature Measurements of Broiler Chickens (OA-14)

Fábio Mascarenhas Dutra, Aline da Silva, Agnês Markiy Odakura, Maria Fernanda de Castro Burbarelli, Bruna Barreto Przybulinski, Caio Cesar dos Ouros, Rodrigo Garofallo Garcia
Universidade Federal da Grande Dourados – UFGD
e-mail: fabiodutra@ufgd.edu.br

Abstract:
The use of infrared thermography (IRT) is a non-invasive method of thermal measurement that allows the evaluation of thermal comfort and animal welfare, in addition to helping in the diagnosis of inflammatory processes and indicating physiological reactions. The reliability of the measurements depends on the sensitivity and accuracy of the equipment used and on environmental factors. Although professional thermographic equipment is expensive, new affordable thermographic cameras can be used to record surface temperatures of different body regions of broilers. This study sought to compare the effectiveness of a professional thermographic camera (TEXTO 882) and a thermographic camera coupled to a smartphone (CAT S60) to measure the surface temperature of broiler feathers. One hundred male broilers, 32 days old, were evaluated by images in the region of the legs, chest and back, recorded at a distance of 1m and at an angle of 90 degrees with both equipment. The results showed interaction between the equipment and the temperature measurement site. However, there was an effect of the equipment for legs measurements, in this case, the surface temperature values were lower when measured by equipment with lower thermal and spatial resolution (CAT S60). Regardless of the equipment used, the surface temperature of the chicken breast was higher than that of the chicken back. This may be due to this region being devoid of covering (feathers), with measurements directly on the skin. In general, the values measured by the CAT S60 camera were lower than those obtained by the TESTO 882. The correlation coefficient between surface temperature and equipment was 0.96821 (p 0.0001). This indicates that, despite the observed differences, the camera attached to the smartphone (CAT S60) can be used accurately in relation to equipment with higher thermal and spatial resolution. However, the temperature of the back or chest is more indicated when using less accurate equipment. With this, it is concluded that more economically accessible thermal imaging equipment can be used accurately for surface temperature measurements carried out in the back or chest region and can be used as a tool for determining well-being or detecting inflammatory processes.

Keywords: Body Temperature, Thermography, Thermographic Camera

Use of Essential Oils and Bacillus-Based Probiotics for the Return of Eubiosis in Laying Hens (OA-16)

Ingrid Grazieli Althman dos Santos, João Pedro Fiuza, Andressa Silva Jacinto, Francine dos Santos Mota, Ibiara Correia de Lima Almeida Paz, Rogério Frozza, Bruno Josepette Beghi Luciano

Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP

e-mail: ingrid.althman@unesp.br

Abstract:

The intestinal microbiota is composed of a diversity of microorganisms, mainly bacteria, which perform important functions for the maintenance of the health and performance of laying hens, therefore, it is essential to favor the intestinal eubiosis to increase the productive indexes and improve the animal's welfare. This study aimed to mitigate the effects of antibiotic therapy by the use of essential oils and bacillus-based probiotics on the return of eubiosis in laying hens at peak production. For this 288 red laying hens with approximately 40 weeks of life were used, housed on a floor, divided into 6 treatments: T1 – laying hens without antibiotic for 30 day T2 – laying hens without antibiotic for 10 days, after that put antibiotic for 10 days, 10 without antibiotic; T3 – laying hens with probiotic for 10 days + antibiotic 10 days and probiotic, 10 with probiotic and without antibiotic; T4 – laying hens without anything 10 days, after that put antibiotic for 10 days without probiotic, 10 days without antibiotic and with probiotic; T5 – laying hens with essential oil 10 days, antibiotic 10 days with essential oil, 10 days with oil and without antibiotic; T6 – laying hens with essential oil for 10 days, after that put antibiotic for 10 days without essential oil, 10 days without antibiotic and with essential oil. The characteristics evaluated were egg quality, productivity, intestinal mucosal permeability, histomorphological and microbiological parameters of the intestine. The results found showed that the use of probiotic and essential oil was able to maintain the intestinal eubiosis of the laying hens and improve the quality of eggs. Therefore, we conclude that the use of probiotics and essential oils help to mitigate the effects of antibiotic therapy in laying hens, since they contribute to the improvement of the health of the gastrointestinal tract and the return of intestinal eubiosis in the laying hens.

Keywords: Antibiotic Therapy, Dysbiosis, Egg Quality, Intestinal Health

Digestibility of Ether Extract in Broiler Diets Supplemented With Kraft Lignin (OA-17)

Francine dos Santos Mota, Marconi Italo Lourenço da Silva, Andressa Silva Jacinto, Ingrid Grazieli Althman dos Santos, Natalia Lopes Vargas, James Eduard Campos, Sant Anna, Ibiara Correia de Lima Almeida Paz
Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP
e-mail: francine.mota@unesp.br

Abstract:
In the paper industry, Kraft lignin can be used as a performance enhancing additive for animals. This type of lignin has an antioxidant effect because it interacts with the ether extract as soon as it gets in contact with the ration, which prevents its oxidation. However, there are no reports on how this interaction behaves in the digestive tract. Thus, the objective of this study was to evaluate the digestibility of the ether extract (EE) of high oil content diets, supplemented with Kraft lignin, for broilers. For this study, 60 broilers, 14 days old, housed in battery cages were used. The broilers were divided into five treatments: Negative control – no performance-enhancing additive or growth promoter added; – 0.50% lignin – addition of 0.50% performance-enhancing additive in all phases of rearing; 1.00% lignin – addition of 1.00% performance enhancer in all phases of rearing; 1.50% lignin – addition of 1.50% performance enhancer in all phases of rearing; and Positive control – no performance enhancer and growth promoter. To evaluate the digestibility of EE, the diets were collected before the beginning of the study, while the feces were collected every 12 hours for 3 days, respecting 4 days of adaptation.It was observed that adding 0.50% Kraft lignin in broiler diets improved EE digestibility. Although there is interaction of EE in larger quantities, which are free in the diet, there are oily compounds from the ingredients that are absorbed. We conclude that supplementation of 0.50% Kraft lignin in poultry diets has antioxidant power, inhibiting oxidation of the ration, improving the health of the gut, and containing less unused oily compounds.

Keywords: Antioxidant, Productividad, Kraft Lignin