

PSA 2026

Friday, July 10 2026

Metabolism and Nutrition Symposium: Understanding Supply Chain and Quality of Ingredients in the Modern Era

Chair: Roshan Adhikari, CJ Bio America Inc

John W. H. Bassett Theatre

- 8:00 AM 1000S **Insights into the changing landscape of supply chains in poultry production and meat markets**
Roy D. Brister*^{1,2} ¹Texas A&M University, Springdale, Arkansas, United States; ²Alltech, Nicholasville, Kentucky, United States
- 8:40 AM 1001S **Corn, SBM, Wheat (Macro Ingredients); Global challenges and opportunities due to the supply chain**
Roshan Adhikari*¹, Tim Albright¹, Jason T. Lee¹ ¹CJ Bio America Inc, Downers Grove, Illinois, United States
- 9:20 AM 1002S **Assessing the potential effects of vitamin and amino acid supply chain disruptions on U.S. poultry production and food security**
Yuan-Tai Hung*^{1,2}, Spencer Parkinson³, Dave Miller³, Philip Lobo⁴, Lara Moody¹ ¹Institute for feed education and research, Arlington, Virginia, United States; ²American feed industry association, Arlington, Virginia, United States; ³Decision Innovation Solutions, LLC, Urbandale, Iowa, United States; ⁴Lobo Consulting Solutions, LLC, Ballwin, Missouri, United States
- 10:00 AM **Break**
- 10:45 AM 1003S **Practical Management of Ingredient Variability Across Regions in Broiler Breeder Nutrition**
Antonio Beitia*¹, Justina Caldas¹ ¹Aviagen, Huntsville, Alabama, United States
- 11:25 AM 1004S **Feed mill strategies to mitigate supply chain disruptions: implications for efficiency, pellet**

quality, and nutritional integrity

Wilmer J. Pacheco*¹, Jose I. Vargas¹ ¹*Auburn University, Auburn, Alabama, United States*

12:05 PM

Panel Discussion

**Student Competition: Extension and Instruction
206 (E-F)**

- 8:00 AM 1 **Chicken tracks:poultry programs as high-impact vehicle to superior youth development**
Elizabeth Peluso*^{24UG}, Ashley L. Brooks³⁴, Mary Fosnaught¹⁴ ¹*North Carolina State University, Raleigh, North Carolina, United States;* ²*Johnson University, Knoxville, Tennessee, United States;* ³*Craven County Center, New Bern, North Carolina, United States;* ⁴*North Carolina Cooperative Extension, Raleigh, North Carolina, United States*
- 8:15 AM 2 **Identifying 4-H Poultry Programming Needs in Iowa**
Cameron F. Hall*^{1GS}, Dawn Koltes¹, Amy Powell¹ ¹*Iowa State University, Ames, Iowa, United States*
- 8:30 AM 3 **Identifying barriers and facilitators to the adoption of biosecurity practices by rural women in Punjab, Pakistan**
iqra nazir*^{1GS}, Marij Riaz², Zafar Hayat², Paul Ebner¹ ¹*Purdue university, West Lafayette, Indiana, United States;* ²*University of Sargodha, Sargodha, Punjab, Pakistan*

8:45 AM 4 **Predictive modeling tools utilizing artificial intelligence can aid in digestible lysine requirement estimation for turkeys on a phased feeding program**
Ann R. Sisson*^{1GS}, Enrico Casella¹, Lorenzo Palazzetti¹, John W. Boney¹ ¹*Penn State University, University Park, Pennsylvania, United States*

**Student Competition: Immunology, Health and Disease - Health and Disease
205 (A-D)**

8:00 AM 5 **Upper respiratory microbiota signatures associated with resilience to H7N1 high pathogenicity avian influenza in broiler chickens**
Alejandro Moreno León*^{12GS}, María José Valdez May¹², Gisela Tomás¹², Rosa Valle¹², Marta Pérez¹², Adrià Girbau¹², Rubén Del Caz¹², Miquel Nofrarías¹², Kateri Bertran¹², José Luis Lavín³, Natàlia Majó¹⁴ ¹*Centre de Recerca en Sanitat Animal (CReSA), Bellaterra, Barcelona, Spain;* ²*Centre de Recerca en Sanitat Animal (CReSA), Bellaterra, Barcelona, Spain;* ³, *NEIKER, Basque Institute for Agricultural Research and Development, Basque Research and Technology Alliance (BRTA), Derio, Bizkaia, Spain;* ⁴*Facultat de Veterinària, Universitat Autònoma de Barcelona (UAB), Bellaterra, Barcelona, Spain*

8:15 AM 6 **Computational Identification of Natural Inhibitors Targeting Fiber Proteins of FAdV-1 and FAdV-4 Through Integrated Virtual Screening and Molecular Dynamics Simulations**
Amina Kardoudi*^{1GS} ¹*Istitute of agriculture and veterinary medecine Hassan II, Casablanca, CASABLANCA, Morocco*

- 8:30 AM 7 **Impact of cold stress on immune responses, production performances and colibacillosis transmission in cage-free layer chickens**
Iddris M. Habib*^{1GS}, Shuja Majeed¹, Nimra Khalid¹, Bikas R. Shah¹, Mohamad O. Jaradat¹, Lisa R. Bielke², Qihong Wang¹³, Lingying Zhao⁴, Ali Nazmi¹⁵ ¹*The Ohio State University, Wooster, Ohio, United States*; ²*North Carolina State University, Raleigh, North Carolina, United States*; ³*The Ohio State University, Columbus, Ohio, United States*; ⁴*The Ohio state university, Wooster, Ohio, United States*; ⁵*The Ohio State University, Columbus, Ohio, United States*
- 8:45 AM 8 **NetB+ *Clostridium perfringens* strain has more pathogenicity and toxin production than NetB+/TpeL+ strain in embryonated chicken eggs**
Hamza Javaid*^{1GS}, Amritha Ajayan¹, DHANANJAI MURINGATTU PRABHAKARAN¹, Peter Bina¹, Bernie Beckman², Kumar Venkitanarayanan³, Anup Kollanoor Johny¹ ¹*University of Minnesota, Saint Paul, Minnesota, United States*; ²*Hy-Line NA, West Des Moines, Iowa, United States*; ³*University of Connecticut, Storrs, Connecticut, United States*
- 9:00 AM 9 **Necrotic enteritis challenge alters egg quality, body composition, and bone microarchitecture in laying hens**
Hemanth Reddy Katha*^{1GS}, Venkata Prathap Reddy Keshava Reddy¹, Hamid Reza Rafieian-Naeini², Seshidhar R. Gudidoddi¹, Sai Kumar Reddy Ragyari¹, Ishwari Gyawali¹, Venkata Sesha Reddy Choppa³, Woo K. Kim¹ ¹*University of Georgia, Athens, Georgia, United States*; ²*University of Georgia, Athens, Georgia, United States*; ³*University of Georgia, Athens, Georgia, United States*

9:15 AM 10 ***In vitro* assessment evaluating the effect of auranofin, a thioredoxin reductase inhibitor, on *Histomonas meleagridis***
Taylor Schubauer*^{1GS}, Evy Hafer¹, Aaron Forga¹, Kasey A. Matusik¹, Karen Echevarria¹, Melissa Martinez¹, Juan D. Latorre¹, Zhicheng Dou², Danielle Graham¹ ¹University of Arkansas, Fayetteville, Arkansas, United States; ²Clemson Univerisity, Clemson, South Carolina, United States

9:30 AM 11 **Cecal microbiome profiles in directly inoculated and laterally exposed turkey poults during *Histomonas meleagridis* challenge**
Abhisek Niraula*^{1GS}, Davis A. Fenster¹, Gabriella C. Ribeiro¹, Paniz Zarghami Dastjerdi¹, Alberta L. Fuller¹, Rami A. Dalloul¹ ¹University of Georgia, Athens, Georgia, United States

9:45 AM 12 **Evaluation of the effect of wheat-based diets on the intestinal microbiome of turkey poults infected with *Cochlosoma anatis***
Makenly E. Coles*^{2GS}, Jamie Blankenship², Brett Hale¹, Kabel Robbins³, Elise Gerken³, Billy M. Hargis², Juan D. Latorre², Danielle Graham² ¹AgriGro Inc., Doniphan, Missouri, United States; ²University of Arkansas, Fayetteville, Arkansas, United States; ³Butterball, Ozark, Arkansas, United States

Student Competition: Metabolism and Nutrition - Amino Acids I 203 (B-D)

8:00 AM 13 **Laying hens' responses to graded dietary crude protein reduction in a conventional cage system**
Byron Xavier Munoz*^{1GS}, Mylena Tückmantel², Sara E. Benavides Martínez¹, Cayo Pereira¹, Isabela Maimone¹, Claudio Ximenes¹, Cristiane S. Araújo², Lucio F. Araujo¹ ¹University of Sao Paulo, Pirassununga, Sao Paulo, Brazil; ²University of Sao Paulo, Pirassununga, SP, Brazil

- 8:15 AM 14 **Re-evaluating digestible lysine requirements in modern male turkey poults from 0-6 weeks of age**
Darby R. Boontarue*^{1GS}, Ann R. Sisson¹, John W. Boney¹ ¹*The Pennsylvania State University, University Park, Pennsylvania, United States*
- 8:30 AM 15 **Determination of Amino Acid Digestibility in Conventional and Low Oligosaccharide Soybean Meal Using Cecectomized Roosters, Broilers, and Turkeys**
Kasey A. Matusik*^{1GS}, Seth Hufford¹, Aaron Forga¹, Erin Zess², Matthew Begemann², Danielle Graham¹, Benjamin Parsons¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*Confluence Genetics, St. Louis, Missouri, United States*
- 8:45 AM 16 **In ovo feeding of monosodium glutamate improved early cardiac development in broiler chicks**
Janandani N. Lakse Mudiyansele*^{1GS}, Thi T. Nguyen¹, Eugeni Roura¹ ¹*Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Brisbane, Queensland, Australia*
- 9:00 AM 17 **Comparative effects of guanidinoacetic acid and L-citrulline on growth performance, breast meat yield, and plasma amino acid profiles of broiler chickens fed arginine deficient diets and exposed to cyclic heat stress**
Vahideh S. Sadr*^{1GS}, Vivienne Inhuber², Mehdi Toghyani³, David Cadogan⁴, Sonia Liu¹, Reza Barekatin⁵ ¹*The University of Sydney, Brownlow Hill, New South Wales, Australia*; ²*Alzchem Trostberg GmbH, Trostberg, , Germany*; ³*The University of Sydney, Brownlow Hill, New South Wales, Australia*; ⁴*Feedworks, Melbourne, Victoria, Australia*; ⁵*Sydney School of Veterinary Science, Faculty of Science, The University of Sydney, Sydney, New South Wales, Australia*

9:15 AM

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Responses of broilers to increasing amino acid density from soybean meal or feed-grade amino acids

Julie Ross Datuin*^{1GS}, Marcelo Silva², Roshan Adhikari³, Jason T. Lee⁴, Samuel Rochell⁵ ¹*Auburn University, Auburn, Alabama, United States*; ²*Aviagen Inc, Madison, Alabama, United States*; ³*CJ Bio America Inc, Downers Grove, Illinois, United States*; ⁴*CJ Bio America, Goliad, Texas, United States*; ⁵*Auburn University, Auburn, Alabama, United States*

9:30 AM

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Effects of dietary protein source and limestone level on gizzard digesta pH in broiler chickens

Florence W. Nyaga*^{1GS}, Jennifer L. Ellis², marie-pierre letourneau montminy⁴, Munene Kithama³, Virginie Blanvillain⁵, David Trott⁶, Elijah G. Kiarie⁷ ¹*University of Guelph, Guelph, Ontario, Canada*; ²*University of Guelph, Guelph, Ontario, Canada*; ³*Pwani University, Kilifi, , Kenya*; ⁴*Université Laval, Quebec, Quebec, Canada*; ⁵*AB Vista, Marlborough, , United Kingdom*; ⁶*Wallenstein Feed & Supply Ltd., Wallenstein, Ontario, Canada*; ⁷*University of Guelph, Guelph, Ontario, Canada*

9:45 AM

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Assessing the interactive effects of alanine, glycine, and proline in male broilers fed reduced crude protein diets from 15 to 35 days

Kenneth B. Nelson*^{1GS}, Pablo Escovar Ruidiaz¹, Spencer T. Karn¹, Virginia G. Slick¹, Savannah Wells¹, Michael Kidd¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*

**Student Competition: Metabolism and Nutrition - General Nutrition I
201 (A-F)**

- 8:00 AM 21 **The apparent metabolizable energy and standardized ileal amino acid digestibility of low-protein soybean meals in broiler chickens**
Sujitha Veeraganti*^{3GS}, Bhargavi Kasireddy², Allison Froehbrodt¹, Anya Singhal¹, Gabrielle Lum¹, Olanrewaju Ayinde³, RAMA DEVI KOLLI⁴, June Hyeok Yoon³, Oluyinka A. Olukosi⁵ ¹*University of Georgia, Athens, Georgia, United States*; ²*University of Georgia, Athens, Georgia, United States*; ³*University of Georgia, Athens, Georgia, United States*; ⁴*University of Georgia, Athens, Georgia, United States*; ⁵*University of Georgia, Athens, Georgia, United States*
- 8:15 AM 22 **Nutritional modulation of gut function during *Eimeria maxima* challenge: role of dietary fiber in broiler chickens diets**
Bhargavi Kasireddy*^{1GS}, Oluyinka A. Olukosi¹ ¹*University of Georgia, Athens, Georgia, United States*
- 8:30 AM 23 **Evaluating the effects of full-fat mealworm larvae meal inclusion on Ross 308 male broiler performance and apparent ileal amino acid digestibility**
Christian K. Crabtree*^{1GS}, Darby R. Boontarue², Ann R. Sisson³, John W. Boney⁴ ¹*Pennsylvania State University, Patton Township, Pennsylvania, United States*; ²*The Pennsylvania State University, State College, Pennsylvania, United States*; ³*The Pennsylvania State University, University Park, Pennsylvania, United States*; ⁴*Penn State University, University Park, Pennsylvania, United States*

- 8:45 AM 24 **Starch–protein digestive dynamics drive energy partitioning and nutrient deposition in broilers fed reduced crude protein diets**
 Damilola Kareem*^{12GS}, Eunjoo Kim¹², Shemil Macelline¹², Tahir Mahmood³, Yves Mercier³, Mehdi Toghyani¹², Peter H. Selle¹⁴, Sonia Liu¹² ¹*The University of Sydney, Sydney, New South Wales, Australia;* ²*The University of Sydney, Sydney, New South Wales, Australia;* ³*Adisseo France S.A.S., 69192 Saint Fons, , France;* ⁴*The University of Sydney, Sydney, New South Wales, Australia*
- 9:00 AM 25 **Determination of phosphorus availability in conventional distillers dried grains with solubles and corn fermented protein with and without phytase use during fermentation at the ethanol plant**
 Luke Parisi*^{1GS}, Seth Hufford², Benjamin Parsons³ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*University of Arkansas, Siloam Springs, Arkansas, United States;* ³*University of Arkansas, Fayetteville, Arkansas, United States*
- 9:15 AM 26 **In Ovo α -Ketoglutarate Modulates Plasma and Hepatic Antioxidant Defence in Broilers Under Cyclic Heat Stress**
 Vaishali Gupta*^{12GS}, Yun-Ji Hwang¹², Chris Major Ncho¹², Yang-Ho Choi¹² ¹*Gyeongsang National University, Jinju-si, , Korea (the Republic of);* ²*Gyeongsang National University, Jinju, Gyeongsangnam-do, Korea (the Republic of)*
- 9:30 AM 27 **Further evaluation of amino acid digestibility among different soybeans varying in protease inhibitors**
 Saul Rosales*^{1GS}, Pam L. Utterback¹, Wonseok Kim², Sunhyung Kim², Hari B. Krishnan³, Carl Parsons⁴ ¹*University of Illinois Urbana-Champaign, Champaign, Illinois, United States;* ²*University of Missouri, Columbia, Missouri, United States;* ³*USDA-ARS, Columbia, Missouri, United States;* ⁴*University of Illinois, Champaign, Illinois, United States*
- 9:45 AM 28 **Apparent metabolizable energy (AME) of soybean soapstock in chickens.**

Bethany Alexander*^{1GS}, Mike Persia¹, Kelsey Back¹ ¹*Virginia Tech, Blacksburg, Virginia, United States*

10:00 AM 28.5

Break

10:45 AM

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Effects of dry fractionation and multienzyme supplementation on non-starch polysaccharide depolymerization and fiber digestibility of barley and its fractions in broiler chickens

Kemi S. Kanani*^{1GS}, Yanxing Niu¹, Changning Yu², Rex Newkirk³, Ruurd Zijlstra², Martin C. Nyachoti¹, Robert Patterson⁴, Anna Rogiewicz¹ ¹*University of Manitoba, Winnipeg, Manitoba, Canada;* ²*University of Alberta, Edmonton, Alberta, Canada;* ³*University of Saskatchewan, Saskatoon, Saskatchewan, Canada;* ⁴*CBS Bio Platforms Inc., Calgary, Alberta, Canada*

11:00 AM

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The effects of corn particle size and a 15 x coccidial vaccine challenge on 21 to 42 day hen poult performance and nutrient digestibility

Jennifer A. Blair*^{1GS}, Alyssa Lyons¹, Mike Persia² ¹*Virginia Tech, Blacksburg, Virginia, United States;* ²*Virginia Tech, Blacksburg, Virginia, United States*

11:15 AM

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Amino acid digestibility and metabolizable energy content in western Canadian faba bean (*Vicia faba*) for laying hens

Matt Oryschak*^{1GS}, Doug Korver¹² ¹*University of Alberta, Edmonton, Alberta, Canada;* ²*Alpine Poultry Nutrition, Inc., Edmonton, Alberta, Canada*

- 11:30 AM 32 **Effect of extra arginine and glutamine supplementation in reduced-protein diets on growth performance, plasma metabolites, and amino acid metabolism in *Eimeria*-challenged broiler chickens raised on clean or reused litter**
June Hyeok Yoon*^{1GS}, Bhargavi Kasireddy¹, RAMA DEVI KOLLI¹, Sujitha Veeraganti¹, Olanrewaju Ayinde¹, Oluyinka A. Olukosi¹ ¹*University of Georgia, Athens, Georgia, United States*
- 11:45 AM 33 **Allometric organ growth and tibia development of two modern broiler genotypes and a heritage meat-type chicken**
Erasmus A. Flores Granados*^{1GS}, Samuel Rochell¹, Bryan Fancher² ¹*Auburn University, Auburn, Alabama, United States*; ²*Aviagen, Inc., Huntsville, Alabama, United States*
- 12:00 PM 34 **Effects of ExPress[®] Soymeal on Growth Performance and Feed Conversion Efficiency in Broiler Chickens**
Tanner Thornton*^{1GS}, Tom Tabler¹, Yang Zhao¹, Michael Kidd², Janeth Colina³, Tong Wang⁴, Jie Wu¹, Manita Kafle¹, Savannah Wells², Supun Hewage¹, Shawn Hawkins⁵ ¹*University of Tennessee, Knoxville, Tennessee, United States*; ²*University of Arkansas, Fayetteville, Arkansas, United States*; ³*Insta-Pro International, Grimes, Iowa, United States*; ⁴*University of Tennessee, Knoxville, Tennessee, United States*; ⁵*University of Tennessee, Knoxville, Tennessee, United States*

**Student Competition: Microbiology and Food Safety I
202 (A-D)**

- 8:00 AM 35 **Farm to Processing Microbial Population Dynamics in a Non-Conventional Poultry Operation**
Afrina Akter Turna*^{1GS}, Eniola Betiku¹, Tomi Obe²³ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*University of Arkansas, Fayetteville, Arkansas, United States;* ³*Center for Food Safety, University of Arkansas Division of Agriculture, Fayetteville, Arkansas, United States*
- 8:15 AM 36 **Sanitation-linked microbial ecology and diversity on equipment in pastured poultry processing**
Eniola Betiku*^{1GS}, Tomi Obe¹² ¹*University of Arkansas Division of Agriculture, Fayetteville, Arkansas, United States;* ²*University of Arkansas Division of Agriculture, Fayetteville, Arkansas, United States*
- 8:30 AM 37 **Evaluation of airborne bacterial recovery using three bioaerosol sampling approaches in a broiler house**
Jacob T. Porzeinski*^{1GS}, Lindsey A. Wythe², Audrey McElroy¹, Morgan Farnell¹ ¹*Texas A&M University, College Station, Texas, United States;* ²*Texas A&M University, College Station, Texas, United States*
- 8:45 AM 38 **Assessing the Impact of Feed and Water Withdrawal in Poultry Production Processes Through Litter, Carcass, and Gastrointestinal Microbiome**
Ashley A. Tarcin*^{1GS}, Elena G. Olson², Steven C. Ricke³ ¹*University of Wisconsin- Madison, Madison, Wisconsin, United States;* ²*UW-Madison, Madison, Wisconsin, United States;* ³*University of Wisconsin, Madison, Wisconsin, United States*

- 9:00 AM 39 **Impact of Peanut Skin Supplementation and *Salmonella* Challenge on Gut Microbiota of Broiler Chickens**
 Yabaiz Tahir*^{1GS}, Lin Walker², Justin H. Lowery³, Lauren Anderson⁴, Natalie Roberts¹, Thien C. Vu⁵, Ondulla T. Toomer⁵, Monika Proszkowiec-Weglarz⁶ ¹*North Carolina State University, Raleigh, North Carolina, United States;* ²*NC State University, Raleigh, North Carolina, United States;* ³*North Carolina State University, Raleigh, North Carolina, United States;* ⁴*North Carolina State University, Durham, North Carolina, United States;* ⁵*Agricultural Research Service, US Dept. of Agriculture, Raleigh, North Carolina, United States;* ⁶*USDA, ARS, Beltsville, Maryland, United States*
- 9:15 AM 40 **Egg barn microbiome influence on biofilm formation, sanitizer effectiveness and *Salmonella* persistence**
 Sarah Cromb*^{1GS}, Daniel Mayboca Padilla², Hooman Derakshani², Miguel Uyaguari², Claudia Narvaez Bravo² ¹*University of Manitoba, Winnipeg, Manitoba, Canada;* ²*University of Manitoba, Winnipeg, Manitoba, Canada*
- 9:30 AM 41 **Assessment of transport coop bacteriota in response to disinfection**
 Lindsey A. Wythe*^{1GS}, Vignesh Palanisami², Sapna C. Dass², Yuhua Z. Farnell³, Morgan Farnell¹ ¹*Texas A&M University, College Station, Texas, United States;* ²*Texas A&M University, College Station, Texas, United States;* ³*Texas A&M University, College Station, Texas, United States*
- 9:45 AM 42 **Probiotic formulations of *Lactobacillus paracasei* reduce *Salmonella* colonization in laying hens and egg contamination**
 Kham B. Khatri*^{1GS}, Veera Venkata Praveen Raja Kosuri¹, Yuying Ren¹, Anjana Thankachan¹, Alexandra Garlick¹, Ajayveer Sandhu¹, Panshul Attri¹, Mary Anne Amalaradjou¹ ¹*University of Connecticut, Storrs, Connecticut, United States*
- 10:00 AM 42.5 **Break**

10:45 AM

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Effect of a short- and medium- chain monoglycerides blend on *Salmonella* colonization, translocation and growth performance in broilers.

Karla V. Casco Gomez*^{1GS}, William A. Echeverria Mejia², Shijinaraj Manjankattil Rajan⁴, Muhammad Naeem⁵, Yagya Adhikari⁶, Arjmand Fatima¹, Rabin Raut¹, Farazi Rahman¹, Ruby Paudel¹, Dianna Bourassa⁷, Sabin Poudel⁸, Samuel Rochell⁹, Jinquan Wang¹⁰, Jundi Liu³ ¹*Auburn University, Auburn, Alabama, United States*; ²*Auburn University, Auburn, Alabama, United States*; ³*Eastman Chemical Company, Kingsport, Tennessee, United States*; ⁴*Auburn University, Auburn, Alabama, United States*; ⁵*Auburn University, Auburn, Alabama, United States*; ⁶*Auburn University, Auburn, Alabama, United States*; ⁷*Auburn University, Auburn, Alabama, United States*; ⁸*Auburn University, Auburn, Alabama, United States*; ⁹*Auburn University, Auburn, Alabama, United States*; ¹⁰*Auburn University, Auburn, Alabama, United States*

11:00 AM

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Non-invasive detection of *Salmonella* contamination in SPF White Leghorn eggs via VOC profiling at cold storage temperatures

Vivienne Catt*^{1UG}, Christopher A. Heist¹, Caitlin Harris², Olga Kemenova³, Daniel Sabo⁴, Stephanie Richter⁵ ¹*Georgia Tech Research Institute, Atlanta, Georgia, United States*; ²*USDA-ARS National Poultry Research Center, Athens, Georgia, United States*; ³*Georgia Institute of Technology, Atlanta, Georgia, United States*; ⁴*Georgia Tech Research Institute, Atlanta, Georgia, United States*; ⁵*Georgia Tech Research Institute, Atlanta, Georgia, United States*

- 11:15 AM 45 **Effect of a multi strain *Bacillus* probiotic on *Salmonella* colonization in broiler chickens**
Rabin Raut*^{1GS}, Sabin Poudel³, Samuel Rochell², Jinquan Wang⁴, Zahidul H. Tushar¹, Rishav Kumar¹, Farazi Rahman¹, Muhammad Naeem⁵, Dianna Bourassa¹ ¹*Auburn University, Auburn, Alabama, United States*; ²*Auburn University, Auburn, Alabama, United States*; ³*Auburn University, Auburn, Alabama, United States*; ⁴*Auburn University, Auburn, Alabama, United States*; ⁵*Auburn University, Auburn, Alabama, United States*
- 11:30 AM 46 **Effects of dietary organic acids supplementation on broiler growth performance and *Salmonella* colonization**
William A. Echeverria Mejia*^{1GS}, Shijinaraj Manjankattil Rajan¹, Muhammad Naeem¹, Yagya Adhikari¹, Arjmand Fatima¹, Rabin Raut¹, Karla V. Casco Gomez¹, Farazi Rahman¹, Ruby Paudel¹, Dianna Bourassa¹, Sabin Poudel¹, Samuel Rochell¹, Jinquan Wang¹, Jundi Liu² ¹*Auburn University, Auburn, Alabama, United States*; ²*Eastman Chemical Company, Kingsport, Tennessee, United States*
- 11:45 AM 47 **Synergetic effect of chemical stabilizers on peracetic acid and resulting antimicrobial ability**
Kortney Martin*^{1UG}, Daniel Sabo², Stephanie Richter³, Vivienne Catt¹ ¹*Georgia Tech Research Institute, Atlanta, Georgia, United States*; ²*Georgia Tech Research Institute, Atlanta, Georgia, United States*; ³*Georgia Tech Research Institute, Atlanta, Georgia, United States*
- 12:00 PM 48 **Microbial Recovery of Layer Hen Carcasses Treated with a Poultry Mortality Dehydrator**
John C. Poole*^{1GS}, Lindsey A. Wythe², Emma J. Jungman³, Zong Lui³, Morgan Farnell⁴ ¹*Texas A&M University, College Station, Texas, United States*; ²*Texas A&M University, College Station, Texas, United States*; ³*Texas A&M AgriLife Extension, College Station, Texas, United States*; ⁴*Texas A&M University, College Station, Texas, United States*

**Student Competition: Immunology, Health and Disease - Feed Additives
206 (A-D)**

- 8:30 AM 49 **Effects of black soldier fly larvae oil on growth performance, gut permeability, and *Clostridium perfringens* colonization in broiler chickens under Necrotic enteritis challenge**
Ishwari Gyawali*^{1GS}, Anil Gautam¹, Doyun Goo¹, Saikumar R. Ragyari¹, Hemanth R. Katha¹, Seshidhar R. Gudidoddi¹, Woo K. Kim¹ ¹*University of Georgia, Athens, Georgia, United States*
- 8:45 AM 50 **Exploratory meta-analysis of antibiotic alternatives (probiotics and prebiotics) on growth performance in broiler chickens before, during, and after experimental necrotic enteritis infection**
Nathana Rudio Furlani*^{1GS}, Rony Riveros², Marie Pierre Létourneau-Montminy³, Nilva Sakomura² ¹*Sao Paulo State University, Jaboticabal, SP, Brazil;* ²*Sao Paulo State University, Jaboticabal, SP, Brazil;* ³*Université Laval, Quebec City, Quebec, Canada*
- 9:00 AM 51 **Yeast-derived additives improve intestinal morphology in broilers under a necrotic enteritis challenge**
Gabriella C. Ribeiro*^{1GS}, Davis A. Fenster¹, Bingqi Dong¹, Abhisek Niraula¹, Paniz Zarghami Dastjerdi¹, Leandro Royo², Mariel Neves Tavares², Rami A. Dalloul¹ ¹*University of Georgia, Athens, Georgia, United States;* ²*Olmix SA, Bréhan, Morbihan, France*

- 9:15 AM 52 **The effect of dietary supplementation of Organic Chaga Mushroom in broilers challenged with Necrotic Enteritis**
Venkata Prathap Reddy Keshavareddy*^{1GS}, Hemanth Reddy Katha³, Hamid Reza Rafieian-Naeini⁵, Sai Kumar Reddy Ragyari⁴, Seshidhar Reddy Gudidoddi⁶, Indira Neupane³, Venkata Sesha Reddy Choppa⁷, Woo K. Kim² ¹*University of Georgia, Athens, Georgia, United States*; ²*University of Georgia, Athens, Georgia, United States*; ³*University of Georgia, Athens, Georgia, United States*; ⁴*UNIVERSITY OF GEORGIA, Athens, Georgia, United States*; ⁵*University of Georgia, Athens, Georgia, United States*; ⁶*University of Georgia, Athens, Georgia, United States*; ⁷*University of Georgia, Athens, Georgia, United States*
- 9:30 AM 53 **Evaluation of gallic acid supplementation on growth performance and gut health in broilers under Coccidiosis**
Indira Neupane*^{1GS}, Anil Gautam¹, Doyun Goo¹, Ishwari Gyawali¹, Deependra Paneru¹, Woo K. Kim¹ ¹*University of Georgia, Athens, Georgia, United States*
- 9:45 AM 54 **Safety Evaluation of Bacteriophage vB_SalS_KY05 Lysate via Drinking Water: Impacts on Health, Egg Production, and Intestinal Microbiota in Laying Hens**
Hsiao-Hui Huang*^{1GS}, Wun-Yuan Wu¹, Yuan-Yu Lin¹ ¹*National Taiwan University, Taipei, , Taiwan*
- 10:00 AM **Break**

- 10:45 AM 55 **Jejunal transcriptomic responses to inorganic and amino acid complexed zinc and iron in ascites-challenged broilers**
Jamie L. Fourie*^{12GS}, Kyle M. Venter¹³, Peter Plumstead⁴, Cibele A. Torres⁵, Luis F. Romero⁶, Laura M. Payling⁶ ¹*Neuro Livestock Research, Brits, Gauteng, South Africa;* ²*University of Stellenbosch, Stellenbosch, Gauteng, South Africa;* ³*University of Pretoria, Pretoria, Pretoria, South Africa;* ⁴*Neuro Livestock Research, Lanseria, , South Africa;* ⁵*Zinpro Corporation, Eden Prairie, Minnesota, United States;* ⁶*Biofractal, Loule, Algarve, Portugal*
- 11:00 AM 56 **Cecal microbiota and short-chain fatty acids are associated with growth performance and organ attributes in pullets fed omega-3 fatty acids or yeast bioactives**
Paul K. WALIAULA*^{12GS}, Xianhua Yin², Dion Lepp², Elijah G. Kiarie³, Moussa S. Diarra² ¹*University of Guelph, Guelph, Ontario, Canada;* ²*Guelph Research and Development Center Agriculture and Agri-Food Canada, Guelph, Ontario, Canada;* ³*University of Guelph, Guelph, Ontario, Canada*
- 11:15 AM 57 **Natural Adsorbents Attenuate *Clostridium perfringens* Virulence via Toxin Sequestration and Modulation of Host Cellular Responses in Chicken Jejunal Epithelial Cells**
Samuel E. Agada*^{1GS}, Iyabo W. Oluseyifunmi¹, Morgan Farnell², Audrey McElroy¹, Denise Caldwell³, Youjun Deng⁴, Timothy Phillips⁵, Samson Oladokun⁶, J A. Byrd³ ¹*Texas A&M University, College Station, Texas, United States;* ²*Texas A&M University, College Station, Texas, United States;* ³*USDA, College Station, Texas, United States;* ⁴*Texas A&M University, College Station, Texas, United States;* ⁵*Texas A&M University, College Station, Texas, United States;* ⁶*Texas A&M University, College Station, Texas, United States*

**Student Competition: Metabolism and Nutrition - Enzymes
206 (E-F)**

- 9:00 AM 58 **Effects of dietary β -Mannanase on growth performance, nutrient utilization, and intestinal integrity in broiler chickens**
Xin Yue*^{1GS}, Yuying Huang¹, Xiaofei Yang², Xuemeng Si¹, Pingyu Xia², Rui Zheng¹, Qiong Liu², Wen Chen¹, Yanqun Huang¹, Huaiyong Zhang¹ ¹*Henan Agriculture University, Zhengzhou, , China*; ²*Beijing Strowin Biotechnology Co., Ltd., Beijing, , China*
- 9:15 AM 59 **Evaluation of metabolizable energy release from carbohydrase enzymes using restrict-fed broiler chickens and precision-fed roosters**
McKayla Ward*^{1GS}, Seth Hufford², Danielle Graham³, Benjamin Parsons⁴ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*University of Arkansas, Siloam Springs, Arkansas, United States*; ³*University of Arkansas, Fayetteville, Arkansas, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*
- 9:30 AM 60 **Evaluation of the effects of sodium bisulfate and exogenous phytase supplementation on phytic acid hydrolysis, mineral digestibility, P bioavailability, and gastrointestinal pH in precision-fed roosters and restrict-fed broiler chickens**
Rebekah Drysdale*^{1GS}, Seth Hufford¹, Benjamin Parsons¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*

9:45 AM 61 **Effects of dietary fiber and fiber-degrading enzymes on egg production, egg quality, and organ weights in Dekalb white laying hens during an extended laying cycle**
Lonita Manoa*^{1GS}, Anna Fickler², Adebayo Sokale³, Fernando Laguna⁵, Elijah G. Kiarie⁴ ¹*University of Guelph, Guelph, Ontario, Canada;* ²*BASF SE, Ludwigshafen, , Germany;* ³*BASF Corp, Florham park, New Jersey, United States;* ⁴*University of Guelph, Guelph, Ontario, Canada;* ⁵*BASF Espanola SLU, Barcelona, , Spain*

**Student Competition: Genetics and Molecular Biology
206 (E-F)**

10:45 AM 62 **Computational Identification of Natural Inhibitors Targeting Fiber Proteins of FAdV-1 and FAdV-4 Through Integrated Virtual Screening and Molecular Dynamics Simulations.**
Amina Kardoudi*^{12GS}, salaheddine Redouane², Abdelouheb Benani², Faouzi Kichou¹, siham Fallahi¹ ¹*Istitute of agriculture and veterinary medecine Hassan II, Casablanca, CASABLANCA, Morocco;* ²*Pasteur Institite of Morocco, CASABLANCA, CASABLANCA, Morocco*

11:00 AM 63 **Population Structure of DNA Methylation and Its Relationship to Genetic Variation in Local Chicken Breeds**
Carl Kroger*^{12GS}, Odile Roger¹, Frederique Patel³, Sophie Leroux³, Romuald Rouger², Michel Sourdioux², Michele Trixie-Boichard¹, Andreia Amaral⁴, Tatiana Zerjal¹, Gwendal Restoux¹ ¹*INRAE, Jouy-en-Josas, , France;* ²*SYSSAF, Nouzilly, , France;* ³*INRAE, Castanet-Tolosan, , France;* ⁴*Universidade de Évora, Évora, , Portugal*

- 11:15 AM 64 **Integrated multi-omics analysis reveals breed-specific regulatory networks and hybrid vigor signatures underlying meat quality differentiation in ducks**
Lionel Kinkpe*^{1GS}, Gu Lihong², Guo Shun³, Xu Zixin², Hu Cheng², Sun Yaya¹, Bai Dingping⁴, Zheng Xinli³, Tieshan Xu², Wang Xia¹ ¹*Northwest A&F University, Shaanxi, China,, Select One..., China;* ²*Tropical Crops Genetic Resources Institute, Haikou, , China;* ³*Institute of Animal Science and Veterinary Medicine, Haikou, , China;* ⁴*Fujian Agriculture and Forestry University, Fuzhou, , China*
- 11:30 AM 65 **Probiotic supplementation alters transcriptomic regulation of the yolk sac membrane in association with glycogen accumulation during broiler embryonic development**
Anjana Thankachan*^{12GS}, Mairui Gao¹, Mary Anne Amalaradjou² ¹*University of Connecticut, Willington, Connecticut, United States;* ²*University of Connecticut, Storrs, Connecticut, United States*
- 11:45 AM 66 **Construction of Probiotic *Lactobacillus*-based vaccines for turkeys against Clostridial Dermatitis using a stable recombinant-gene expression system via chromosomal integration**
Carissa Gaghan*^{1GS}, Anil Thachil³, Rodolphe Barrangou², Sarah O'Flaherty², Ravi Kulkarni¹ ¹*North Carolina State University, Raleigh, North Carolina, United States;* ²*North Carolina State University, Raleigh, North Carolina, United States;* ³*Rollins Animal Disease Diagnostic Laboratory, Raleigh, North Carolina, United States*
- 12:00 PM 67 **Erythrocytes in Chicken Lung Upregulate Innate Immune and Antiviral Genes through Development as Revealed by Single-Cell Transcriptomics**
Evan Ma*^{1GS}, Rachel Read¹, Edward Rice¹², Rachel Carroll¹, Paula Chen³, Wesley Warren¹⁵⁴ ¹*University of Missouri, Columbia, Missouri, United States;* ²*Ludwig Maximillian University of Munich, Munchen, , Germany;* ³*USDA-ARS, Columbia, Missouri, United States;* ⁴*Universtiy of Missouri, Columbia, Missouri, United States;* ⁵*University of Missouri, Columbia, Missouri, United States*

**Student Competition: Immunology, Health and Disease - Immunology
203 (B-D)**

- 10:45 AM 68 **Efficiency of *In-Ovo* eBeam-inactivated *Clostridium perfringens* vaccine Against Necrotic Enteritis in SPF layer chickens**
Mohamad O. Jaradat*^{1GS}, Bikas R. Shah¹, Shuja Majeed¹, Iddris M. Habib¹, Nimra Khalid¹, Palmy Jesudhasan², Ali Nazmi³ ¹*The Ohio State University, Wooster, Ohio, United States*; ²*USDA-ARS, Fayetteville, Arkansas, United States*; ³*Ohio State University, Loudonville, Ohio, United States*
- 11:00 AM 69 **In ovo delivery of DOTAP-based mRNA vaccine elicits distinct innate immune activation profiles following TLR agonists co-administration in chicken embryos**
Sadique Abdallah*^{1GS}, Daja Moultrie¹, Janan Shoja Doost², Khaled Abdelaziz³, Shayan Sharif², Alexander Yitbarek⁴ ¹*University of Delaware, Newark, Delaware, United States*; ²*University of Guelph, Guelph, Ontario, Canada*; ³*Clemson University, Clemson, South Carolina, United States*; ⁴*University of Delaware, Newark, Delaware, United States*

- 11:15 AM 70 **Enhanced proliferative capacity of liver ductal organoids from brown layer hens: a potential basis for spotty liver disease susceptibility**
Eva C. Trevino*^{1GS}, Giovana M. Longhini², Jacob T. Porzeinski³, Lindsey A. Wythe⁴, Paula Chen⁵, Lianna R. Walker⁵, Morgan Farnell⁶, Yuhua Z. Farnell⁷ ¹Texas A&M University, College Station, Texas, United States; ²Texas A&M University, College Station, Texas, United States; ³Texas A&M University, College Station, Texas, United States; ⁴Texas A&M University, College Station, Texas, United States; ⁵USDA-ARS, Columbia, Missouri, United States; ⁶Texas A&M University, College Station, Texas, United States; ⁷Texas A&M University, College Station, Texas, United States
- 11:30 AM 71 **Effects of oviposition time and eggshell translucency on maternal antibody transfer in an aging broiler breeder flock**
Matthew Hughes*^{1GS}, Leticia Orellana², Chrysta N. Beck¹, Ken Macklin¹ ¹Mississippi State University, Mississippi State, Mississippi, United States; ²Mississippi State University, Starkville, Mississippi, United States
- 11:45 AM 72 **Establishment and characterization of the first chicken thymic epithelial cell organoid platform**
Giovana M. Longhini*^{1GS}, Eva C. Trevino¹, Jacob T. Porzeinski², Paula Chen³, Lianna R. Walker³, Morgan Farnell⁴, Yuhua Z. Farnell⁵ ¹Texas A&M University, College Station, Texas, United States; ²Texas A&M University, College Station, Texas, United States; ³USDA-ARS, Columbia, Missouri, United States; ⁴Texas A&M University, College Station, Texas, United States; ⁵Texas A&M University, College Station, Texas, United States

Student Competition: Physiology and Reproduction I 205 (A-D)

- 10:45 AM 73 **Effects of chronic mild heat stress on reproductive performance, physiological status, and HPO hormones in broiler breeders**
Guangju Wang*^{12GS}, Zhenwu Huang², Minhong Zhang², Henry van den Brand¹ ¹*Wageningen University & Research, Wageningen, Gelderland, Netherlands;* ²*Chinese Academy of Agricultural Sciences, Beijing, Beijing, China*
- 11:00 AM 74 **Do preventative supplementation with galacto-oligosaccharides and subsequent social stress alter aromatic amino acid profiles in low and high feather pecking laying hens?**
Lea Nicklas*^{12GS}, Lucia Parráková³, Cornelia A. Karg³⁴, Nienke van Staaveren¹, Johanna M. Gostner³, Anna K. Shoveller¹, Anna M. Edwards¹, Paul Forsythe⁵, Alexandra Harlander¹² ¹*University of Guelph, Guelph, Ontario, Canada;* ²*University of Guelph, Guelph, Ontario, Canada;* ³*Medical University of Innsbruck, Innsbruck, , Austria;* ⁴*University of Innsbruck, Innsbruck, , Austria;* ⁵*University of Alberta, Edmonton, Alberta, Canada*
- 11:15 AM 75 **Melatonin Fun Times: Scotophase infusion of melatonin has no impact on geriatric laying hen production but decreases bone strength.**
Isabella von Seggern*^{1GS}, Brittney J. Emmert¹, Jenna M. Schober¹, Gregory S. Fraley¹ ¹*Purdue University, Columbia City, Indiana, United States*
- 11:30 AM 76 **Effect of egg storage duration on broiler breeder embryonic gene expression**
Paige D. Meisner*^{1GS}, Tom Porter¹, Arianna Bond¹, Ricardo G. Sierra Arroyo¹, Boonyarit Kamkrathok¹, Panpradub Sinpru¹, Kristen Diehl² ¹*University of Maryland, College Park, Maryland, United States;* ²*USDA-ARS, Beltsville, Maryland, United States*
- 11:45 AM 77 **Effects of metabolizable energy intake and body weight restriction on reproductive physiology and metabolic cues of layer pullets**

Jo Ann Chew*^{1GS}, Thiago L. Noetzold¹, Grégoy Y. Bédécarrats², Leluo Guan³, Martin Zuidhof¹ ¹*University of Alberta, Edmonton, Alberta, Canada;* ²*University of Guelph, Guelph, Ontario, Canada;* ³*The University of British Columbia, Vancouver, British Columbia, Canada*

12:00 PM 78 **Effects of Strains and Growth Trajectory on Body Composition and Entry into Lay in Layer Pullets**
Josephine M. Sharka*^{1GS}, Ana K. Rentsch³, Grégoy Y. Bédécarrats² ¹*University of Guelph, Guelph, Ontario, Canada;* ²*University of Guelph, Guelph, Ontario, Canada;* ³*University of Guelph, Guelph, Ontario, Canada*

Immunology, Health and Disease: Feed Additives I 206 (A-D)

1:15 PM 79 **Nutritional strategies to improve immune function, gut health and food safety**
Morgan Farnell*¹ ¹*Texas A&M University, College Station, Texas, United States*

1:45 PM 80 **Modulation of gut microbiota by dietary inclusion of grape pomace in coccidia-challenged broilers (*Gallus gallus*)**
Milan K. Sharma*¹, Hannah Glesener², Lee Voth-Gaeddert², Elad Tako¹ ¹*Cornell University, Ithaca, New York, United States;* ²*Arizona State University, Tempe, Arizona, United States*

- 2:00 PM 81 **IMPROVING GUT HEALTH AND MITIGATING COCCIDIOSIS IN BROILER CHICKENS THROUGH *LACTOBACILLUS ACIDOPHILUS* DERIVED POSTBIOTIC SUPPLEMENTATION**
SHIVA KUMAR KURVA*^{1GS 1} *ICAR-CENTRAL AVIAN RESEARCH INSTITUTE, Izatnagar, UTTAR PRADESH, India*
- 2:15 PM 82 **Use of a Hydrolyzed Yeast Product for Prevention of Necrotic Enteritis in Broilers**
Charles L. Hofacre*¹, Yitong Guo³, Robin Yao³, Chad Riskey³, Matthew K. Jones^{2 1} *Southern Poultry Research Group, Inc., Watkinsville, Georgia, United States*; ²*Southern Poultry Research Group, Watkinsville, Georgia, United States*; ³*Planet Biosciences, Singapore, , Singapore*
- 2:30 PM 83 **Positive effects of dietary marine sulfated polysaccharides derived from macroalgae in broilers chickens during a necrotic enteritis challenge**
Raquel T. Pereira*¹, Mariel Neves Tavares², Candice E. Blue⁵, Maria Garcia³, Elise Nacer-Khodja¹, MARIA A. RODRIGUEZ³, Rami A. Dalloul^{4 1} *Olmix SA, Campinas, Sao Paulo, Brazil*; ²*Omix SA, Brehan, , France*; ³*Olmix S.A, Brehan, Morbihan, France*; ⁴*University of Georgia, Athens, Georgia, United States*; ⁵*University of Georgia, Athens, Georgia, United States*
- 2:45 PM 84 **Dietary guanidinoacetic acid supplementation improves resilience of broilers during a multifactorial necrotic enteritis challenge**
Lukas Bauer¹, Cecile Gayrard*¹, Zeyang Li^{1 1} *Evonik Operations GmbH, Hanau-Wolfgang, , Germany*

3:00 PM 85 **Engineered probiotic for inhibition of *Clostridium perfringens* induced NE in broiler chickens**
Laura Enekegho¹, Camila Schultz Marcolla², Usha S. Sharma², Douglas Korver², Benjamin P. Willing², David T. Stuart*¹ ¹*University of Alberta, Edmonton, Alberta, Canada;* ²*University of Alberta, Edmonton, Alberta, Canada*

Informal Nutrition Symposium: Care and Feeding of Modern Broiler and Layer Breeders

Moderator: Doug Korver, Alpine Poultry Nutrition, Inc.
John W. H. Bassett Theatre

1:15 PM 1005S **Symposium Introduction**
Roselina Angel*², Doug Korver^{1,3} ¹*Alpine Poultry Nutrition, Inc., Edmonton, Alberta, Canada;* ²*University of Maryland, College Park, Maryland, United States;* ³*University of Alberta, Edmonton, Alberta, Canada*

1:25 PM 1006S **State of the Art in Layer Breeder Nutrition and Management**
Xabier Arbe*¹, Emilio Scappaticcio¹ ¹*H&N International, Cuxhaven, , Germany*

2:00 PM 1007S **Optimizing nutrition and feeding strategies for female broiler breeders today**
Shivaram K. Rao*¹ ¹*Cobb Genetics, Atlanta, Georgia, United States*

2:30 PM 1008S **New Feeding Strategies for Male Breeders**
Justina Caldas*¹ ¹*Aviagen, Huntsville, Alabama, United States*

3:00 PM **Awards**

3:15 PM **Break**

4:00 PM 1009S **What precision feeding has revealed about changes to nutritional requirements for sexual maturation in broiler breeders**
Martin Zuidhof*¹ ¹*University of Alberta, Edmonton, Alberta, Canada*

- 4:25 PM 1010S **Impact nutrition and management on fertility**
Rick A. van Emous*¹ ¹*Wageningen Livestock Research, Wageningen, , Netherlands*
- 4:55 PM 1011S **Practical Considerations when Feeding Broiler Breeders**
Benton Hudson*¹ ¹*CSA Animal Nutrition, Hanceville, Alabama, United States*
- 5:25 PM **Panel Discussion**

Processing and Products Symposium: Poultry in Pet Food: Meeting Market Demands Though Science and Innovation
Chair: Casey Owens, University of Arkansas
105 Constitution Hall

- 1:15 PM 1012S **From Bird to Bowl: Translating Poultry Meat Ingredients into High-Performing Pet Food Products**
Leah Lambrakis*¹ ¹*Simmons Foods, Toronto, Ontario, Canada*
- 1:55 PM 1013S **How pet food marketing trends impact food safety**
Shannon Harrison*¹ ¹*Simmons Foods, Siloam Springs, Arkansas, United States*
- 2:35 PM 1014S **Quality of Poultry Meat Ingredients for Pet Food Processing: Impact on Final Product Stability and Acceptability**
B.J. Bench*¹ ¹*Tyson Foods, Inc., Springdale, Arkansas, United States*
- 3:15 PM **Break**
- 4:00 PM **Panel Discussion**

Student Competition: Animal Well-Being and Behavior
206 (E-F)

- 1:15 PM 86 **Quantification of the effect of dietary crude protein in broiler chickens on footpad dermatitis by meta-analysis**
Deepak Subedi*^{1GS}, William Lambert², Milan Kandel¹, Shemil Macelline¹, Sonia Liu¹ ¹*The University of*

*Sydney, Sydney, New South Wales,
Australia; ²Mixscience, Bruz, , France*

- 1:30 PM 87 **Effects of dietary protein level and classical conditioning on stimulus preference in broiler chickens**
Sofía Herrera-Alcaíno*^{1GS}, Jorge González-Pavez¹, Paloma Cordero¹, Daniela Luna¹, Sergio A. Guzmán-Pino¹ ¹*Universidad de Chile, Santiago, Las Condes, Chile*
- 1:45 PM 88 **Social Rank Influences Resource Use and Finishing Growth Performance in Broilers**
Carson D. Atwood*^{1GS}, Janeen L. Salak-Johnson², Meaghan M. Meyer¹ ¹*Oklahoma State University, Stillwater, Oklahoma, United States; ²Michigan State University, East Lansing, Michigan, United States*
- 2:00 PM 89 **Fun and fear: Effect of using platform perches on stimulated play and neophobia in broiler chickens**
Chloe Phelps*^{1GS}, Leonie Jacobs² ¹*Virginia Tech, Blacksburg, Virginia, United States; ²Virginia Tech, Blacksburg, Virginia, United States*

- 2:15 PM 90 **Growth performance and preference of broiler chickens under two light treatments**
Karen M. Rivera*^{1GS}, Allison D. Weaver¹, Rosie Whittle², Rovin Sanjur Caballero³, Shawna Weimer⁴ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*University of Arkansas, Fayetteville, Arkansas, United States*; ³*University of Arkansas, Fayetteville, Arkansas, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*
- 2:30 PM 91 **PoultryLeX-Net: Dual-stream transformer architecture for large-scale poultry sentiment analysis**
Stephen Afrifa*^{1GS}, Biswash Khatiwada¹, Kapalik Khanal¹, Sanjay Shah¹, Lingjuan W. Li¹, Ramesh B. Bist¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*
- 2:45 PM 92 **Phenotype-based discrimination in laying hen pullets assessed through feather pecking and other non-aggressive interactions**
Amaia Hormaetxe*^{1GS}, Aitana Eizaguirre¹, Xavier Averós¹, Linda Keeling², Ruth Newberry³, Inma Estevez¹⁴ ¹*Neiker, Arkaute, , Spain*; ²*SLU, Uppsala, , Sweden*; ³*NMBU, As, , Norway*; ⁴*KERBASQUE, Bilbao, , Spain*
- 3:00 PM 93 **Limited evidence for locomotor imitation in pullets using a ramp vs. jump two-action procedure**
Kathryn Walsh*^{12GS}, Lea Nicklas³², Bret W. Tobalske⁴, Eolia Planchon¹, Nienke van Staaveren¹, Donald Powers⁷, Tina Widowski⁵, Bettina Willie⁸, Alexandra Harlander⁶ ¹*University of Guelph, Guelph, Ontario, Canada*; ²*University of Guelph, Guelph, Ontario, Canada*; ³*University of Guelph, Guelph, Ontario, Canada*; ⁴*University of Montana, Missoula, Montana, United States*; ⁵*University of Guelph, Guelph, Ontario, Canada*; ⁶*Universtity of Guelph, Guelph, Ontario, Canada*; ⁷*George Fox University, Newberg, Oregon, United States*; ⁸*Utah State University, Logan, Utah, United States*
- 3:15 PM 93.5 **Break**

- 4:00 PM 94 **Building maneuvering skills of laying hens through training – no effect on daily energy expenditure**
Taylor Burwell*^{4GS}, Donald Powers¹, Renee Garant⁴, Bettina Willie², Bret W. Tobalske³, Alexandra Harlander⁴ ¹*George Fox University, Newberg, Oregon, United States;* ²*Utah State University, Logan, Utah, United States;* ³*University of Montana, Missoula, Montana, United States;* ⁴*University of Guelph, Guelph, Ontario, Canada*
- 4:15 PM 95 **Add It, Take It Away: The Consequences of Enrichment Change in Pullets and Hens on Feather Cover and Mortality**
Jasmin Schiestel*^{14GS}, Nienke van Staaveren¹, Anna M. Edwards¹, Lea Nicklas²⁴, Mike Petrik¹, Tina Widowski³⁴, Alexandra Harlander⁴ ¹*University of Guelph, Mildmay, Ontario, Canada;* ²*University of Guelph, Guelph, Ontario, Canada;* ³*University of Guelph, Guelph, Ontario, Canada;* ⁴*University of Guelph, Guelph, Ontario, Canada*
- 4:30 PM 96 **Does location matter? The impact of pecking block placement on feather condition in laying hens**
Emma A. Simmonds*^{12GS}, Lea Nicklas¹², Nienke van Staaveren¹, Tina Widowski¹², Alexandra Harlander¹² ¹*University of Guelph, Guelph, Ontario, Canada;* ²*University of Guelph, Guelph, Ontario, Canada*
- 4:45 PM 97 **Turkey behavioral activity levels are influenced by age and walking ability, and minimally by environmental enrichment**
Gideon S. Ajibola*^{1GS}, Nathan A. Griffith¹, Luiz F. Brito¹, Prafulla Regmi², Marisa A. Erasmus¹ ¹*Purdue university, West Lafayette, Indiana, United States;* ²*University of Georgia, Athens, Georgia, United States*

Student Competition: Microbiology and Food Safety II 202 (A-D)

- 1:15 PM 98 **Survivability of *Campylobacter jejuni* and *Campylobacter coli* in broiler litter**
Ruby Paudel*^{1GS}, Farazi Rahman¹, Shijinaraj

Manjankattil Rajan¹, Dianna Bourassa¹, Sabin Poudel¹ ¹*Auburn University, Auburn, Alabama, United States*

1:30 PM

99

Virulence Determinants and Antimicrobial Resistance in Avian Pathogenic *Escherichia coli* Isolated from Poultry in Malaysia

Faisal Danish*^{12GS}, Nurul Izzati Muhamad Hasuri³, Nur Aimi Syifa Huzairi³, Zunita Zakeria¹³, Jalila Abu³ ¹*Universiti Putra Malaysia, Pol- E Alam, , Malaysia;* ²*Afghanistan National Agricultural Sciences and Technology University, Kandahar, Kandahar, Afghanistan;* ³*Universiti Putra Malaysia, Serdang, Selangor, Malaysia*

1:45 PM

100

Pre-harvest heat stress: disruption of microbial ecology and subsequent shelf-life of raw poultry products

Mack P. Myer*^{1GS}, Taylor Fearing², Elizabeth Greene³, Sami Dridi³, Dana K. Dittoe⁴ ¹*University of Wyoming, Laramie, Wyoming, United States;* ²*Wyoming Public Health Laboratory, Cheyenne, Wyoming, United States;* ³*University of Arkansas, Fayetteville, Arkansas, United States;* ⁴*University of Wyoming, Laramie, Wyoming, United States*

2:00 PM 101 **The Effect of a Live-modified *Salmonella* Typhimurium Vaccine on the Performance Parameters of Broilers Challenged with *Salmonella* Enteritidis**
Arjmand Fatima*^{1GS}, Jinquan Wang², Sabin Poudel³, Samuel Rochell⁴, Erasmo A. Flores Granados⁵, Zahidul H. Tushar¹, Rabin Raut¹, Rishav Kumar¹, Dianna Bourassa¹ ¹*Auburn University, Auburn, Alabama, United States*; ²*Auburn University, Auburn, Alabama, United States*; ³*Auburn University, Auburn, Alabama, United States*; ⁴*Auburn University, Auburn, Alabama, United States*; ⁵*Auburn University, Auburn, Alabama, United States*

2:15 PM 102 ***Salmonella* Typhimurium persistence on antimicrobial-infused polyurethane surfaces**
Ansel Steele*^{1GS}, Matthew A. Bailey², Hanyi Shi¹, Jinquan Wang³, Dianna Bourassa¹ ¹*Auburn University, Auburn, Alabama, United States*; ²*Auburn University, Auburn, Alabama, United States*; ³*Auburn University, Auburn, Alabama, United States*

Student Competition: Physiology and Reproduction II 205 (A-D)

1:15 PM 103 **Corticosterone increases but returns to baseline in both sexes during chronic heat stress, however met-enkephalin levels increased until recovery in Pekin ducks.**
Nina Wilson*^{1GS}, Jenna M. Schober², Gregory S. Fraley³ ¹*Purdue University, Knox, Indiana, United States*; ²*Purdue University, Frankfort, Indiana, United States*; ³*Purdue University, West Lafayette, Indiana, United States*

1:30 PM 104 **Differences in testicular morphology associated with sperm mobility phenotypes in broiler breeder roosters**
Arianna Bond*^{1GS}, Tom Porter¹, Paige D. Meisner¹, Ricardo G. Sierra Arroyo¹, Kuan Ling Liu³, Diane Hildenberger³, Isaac Harford², Kristen Diehl³ ¹*University of Maryland, College Park, Maryland, United States*; ²*Cobb-Vantress Inc., Siloam*

Springs, Arkansas, United States; ³USDA-ARS, Beltsville, Maryland, United States

1:45 PM

105

Embryos in motion: the influence of strain and sex on prenatal motility in commercial layer chickens

Renee Garant*^{12GS}, Bret W. Tobalske³, Nienke van Staaveren¹, Donald Powers⁴, Tina Widowski⁵, Bettina Willie⁶⁷, Alexandra Harlander⁸ ¹*University of Guelph, Guelph, Ontario, Canada; ²Campbell Centre for the Study of Animal Welfare, Guelph, Ontario, Canada; ³University of Montana, Missoula, Montana, United States; ⁴George Fox University, Newberg, Oregon, United States; ⁵University of Guelph, Guelph, Ontario, Canada; ⁶Utah State University, Logan, Utah, United States; ⁷Shriners Hospital for Children-Canada, Montreal, Quebec, Canada; ⁸University of Guelph, Guelph, Ontario, Canada*

2:00 PM

106

Embryonic Movement Influences Postnatal Bone Mineral Density and Strength in Chickens

Setareh Khorshidparast*^{12GS}, Renee Garant³, Anthony Helou¹, Tamara Droual¹, Karim Elsayed¹, Maya Arab Makansi¹, Tina Widowski³, Bret W. Tobalske⁴, Claudie Berger⁵, Alexandra Harlander⁶, Bettina Willie¹²⁷ ¹*Shriners Hospitals for Children-Canada, Research Centre, Montreal, Quebec, Canada; ²McGill University, Montreal, Quebec, Canada; ³University of Guelph, Guelph, Ontario, Canada; ⁴University of Montana, Missoula, Montana, United States; ⁵McGill University, Montreal, Quebec, Canada; ⁶University of Guelph, Guelph, Ontario, Canada; ⁷Utah State University, Logan, Utah, United States*

- 2:15 PM 107 **Gene expression associated with the hypothalamic-pituitary-gonadal axis in response to synchronizing body weight and photostimulation in cage-free pullets**
Olivia McGuire*^{2GS}, Clara J. Ziezold¹, Ana K. Rentsch¹, Grégoy Y. Bédécarrats¹, Charlene Hanlon² ¹*University of Guelph, Guelph, Ontario, Canada;* ²*Auburn University, Auburn, Alabama, United States*
- 2:30 PM 108 **Effects of genetic selection on thyrotropic axis gene expression in yolk sac and somatic tissues during broiler embryogenesis**
Grant G. Bennett*^{1GS}, Jordan Castle¹, Kloie Varnadoe¹, Laura E. Ellestad¹ ¹*University of Georgia, Athens, Georgia, United States*
- 2:45 PM 109 **Antibiotic growth promoters restore performance, acid-base balance, and kidney function during heat stress in modern broilers**
Colin A. Barcelo*^{1GS}, Virginia Jacobs¹, Anneliese Amukamara¹, Laura E. Ellestad² ¹*University of Georgia, Athens, Georgia, United States;* ²*University of Georgia, Athens, Georgia, United States*
- 3:00 PM 110 **Effects of fasting and semi-purified diets on hypothalamic mRNA expression in broiler chicks**
Michaela A. Riedel*^{1GS}, Parama Bhattacharjee¹, Nishanth E. Sunny¹, Tom Porter¹ ¹*University of Maryland, College Park, Hyattsville, Maryland, United States*
- 3:15 PM 110.5 **Break**
- 4:00 PM 111 **Pituitary thyrotropin responsiveness to thyrotropin-releasing hormone differs between low and high egg producing turkey hens**
Ricardo G. Sierra Arroyo*^{1GS}, Tom Porter¹, Kristen Diehl² ¹*University of Maryland, College Park, Maryland, United States;* ²*USDA-ARS, Beltsville, Maryland, United States*
- 4:15 PM 112 **Oviposition time on the early production stage of broiler breeder hens fed different feeding regimens**
Nicole Dundur Serrano*^{2GS}, Jeremiah Davis³, Lauren Sroda³, Kristen Diehl¹, Brenda Flack⁴, Madison Berger², Charlene Hanlon² ¹*USDA-ARS, Beltsville, Maryland, United States;* ²*Auburn University, Auburn ,*

Alabama, United States; ³National Poultry Technology Center, Auburn University, Auburn, Alabama, United States; ⁴Cobb-Vantress, Siloam Springs, Arkansas, United States

- 4:30 PM 113 **Interactive Effects of Flock Age, Oviposition, and Eggshell Translucency on Egg Quality and Hatchability**
Leticia Orellana*^{1GS}, Matthew Hughes², Chrysta N. Beck¹, Ken Macklin¹ ¹*Mississippi State University, Starkville, Mississippi, United States; ²Mississippi State University, Mississippi State, Mississippi, United States*
- 4:45 PM 114 **Use of novel methodology to simulate external and internal keel tip fractures and assess keel tip strength**
Brittney J. Emmert*^{1GS}, Charles J. MacWilliams², Sara Cloft¹, Thomas H. Siegmund², Darrin M. Karcher¹ ¹*Purdue University, West Lafayette, Indiana, United States; ²Purdue University, West Lafayette, Indiana, United States*
- 5:00 PM 115 **Identification of cells responsible for polyamine synthesis in the kidney of broiler chickens**
Yuma Shiomi*^{1GS}, Takahiro Shibata¹, Atsushi Murai¹, Kyohei Furukawa¹ ¹*Nagoya University, Nagoya, , Japan*

**Student Competition: Processing and Products
203 (B-D)**

- 1:15 PM 116 **Analyzing Egg Yolk Color Scores: Statistical and Colorimetric Evidence from the DSM YolkFan™**
Jared Trask*^{1GS}, Sara Cloft², Chenchen Lu³, Bruce Craig³, Darrin M. Karcher⁴ ¹*Purdue University, West Lafayette, Indiana, United States*; ²*Purdue University, West Lafayette, Indiana, United States*; ³*Purdue University, West Lafayette, Indiana, United States*; ⁴*Purdue University, West Lafayette, Indiana, United States*
- 1:30 PM 117 **Exterior Eggshell Characteristics: Rhode Island Red and Black Australorp vs. Single Comb White Leghorns**
Emma F. Mullins*^{1UG}, Ava L. Mullins¹, Brigid McCrea¹ ¹*Alabama Cooperative Extension System, Auburn, Alabama, United States*
- 1:45 PM 118 **Interior Egg Quality of Rhode Island Red and Black Australorp compared to Commercial Single Comb White Leghorn**
Ava L. Mullins*^{1UG}, Emma F. Mullins¹, Brigid McCrea¹ ¹*Alabama Cooperative Extension System, Auburn, Alabama, United States*
- 2:00 PM 119 **Functionality of Rhode Island Red and Black Australorp Eggs Compared to Single Comb White Leghorn Eggs**
Elizabeth F. Knight*^{1UG}, Alyssa C. Rios¹, Brigid McCrea¹ ¹*Alabama Cooperative Extension System, Auburn, Alabama, United States*
- 2:15 PM 120 **Angel Food Cake, Custard, and Mayonnaise Performance with Rhode Island Red and Black Australorp Eggs vs. Single Comb White Leghorn Eggs**
Alyssa C. Rios*^{1UG}, Elizabeth F. Knight¹, Brigid McCrea¹ ¹*Alabama Cooperative Extension System, Auburn, Alabama, United States*
- 2:30 PM 121 **Untargeted Metabolomics to Understand the Impact of Controlled Atmosphere Stunning and Electrical Stunning on Metabolite Profiles of Early Postmortem Breast Fillet**

Rishav Kumar*^{1GS}, Melissa Boersma², Sunoh Che³,
Zahidul H. Tushar¹, Rabin Raut¹, Dianna
Bourassa¹ ¹*Auburn University, Auburn, Alabama,
United States;* ²*Auburn University, Auburn, Alabama,
United States;* ³*University of Maryland, College Park,
Maryland, United States*

2:45 PM 122 **Effects of Endpoint Cooking Temperature on Broiler
Breast Fillet Shear Energy and Yields**

Jeremy Summers*^{1GS}, Sarah E. Johnson², Casey M.
Owens³ ¹*University of Arkansas, Fayetteville,
Arkansas, United States;* ²*University of Arkansas,
Fayetteville, Arkansas, United States;* ³*University of
Arkansas, Fayetteville, Arkansas, United States*

3:00 PM 123 **Evaluation of the Prevalence of Wing Damage of
Broiler Carcasses in a Commercial Processing
Plant**

Marissa Askew*^{1GS}, Kassim Sulleyman¹, Niek Milder²,
Dianna Bourassa¹ ¹*Auburn University, Auburn,
Alabama, United States;* ²*JBT Marel, Boxmeer, ,
Netherlands*

3:15 PM 123.5 **Break**

DRAFT

- 4:00 PM 124 **Wing Abduction Angle and Woody Breast Development in Broilers Fed Diets Differing in Nutrient Density and Probiotic Supplementation**
 Sarah E. Johnson*^{1GS}, Rosie Whittle², Jeremy Summers³, Joaquin J. Esquivel Vergara⁴, Karen M. Rivera⁵, Allison D. Weaver⁶, Benjamin Parsons⁷, Shawna Weimer⁸, Casey M. Owens⁹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*University of Arkansas, Fayetteville, Arkansas, United States*; ³*University of Arkansas, Fayetteville, Arkansas, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*; ⁵*University of Arkansas, Fayetteville, Arkansas, United States*; ⁶*University of Arkansas, Fayetteville, Fayetteville, Arkansas, United States*; ⁷*University of Arkansas, Fayetteville, Arkansas, United States*; ⁸*University of Arkansas, Fayetteville, Arkansas, United States*; ⁹*University of Arkansas, Fayetteville, Arkansas, United States*
- 4:15 PM 125 **Improving Functionality of Woody Breast-Affected Broiler Meat with Proteolytic Enzyme Marination: Implications for Yield**
 Krystell Charles*^{1GS}, Kelley G. Wamsley², Amanda bushong², Casey M. Owens³, Hudson Thames⁴ ¹*Mississippi State University, Starkville, Mississippi, United States*; ²*Mississippi State University, Mississippi State, Mississippi, United States*; ³*University of Arkansas, Fayetteville, Arkansas, United States*; ⁴*Mississippi State University, Starkville, Mississippi, United States*
- 4:30 PM 126 **Effect of poultry DAF skimmings' composition on hydrothermal carbonization yield and resource recovery**
 Zahra Rangoonwala*^{2UG}, Jie Xu², Austen R. Monteith², William Hall², Aklilu Giorges², Chris Heist²¹, Jordan Ash²¹ ¹*Georgia Tech Research Institute, Atlanta, Georgia, United States*; ²*Georgia Tech Research Institute, Atlanta, Georgia, United States*
- 4:45 PM 127 **Effects of Sex, Defeathering Intensity, and Peracetic Acid Exposure on Broiler Meat Quality**
 Zahidul H. Tushar*^{1GS}, Rishav Kumar¹, Farazi Rahman¹, Shijinaraj Manjankattil Rajan², Jinquan

Wang³, Dianna Bourassa¹ ¹*Auburn University, Auburn, Alabama, United States*; ²*Auburn University, Auburn, Alabama, United States*; ³*Auburn University, Auburn, Alabama, United States*

- 5:00 PM 128 **Shelf-life dynamics of poultry parts following PAA and eBeam treatments during refrigerated storage**
Seth O. Adesope*^{1GS}, Eniola Betiku¹, Casey M. Owens¹, Palmy Jesudhasan², Suresh Pillai³, Tomi Obe¹⁴ ¹*University of Arkansas System Division of Agriculture, Fayetteville, Arkansas, United States*; ²*USDA-ARS, Fayetteville, Arkansas, United States*; ³*Texas A&M University, Texas, Texas, United States*; ⁴*Center for Food Safety, University of Arkansas System Division of Agriculture, Fayetteville, Arkansas, United States*

Student Competition: Metabolism and Nutrition - General Nutrition II 201 (A-F)

- 1:45 PM 497 **Influence of particle size, macromineral composition and physical properties of limestone on its solubility and acid-binding capacity**
DIEGO P. PEREZ*^{12GS}, Xaviere Rousseau¹, Carrie L. Walk¹, Guillermo Talegón², Gonzalo González Mateos² ¹*AB Vista, Marlborough, , United Kingdom*; ²*Universidad Politécnica de Madrid, Madrid, , Spain*
- 2:00 PM 129 **Validation of a novel methodology to measure the internal particle size of pelleted feed and the degree of grinding during pelleting**
Urias Castillo*^{1GS}, Wilmer J. Pacheco² ¹*Auburn University, Auburn, Alabama, United States*; ²*Auburn University, Auburn, Alabama, United States*
- 2:15 PM 130 **Targeted Bacteroidales inoculation enhances early-life gut colonization in broilers**
Usha Sivakumar Sharma*^{1GS}, Camila Schultz Marcolla¹, Jaime Wolfe¹, Benjamin P. Willing¹ ¹*Faculty of Agriculture, Life and Environmental Sciences, University of Alberta, Edmonton, Alberta, Canada*
- 2:30 PM 131 **Effect of cyclic heat exposure on the expression of genes related to jejunal tight junction proteins and**

cecal microorganisms of broilers fed palm kernel meal

Ahmed MIJIYAWA¹², Elham Ghashghaei¹, Lijing Sun¹, Huimin Wang¹, Uchechukwu E. Obianwuna³, Wéré PITALA², Hongchao Jiao¹, Dr. H. Lin*^{1GS 1}*College of Animal Science and Technology, Tai'an, , China;*²*Regional Center of Excellence for Avian Sciences, University of Lome, Lome, Togo, Lome, , Togo;*³*CAAS, Beijing, , China*

2:45 PM

132

Effect of apparent metabolizable energy, conditioning temperature, and retention time on crumble quality and pellet durability index of broiler diets

Jose I. Vargas*^{1GS}, Maria J. Brizuela¹, Isabella Dias¹, Urias Castillo¹, Eva G. Guzman Guzman¹, Natawadee Pinyosnit¹, Roberta Romero¹, Gabriel Peron¹, Lillian Brito Lins¹, Wilmer J. Pacheco^{1 1}*Auburn University, Auburn, Alabama, United States*

3:00 PM

133

potency of processed soy sauce meal as an alternative protein source for laying hens

Fatimah Fatimah*^{1GS}, titik ekowati¹, vitus db yunianto¹, hasliza Abu Hasim^{2 1}*Diponegoro University, Indonesia, Central Java, Indonesia;*²*University Putra Lamaysia, Serdang, Selangor, Malaysia*

3:15 PM

133.5

Break

- 4:00 PM 134 **Evaluating the impact of palm oil Inclusion on growth performance, meat quality, and lipid deposition in turkeys**
Nicolas Mejia Abaunza*^{1GS}, Allison Jun T. Kawaoku¹, Catherine Fudge¹, Muhammad Ali¹, Federico Etcheverry¹, Samuel Ogundipe², Adam Davis¹, Ronald Pegg², Chongxiao Chen¹ ¹*University of Georgia, Athens, Georgia, United States*; ²*University of Georgia, Athens, Georgia, United States*
- 4:15 PM 135 **The effects of dietary crude protein level and poultry by-product meal or crystalline glycine inclusion on the growth performance of broilers challenged with necrotic enteritis**
Nelsa Beckman*^{1GS}, Matheus Rosa¹, Ruediger Hauck¹, William A. Dozier², Kelsy Robinson³, Samuel Rochell¹ ¹*Auburn University, Auburn, Alabama, United States*; ²*Auburn University, Auburn University, Alabama, United States*; ³*USDA-ARS, Starkville, Mississippi, United States*
- 4:30 PM 136 **Effects of dietary palm oil inclusion on performance metrics and egg quality in laying hens**
Samantha Dong*^{1UG}, Allison Jun T. Kawaoku¹, Nicolas Mejia-Abaunza¹, Catherine Fudge¹, Muhammad Ali¹, Federico Etcheverry¹, Adam Davis¹, Samuel Ogundipe², Ronald Pegg², Chongxiao Chen¹ ¹*University of Georgia, Athens, Georgia, United States*; ²*University of Georgia, Athens, Georgia, United States*
- 4:45 PM 137 **Effects of low-protein diets and nutrient conditioning on productive performance in broiler chickens**
Sofía Herrera-Alcaíno*^{1GS}, Jorge González-Pavez¹, Paloma Cordero¹, Daniela Luna¹, Sergio A. Guzmán-Pino¹ ¹*Universidad de Chile, Santiago, Las Condes, Chile*

Saturday, July 11 2026
Physiology and Reproduction
206 (A-D)

- 8:00 AM 138 **Phenotyping Male Fertility Traits for Improving Broiler Breeder Fertility**
Giri Athrey*¹, Kolton L. Witherspoon², Triumph Okuku³ ¹*Texas A&M University, College Station, Texas, United States;* ²*Texas A&M University, College Station, Texas, United States;* ³*Texas A&M University, College Station, Texas, United States*
- 8:30 AM 139 **Strain-Specific Variations in Oxidative stress and Immune Responses of Meat-Type Chickens Exposed to Cyclical Heat Stress**
GAUTHAM KOLLURI*¹, Prashanth Bhutekhar¹, jagbir singh tyagi¹, MATIN ANSARI¹, AVNI SACHAN¹, Vaishali Gupta² ¹*ICAR-CENTRAL AVIAN RESEARCH INSTITUTE, Govt. of INDIA, Bareilly, UTTAR PRADESH, India;* ²*Gyeongsang National University, Jinju-si, , Korea (the Republic of)*
- 8:45 AM 140 **Hidden in plain sight: differences in color vision and visual acuity of the Pekin Duck compared to its wild progenitor the Mallard duck (*Anas platyrhynchos*).**
Gregory S. Fraley*¹, Patrice Baumhardt², Esteban Fernandez-Juricic² ¹*Purdue University, West Lafayette, Indiana, United States;* ²*Purdue University, West Lafayette, Indiana, United States*
- 9:00 AM 141 **Did you see that? Impact of green, red or blue LED and white fluorescent vs incandescent lights on Pekin duck visualization of their environment and ducks actively avoid blue lights.**
Gregory S. Fraley*¹, Patrice Baumhardt², Alice S. Kim¹, Esteban Fernandez-Juricic² ¹*Purdue University, West Lafayette, Indiana, United States;* ²*Purdue University, West Lafayette, Indiana, United States*
- 9:15 AM 142 **Significance of sex and season for the long-term effects of embryonic temperature training in broiler chickens**
Barbara Tzschentke*¹, Vanessa Lux²³, Rebecca Lindenwald⁴, Nicole Ahlig¹ ¹*Institute for Agricultural*

and Urban Ecological Projects (IASP) at Humboldt-Universität zu Berlin, Berlin, , Germany; ²Ruhr University Bochum, Bochum, , Germany; ³3 GESIS Leibniz Institute for the Social Science, Mannheim, , Germany; ⁴4 University of Veterinary Medicine Hannover, Foundation Hannover, Hannover, , Germany

- 9:30 AM 143 **Mechanism of glutamate accumulation in chicken eggs**
Kyohei Furukawa*¹, Mitsuko Enomoto¹, Atsushi Murai¹ ¹Nagoya University, Nagoya, , Japan
- 9:45 AM 144 **New insights into keel bone development: Keel tip integrity is unaffected by age at first egg in LSL-Lite pullets**
Ana K. Rentsch*³¹, Charlene Hanlon², Grégoy Y. Bédécarrats³ ¹University of Guelph, Guelph, Ontario, Canada; ²Auburn University, Auburn , Alabama, United States; ³University of Guelph, Guelph, Ontario, Canada
- 10:00 AM 144.5 **Break**
- 10:45 AM 145 **Non-Destructive Assessment of Broiler Hatching Eggs Fertility Prior Incubation Via VOCs Profiling**
Xiaojuan (Judy) Song*¹, Christopher A. Heist¹, Olga Kemenova¹, Ashley Gatewood², Charles L. Hofacre², Brian Fairchild⁴, Doug Britton³ ¹Georgia Tech Research Institute, Atlanta, Georgia, United States; ²Southern Poultry Research Group, Inc., Watkinsville, Georgia, United States; ³Georgia Tech Research Institute, Atlanta, Georgia, United States; ⁴University of Georgia, Athens, Georgia, United States
- 11:00 AM 146 **Tibiotarsus morphometry in broilers selected for water efficiency following short-term water deprivation**
Rosie Whittle*¹, Karen M. Rivera¹, Sara Orlowski-Workman¹, Gregory S. Fraley², Maricela Maqueda¹, Shawna Weimer¹ ¹University of Arkansas, Fayetteville, Arkansas, United States; ²Purdue University, West Lafayette, Indiana, United States
- 11:15 AM 147 **Effects of feeding level and feeding system on reproductive physiology of broiler breeders.**
Thiago L. Noetzold¹, Leluo Guan², Martin

Zuidhof*³ ¹University of Alberta, Edmonton, Alberta, Canada; ²The University of British Columbia, Vancouver, British Columbia, Canada; ³University of Alberta, Edmonton, Alberta, Canada

- 11:30 AM 148 **Target body weight and the length of the starter phase on fertility and hatchability of broiler breeders between 42 and 60 weeks of age**
Edgar O. Oviedo*¹, Gabriele J. Kinchin¹, Artur De Freitas Ribeiro¹, Shivaram K. Rao², Jesus Arango² ¹NC STATE UNIVERSITY, Raleigh, North Carolina, United States; ²Cobb Genetics, Siloam Springs, Arkansas, United States

Immunology, Health and Disease Symposium: Inter-Generational Nutrition and Gut Health

Chair: Eugeni Roura, The University of Queensland
John W. H. Bassett Theatre

- 8:00 AM 1015S **Impact of breeder nutrition on progeny performance**
Martin Zuidhof*¹ ¹University of Alberta, Edmonton, Alberta, Canada
- 8:30 AM 1016S **Developmental programming and in ovo strategies in broiler chickens**
Eugeni Roura*¹ ¹The University of Queensland, Brisbane, Queensland, Australia
- 9:00 AM 1017S **Vertical Transmission of Microbiota and Pathogens**
Lisa R. Bielke*¹, Thaciane L. Amaral¹, Tracy Omasanuwa¹, Muhammad Wajeeh Ul Hassan¹ ¹North Carolina State University, Raleigh, North Carolina, United States
- 9:30 AM 1018S **Post-hatch: low crude protein strategies in the starter period**
Shemil Macelline*¹ ¹The University of Sydney, Brownlow Hill, New South Wales, Australia
- 10:00 AM **Break**
- 10:45 AM 1019S **Low CP strategies and gut health: Post-starter periods**
Michael Kidd*¹, Kenneth B. Nelson¹, Pablo Escovar Ruidiaz¹, Garrett J. Mullenix² ¹University of Arkansas,

Fayetteville, Arkansas, United States; ²Cargill Animal Nutrition, Elk River, Minnesota, United States

11:15 AM **Panel Discussion**

Processing and Products Symposium: Poultry Meat - Global Issues

Chair: Shai Barbut, University of Guelph

105 Constitution Hall

- 8:00 AM 1020S **An overview of breast myopathies from South America**
Sergio L. Vieira*¹² ¹*Federal University of Rio Grande, Porto Alegre, RS, Brazil;* ²*Instituto Brasileiro de Pesquisa Animal, Farroupilha, RS, Brazil*
- 8:30 AM 1021S **North American poultry trends and challenges**
Craig Bacon*², Amy Matsler¹ ¹*Simmons Prepared Foods, Noel, Missouri, United States;* ²*Simmons Foods, Siloam Springs, Arkansas, United States*
- 9:00 AM 1022S **Poultry Meat – Global quality issues: an Asia Perspectives**
Yuwares Malila*², Yanee Srimarut¹ ¹*BIOTEC, Thailand, Bangkok, , Thailand;* ²*Food Science and Technology Association of Thailand, Bangkok, , Thailand*
- 9:30 AM 1023S **Omics technologies in poultry meat quality: Advancements in the molecular basis of breast myopathies**
Martina Bordini*¹, Francesca Soglia¹, Massimiliano Petracci¹, Shai Barbut² ¹*University of Bologna, Cesena, , Italy;* ²*University of Guelph, Guelph, Ontario, Canada*
- 10:00 AM **Break/Poster Session I**
- 10:45 AM 1024S **Chicks are cool**
Theo Hoen*¹ ¹*Technical University, Bennekom, , Netherlands*
- 11:15 AM 1025S **Selection strategies for meat quality and yield**
Richard a. Bailey*¹ ¹*Aviagen Ltd., Edinburgh, , United Kingdom*
- 11:45 AM **Panel Discussion**

Student Competition: Management and Production

203 (B-D)

8:00 AM

149

Evaluation of EPA ammonia emission estimating method under contemporary broiler management

Haley N. Drysdale*^{1GS}, Hong Li¹ *University of Delaware, Newark, Delaware, United States*

DRAFT

- 8:15 AM 150 **Evaluation of *Miscanthus giganteus* as an Alternative Bedding Material in Commercial Broiler Production**
Giovanni Rollo*^{1GS}, Zachary Williams², Hashem Fawzy², Jennifer Timmons², Wells D. Hively³, Cathleen Hapeman⁴, Pat Millner⁴, Maryam Foroughi⁴, Gregory McCarty⁴, Hong Li⁵, Dev Gurung² ¹*University of Delaware, Newark, Delaware, United States*; ²*University of Maryland Eastern Shore, Princess Anne, Maryland, United States*; ³*USGS, Beltsville, Maryland, United States*; ⁴*USDA, Beltsville, Maryland, United States*; ⁵*University of Delaware, Newark, Delaware, United States*
- 8:30 AM 151 **Laser environmental enrichment reduced incidence of woody breast and white striping without negatively impacting bone quality in Ross 708 broilers**
Kayla Elmore*^{1GS}, Anna Johnson¹, Elizabeth Bobeck¹ ¹*Iowa State University, Ames, Iowa, United States*
- 8:45 AM 152 **Stepwise crude protein reduction with exogenous multicomponent protease supplementation improves broiler efficiency and environmental sustainability**
Prince Agyemang*^{1GS}, Danielle Marie Estacio³, Glenmer B. Tactacan², Marcia d. Vieira³, Olufemi Babatunde³, Sudipto Haldar⁶, Melissa Otis⁵, Ludovic Lahaye⁴ ¹*McGill University, Sainte Anne-de-Bellevue, Quebec, Canada*; ²*Jefo Nutrition, Inc., Saint-Hyacinthe, Quebec, Canada*; ³*Jefo Nutrition Inc, St. Hyacinthe, Quebec, Canada*; ⁴*Jefo Nutrition Inc., St. Hyacinthe, Quebec, Canada*; ⁵*Jefo Nutrition Inc, St Hyacinthe, Quebec, Canada*; ⁶*Agrivet Research and Advisory, Kolkata, West Bangal, Iceland*

- 9:00 AM 153 **IndigoLT altered commercial broiler litter microbiome structure over consecutive growouts and reduced *Enterococcus*-associated signatures**
Ashley A. Tarcin*^{1GS}, Elena G. Olson², Brett Hale³, Steven C. Ricke⁴ ¹*University of Wisconsin- Madison, Madison, Wisconsin, United States;* ²*UW-Madison, Madison, Wisconsin, United States;* ³*AgriGro, Doniphan, Missouri, United States;* ⁴*University of Wisconsin, Madison, Wisconsin, United States*
- 9:15 AM 154 **Improving the Utilization of Dirty Eggs in Broiler Breeder Flocks Using Egg Washing**
Tatyany Mani*^{1GS}, Beverly L. McLendon¹, Emmillie Boot¹, Rebecca Wysocky¹, Michael Wineland¹, Ramon Malheiros¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*
- 9:30 AM 155 **Producer-led evaluation of cricket and mealworm meals as alternative dietary protein sources in 6-week-old Ross 308 broiler chickens**
Peter Bina*^{1GS}, Hamza Javaid², Amritha Ajayan³, DHANANJAI MURINGATTU PRABHAKARAN⁴, Sally Noll⁵, Komala Arsi⁶, Kumar Venkitanarayanan⁷, Aaron Brand⁸, Anup Kollanoor Johny⁹ ¹*University of Minnesota, Falcon Heights, Minnesota, United States;* ²*University of Minnesota, Saint paul, Minnesota, United States;* ³*University of Minnesota, Saint Paul, Minnesota, United States;* ⁴*UNIVERSITY OF MINNESOTA, Saint Paul, Minnesota, United States;* ⁵*University of Minnesota, Saint Paul, Minnesota, United States;* ⁶*Poultry Production and Product Safety Research, Fayetteville, Arkansas, United States;* ⁷*University of Connecticut, Storrs, Connecticut, United States;* ⁸*Brand Farms, Farmington, Minnesota, United States;* ⁹*University of Minnesota, Woodbury, Minnesota, United States*

- 9:45 AM 156 **Adjusting precision feeding targets reveals clever patterns of intake in broiler breeders**
Annalise M. Steadman*^{1UG}, Martin Zuidhof² ¹*University of Alberta, Edmonton, Alberta, Canada;* ²*University of Alberta, Edmonton, Alberta, Canada*
- 10:00 AM 156.5 **Break**
- 10:45 AM 157 **Canola meal or a pea-lentil mix as protein sources maintained laying performance and hatchability compared with soybean meal in broiler breeder diets**
Bipul Chandra Ray*^{1GS}, Arun Kumar¹, Mehdi Toghyani²³, Beini Xu¹, Eugeni Roura¹ ¹*Nutrition and Chemosensory Science Group, Centre for Animal Science, Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, Brisbane, Queensland, Australia;* ²*School of Life and Environmental Sciences, The University of Sydney, Brownlow Hill, New South Wales, Australia;* ³*Poultry Research Foundation, The University of Sydney, Camden, New South Wales, Australia*
- 11:00 AM 158 **Impact of housing type on broiler breeder body composition and hen mortality**
Beverly L. McLendon*^{1GS}, Emmillie Boot¹, Tatyany Mani¹, Caleb M. Marshall¹, Rebecca Wysocky¹, Christina Sigmon¹, Ramon Malheiros¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*
- 11:15 AM 159 **Deep neural networks for body weight category classification in 15-week-old pullets using depth images**
Adrielle C. Santos*^{1GS}, Lilian F. Souza¹, Carlos B. Rabello¹, Lucas A. Torres², Elton F. Oliveira¹, João P. Lima², Kellyton d. Brito², Denis H. Salvadeo³ ¹*Federal Rural University of Pernambuco, Recife, Pernambuco, Brazil;* ²*Federal Rural University of Pernambuco, Recife, , Brazil;* ³*São Paulo State University, São Paulo, , Brazil*
- 11:30 AM 160 **Optimizing the sample size for northern fowl mite population assessment in laying hens**
Hayley L. Sutherland*^{1GS}, Luiz F. Brito¹, Amy C.

Murillo², Marisa A. Erasmus¹ ¹*Purdue University, West Lafayette, Indiana, United States*; ²*University of California, Riverside, California, United States*

11:45 AM 161 **The effect of light wavelength on the behavior and health of Nicholas Select infrared beak-treated and sham-beak-treated turkey hens reared to 11 weeks**

Domenica V. Medina Sanchez*^{1GS}, Tory Shynkaruk¹, Carolin Adler³, Trever Crowe², Susantha Gomis⁴, Karen Schwean-Lardner¹ ¹*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*; ²*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*; ³*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*; ⁴*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*

12:00 PM 162 **Characterizing Non-Infectious Finisher Mortality: Age of Onset and Patterns in Commercial Turkey Flocks**

Phoebe C. Flaskey*^{1GS}, Dawn Koltes¹ ¹*Iowa State University, Ames, Iowa, United States*

Student Competition: Metabolism and Nutrition - Amino Acids II 201 (A-F)

8:00 AM 163 **Arginine silicate inositol and guanidinoacetic acid improve meat quality in market weight broilers**

Michael Carroll*^{1GS}, Elizabeth Bobeck¹ ¹*Iowa State University, Ames, Iowa, United States*

- 8:15 AM 164 **Practical assessment of dietary arginine needs of broilers**
Pablo Escovar Ruidiaz*^{1GS}, Savannah Wells¹, Mitchell Vaught¹, Virginia G. Slick¹, Kenneth B. Nelson¹, Spencer T. Karn¹, Michael Kidd¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*
- 8:30 AM 165 **Interaction between low crude protein and raised without antibiotics programs on nutrient utilization, plasma biochemistry, body composition, cecal digesta SCFA, and litter quality in broiler chicken**
Sylvester Mutinda*^{1GS}, Nayara Tavares Ferreira², Stephanie Torrey², Marie Pierre Létourneau-Montminy³, Elijah G. Kiarie¹ ¹*University of Guelph, Guelph, Ontario, Canada;* ²*Trouw Nutrition, North America, Puslinch, Ontario, Canada;* ³*Université Laval, Quebec, Quebec, Canada*
- 8:45 AM 166 **Early phase fortification of key amino acids supports broiler growth performance following later phase introduction of low soybean meal diets**
deng zhan*^{12GS}, Eunjoo Kim¹², Shemil Macelline¹², Mehdi Toghyani³², Jiasui Li¹², Sonia Liu¹² ¹*University of Sydney, Sydney, New South Wales, Australia;* ²*University of Sydney, Sydney, New South Wales, Australia;* ³*The University of Sydney, Brownlow Hill, New South Wales, Australia*
- 9:00 AM 167 **Interactive effects of yeast supplementation and amino acid density in the finisher phase on growth performance and organ weight in broiler chickens**
Felix Njeri*^{1GS}, Alexander Wickhorst¹, Virginie Blanvillain², Elijah G. Kiarie³ ¹*University of Guelph, Guelph, Ontario, Canada;* ²*AB Vista, Montreal, Quebec, Canada;* ³*University of Guelph, Guelph, Ontario, Canada*

9:15 AM 168 **Soybean meal inclusion rate and arginine supplementation on growth performance, body composition and carcass characteristics in broilers under cyclic heat stress**
Seshidhar Reddy Gudidoddi*^{1GS}, Doyun Goo², Sai Kumar Reddy Ragyari³, Ishwari Gyawali⁴, Hemanth R. Katha¹, Woo K. Kim⁵ ¹*University of Georgia, Athens, Georgia, United States*; ²*University of Georgia, Athens, Georgia, United States*; ³*UNIVERSITY OF GEORGIA, Athens, Georgia, United States*; ⁴*University of Georgia, Athens, Georgia, United States*; ⁵*University of Georgia, Athens, Georgia, United States*

9:30 AM 169 **Interactive effects of dietary energy and feed grade amino acid inclusion on the growth performance, processing characteristics, and body composition of broilers**
Jose R. Hernandez*^{1GS}, Jason T. Lee², Roshan Adhikari², Samuel Rochell¹ ¹*Auburn University, Auburn, Alabama, United States*; ²*CJ Bio America, Goliad, Texas, United States*

Immunology, Health and Disease: Feed Additives II 206 (E-F)

8:15 AM 170 **Mechanistic programming of the gut by a novel health enzyme**
Nima Emami*¹, Gray Stengel¹, Whitney Nelson¹, Connie F. Matthiesen², Brian Larsen² ¹*Novonosis NA, Fayetteville, Arkansas, United States*; ²*Novonosis A/S, Lyngby, , Denmark*

- 8:30 AM 171 **Methionine Hydroxy Analogue Bis-Chelated Trace Minerals Reduce *Enterococcus cecorum* Translocation in Broilers**
Thaciane L. Amaral¹, Demilade I. Ibiwoye¹, Philip Yeboah¹, Tracy Omasanuwa¹, Alexandra Ulans¹, Melanie Roux², Hugo Romero-Sanchez², Allison Pullin¹, Lisa R. Bielke*¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*; ²*Novus International Inc., Chesterfield, Missouri, United States*
- 8:45 AM 172 **Effect of dietary omega-3 polyunsaturated fatty acids (PUFA) on performance, yolk fatty acid composition, and antibody response to avian encephalomyelitis (AE) vaccination in pullets and layers**
Shengnan Li*¹, Mansi Patel¹, Jay Petkau²³, Yanxing Niu¹, Gemmar Maramot¹, Chengbo Yang⁴, Heather Blewett⁵²³, James D. House¹⁵², Anna Rogiewicz⁶ ¹*University of Manitoba, Winnipeg, Manitoba, Canada*; ²*St. Boniface Research Centre, Winnipeg, Manitoba, Canada*; ³*Agriculture and Agri-Food Canada, Morden, Manitoba, Canada*; ⁴*University of Manitoba, Winnipeg, Manitoba, Canada*; ⁵*University of Manitoba, Winnipeg, Manitoba, Canada*; ⁶*University Of Manitoba, Winnipeg, Manitoba, Canada*
- 9:00 AM 173 **Circulating immune cell populations and energy phenotype of broilers based on lipid source and pigmentation**
Michael Carroll*¹, Brian J. Kerr², Elizabeth Bobeck¹ ¹*Iowa State University, Ames, Iowa, United States*; ²*United States Department of Agriculture, Ames, Iowa, United States*

9:15 AM 174 **Effects of Monosilicic Acid Supplementation on Lymphocyte Proliferation and Cytokine Expression in *Salmonella*-Challenged Broiler Chickens**
Ramesh Selvaraj*¹, Charles L. Hofacre², Matthew K. Jones³, Daniel Pelaez⁵, Enrique N. Montiel⁴ ¹*University of Georgia, Athens, Georgia, United States*; ²*Southern Poultry Research Group, Inc., Watkinsville, Georgia, United States*; ³*Southern Poultry Research Group, Watkinsville, Georgia, United States*; ⁴*Addix Biotech LLC, Weston, Florida, United States*; ⁵*University of Miami, Miami, Florida, United States*

9:30 AM 175 **A mixture of lauric glycerides yields stronger antibacterial effects *in vitro* than pure α -monolaurin**
Tim Goossens*¹, Olga Lemâle¹ ¹*Adisseo, Sint-Niklaas, Belgium*

9:45 AM 176 **Anticoccidial drug resistance patterns using Anticoccidial Sensitivity Tests**
Gregory F. Mathis*¹, Brett Lumpkins¹ ¹*Southern Poultry Feed & Research, Inc., Athens, Georgia, United States*

Student Competition: Metabolism and Nutrition - Vitamins and Minerals 205 (A-D)

8:30 AM 177 **Broilers response to dietary calcium and digestible phosphorus from 0 to 10 days of age**
Julie Bourdon*^{1,2,GS}, Lewis Aguirre¹, Matheus Reis¹, Ana Isabel García-Ruiz¹, Agnès Narcy³, Marie Pierre Létourneau-Montminy² ¹*Trouw Nutrition, El Viso de San Juan, , Spain*; ²*Université Laval, Québec, Quebec, Canada*; ³*INRAE, Nouzilly, , France*

- 8:45 AM 178 **Effects of dietary calcium and phosphorus and phytase supplementation on phytate degradation and mineral digestibility in broilers**
Alexandre B. Mariani*^{1,3GS}, Maamer Jlali², Agnes Nancy³, Marie Pierre Létourneau-Montminy¹ ¹*Université Laval, Porto Alegre, Rio Grande do Sul, Brazil*; ²*Adisseo France SAS, Malicorne, , France*; ³*INRAE, Nouzilly, , France*
- 9:00 AM 179 **Effects of phytase level and trace mineral source on broiler performance, processing yield, and myopathies**
Rahul Reddy*^{1GS}, Rosana Hirai¹, Addison Elstner², Abigail Flores³, Corbin Preusse¹, Kasey Young¹, Craig Wyatt⁷, Austin Jasek⁶, Chance Williams⁴, Casey M. Owens⁵, Audrey McElroy¹ ¹*Texas A&M University, College Station, Texas, United States*; ²*Texas A&M University, College station, Texas, United States*; ³*Texas A&M University, College Station, Texas, United States*; ⁴*Wayne-Sanderson Farms, Hoschton, Georgia, United States*; ⁵*University of Arkansas, Fayetteville, Arkansas, United States*; ⁶*Zinpro Corporation, Eden Prairie, Minnesota, United States*; ⁷*AB Vista, Marlborough, , United Kingdom*
- 9:15 AM 180 **Interaction of adequate and reduced dietary macro- and micro minerals and phytase on performance and skeletal development of Hy-Line W-36 pullets**
Randy N. Domer*^{1GS}, Li Zhang¹, Kelley G. Wamsley¹, Michael Elliot², Craig Wyatt³, Duarte Neves⁴, Austin Jasek⁴, Pratima Adhikari¹ ¹*Mississippi State University, Starkville, Mississippi, United States*; ²*A & E Nutrition Services, Petersburg, Pennsylvania, United States*; ³*AB Vista, Plantation, Florida, United States*; ⁴*Zinpro, Minneapolis, Minnesota, United States*

- 9:30 AM 181 **Optimal intake of zinc amino acid complex in commercial laying hens from 30 to 48 weeks of age based on productive performance, egg quality, and bone densitometry**
Webert A. Silva¹, Carlos B. Rabello¹, Lilian F. Souza¹, Marcos José B. Santos*^{1GS}, Elton F. Oliveira¹, Adrielle C. Santos¹, Brena Cristine R. Silva², Katariny L. Abreu¹, Alba Fireman² ¹*Federal Rural University of Pernambuco, Recife, Pernambuco, Brazil;* ²*Zinpro Corporation, Eden Prairie, Minnesota, United States*
- 9:45 AM 182 **Estimation of the optimal supplemental zinc intake in the form of metal amino acid for laying hens from 55 to 71 weeks of age**
Elton F. Oliveira*^{1GS}, Carlos B. Rabello¹, Lilian F. Souza¹, Marcos José B. Santos¹, Webert A. Silva¹, Adrielle C. Santos¹, Katariny L. Abreu¹, Alba Fireman², Brena Cristine R. Silva² ¹*Federal Rural University of Pernambuco, Recife, Pernambuco, Brazil;* ²*Zinpro Corporation, Eden Prairie, Minnesota, United States*
- 10:00 AM **Break**
- 10:45 AM 183 **Reduction of copper through proteinate supplementation in laying hens at peak production**
Vinício d. Cardoso*^{1GS}, Letícia A. Silva², Felipe B. Perroni², Ellen S. Nascimento², Luiz F. Costa e Silva³, Adriana Nascimento³, Julia C. Rocha Neta², Tatiana C. Santos⁴ ¹*Universidade Estadual de Maringá, Maringá, PR, Brazil;* ²*Universidade Estadual de Maringá, Maringá, Paraná, Brazil;* ³*Alltech, Maringá, Paraná, Brazil;* ⁴*State University of Maringá, Maringá, PR, Brazil*

- 11:00 AM 184 **Supplementation of selenium-enriched yeast in broiler breeder diets and its effect on incubation parameters**
Manuela B. Netto*^{1UG}, Renata Rodrigues Gomes¹, Kalebe de Oliveira Maia¹, Geovana Ferreira Barbosa¹, Graciele Araújo Oliveira², Mihayr Morais Jardim³, Jose Henrique Stringhini¹ ¹*Universidade Federal de Goiás, Goiânia, GO, Brazil*; ²*Phileo, Goiânia, GO, Brazil*; ³*Universidade Federal de Goiás, Goiânia, GO, Brazil*
- 11:15 AM 185 **Effects of Calcium and Phosphorus Feeding Programs on Egg Quality of Cage-free Laying Hens 34-46 Weeks of Age**
Xavia A. Harris*^{1GS}, Patrick Tamatey¹, Stephanie A. Ansah¹, Priyantha K. Gunawardana², Dervan D. Bryan¹ ¹*Penn State University, State college, Pennsylvania, United States*; ²*Hillandale Farms, Gettysburg, Pennsylvania, United States*
- 11:30 AM 186 **Phase-specific optimization of dietary calcium and available phosphorus in laying hens: Effects on production performance, eggshell quality, skeletal integrity, and mineral utilization**
Shan R. Nawarathne*^{1GS}, Jung Min Heo¹ ¹*Chungnam National University, Daejeon, , Korea (the Republic of)*
- 11:45 AM 187 **Assessment of water-soluble vitamin levels on Cobb 800 male broiler performance**
Spencer T. Karn*^{1GS}, Virginia G. Slick¹, Kenneth B. Nelson¹, Pablo Escovar Ruidiaz¹, Michael Kidd¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*

12:00 PM 188 **Effects of Varying Levels of Vitamin A in the Starter Phase Diet in Male Cobb 800 Broilers**
Virginia G. Slick*^{1GS}, Spencer T. Karn¹, Pablo Escovar Ruidiaz², Kenneth B. Nelson³, Michael Kidd⁴ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*University of Arkansas, Fayetteville, Arkansas, United States;* ³*University of Arkansas, Fayetteville, Arkansas, United States;* ⁴*University of Arkansas, Fayetteville, Arkansas, United States*

**Student Competition: Metabolism and Nutrition - Feed Additives
202 (A-D)**

8:45 AM 189 **Dose-response of an essential oil blend on nutrient utilization and nitrogen balance in broiler chickens**
Hansol Kim*^{1GS}, Tuoying Ao², Michael J. Ford¹, Jose Soto², Rebecca Delles², Sunday A. Adedokun¹ ¹*University of Kentucky, Lexington, Kentucky, United States;* ²*Alltech Inc., Nicholasville, Kentucky, United States*

9:00 AM 190 **Dose-dependent effects of dietary propolis on growth performance, oxidative status, intestinal integrity, and body composition in broilers**
Hanseo Ko*^{1GS}, Janghan Choi², Guanchen Liu³, Dima White⁴, Milan K. Sharma⁵, Doyun Goo¹, Woo K. Kim¹ ¹*University of Georgia, Athens, Georgia, United States;* ²*Texas Tech University, Lubbock, Texas, United States;* ³*Charoen Pokphand Group, Beijing, , China;* ⁴*Global Animal Health, Cleveland, Tennessee, United States;* ⁵*Cornell University, Ithaca, New York, United States*

- 9:15 AM 191 **Evaluation of the effect of a spore-forming oligosaccharide-degrading probiotic on metabolizable energy, oligosaccharide disappearance, and cecal volatile fatty acid concentrations using restrict-fed broiler chickens**
Seth Hufford*^{1GS}, Kyle D. Teague⁵, Chrysta N. Beck², Gisela F. Erf³, Benjamin Parsons⁴ ¹*University of Arkansas, Siloam Springs, Arkansas, United States*; ²*Mississippi State University, Starkville, Mississippi, United States*; ³*University of Arkansas System Division of Agriculture, Fayetteville, Arkansas, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*; ⁵*University of Arkansas, Fayetteville, Arkansas, United States*
- 9:30 AM 192 **Dietary supplementation of a blend of essential oils improves growth performance and intestinal barrier integrity in broiler chickens under tropical conditions**
Yizrel Sapan*^{1GS}, Faizal Muttaqin¹, Nur'alim Hidayaturrohmah¹, Randi Randi¹, Anisa Aulia¹, Muhlisin Muhlisin¹, Asih Kurniawati¹, Chusnul Hanim¹, Muhsin Al Anas¹ ¹*Universitas Gadjah Mada, Yogyakarta, DI Yogyakarta, Indonesia*
- 9:45 AM 193 **Effects of high-carotenoid corn and canthaxanthin on egg quality and reproduction in late-phase broiler breeders**
Patrick Tamatey*^{1GS}, Dervan D. Bryan¹ ¹*Penn State University, State college, Pennsylvania, United States*
- 10:00 AM 193.5 **Break**
- 10:45 AM 194 **Dietary dual-strain *Bacillus*-based probiotic modulates the gut microbiota and improves productive performance, egg quality, blood parameters, intestinal morphology and bone mineralization in early-lay hens**
Sehyeok Oh*^{1GS}, In Sun Yu², Antoine Meuter³, Jung Min Heo¹ ¹*Chungnam National University, Daejeon, , Korea (the Republic of)*; ²*Novonosis (Thailand) Co., Ltd., Bangkok, , Thailand*; ³*Novonosis A/S, Hørsholm, , Denmark*
- 11:00 AM 195 **Essential oils and sodium butyrate improve intestinal integrity in laying hens fed a low-crude**

protein diet

Irvan Irvan*^{1GS}, Muhlisin Muhlisin¹, Muhsin Al Anas¹ ¹*Universitas Gadjah Mada, Kabupaten Sleman, 55281, Yogyakarta, Indonesia*

11:15 AM

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Effects of an essential oil, a yeast-derived product, and an organic acid versus an antibiotic on production performance and egg quality of late-phase Lohmann laying hens

Venuste Maniraguha*^{1GS}, Deborah Adewole¹ ¹*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*

11:30 AM

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The effects of a *Bacillus*-based direct-fed microbial supplementation on Pekin ducks under heat stress challenge

Emily Jiral*^{1GS}, Colby Allensworth², Isabella R. Villarreal³, Hector Leyva-Jimenez⁴, Brian Dirks⁵, Firmin Delago⁶, Gregory Archer⁷ ¹*Texas A&M University, College Station, Texas, United States; ²Texas A&M University, Bryan, Texas, United States; ³Texas A&M University, College Station, Texas, United States; ⁴United Animal Health, Sheridan, Indiana, United States; ⁵United Animal Health, Audubon, Pennsylvania, United States; ⁶Microbial Discovery Group, Oak Creek, Wisconsin, United States; ⁷Texas A&M Agrilife Extension, College Station, Texas, United States*

**Metabolism and Nutrition Symposium: Nutrition and Management
Strategies for Extended Laying Cycle**

Chair: Pratima Adhikari, MS State

John W. H. Bassett Theatre

- 1:15 PM 1026S **Persistence in the extended laying cycle. Trends, challenges and opportunities in productivity, bird health, welfare and adaptation to diverse production settings**
Ian Dunn*¹ *¹The Roslin Institute and Royal (Dick) School of Veterinary Studies, Midlothian, Scotland, United Kingdom*
- 1:45 PM 1027S **Growth trajectory before sexual maturity? Exploring the impact of body composition at the point of lay.**
Grégoy Y. Bédécarrats*¹, Charlene Hanlon² *¹University of Guelph, Guelph, Ontario, Canada; ²Auburn University, Auburn, Alabama, United States*
- 2:15 PM 1028S **Nutritional considerations for setting up pullets for long-life production**
Doug Korver*¹ *¹Alpine Poultry Nutrition, Inc., Edmonton, Alberta, Canada*
- 2:45 PM 1029S **The role of dietary protein and amino acids in modulating egg production, bone health, and feathering in the extended laying cycle**
Jason T. Lee*¹, Roshan Adhikari² *¹CJ Bio America, Goliad, Texas, United States; ²CJ Bio America Inc, Downers Grove, Illinois, United States*
- 3:15 PM **Break**
- 3:45 PM 1030S **Nutritional strategies for modulating eggshell quality and skeletal integrity in the extended laying cycle?**
Woo K. Kim*¹ *¹University of Georgia, Athens, Georgia, United States*
- 4:15 PM 1031S **Reappraisal of management approaches for an extended laying cycle**
Teun van de Braak*¹ *¹Hendrix Genetics, Boxmeer, Noord Brabant, Netherlands*
- 4:45 PM **Panel Discussion**

**Microbiology and Food Safety Symposium: Advancing the Frontier:
Integrated Research Approaches to Address Foodborne Pathogen
Contamination Across the Poultry Supply Chain**

Chair: Caitlin Harris, USDA-ARS National Poultry Research Center
105 Constitution Hall

- 1:15 PM **Introduction**
- 1:15 PM **Introduction**
- 1:25 PM 1032S **Promoting integrated research to address
longstanding barriers and accelerate progress
in *Salmonella* control**
Kim Cook*¹, Caitlin Harris² ¹*USDA-ARS, Beltsville,
Maryland, United States*; ²*USDA-ARS National Poultry
Research Center, Athens, Georgia, United States*
- 1:45 PM 1033S **Taking an integrated approach to evaluate how the
environment affects poultry production**
Adelumola Oladeinde*¹, Michael J. Rothrock¹, Micah
Lewis¹, Guoming Li², Taejung Chung¹, Zaid
Abdo³ ¹*USDA-ARS, Athens, Georgia, United
States*; ²*University of Georgia, Athens, Georgia, United
States*; ³*Colorado State University, Fort Collins,
Colorado, United States*
- 2:15 PM 1034S ***Salmonella* Enteritidis with decreased
susceptibility to ciprofloxacin (DSC) in chickens:
emergence, outbreaks and vaccination**
Shawn Bearson*¹, David J. Bradshaw¹, Samuel J.
Whelan¹, Maya P. Encinosa¹, Durga P. Neupane¹,
Melissa S. Monson¹, Christopher L. Anderson¹,
Bradley L. Bearson² ¹*USDA-ARS-National Animal
Disease Center, Ames, Iowa, United States*; ²*USDA-
ARS-National Laboratory for Agriculture and the
Environment, Ames, Iowa, United States*
- 2:45 PM 1035S **The Role of Live Production in Mitigating Foodborne
Pathogen Load at the Plant**
Brandon T. Armwood*¹ ¹*Pilgrim's, Raleigh, North
Carolina, United States*
- 3:15 PM **Break**
- 4:00 PM 1036S **Multi-Institutional Investigations of Contamination
Dynamics in Post-Harvest Poultry Systems**

Elizabeth A. McMillan*¹ ¹USDA-ARS, USNPRC, Athens,
Georgia, United States

- 4:30 PM 1037S **A Systems-Based Approach to Pathogen Control in
Primary and Secondary Poultry Processing**
Dianna Bourassa*¹ ¹Auburn University, Auburn,
Alabama, United States
- 5:00 PM **Panel Discussion**

**Metabolism and Nutrition: General Nutrition I
201 (A-F)**

- 1:15 PM 198 **Methods for assessment of energy availability in
lipid-based feedstuffs**
Benjamin Parsons*¹ ¹University of Arkansas,
Fayetteville, Arkansas, United States

DRAFT

- 1:45 PM 199 **Metabolic markers linked to growth performance in Ross 708 broilers fed varying crude protein**
Doyun Goo*¹, Seshidhar R. Gudidoddi¹, Sai Kumar Reddy Ragyari¹, Woo K. Kim¹ ¹*University of Georgia, Athens, Georgia, United States*
- 2:00 PM 200 **Testing metabolizable energy-derived net energy systems against an outcome-based energy system for predicting lean growth in broilers**
Diego Martinez*¹, Carol Ponce de Leon², Oscar Aguilar¹, Craig Coon³ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*Independent Consultant, Fayetteville, Arkansas, United States*; ³*University of Arkansas, Fayetteville, Arkansas, United States*
- 2:15 PM 201 **Practical interest of variables affecting the physical characteristics of commercial soybean meals**
Nada Souid¹, Miguel Ángel Ibáñez¹, Guillermo Talegón¹, Rosa Lázaro¹, Gonzalo González Mateos*¹ ¹*Universidad Politécnica de Madrid, Madrid, Spain*
- 2:30 PM 202 **Nutritional significance of condensed tannin content in laying hen diets in the context of high dietary inclusion of faba bean (*Vicia faba*): Effects on hen performance and objective egg quality**
Doug Korver^{1,2}, Matt Oryschak*¹ ¹*University of Alberta, Edmonton, Alberta, Canada*; ²*Alpine Poultry Nutrition, Inc., Edmonton, Alberta, Canada*
- 2:45 PM 203 **Immunoassay test coupled with HPLC-MS/MS allows for rapid screening and confirmatory quantification of mycotoxins in corn and poultry feed.**
Anthony Pokoo-Aikins*¹, Trevor R. Mitchell¹, Quentin Read², Anthony E. Glenn¹ ¹*USDA ARS, Athens, Georgia, United States*; ²*USDA ARS, Raleigh, North Carolina, United States*
- 3:00 PM 204 **Vertical transfer of mycotoxins compromises broiler performance: mitigation through breeder-targeted intervention**
Arnau Vidal*¹, Fernando Lima¹, Don Ritter¹ ¹*Innovad, Antwerp, Belgium*

- 3:15 PM 204.5 **Break**
- 4:00 PM 205 **Effect of increasing deoxynivalenol (DON) contaminated diets containing corn DDGS on growth performance and health of broilers**
Andres F. Bolivar Sierra*¹, Bree Koepke¹, Alejandra Forero Salamanca¹, Ashir Foreman Atoo¹, Crystal Levesque² ¹*South Dakota State University, Brookings, South Dakota, United States*; ²*South Dakota State University, Brookings, South Dakota, United States*
- 4:15 PM 206 **Environmental stressors amplify aflatoxin B1 toxicity in broilers: implications for risk assessment and mitigation strategies under commercial conditions.**
Alireza Khadem², Arnau Vidal*¹, Don Ritter¹, Christos Gougoulas¹ ¹*Innovad, Antwerp, , Belgium*; ²*Innovad group, Berchem, , Belgium*
- 4:30 PM 207 **Locally produced rice distillers dried grains with solubles (RDDGS) as a suitable cost-effective protein ingredient for layer chicken diets**
Ashen E. Arachchi²⁵, Miyuru N. Edirisinghe*^{1GS}, T Jeyaharan³, Hasitha Priyashantha⁴, Shishanthi Jayarathna⁴, Saliya Alwis⁵, J.K. Vidanarachchi² ¹*University of Calgary, Calgary, Alberta, Canada*; ²*University of Peradeniya, Peradeniya, Kandy, Sri Lanka*; ³*Postgraduate Institute of Agriculture, University of Peradeniya, Peradeniya, , Sri Lanka*; ⁴*University of Ruhuna, Mapalana, Kamburupitiya, Sri Lanka*; ⁵*W.M. Mendis (Pvt. Ltd.), Colombo, , Sri Lanka*

4:45 PM 208 **Impact of soybean origin and harvest year on the chemical composition, amino acid profile, and protein quality indicators of soybean meals collected from 2006 to 2025**
Nereida Luna Corrales¹, Lourdes Cámara¹, Guillermo Talegón¹, Miguel Ángel Ibáñez¹, Gonzalo González Mateos*¹ *¹Universidad Politécnica de Madrid, Madrid, Spain*

**Extension and Instruction
203 (B-D)**

1:45 PM 209 **Know Your Flock: Audience-Centric Strategies for Extension and Technical Services**
Chongxiao Chen*¹ *¹University of Georgia, Athens, Georgia, United States*

2:15 PM 210 **AI-Assisted Innovation Projects Enhance Applied Problem-Solving in Poultry Science Students**
Andrew P. Benson*¹ *¹University of Georgia, Jefferson, Georgia, United States*

2:30 PM 211 **Development and implementation of an online poultry medicine course for practicing veterinarians**
Jacqueline P. Jacob*¹ *¹University of Kentucky, Lexington, Kentucky, United States*

2:45 PM 212 **Development of a Comprehensive Scientific Writing Course for Animal and Poultry Science Undergraduate and Graduate Students**
Steven C. Ricke*¹, Elena G. Olson² *¹University of Wisconsin, Madison, Wisconsin, United States; ²UW-Madison, Madison, Wisconsin, United States*

3:00 PM 213 **Chickens online: enhancing accessibility and impact of poultry science to youth through virtual and hybrid programming**
Ashley L. Brooks*²³⁴, Mary Fosnaught¹²⁵ *¹North Carolina State University, Raleigh, North Carolina, United States; ²North Carolina Cooperative Extension, Raleigh, North Carolina, United States; ³North Carolina Cooperative Extension, New Bern, North Carolina, United States; ⁴North Carolina Cooperative Extension, New Bern, North Carolina, United States*

States; ⁵North Carolina Cooperative Extension, Raleigh, North Carolina, United States

3:15 PM

Break

4:00 PM

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Strengthening agricultural literacy through outreach and public engagement at the University of Manitoba's Glenlea Research Station

Anna Rogiewicz*¹⁶, Kate Cummings², Breanna Zwick², Wei Jia³, Corry Rybuck³, Claire McCaffrey³, Gemmar Maramot⁴, Peter Frohlich⁵⁶, Crystal Jorgenson⁵, Rob Duncan⁵⁶ ¹University of Manitoba, Winnipeg, Manitoba, Canada; ²University of Manitoba, Winnipeg, Manitoba, Canada; ³Manitoba Egg Farmers, Winnipeg, Manitoba, Canada; ⁴University of Manitoba, Winnipeg, Manitoba, Canada; ⁵University of Manitoba, Winnipeg, Manitoba, Canada; ⁶University of Manitoba, Winnipeg, Manitoba, Canada

4:15 PM

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Regional Broiler Chicken Mortality Trends in the last 15 years

Jose Otavio Sorbara*¹, Casey Ritz² ¹University of Georgia, Athens, Georgia, United States; ²University of Georgia, Athens, Georgia, United States

4:30 PM

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Subclinical coccidiosis and its impact on broiler performance in medicated flocks in Southern Ontario

Aline Pereira*¹, Ronan Santos¹, Elizabeth Zeldenrust¹, Tanka Khanal¹ ¹Grand Valley Fortifiers, Cambridge, Ontario, Canada

4:45 PM

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Industry-led collaboration to address emerging challenges in egg production and farm management

Wei Jia¹, Corry Rybuck¹, Claire McCaffrey¹, Gemmar Maramot², Van Doan³, Clay Sawka³, Petra Loro³, Amy Hawkins Green³, Uduak Edet⁴, Qiang Zhang⁴, Anna Rogiewicz*⁵ ¹*Manitoba Egg Farmers, Winnipeg, Manitoba, Canada*; ²*University of Manitoba, Winnipeg, Manitoba, Canada*; ³*Government of Manitoba, Winnipeg, Manitoba, Canada*; ⁴*University of Manitoba, Winnipeg, Manitoba, Canada*; ⁵*University of Manitoba, Winnipeg, Manitoba, Canada*

5:00 PM

218

Research and Innovation Perspectives: Global Pathways for Poultry Welfare in 2050

Shawna Weimer*¹, Elena Myhre², Anne-Marie Neeteson-van-Nieuwenhoven³, Rodolfo Arreaga⁴, Kate Barger⁵, Ruth Newberry⁶, Katy Tarrant⁷, Gregory S. Fraley⁸ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*International Poultry Welfare Alliance, Crawfordville, Florida, United States*; ³*Aviagen Ltd., Newbridge, , United Kingdom*; ⁴*Universidad del Valle de Guatemala, Guatemala City, , Guatemala*; ⁵*KB Welfare Consulting, Seneca, North Carolina, United States*; ⁶*Norwegian University of Life Sciences, Ås, , Norway*; ⁷*Fresno State, Fresno, California, United States*; ⁸*Purdue University, West Lafayette, Indiana, United States*

**Metabolism and Nutrition: Feed Additives I
202 (A-D)**

1:45 PM

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Antibiotic-free poultry production for food security, food safety, and environmental stewardship

Kenny Mnisi*¹ ¹*North-West University, Mafikeng, , South Africa*

- 2:15 PM 220 **Partial replacement of synthetic vitamin E by olive pulp in broilers: effects on performance, oxidative status, and breast meat quality**
 CLEMENCE MESSANT*¹, Joan Torrent¹, Ali Kiani², Zoi Skaperda³, Michel Prost⁴, Kathrin Buehler¹, Christos Gougoulas¹ ¹*Innovad Group, Berchem, , Belgium*; ²*Alimetrics Research Oy, Espoo, , Finland*; ³*Olea Fortius PC, Larissa, , Greece*; ⁴*Laboratoire Lara-Spiral, Couternon, , France*
- 2:30 PM 221 **Effects of mango seed kernel extract on the gut microbiota of broilers following oral gavage**
 Tuba Riaz¹, Zafar Hayat*¹, Zahid Nasir² ¹*University of Sargodha, Sargodha, Pakistan, Sargodha, , Pakistan*; ²*3AMZ Consultants Guelph, ON, Canada, Guelph, Ontario, Canada*
- 2:45 PM 222 **Exploring the modulatory effects of spotted pumpkin (*Lagenaria breviflora*) fruit aqueous extract on growth performance, behaviour and blood profile of broiler chickens**
 Oluwagbemiga O. Adeleye*¹, Ibiyemi O. Opowoye¹, Adebayo V. Jegede¹, Adebayo O. Enitan¹ ¹*Federal University of Agriculture, Abeokuta, Abeokuta, Ogun State, Nigeria*
- 3:00 PM 223 **Effects of *Astragalus* polysaccharides on growth performance, antioxidant capacity, gut microbiota, and cecal metabolome of yellow-feathered broilers under microplastics exposure**
 Jie Tang¹, Yanrong Jing¹, Lijun Ou¹, Mengyun Chen¹, Huihua Zhang¹, Xin Feng*¹ ¹*Foshan University, Foshan, , China*
- 3:15 PM 223.5 **Break**

- 4:00 PM 224 **The effects of a polyherbal formulation versus choline chloride 60% or betaine HCL on broiler growth performance, carcass cuts, and muscle myopathies**
Jordyn Studer*¹, Dari Brown¹, Vasuda Kuncham², Deepak Mundkinajeddu², Prashanth D'Souza² ¹*Barentz North America, Woodbury, Minnesota, United States;* ²*Natural Remedies Pvt Limited, Krishnagiri, , India*
- 4:15 PM 225 **Dietary guanidinoacetic acid supplementation favorably modulates energy dynamics and nitrogen balance in broilers**
Nishchal Sharma¹, Sosthene Musigwa¹, Vivienne Inhuber², Alip Kumar¹, Stuart Wilkinson³, David Cadogan³, Shubiao Wu*¹ ¹*University of New England, Armidale, New South Wales, Australia;* ²*AlzChem Trostberg GmbH, Trostberg, , Germany;* ³*Feedworks Pty Ltd, Romsey, Victoria, Australia*
- 4:30 PM 226 **The use of immunoglobulin enriched blood plasma in broiler chicken nutrition to improve growth performance**
Bartlomiej Pobudkiewicz², Wieslaw Kopec*¹², Jan Jankowski³, Krzysztof Lipinski³, Krzysztof Kozlowski³, Mariusz Rosiak², Paulina Jawor¹ ¹*Wroclaw University of Environmental and Life Sciences, Wroclaw, , Poland;* ²*Deveris Polska Ltd., Warszawa, , Poland;* ³*University of Warmia and Mazury in Olsztyn, Olsztyn, , Poland*
- 4:45 PM 227 **Validating predictions for AME and digestible arginine sparing of guanidinoacetic acid in protein-reduced broiler diets**
Andreas Lemme¹, Francois Crots², Lukas Bauer¹, Natasha Davison³, Victor D. Naranjo⁴, Vinicius Texeira*⁵ ¹*Evonik Operations GmbH, Hanau, , Germany;* ²*Klipkraal Broiler Research Institute, Derby, , South Africa;* ³*Evonik Africa (Pty) Ltd., Midrand, , South Africa;* ⁴*Evonik Guatemala S.A., Guatemala City, , Guatemala;* ⁵*Evonik Brasil Ltda., Sao Paulo, , Brazil*
- 5:00 PM 228 **Muscadine Grape Pomace Alters Oxidative Stress and Cecal Microbiota Without Affecting Growth in**

Broilers

Xyonna Carreia², Shafia Tehseen³, Oluwatoyin Sangokunle⁴, Samson Oladokun⁵, Ayodeji Aderibigbe*¹ ¹*The Ohio State University, Wooster, Ohio, United States*; ²*Florida A and M University, Tallahassee, Florida, United States*; ³*University of Agriculture, Faisalabad, , Pakistan*; ⁴*Florida A and M University, Tallahassee, Florida, United States*; ⁵*Texas A&M University, College Station, Texas, United States*

5:15 PM

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Assessing a Novel Phytogenic Formulation in Broilers Challenged with Subclinical Enteritis

Karla Lopez*¹, Sammy Velapatino², Viviana San Martín¹, Carlos Vilchez Perales², David Rueda¹, María Huauya², Wilson López², Eder Taboada², Kendall González², Carol Ponce de Leon³, Diego Martinez⁴ ¹*CKM SAC, Lima, , Peru*; ²*La Molina National Agrarian University, Lima, , Peru*; ³*Independent consultant, Fayetteville, Arkansas, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*

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Sunday, July 12 2026

Extension and Education Symposium: The Role of Generative AI and LLMs in Poultry Education, Extension, and Operations

Chair: Andrew Benson, University of Georgia

John W. H. Bassett Theatre

- 9:00 AM 1038S **Artificial Intelligence in Poultry and Agriculture: Practical Applications, Opportunities, and the Future of Work**
*Aidan Connolly*¹ ¹Agritech Capital, Wilmington, North Carolina, United States*
- 10:00 AM 1039S **ExtensionBot: Trusted, Cited Answers for Agricultural Extension Using Generative AI**
*David Warren*¹ ¹Oklahoma State University, Bixby, Oklahoma, United States*
- 10:30 AM 1040S **From Data to Decisions: How Artificial Intelligence is Transforming Poultry Production and Sustainability**
*Padmini Persaud*¹ ¹Speria, Atlanta, Georgia, United States*
- 11:00 AM 1041S **Workshop: Building AI-Powered Teaching Tools: Custom GPTs, NotebookLM, and Emerging AI Workflows for Poultry Education**
*Andrew P. Benson*¹ ¹University of Georgia, Jefferson, Georgia, United States*

Management and Production Symposium: Poultry Litter Management and the Environment – Where Have We Been and Where are We Going?

Chair: Steven Ricke, University of Wisconsin

105 Constitution Hall

- 9:00 AM **Introduction**
- 9:05 AM 1042S **Commercial Litter and Poultry House Management Strategies**
*Dana K. Dittoe*¹ ¹University of Wyoming, Laramie, Wyoming, United States*
- 9:25 AM 1043S **Assessing Litter Quality: Economics and Management Decisions**

Luis R. Munoz*¹, Johnathon Moon² ¹*Mississippi State University, Mississippi State, Mississippi, United States*; ²*Mississippi State University, Mississippi State, Mississippi, United States*

- 9:45 AM 1044S **Pathogen Occurrence in Poultry Litter**
Steven C. Ricke*¹, Elena G. Olson², Brett Hale³ ¹*University of Wisconsin, Madison, Wisconsin, United States*; ²*UW-Madison, Madison, Wisconsin, United States*; ³*Agri Gro, Inc., Doniphan,, Missouri, United States*
- 10:05 AM **Break**
- 10:35 AM 1045S **Poultry Litter as an Ecological Archive: From Bird-Environment Interactions to Ecological Intervention**
Elena G. Olson*^{1,2}, Steven C. Ricke³, Brett Hale⁴ ¹*UW-Madison, Madison, Wisconsin, United States*; ²*Supreme EGO LLC, Middleton, Wisconsin, United States*; ³*University of Wisconsin, Madison, Wisconsin, United States*; ⁴*AgriGro, Inc, Doniphan, Missouri, United States*
- 10:55 AM 1046S **Applications of 16S sequencing for profiling the poultry litter microbiome- an industry perspective**
Brett Hale*¹, Elena G. Olson², Steven C. Ricke³ ¹*AgriGro, Inc, Doniphan, Missouri, United States*; ²*UW-Madison, Madison, Wisconsin, United States*; ³*University of Wisconsin, Madison, Wisconsin, United States*
- 11:15 AM 1047S **Comprehensive biosurveillance: tracking DNA and RNA pathogens using shotgun metagenomic sequencing of environmental samples**
Jake Byrnes*¹, Cassandra Ettinger¹, Elena G. Olson², Genevieve Roberts¹, Steven C. Ricke³, Michael Rhys¹, Casey McGinley¹ ¹*Barnwell Bio Inc., San Diego, California, United States*; ²*UW-Madison, Madison, Wisconsin, United States*; ³*University of Wisconsin, Madison, Wisconsin, United States*
- 11:35 AM **Panel Discussion**

**Metabolism and Nutrition: Vitamins and Minerals I
206 (A-D)**

- 9:00 AM 230 **Advancing Robust Calcium and Phosphorus Nutrition in Modern Poultry**
Marie Pierre Létourneau-Montminy*¹, Agnes Narcy² ¹*laval university, Québec, Quebec, Canada;* ²*INRAE, Nouzilly, , France*
- 9:30 AM 231 **Digestible Calcium Based Diet Formulation Maintains Broiler Performance Across Limestone Sources with Varying Solubility**
L.eon Marchal*¹, Ceinwen Evans¹, Yueming dersjantli¹, Ellen v. Eerden³, Vanessa Lagos³, Kyle M. Venter², K. Gibbs¹ ¹*IFF, Oestgeest, Zuid Holland, Netherlands;* ²*Neuro Livestock Research, Brits, , South Africa;* ³*Schothorst Feed reserach, Lelystad, , Netherlands*

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- 9:45 AM 232 **Whole body composition in broiler chickens fed low available phosphorus corn and soybean meal-based diets supplemented with doses of monocalcium phosphate or *E. coli* phytase**
Florence W. Nyaga*^{1GS}, Sylvester Mutinda², Felix Njeri³, marie-pierre letourneau montminy⁴, Xuerong Song⁵, Li Xu⁵, Xiuyi Wu⁵, Elijah G. Kiarie⁶ ¹*University, Guelph, Ontario, Canada*; ²*University of Guelph, Guelph, Ontario, Canada*; ³*University of Guelph, Guelph, Ontario, Canada*; ⁴*Laval University, Québec, Quebec, Canada*; ⁵*Wuhan Sunhy Biology Co., Ltd, Wuhan, Hubei, China*; ⁶*University of Guelph, Guelph, Ontario, Canada*
- 10:00 AM 233 **1,25-Dihydroxycholecalciferol glycoside improves feed efficiency and intestinal immune response of broilers at 42 days of age**
Ricardo V. Nunes*¹, Thiago d. Andrade¹, Nilton Rohloff Junior¹, Cinthia Eyng², Matheus L. Maia¹, Eduarda M. Henz¹, Nathalia Borsatto¹, Gabriel N. Comin¹, Maria E. Costa Curta¹, Joao Augusto W. Mello¹, Gabrieli Toniazzo¹ ¹*Western Paraná State University, Marechal Cândido Rondon, PR, Brazil*; ²*Western Paraná State University, Marechal Cândido Rondon, Paraná, Brazil*
- 10:15 AM 234 **25 Hydroxyvitamin D3 in broiler nutrition: effects on performance, bone quality, and plasma vitamin D3 status**
Xaviere Rousseau¹, Anssi Kerko², Ali Kiani², Craig Wyatt¹, Alexandre B. Brito*¹ ¹*AB Vista, São Paulo, São Paulo, Brazil*; ²*Alimetrics, Espoo, , Finland*

- 10:30 AM 235 **Dietary 25Hydroxyvitamin D₃ maintains Vitamin D activation pathways and improve organ resilience during an induced renal and hepatic stress in broiler chickens**
Estefania Perez Calvo¹, Jérôme Schmeisser¹, Jonathon Howard¹, Barbara Dupovec¹, Carlos Lozano-Poveda*¹ ¹*dsm-firmenich, Kaiseraugst, , Switzerland*
- 10:45 AM 236 **Aspartate-chelated copper maintains broiler growth performance at reduced copper levels under natural coccidial exposure**
Jing Yuan*¹, Zonghua Qin¹, Xiangyi Xu¹, Xianfeng Peng¹ ¹*Guangzhou Insighter Biotechnology Co.,Ltd, Guangzhou, Guangdong, China*
- 11:00 AM 498 **Transcriptomic Evidence of the Mechanism of Action of Bis-Chelated Copper in Broiler Chickens**
Maria C. Walsh*¹, Hugo Romero-Sanchez², Abidemi Adekova², Melanie Roux², Laura M. Payling¹, Luis F. Romero¹ ¹*Biofractal, Kilkenny, , Ireland*; ²*Novus International, Wake Forest, North Carolina, United States*

Immunology, Health and Disease: Health and Disease 206 (E-F)

- 9:00 AM 237 **The Avian Organoid Biobank: A versatile platform for modeling infectious diseases in poultry**
Yuhua Z. Farnell*¹ ¹*Texas A&M University, College Station, Texas, United States*
- 9:30 AM 238 **Fumonisin B₁-induced hepatotoxicity in broilers through gut microbiota-liver axis dysregulation-mediated ferroptosis: ameliorative effects of selenium nanoparticles**
Dessalegn Lamesgen*^{1,2GS}, Zhiyuan Xia¹, Niel A. Karrow³, Meng Liu¹, Lv-Hui Sun¹ ¹*Huazhong Agricultural University, Wuhan, Hubei, China*; ²*Assosa University, Assosa, Benshangul Gumuze, Ethiopia*; ³*University of Guelph, Guleph, Ontario, Canada*
- 9:45 AM 239 **One drop of blood is enough to perform indirect and competitive ELISA tests**
Rafael Forero*¹, Mohammad Amawi², Marina

- Gaimard¹, Chloé Redal², Stéphanie Lesceu² ¹*Dvet INC, Hampton, New Hampshire, United States*; ²*Innovative Diagnostics, Grabels, , France*
- 10:00 AM 240 **Zinc-Induced Molting Modulates Oxidative and Health Biomarkers in White Leghorn Hens**
Musadiq Idrees³, Haseeb Anwar*¹² ¹*Charles Sturt University, NSW, Australia., Wagga Wagga, New South Wales, Australia*; ²*Government College University, Faisalabad, Punjab, Pakistan*; ³*The Islamia University of Bahawalpur, Bahawalpur, Punjab, Pakistan*
- 10:15 AM 241 **Vaccination monitoring and DIVA strategy for Infectious Bursal Disease**
Rafael Forero*¹, Stéphanie Lesceu¹, Chloé Redal¹, Jean-Emmanuel Drus¹, Catherine Lefebvre¹, Marianne Zorbas¹, Philippe Pourquier¹ ¹*Innovative Diagnostics, Hampton, New Hampshire, United States*
- 10:30 AM 242 **Evaluation of Increasing Doses of an Attenuated *Eimeria* Vaccine, Evant[®], on Broiler Growth Performance and Gut Health: Establishing an In Vivo Coccidiosis-Challenge Model**
Cecile Gayrard*¹, Maria Mendoza², Beatriz Gutierrez³, Ruben Miranda³ ¹*Evonik Operations GmbH, Hanau-Wolfgang, , Germany*; ²*Evonik Corporation, Kennesaw, Georgia, United States*; ³*Research Barn Leon, Onzonilla, , Spain*
- 10:45 AM 243 **Modeling Spotty Liver Disease and *Campylobacter hepaticus* infection in Leghorn Hens**
Matthew K. Jones*², Roel Becerra¹, Catherine Logue¹, Charles L. Hofacre², Jennie Baxter² ¹*University of Georgia, College of Veterinary Medicine, Athens, Georgia, United States*; ²*Southern Poultry Research Group, Inc., Watkinsville, Georgia, United States*
- 11:00 AM 244 **Electron Beam–Killed Bacterial Vaccine as an Innovative Approach to Prevent Bacterial Chondronecrosis with Osteomyelitis Lameness in Broiler Chickens**
Adnan Alrubaye*¹, Ruvindu Perera², Palmy Jesudhasan³ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*University of Arkansas, Fayetteville, Arkansas, United States*; ³*USDA-ARS, Fayetteville, Arkansas, United States*

- 11:15 AM 245 **Reused litter shapes the early cecal microbiota succession and the immune cells distribution in layer chickens**
Nimra Khalid*¹, Shuja Majeed¹, Bikas R. Shah¹, Ali Nazmi^{1,2} ¹*The Ohio State University, Wooster, Ohio, United States;* ²*The Ohio State University, Columbus, Ohio, United States*
- 11:30 AM 246 **The poultry-wildlife interface: opportunities for biosecurity breaches and interspecies pathogen transmission**
Giulia Graziosi*¹, Caterina Lupini¹, Gloria Garavini², Giacomo Trevisani², Geremia Dosa³, Alessandro Mannelli⁴, Elena Catelli¹ ¹*University of Bologna, Ozzano dell'Emilia, , Italy;* ²*Veterinary Services of Eurovo Group, Imola, Bologna, Italy;* ³*Complex Operative Unit of Veterinary Hygiene, Imola, Bologna, Italy;* ⁴*University of Torino, Grugliasco, Torino, Italy*
- 11:45 AM 247 **Environmental source tracking of H5N1 in Alberta: linking migratory waterfowl to commercial poultry outbreaks (2022–2025)**
Muhammad Farooq*¹, Ahmed Ali¹, Noel Ritson-Bennett², Dayna Goldsmith³, Ashish Gupta³, Sylvia Checkley¹, Yohannes Berhane², Mohamed F. Abdul-Careem¹ ¹*University of Calgary, Calgary, Alberta, Canada;* ²*National Centre for Foreign Animal Disease (NCFAD), Winnipeg, Manitoba, Canada;* ³*University of Calgary Faculty of Veterinary Medicine, clinical skills building (CSB), Calgary, Alberta, Canada*

**Management and Production I
205 (A-D)**

- 9:00 AM 248 **Post Peak Adaptation of Lohmann LSL-LITE Hens to Delayed Nest Box Introduction**
Dervan Bryan*¹, Xavia A. Harris¹, Stephanie A. Ansah¹, Patrick Tamatey¹ ¹*Penn State University, State college, Pennsylvania, United States*
- 9:30 AM 249 **Economic Viability and Nutritional Efficiency of Phytase Supplementation in Diets with Varying Phosphorus Levels for Commercial Laying Hens**
Sara E. Benavides Martínez*¹, Byron Xavier Munoz¹, Mario Lopes¹, Claudio Ximenes¹, Cayo Pereira¹, Isabela Maimone¹, Maria A. Joaquin¹, Cristiane S. Araújo², Lucio F. Araujo¹ ¹*University of Sao Paulo, Pirassununga, Sao Paulo, Brazil;* ²*University of Sao Paulo, Pirassununga, Sao Paulo, Brazil*
- 9:45 AM 250 **Can hen performance be affected by lighting uniformity and degree of nest enclosure?**
Valentina Bongiorno¹, Kathryn Baugh², Cara Robison¹, Janice Siegford*¹ ¹*Michigan State University, East Lansing, Michigan, United States;* ²*Michigan State University, Holt, Michigan, United States*
- 10:00 AM 251 **Effect of Heat Stress and biofortified Orange Corn during pullet rearing on early egg production**
Sara Cloft*¹, Evan Rocheford², Torbert Rocheford³, Darrin M. Karcher⁴ ¹*Purdue University, West Lafayette, Indiana, United States;* ²*NutraMaize, West Lafayette, Indiana, United States;* ³*Purdue University, West Lafayette, Indiana, United States;* ⁴*Purdue University, West Lafayette, Indiana, United States*

- 10:15 AM 252 **Effects of Stocking Density on Welfare, Egg Quality, and Production of Cage-Free Laying Hens in Multi-Tiered Aviaries**
Alexandra Ulans*¹, Kenneth E. Anderson¹, Lin Walker², Dannica Wall¹, Allison Pullin³ ¹*North Carolina State University, Raleigh, North Carolina, United States*; ²*NC State University, Raleigh, North Carolina, United States*; ³*North Carolina State University, Raleigh, North Carolina, United States*
- 10:30 AM 253 **A method for comparing mathematically modeled fertility and hatchability curves**
Martin Zuidhof*¹, Thiago L. Noetzold¹, Mark Polak¹ ¹*University of Alberta, Edmonton, Alberta, Canada*
- 10:45 AM 254 **Eggshell translucency, age related structural changes, and their combined impact on hatch of fertile eggs in commercial broiler breeder flocks**
Cristiano Bortoluzzi*⁶, Jinquan Wang², Jia Zhen², Leticia Orellana³, Matthew Hughes³, Ken Macklin³, Chongxiao Chen⁴, Adam Davis⁴, Chance Williams⁵, Austin Jasek¹⁶, Colwayne Morris⁶, Raquel Burin⁶, Duarte Neves⁶ ¹*Zinpro, College Station, Texas, United States*; ²*Auburn University, Auburn, Alabama, United States*; ³*Mississippi State University, Starkville, Mississippi, United States*; ⁴*University of Georgia, Athens, Georgia, United States*; ⁵*Wayne-Sanderson Farms, Hoschton, Georgia, United States*; ⁶*Zinpro Corporation, Conyers, Georgia, United States*

**Metabolism and Nutrition: Feed Additives II
202 (A-D)**

- 9:00 AM 255 **EFFECT OF EXOGENOUS ENZYMES SUPPLEMENTATION IN FERMENTED SOYBEAN MEAL BASED DIET ON GROWTH PERFORMANCE, NUTRIENT DIGESTIBILITY AND CARCASS CHARACTERISTICS OF BROILERS**
Rehan Amjad², Riaz Mustafa¹, Umar Farooq¹, Waseem Abbas², Muhammad Farooq Khalid¹, Abdur Rehman²³, Munawar Hussain⁴, Asfa Fatima², Muhammad Aziz ur Rahman*^{2 1} *Constituent College Toba Tek Singh, University of Agriculture Faisalabad, Faisalabad 38000, Pakistan, Faisalabad, , Pakistan;* ²*Institute of Animal and Dairy Sciences, University of Agriculture Faisalabad, Faisalabad 38000, Pakistan, Faisalabad, , Pakistan;* ³*Department of Animal Sciences, Faculty of Agriculture, Sargodha University, Sargodha 40100, Pakistan, Sargodha, , Pakistan;* ⁴*Sind Feed and Allied Products, Karachi 75600, Pakistan, Karachi, , Pakistan*
- 9:15 AM 256 **Reduction of liver injury and fibrosis induced by carbon-tetrachloride in chickens supplemented with artichoke extract, lemon essential oil and silymarin**
Frank Ayala*¹, Freddy Farfan¹, Eliana Icochea², Lenin Maturrano⁴, Guillermo Tellez-Isaias^{3 1} *Laboratorios Drogavet, Lima, , Peru;* ²*Laboratory of Avian Pathology, Faculty of Veterinary Medicine, Universidad Nacional Mayor de San Marcos, Lima, , Peru;* ³*University of Arkansas, Fayetteville, Arkansas, United States;* ⁴*Laboratory of Biology and Molecular Genetics, Faculty of Veterinary Medicine, Universidad Nacional Mayor de San Marcos, Lima, , Peru*

- 9:30 AM 257 **Dietary protein source and Salmonella modulate cecal monoamine oxidase activity in chickens**
Samiru Wickramasuriya¹, Sungyong Jung², Joshua M. Lyte*¹ ¹USDA-ARS Poultry Production and Product Safety Research Unit, Fayetteville, Arkansas, United States; ²South Dakota State University, Brookings, South Dakota, United States
- 9:45 AM 258 **Cross-model chemical and cellular modulation of oxidative stress by olive pulp: comparison with vitamin E forms**
CLEMENCE MESSANT*¹, Zoi Skaperda², Kathrin Buehler¹, Periklis Vardakas³, Fotis Tekos³, Demetrios Kouretas⁴, Christos Gougoulas¹ ¹Innovad Group, Berchem, , Belgium; ²Olea Fortius PC, Larissa, , Greece; ³Foodoxys PC, Larissa, , Greece; ⁴Department of Biochemistry and Biotechnology, Larissa, , Greece
- 10:00 AM 259 **Influence of oregano-derived essential oil (Ecodiar[®]) supplementation on production performance, egg quality, and egg income in late-phase laying hens**
Kenneth E. Anderson*², Ishab Poudel¹, Rebecca Wysocky³, M D. Cabrera⁴, Gabriel Cabrera⁴, Rafael A. Cabrera⁴ ¹North Carolina State University, Raleigh, North Carolina, United States; ²North Carolina State University, Raleigh, North Carolina, United States; ³NC State University, Raleigh, North Carolina, United States; ⁴NUTRINAE LLC, Palo Alto, California, United States Minor Outlying Islands
- 10:15 AM 260 **Astaxanthin Improves Systemic Stress Responses and Jejunal Barrier Integrity in Aged Laying Hens Under Summer Heat Stress**
Uchechukwu E. Obianwuna*¹, Habtamu A. Kasahun¹, Vivian U. Oleforuh-Okoleh², Asnan Muhammad¹, Ghazanfar Hussain¹, Pan Pan Ji¹, Qiu Kai¹, Shugeng Wu¹ ¹Institute of Feed Research, Chinese Academy of Agricultural Sciences, Beijing, , China; ²Rivers State University, Nkpolu-Oroworukwo, Port Harcourt, Nigeria, Port Harcourt, Rivers, Nigeria
- 10:30 AM 261 **Effects of natural feed additives and antibiotics on bone strength, organ weights, and gut morphology in late-phase laying hens**

Venuste Maniraguha⁴, Ahmed El-zenary*¹², Deborah Adewole³ ¹*University of Saskatchewan, Saskatoon, Saskatchewan, Canada;* ²*University of Sadat City, Sadat City, Menofia, Egypt;* ³*University of Saskatchewan, Saskatoon, Saskatchewan, Canada;* ⁴*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*

10:45 AM

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Feed supplementation with a Triple-Strain *Bacillus*-based probiotic improves performance and leg skin condition in turkeys

Pawel Konieczka*¹³, Laura Hoving², Bartosz Skalski², Krzysztof Kozlowski¹, Antoine Meuter² ¹*University of Warmia and Mazury in Olsztyn, Olsztyn, , Poland;* ²*Novonesis Biologiens, Kongens Lyngby, , Denmark;* ³*The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, , Poland*

11:00 AM

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Study on the Effect and Related Mechanism of *Rosa Roxburghii* Tratt Extract in Alleviating Hyperuricemia in Magang Geese

Yang Fu*¹, Yinghua Song¹, Yang Fu¹, Rui Li¹, Xiaodan Luo¹, Jihan Jiang¹, Wence Wang¹ ¹*South China Agricultural University, Guangzhou, , China*

**Metabolism and Nutrition: General Nutrition II
201 (A-F)**

- 9:00 AM 264 **Evaluation of Brown Rice (At 362) as an alternative energy source to corn for growth performance, intestinal morphology, and nutrient digestibility in Broiler Chickens**
T Jeyaharan¹, Miyuru Nimsara², Oshani C. Warnapurage^{*2}, J.K. Vidanarachchi³, S.P. Kodithuwakku³, W.N. Perera³, N Priyankarage⁴, C Palliyaguru⁵ ¹*Postgraduate Institute of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka, Peradeniya, , Sri Lanka;* ²*Faculty of Veterinary Medicine, University of Calgary, Calgary, Alberta, Canada;* ³*Faculty of Agriculture, University of Peradeniya, Peradeniya, Central, Sri Lanka;* ⁴*Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Peradeniya, Central, Sri Lanka;* ⁵*Veterinary Research Institute, Gannoruwa, Peradeniya, Peradeniya, Central, Sri Lanka*
- 9:15 AM 265 **Influence of the origin of the soybean meal on protein and amino acid digestibility in broiler diets**
Mateo Lucio¹, Guillermo Talegón¹, Lewis Aguirre², Lourdes Cámara¹, Rosa Lázaro¹, Gonzalo González Mateos^{*1} ¹*Universidad Politécnica de Madrid, Madrid, , Spain;* ²*Trouw Nutrition, Toledo, Toledo, Spain*
- 9:30 AM 266 **Increasing dietary inclusion of two faba bean (*Vicia faba*) varieties differing in their vicine and convicine contents: Effects on broiler growth performance and carcass traits**
Matt Oryschak^{*1}, Doug Korver¹² ¹*University of Alberta, Edmonton, Alberta, Canada;* ²*Alpine Poultry Nutrition, Inc., Edmonton, Alberta, Canada*
- 9:45 AM 267 **Impacts of enzymatically-processed soybean meal inclusion on poult performance intestinal morphology, and intestinal permeability**
Dawn Koltes^{*1}, Brooke Wilson¹, Cameron F. Hall¹, Grady Fain², Megan Bible² ¹*Iowa State University, Ames, Iowa, United States;* ²*Hamlet Protein, Findlay, Ohio, United States*

- 10:00 AM 268 **Increasing dietary inclusion of two faba bean (*Vicia faba*) varieties differing in condensed tannin content: Effects on broiler growth performance and carcass traits**
Matt Oryschak*¹, Doug Korver¹² ¹*University of Alberta, Edmonton, Alberta, Canada;* ²*Alpine Poultry Nutrition, Inc., Edmonton, Alberta, Canada*
- 10:15 AM 269 **Mechanism of Fermented Bamboo Powder Regulating Growth Performance and Meat Quality in Magang Geese via the Microbiota-Amino Acid Metabolic Axis**
Xue Li*¹, Guorong Song¹, Xinyuan Peng¹, Shuo Yang¹, Rui Liang¹, Zijie Li¹, Wence Wang¹ ¹*South China Agriculture University, Guangzhou, , China*
- 10:30 AM 270 **Effects of palm kernel cake and decanter cake combinations on growth performance, carcass traits, growth and nutrient transporter gene expression and breast meat composition in broiler chickens**
Mohammad Naeem Azizi*¹, Teck Chwen Loh¹², Lim Teik Chung Eric¹², Faris Ab Aziz Mohammad¹, Hooi Ling Foo³⁴ ¹*Universiti Putra Malaysia (UPM), Serdang, Selangor, Malaysia;* ²*Institutes of Tropical Agriculture and Food Security, Serdang, Selangor, Malaysia;* ³*Universiti Putra Malaysia (UPM), Serdang, Selangor, Malaysia;* ⁴*Institute of Bioscience, Serdang, Selangor, Malaysia*
- 10:45 AM 271 **Effects of roasting on nutritional characteristics of Peanut Skin (PS) and potentials in animal feed formulation in Sub-Saharan Africa**
Johnson A. Olupona*¹, Olubukola Lawrence-Azua¹ ¹*Federal College of Animal Health and Production Technology, Ibadan, Ibadan , Oyo, Nigeria*
- 11:00 AM 273 **Fermented Orange Peel Improved Productive Performance, Immune Status, and Hormonal Responses in Aged Laying Hens**
Pan Pan Ji¹², Ghazanfar Hussain¹, Shugeng Wu¹, Qiu Kai¹, Uchechukwu E. Obianwuna*¹ ¹*Institute of Feed Research , CAAS, Beijing, , China;* ²*Hebei Normal University of Science and Technology, Hebei, , China*

**Microbiology and Food Safety I
203 (B-D)**

- 10:00 AM 274 **Antimicrobial Resistance and Control of Non-Typhoidal *Salmonella enterica* in Poultry: A “One-Heath” Perspective.**
Moussa S. Diarra*¹ ¹*Agriculture and Agri-Food Canada, Professor, Ontario, Canada*
- 10:30 AM 275 **Impact of simulated transport of rear-in place pullets on the persistence of *Salmonella* Enteritidis in a cage-free production system.**
Javier S. Garcia*²¹, Richard K. Gast²¹ ¹*USDA-ARS, Athens, Georgia, United States*; ²*USDA-ARS, Athens, Georgia, United States*
- 10:45 AM 276 **Comparison of Two *Salmonella* Serotypes Following Albumen or Yolk Inoculation of Hatching Eggs Cold-Stored and Incubated to Day 18**
Caitlin Harris*¹, Vivienne Catt², Olga Kemenova², Christopher A. Heist², Daniel Sabo², Stephanie Richter² ¹*USDA-ARS National Poultry Research Center, Athens, Georgia, United States*; ²*Georgia Tech Research Institute, Atlanta, Georgia, United States*

- 11:00 AM 277 **Biocide tolerance and eggshell transfer of *Salmonella* Enteritidis biofilms**
Daniel Mayboca Padilla*^{1GS}, Claudia Narvaez Bravo¹, Wei Jia², Argenis Rodas Gonzalez¹, Tim McAllister³ ¹*University of Manitoba, Winnipeg, Manitoba, Canada;* ²*Manitoba Egg Farmers, Winnipeg, Manitoba, Canada;* ³*Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada*
- 11:15 AM 278 **Can extracellular particles from different *Bacillus* spp. strains contribute to inhibitory and synergistic activities against *Salmonella* Heidelberg strains isolated from poultry?**
Isabelle E. Pedrosa¹, Ana Carolina P. Sousa¹, Patrícia G. Hoepers*³, Simone Sommerfeld¹, Hebreia O. Almeida², Mario M. Martins², Éric Guédon⁶, Victor A. Penha⁵, Vasco Azevedo⁴, Belchiolina Beatriz Fonseca¹² ¹*Postgraduate Program in Veterinary Sciences at the Federal University of Uberlândia, Uberlândia-MG, Brazil, Uberlandia, , Brazil;* ²*cPostgraduate Program in Genetics and Biochemistry at the Federal University of Uberlândia, Uberlândia-MG, Brazil, Uberlandia, , Brazil;* ³*Seara, Itajaí, , Brazil;* ⁴*Postgraduate Program in Bioinformatics at the Federal University of Minas Gerais, Belo Horizonte, , Brazil;* ⁵*Department of Integrative Biology, Michigan State University, East Lansing, Michigan, United States;* ⁶*gSTLO, INRAE, Institut Agro, Rennes, , France*
- 11:30 AM 279 **LitterGuard AI: An Early-Warning Machine Learning Platform for Predicting Salmonella Risk in Commercial Broiler Houses**
Adelumola Oladeinde*¹, Taejung Chung¹, Jodie P. Lawrence¹, Josh Payne², Zaid Abdo³ ¹*USDA-ARS, Athens, Georgia, United States;* ²*C & S Chemicals, Roswell, Georgia, United States;* ³*Colorado State University, Fort Collins, Colorado, United States*

11:45 AM 280 **Differences in *Campylobacter* detachment and death as a function of PAA concentration and exposure time on broiler meat**
Elizabeth A. McMillan*¹, Chandra Kothapalli², Daniel S Munther³ ¹USDA-ARS, USNPRC, Athens, Georgia, United States; ²Cleveland State University, Cleveland, Ohio, United States; ³Cleveland State University, Cleveland, Ohio, United States

Metabolism and Nutrition: Vitamins and Minerals II 206 (A-D)

- 1:00 PM 281 **Microencapsulated vitamins and trace minerals maintain broiler growth performance under reduced inclusion levels**
Peter R. Ferket*², Dimitri Malheiros¹, Ludovic Lahaye¹, Glenmer B. Tactacan¹, Dan Moore³, Jean Fontaine¹ ¹Jefo Nutrition, Saint-Hyacinthe, Quebec, Canada; ²North Carolina State University, Raleigh, North Carolina, United States; ³Colorado Quality Research, Wellington, Colorado, United States
- 1:15 PM 282 **MICRO-ENCAPSULATION OF ALL SIX TRACE MINERALS TO REDUCE INCLUSION WHILE MAINTAINING PERFORMANCE AND CARCASS TRAITS OF BROILER**
Kevin Liu*¹² ¹Retiree, Singapore, , Singapore; ²Syno Int. P/L, Select Account Ownership, , Singapore
- 1:30 PM 283 **Assessment of organic chromium supplementation on performance, intestinal integrity, bone mineralization, and meat quality parameters in broiler chickens subjected to experimental cyclic heat stress**
Andressa S. Stein¹, Roberto Senas¹, Clay Maynard¹, Casey M. Owens¹, Guillermo Tellez-Isaias¹, Danielle Graham¹, Billy M. Hargis¹, Juan D. Latorre*¹ ¹University of Arkansas, Fayetteville, Arkansas, United States

- 1:45 PM 285 **Effects of Hydroxychloride and Organic Trace Mineral Nutrition on Eggshell Ultrastructure and Quality in Late-Cycle Laying Hens**
Hernan D. Gil Arenas*¹, Carlos A. Maya Ortega² ¹*Alura, Medellín, , Colombia;* ²*Iluma Alliance, Medellín, , Colombia*
- 2:00 PM 286 **Determining the Effects of KemTRACE® Chromium on Turkey Performance**
Karen Vignale*¹ ¹*Kemin Industries, Fayetteville, Arkansas, United States*

**Immunology, Health and Disease: Immunology
206 (E-F)**

- 1:00 PM 287 **The One Health implication of *Enterococcus* in poultry production**
Nitish Boodhoo*¹ ¹*McGill University, Ste. Anne de Bellevue, Quebec, Canada*
- 1:30 PM 288 **Modulation of cytokine production from avian T-cells by vitamin D metabolites**
Veronika Drexler², Marina Kohn², Kathrin Bühler*¹, Jan Dirk van der Klis¹, Bernd Kaspers² ¹*Herbonis Animal Health GmbH (Innovad Group), Augst BL, , Switzerland;* ²*Veterinary Faculty, University of Munich, Munich, , Germany*
- 1:45 PM 289 **Chicken blood alloantigen system H is encoded by the CD146 (MCAM) gene**
Robert L. Taylor, Jr.*¹, Amy McCarron², Anna Wolc^{2,3}, Brandi Sparling⁴, Janet Fulton² ¹*West Virginia University, Morgantown, West Virginia, United States;* ²*Hy-Line International, Dallas Center, Iowa, United States;* ³*Iowa State University, Ames, Iowa, United States;* ⁴*Western University of Health Sciences, Pomona, California, United States*

2:00 PM 290 **Impact of environmental cyclic heat stress on blood leukocyte profiles of modern random-bred and divergent high- and low-water conversion broiler breeder hens**
Jossie M. Santamaria¹, Allison D. Weaver^{*1}, Rosie Whittle¹, Karen M. Rivera¹, Gisela F. Erf¹, Sara Orłowski-Workman¹, Walter G. Bottje¹, Shawna Weimer¹ ¹*University of Arkansas System Division of Agriculture, Fayetteville, Arkansas, United States*

2:15 PM 291 **Nutritional energy deficiency alters humoral immunity in broiler chicks**
Chrysta N. Beck^{*1}, Jossie M. Santamaria², Seth Hufford², Gisela F. Erf², Benjamin Parsons² ¹*Mississippi State University, Mississippi State, Mississippi, United States*; ²*University of Arkansas System Division of Agriculture, Fayetteville, Arkansas, United States*

2:30 PM 292 **Broilers grown in the absence of adults have lifelong deficiencies in serum IgY and cecal SCFA levels compared to chicks exposed at hatch to adult bacteria**
Nir Ben Porat², Lian Nashif², Erez Mills^{*1} ¹*Hebrew University of Jerusalem, Rehovot, , Israel*; ²*The Robert H. Smith Faculty of Agriculture, Hebrew University of Jerusalem, Rehovot, , Israel*

Management and Production II 205 (A-D)

1:00 PM 293 **Interaction between photoperiod and mash diet energy levels on broiler performance**
Tory Shynkaruk^{*1}, Nancy Fischer², Karen Schwean-Lardner¹ ¹*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*; ²*Country Junction Feeds, Wetaskiwin, Alberta, Canada*

- 1:15 PM 294 **Insights from a comparative life cycle analysis of bacterial xylanase supplementation to advance sustainable broiler production**
Prince Agyemang*^{1GS}, Lisa Dufour², Virgine Martin⁶, Raquel S. Garcia³, Micheal Steck⁵, Melissa Otis⁶, Ludovic Lahaye⁴ ¹*McGill University, Sainte Anne-de-Bellevue, Quebec, Canada*; ²*Jefo Europe, Carquefou, Nantes, France*; ³*Belfeed, Andenne, Namur, Belgium*; ⁴*Jefo Nutrition Inc, St Hyacinthe, Quebec, Canada*; ⁵*Glimpact, New York, New York, United States*; ⁶*Jefo Nutrition Inc., St Hyacinthe, Quebec, Canada*
- 1:30 PM 295 **Broiler sampling strategies for estimation of mean body weight**
Federico Etcheverry*¹, Muhammad Ali¹, Nicolas M. Abaunza¹, Chongxiao Chen² ¹*University of Georgia, Athens, Georgia, United States*; ²*University of Georgia, Athens, Georgia, United States*
- 1:45 PM 296 **Broiler breeder feathering between 45 and 60 weeks of age is affected by target body weight and the length of the starter feed period**
Edgar O. Oviedo*¹, Gabriele J. Kinchin¹, Artur De Freitas Ribeiro¹, Shivaram K. Rao², Jesus Arango² ¹*NC STATE UNIVERSITY, Raleigh, North Carolina, United States*; ²*Cobb Genetics, Siloam Springs, Arkansas, United States*
- 2:00 PM 297 **Ultraviolet (UV-A) light effects on welfare and performance in slower-growing broilers**
Carolin Adler*¹, Jerine A. J. van der Eijk², Henk Gunnink², Rick A. van Emous³, Ingrid de Jong² ¹*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*; ²*Wageningen Livestock Research, Wageningen, , Netherlands*; ³*Wageningen Livestock Research, Wageningen, , Netherlands*

2:15 PM 298 **Replacement of Soybean meal with Black Soldier Fly (*Hermetia illucens*) larvae meal on growth performance and meat quality traits of broiler chickens**

Md. S. Sarker*¹²⁵, US Ety²¹, S Faruque¹, F Tabassum², SS Zihan⁴, MF Sharmin³¹, PS Hossain⁵ ¹*Bangladesh Livestock Research Institute, Dhaka, Dhaka, Bangladesh;* ²*Bangladesh Livestock Reserach Institute, Dhaka, , Bangladesh;* ³*Bangladesh Jute Research Institute, Dhaka, , Bangladesh;* ⁴*Nourish Poultry & Hatchery Ltd, Dhaka, Shariatpur, Bangladesh;* ⁵*Greensect Ltd., Dhaka, Tejgaon, Bangladesh*

2:30 PM 299 **Optimizing Feed Withdrawal Duration to Modulate Physiological Responses of Broilers During Heat Stress in a Tropical Environment**

Oyegunle E. Oke*¹, Aderanti I. Oni² ¹*Federal University of Agriculture, Abeokuta, Nigeria, Abeokuta, Ogun, Nigeria;* ²*Federal University of Agriculture Abeokuta, Abeokuta, Ogun, Nigeria*

2:45 PM 300 **Effects of Medical Plants on rectal temperature, respiratory rate, blood parameters, and intestinal histology in broilers exposed to a heat wave (37°C).**

Zeinab M. Mahasneh*¹², Mohannad Abuajamieh², Anas Abdelqader², Mohamed Abedal-Majed², Mohmmad Al-Qaisi², Mufeed Alnimer², Abdur-Rahman Al-Fataftah² ¹*Jerash university, Jerash, , Jordan;* ²*The University of Jordan, Amman, , Jordan*

Metabolism and Nutrition Symposium: The Technologies and Nutritional Strategies that are Making Precision Nutrition an Affordable Reality

Chair: Maria Walsh, Biofractal

105 Constitution Hall

1:00 PM **Panel Discussion**

1:45 PM 1048S **Global Industry Trends to Shape the Future of Global and U.S. Broiler Production**

Nan-Dirk Mulder*¹ ¹*Rabobank, Utrecht, , Netherlands*

2:10 PM 1049S **The Dynamics of Amino Acid Nutrition in Lean Deposition in Broilers**

Justina Caldas*¹ *Aviagen, Huntsville, Alabama, United States*

2:35 PM 1050S **Navigating the competing metabolic demands of growth and immune competency & the consequences of getting it wrong**

Rami A. Dalloul*¹ *University of Georgia, Athens, Georgia, United States*

3:00 PM **Break**

3:30 PM 1051S **Precision animal performance diagnostics - how the combined strengths of animal gene expression and advanced AI are helping poultry producers unlock performance gains**

Luis F. Romero*¹, Maria C. Walsh² *Biofractal, Loule, Faro, Portugal; ²Biofractal, Loule, Select a state, Portugal*

4:00 PM 1052S **Precision feeding of functional ingredients for lean muscle and immunocompetency**

Samuel Rochell*¹ *Auburn University, Auburn, Alabama, United States*

4:30 PM 1053S **Exploring the role that feed additives play in precision nutrition**

Brooke Humphrey*¹ *NutriQuest, Maple Grove, Minnesota, United States*

Symposium: Methodology Matters

Chair: Roselina Angel,
John W. H. Bassett Theatre

- 1:00 PM 1054S **Why methodologies are important in scientific work as well as for application of scientific information commercially?**
Paul B. Tillman*¹ *¹Poultry Technical Nutrition Services LLC, Buford, Georgia, United States*
- 1:10 PM 1055S **Consideration of mineral homeostasis when conducting calcium nutrition work in poultry**
Laura E. Ellestad*¹ *¹University of Georgia, Athens, Georgia, United States*
- 1:35 PM 1056S **Broiler calcium digestibility work. Importance of length of studies, timing of sampling, nutrient interactions in experimental diet formulation in the context of calcium homeostasis**
Roselina Angel*², Kyle M. Venter¹, Peter Plumstead³ *¹Neuro Livestock Research, Lanseria, , South Africa; ²University of Maryland, College Park, Maryland, United States; ³Neuro Livestock Research, Lanseria, , South Africa*
- 2:05 PM 1057S **Layer calcium digestibility work. Importance of length of studies, timing of sampling nutrient interactions in experimental diet formulation in the context of calcium homeostasis.**
Kyle M. Venter*^{1,2}, Kean G. Jacobs¹, Roselina Angel⁴, Peter Plumstead³ *¹Neuro Livestock Research, Lanseria, , South Africa; ²University of Pretoria, Pretoria, Gauteng, South Africa; ³Neuro Livestock Research, Lanseria, , South Africa; ⁴University of Maryland, College Park, Maryland, United States*
- 2:35 PM 1058S **Importance of research facility set up. Uniformity trials and understanding power analysis and facility capabilities**
Nickki Tillman*¹ *¹Nutritional Statistics LLC, Buford, Georgia, United States*
- 3:00 PM **Break**
- 3:30 PM 1059S **Importance of methods selected for microbiome studies: State of the science and challenges**

Joshua M. Lyte*¹, Monika Proszkowiec-Weglarz² ¹USDA-ARS Poultry Production and Product Safety Research Unit, Fayetteville, Arkansas, United States; ²USDA, ARS, Beltsville, Maryland, United States

3:55 PM 1060S **Necessary validation steps too often neglected in the use of immunoassays**

Tom Porter*¹ ¹University of Maryland, College Park, Maryland, United States

4:20 PM **Panel Discussion**

Microbiology and Food Safety II 203 (B-D)

1:00 PM 301 **Host–Diet–Pathogen Crosstalk: Shaping the Future of Poultry Gut Health**

Wageha Awad*¹ ¹Clinic for poultry Medicine, Vienna, , Austria

1:15 PM 302 **Dietary Fiber Modulates Caecal Microbiota Dysbiosis and Enhances Intestinal Barrier Integrity in Broiler Chickens Infected with *Campylobacter jejuni***

Bereket Dessalegn Awoke*¹, Motuma Debelo¹, Nicola Palmieri², Károly Dublec², Michael Hess¹, Wageha Awad¹ ¹Clinic for poultry and Fish Medicine, Vienna, , Austria; ²Institute of Physiology and Nutrition, Keszthely, , Hungary

- 1:30 PM 303 **Effects of Chronic Exposure to Dietary Mycotoxins on Cecal Microbiota, Short-Chain Fatty Acids, and Predicted Functional Pathways in Broiler Chickens**
Revathi Shanmugasundaram*¹, Laharika Kappari², Anthony E. Glenn³, Ramesh Selvaraj², Todd J. Applegate⁴ ¹USDA, ARS, Athens, Georgia, United States; ²University of Georgia, Athens, Georgia, United States; ³USDA ARS, Athens, Georgia, United States; ⁴University of Georgi, Athens, Georgia, United States
- 1:45 PM 304 **Comparing performance and microbiota of laying hens fed US and European style diets between 35 and 45 weeks of life**
Jean E. De Oliveira*¹, Lieske v. Eck¹, Luisa A. Gene¹, Anne Goderis¹, Ines Carvalhido¹, Carlos Brasil¹, Jilau Yan¹ ¹Cargill Animal Nutrition and Health, Wayzata, Minnesota, United States
- 2:00 PM 305 **Microbial diversity and succession associated with poultry processing stages**
Tomi Obe*^{1,2}, Li Zhang³, Eniola Betiku¹ ¹University of Arkansas Division of Agriculture, Fayetteville, Arkansas, United States; ²University of Arkansas Division of Agriculture, Fayetteville, Arkansas, United States; ³Mississippi State University, Mississippi State, Mississippi, United States
- 2:15 PM 306 **Potential of probiotic *Bacillus* and *Escherichia coli* strains to acquire resistance to aminoglycosides and quinolones under selective conditions**
Anna Luiza F. Strack², Bianca d. Silva¹, Patrícia G. Hoepers*¹, Eduarda G. Sousa³, Vasco Azevedo³, Belchiolina Beatriz Fonseca⁴ ¹Federal University of Uberlandia, Itajaí, Santa Catarina, Brazil; ²Federal University of Uberlândia (Graduate Program in Genetics and Biochemistry), Uberlandia, , Brazil; ³Federal University of Minas Gerais, Uberlandia, , Brazil; ⁴Universidade Federal de Uberlândia, Uberlândia, MG, Brazil
- 2:30 PM 307 **Comparison of the infectivity of cattle adapted Highly Pathogenic Avian Influenza (HPAI) virus to Low Pathogenic Avian Influenza (LPAI) virus in a**

food matrix

Casey Johnson¹, Brian Ladman², Marcella Murphy², Peter Mann², Lauren Sauble², Poonam Vinayamohan³, Anna Porto-Fett³, John Luchansky³, Ryan Arsenault*¹ ¹*USDA ARS FFSRU, College Station, Texas, United States*; ²*University of Delaware, Newark, Delaware, United States*; ³*USDA ARS ERRC, Wyndmoor, Pennsylvania, United States*

Animal Well-Being and Behavior 206 (E-F)

- 3:30 PM 308 **White hens are from Venus, Brown hens are from Mars**
Tina Widowski*¹ ¹*University of Guelph, Guelph, Ontario, Canada*
- 4:00 PM 309 **Dopamenergic manipulation affects vocalizations but does not elicit feather pecking behavior in Pekin ducks**
Jenna M. Schober*¹, Nina Wilson¹, Collette Plue¹, Gregory S. Fraley¹ ¹*Purdue University, Frankfort, Indiana, United States*
- 4:15 PM 310 **Effect of replacing string-tied straw enrichment bales with plastic wrapped bales on broiler behaviour and welfare**
Emily Burton*¹ ¹*Nottingham Trent University, Nottingham, , United Kingdom*
- 4:30 PM 311 **A comparison of nest use in four cage-free system designs for laying hens**
Suzanne T. Millman*¹², Rebecca L. Parsons¹, Brett Ramirez³, Anna Johnson⁴, Juan P. Steibel⁴ ¹*Iowa State University, Ames, Iowa, United States*; ²*Iowa State University, Ames, Iowa, United States*; ³*Iowa State University, Ames, Iowa, United States*; ⁴*Iowa State University, Ames, Iowa, United States*
- 4:45 PM 312 **From worms to welfare: Can inducing play behavior give us a window into chick welfare?**
Rosie Whittle*¹, Sara Orłowski-Workman¹, Maricela Maqueda¹, Shawna Weimer¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*

Metabolism and Nutrition: Enzymes I 201 (A-F)

- 3:30 PM 313 **Pushing the Limits of Carbohydrase: Do Fiber and XOS Deliver?**
Shravani Veluri*¹ ¹*Asahi Biosciences, Peachtree City, Georgia, United States*
- 4:00 PM 314 **Effect of β -mannanase application on the growth performance and immune response of turkeys**
Pawel Konieczka*¹, Elke von Heimendahl², Anna Fickler², Adebayo Sokale³, Krzysztof Kozlowski¹ ¹*University of Warmia and Mazury in Olsztyn, Olsztyn, , Poland*; ²*BASF SE, Ludwigshafen am Rhein, , Germany*; ³*BASF Corporation, Florham Park, New York, United States*
- 4:15 PM 315 **In-feed supplementation of a new mannanase improves turkey growth and improves jejunal barrier integrity at day 49 through enhancement of stress- and immune-response**
Adebayo Sokale², Ayodeji Aderibigbe*¹, Dan Moore³, Anna Fickler², Sami Dridi⁴ ¹*The Ohio State University, Wooster, Ohio, United States*; ²*BASF SE, Ludwigshafen, , Germany*; ³*Colorado Quality Research, Wellington, Colorado, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*

4:30 PM 316 **Feeding the microbiome: xylanase supplementation in early life broilers**
Sasha van der Klein*¹, D. Kand¹, S. Abdallah², A. Huerta¹, Q. Wang³, S. Bialkowski³, Alexander Yitbarek², L.eon Marchal¹, K. Gibbs¹ ¹*Danisco Animal Nutrition & Health, Oegstgeest, Select One...*, *Netherlands*; ²*University of Delaware, Newark, Delaware, United States*; ³*IFF, Wilmington, Delaware, United States*

4:45 PM 317 **The effect of xylanase supplementation on performance, digesta viscosity, carcass traits, and immune organ of broiler fed wheat based diets**
Xuerong Song*¹, Chongxiao Chen² ¹*Wuhan Sunhy Biology Co., Ltd, Wuhan, Hubei, China*; ²*University of Georgia, Athens, Georgia, United States*

Monday, July 13 2026
Metabolism and Nutrition: Enzymes II
201 (A-F)

8:00 AM 318 **Bacterial xylanase supplementation improves early feed efficiency, intestinal integrity, nutrient digestibility, and cecal microbiota in broilers fed reduced-energy diets**
Olufemi O. Babatunde*¹, Akaradet Seemacharoensri¹, Glenmer B. Tactacan¹, Ludovic Lahaye¹, Christelle Boudry², Benjaphorn Phusathian³, Yuwares Ruangpanit³ ¹*Jefo Nutrition Inc., St Hyacinthe, Quebec, Canada*; ²*Belfeed NV, Andenne, , Belgium*; ³*Kasetsart University, Nakhon Pathom, , Thailand*

8:15 AM 319 **Bio-optimized xylanase improves feed efficiency in broilers fed energy-reduced corn–soybean meal diets**
Rasha Qudsieh*¹, Koushik De¹, Anna Fe Rose Perino¹, Sudipto Halder², Amrita Dhara², Sayantani Arora² ¹*Novus International, Inc, Raleigh, North Carolina, United States*; ²*Agrivet Research & Advisory P Ltd, Kolkata, , India*

8:30 AM 320 **Selective effects of a protease treatment on trypsin inhibitor activity and inhibitor fractions in**

soybean meal.

Carolina Haubert Franceschi*¹, Mauricio S. Cunha¹,
Eduardo Trevisol¹, Janet Remus¹, Ceinwen Evans¹,
L.eon Marchal¹ ¹*IFF, São Paulo, SP, Brazil*

- 8:45 AM 321 **Multi-component protease mitigates the negative impacts of under- and over-processed soybean meal on growth performance and carcass characteristics in broilers**
Glenmer B. Tactacan*¹, Olufemi Babatunde¹, Ludovic Lahaye¹, Shahram Golzar Adabi² ¹*Jefo Nutrition, Inc., Saint-Hyacinthe, Quebec, Canada;* ²*Avesa Nutrition, Baglica, Ankara, Turkey*
- 9:00 AM 322 **Effects of increasing dietary non-phytate phosphorus levels and phytase supplementation on performance, and apparent ileal nutrient digestibility in broiler chickens**
Sunday A. Adedokun*¹, Sammad F. Olayiwola¹, Taiwo J. Alabi², Michael J. Ford¹, Jacqueline P. Jacob¹ ¹*University of Kentucky, Lexington, Kentucky, United States;* ²*University of Kentucky, Lexington, Kentucky, United States*
- 9:15 AM 323 **The effects of copper source and dose on ileal Ca and P digestibility and phytase enzyme efficacy in broilers**
Peter Plumstead*¹, Kyle M. Venter¹², Jorja Ashworth¹², Alessandra R. Monteiro³ ¹*Neuro Livestock Research, Lanseria, , South Africa;* ²*University of Pretoria, Pretoria, , South Africa;* ³*Animine Precision Minerals, Annecy, , France*
- 9:30 AM 324 **Total replacement of added inorganic phosphate by a consensus bacterial 6-phytase in pullet from day 1 till 18 weeks of age**
Abiodun Bello*¹, Vivian Vieira², Ellie Shoemith¹, Yueming dersjant-li¹, K. Gibbs¹, Ceinwen Evans¹, Douglas Korver² ¹*Danisco Animal Nutrition & Health - IFF, Rochester, New York, United States;* ²*University of Alberta, Edmonton, Alberta, Canada*
- 9:45 AM 325 **Growth performance of layer pullets supplemented with phytase and a plant-based vitamin D₃ source from 0 to 18 weeks of age**
Vivian Vieira*¹, Abiodun Bello², Yueming dersjant-li²,

Kathrin Bühler³, Jan Dirk van der Klis³, Doug Korver¹ ¹*University of Alberta, Edmonton, Alberta, Canada;* ²*Danisco Animal Nutrition & Health, IFF, Oegstgeest, , Netherlands;* ³*Herbonis Animal Health GmbH, Augst BL, , Switzerland*

10:00 AM

Break

10:30 AM

326

Substrate-specific activity of invertase preparations and their efficacy in galactooligosaccharides degradation in plant feed ingredients for poultry

Yanxing Niu*¹, Robert Patterson², Bogdan A. Slominski¹, Anna Rogiewicz¹ ¹*University of Manitoba, Winnipeg, Manitoba, Canada;* ²*CBS Bio Platforms Inc., Calgary, Alberta, Canada*

10:45 AM

327

Glucose oxidase, probiotic and their combination to replace AGP in broiler under tropical condition

Xuerong Song*¹, Ying Zhou¹, Xiuyi Wu¹ ¹*Wuhan Sunhy Biology Co., Ltd, Wuhan, Hubei, China*

11:00 AM

328

Evaluation of a multienzymatic product on laying hen productive performance and tibia mineral content.

Sergio R. Fernandez*¹, Ignacio Davila², Ezequiel Rosales³ ¹*SRF Poultry Nutrition Solutions LLC, Cypress, Texas, United States;* ²*ENZIQUIM, Mexico City, Mexico City, Mexico;* ³*CIANA S.A. de C.V., Tepatitlan, Jalisco, Mexico*

11:15 AM

329

Evaluation of several feed enzymes options on laying hen productive performance and tibia and femur mineral content.

Sergio R. Fernandez*¹, Xianfeng Yao², Ezequiel Rosales³, Esteban Aguilera² ¹*SRF Poultry Nutrition Solutions LLC, Cypress, Texas, United States;* ²*SUNTAQ INTERNATIONAL LIMITED, Guangzhou, Huangpu Dist., China;* ³*CIANA S.A. de C.V., Tepatitlan, Jalisco, Mexico*

11:30 AM

330

Ahiflower seed and press cake, with or without multi-enzyme supplementation: influence on nutrient digestibility and gut development in broiler chickens

Ann Lawrence-Azua¹, Roseline Ogory*¹, Deborah

Adewole¹ *University of Saskatchewan, Saskatoon,
Saskatchewan, Canada*

Presidential Symposium: The State of the Art in Poultry Bone Biology

Chair: Doug Korver, Alpine Poultry Nutrition, Inc.

John W. H. Bassett Theatre

- 8:00 AM 1061S **Introduction and issues in bone metabolism in poultry**
Doug Korver*¹ *Alpine Poultry Nutrition, Inc.,
Edmonton, Alberta, Canada*
- 8:15 AM 1062S **Genetic factors affecting bone metabolism**
Martin Johnsson*¹ *Swedish University of Agricultural
Sciences, Uppsala, , Sweden*
- 8:50 AM 1063S **Physiological regulation of calcium and phosphorus homeostasis in poultry**
Laura E. Ellestad*¹ *University of Georgia, Athens,
Georgia, United States*
- 9:25 AM 1064S **Impact of reproductive status on bone physiology in laying hens**
Grégoy Y. Bédécarrats*¹, Alexander Chattoe¹, Ana K. Rentsch² *University of Guelph, Guelph, Ontario, Canada;* ²*University of Guelph, Guelph, Ontario, Canada*
- 10:00 AM **Break**
- 10:30 AM 1065S **Effects of using digestible calcium for layers and broilers**
Roselina Angel*², Kyle M. Venter¹, Peter Plumstead³ *Neuro Livestock Research, Lanseria, , South Africa;* ²*University of Maryland, College Park, Maryland, United States;* ³*Neuro Livestock Research, Lanseria, , South Africa*
- 11:05 AM 1066S **Endogenous and exogenous phytase effects on P utilization in poultry**
Markus Rodehutscord*¹ *University of Hohenheim,
Stuttgart, , Germany*

**Processing and Products
203 (B-D)**

- 8:15 AM 331 **Processing Innovation and Technology: Industry Impacts and Opportunities**
Casey M. Owens*¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*
- 8:45 AM 332 **The protective effect of different condiment recipes on marinated duck meat against the production of carcinogenic PAHs during natural gas grilling.**
Imran Mukhtar², Sana Saleem², Haseeb Anwar*¹² ¹*Charles Sturt University, NSW, Australia., Wagga Wagga, New South Wales, Australia;* ²*Government College University,, Faisalabad, Punjab, Pakistan*
- 9:00 AM 333 **Deep learning-based automated detection method for eggshell spotting traits**
Jiajie Yang¹, Zhuocheng Hou¹, Ning Yang¹, Guiyun Xu¹, Jiangxia Zheng*¹ ¹*China Agricultural University, Beijing, , China*
- 9:15 AM 334 **Pellet Durability Index (PDI) Prediction Using Machine Learning Models across Feed Mills**
Jihao You*¹, Meeka Capozzalo², Cheryl Krzyizek³, Mark Malpass⁴, Mike Martin⁵, Dan Tulpan¹, Jennifer L. Ellis¹ ¹*University of Guelph, Guelph, Ontario, Canada;* ²*Molesworth Farm Supply Ltd., Listowel, Ontario, Canada;* ³*Trouw Nutrition Canada, Guelph, Ontario, Canada;* ⁴*MasterFeeds, London, Ontario, Canada;* ⁵*Jones Feed Mills Ltd., Linwood, Ontario, Canada*
- 9:30 AM 335 **Genome-wide variations detected in spaghetti meat myopathy of chicken breast**
Byungwhi Kong*¹, Brian Bowker¹ ¹*USDA-ARS, Athens, Georgia, United States*
- 9:45 AM 336 **Enzyme activities linked to mitochondrial function altered in multiple organs in broilers with wooden breast**
Majid Shakeri¹², Debolina Chatterjee², Hamid Reza Rafieian-Naeini³, Woo K. Kim³, Byungwhi Kong², Brian Bowker*² ¹*Oak Ridge Institute for Science and Education, Oak Ridge, Tennessee, United States;* ²*USDA-ARS, Athens, Georgia, United*

States; ³University of Georgia, Athens, Georgia, United States

**Genetics and Molecular Biology
206 (A-D)**

9:00 AM

**Balancing Discovery and Application: The
Evolution of Industry–Academic Partnerships in
Poultry Science**

Nicholas Anthony*¹ ¹Cobb-Vantress, Siloam Springs,
Arkansas, United States

10:00 AM

Break

DRAFT

- 9:30 AM 337 **Profiling of alternative polyadenylation reveals post-transcriptional regulatory divergence between chicken ESCs and PGCs**
 Longbin Yang², Zihua Jiang⁶, Paula Chen⁴, Tom Porter³, Yanghua He⁵, Jiuzhou Song*¹ ¹*University of Maryland, Ellicott City, Maryland, United States*; ²*University of Maryland, College Park, Maryland, United States*; ³*University of Maryland, College Park, Maryland, United States*; ⁴*USDA-ARS, Columbia, Missouri, United States*; ⁵*University of Hawaii, Honolulu, Hawaii, United States*; ⁶*Washington State University, Pullman, Washington, United States*
- 9:45 AM 338 **Evaluating Alternative Reference Genes to GAPDH for qPCR Normalisation in Chickens (*Gallus gallus domesticus*)**
 Jose A. Quinteros*¹, Isaac Esh³, Hannah Pooley¹, Reza Barekatin² ¹*The University of Sydney, Brownlow Hill, New South Wales, Australia*; ²*Poultry Research Foundation, Brownlow Hill, New South Wales, Australia*; ³*School of Life and Environmental Sciences, Brownlow Hill, New South Wales, Australia*
- 10:30 AM 339 **Dissecting Dynamic Transcriptome in Chicken Ovaries during Primordial Follicle Assembly via Single-Cell RNA Sequencing**
 Minli Yu*¹ ¹*Nanjing Agricultural University, Nanjing, , China*
- 10:45 AM 340 **Developmental isoform switching in broiler breast muscle across embryonic and post-hatch stages**
 Nabeel Alnahhas*¹ ¹*Université Laval, Quebec, Quebec, Canada*
- 11:00 AM 341 **Genetic Selection Alters the Satellite Cell Secretome in Turkeys**
 Joseph Yimiletey¹, Zhenyang Li¹, Chunmei Wan¹, Sandra G. Velleman¹, Hui Yu*¹ ¹*The Ohio State University, Columbus, Ohio, United States*
- 11:15 AM 342 **Genomic analysis of avian *Salmonella* spp. using Oxford Nanopore Technologies: serotyping, genotyping, and antimicrobial resistance profiling**
 Naidelyn N. Muentes*¹, María I. Baquero¹, María Belén Cevallos¹, Freddy Proaño¹, Carlos Gómez¹, Daniel Tirado¹, Juan Daniel Vaca¹, Gerardo Vallejo¹, Francis

Acosta¹, Marco Cisneros¹ ¹*Central University of Ecuador, Quito, Pichincha, Ecuador*

**Metabolism and Nutrition: Amino Acids
202 (A-D)**

- 9:00 AM 343 **Determination of Aviagen amino acid specifications**
Leonel Mejia*¹, Justina Caldas¹ ¹*Aviagen, Huntsville, Alabama, United States*
- 9:30 AM 344 **Crystalline vs Encapsulated Glycine in Low-Protein Diets: Benefits on Performance, Albumen Quality, Blood Parameters, and Nitrogen Utilization in Laying Hens**
WAQAR IQBAL*^{1GS}, Jing Wang¹, Wanyan Liu¹, Abdelhamid Ahmed¹², Haijun Zhang¹ ¹*Feed Research Institute, Haidian, Beijing, China;* ²*Poultry Production Department, Hedayek Shoubra, Cairo, Egypt*
- 9:45 AM 345 **Effect of added L-Tryptophan on the performance and mortality of turkey toms**
Allison Pullin*¹, Alexandra Ulans¹, Dannica Wall¹, Brendan O. Heinichen¹, Peter R. Ferket¹, Jason T. Lee², Roshan Adhikari² ¹*North Carolina State University, Raleigh, North Carolina, United States;* ²*CJ America Inc., Downers Grove, Illinois, United States*
- 10:00 AM **Break**

- 10:30 AM 346 **Effects of Guanidinoacetic Acid Supplementation on Growth Performance and biomarkers of Heat-Stressed Broilers: A Meta-Analysis**
Cecile Gayrard*¹, Maria Mendoza² ¹*Evonik Operations GmbH, Hanau-Wolfgang, , Germany;* ²*Evonik Corporation, Kennesaw, Georgia, United States*
- 10:45 AM 347 **Assessing Essential Amino Acid Requirements in Broiler Breeders at Peak Production Using a Refined Indicator Oxidation Approach**
Diego Martinez*¹, Oscar Aguilar¹, Lindsey Conaway², Erik Pollock², Carol Ponce de Leon³, Craig Coon¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*University of Arkansas, Fayetteville, Arkansas, United States;* ³*Independent consultant, Fayetteville, Arkansas, United States*
- 11:00 AM 348 **Optimizing broiler feed formulations across different growth phases by adjusting guanidinoacetic acid level and its energy matrix value**
Victor D. Naranjo³, Lukas Bauer¹, Alex Maiorka², Juliano Dorigam¹, Patricia Tomazini*², Marley Conceição dos Santos² ¹*Evonik Operations GmbH, Hanau, Hessen, Germany;* ²*Federal University of Paraná, Curitiba, Paraná, Brazil;* ³*Evonik Guatemala S.A., Guatemala, Guatemala, Guatemala*
- 11:15 AM 349 **Early biomarker relationship to breast muscle myopathies in broilers fed arginine silicate inositol and guanidinoacetic acid**
Michael Carroll*¹, Elizabeth Bobeck¹ ¹*Iowa State University, Ames, Iowa, United States*

- 11:30 AM 350 **Nutrient-specific regulation of IGF-1–mTOR axis and growth under dietary restriction in Japanese quail (*Coturnix japonica*)**
Gebrehaweria K. Reda*¹²³, Ádám Z. Lendvai², Levente Czeglédi¹ ¹*University of Debrecen, Debrecen, Debrecen, Hungary;* ²*University of Debrecen, Debrecen, Debrecen, Hungary;* ³*Adigrat University, Adigrat, Tigray, Ethiopia*

Posters

106 & 107 Constitution Hall

- 10:00 AM 351P **Determining the conversion efficiency of phenylalanine to tyrosine in a modern broiler strain**
Kenneth B. Nelson*^{1GS}, Michael Kidd¹, Benjamin Parsons¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*
- 10:00 AM 352P **Release of phosphorus and inositol from soybean meal by broiler chickens fed diets with graded levels of microbial phytase**
Andrea Paola Mallea Ortiz*^{1GS}, Pam L. Utterback¹, Su A Lee¹, Hans H. Stein¹, Carl Parsons² ¹*University of Illinois, Urbana, Illinois, United States;* ²*University of Illinois, Champaign, Illinois, United States*
- 10:00 AM 353P **A blend mainly based on oregano essential oil and spices improved body weight distribution and growth performance in broilers**
Juliette Foglio*^{12UG}, Elisa Arnaud¹, Saksit Srinongkote³, Jean-François Gabarrou¹ ¹*Laboratoires Phodé, TERSSAC, , France;* ²*ENSAT, Toulouse, , France;* ³*Animal Research and Consultant Co, Mahasarakham, , Thailand*

- 10:00 AM 354P **A SINGLE AND COMBINED SUPPLEMENTATION OF 25-HYDROXYCHOLECALCIFEROL AND PROBIOTICS IN FEED ON PERFORMANCE, INTESTINAL AND BONE MORPHOLOGY IN BROILER CHICKENS**
Fatima Y. Araujo Caldas*^{1UG} ¹*Universidad Nacional Agraria La Molina, Lima, Select a State or Province, Peru*
- 10:00 AM 355P **The impact of a *Quillaja saponaria* product on growth performance and ileal amino acid digestibility of broiler chickens**
Kasey Young*^{1GS}, Rosana Hirai¹, Rahul Reddy¹, Addison Elstner¹, Abigail Flores¹, Camryn Wilder¹, Austin Silva¹, Kyle Brown², Staci Cantley², Audrey McElroy¹ ¹*Texas A&M University, College Station, Texas, United States*; ²*Huvepharma, Peachtree City, Georgia, United States*
- 10:00 AM 356P **Evaluation of *Lippia organoides* essential oil and fructooligosaccharides on amino acid digestibility in 21 d old broilers**
Matias Moreno Camacho*^{1GS}, Jaime A. Ángel Isaza², Mariana Parra Cerezo², Samuel Rochell¹, Gustavo Quintana Ospina¹ ¹*Auburn University, Auburn, Alabama, United States*; ²*Promitec, Bucaramanga, Colombia*
- 10:00 AM 357P **Effects of dietary deoxynivalenol and zearalenone on pullet performance from 4 to 10 weeks of age**
Stephanie A. Ansah*^{1GS}, Patrick Tamatey¹, Xavia A. Harris¹, Dervan D. Bryan¹ ¹*Pennsylvania State University, State College, Pennsylvania, United States*

- 10:00 AM 358P **Description of a dynamic mechanistic protein digestion model for poultry**
Grace A. Hong*^{1GS}, John Cant¹, Elijah G. Kiarie², Sonja de Vries³, Xuechun Bai⁴, Jennifer L. Ellis⁵ ¹*University of Guelph, Markham, Ontario, Canada;* ²*University of Guelph, Guelph, Ontario, Canada;* ³*Wageningen University and Research, Wageningen, , Netherlands;* ⁴*Hendrix Genetics, Kitchener, Ontario, Canada;* ⁵*University of Guelph, Guelph, Ontario, Canada*
- 10:00 AM 359P **Determination of relative bioavailability of calcium in four limestone sources varying in apparent ileal digestibility of calcium in broiler chickens**
Juan Carlos Valencia Beltran*^{2GS}, Pam L. Utterback¹, Jason Lee Emmert¹, Benjamin Parsons², Carl Parsons¹ ¹*University of Illinois, Urbana-Champaign, Illinois, United States;* ²*University of Arkansas, Fayetteville, Arkansas, United States*
- 10:00 AM 360P **Bone parameters of laying hens in the early lay phase when fed with lower copper through proteinate supplementation**
Gabriela C. Neves de Souza*^{1UG}, Vinicio d. Cardoso², Leticia A. Silva³, Luiz F. Costa e Silva⁵, Adriana Nascimento⁵, Renan G. da Luz³, Lidiane I. Datsh², Tatiana C. Santos⁴ ¹*State University of Maringá, Maringá, PR, Brazil;* ²*State University of Maringá, Maringá, Paraná, Brazil;* ³*Universidade Estadual de Maringá, Maringá, Paraná, Brazil;* ⁴*State University of Maringá, Maringá, PR, Brazil;* ⁵*Alltech, Maringá, Paraná, Brazil*
- 10:00 AM 361P **Role of 25-hydroxyvitamin D3 on broiler growth performance and tibia bone quality**
Jocelyn N. Garcia*^{1UG}, Nicolas Mejia-Abaunza¹, Muhammad Ali¹, Federico Etcheverry¹, Allison Jun T. Kawaoku¹, Matt Einarson², Seth Hennagir², Chongxiao Chen¹ ¹*University of Georgia, Athens Georgia, Georgia, United States;* ²*SAM Nutrition, Bloomington, Minnesota, United States*
- 10:00 AM 362P **Dietary available phosphorus reduction in commercial laying hens**

Caio B. Barbalho*^{1GS}, Vitor Pais¹, Mario Lopes², Byron Xavier Munoz¹, Sara Benavides¹, Melany Lovón², Cristiane S. Araújo², Lucio F. Araujo², Maria A. Joaquin¹ ¹*Faculty of Animal Science and Food Engineering, Pirassununga, , Brazil;* ²*University of Sao Paulo, Pirassununga, SP, Brazil*

10:00 AM 363P **Early exposure to adult cecal microbiota alters gut microbiota maturation throughout the broiler growth cycle**

Nir Ben Porat*^{1GS}, Lian Nashif¹, Erez Mills¹ ¹*Hebrew University of Jerusalem, Rehovot, , Israel*

10:00 AM 364P **Prevalence of Microbial Contamination in Chicken Carcasses and Eggs from Backyard Poultry Farms in North Carolina**

Moeen Khan*^{1GS}, Claire Suszynski¹, Yabaiz Tahir², Justin H. Lowery³, Christina Sigmon¹, Samuel Mwangi⁴, Lin Walker⁵ ¹*North Carolina State University, Raleigh, North Carolina, United States;* ²*North Carolina State University, Raleigh, North Carolina, United States;* ³*North Carolina State University, Raleigh, North Carolina, United States;* ⁴*North Carolina State University, Raleigh, North Carolina, United States;* ⁵*NC State University, Raleigh, North Carolina, United States*

10:00 AM 365P **Impact of electron beam treatment on pathogen reduction and resuscitation dynamics in refrigerated chicken breast fillets**

Tanmaie Kalapala*^{1GS}, Komala Arsi², Geetha Kumar-Philips³, Casey M. Owens⁴, Tomi Obe⁵⁷, Palmy Jesudhasan⁶ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*Poultry Production and Product Safety Research, Fayetteville, Arkansas, United States;* ³*University of Arkansas, Fayetteville, Arkansas, United States;* ⁴*University of Arkansas, Fayetteville, Arkansas, United States;* ⁵*University of Arkansas, Fayetteville, Arkansas, United States;* ⁶*USDA-ARS, Fayetteville, Arkansas, United States;* ⁷*Center for Food Safety. University of Arkansas Division of Agriculture, Fayetteville, Arkansas, United States*

- 10:00 AM 366P **Comparing *Salmonella* Typhimurium strain virulence using chicken cecal enteroids and drop plating method**
Lauren M. Laverty*^{1GS}, Kristen Martin², Juan D. Latorre³, Danielle Graham⁴, Billy M. Hargis¹ ¹*University of Arkansas, Springdale, Arkansas, United States*; ²*University of Arkansas, Fayetteville, Arkansas, United States*; ³*University of Arkansas, Fayetteville, Arkansas, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*
- 10:00 AM 367P **Impact of stocking density on litter conditions and microbial contamination in cage-free laying hens**
Claire Suszynski*^{1GS}, Alexandra Ulans¹, Justin H. Lowery², Moeen Khan³, Christina Sigmon¹, Allison Pullin⁴, Lin Walker¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*; ²*North Carolina State University, Raleigh, North Carolina, United States*; ³*North Carolina State University, Raleigh, North Carolina, United States*; ⁴*North Carolina State University, Raleigh, North Carolina, United States*
- 10:00 AM 368P **Comparing a laboratory-scale pellet mill and a laboratory-scale water bath on the thermal inactivation of *Enterococcus Faecium*, a *Salmonella* surrogate, in broiler feed**
Tara Grant*^{1GS}, Arabella Jarvis¹, Emily Magee², Timothy Boltz³ ¹*Mississippi State University, Mississippi State, Mississippi, United States*; ²*Mississippi State University, Starkville, Mississippi, United States*; ³*Mississippi State University, Starkville, Mississippi, United States*

10:00 AM 369P **Water-Stabilized Pimenta and Eugenol Nanoemulsions and a *Salmonella* Typhimurium Vaccine Elicit Comparable Cecal Colonization and Liver Dissemination Resistance on *Salmonella* Infantis and *Salmonella* Schwarzengrund in Growing Turkeys**

Amritha Ajayan*^{1GS}, DHANANJAI MURINGATTU PRABHAKARAN², Peter Bina³, Hamza Javaid⁴, Luna Akhtar¹, Abhinav Upadhyay⁵, Tim Johnson⁶, Carrie Cremers⁸, Ben Wileman⁹, Anup Kollanoor Johnny⁷ ¹University of Minnesota, Saint Paul, Minnesota, United States; ²UNIVERSITY OF MINNESOTA, Saint Paul, Minnesota, United States; ³University of Minnesota, Falcon Heights, Minnesota, United States; ⁴University of Minnesota, Saint Paul, Minnesota, United States; ⁵University of Connecticut, Fayetteville, Arkansas, United States; ⁶University of Minnesota, Kimball, Minnesota, United States; ⁷University of Minnesota, Woodbury, Minnesota, United States; ⁸Jennie-O Turkey, Willmar, Minnesota, United States; ⁹Select Genetics, Osceola, Iowa, United States

10:00 AM 370P ***Propionibacterium freudenreichii* probiotic and *Salmonella* Typhimurium vaccine alleviate cecal microbiome dysbiosis in 12-week-old commercial turkeys exposed to *Salmonella enterica* Reading challenge**

DHANANJAI MURINGATTU PRABHAKARAN*^{1GS}, Claire Peichel¹, Amritha Ajayan², Anup Kollanoor Johnny³ ¹University of Minnesota, Saint Paul, Minnesota, United States; ²University of Minnesota, Saint Paul, Minnesota, United States; ³University of Minnesota, Woodbury, Minnesota, United States

- 10:00 AM 371P **Effects of Corn Type and Coccidiosis Challenge on Broiler Meat Quality Traits: Composition, Texture, and Lipid Oxidation**
Jean C. Concepcion*^{1GS}, Christina Sigmon¹, Camila Hammel Sobreira¹, Jennifer Rainbow¹, Samuel Mwangi¹, Yan L. Campbell¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*
- 10:00 AM 372P **Parameter Optimization of Pulsed UV Light in Liquid Egg White and Yolk and Initial Microbial Assessment**
Camila Hammel Sobreira*^{1GS}, Mary Mendoza¹, Jean C. Concepcion¹, Aaron Kiess¹, Yan L. Campbell¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*
- 10:00 AM 373P **Effects of dietary unblanched high-oleic peanuts on meat quality of spent laying hens**
Afsana Rahaman Munmun*^{12GS}, Jean C. Concepcion³, Christina Sigmon¹, Ondulla T. Toomer⁴, Thien C. Vu⁴, Yan L. Campbell¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*; ²*North Carolina State University, Raleigh, North Carolina, United States*; ³*North Carolina State University, Raleigh, North Carolina, United States*; ⁴*Agricultural Research Service, US Dept. of Agriculture, Raleigh, North Carolina, United States*
- 3:15 PM 374P **Computer Vision–Driven Feather Scoring for Automated Welfare Monitoring in Broiler Breeders**
Stephen Afrifa*^{1GS}, Edgar O. Oviedo², Ramesh B. Bist¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*; ²*North Carolina State University, Raleigh, North Carolina, United States*

- 3:15 PM 375P **Comparison of white LED lighting to poultry specific lighting with moon phase on fear and stress**
Colby Allensworth*^{1GS}, Isabella R. Villarreal², Parker Watson², Emily Jiral³, Gregory Archer⁴ ¹Texas A&M University, College Station, Texas, United States; ²Texas A&M University, College Station, Texas, United States; ³Texas A&M University, College Station, Texas, United States; ⁴Texas A&M Agrilife Extension, College Station, Texas, United States
- 3:15 PM 376P **Effects of environmental enrichment on behavior and space use in cage-housed laying hens**
Emily F. McManaway*^{1UG}, Natalia Cummings¹, Thomas H. Powell¹ ¹Murray State University, Reynolds Station, Kentucky, United States
- 3:15 PM 377P **Monitoring Pecking of enrichment block pecking in Cage-free laying hens with deep learning**
Samin Dahal*^{1GS}, Bidur Paneru², Anjan Dhungana³, Lilong Chai³ ¹University of Georgia, Athens, Georgia, United States; ²University of Georgia, Athens, Georgia, United States; ³University of Georgia, Athens, Georgia, United States
- 3:15 PM 378P **Genetic diversity monitoring and baseline establishment for investigating suspected sex-linked lethal alleles in Korean native chicken purebred lines**
Dong-Hun Noh*^{1GS}, Eun Jung Cho², Ji-Won Kim³, Seong-Hwan Park¹, Chang-A Hong¹, Ye-Won Choi¹, Jae-Kwang Kim¹, Seungchang Kim⁴, Sang-Hyon Oh¹² ¹Gyeongsang National University, Jinju, Gyeongsangnam-do, Korea (the Republic of); ²Gyeongsang National University, Jinju, Gyeongsangnam-do, Korea (the Republic of); ³National Institute of Animal Science, Chonan, Chungcheongnam-do, Korea (the Republic of); ⁴National Institute of Animal Science, Hamyang, Gyeongsangnam-do, Korea (the Republic of)
- 3:15 PM 379P **Transduction efficiency of adeno-associated virus (AAV) serotypes in chicken DF-1 fibroblast and primordial germ cells**
Sabrina Islam Mony*^{1GS}, Paula Chen² ¹University of

Missouri-Columbia, Columbia, Missouri, United States;²USDA-ARS, Columbia, Missouri, United States

3:15 PM

380P

Comparative Genomics of ECOR and Avian Pathogenic *Escherichia coli* Reveals Plasmid-Associated Virulence and Antimicrobial Resistance Determinants

Sunita Shrestha*^{1GS}, Linan Jia¹, Manhong Wang¹, Chuan-Yu Hsu³, Mark A. Arick II³, Adam Thrash³, Xue Zhang⁴, Ken Macklin¹, Jeffrey Evans², Kelsy Robinson², Li Zhang¹ ¹Mississippi State University, Starkville, Mississippi, United States; ²USDA Agricultural Research Service, Starkville, Mississippi, United States; ³Institute for Genomics, Biocomputing and Biotechnology, Starkville, Mississippi, United States; ⁴Mississippi State University, Starkville, Mississippi, United States

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381P

Effect of Sodium beta hydroxy butyrate on bacterial chondronecrosis and osteomyelitis induced by *Staphylococcus aureus* in broiler chickens

Sai Kumar Reddy Ragyari*^{1GS}, Venkata S. Choppa¹, Seshidhar R. Gudidoddi¹, Venkata Prathap Reddy Keshava Reddy¹, Doyun Goo², Hemanth Reddy Katha¹, Ishwari Gyawali³, Woo K. Kim⁴ ¹UNIVERSITY OF GEORGIA, Athens, Georgia, United States; ²University of Georgia, Athens, Georgia, United States; ³University of Georgia, Athens, Georgia, United States; ⁴University of Georgia, Athens, Georgia, United States

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382P **Further assessment of 1,25(OH)₂D₃-glycosides supply duration on reducing bacterial chondronecrosis with osteomyelitis lameness in broilers**

Ashen E. Arachchi*^{1GS}, Anh Do¹, Ruvindu Perera¹, Woro W. Kalanjati², Andi Asnayanti², Mian R. Ahmed³, Shashtej Mummadi³⁴, Zoe Zeman⁵, Kathrin Buehler⁶, Jan Dirk V. Klis⁶, Michael Kidd², Adnan Alrubaye¹² ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*University of Arkansas, Fayetteville, Arkansas, United States*; ³*University of Arkansas, Fayetteville, Arkansas, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*; ⁵*University of Arkansas, Fayetteville, Arkansas, United States*; ⁶*Health GmbH, Augst BL, , Swaziland*

3:15 PM

383P **Evaluating the impact of carotenoid-rich orange corn diet on broiler performance under *Eimeria* Challenge**

Jennifer Rainbow*^{1GS}, Philip Yeboah², Demilade I. Ibiwoye⁷, Yabaiz Tahir³, Shelly Nolin⁴, Rebecca Wysocky⁵, Lisa R. Bielke⁶, Samuel Mwangi⁸ ¹*NCSU, Raleigh, North Carolina, United States*; ²*North Carolina State University, Raleigh, North Carolina, United States*; ³*North Carolina State University, Raleigh, North Carolina, United States*; ⁴*NC State University, Raleigh, North Carolina, United States*; ⁵*NC State University, Raleigh, North Carolina, United States*; ⁶*North Carolina State University, Raleigh, North Carolina, United States*; ⁷*North Carolina State University, Raleigh, North Carolina, United States*; ⁸*North Carolina State University, Raleigh, North Carolina, United States*

- 3:15 PM 384P **Detection of Early Symptoms of Respiratory Diseases in SPF Leghorn Laying Hen Using Deep Learning Techniques**
Bidur Paneru*^{1GS}, Ana Zamora², Anjan Dhungana¹, Samin Dahal¹, Roshan Poudel², Nikolas Faust², Maricarmen Garcia², Lilong Chai¹ ¹*University of Georgia, Athens, Georgia, United States;* ²*University of Georgia, Athens, Georgia, United States*
- 3:15 PM 385P **A High n-6:n-3 PUFA Ratio Primes Apical-Out Chicken Enteroids for Enhanced Susceptibility to RSL3-Induced Ferroptosis**
Chun-da Chen*^{1GS}, Yuan-Yu Lin¹ ¹*National Taiwan University, Taipei, Select..., Taiwan*
- 3:15 PM 386P **A chicken embryo challenge model reveals strain-dependent variation in the pathogenic potential of *Enterococcus faecalis***
Manhong Wang*^{1GS}, Huanling Xing¹, Chuan-Yu Hsu², Xue Zhang³, Pratima Adhikari¹, Peixin Fan³, Katie Elliot⁴, Ken Macklin¹, Li Zhang¹ ¹*Mississippi State University, Mississippi State, Mississippi, United States;* ²*Mississippi State University, Mississippi State, Mississippi, United States;* ³*Mississippi State University, Mississippi State, Mississippi, United States;* ⁴*USDA, Mississippi State, Mississippi, United States*
- 3:15 PM 387P **Kinetics of vaccine response in broilers in the presence of maternal antibodies**
Anne S. perera*^{1GS}, Muhammed Farooq¹, Zainab Mushtaq¹, Ashish Gupta¹, Susan Cork¹, Teryn Girard², Chantel Caughlin², Victor Palomino Tapia³, Mohamed F. Abdul-Careem¹ ¹*University of Calgary, Calgary, Alberta, Canada;* ²*Prairie Livestock Veterinarians, Red Deer, Alberta, Canada;* ³*Maple Leaf Foods, Wetaskiwin, Alberta, Canada*

- 3:15 PM 388P **Virulence-associated genes and inoculum dose influence Avian Pathogenic Escherichia coli colonization and pathogenesis in late-lay hens via intratracheal challenge**
Carlos A. Guardado*^{1GS}, Daniel Wilson⁴, Christopher Magee², Jeffrey Evans², Kelsy Robinson², Li Zhang³, Linan Jia³, Ken Macklin³, Pratima Adhikari³ ¹Mississippi State, Starkville, Mississippi, United States; ²USDA-ARS, Starkville, Mississippi, United States; ³Mississippi State University, Mississippi State, Mississippi, United States; ⁴Wilson Vet Co, Franklin, Indiana, United States
- 3:15 PM 389P **Non-invasive monitoring of vaccine-induced immunity in Layers using egg yolk antibodies**
Zainab Mushtaq*^{1GS}, Muhammad Farooq¹, Anne S. perera¹, Susan Cork¹, Ashish Gupta², Teryn Girard³, Mohamed F. Abdul-Careem¹ ¹University of Calgary, CALGARY, Alberta, Canada; ²Diagnostic Services Unit University of Calgary, CALGARY, Alberta, Canada; ³Prairie Livestock Veterinarians, Red Deer, Alberta, Canada
- 3:15 PM 390P **Mycotoxin-induced immune suppression and body composition changes in broiler chickens**
Laharika Kappari*^{1GS}, Venkata Prathap Reddy Keshavareddy¹, Pavan Ramesha⁶, Todd J. Applegate², Ramesh Selvaraj³, Woo K. Kim⁴, Revathi Shanmugasundaram⁵ ¹University of Georgia, Athens, Georgia, United States; ²University of Georgi, Athens, Georgia, United States; ³University of Georgia, Athens, Georgia, United States; ⁴University of Georgia, Athens, Georgia, United States; ⁵USDA, ARS, Athens, Georgia, United States; ⁶University of Texas at Dallas, Dallas, Texas, United States

- 3:15 PM 391P **Developing a Sensor-based Automated Weight Measurement System for Cage-free Pullets and Hens**
Anjan Dhungana*^{1GS}, Bidur Paneru², Samin Dahal¹, Zhihang Song³ ¹*University of Georgia, Athens, Georgia, United States;* ²*University of Georgia, Athens, Georgia, United States;* ³*University of Georgia, Athens, Georgia, United States*
- 3:15 PM 392P **Influence of divergent selection for water efficiency on hatchability, embryonic mortality, and hatch window characteristics in poultry**
Rovin Sanjur Caballero*^{1GS}, Naomi Boysen¹, Kelvin Sanchez Rivera¹, Hailey Andrews¹, Maricela Maqueda¹, Sara Orłowski-Workman¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*
- 3:15 PM 393P **The effect of heat stress on thermal regulation and growth in broiler breeder hens selected for water efficiency**
Allison D. Weaver*^{1GS}, Karen M. Rivera¹, Rosie Whittle¹, Maricela Maqueda¹, Sara Orłowski-Workman¹, Gregory S. Fraley², Shawna Weimer¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*Purdue University, West Lafayette, Indiana, United States*
- 3:15 PM 394P **Brooding Temperature and Hygiene Practices on Growth Performance and Respiratory Health of Poultry in Commercial Farms**
Sadman Sakib Zihan*^{23GS}, Md. S. Sarker¹, MF Sharmin⁴, M Mubarak³ ¹*Bangladesh Livestock Research Institute, Dhaka, Dhaka, Bangladesh;* ²*Narish Poultry & Hatchery Ltd, Shariatpur, Shariatpur, , Bangladesh;* ³*Department of Public Health & Bioinformatics, Jahangirnagar University, Savar, Dhaka, Savar, , Bangladesh;* ⁴*Bangladesh Jute Research institute, Manik Mia Avenue, Dhaka-1207, Dhaka, , Bangladesh*
- 3:15 PM 395P **Assessing bone quality changes in turkey breeder hens over a laying cycle**
Tina Soufian*^{1UG}, Clara J. Ziezold¹, Ana K. Rentsch¹², Grégoy Y. Bédécarrats¹ ¹*University of Guelph, Guelph,*

Ontario, Canada; ²University of Guelph, Guelph, Ontario, Canada

- 3:15 PM 396P **Evaluation of semen characteristics and testis and epididymis health of late cycle broiler breeder roosters fed hen or rooster specific diets**
Emmillie Boot*^{1GS}, Caleb M. Marshall², Beverly L. McLendon³, Tatyany Mani⁴, Rebecca Wysocky⁵, H. John Barnes⁶, Ramon Malheiros⁴ ¹North Carolina State University, Raleigh, North Carolina, United States; ²North Carolina State University, Raleigh, North Carolina, United States; ³North Carolina State University, Raleigh, North Carolina, United States; ⁴North Carolina State University, Raleigh, North Carolina, United States; ⁵NC State University, Raleigh, North Carolina, United States; ⁶North Carolina State University, Raleigh, North Carolina, United States
- 10:00 AM 397P **Assessment of climatic changes on broiler production in Ido local government of Oyo state**
Johnson A. Olupona*¹ ¹Federal College of Animal Health and Production Technology, Ibadan, Ibadan , Oyo, Nigeria
- 10:00 AM 398P **Problems and prospects of precision feeding among broiler farmers in Ibadan metropolis of Oyo state, Nigeria**
Johnson A. Olupona¹, Opeyemi J. Bolaji*¹ ¹Federal College of Animal Health and Production Technology, Ibadan, Ibadan , Oyo, Nigeria

- 10:00 AM 399P **Empowering farmers as advocates: The Manitoba Egg Farmers Ambassador Training program**
Wei Jia¹, Corry Rybuck¹, Claire McCaffrey¹, Gemmar Maramot², Anna Rogiewicz*³ ¹*Manitoba Egg Farmers, Winnipeg, Manitoba, Canada;* ²*Manitoba Egg Farmers Learning and Research Centre, Glenlea Research Centre, University of Manitoba, Winnipeg, Manitoba, Canada;* ³*University of Manitoba, Winnipeg, Manitoba, Canada*
- 10:00 AM 400P **First report of whole genome sequencing of *Salmonella* Minnesota isolated from turkey**
Lenita d. Stefani*¹, Pedro F. Teles¹, Juan P. Teixeira², Miklos M. Bajay², Marcel M. Boiago¹, Karen A. Borges³, Thales Q. Furian³, Gustavo d. Fünkler³, Denise N. Araujo¹ ¹*Santa Catarina State University, Florianopolis, Santa Catarina, Brazil;* ²*Bioinformatics, Santa Catarina State University, Lages, Santa Catarina, Brazil;* ³*Rio Grande do Sul Federal University, Porto Alegre, RS, Brazil*
- 10:00 AM 401P **Climate Adaptation in Poultry: Spatiotemporal Behavioral and Kinematic Responses of Chicken Genotypes to Identical Temperature-Humidity Exposures**
Samuel E. Aggrey*¹, Ebenezer Agyeman-Duah², Ricky Poku², Christopher Adenyo⁴, Richard Osei-Amponsah², William Holden¹, Guoming Li¹, Romdhane Rekaya³ ¹*University of Georgia, Athens, Georgia, United States;* ²*University of Ghana, Legon, Gt. Accra, Ghana;* ³*University of Georgia, Athens, Georgia, United States;* ⁴*University of Ghana, Legon, Gt. Accra, Ghana*
- 10:00 AM 402P **Evaluating germline specificity of *NANOS* family genes in chicken embryogenesis**
Bethany Russell*¹, Paula Chen² ¹*University of Missouri, Freeburg, Missouri, United States;* ²*USDA-ARS, Columbia, Missouri, United States*
- 10:00 AM 403P **Genomic comparison of mucoid and non-mucoid *Clostridium perfringens* isolates from necrotic enteritis-affected broilers**
Charles Li*², Carolyn Parker¹, Xianghe Yan³, SEON WOO Kim³, JO ANN VAN KESSEL³, BRADD HALEY³,

JONATHAN SHAO¹, Zhifeng Sun², Mark C. Jenkins¹ ¹*Beltsville Agricultural Research Center, ARS-USDA, Beltsville, Maryland, United States;* ²*Beltsville Agricultural Research Center, ARS-USDA, Beltsville, Maryland, United States;* ³*Beltsville Agricultural Research Center, Beltsville, Maryland, United States*

- 10:00 AM 404P **A Comprehensive Spacio-Temporal Turkey Expression Atlas (TEA)**
Kuan Ling Liu*⁴, Kent Reed¹, Rami A. Dalloul², Kristen Diehl³ ¹*University of Minnesota, St. Paul, Minnesota, United States;* ²*University of Georgia, Athens, Georgia, United States;* ³*USDA-ARS, Beltsville, Maryland, United States;* ⁴*USDA, Beltsville, Maryland, United States*
- 10:00 AM 405P **Predicting egg quality using computer vision**
Kaylee Rowland*¹, Usamah Kabuye², Tricia Veldhuizen², Jaedyn Condon², Ye Bi², Anna Wolc¹² ¹*Hy-Line International, Linden, Iowa, United States;* ²*Iowa State University, Ames, Iowa, United States*
- 10:00 AM 406P **Detection of pathogenicity-associated genes of *Enterococcus cecorum* in mixed fecal samples from turkeys and chickens**
Thaciane L. Amaral*^{1GS}, Lisa R. Bielke¹ ¹*North Carolina State University, Raleigh, North Carolina, United States*

- 10:00 AM 407P **Transcriptomic evidence of oviduct-specific immune modulation associated with *Salmonella* Enteritidis colonization in laying hens**
Wen-Yuan Yang*^{1,2} ¹*National Taiwan University, Taipei, Taiwan;* ²*Zoonoses Research Center and School of Veterinary Medicine, National Taiwan University, Taipei, Taiwan*
- 10:00 AM 408P **Rotating coccidiosis control programs: incorporating a live coccidiosis vaccine in conventional broiler production in Canada**
Ryan P. Snyder*¹, Aline Pereira², Ronan Santos², Roberto Soares¹ ¹*Ceva Animal Health Canada Inc., Cambridge, Ontario, Canada;* ²*Grand Valley Fortifiers, Cambridge, Ontario, Oman*
- 10:00 AM 409P ***In vitro* effects of protease inhibitors on *Histomonas meleagridis* and associated bacteria in xenic culture**
Taylor Schubauer*^{1GS}, Evy Hafer¹, Aaron Forga¹, Kasey A. Matusik¹, Karen Echevarria¹, Melissa Martinez¹, Juan D. Latorre¹, Zhicheng Dou², Danielle Graham¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*Clemson University, Clemson, South Carolina, United States*
- 10:00 AM 410P **In-feed Supplementation with Metal Amino Acid Complexed Zinc May Improve Early Performance and Bone Deposition in aMPV Vaccinated Turkey Poults**
Aaron Forga*¹, Diego Cortes¹, Seth Hufford¹, Kasey A. Matusik¹, Taylor Schubauer¹, Henrietta Owusu¹, Karen Echevarria¹, Melissa Martinez¹, Cole Crumpacker², Kabel Robbins², Benjamin Parsons¹, Danielle Graham¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*Butterball LLC, Garner, North Carolina, United States*

- 10:00 AM 411P **Evaluation of a microbial consortium for control of *Enterococcus cecorum* in broiler chicken**
Usha Sivakumar Sharma*¹, Camila Schultz Marcolla¹, Rajibur Rahman¹, Stephanie Tollenaar¹, Tomohiro Hamaoka², Benjamin P. Willing¹ ¹*Department of Agricultural, Food and Nutritional Sciences, Faculty of Agriculture, Life and Environmental Sciences, Edmonton, Alberta, Canada;* ²*Asahi Biosciences, Inc., Peachtree City, Georgia, United States*
- 10:00 AM 412P **The effects of cyclic heat stress on blood cell profiles and antibody concentrations in broilers selected for low water conversion ratio compared to the modern random-bred broiler**
Luke Janski¹, Chrysta N. Beck², Jossie M. Santamaria¹, Sara Orłowski-Workman¹, Walter G. Bottje¹, Gisela F. Erf*¹ ¹*University of Arkansas System Division of Agriculture, Fayetteville, Arkansas, United States;* ²*Mississippi State University, Mississippi State, Mississippi, United States*
- 10:00 AM 413P **Impact of increasing dietary digestible tryptophan to lysine ratio in broiler breeder pullets on blood serotonin response**
Roshan Adhikari*¹, Jason T. Lee², Anel Atencio⁵, Randy Mitchell⁶, Benjamin Parsons³, Samuel Rochell⁴ ¹*CJ Bio America Inc, Downers Grove, Illinois, United States;* ²*CJ Bio America, Goliad, Texas, United States;* ³*University of Arkansas, Fayetteville, Arkansas, United States;* ⁴*Auburn University, Auburn, Alabama, United States;* ⁵*Perdue Farms, Salisbury, Maryland, United States;* ⁶*Perdue Farms, Salisbury, Maryland, United States*
- 10:00 AM 414P **Effect of a reduced protein diet and of a proprietary blend of natural compounds on growth performance, litter characteristics, and ammonia emissions in broiler chickens**
Theophane de Rauglaudre¹, Bertrand MEDINA², marie-pierre letourneau montminy*¹ ¹*Laval University, Québec, Quebec, Canada;* ²*PROBIOTECH International Inc., Saint Hyacinthe, Quebec, Canada*
- 10:00 AM 415P **Impact of valine to lysine ratio in male turkey poults on growth performance and feather**

coverage

Cameron F. Hall*¹, Roshan Adhikari², Jason T. Lee², Brian J. Kerr³, Dawn Koltes¹ ¹*Iowa State University, Ames, Iowa, United States*; ²*CJ Bio America, Downer Grove, Illinois, United States*; ³*USDA-ARS, Ames, Iowa, United States*

- 10:00 AM 416P **Egg Quality and Nutritional Profiling of Turkey Varieties: A Comparative Study**
Md. Sazedul K. Sarker¹, Nushrat N. Lisa*¹, Farhana Sharmin², Most. Umme S. Ety¹ ¹*Bangladesh Livestock Research Institute, Savar, Dhaka, Bangladesh, Dhaka, Dhaka, Bangladesh*; ²*Bangladesh Jute Research Institute, Dhaka, , Bangladesh*
- 10:00 AM 417P **Vitamin K as a functional nutrient to support calcium metabolism and egg production in modern hens for robust extended laying period**
Béatrice Sauvé*^{1,2}, Vincent Demers-Caron², Jacinthe Julien², Nadège Hervé³, Agnes Narcy⁴, Marie Pierre Létourneau-Montminy¹, Angel R. Alfonso Avila⁵ ¹*Laval University, Québec, Quebec, Canada*; ²*Animal Sciences Research Center of Deschambault, Deschambault, Quebec, Canada*; ³*Trouw Nutrition Canada, Saint-Hyacinthe, Quebec, Canada*; ⁴*INRAE, Nouzilly, , France*; ⁵*CRSAD, Deschambault, Quebec, Canada*

- 10:00 AM 418P **Alternative Vitamin K forms as a functional nutrient to support calcium metabolism and egg production in modern hens for robust extended laying period**
Béatrice Sauvé*^{1,2}, Vincent Demers-Caron², Jacinthe Julien², Nadège Hervé³, Agnes Narcy⁴, Marie Pierre Létourneau-Montminy¹, Angel R. Alfonso Avila⁵ ¹*Laval University, Québec, Quebec, Canada*; ²*Animal Sciences Research Center of Deschambault, Deschambault, Quebec, Canada*; ³*Trouw Nutrition Canada, Saint-Hyacinthe, Quebec, Canada*; ⁴*INRAE, Nouzilly, , France*; ⁵*CRSAD, Deschambault, Quebec, Canada*
- 10:00 AM 419P **Dietary supplementation with copper hydroxychloride improves growth performance and footpad health in broilers**
Ghayoor Fatima¹, Alip Kumar*¹, Kosar Gharib-Naseri¹, Lane Pineda², Ana Isabel García-Ruiz², Shu-Biao Wu¹ ¹*University of New England, Armidale 2351, New South Wales, Australia*; ²*Trouw Nutrition, Amersfoort, , Netherlands*
- 10:00 AM 420P **Effect of calcium pidolate on mineral digestibility and intestinal health of layers with reduced dietary levels of calcium and phosphorus**
Fernando Perazzo³, Adiel Lima³, Carlos Nascimento³, Paloma Souza³, Aline Rodrigues³, Armand Maniere*², Laure Duboc², Julian E. Melo^{1,2} ¹*Universidad Nacional de Lujan, Escobar, Buenos Aires, Argentina*; ²*Dietaxion SAS, Le Loroux-Bottereau, , France*; ³*Universidade Federal da Paraíba, Areia, , Brazil*
- 10:00 AM 421P **Optimization of Sample Preparation Workflow for Rapid Detection of *Salmonella enterica* in Poultry Using Real-Time qPCR**
Rejoice Nyarku², Elizabeth A. Krushinskie*¹, Temesgen Samuel², Woubit Abebe² ¹*QuantiPath, Superior, Colorado, United States*; ²*Tuskegee University, Tuskegee, Alabama, United States*
- 10:00 AM 422P **Pre-harvest heat stress: connecting the intestinal microbial ecology to the final carcass**
Mack P. Myer*¹, Taylor Fearing², Elizabeth Greene³, Sami Dridi³, Dana K. Dittoe⁴ ¹*University of Wyoming,*

Laramie, Wyoming, United States; ²Wyoming Public Health Laboratory, Cheyenne, Wyoming, United States; ³University of Arkansas, Fayetteville, Arkansas, United States; ⁴University of Wyoming, Laramie, Wyoming, United States

- 10:00 AM 423P **Contrasting functional genomic profiles of *Salmonella enterica* subsp. *enterica* serovars Enteritidis and Heidelberg in Canadian poultry revealed by integrated pangenome-based analysis**
Emeli Vargas Romero², Reza Akbari Moghaddam Kakhki*¹ *¹Université de Montréal, Saint-Hyacinthe, Quebec, Canada; ²VitalysBio, Saint-Hyacinthe, Quebec, Canada*
- 10:00 AM 424P **Effects of commercially available backyard egg washing solutions on the cuticle, shell permeability, and dye penetration of white table eggs**
Matthew Hughes*¹, Leticia Orellana², Brigid McCrea³, Chrysta N. Beck¹ *¹Mississippi State University, Mississippi State, Mississippi, United States; ²Mississippi State University, Starkville, Mississippi, United States; ³Alabama Cooperative Extension System, Auburn, Alabama, United States*

- 10:00 AM 425P **Processing Yields and Meat Quality of Broilers from Divergent Water-Efficiency Lines Subject to Short-Term Water Deprivation**
Sarah E. Johnson*¹, Rosie Whittle², Karen M. Rivera³, Sara Orłowski-Workman⁴, Shawna Weimer⁵, Casey M. Owens⁶ ¹University of Arkansas, Fayetteville, Arkansas, United States; ²University of Arkansas, Fayetteville, Arkansas, United States; ³University of Arkansas, Fayetteville, Arkansas, United States; ⁴University of Arkansas, Fayetteville, Arkansas, United States; ⁵University of Arkansas, Fayetteville, Arkansas, United States; ⁶University of Arkansas, Fayetteville, Arkansas, United States
- 10:00 AM 426P **The Effect of Thermal Environment and Water-Efficiency Genetic Selection Influence on Yield Distribution and Breast Meat Quality in Broilers**
Sarah E. Johnson*¹, Jeremy Summers², Rovin Sanjur Caballero³, Maricela Maqueda¹, Naomi Boysen¹, Kelvin Sanchez Rivera¹, Hailey Andrews¹, Rosie Whittle⁴, Shawna Weimer⁵, Sara Orłowski-Workman⁶, Casey M. Owens⁷ ¹University of Arkansas, Fayetteville, Arkansas, United States; ²University of Arkansas, Fayetteville, Arkansas, United States; ³University of Arkansas, Fayetteville, Arkansas, United States; ⁴University of Arkansas, Fayetteville, Arkansas, United States; ⁵University of Arkansas, Fayetteville, Arkansas, United States; ⁶University of Arkansas, Fayetteville, Arkansas, United States; ⁷University of Arkansas, Fayetteville, Arkansas, United States
- 3:15 PM 427P **Anti-Salmonella effects of dietary bacteriophage supplementation on growth performance and pathogen colonization in broiler chickens**
Ishwari Gyawali*¹, Indira Neupane¹, Hanseo Ko², Venkata Prathap Reddy Keshava Reddy¹, Chan Sol Park⁴, Woo K. Kim³ ¹University of Georgia, Athens, Georgia, United States; ²University of Georgia, Athens, Georgia, United States; ³University of Georgia, Athens, Georgia, United States; ⁴Pathway Intermediates USA, Rolling Meadows, Illinois, United States
- 3:15 PM 428P **Combining postbiotics with essential oil compounds provides greater performance gains**

than probiotics in male broiler turkeys

Vivek A. Kuttappan*¹, Marine Maudoux¹, Alain Corniaux¹, Yann Fournis¹ ¹*Cargill Inc., Wayzata, Minnesota, United States*

3:15 PM 429P **Effect of different additives in the drinking water on the relative weight of lymphoid organs of broilers raised on dirty litter**

David Pompilla-Perez¹, Melanie Palomino-Palomino¹, NICEAS C. VILCHEZ*¹ ¹*Universidad Nacional Agraria La Molina, Lima, , Peru*

3:15 PM 430P **Dietary inclusion of phytase decreases the severity of bacterial chondronecrosis with osteomyelitis (BCO) in a wire-ramp challenge model in broilers**

Elizabeth Greene*¹, Nusrat Jahan¹, Mike Bedford², Carrie L. Walk², Sami Dridi¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States;* ²*AB Vista, Marlborough, , United Kingdom*

3:15 PM 431P **Effect of dietary inclusion of apple and grape pomace on markers of gut health in broilers (*Gallus gallus*) under DSS-induced chronic inflammation**

Milan K. Sharma*¹, Eliot M. Dugan¹, Melissa Huang¹, Chloe J. McGovern¹, Peter R. Gracey¹, Matthew J. Pataki¹, Andi Yuyun Adhinitasari¹, Vinicius P. de Sao Jose¹, Elad Tako¹ ¹*Cornell University, Ithaca, New York, United States*

3:15 PM

432P **BCO lameness incidence and splenic immune responses in broiler chickens following *in ovo* injections of electron beam-inactivated BCO-causative bacteria**

Layla Al-Mitib*¹, Ruvindu Perera³, Palmy Jesudhasan⁵, Jossie M. Santamaria⁴, Anh Do⁶, Adnan Alrubaye² ¹*University of Arkansa, Fayetteville, Arkansas, United States;* ²*University of Arkansas, Fayetteville, Arkansas, United States;* ³*University of Arkansas, Fayetteville, Arkansas, United States;* ⁴*University of Arkansas System Division of Agriculture, Fayetteville, Arkansas, United States;* ⁵*USDA-ARS, Fayetteville, Arkansas, United States;* ⁶*University of Arkansas, Fayetteville, Arkansas, United States*

3:15 PM

433P **Influence of Bio-Clay Supplementation on Growth Performance and Intestinal Microbial Dynamics in Broiler Chickens under a Subclinical Necrotic Enteritis Challenge Model.**

Iyabo W. Oluseyifunmi*¹, Samuel E. Agada², Jeferson Lourenco⁶, Timothy Phillips⁵, Thomas Isakeit⁴, Youjun Deng³, Audrey McElroy¹, J A. Byrd⁸, Samson Oladokun⁷ ¹*Texas A&M University, College Station, Texas, United States;* ²*Texas A&M University, College Station, Texas, United States;* ³*Texas A&M University, College Station, Texas, United States;* ⁴*Texas A&M University, College Station, Texas, United States;* ⁵*Texas A&M University, College Station, Texas, United States;* ⁶*University of Georgia, Athens, Georgia, United States;* ⁷*Texas A&M University, College Station, Texas, United States;* ⁸*U.S. Department of Agriculture, Agricultural Research Service, Southern Plains Agricultural Research Center, College Station, Texas, United States*

- 3:15 PM 434P **Botanical-based additives (liquid and powder versions) alter *Eimeria* pathogenicity *in vitro* from anticoccidial-resistant strains obtained from commercial turkey houses**
Bertrand MEDINA*², Jacinthe Julien¹, Ivan D. Girard², Carl Julien¹ ¹CRSAD, Deschambault, Quebec, Canada; ²PROBIOTECH International Inc., Saint Hyacinthe, Quebec, Canada
- 3:15 PM 435P **Seasonal Variation and Spatial Distribution of Ammonia, Nitrous Oxide, and Methane Concentrations in Commercial Poultry Farms across Quebec, Canada**
Mohamed El-Fateh*¹, Haijiao Lin¹, Jacob Ayang¹, Jean-Marc Larivière², Moussa S. Diarra³, Xin Zhao¹ ¹McGill University, Sainte Anne De Bellevue, Quebec, Canada; ²Institut de technologie agroalimentaire du Québec, La Pocatière, Quebec, Canada; ³Agriculture and Agri-Food Canada, Guelph, Ontario, Canada
- 3:15 PM 436P **Productive performance of Shuvra layer in saline and non-saline agro ecological regions of Bangladesh**
Md. Raziul Islam*¹, Dr. Kamrun Nahar Monira¹, Dr. Shabiha Sultana¹, Dr. Shakila Faruque¹ ¹Bangladesh Livestock Research Institute, Dhaka, , Bangladesh
- 3:15 PM 437P **PRODUCTION PERFORMANCE OF FIVE PHILIPPINE NATIVE CHICKENS UNDER IMPROVED MANAGEMENT**
VENERANDA A. MAGPANTAY*¹, Herald Nygel F. Bautista¹, Kimberly Ann P. Bermudez¹, Consuelo Amor S. Estrella¹, Ma. Christine Ortiguero¹, Giovannie Sarmiento³, Rene Santiago³, Marjorie Sepina² ¹UNIVERSITY OF THE PHILIPPINES LOS BANOS, Los Banos, Laguna, Philippines; ²Department of Agriculture 4A, Tiaong, Quezon, Philippines; ³National Swine and Poultry Research and Development Center, Bureau of Animal Industry, Tiaong, Quezon, Philippines
- 3:15 PM 438P **Time-of-day effects on enrichment use and proximity in commercial broiler chickens**
Chelsea S. Castillo Najera*¹, Emily Nemerovsky², Katy Tarrant¹ ¹California State University, Fresno,

Caruthers, California, United States; ²California State Polytechnic University, Pomona, Pomona, California, United States

- 3:15 PM 439P **Effects of drinking water sanitizer classes on intestinal morphology, respiratory immune status, and early broiler performance**
Md Raihanul Hoque¹, Faija Sadia Pory¹, Biswajit Kumar Biswas², Samuel N. Nahashon³, Pramir Maharjan*¹ ¹*Texas A&M University, College Station, Texas, United States; ²Tennessee State University, Nashville, Tennessee, United States; ³Tennessee State University, Nashville, Tennessee, United States*
- 3:15 PM 440P **Evaluating the relationship between stocking density and platform usage in broiler chickens**
Jose Millan*¹, Katy Tarrant¹ ¹*Fresno State, Fresno, California, United States*
- 3:15 PM 441P **Effects of nitrate levels in drinking water supplies on early broiler performance**
Faija Sadia Pory¹, Md Raihanul Hoque², Yuhua Z. Farnell³, Yava Jones-Hall⁴, Pramir Maharjan*² ¹*Texas A&M University, College Station, Texas, United States; ²Texas A&M University, College Station, Texas, United States; ³Texas A&M University, College Station, Texas, United States; ⁴Texas A&M University, College Station, Texas, United States*

- 3:15 PM 442P **Nonlinear Growth Models of Creole Pullets from the Dry Tropics of Mexico**
Diego Zárate-Contreras¹, Fredy Mera-Zúñiga³, Arturo Pro-Martinez¹, Victor Manuel Valdes-Narvaez*⁴, Eliseo Sosa-Montes², Fernando González-Cerón² ¹*Colegio de Postgraduados, Campus Montecillo, Texcoco, Estado de México, Mexico;* ²*Universidad Autónoma Chapingo, Texcoco, Estado de México, Mexico;* ³*Instituto Tecnológico de Tecomatlán, Tecomatlán, Puebla, Mexico;* ⁴*Universidad de Investigación e Innovación de México, Cuernavaca, Morelos, Mexico*
- 3:15 PM 443P **From Heat Gain to Heat Loss: A Dynamic Mechanistic Heat Balance Model to Predict Core and Surface Body Temperature in Poultry**
Bayan M. Abu Hamdia*¹, Jihao You¹, Emily M. Leishman², Charlie d. Hollander³, Elijah G. Kiarie¹, John Cant¹, Jennifer L. Ellis¹ ¹*University of Guelph, Guelph, Ontario, Canada;* ²*Aarhus University, Tjele DK-8830, Blichers Allé 20, Denmark;* ³*Hybrid Turkeys, Kitchener, Ontario, Canada*
- 3:15 PM 444P **Effect of Light Stimulation Age on Keel Bone Integrity and Egg Quality Traits in Chickens**
Blake Kuper*¹, Kamaryn Beamsley¹, Kaylee Rowland¹, Luke Kramer¹, Petek Settar² ¹*Hy-Line International, Adel, Iowa, United States;* ²*Hy-Line International, Dallas Center, Iowa, United States*
- 3:15 PM 445P **Dose-response meta-analysis of phytase supplementation on ileal phosphorus and calcium digestibility in turkeys**
Reza Akbari Moghaddam Kakhki*¹, Sasan Chalaki², Emeli Vargas Romero³ ¹*Université de Montréal, Saint-Hyacinthe, Quebec, Canada;* ²*Sari University of Agricultural Sciences and Natural Resources, Sari, Mazandaran, , Iran (the Islamic Republic of);* ³*VitalysBio, Saint-Hyacinthe, Quebec, Canada*
- 3:15 PM 446P **A multi-component protease maintains production performance, improves economic benefits, and reduces pathogenic bacteria populations in laying hens fed a low-density diet under commercial conditions.**

Olufemi O. Babatunde*¹, Glenmer B. Tactacan¹,
Ludovic Lahaye¹, Mariana L. de Moraes¹ ¹*Jefo Nutrition
Inc., St Hyacinthe, Quebec, Canada*

3:15 PM 447P **Investigation of interactions between phytase, protease, and anti-nutritional factors in soybean meal**

Rebekah Drysdale*¹, Seth Hufford¹, Benjamin Parsons¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*

3:15 PM 448P **Multi-component protease improves gut morphology, crude protein digestibility, and caecal microflora in broilers fed under- and over-processed soybean meal**

Glenmer B. Tactacan*¹, Olufemi Babatunde¹, Ludovic Lahaye¹, Shahram Golzar Adabi² ¹*Jefo Nutrition, Inc., Saint-Hyacinthe, Quebec, Canada;* ²*Avesa Nutrition, Baglica, Ankara, Turkey*

3:15 PM 449P **Effects of multienzyme supplementation on production performance, egg quality, and nutrient digestibility in laying hens**

Venuste Maniraguha*¹, Deborah Adewole² ¹*University of Saskatchewan, Saskatoon, Saskatchewan, Canada;* ²*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*

- 3:15 PM 450P **Effects of increasing doses of a novel *E. coli* phytase SuperPhy on growth performance of broilers fed diets reduced in metabolizable energy, calcium, and phosphorus**
Corey A. Johnson¹, Anthony Quant¹, Opeadura T. Osunbami¹, Tanner Wise¹, Elizabeth Miller¹, Yulin Ma², Kelly Chen^{*2} ¹*Kalmbach Nutritional Services, Upper Sandusky, Ohio, United States*; ²*Hanley International LLC, Belmont, Massachusetts, United States*
- 3:15 PM 451P **Evaluation of agZyme supplementation on the performance of broiler chickens fed a corn- soybean meal-based diet**
Rafael M. Suzuki^{*1}, Jessica Conteçote Russo¹, Isadora Arruda², Mauricio F. Martins², Ludmila O. Silva², Rebecka X. De Oliveira², Larissa M. Silva², Tarley A. Barros¹², Flavio J. Ruiz¹, Patricia D. Marchizeli¹ ¹*Agroceres Multimix, Rio Claro, São Paulo, Brazil*; ²*Agroceres Multimix, Patrocínio, Minas Gerais, Brazil*
- 3:15 PM 452P **Effect of egg storage duration on fertility, hatchability and day old chick quality in Suborno strain**
Md. Raziul Islam^{*1}, Dr. Kamrun Nahar Monira¹, Dr. Shabiha Sultana¹, Dr. Shakila Faruque¹ ¹*Bangladesh Livestock Research Institute, Dhaka, , Bangladesh*
- 3:15 PM 453P **Comparison of white LED lighting to poultry specific lighting with moon phase on production**
Ethan D. Quaid^{*1}, Isabella R. Villarreal¹, Parker Watson¹, Colby Allensworth¹, Emily Jiral¹, Gregory Archer² ¹*Texas A&M University, College Station, Texas, United States*; ²*Texas A&M Agrilife Extension, College Station, Texas, United States*

- 3:15 PM 454P **Age-Associated Hepatic Proteomic Across the Laying Cycle in Commercial Hens**
Md Ahosanul Haque Shahid¹, Uma Aryal², Rajesh Jha¹, Birendra Mishra*¹ ¹*University of Hawaii at Manoa, Ewa Beach, Hawaii, United States;* ²*Purdue University, West Lafayette, Indiana, United States*
- 3:15 PM 455P **In ovo vaccination with chitosan nanoparticle-based subunit vaccine enhances resistance to *Campylobacter jejuni* colonization in broiler chickens**
Khaled Abdelaziz*¹, Mostafa Naguib², Shreeya Sharma², Abigail Schneider², Shekoni Olaitan Comfort³, Renukaradhya Gourapura³ ¹*Clemson University, Clemson, South Carolina, United States;* ²*Clemson University, Clemson, South Carolina, United States;* ³*Ohio State University, Columbus, Ohio, United States*
- 8:30 AM 456P **Effects of red osier dogwood (*Cornus stolonifera*) extract on growth performance, protein digestibility, immune response, and gut health of broiler chickens in a coccidiosis vaccine challenge model**
Deborah Adewole*¹, Italo Santos Reis Pereira¹ ¹*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*
- 8:30 AM 457P **DOSE response effect of a lysolecithin product on broiler performance, blood profile and gene expression in the jejunum, liver and muscle**
Christy de Wildt¹, Faegheh Zaefarian*² ¹*Adisseo NL B.V., Raamsdonksveer, , Netherlands;* ²*Adisseo France SAS, Saint-fons, , France*
- 8:30 AM 458P **Effects of phytogetic supplements containing butyrate on broiler performance**
David Harrington*¹, Nemanja Todorovic¹, Michael D. Sims² ¹*nuance Biotechnology, Lausanne, , Switzerland;* ²*Virginia Diversified Research, Harrisonburg, Virginia, United States*
- 8:30 AM 459P **Field Report: Yeast derived components improved growth performance, cecal microbiota composition, and intestinal integrity in 0-to-33-day**

old broilers.

Theresia Lavergne*¹, Ameni Askri², Mariem Saidani², Ben Larbi Manel², Charlie Elrod¹ ¹*Natural Biologics, Inc., Newfield, New York, United States*; ²*Carthage University, Tunis, , Tunisia*

8:30 AM

460P

Alleviation of carbon-tetrachloride induced liver damage supplemented by a blend of artichoke extract, vitamin B complex, amino acids, lemon essential oil and silymarin in chickens

Frank Ayala*², Freddy Farfan², Eliana Icochea³, Lenin Maturrano⁴, Guillermo Tellez-Isaias¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*Laboratorios Drogavet, Lima, , Peru*; ³*Laboratory of Avian Pathology, Faculty of Veterinary Medicine, Universidad Nacional Mayor de San Marcos, Lima, , Peru*; ⁴*Laboratory of Biology and Molecular Genetics, Faculty of Veterinary Medicine, Universidad Nacional Mayor de San Marcos, Lima, , Peru*

8:30 AM

461P

Double buffered sodium butyrate improves eggshell and bone quality of laying hens in conventional or low energy and protein diets

Fernando Perazzo³, Adiel Lima³, Carlos Nascimento³, Paloma Souza³, Aline Rodrigues³, Clemence Marecaille², Laure Duboc², Julian E. Melo*¹² ¹*Universidad Nacional de Lujan, Escobar, Buenos Aires, Argentina*; ²*Dietaxion SAS, Le Loroux-Bottereau, , France*; ³*Universidade Federal da Paraíba, Areia, , Brazil*

- 8:30 AM 462P **Comparative effects of sodium gluconate and sodium butyrate on growth performance and intestinal health of broiler chickens**
Antonio G. Bertechini*¹, Raine M. Bertechini¹, Ana C. Lima¹, Louise L. Maciel¹, Daisuke Matsui², Iki Taketani³, Tsuyoshi Tonoue³, Izuru Shinzato³ ¹*Federal University of Lavras, Lavras, Minas Gerais, Brazil;* ²*Valent BioSciences LLC, Illinois, Illinois, United States;* ³*Sumitomo Chemical Co., Tokio, , Japan*
- 8:30 AM 463P **Evaluation of the effects of a combination of *Bacillus subtilis* 29784 and a multi-carbohydrase complex on broiler performance and nutrient digestibility**
Pierre Cozannet², Rob Shirley³, Haitham Yakout¹, Tim Goossens*¹ ¹*Adisseo, Sint-Niklaas, , Belgium;* ²*Adisseo, Saint Fons, Auvergne, France;* ³*Adisseo, Alpharetta, Georgia, United States*
- 8:30 AM 464P **A blend mainly based on oregano essential oil and spices increased apparent metabolizable energy and improved growth performance in broilers**
Jean-François Gabarrou*^{1GS}, Juliette Foglio¹³, Saksit Srinongkote², Elisa Arnaud¹ ¹*Laboratoires Phodé, TERSSAC, , France;* ²*Animal Research and Consultant Co., Maharakham, , Thailand;* ³*ENSAT, Toulouse, , France*
- 8:30 AM 465P **Dose-response effects of *Macleaya cordata* extract on performance, immune response, and ileal microbiota of broilers under *Clostridium perfringens* challenge**
Ala E. Abudabos*¹, Ali R. Al Sulaiman² ¹*Tennessee State University, Nashville, Tennessee, United States;* ²*Environmental Protection Technologies Institute, Sustainability and Environment Sector, King Abdulaziz City for Science and Technology, Riyadh, Riyadh, Saudi Arabia*
- 8:30 AM 466P ***In-ovo* Administration of Phytogetic MyoS2 Promotes Embryonic Skeletal Muscle Development via the Suppression of Myostatin and Activation of Myogenesis in Broilers**
Liang-en Yu*¹⁴, Bor-rung Ou², Jan-Ying Yeh³, Chuan-Ju

Lin⁴, Yu-Chuan Liang⁴ ¹*National Taiwan University, Taipei, , Taiwan;* ²*Tunghai University, Taichung, , Taiwan;* ³*Asia University, Taichung, , Taiwan;* ⁴*Academia Sinica, Taipei, , Taiwan*

8:30 AM 467P **Evaluation of postbiotic, phytogetic, and essential oil combination products on broiler performance**
Maci Oelschlager*¹, Jason McCamy¹, Fernanda Castro¹, Manuel Da Costa¹ ¹*Cargill Animal Nutrition, Wayzata, Minnesota, United States*

8:30 AM 468P **The effect of feeding a supplemental sodium gluconate on performance and gut health parameters of commercial male broilers**
Daisuke Matsui*², Colby Allensworth¹, Shiori Iino⁴, Mari Haneta⁴, Hiroya Kondo⁴, Takako Fukuda⁴, Tsuyoshi Tonoue⁴, Izuru Shinzato⁴, Janet Snow³, Hilary Pavlidis³, Gregory Archer¹ ¹*Texas A&M University, College Station, Texas, United States;* ²*Valent BioSciences, LLC., Libertyville, Illinois, United States;* ³*CSA Animal Nutrition, Dayton, Ohio, United States;* ⁴*Sumitomo Chemical Co., Ltd., Tokyo, , Japan*

8:30 AM 469P **Production of value-added chicken egg through dietary manipulation of selected herbal plants**
F Sharmin*², Md. S. Sarker¹, US Ety¹, SS Zihan³, NN Lisa¹ ¹*Bangladesh Livestock Research Institute, Dhaka, Dhaka, Bangladesh;* ²*Bangladesh Jute Research Institute, Dhaka, , Bangladesh;* ³*Bangladesh Livestock Reserach Institute, Dhaka, , Bangladesh*

- 8:30 AM 470P **Effects of agProFito on the quality of fresh and stored eggs**
Rafael M. Suzuki*¹, Jessica Conteçote Russo¹, Brunna G. Leite¹, Isadora Arruda², Mauricio F. Martins², Ludmila O. Silva², Rebeka X. De Oliveira², Larissa M. Silva², Tarley A. Barros^{1,2}, Flavio J. Ruiz¹, Patricia D. Marchizeli¹ ¹*Agroceres Multimix, Rio Claro, São Paulo, Brazil*; ²*Agroceres Multimix, Patrocínio, Minas Gerais, Brazil*
- 8:30 AM 471P **The effect of feeding *Lactobacillus reuteri* and *Escherichia coli* Nissle on growth performance of broiler chickens**
Alondrah S. Rodriguez¹, Samuel N. Nahashon*², Agnes Kilonzo-Nthenge³ ¹*Tennessee State University, Nashville, Tennessee, United States*; ²*Tennessee State University, Nashville, Tennessee, United States*; ³*Tennessee State University, Nashville, Tennessee, United States*
- 8:30 AM 472P **Cecal Colonization by *Salmonella Enteritidis* in Commercial Layer Pullets Fed With a Mannan-Rich Fraction**
Daniel Graughard¹, Ronan Power¹, W.D. King¹, Ann Wooming*¹, Karl Dawson¹ ¹*Alltech, Inc, Nicholasville, Kentucky, United States*
- 8:30 AM 473P **Antibiotic resistance, biocide susceptibility, and genomic characterization of *Klebsiella* spp. from broiler chicken farms**
Shabnam Shamriz¹, Camélie Maillot², Xianhua Yin¹, Gabriel Wajnberg³, Emil Jurga³, Chad Laing³, Catherine Carillo⁴, Moussa S. Diarra*¹ ¹*Guelph Research and Development Center, Agriculture and Agri-Food Canada, Guelph, Ontario, Canada*; ²*Department of Biology, Faculty of Science, University of Sherbrooke, Sherbrooke, Quebec, Canada*; ³*National Centre for Animal Diseases, Canadian Food Inspection Agency, Lethbridge, Alberta, Canada*; ⁴*Ottawa Laboratory (Carling), Canadian Food Inspection Agency, Ottawa, Ontario, Canada*
- 8:30 AM 474P **Food Safety Risks and Antimicrobial Resistance of *Salmonella*, *E. coli*, and *S. aureus* in Broilers,**

Layers, and Water Sources

Jeffery Jackson¹, Goodness Olakanmi¹, Pramir Maharjan², Elijah Ayilaran¹, Agnes Kilonzo-Nthenge*¹ ¹*Tennessee State University, Nashville, Tennessee, United States*; ²*Texas A&M, College Station, Texas, United States*

- 8:30 AM 475P **Comparing drug-resistant strains of *Salmonella* Infantis and *Salmonella* Schwarzengrund for their efficacy to colonize ceca and disseminate internal organs in growing turkeys**
Amritha Ajayan*¹, DHANANJAI MURINGATTU PRABHAKARAN², Peter Bina³, Hamza Javaid⁴, Anup Kollanoor Johny⁵ ¹*University of Minnesota, Saint Paul, Minnesota, United States*; ²*UNIVERSITY OF MINNESOTA, Saint Paul, Minnesota, United States*; ³*University of Minnesota, Falcon Heights, Minnesota, United States*; ⁴*University of Minnesota, Saint Paul, Minnesota, United States*; ⁵*University of Minnesota, Woodbury, Minnesota, United States*
- 10:00 AM 476P **Specialty protein sources in starter feeding program have transient effects on cecal metabolomics in broiler chickens**
Reza Akbari Moghaddam Kakhki*¹, Anastasia Tsementzis², Elijah G. Kiarie² ¹*Université de Montréal, Saint-Hyacinthe, Quebec, Canada*; ²*University of Guelph, Guelph, Ontario, Canada*
- 10:00 AM 477P **Linoleic acid:alpha-linolenic acid ratios associated with vitamin E levels on bone quality of quail breeder hens**
Letícia A. Silva*¹, Vinicio d. Cardoso³, Allanna H. Corsino¹, Tatiana C. Santos² ¹*Universidade Estadual de Maringá, Maringá, Paraná, Brazil*; ²*State University of Maringá, Maringá, PR, Brazil*; ³*State University of Maringá, Maringá, Paraná, Brazil*
- 10:00 AM 478P **Effect of *In-ovo* Feeding on the Market-age Growth Performance and Muscle Development of Broilers: A Systematic Review and Meta-analysis**
Liang-en Yu*¹, Yuan-Yu Lin¹ ¹*National Taiwan University, Taipei, , Taiwan*

- 10:00 AM 479P **Comparison of Metabolizable and Net Energy Systems Using Different Metabolic Weight Exponents ($W^{0.75}$ vs $W^{0.70}$) in Modern Broilers: Effects on Growth Performance and Energy Partitioning Under Different Dietary Profiles**
Vanessa Basurco*^{1,2} ¹Universidad Nacional Agraria La Molina, Lima, Lima, Peru; ²San Fernando S.A., Lima, Lima, Peru
- 10:00 AM 480P **Crude protein level determines the impact of raw potato starch on amino acid digestibility during acute phase *Eimeria acervulina* challenge**
Olanrewaju Ayinde*¹, Oluyinka A. Olukosi², Sujitha Veeraganti³ ¹University of Georgia, Athens, Georgia, United States; ²University of Georgia, Athens, Georgia, United States; ³University of Georgia, Athens, Georgia, United States
- 10:00 AM 481P **Stepwise replacement of soybean meal with canola meal in nutrient-adequate diets reduce growth performance, dependent on environmental stress**
Olanrewaju Ayinde*¹, Oluyinka A. Olukosi², June Hyeok Yoon⁴, Bhargavi Kasireddy³ ¹University of Georgia, Athens, Georgia, United States; ²University of Georgia, Athens, Georgia, United States; ³University of Georgia, Athens, Georgia, United States; ⁴University of Georgia, Athens, Georgia, United States
- 10:00 AM 482P **Impact of reducing crude protein in diets of broiler chickens on nitrogen excretion and emissions: Insights from a meta-analysis**
Jhonatan S. Inca¹, NICEAS C. VILCHEZ*¹ ¹Universidad Nacional Agraria La Molina, Lima, , Peru
- 10:00 AM 483P **An updated dynamic mechanistic model of male turkey growth and metabolism**
Jihao You*¹, John Cant¹, Elijah G. Kiarie¹, Xuechun Bai², Charlie d. Hollander², Dan Tulpan¹, Jennifer L. Ellis¹ ¹University of Guelph, Guelph, Ontario, Canada; ²Hybrid Turkeys, Kitchener, Ontario, Canada
- 10:00 AM 484P **Nutritional value of dried extruded-expelled soybean meal and the effects of multi-carbohydrases on its utilization in broilers and laying hens**

Poonam Neupane*^{1GS}, Yanxing Niu¹, Kemi S. Kanani¹, Robert Patterson², Bogdan A. Slominski¹, Anna Rogiewicz¹ ¹*University of Manitoba, Winnipeg, Manitoba, Canada*; ²*CBS Bio Platforms Inc., Calgary, Alberta, Canada*

- 10:00 AM 485P **Cecal microbiota profiles in broiler breeder hens on three feeding regimens**
Diane Hildenberger*¹, Madison Berger², Jessica Starkey², Charlene Hanlon², Philip Campos¹, Monika Proszkowiec-Weglarz¹, Kristen Diehl¹ ¹*ARS, USDA, Beltsville, Maryland, United States*; ²*Auburn University, Auburn, Alabama, United States*
- 10:00 AM 486P **Evaluation of the net energy system to predict the performance response in laying hens**
Nilva Sakomura*¹, Rony Riveros¹, Audasley Tadeu Santos Fialho¹, Nathalia Rocha Silva¹, Raully Lucas Silva¹ ¹*Sao Paulo State University, Jaboticabal, SP, Brazil*
- 10:00 AM 487P **Influence of neutral detergent fiber on the nitrogen-corrected apparent metabolizable energy of canola meal in broilers: a meta-analysis**
Hector Salgado¹, Marie Pierre Létourneau-Montminy*¹ ¹*Université Laval, Quebec, Quebec, Canada*

- 10:00 AM 488P **Optimizing growth and profitability of native Bangladeshi geese through Oat fodder supplementation and controlled feed restriction**
Umme S. Ety*³, Md. Sazedul K. Sarker³, Halima Khatun¹, Sakib S. Zihan³, Aminul Islam³, Farhana Sharmin², Nushrat N. Lisa³ ¹*Bangladesh Livestock Research Institute, Savar, Dhaka, Bangladesh;* ²*Bangladesh Jute Research Institute, Dhaka, , Bangladesh;* ³*Bangladesh Livestock Research Institute, Savar, Dhaka, Bangladesh, Dhaka, Dhaka, Bangladesh*
- 10:00 AM 489P **The density of energy: protein ratio in the diet affects the metabolizability of nutrients in Japanese quail (*Coturnix japonica*)**
Maria Guadalupe Zambrano-Velasco¹, Arturo Pro-Martinez¹, Jose Herrera Haro¹, Omar Hernandez-Mendo¹, Diego Zárate-Contreras¹, Fernando Gonzalez-Ceron², Victor Manuel Valdes-Narvaez*³, Eliseo Sosa-Montes², Benito Bello-Olivera² ¹*Colegio de Postgraduados, Texcoco de Mora, , Mexico;* ²*Universidad Autonoma Chapingo, Texcoco de Mora, , Mexico;* ³*Universidad de Investigación e Innovación de México, Texcoco de Mora, , Mexico*
- 10:00 AM 490P **Effects of digestible lysine content and oat hull inclusion in the diet on growth performance and gastrointestinal tract development of two pullet strains from 0 to 35 days of age**
Juan Valle¹², Guillermo Talegón², Lourdes Cámara², Nereida Luna Corrales², Gonzalo González Mateos*² ¹*Lohmann Breeders GmbH, Cuxhaven, , Germany;* ²*Universidad Politécnica de Madrid, Madrid, , Spain*

- 10:00 AM 491P **Regulation of phosphorus metabolism to mitigate osteoporosis and extend the laying cycle in aged laying hens**
 Béatrice Sauvé*¹², Vincent Demers-Caron², Jacinthe Julien², Marie Pierre Létourneau-Montminy¹, Angel R. Alfonso Avila³ ¹*Laval University, Québec, Quebec, Canada*; ²*Animal Sciences Research Center of Deschambault, Deschambault, Quebec, Canada*; ³*CRSAD, Deschambault, Quebec, Canada*
- 10:00 AM 492P **Effects of Dietary Nutrient Density and Probiotic Supplementation on Feed Efficiency, Processing Yield, and Myopathy Incidence in Broilers**
 Sarah E. Johnson*^{1GS}, Jeremy Summers², Joaquin J. Esquivel Vergara³, Rosie Whittle⁴, Karen M. Rivera⁵, Allison D. Weaver⁶, Benjamin Parsons⁷, Shawna Weimer⁸, Casey M. Owens⁹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*; ²*University of Arkansas, Fayetteville, Arkansas, United States*; ³*University of Arkansas, Fayetteville, Arkansas, United States*; ⁴*University of Arkansas, Fayetteville, Arkansas, United States*; ⁵*University of Arkansas, Fayetteville, Arkansas, United States*; ⁶*University of Arkansas, Fayetteville, Fayetteville, Arkansas, United States*; ⁷*University of Arkansas, Fayetteville, Arkansas, United States*; ⁸*University of Arkansas, Fayetteville, Arkansas, United States*; ⁹*University of Arkansas, Fayetteville, Arkansas, United States*
- 10:00 AM 493P **Organ-and Strain-Specific Response of Commercial and Native Chicken Strains to Heat Stress**
 Yun-Ji Hwang¹², Vaishali Gupta*¹², Meg A. Delmonte², Chris Major Ncho²¹, Sang-Hyon Oh², Yang-Ho Choi²¹³ ¹*Gyeongsang National University, Jinju, Gyeongsangnam, Korea (the Republic of)*; ²*Gyeongsang National University, Jinju, Gyeongsangnam, Korea (the Republic of)*; ³*Gyeongsang National University, Jinju, Gyeongsangnam, Korea (the Republic of)*
- 10:00 AM 494P **Characterization of proteomics in hypothalamus of male broiler breeders divergently selected for low and high water efficiency**
 Kentu Lassiter*¹, Sara Orłowski-Workman¹, Maricela

Maqueda¹, Kirsten M. Shafer¹, Elizabeth Greene¹,
Sami Dridi¹, Walter G. Bottje¹ ¹*University of Arkansas,
Fayetteville, Arkansas, United States*

10:00 AM 495P **Characterization of proteomics in hypothalamus of female broiler breeders divergently selected for low and high water efficiency**

Kentu Lassiter*¹, Sara Orłowski-Workman¹, Maricela Maqueda¹, Kirsten M. Shafer¹, Elizabeth Greene¹, Sami Dridi¹, Walter G. Bottje¹ ¹*University of Arkansas, Fayetteville, Arkansas, United States*

10:00 AM 496P **Estimating the ossification ratio of developing keel bones in laying hen pullets using deep learning and computer vision**

Ana K. Rentsch*²¹, Dan Tulpan², Santosh Pokhrel², Grégoy Y. Bédécarrats² ¹*University of Guelph, Guelph, Ontario, Canada;* ²*University of Guelph, Guelph, Ontario, Canada*

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