

2016

**INTERNATIONAL  
POULTRY  
SCIENTIFIC  
FORUM**

JANUARY 25 – 26



# 2016 INTERNATIONAL POULTRY SCIENTIFIC FORUM

## Concurrent Meeting of

*The Southern Poultry Science Society 37th Annual Meeting*

*The Southern Conference on Avian Diseases 57th Annual Meeting*

January 25-26, 2016

## Registration:

You may register on site on Monday, Jan. 25, 7:30 a.m. — 4 p.m., and Tuesday, Jan. 26, 7:30 — 11 a.m., in Registration Lobby - Building B, Georgia World Congress Center.

## Program Summary

MONDAY SESSIONS JANUARY 25	ROOM NUMBER	TIME	PAGE
Physiology	B-311	8:00 a.m. — 10:30 a.m. (Dr. Drew Benson)	1
Processing & Products	B-311	10:45 a.m. — 4:00 p.m. (Dr. Dianna Bourassa)	2
Pathology	B-312	8:15 a.m. — Noon (Dr. Ken Bafundo)	4
SCAD I	B-312	1:00 p.m. — 4:00 p.m. (Dr. Brian Jordan)	6
Metabolism & Nutrition I	B-313	7:45 a.m. — Noon (Dr. Josh Jendza)	8
Metabolism & Nutrition II	B-313	1:00 p.m. — 4:00 p.m. (Dr. Kelley Wamsley)	10
Environment Management I	B-314	8:00 a.m. — Noon (Dr. Kim Livingston)	12
Environment Management II	B-314	1:00 p.m. — 4:00 p.m. (Dr. Bruce Rathgeber)	14
Metabolism & Nutrition III	B-315	8:00 a.m. — Noon (Dr. Ariane Helmbrecht)	15
Metabolism & Nutrition IV	B-315	1:00 p.m. — 4:00 p.m. (Dr. Justin Fowler)	17
Student Luncheon	B-310	Noon — 1:00 p.m.	
USPOULTRY Presentation	B-313	4:00 p.m. — 4:30 p.m. (Dr. John Glisson)	43
Posters Displayed	B-313 Foyer	1:00 p.m. — 6:00 p.m. (Dr. Kurt Perryman)	29-42
Poster Reception	B-313	4:30 p.m. — 6:30 p.m.	
TUESDAY SESSIONS JANUARY 26	ROOM NUMBER	TIME	PAGE
Posters Displayed	B-313 Foyer	8:00 a.m. — Noon	29-42
Metabolism & Nutrition V	B-311	7:30 a.m. — 11:00 a.m. (Dr. Leon Broom)	19
SCAD II & III	B-312	7:30 a.m. — 10:45 a.m. (Dr. Alejandro Banda and Dr. Eric DeJesus)	21-22
Metabolism & Nutrition VI	B-313	7:30 a.m. — 11:00 a.m. (Dr. Sheena Fagan)	23
Environment & Management III	B-314	7:45 a.m. — 11:00 a.m. (Dr. Maurice Pitesky)	25
Metabolism & Nutrition VII	B-315	7:30 a.m. — 11:00 a.m. (Dr. Wilmer Pacheco)	27
Milton L. Dendy Keynote Lecture	B-313	11:00 a.m. — Noon	43
SCAD Business Meeting	B-312	Noon	43
SPSS Business Meeting	B-313	Noon	43

## Officers of the SPSS 2015-2016

<b>President:</b>	Dr. David Caldwell, Texas A&M University
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<b>Past President</b>	Dr. Stacey Roberts, Provimi
<b>Executive Secretary</b>	Dr. Mary Beck Poultry Science Department Mississippi State University Mail Stop 9665 Mississippi State, MS 39762
<b>Phone:</b>	662.325.3416
<b>Email:</b>	m.beck@msstate.edu

## Officers of the SCAD 2015-2016

<b>President:</b>	Dr. Brian Jordan, UGA
<b>Directors:</b>	Dr. John El Attrache, CEVA Dr. Alejandro Banda, MS State Dr. Lisa Bielke, U Ark. Dr. John Donahoe Dr. Olivia Faulkner, CEVA Dr. Monique Franca, UGA Dr. Maricarmen Garcia, UGA Dr. Joe Giambrone, Auburn University Dr. Blanca Lupiani, Texas A&M Dr. Ken Macklin, Auburn University Dr. Patti Miller, SEPRL, USDA/ARS Dr. Mary Pantin-Jackwood, SEPRL, USDA/ARS Dr. Holly Sellers, UGA Dr. John Smith, Fieldale Dr. Dennis Wages, NCSU Dr. Susan Williams, UGA
<b>Secretary / Treasurer</b>	Dr. Mark W. Jackwood, UGA Department of Population Health University of Georgia 953 College Station Road Athens, Georgia 30602-4875
<b>Phone:</b>	706.542.5475
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## Physiology

Chair: Dr. Drew Benson, UGA

Room Number: B311

Monday, January 25, 2016

### 8:00 a.m. M1

Correcting bone morphometry values for body weight differences

Cristian Uculmana<sup>1</sup>, Diego Martínez<sup>2</sup>, Jorge Tay<sup>1</sup>, Carlos Vilchez<sup>1</sup> <sup>1</sup>*Universidad Nacional Agraria La Molina*; <sup>2</sup>*LIAN Development & Service*

### 8:15 a.m. M2

The comparative efficacy of various feed additives on the resistance of broiler to experimentally induced cecal coccidiosis

Atta Subhani<sup>1</sup>, Kamran Ashraf<sup>2</sup>, Muhammad Umar Sohail<sup>3</sup> <sup>1</sup>*UVAS*; <sup>2</sup>*University of Veterinary and Animal Sciences, Lahore*; <sup>3</sup>*Government college University Faisalabad*

### 8:30 a.m. M3

Comparison of hen comb and wing vein blood glucose via compact glucometer.

Brendan Gould<sup>\*GS</sup>, Suzanne Oates, Wallace Berry *Auburn University*

### 8:45 a.m. M4

Influence of acute maternal lead exposure on F1 pigeon hatchlings

Robert Williams<sup>\*GS1</sup>, Susan Williams<sup>1</sup>, Steven Holladay<sup>1</sup>, Lawrence Tannenbaum<sup>2</sup>, Robert Gogal<sup>1</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*U.S. Army Center for Health Promotion and Preventive Medicine*

### 9:00 a.m. M5

Expression of the mRNA for zona pellucida protein A in the developing follicles of the broiler breeder hen

Joshua Steed<sup>\*GS</sup>, Andrew Benson, Mia Malloy, Martha Freeman, Adam Davis *University of Georgia*

### 9:15 a.m. M6

The mRNA expression of preprodynorphin, gonadotrophin inhibitory hormone, and gonadotrophin inhibitory hormone receptor in the ovary of broiler breeder hens.

Ashley Stephens<sup>\*GS</sup>, Martha Freeman, Adam Davis *University of Georgia*

### 9:30 a.m. M7

Effect of chelated copper on gut health in broilers

Karen Wedekind, Terra Wineman, Mercedes Vazquez-Anon, Jeffery Escobar, Juxing Chen<sup>\*</sup> *Novus International Inc.*

### 9:45 a.m. M8

Genes involved in muscle development, muscle differentiation, and insulin signaling may play a role in the phenotypic expression of feed efficiency seen in a single genetic line of male broilers.

Kentu Lassiter<sup>\*GS</sup>, Byung-Whi Kong, Sami Dridi, Walter Bottje *University of Arkansas*

### 10:00 a.m. M9

Histological analysis of the pectoralis major muscle in broiler lines divergently selected for Percentage 4-day breast yield

Sara Orłowski<sup>\*GS1</sup>, Cindy Coy<sup>2</sup>, Sandra Velleman<sup>2</sup>, Nicholas Anthony<sup>1</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*The Ohio State University*

### 10:15 a.m. M10

Characteristics of woody breast and the effect of chelated trace minerals on woody breast in broilers

Karen Wedekind, Terra Wineman, Cindy Atwell, Mercedes Vazquez-Anon, Jeffery Escobar, Juxing Chen<sup>\*</sup> *Novus International Inc.*

### 10:30 a.m. Break

## **Processing & Products**

Chair: Dr. Dianna Bourassa, USDA/ARS

Room Number: B311

Monday, January 25, 2016

### **10:45 a.m. M11**

Evaluation of objective methods to detect woody breast and white striping myopathy

Bradley Schrader<sup>\*GS</sup>, Elle Chadwick, Yilin Li, Ken Macklin, Amit Morey *Auburn University*

### **11:00 a.m. M12**

Occurrence of white striping and wooden breast in broilers fed diets with increasing levels of lysine in grower and finisher phases

Henrique Cemin<sup>\*</sup>, Rafael Cruz, Sergio Vieira, Patrícia Carvalho, Silvana Rauber, Heitor Rios, Liris Kindlein *UFRRGS*

### **11:15 a.m. M13**

Effects of qualitative nutrient allocation on myopathies of the Pectoralis major muscles in broiler chickens at 48 d of age

Kathryn Meloche<sup>\*GS1</sup>, Bryan Fancher<sup>2</sup>, Sarge Bilgili<sup>1</sup>, Derek Emmerson<sup>2</sup>, William Dozier, Iii<sup>1</sup>  
<sup>1</sup>*Auburn University*; <sup>2</sup>*Aviagen, Inc.*

### **11:30 a.m. M14**

The effect of pasture vs indoor rearing on the breast file shelf-life of commercial-meat chickens and alternative breeds

Mckenzie Bear<sup>\*UG</sup>, Gregg Rentfrow, Jacqueline Jacob, Anthony Pescatore, Tatijana Fisher, Marquisha Paul, Michael Ford *University of Kentucky*

### **11:45 a.m. M15**

Assessing the impact of egg sweating on Salmonella Enteritidis penetration into shell eggs

Janet Gradl<sup>\*GS1</sup>, Pat Curtis<sup>1</sup>, Deana Jones<sup>2</sup>, Ken Anderson<sup>3</sup> <sup>1</sup>*Auburn University Food Systems Institute*; <sup>2</sup>*USDA Agricultural Research Service, US National Poultry Research Center, Egg Safety and Quality Research Unit*; <sup>3</sup>*Prestage Department of Poultry Science, North Carolina State University*

### **12:00 p.m. Lunch**

### **1:00 p.m. M16**

Determination of the route of challenge and eventual colonization sites of Salmonella enterica serovar Enteritidis when chicks are inoculated on day 0

Elle V. Chadwick, Kenneth Macklin, James Krehling, Laci Mackay, Anthony Frazier, Bradley Schrader  
Elle Chadwick<sup>\*GS</sup>, Kenneth Macklin *Auburn University*

### **1:15 p.m. M17**

Using RNA-Seq Next Generation Sequencing to understand the variability in gene expression in Salmonella Heidelberg (SH) after exposure to disinfectants

Myrna Cadena<sup>\*1</sup>, Rodrigo Gallardo<sup>1</sup>, Huaijun Zhou<sup>2</sup>, Maurice Pitesky<sup>1</sup> <sup>1</sup>*UC Davis, School of Veterinary Medicine*; <sup>2</sup>*University of California Davis*

### **1:30 p.m. M18**

Proteomic analysis on broiler breast myopathies

Vivek Kuttappan<sup>\*1</sup>, Ranjith Ramnathan<sup>2</sup>, Jeffery Escobar<sup>3</sup>, Steven Hartson<sup>2</sup>, Casey Owens<sup>1</sup>, Craig Coon<sup>1</sup>, Byung-Whi Kong<sup>1</sup>, Mercedes Vazquez-Añon<sup>3</sup>, Walter Bottje<sup>1</sup>, Billy Hargis<sup>1</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*Oklahoma State University*; <sup>3</sup>*Novus International Inc.*

### **1:45 p.m. M19**

Texture analyses of cooked wooden broiler breast fillets after fresh and frozen storage

Gabriela Sanchez Brambila<sup>\*1</sup>, Debolina Chatterjee<sup>1</sup>, Brian Bowker<sup>1</sup>, Hong Zhuang<sup>2</sup> <sup>1</sup>*ARS-USDA*; <sup>2</sup>*USDA-ARS*

### **2:00 p.m. M20**

Wooden breast condition results in reduced thaw loss in frozen-thawed broiler breast fillets

Hong Zhuang<sup>\*</sup>, Brian Bowker *U.S. National Poultry Research Center*

### **2:15 p.m. M21**

Comparison of objective texture measurements in raw and cooked wooden breast meat

Brian Bowker<sup>\*</sup>, Hong Zhuang, Debolina Chatterjee, Jordan Wiener *USDA-ARS*

**2:30 p.m. M22**

Can acceptable quality angel food cakes be made using pasteurized shell eggs? The effects of processing factors on functional properties of angel food cakes.

Ajaypal Singh, David Geveke\* *United States Department of Agriculture*

**2:45 p.m. M23**

Recovery of consciousness in broilers following combined DC and AC stunning

Dianna Bourassa<sup>1</sup>, Brian Bowker<sup>2</sup>, R. Buhr<sup>1</sup> <sup>1</sup>*USDA-ARS, U.S. National Poultry Research Center, Poultry Microbiological Safety and Processing Research Unit*; <sup>2</sup>*USDA-ARS, U.S. National Poultry Research Center, Quality and Safety Assessment Research Unit*

**3:00 p.m. M24**

Novel pod for chlorine dioxide generation and delivery to control aerobic bacteria on the inner surface of floor drains

Mark Berrang<sup>1</sup>, Mark Harrison<sup>2</sup>, Richard Meinersmann<sup>1</sup> <sup>1</sup>*USDA-Agricultural Research Service*; <sup>2</sup>*University of Georgia*

**3:15 p.m. M25**

On-line pollution load control to lower chemical and energy costs of i-DAF as pre-treatment for slaughterhouse wastewater

Hendrik Menkveld<sup>1</sup>, Scott Christian<sup>2</sup>, Eddie Broeders<sup>1</sup> <sup>1</sup>*Nijhuis Water Technology BV*; <sup>2</sup>*Nijhuis Water Technology Inc.*

**3:30 p.m. M26**

Fat recovery from dissolved air flotation sludge for energy production

Hendrik Menkveld<sup>1</sup>, Nadine Boelee<sup>1</sup>, Scott Christian<sup>2</sup> <sup>1</sup>*Nijhuis Water Technology BV*; <sup>2</sup>*Nijhuis Industries Inc.*

**3:45 p.m. M27**

Poultry System Simulation Model to evaluate water consumption and wastewater contamination levels

Olga Kemenova\*, Alexander Samoylov, Doug Britten *Georgia Tech Research Institute*

**4:00 p.m.**

USPoultry Presentation - Room Number B-313

**4:30 p.m. - 6:30 p.m.**

Poster Reception - Room Number B-313 Foyer

## **Pathology**

Chair: Dr. Ken Bafundo, Phibro Animal Health

Room Number: B312

Monday, January 25, 2016

### **8:15 a.m. M28**

Performance and anticoccidial effects of Magni-Phi in coccidia-vaccinated broilers

Kenneth Bafundo<sup>\*1</sup>, Greg Mathis<sup>2</sup> <sup>1</sup>*Phibro Animal Health Corp.*; <sup>2</sup>*Southern Poultry Research, Inc.*

### **8:30 a.m. M29**

Evaluation of dietary EnteroBac<sup>TM</sup> in broilers challenged with *Eimeria maxima* and *Clostridium perfringens*

John Schleifer<sup>\*1</sup>, T. Lohrmann<sup>1</sup>, G. Mathis<sup>2</sup>, B. Lumpkins<sup>2</sup> <sup>1</sup>*Quality Technology International, Inc.*; <sup>2</sup>*Southern Poultry Research, Inc.*

### **8:45 a.m. M30**

Necrotic enteritis: Important role of intestinal immunity to *Clostridium perfringens* in pathogenesis and antibiotic alternative strategies to reduce the gut damage.

Hyun S Lillehoj<sup>\*</sup>, Sungtaek Oh *USDA-ARS*

### **9:00 a.m. M31**

Effects of dietary antibiotic growth promoters on various aspects of host responses to Necrotic enteritis in broiler chickens

Sungtaek Oh<sup>\*1</sup>, G Donald Ritter<sup>2</sup>, Hyun S Lillehoj<sup>1</sup> <sup>1</sup>*USDA-ARS*; <sup>2</sup>*Mountaire Farms*

### **9:15 a.m. M32**

Performance and reduction of Necrotic Enteritis of broiler chickens fed Sangrovit<sup>®</sup>

Greg Mathis<sup>\*1</sup>, Charles Hofacre<sup>2</sup>, Brett Lumpkins<sup>1</sup> <sup>1</sup>*Southern Poultry Research, Inc.*; <sup>2</sup>*The University of Georgia, PDR*

### **9:30 a.m. M33**

*Salmonella Gallinarum* and *Gallibacterium anatis* causing multibacterial disease in commercial laying hens

Martha Pulido-Landinez<sup>\*</sup>, Alejandro Banda *Mississippi State University*

### **9:45 a.m. M34**

The effect of oral administration of *Salmonella enterica* serovar Enteritidis on the immune response, growth, and feed utilization of immunoglobulin knockout chickens

Kevin Bolek<sup>\*GS</sup>, Kirk Klasing *University of California, Davis*

### **10:00 a.m. Break**

### **10:15 a.m. M35**

Effects of replacement antibiotics with botanical extracts and their oils in feed on laying hens performance and *Salmonella*, *E. coli* and total bacterial count in feces

Abdullah Tahir<sup>\*GS1</sup>, Abid Hasnain<sup>1</sup>, Shahid Waheed<sup>1</sup>, Omer Tarar<sup>2</sup>, Zahra Yaqeen<sup>2</sup>, Tehmina Sohail<sup>2</sup> <sup>1</sup>*University of Karachi*; <sup>2</sup>*Pakistan council of scientific and industrial research*

### **10:30 a.m. M36**

Predicting ascites incidence in simulated altitude-challenge using single nucleotide polymorphisms identified in multi-generational genome wide association studies

Katy Tarrant<sup>\*GS1</sup>, Alex Gilley<sup>1</sup>, Ashlee Lund<sup>2</sup>, Janet Fulton<sup>2</sup>, Nicholas Anthony<sup>1</sup>, Douglas Rhoads<sup>1</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*Hy-Line International*

### **10:45 a.m. M37**

Effect of Aflatoxin B1 on gut permeability (leaky gut) in broiler chickens.

Rosario Galarza-Seeber<sup>\*GS</sup>, Juan Latorre, Amanda Wolfenden, Billy Hargis, Guillermo Tellez *University of Arkansas*

### **11:00 a.m. M38**

Reducing gram negative pathogen challenge in laying hens and turkeys

Ganapathi Raj Murugesan<sup>\*1</sup>, Chasity Pender<sup>1</sup>, Attila Kovacs<sup>2</sup>, Luca Vandi<sup>2</sup>, Paola Massi<sup>3</sup>, Giovanni Tosi<sup>3</sup> <sup>1</sup>*BIOMIN America Inc.*; <sup>2</sup>*BIOMIN Holding GmbH*; <sup>3</sup>*Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna "Bruno Ubertini"*

### **11:15 a.m. M39**

Evaluation 3-Nitrophenylboronic acid and metal toxicity on *Histomonas meleagridis* in-vitro

Caitlin Harris<sup>\*GS</sup>, Miguel Barrios, Anna Kenyon, Robert Beckstead *University of Georgia*

**11:30 a.m. M40**

Prevalence of white striping in broilers from difference genetics

Tamara Ferreira<sup>\*UG</sup>, Felipe Schuck, Guiomar Bergmann, Sérgio Vieira, Vladimir Nascimento, Liris Kindlein *Federal University of Rio Grande do Sul*

**11:45 a.m. M41**

Morphometric changes in the breast muscle of broilers with the wooden breast condition

Letícia Gross<sup>\*UG</sup>, Renata Sesterhenn, Tamara Ferreira, Sérgio Vieira, Guiomar Bergmann, Liris Kindlein *Federal University of Rio Grande do Sul*

**12:00 p.m. Lunch**



## **SCAD I**

Chair: Dr. Brian Jordan, UGA

Room Number: B312

Monday, January 25, 2016

### **1:00 p.m. M42**

Performance of an Automated Whole-House Vaccination System

Joseph Purswell<sup>1</sup>, Scott Branton *USDA-ARS Poultry Research Unit*

### **1:15 p.m. M43**

Tissue and blood leukocyte responses to intradermal injection of bacterial cell wall products in chickens

Kristen Byrne<sup>\*GS</sup>, Gisela Erf *University of Arkansas*

### **1:30 p.m. M44**

The effectiveness of SRP vaccine to control Fowl Cholera in broiler breeder hens and Salmonella in their broiler offspring

Charles Hofacre<sup>\*1</sup>, Jim Sandstrom<sup>3</sup>, Samuel Christenberry<sup>2</sup>, Mark Burleson<sup>4</sup>, Roy Berghaus<sup>1</sup> *<sup>1</sup>The University of Georgia; <sup>2</sup>Phibro Animal Health; <sup>3</sup>Epitopix, LLC; <sup>4</sup>Wayne Farms LLC*

### **1:45 p.m. M45**

Connecting the dots: novel statistical approaches toward Salmonella surveillance in live and processed poultry

Maurice Pitesky<sup>\*</sup> *UC Davis School of Veterinary Medicine-Cooperative Extension*

### **2:00 p.m. M46**

Effects of feeding Diamond V Original XPC on the virulence, antibiotic resistance, intestinal colonization, and fecal shedding of multiple antibiotic-resistant Salmonella typhimurium in broilers

Steve Carlson<sup>\*1</sup>, Kristi Anderson<sup>1</sup>, Mark Scott<sup>2</sup>, Donald McIntyre<sup>2</sup> *<sup>1</sup>Iowa State University; <sup>2</sup>Diamond V*

### **2:15 p.m. M47**

Evaluation of spray application of the probiotic 1-GP on broiler performance following live coccidia oocyst vaccination

Victoria Golden<sup>\*UG1</sup>, Colton Hill<sup>1</sup>, Gil Dedrick<sup>2</sup>, Audrey Mcelroy<sup>1</sup> *<sup>1</sup>Texas A&M University; <sup>2</sup>Life Products*

### **2:30 p.m. M48**

Evaluation of Eimeria oocyst counts using a Hemocytometer and a McMaster counting chamber

Grace Ashby<sup>\*GS</sup>, Emily Aston, Miguel Barrios, Brian Jordan *The University of Georgia*

### **2:45 p.m. M49**

Cross-species transmission of two field isolates of turkey reovirus from clinical cases of tenosynovitis, in commercial broilers

Rafael Bampi<sup>\*GS</sup>, Erich Linnemann, Vijay Durairaj, Susan Williams, Monique Franca, Holly Sellers *University of Georgia*

### **3:00 p.m. M50**

Evaluation of protection elicited by Infectious Laryngotracheitis Virus (ILT) chicken embryo origin (CEO) vaccine following ocular, oral, intranasal or intratracheal administration.

Gabriela Beltrán<sup>\*GS</sup>, Maricarmen García *The University of Georgia*

### **3:15 p.m. M51**

Safety of the tissue culture origin (TCO) commercial vaccine as compared to the gene deleted BΔORFC strain when applied in ovo

Gustavo Schneiders<sup>\*GS</sup>, Sylva Riblet, Maricarmen García *Poultry Diagnostic and Research Center, The University of Georgia*

### **3:30 p.m. M52**

Polymorphisms in the spike protein of Arkansas DPI infectious bronchitis virus influence binding to the chorioallantoic membrane

Christina Leyson<sup>\*GS</sup>, Monique Franca<sup>1</sup>, Brian Jordan<sup>1</sup>, Mark Jackwood<sup>1</sup> *<sup>1</sup>University of Georgia;*

**3:45 p.m. M53**

Heterosubtypic immunity to low pathogenic Avian Influenza viruses in Mallard ducks

Karen Segovia<sup>\*GS1</sup>, David Stallknecht<sup>1</sup>, Darrell Kapczynski<sup>2</sup>, Neus Latorre-Margalef<sup>1</sup>, Lisa Stabler<sup>1</sup>, Alinde Fotjik<sup>1</sup>, Monique França<sup>1</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*United States Department of Agriculture*

**4:00 p.m.**

USPoultry Presentation - Room Number B-313

**4:30 p.m. - 6:30 p.m.**

Poster Reception - Room Number B-313 Foyer

## Metabolism & Nutrition I

Chair: Dr. Josh Jendza, BASF, Inc.

Room Number: B313

Monday, January 25, 2016

### 7:45 a.m. M54

Growth performance and tibia measurements in starter broilers fed diets with increasing levels of calcium and available phosphorus and added with increasing amounts of a phytase  
Alejandro Diaz Alonso<sup>1</sup>, Sergio Gomez Rosales<sup>2</sup>, Maria De Angeles<sup>2</sup>, Carlos Lopez Coello<sup>3</sup>, Ernesto Avila Gonzalez<sup>3</sup> <sup>1</sup>*Faculty of Higher Studies Cuautitlan-UNAM*; <sup>2</sup>*National Center of Disciplinary Research in Animal Physiology. INIFAP*; <sup>3</sup>*Poultry Science Department. Faculty of Veterinary Medicine and Zootechnics. University City. UNAM.*

### 8:00 a.m. M55

Lysine requirement of broiler chickens from 1 to 42 days of age using different statistical models  
Henrique Cemin<sup>\*GS</sup>, Sergio Vieira, Liris Kindlein, Silvana Rauber, Pedro Ferzola, Catarina Stefanello *UFRGS*

### 8:15 a.m. M56

Using non-linear regression to estimate the maximum safe level of feed ingredients  
Rashed Alhotan<sup>\*GS1</sup>, Dmitry Vedenov<sup>2</sup>, Gene Pestl<sup>1</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*Texas A&M University*

### 8:30 a.m. M57

Modeling dietary protein level of grower diets of broilers raised under sex separated or straight run conditions  
Manuel Da Costa<sup>\*1</sup>, T.J. Frost<sup>2</sup>, J. Halley<sup>2</sup>, Gene Pestl<sup>1</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*Wayne Farms LLC*

### 8:45 a.m. M58

Does increased selenium supplementation alleviates breast myopathies in broilers?  
Tamara Ferreira<sup>\*UG</sup>, Henrique Cemin, Rafael Cruz, Sérgio Vieira, Vladimir Nascimento, Liris Kindlein *Federal University of Rio Grande do Sul*

### 9:00 a.m. M59

Performance of broiler chickens fed diets with increasing levels of selenium from organic source  
Henrique Cemin<sup>\*1</sup>, Sergio Vieira<sup>1</sup>, Rafael Cruz<sup>1</sup>, Catarina Stefanello<sup>1</sup>, Liris Kindlein<sup>1</sup>, Patricia Carvalho<sup>1</sup>, Alba Fireman<sup>2</sup> <sup>1</sup>*UFRGS*; <sup>2</sup>*Zinpro Corporation*

### 9:15 a.m. M60

Effects of eggshell color and dietary iron sources for Cobb 500 breeder hens on progeny performance and blood parameters  
Henrique Cemin<sup>\*1</sup>, Marco Ebbing<sup>1</sup>, Sergio Vieira<sup>1</sup>, Eveline Berwanger<sup>1</sup>, Cesar Pontin<sup>1</sup>, Silvana Rauber<sup>1</sup>, Alba Fireman<sup>2</sup> <sup>1</sup>*UFRGS*; <sup>2</sup>*Zinpro Corporation*

### 9:30 a.m. M61

Copper requirement for broiler breeder hens  
Henrique Cemin<sup>\*</sup>, Eveline Berwanger, Sergio Vieira, Marco Ebbing, André Mayer, Pedro Ferzola, Raissa Menezes *UFRGS*

### 9:45 a.m. Break

### 10:00 a.m. M62

Effects of variable zinc and copper inclusion and source on broiler growth performance  
Austin Jasek<sup>\*GS1</sup>, Hunter Walters<sup>1</sup>, Rocky Latham<sup>1</sup>, Terri Parr<sup>2</sup>, Jason Lee<sup>1</sup> <sup>1</sup>*Texas A&M University*; <sup>2</sup>*Micronutrients*

### 10:15 a.m. M63

Effect of dietary available phosphorous and phytase in broiler breeder and broiler progeny diets on the live performance of the broilers  
Yun Mei Lin<sup>\*GS1</sup>, Peter Plumstead<sup>2</sup>, John Brake<sup>1</sup> <sup>1</sup>*North Carolina State University*; <sup>2</sup>*Danisco Animal Nutrition, DuPont Industrial Biosciences*

### 10:30 a.m. M64

Phytate hydrolysis with regular and high levels of phytase and available phosphorus on growth performance and nutrient utilisation  
Laura Beeson<sup>\*GS1</sup>, Carrie Walk<sup>2</sup>, Peter Hastie<sup>3</sup>, Mike Bedford<sup>2</sup>, Oluyinka Olukosi<sup>1</sup> <sup>1</sup>*SRUC*; <sup>2</sup>*AB Vista*; <sup>3</sup>*University of Glasgow*

**10:45 a.m. M65**

Effects of varying phytase inclusion in conjunction with xylanase supplementation on 0-56 d male broiler performance

Rosana Hirai<sup>\*GS1</sup>, Omar Gutierrez<sup>2</sup>, Kelley Wamsley<sup>1</sup>, Ana Oliveira<sup>1</sup> <sup>1</sup>*Mississippi State University*; <sup>2</sup>*Huvepharma Inc.*

**11:00 a.m. M66**

Evaluation of super-dosing phytase in combination with a xylanase on commercial broiler performance and processing parameters

Kyle Smith<sup>\*GS1</sup>, Cody Flores<sup>1</sup>, Craig Wyatt<sup>2</sup>, Rex Bushong<sup>3</sup>, Keith Staggs<sup>4</sup>, Jason Lee<sup>1</sup> <sup>1</sup>*Texas A&M University*; <sup>2</sup>*AB Vista*; <sup>3</sup>*Texan Six Consulting*; <sup>4</sup>*Holmes Foods*

**11:15 a.m. M67**

Effects of increasing phytase levels on broiler growth performance and nutrient digestibility through 14 days of age

Hunter Walters<sup>\*GS1</sup>, Kyle Brown<sup>1</sup>, Danny Portillo<sup>1</sup>, Mike Coelho<sup>2</sup>, Peter Ader<sup>2</sup>, Jason Lee<sup>1</sup> <sup>1</sup>*Texas A&M University*; <sup>2</sup>*BASF Corporation*

**11:30 a.m. M68**

Effects of phytase on phosphorus utilization in broiler chicks depend on dose rate and dietary formulation

Alyson Gautier<sup>\*GS1</sup>, Carrie Walk<sup>2</sup>, Ryan Dilger<sup>1</sup> <sup>1</sup>*University of Illinois*; <sup>2</sup>*AB Vista*

**11:45 a.m. M69**

Maintenance energy requirements in modern broilers fed exogenous enzymes

Justina Caldas Cueva<sup>\*GS</sup>, Katie Hilton, Nirun Boonsinchai, Garrett Mullenix, Judith England, Craig Coon *University of Arkansas*

**12:00 p.m. Lunch**

## Metabolism & Nutrition II

Chair: Dr. Kelley Wamsley, Mississippi State

Room Number: B313

Monday, January 25, 2016

### 1:00 p.m. M70

The effect of exogenous tannase on dietary energy, nutrient availability, gastrointestinal tract development and performance when different field bean cultivars are fed to chicks

Jalil Abdulla<sup>\*GS1</sup>, S Rose<sup>1</sup>, A Mackenzie<sup>1</sup>, M Mirza<sup>1</sup>, S Llamas-Moya<sup>2</sup>, V Pirgozliev<sup>1</sup> <sup>1</sup>*Harper Adams University*; <sup>2</sup>*Kerry Ingredients & Flavours*

### 1:15 p.m. M71

Phase one laying hens performance of Hy-line Brown laying fed soybean and soybean free diets using caged and cage free rearing system

Morouj Al-Ajeeli<sup>\*GS</sup>, Yasser Jameel, Mohammed Hashim, Hector Leyva-Jimenez, Christopher Bailey *Texas A&M University*

### 1:30 p.m. M72

Comparison of three phytases in broiler chickens

Joshua Jendza<sup>\*1</sup>, Peter Ader<sup>2</sup>, Pengcheng Xue<sup>3</sup>, Sunday Adedokun<sup>4</sup>, Olayiwola Adeola<sup>3</sup> <sup>1</sup>*BASF Corp.*; <sup>2</sup>*BASF SE*; <sup>3</sup>*Purdue University*; <sup>4</sup>*University of Kentucky*

### 1:45 p.m. M73

Development of a new standard protocol for evaluating phytase potential in broiler chicks

Joshua Jendza<sup>\*1</sup>, Dieter Feuerstein<sup>2</sup>, Fengrui Zhang<sup>3</sup>, Olayiwola Adeola<sup>3</sup> <sup>1</sup>*BASF Corp.*; <sup>2</sup>*BASF SE*; <sup>3</sup>*Purdue University*

### 2:00 p.m. M74

Validation of a new standard protocol for evaluating phytase potential in broiler chicks

Joshua Jendza<sup>\*1</sup>, Peter Ader<sup>2</sup>, Dieter Feuerstein<sup>2</sup>, Fengrui Zhang<sup>3</sup>, Olayiwola Adeola<sup>3</sup> <sup>1</sup>*BASF Corp.*; <sup>2</sup>*BASF SE*; <sup>3</sup>*Purdue University*

### 2:15 p.m. M75

Effect of exogenous xylanase, amylase and protease as single or combined activities on growth performance of broilers fed corn/soybean meal-based diets

Ahmed Amerah<sup>\*1</sup>, Luis Romero<sup>1</sup>, Ajay Awati<sup>1</sup>, Velmurugu Ravindran<sup>2</sup> <sup>1</sup>*Danisco Animal Nutrition, DuPont Industrial Biosciences*; <sup>2</sup>*Massey University*

### 2:30 p.m. M76

Effect of commercial exogenous proteases and carbohydrases on nitrogen and standardized ileal amino acid digestibility of canola meal, sunflower meal, and meat and bone meal in broilers fed semi-purified diets

Ahmed Amerah<sup>\*1</sup>, Luis Romero<sup>1</sup>, Velmurugu Ravindran<sup>2</sup> <sup>1</sup>*Danisco Animal Nutrition, DuPont Industrial Biosciences*; <sup>2</sup>*Massey University*

### 2:45 p.m. M77

Effects of a novel xylanase enzyme on broiler performance and intestinal viscosity

Roger Davin<sup>\*1</sup>, Fenglan Yan<sup>2</sup>, Jonny Lyon<sup>3</sup>, Mercedes Vázquez-Añón<sup>2</sup> <sup>1</sup>*University of Missouri*; <sup>2</sup>*Novus International Inc.*; <sup>3</sup>*Verenium Corporation*

### 3:00 p.m. M78

Effects of functional oils on performance parameters of broiler chickens under two different ambient temperatures.

Joan Torrent<sup>\*1</sup>, Ernesto Ávila González<sup>2</sup>, Carlos López Coello<sup>2</sup>, José Arce Menocal<sup>3</sup> <sup>1</sup>*Oligo Basics USA LLC*; <sup>2</sup>*Depto. de Medicina y Zootecnia de Aves, FMVZ-UNAM*; <sup>3</sup>*Universidad Michoacana de San Nicolás de Hidalgo*

### 3:15 p.m. M79

Oregano essential oil improves nutrient absorption capacity in healthy broilers

Diego Martínez<sup>\*1</sup>, Carlos Vilchez<sup>2</sup> <sup>1</sup>*LIAN Development & Service*; <sup>2</sup>*Universidad Nacional Agraria La Molina*

### 3:30 p.m. M80

Effects of four dietary oils on cholesterol and fatty acid composition of egg yolk in layers

Adebisi Agboola<sup>\*</sup>, Richard Omidowura, Ademola Oyeyemi, Eustace Iyayi, Solomon Adelani *University of Ibadan*

**4:00 p.m.**

USPoultry Presentation - Room Number B-313

**4:30 p.m. - 6:30 p.m.**

Poster Reception - Room Number B-313 Foyer

## **Environment Management I**

Chair: Dr. Kim Livingston, NCSU

Room Number: B314

Monday, January 25, 2016

### **8:00 a.m. M81**

Performance of warm regions' laying chickens under prolonged natural heating conditions

Essam El-Gendy\* *Cairo University*

### **8:15 a.m. M82**

Evaluation of an alternative dry chlorine product as a poultry drinking water sanitizer

Samantha Cox\*<sup>GS1</sup>, Tyler Clark<sup>1</sup>, Geetha Kumar-Phillips<sup>1</sup>, Antonio Beitia<sup>1</sup>, Alissa Robbins<sup>2</sup>, Callie McCreery<sup>1</sup>, Susan Watkins<sup>1</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*Missouri Southern State University*

### **8:30 a.m. M83**

Application of a commercially available cleaner and disinfectant via a compressed air foam system to decrease aerobic bacteria in pullet and layer houses

Dima White<sup>GS</sup>, Aaron Kiess, Tom Tabler, Chris McDaniel, Yuhua Farnell, Shailesh Gurung, Marcelo Moreira, Dan Zhao, Morgan Farnell *Mississippi State University*

### **8:45 a.m. M84**

Evaluation of the potential influence of the disinfection cycle on the efficacy of F-strain

*Mycoplasma gallisepticum* vaccine administered by in ovo injection to layer hatching eggs

Katie Collins\*<sup>GS1</sup>, Scott Branton<sup>2</sup>, Jeff Evans<sup>2</sup>, E. David Peebles<sup>1</sup> <sup>1</sup>*Mississippi State University*; <sup>2</sup>*Mississippi USDA-ARS*

### **9:00 a.m. M85**

Surface application of a lysozyme product to restrict *Escherichia coli* penetration through eggshells

Xujie Li\*<sup>GS</sup>, Bruce Rathgeber, Derek Anderson *Dalhousie University*

### **9:15 a.m. M86**

Effects of heat and crowding stress on commercial turkey hen performance supplemented with dietary XPC<sup>TM</sup> or combined with AviCare<sup>TM</sup> in water.

Brooke Bartz\*<sup>GS1</sup>, Jesse Grimes<sup>1</sup>, Samantha Black<sup>1</sup>, Ilana Barasch<sup>1</sup>, Don McIntyre<sup>2</sup> <sup>1</sup>*North Carolina State University*; <sup>2</sup>*Diamond V*

### **9:30 a.m. M87**

Chopped miscanthus grass vs softwood shavings as bedding material for broiler grow-out

Amy Mayer\*<sup>GS</sup>, Paul Patterson, R. Hulet, Michael Hile *The Pennsylvania State University*

### **9:45 a.m. Break**

### **10:00 a.m. M88**

White striping of broiler breast muscle is reduced by time-limited feeding

Matthew Livingston\*<sup>GS1</sup>, Chelsea Landon<sup>2</sup>, H. Barnes<sup>2</sup>, John Brake<sup>1</sup> <sup>1</sup>*North Carolina State University*; <sup>2</sup>*NCSU College of Veterinary Medicine*

### **10:15 a.m. M89**

Time-course comparison of classical and non-invasive measurements of stress in broilers given corticosterone in drinking water

Shawna Weimer\*<sup>GS</sup>, Robert Wideman, Dawn Koltes, Wayne Kuenzel, Charles Maxwell, Karen Christensen, Yvonne Vizzier-Thaxton *University of Arkansas*

### **10:30 a.m. M90**

Feeder color preference of broilers and its effects on performance

J. Deines\*<sup>GS</sup>, E. Lhamon, D. Yoho, L. Chick, R. Bramwell *University of Arkansas*

### **10:45 a.m. M91**

Providing a photoperiod during incubation of broiler hatching eggs

Kayla Graham\*<sup>GS</sup>, Bruce Rathgeber *Dalhousie University, Faculty of Agriculture*

### **11:00 a.m. M92**

Live production parameters and carcass yield are affected by genetic line of broilers raised under sex separate or straight run conditions

Manuel Da Costa\*<sup>GS1</sup>, T.J. Frost<sup>2</sup>, J. Halley<sup>3</sup>, Gene Pesti<sup>1</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*Wayne Farms LLC*; <sup>3</sup>*Aviagen, Inc.*

**11:15 a.m. M93**

The hatch rate of three strains of laying hens provided a photoperiod at different times during incubation

William Hannah<sup>\*GS</sup>, Tessema Astatkie, Bruce Rathgeber *Dalhousie University's Agricultural Campus*

**11:30 a.m. M94**

Comparison of production, egg characteristic and quality between molted and non-molted hens from 73 through 109 wks of age

Rafael Crivellari<sup>\*GS</sup>, Ramon Malheiros<sup>1</sup>, Kenneth Anderson<sup>1</sup> *North Carolina State University;*

**11:45 a.m. M95**

Effects of the onset of a lighting program dark period on deep body temperature

Matthew Hicks<sup>\*GS</sup>, Michael Czarick, Brian Fairchild *University of Georgia*

**12:00 p.m. Lunch**



## **Environment Management II**

Chair: Dr Bruce Rathgeber, Dalhousie University

Room Number: B314

Monday, January 25, 2016

### **1:00 p.m. M96**

The effect of different water pressures on broiler performance.

Cody Brown<sup>\*GS</sup>, Brian Fairchild, Michael Czarick *The University of Georgia*

### **1:15 p.m. M97**

Arkansas broiler enterprise assessment tool ... AR B.E.A.T.

Christopher Sims<sup>\*GS</sup>, H.L. Goodwin *University of Arkansas*

### **1:30 p.m. M98**

Evaluating the Poultry Science Summer Institute as a recruitment tool for high school students to enter the Poultry Science department.

Braxton Whitaker<sup>\*GS</sup>, Lynn Worley-Davis, Sara Brierton *NC State*

### **1:45 p.m. M99**

Interferon-gamma assay in commercial chicken on garlic meal feed-inclusion

Adetolase Bakre<sup>\*</sup>, Omolade Oladele, Oluwaseun Esan *University of Ibadan*

### **2:00 p.m. M100**

Newcastle disease vaccinal immune response and serum protein levels in commercial turkeys on garlic (*Allium sativum*) meal feed-additive.

Latifat Ogunfolabo<sup>\*</sup>, Omolade Oladele, Adetolase Bakre *University of Ibadan*

### **2:15 p.m. M101**

How water pressure affects water usage in a commercial broiler house.

Cody Brown<sup>\*</sup>, Brian Fairchild, Michael Czarick *The University of Georgia*

### **2:30 p.m. M102**

Poultry Carcass Ensiling for Biosecure Preservation and Virus Destruction

Paul Patterson<sup>\*</sup>, R. Hulet, Patricia Dunn, Huaguang Lu, Subhashinie Kariyawasam, Lisa Kitto, Amy Mayer *The Pennsylvania State University*

### **2:45 p.m. M103**

Mass mortality composting during an avian influenza outbreak. J.B. Payne

Josh Payne<sup>\*</sup> *Oklahoma State University*

### **3:00 p.m. M104**

The effect of lighting programs on diurnal variations in broiler deep body temperature during hot weather

Brian Fairchild<sup>\*</sup>, Michael Czarick, Matthew Hicks, Cody Brown *The University of Georgia*

### **3:15 p.m. M105**

Broiler perception of lighting program day length in tunnel-ventilated houses during hot weather

Brian Fairchild<sup>\*</sup>, Micheal Czarick, Matthew Hicks, Cody Brown *The University of Georgia*

### **3:30 p.m. M106**

Effect of temperature fluctuation during storage on hatchability and embryonic mortality of broiler hatching eggs.

Serdar Özlü<sup>1</sup>, Okan Elibol<sup>1</sup>, John Brake<sup>\*2</sup> <sup>1</sup>*University of Ankara*; <sup>2</sup>*North Carolina State University*

### **4:00 p.m.**

USPoultry Presentation - Room Number B-313

### **4:30 p.m. - 6:30 p.m.**

Poster Reception - Room Number B-313 Foyer

## Metabolism & Nutrition III

Chair: Dr. Ariane Helmbrecht, Evonik

Room Number: B315

Monday, January 25, 2016

### 8:00 a.m. M107

Boosting gut health and nutrient digestibility by feeding organic acid based products to broilers orally challenged with *E. coli* K88

Nima Khodambashi Emami<sup>\*GS1</sup>, Emma Graystone<sup>2</sup>, Ali Daneshmand<sup>1</sup>, Reza Akbari Moghaddam Kakhki<sup>1</sup>, Leon Broom<sup>2</sup> <sup>1</sup>*Ferdowsi University of Mashhad*; <sup>2</sup>*Anpario PLC*

### 8:15 a.m. M108

Diverse response to dietary supplementation of arginine and guanidinoacetic acid in broilers reared under subnormal temperature

Nima Khodambashi Emami<sup>\*GS</sup>, Abolghasem Golian, Mohsen Danesh Mesgaran *Ferdowsi University of Mashhad*

### 8:30 a.m. M109

Effect of threonine deficiency on intestinal integrity and immune response to coccidiosis in broiler chicks

Qian Zhang<sup>\*GS1</sup>, Xi Chen<sup>1</sup>, Susan Eicher<sup>1,2</sup>, Kolapo Ajuwon<sup>1</sup>, Todd Applegate<sup>1</sup> <sup>1</sup>*Purdue University*; <sup>1,2</sup>*Purdue University and United States Department of Agriculture*

### 8:45 a.m. M110

The effect of dietary amino acids on heat production on broiler strains

Katie Hilton<sup>\*GS1</sup>, Craig Coon<sup>1</sup>, Garrett Mullenix<sup>1</sup>, Justina Caldas<sup>1</sup>, Judy England<sup>1</sup>, Antonio Kalinowski<sup>2</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*Evonik*

### 9:00 a.m. M111

Evaluation of varying dietary amino acid levels on modern broiler growth performance and processing yield

Garrett Mullenix<sup>\*GS1</sup>, Katie Hilton<sup>1</sup>, Judith England<sup>1</sup>, Justina Caldas<sup>1</sup>, Antonio Kalinowski<sup>2</sup>, Craig Coon<sup>1</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*Evonik*

### 9:15 a.m. M112

Effects of feeding broilers reduced crude protein diets on growth performance, nitrogen excretion, and plasma uric acid from 1 to 18 d of age

Ruben Kriseldi<sup>\*GS1</sup>, Paul Tillman<sup>2</sup>, Zhirong Jiang<sup>3</sup>, William Dozier Iii<sup>1</sup> <sup>1</sup>*Auburn University*; <sup>2</sup>*Poultry Technical Nutrition Services, LLC*; <sup>3</sup>*Ajinomoto Heartland Inc.*

### 9:30 a.m. M113

Growth performance and meat yield responses of Ross × Ross 708 male broilers fed diets formulated with distiller's dried grains with solubles varying in ether extract content and inclusion rate from 1 to 49 days of age

Klinton Mccafferty<sup>\*GS</sup>, Joseph Hess, William Dozier, Iii *Auburn University*

### 9:45 a.m. Break

### 10:00 a.m. M114

Effect of changing energy-protein ratio with different inert fillers on starting broilers

Jundi Liu<sup>\*GS</sup>, Justin Fowler *University of Georgia*

### 10:15 a.m. M115

Effects of dietary protein, energy and  $\beta$ -mannanase on laying performance, egg quality, and ileal amino acid digestibility in laying hens.

Roshan Adhikari<sup>\*GS1</sup>, Jae Lee<sup>2</sup>, Woo-Kyun Kim<sup>1</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*CTCBIO Inc.*

### 10:30 a.m. M116

Evaluating the efficacy of a *Bacillus*-based direct fed microbial in comparison to an antibiotic growth promoter on broiler growth performance and carcass yield

Cody Flores<sup>\*GS1</sup>, Austin Jasek<sup>1</sup>, Danny Portillo<sup>1</sup>, Nathan Augspurger<sup>2</sup>, Jason Lee<sup>1</sup> <sup>1</sup>*Texas A&M University*; <sup>2</sup>*JBS United, Inc.*

### 10:45 a.m. M117

Investigation of the nutritional and immune benefits of feeding a microbial protein product to laying hens

Jinlei Wen<sup>\*GS</sup>, Michael Persia *Virginia Tech*

**11:00 a.m. M118**

The effect of direct-fed microbial (PrimaLac) on performance and AMEn in turkey poults  
Samantha Black<sup>\*GS1</sup>, Jesse Grimes<sup>1</sup>, Vivek Fellner<sup>1</sup>, Mark Young<sup>2</sup> <sup>1</sup>*North Carolina State University*; <sup>2</sup>*Star Labs/Forage Research, Inc*

**11:15 a.m. M119**

Evaluation of a pronutrient feed additive (Alquernat Nebsui) as a replacement for BMD when fed in conjunction with salinomycin in broiler diets.

Coltin Caraway<sup>\*GS1</sup>, Carlos Domenech<sup>2</sup>, N Martin<sup>2</sup>, John Brake<sup>1</sup> <sup>1</sup>*North Carolina State University*; <sup>2</sup>*Biovet*

**11:30 a.m. M120**

Evaluation of the impact of meat and bone meal nutritional variability on broiler performance  
Christopher Eagleson<sup>\*GS</sup>, Tyler Clark, Bryce Daniels, Ashley Eagleson, Park Waldroup, H. L. Goodwin Jr., Susan Watkins *University of Arkansas*

**11:45 a.m. M121**

The effect of refined functional carbohydrates (RFCs) from enzymatically hydrolyzed yeast on the presence of Salmonella spp. in the ceca of broiler breeder hens at 65 weeks of age  
Grayson Walker<sup>\*GS1</sup>, Sangita Jalukar<sup>2</sup>, John Brake<sup>1</sup> <sup>1</sup>*North Carolina State University*; <sup>2</sup>*Arm and Hammer Animal Nutrition*

**12:00 p.m. Lunch**

## Metabolism & Nutrition IV

Chair: Dr. Justin Fowler, UGA

Room Number: B315

Monday, January 25, 2016

### 1:00 p.m. M122

Influence of feed form (FF) and diet phase effects on 0-46 d broiler performance

Mark Lemons<sup>\*GS1</sup>, Christopher McDaniel<sup>1</sup>, Joseph Moritz<sup>2</sup>, Kelley Wamsley<sup>1</sup> <sup>1</sup>*Mississippi State University*; <sup>2</sup>*West Virginia University*

### 1:15 p.m. M123

Supplementation of glycosaminoglycans and vitamin C on incubation and feed on the bone mineral density in broiler

Elaine Santos<sup>\*GS1</sup>, Diana Correa Castiblanco<sup>1</sup>, Liliana Borges<sup>1</sup>, Carla Domingues<sup>2</sup>, Thays Quadros<sup>1</sup>, Sarah Sgavioli<sup>2</sup>, Tiago Petrolli<sup>1</sup>, Natália Fonseca<sup>1</sup>, Diogo Goulart<sup>1</sup>, Monique Carvalho<sup>1</sup>, Eduardo Almeida<sup>1</sup>, Lizandra Amoroso<sup>1</sup>, Silvana Artoni<sup>1</sup> <sup>1</sup>*Sao Paulo State University*; <sup>2</sup>*Federal University Grande Dourados*

### 1:30 p.m. M124

The sources of lipids partitioning to adipose tissue of chicks during first week posthatch

Nirun Boonsinchai<sup>\*</sup>, Gerret Mullenix, Andrew Magnuson, Justina Cadas, Judy England, Craig Coon *University of Arkansas*

### 1:45 p.m. M125

Effect of Broiler Breeder Maternal Age on Gene Expression in Liver and Abdominal Fat of the Hens as well as Liver and Yolk Sac of the Embryo

Nirun Boonsinchai<sup>\*</sup>, Craig Coon *University of Arkansas*

### 2:00 p.m. M126

Variability of corn distillers solubles oil quality and carotenoid content bioavailability as determined by skin pigmentation in broiler chickens.

Marta Viguie<sup>\*GS</sup>, Kimberly Livingston, Ramon Malheiros, Peter Ferket *North Carolina State University*

### 2:15 p.m. M127

Assessing safety of Moringa oleifera seed and leaf meal as potential alternative antibiotic in poultry production

Isaac Adejumo<sup>1</sup>, Olufemi Adebisi<sup>2</sup>, Theophilus Babalola<sup>3</sup>, Christianah Olopade<sup>1</sup>, Blessing Odoemelam<sup>1</sup> <sup>1</sup>*Landmark University*; <sup>2</sup>*University of Ibadan*; <sup>3</sup>*Federal University Oye-Ekiti*

### 2:30 p.m. M128

A mixture of medium chain fatty acids will reduce antibiotic resistance

Manu De Laet<sup>\*</sup>, Katrien Deschepper, Renato Costa, Rob Goedegebuure, Ellen Van Meenen *Nuscience*

### 2:45 p.m. M129

The relationship between guanidino acetic acid and metabolize energy level of diets on performance of broiler chickens

Alaeldein Abudabos<sup>\*</sup> *King Saud University*

### 3:00 p.m. M130

Performance of Broilers Fed Diets Supplemented with Medium Chain Fatty Acids, or Medium Chain Fatty Acids plus a Prebiotic and Challenged with Clostridium perfringens.

T.P. Karnezos<sup>\*1</sup>, R. Dvorak<sup>1</sup>, C. Novak<sup>2</sup> <sup>1</sup>*PMI Nutritional Additives*; <sup>2</sup>*Purina Animal Nutrition*

### 3:15 p.m. M131

Comparative Efficacy of Biostrong Forte plus Biostrong 510 to the AGP Virginiamycin

Administered in the Feed for the Control of Necrotic Enteritis caused by Clostridium perfringens in Broiler Chickens

C. Novak<sup>\*1</sup>, S. Pusey<sup>2</sup>, T.P. Karnezos<sup>3</sup> <sup>1</sup>*Delacon USA*; <sup>2</sup>*Purina Animal Nutrition*; <sup>3</sup>*PMI Nutritional Additives*

### 3:30 p.m. M132

L- and DL-methionine in male Ross 708 broilers from 0 to 35 days of age

Ariane Helmbrecht<sup>\*1</sup>, John Thomson<sup>2</sup>, Robert Payne<sup>2</sup> <sup>1</sup>*Evonik Nutrition & Care GmbH*; <sup>2</sup>*Evonik Corporation*

**4:00 p.m.**

USPoultry Presentation - Room Number B-313

**4:30 p.m. - 6:30 p.m.**

Poster Reception - Room Number B-313 Foyer

## **Metabolism & Nutrition V**

Chair: Dr. Leon Broom, ANPARIO

Room Number: B311

Tuesday, January 26, 2016

### **7:30 a.m. T133**

Effect of feeding fermented cowpea husk on the performance of growing Japanese Quails  
Rasheed Hamzat<sup>1</sup>, Mustapha Sabo<sup>1</sup>, Abdulhamid Adebowale<sup>2</sup>, Olabisi-Taiwo Hamzat<sup>1</sup> *<sup>1</sup>Federal University, Dutsin-Ma, Nigeria; <sup>2</sup>Crescent University*

### **7:45 a.m. T134**

Immunological and anti-eimeria activities of hot water and methanol extracts of *Pleurotus sajor-caju* in broiler  
Muhammad Ullah\*, Masood Akhtar, Mian Awais *Bahauddin Zakariya University Multan Pakistan*

### **8:00 a.m. T135**

Efficacy evaluation of heat ameliorating activity of Ayucee premix in broilers  
Manju Gatne<sup>1</sup>, Mohan Ji Saxena<sup>2</sup>, Ravikanth Kotagiri<sup>2</sup>, Adarsh Chaudhary<sup>2</sup>, Shivi Maini<sup>2</sup>  
*<sup>1</sup>Bombay Veterinary College; <sup>2</sup>Ayurvet Limited*

### **8:15 a.m. T136**

Summer stress-role of herbal antistressor in poultry birds  
Manju Gatne<sup>1</sup>, Mohan Ji Saxena<sup>2</sup>, Ravikanth Kotagiri<sup>2</sup>, Adarsh Chaudhary<sup>2</sup>, Shivi Maini<sup>2</sup>  
*<sup>1</sup>Bombay Veterinary College; <sup>2</sup>Ayurvet Limited*

### **8:30 a.m. T137**

Feeding Varium™ improves feed conversion.  
Fang Chi, San Ching\*, Sara Johnston, Ron Cravens *Amlan International*

### **8:45 a.m. T138**

Organic acid based products enhance broiler immune responses  
Leon Broom<sup>1</sup>, Emma Graystone<sup>1</sup>, Nima Khodambashi Emami<sup>2</sup> *<sup>1</sup>Anpario PLC; <sup>2</sup>Ferdowsi University of Mashhad*

### **9:00 a.m. Break**

### **9:15 a.m. T139**

Effects of organic acids on broiler digesta pH and intestinal SCFA concentrations  
Emma Graystone<sup>1</sup>, Nima Khodambashi Emami<sup>2</sup>, Leon Broom<sup>1</sup> *<sup>1</sup>Anpario PLC; <sup>2</sup>Ferdowsi University of Mashhad*

### **9:30 a.m. T140**

A single feces index (LIAN1.1) as indicator of intestinal health in broilers  
Diego Martínez<sup>1</sup>, Carlos Vilchez<sup>2</sup> *<sup>1</sup>LIAN Development & Service; <sup>2</sup>Universidad Nacional Agraria La Molina*

### **9:45 a.m. T141**

Effect of protected sodium butyrate and nutrients concentration on broilers performance  
Monica Puyalto\*, Pilar Honrubia, Juan Mallo *NOREL S.A.*

### **10:00 a.m. T142**

Effect of protected sodium butyrate and nutrients concentration on broilers gut health  
Monica Puyalto, Pilar Honrubia, Cinta Sol, Juan Mallo\* *NOREL S.A.*

### **10:15 a.m. T143**

Dose response of organic Zn chelated with 2-hydroxy-4-methylthio butanoic acid (HMTBA) on the performance, carcass quality, gut health and immunology of male broilers  
Ricardo Gonzalez-Esquerri<sup>1</sup>, Raquel Araujo<sup>1</sup>, Sérgio Vieira<sup>2</sup>, Cesar Pontin<sup>2</sup>, Liris Kindlein<sup>2</sup>, César Lima<sup>3</sup>, Ricardo Hayashi<sup>4</sup>, Elizabeth Santin<sup>4</sup> *<sup>1</sup>Novus International Inc.; <sup>2</sup>Universidade Federal do Rio Grande do Sul; <sup>3</sup>Universidade de São Paulo; <sup>4</sup>LABMOR/MESSA - Universidade Federal do Paraná*

### **10:30 a.m. T144**

I. Effect of Ration Plus™ for Poultry on broiler chickens fed antibiotic free diets in three 21 day dose-response trials, two with bacterial challenges and one with heat stress  
David Hall<sup>1</sup>, E. Wozniak<sup>1</sup>, J. McNaughton<sup>2</sup> *<sup>1</sup>Cytozyme Laboratories, Inc.; <sup>2</sup>AHPPharma, Inc.*

**10:45 a.m. T145**

II. Effect of Ration Plus™ for Poultry on broiler chickens fed antibiotic free diets during heat stress for 49 days.

David Hall<sup>1</sup>, E. Wozniak<sup>1</sup>, J. Mcnaughton<sup>2</sup> <sup>1</sup>*Cytozyme Laboratories, Inc.*; <sup>2</sup>*AHPharma, Inc.*

**11:00 a.m. Milton L. Dendy Keynote Address B-313**

Antibiotic Usage in Poultry: Assessing the Effects on Antibiotic Resistance and Human Health  
Randall Singer *University of Minnesota, St. Paul, MN USA*

**12:00 p.m. SCAD Business Meeting - B312**

**12:00 p.m. SPSS Business Meeting - B313**

## SCAD II

Chair: Dr. Alejandro Banda, Mississippi State University

Room Number: B312

Tuesday, January 26, 2016

### 7:30 a.m. T146

Evaluation of the synergistic effect of the live attenuated infectious bursal disease vaccine 89/03 and a recombinant HVT-IBD against early infectious bursal disease challenge in commercial broilers.

Ivan Alvarado<sup>1</sup>, Kelley Wamsley<sup>2</sup>, Alejandro Banda<sup>2</sup> <sup>1</sup>*Merck Animal Health*; <sup>2</sup>*Mississippi State University*

### 7:45 a.m. T147

Paired house trials comparing Bursaplex® to Vaxxitek® on bursal imaging, PCR and serological response (ELISA) to inactivated ND/IB vaccination

Kalen Cookson<sup>1</sup>, Taylor Barbosa<sup>1</sup>, Savannah Featherson<sup>1</sup>, Andrew Barker<sup>1</sup>, Chuck Hofacre<sup>2</sup>  
<sup>1</sup>*Zoetis, U.S. Poultry*; <sup>2</sup>*Southern Poultry Research Group*

### 8:00 a.m. T148

Validation of a commercially-based infectious bronchitis virus enzyme-linked immunosorbent assay for serological detection of turkey coronavirus antibodies

Yuko Sato<sup>1</sup>, Patricia Wakenell<sup>2</sup>, Tsang Long Lin<sup>2</sup>, George Moore<sup>2</sup>, Roman Pogranichniy<sup>2</sup>, Katrina Miller<sup>2</sup>, Donna Schrader<sup>2</sup>, Ramtin Sina<sup>2</sup>, Ashley Ochs<sup>2</sup>, Audrey Verkamp<sup>2</sup> <sup>1</sup>*Iowa State University*; <sup>2</sup>*Purdue University*

### 8:15 a.m. T149

Evaluation of the effect of combining infectious bronchitis virus (IBV) and coccidia vaccines in hatchery spray vaccination

Brian Jordan<sup>\*</sup>, Grace Ashby, Lorraine Fuller, Deborah Hilt *The University of Georgia*

### 8:30 a.m. T150

The effect of infectious bursal disease virus induced immunosuppression on avian influenza virus vaccine efficacy

Christopher Stephens<sup>\*</sup>, Mary Pantin-Jackwood, Erica Spackman *Southeast Poultry Research Laboratory, U.S. National Poultry Research Center, U.S. Dept. of Agriculture, Agricultural Research Service*

### 8:45 a.m. T151

Use of antigen capture enzyme-linked immunoassays for the quantitation of hemagglutinin in H5 avian influenza vaccines and the impact of vaccine antigen content on protection of chickens against H5N8 highly pathogenic avian influenza

Eric Dejesus<sup>1</sup>, Diane Smith<sup>1</sup>, Mar Costa-Hurtado<sup>1</sup>, Samir Nassif<sup>2</sup>, Darrell Kapczynski<sup>1</sup>, Erica Spackman<sup>1</sup>, David Suarez<sup>1</sup>, Dong-Hun Lee<sup>1</sup>, David Swayne<sup>1</sup>, Mary Pantin-Jackwood<sup>1</sup> <sup>1</sup>*USDA ARS SEPRL*; <sup>2</sup>*Central Laboratory for Evaluation of Veterinary Biologics*

### 9:00 a.m. Break



### **SCAD III**

Chair: Dr. Eric DeJesus, SEPRL/USDA/ARS

Room Number: B312

Tuesday, January 26, 2016

#### **9:15 a.m. T152**

Pathogenicity and transmission of North American H5 clade 2.3.4.4 Highly Pathogenic Avian Influenza viruses in different gallinaceous poultry

Kateri Bertran\*, Charles Balzli, Mar Costa-Hurtado, Dong-Hun Lee, Eric DeJesus, Darrell Kapczynski, Mary Pantin-Jackwood, Erica Spackman, David Suarez, David Swayne *ARS-SEPRL*

#### **9:30 a.m. T153**

Pathogenicity of 2015 North American H5N2 highly pathogenic avian influenza poultry isolates in chickens and mallards

Mary Pantin-Jackwood\*, Erica Spackman, Darrell Kapczynski, David Suarez, Mar Costa-Hurtado, Eric DeJesus, Kateri Bertran, Dong-Hun Lee, David Swayne *Southeast Poultry Research Laboratory, U.S. National Poultry Research Center, U.S. Dept. of Agriculture, Agricultural Research Service*

#### **9:45 a.m. T154**

Asian lineage H5N1 clade 2.3.4.4 highly pathogenic avian influenza virus evolution into subgroups with intercontinental spread and generation of novel reassortant viruses in the United States

Dong-Hun Lee<sup>1</sup>, Justin Bahl<sup>2</sup>, Mia Torchetti<sup>3</sup>, Mary Killian<sup>3</sup>, Hon Ip<sup>4</sup>, David Swayne<sup>1</sup> *<sup>1</sup>Southeast Poultry Research Laboratory, ARS-USDA; <sup>2</sup>The University of Texas School of Public Health; <sup>3</sup>National Veterinary Services Laboratories, APHIS-USDA; <sup>4</sup>National Wildlife Health Center, USGS*

#### **10:00 a.m. T155**

Virus-like particle vaccines expressing H5 hemagglutinin gene protects chicken from multiple clades of highly pathogenic avian influenza

Klaudia Chrzastek<sup>1</sup>, Peter Pushko<sup>2</sup>, Terry Tumpey<sup>3</sup>, Darrell Kapczynski<sup>1</sup> *<sup>1</sup>USDA SEPRL; <sup>2</sup>Medigen, Inc.; <sup>3</sup>Influenza Division, Centers for Disease Control and Prevention*

#### **10:15 a.m. T156**

H7 Chinese influenza virus transmission in poultry is directly related to the hemagglutinin gene

Marisela Rodriguez\*, David Suarez *USDA, ARS, United States National Poultry Research Center*

#### **10:30 a.m. T157**

A Novel DNA-Immunostimulant for exploring Innate Immunity in Avian Health

Roy Jacob\*, Barry Kelly *Bayer*

#### **11:00 a.m. Milton L. Dendy Keynote Address B-313**

Antibiotic Usage in Poultry: Assessing the Effects on Antibiotic Resistance and Human Health

Randall Singer *University of Minnesota, St. Paul, MN USA*

#### **12:00 p.m. SCAD Business Meeting - B312**

#### **12:00 p.m. SPSS Business Meeting - B313**

## Metabolism & Nutrition VI

Chair: Dr. Sheena Fagan, Alltech

Room Number: B313

Tuesday, January 26, 2016

### 7:30 a.m. T158

Effect of L-Dopa on performance and growth hormone secretion in broiler chickens

Richard Omidwura\*, Adebisi Agboola, Eustace Iyayi *University of Ibadan*

### 7:45 a.m. T159

Chemistry curtailing bacterial enteritis in broilers and turkeys

Jeroen Baeyens<sup>1</sup>, Tina Rogge<sup>1</sup>, Jan Anné<sup>1</sup>, Wael Gad<sup>1</sup>, Francisco Dias<sup>2</sup>, Jeroen De Gussem<sup>3</sup>

<sup>1</sup>Proviron; <sup>2</sup>Vetworks; <sup>3</sup>Poulpharm

### 8:00 a.m. T160

Blood lipid content in relation to intramuscular fat in Chinese indigenous Wuhua chicken

Xingyong Chen\*, Zhaoyu Geng, Juanjuan Niu *Anhui Agricultural University*

### 8:15 a.m. T161

Supplementation of a multi-strain probiotic on the intestinal health and performance of poultry

Ting-Yu Lee<sup>1</sup>, Hung-Hsi Hu<sup>2</sup>, San-Land Young<sup>1</sup>, Jin-Seng Lin<sup>1</sup>, Chih-Yuan Chu<sup>2</sup>, Je-Ruei Liu<sup>2</sup>

<sup>1</sup>SynbioTech Inc.; <sup>2</sup>National Penghu University

### 8:30 a.m. T162

Effect of protease and bacitracin methylene disalicylate on growth performance, gut morphology, and gut barrier function of broilers

F. Yan\*, C. Foran, T. Wineman, C. Atwell, J. Chen, J. Escobar, M. Vazquez-Anon *Novus International Inc.*

### 8:45 a.m. T163

Novel *Bacillus subtilis* strain brings consistent growth improvement in broilers

Estelle Devillard<sup>1</sup>, Preben Nielsen<sup>2</sup>, Karoline Sidelmann Brinch<sup>2</sup>, Lamya Rhayat<sup>1</sup>, Vincent Jacquier<sup>1</sup>, Pierre-André Géraert<sup>1</sup> <sup>1</sup>Adisseo SAS France; <sup>2</sup>Novozymes

### 9:00 a.m. T164

Effect of *Bacillus Subtilis* (GalliPro) on energy conversion of broiler chickens fed with corn-soybean meal diets at varying energy levels.

Frank Jin<sup>1</sup>, Alfred Blanch<sup>2</sup>, Aneé Kehlet<sup>2</sup> <sup>1</sup>Chr. Hansen, Inc.; <sup>2</sup>Chr. Hansen A/S

### 9:15 a.m. T165

Examining the effect of dietary electrolyte balance, energy source, and length of feeding of nitrogen-free diets on ileal endogenous amino acid losses in broilers

Sunday Adedokun<sup>1</sup>, Anthony Pescatore<sup>1</sup>, Austin Cantor<sup>1</sup>, Jacqueline Jacob<sup>1</sup>, Michael Ford<sup>1</sup>, Tuoying Ao<sup>2</sup>, Ariane Helmbrecht<sup>3</sup> <sup>1</sup>University of Kentucky; <sup>2</sup>Alltech; <sup>3</sup>Evonik

### 9:30 a.m. T166

Screening and characterization of novel *Bacillus subtilis* strain with consistent growth improvement in broiler

Preben Nielsen<sup>1</sup>, Estelle Devillard<sup>2</sup>, Lamya Rhayat<sup>2</sup>, Karoline Brinch<sup>1</sup>, Vincent Jacquier<sup>2</sup>, Pierre-Andre Geraert<sup>2</sup> <sup>1</sup>Novozymes A/S; <sup>2</sup>Adisseo

### 9:45 a.m. T167

Performance of broilers fed diets supplemented with a natural growth promotor

Eduardo Vicuna\*, Chasity Pender, Ganapathi Murugesan *Biomim America Inc.*

### 10:00 a.m. T168

The effects of fast and slow release encapsulated zinc and butyric acid on intestinal bioavailability and performance of broilers.

Jon Rubach<sup>1</sup>, Brett Lumpkins<sup>2</sup>, Greg Mathis<sup>2</sup>, Chris Rude<sup>1</sup>, Scott Greene<sup>1</sup>, Dave Sanders<sup>1</sup>, Thoai Pham<sup>1</sup>, Mitchell Poss<sup>1</sup> <sup>1</sup>Kemin Industries; <sup>2</sup>Southern Poultry Research

### 10:15 a.m. T169

Effect of a phytogetic feed additive on performance of broiler chickens during an *Eimeria* challenge

Chasity Pender\*, Eduardo Vicuna, Ganapathi Murugesan *Biomim America Inc.*

### 10:30 a.m. T170

Qualitative analysis of selenium-enriched yeast products following in vitro digestion

Sheena Fagan<sup>1</sup>, Richard Murphy<sup>1</sup>, Rebecca Owens<sup>2</sup> <sup>1</sup>Alltech; <sup>2</sup>Maynooth University

**10:45 a.m. T171**

Efficacy and safety of chromium propionate as a source of supplemental chromium in broiler diets

Jerry Spears<sup>1</sup>, Karen Lloyd<sup>1</sup>, Kristi Krafka<sup>2</sup>, Arlene Lamptey<sup>2</sup>, Jesse Grimes<sup>1</sup> <sup>1</sup>*North Carolina State University*; <sup>2</sup>*Kemin Agri Foods North America Inc.*

**11:00 a.m. Milton L. Dendy Keynote Address B-313**

Antibiotic Usage in Poultry: Assessing the Effects on Antibiotic Resistance and Human Health  
Randall Singer *University of Minnesota, St. Paul, MN USA*

**12:00 p.m. SCAD Business Meeting - B312**

**12:00 p.m. SPSS Business Meeting - B313**

## Environment Management III

Chair: Dr. Maurice Pitesky, UC Davis

Room Number: B314

Tuesday, January 26, 2016

### 7:45 a.m. T172

Effects of monochromatic light exposure during incubation on footpad dermatitis

Mariana Mesquita<sup>1</sup>, Edgar Oviedo-Rondón<sup>2</sup>, Luis Bernal-Arango<sup>3</sup>, Albaraa Sarsour<sup>2</sup>, Liliane Borsatti<sup>4</sup>, Patricia Aristimunha<sup>4</sup>, Lindolfo Dorcino<sup>1</sup> <sup>1</sup>*Universidade Federal de Goiás — Goiânia*; <sup>2</sup>*North Carolina State University*; <sup>3</sup>*Politécnico Colombiano Jaime Isaza Cadavid*; <sup>4</sup>*Universidade Federal do Rio Grande do Sul — Porto Alegre*

### 8:00 a.m. T173

Effects of monochromatic green and red lights during incubation on broiler performance and carcass characteristics

Mariana Mesquita<sup>1</sup>, Edgar Oviedo-Rondón<sup>2</sup>, Luis Bernal-Arango<sup>3</sup>, Liliane Borsatti<sup>4</sup>, Albaraa Sarsour<sup>2</sup> <sup>1</sup>*Universidade Federal de Goiás — Goiânia*; <sup>2</sup>*North Carolina State University*; <sup>3</sup>*Politécnico Colombiano Jaime Isaza Cadavid*; <sup>4</sup>*Universidade Federal do Rio Grande do Sul — Porto Alegre*

### 8:15 a.m. T174

Effects of monochromatic green light exposure at different times during incubation on post-hatch performance

Mariana Mesquita<sup>1</sup>, Edgar Oviedo-Rondón<sup>2</sup>, Luis Bernal-Arango<sup>3</sup>, Albaraa Sarsour<sup>2</sup>, Liliane Borsatti<sup>4</sup>, Patricia Aristimunha<sup>3</sup>, Lindolfo Dorcino<sup>1</sup>, Hernan Cordova<sup>2</sup> <sup>1</sup>*Universidade Federal de Goiás — Goiânia*; <sup>2</sup>*North Carolina State University*; <sup>3</sup>*Politécnico Colombiano Jaime Isaza Cadavid*; <sup>4</sup>*Universidade Federal do Rio Grande do Sul — Porto Alegre*

### 8:30 a.m. T175

Getting the greatest benefit from LED lighting systems in broiler barns

Joey Bray<sup>1</sup>, Gregory Archer<sup>2</sup>, Juliette Delabbio<sup>3</sup> <sup>1</sup>*Stephen F. Austin University*; <sup>2</sup>*Texas A&M University*; <sup>3</sup>*ONCE Innovations Inc.*

### 8:45 a.m. T176

Effects of incubation conditions on growth performance and organ development of two egg laying pullet strains from hatching to 21 days of age

Ricardo Fasanaro<sup>1</sup>, Edgar Oviedo-Rondón<sup>2</sup>, Beatriz Saldaña<sup>3</sup>, Albaraa Sarsour<sup>2</sup>, Luis Bernal-Arango<sup>4</sup>, Mariana Mesquita<sup>5</sup>, Hernan Cordova<sup>2</sup> <sup>1</sup>*Universidade Estadual Paulista*; <sup>2</sup>*North Carolina State University*; <sup>3</sup>*Universidad Politécnica de Madrid*; <sup>4</sup>*Politécnico Colombiano Jaime Isaza Cadavid*; <sup>5</sup>*Universidade Federal de Goiás — Goiânia*

### 9:00 a.m. T177

Comparison of Broiler Paw Lesions in the Field versus the Processing Plant — A Field Study

Suzanne Dougherty<sup>1</sup>, Ken Opengart<sup>2</sup>, S Bilgili<sup>3</sup> <sup>1</sup>*Pecking Around Consulting*; <sup>2</sup>*Keystone Foods*; <sup>3</sup>*University of Auburn*

### 9:15 a.m. T178

Novel biosensor detects and quantifies Salmonella spp. in seconds; comparison to sandwich ELISA.

Maurice Pitesky<sup>1</sup>, Rob Atwill<sup>2</sup>, Myrna Cadena<sup>3</sup>, Jennifer Chase<sup>2</sup>, Andrew Korey<sup>4</sup> <sup>1</sup>*UC Davis School of Veterinary Medicine-Cooperative Extension*; <sup>2</sup>*Western Institute for Food Safety and Security, UC Davis*; <sup>3</sup>*UC Davis School of Veterinary Medicine*; <sup>4</sup>*PathLog Corporation*

### 9:30 a.m. T179

Evaluation of EFG broiler model to predict the effects of environmental conditions and feed composition on broiler live performance

Luis Bernal-Arango<sup>1</sup>, Edgar Oviedo-Rondón<sup>2</sup> <sup>1</sup>*Politécnico Colombiano Jaime Isaza Cadavid*; <sup>2</sup>*North Carolina State University*

### 9:45 a.m. T180

Field evaluation of litter-less flooring system

Casey Ritz<sup>\*</sup>, Michael Czarick, Brian Fairchild *The University of Georgia*

### 10:00 a.m. T181

Broiler heat removal analysis by whole house calorimetry

Michael Czarick<sup>\*</sup>, Brian Fairchild, Matthew Hicks, Cody Brown *The University of Georgia*

**10:15 a.m. T182**

The environmental and economic impact of eliminating antibiotics from U.S. broiler production  
Matthew Salois\*, Roger Cady, Eric Heskett *Elanco Animal Health*

**10:30 a.m. T183**

Sanitization of a Marek's vaccination device: Impact on vaccine viability  
Alexandra Mendoza-Reiley<sup>1</sup>, Ivan Alvarado<sup>1</sup>, Ernst Van Gulijk<sup>2</sup>, Holly Sellers<sup>3</sup>, Christine Lobsinger<sup>4</sup> <sup>1</sup>*Merck Animal Health*; <sup>2</sup>*Nova-Tech Engineering LLC*; <sup>3</sup>*The University of Georgia*; <sup>4</sup>*The University of Georgia-PDRC*

**10:45 a.m. T184**

Stress assessment by hematology — requirements and application. Paul Cotter\* *Cotter Laboratory, Arlington, MA, USA*  
Paul Cotter\* *Cotter Laboratory*

**11:00 a.m. Milton L. Dendy Keynote Address B-313**

Antibiotic Usage in Poultry: Assessing the Effects on Antibiotic Resistance and Human Health  
Randall Singer *University of Minnesota, St. Paul, MN USA*

**12:00 p.m. SCAD Business Meeting - B312**

**12:00 p.m. SPSS Business Meeting - B313**

## Metabolism & Nutrition VII

Chair: Dr. Wilmer Pacheco, Auburn University

Room Number: B315

Tuesday, January 26, 2016

### 7:45 a.m. T185

Enzyme complex improves productive performance of laying hens

Roberto Montanhini Neto<sup>\*</sup>, Mathilde Le Crapper, Pierre Cozannet, Aurélie Preynat *ADISSEO*

### 8:00 a.m. T186

Effects of fumonisins and deoxynivalenol on broiler chicken and the efficacy of a mycotoxin deactivating enzyme and a bacterial strain to counteract

Verena Starkl<sup>\*</sup>, Sabine Masching, Ursula Hofstetter *Biomin Holding GmbH*

### 8:15 a.m. T187

Interaction between SBM trypsin inhibitor level and efficiency of protein hydrolysis by pancreatic and microbial proteases

Paulina Tamez-Hidalgo<sup>1</sup>, Katrine Pontoppidan<sup>2</sup>, Nelson Ruiz<sup>3</sup>, Jose Sorbara<sup>4</sup> <sup>1</sup>*Novozymes A/S*; <sup>2</sup>*Novozymes*; <sup>3</sup>*Nelson Ruiz Nutrition, LLC*; <sup>4</sup>*DSM*

### 8:30 a.m. T188

Performance of broilers fed diets supplemented with yeast mannan oligosaccharide and/or nucleotides from different sources

Melina Bonato<sup>1</sup>, John Schleifer<sup>2</sup>, Glycon Santos<sup>1</sup>, Brett Lumpkins<sup>3</sup>, Greg Mathis<sup>4</sup> <sup>1</sup>*ICC Industrial Comércio Exportação e Importação Ltda*; <sup>2</sup>*Quality Technology International, Inc.*; <sup>3</sup>*Southern Poultry Research, Inc.*; <sup>4</sup>*Poultry Research, Inc.*

### 8:45 a.m. T189

Broiler performance and footpad health in broilers fed an additive composed of secondary plant compounds (SPC)

Wilmer Pacheco<sup>\*</sup>, Wallace Berry, Joseph Hess *Auburn University*

### 9:00 a.m. T190

Effect of lysophospholipids product (LIPIDOLTM) supplementation to low metabolizable energy, crude protein, and selected amino acids on growth performance, nutrient digestibility, immunity, and gastrointestinal morphology in broilers

Waewaree Boontiam<sup>1</sup>, Hee Seong Kim<sup>1</sup>, Sung Ho Do<sup>1</sup>, Seoung Ok Nam<sup>1</sup>, Yoo Yong Kim<sup>1</sup>, Byoungyun Jung<sup>2</sup> <sup>1</sup>*Seoul National University*; <sup>2</sup>*EASY BIO, Inc.*

### 9:15 a.m. T191

Evaluation of the efficacy of a multi enzyme carbohydrase complex in corn-soybean meal fed broilers by a meta-analysis

Aurélie Preynat, Roberto Montanhini Neto<sup>\*</sup> *ADISSEO*

### 9:30 a.m. Break

### 9:45a.m. T192

Replacement of soybean meal by sunflower meal HiPro with the addition of exogenous enzymes on broiler performance

Roberto Montanhini Neto<sup>1</sup>, Elisabeth Bourgueil<sup>1</sup>, Pascal Leterme<sup>2</sup>, Aurélie Preynat<sup>1</sup> <sup>1</sup>*ADISSEO*; <sup>2</sup>*BUNGE*

### 10:00 a.m. T193

Evaluation of starter diet protein level on performance and carcass yield of broilers raised under sex separated or straight run conditions

Manuel Da Costa<sup>1</sup>, T.J. Frost<sup>2</sup>, J. Halley<sup>3</sup>, Gene Pesti<sup>1</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*Wayne Farms LLC*; <sup>3</sup>*Aviagen, Inc.*

### 10:15a.m. T194

A compound bone index (LIAN2.1) as indicator of bone mineralization in broilers

Cristian Uculmana<sup>1</sup>, Diego Martínez<sup>2</sup>, Carlos Vilchez<sup>1</sup> <sup>1</sup>*Universidad Nacional Agraria La Molina*; <sup>2</sup>*LIAN Development & Service*

### 10:30 a.m. T195

The absence of correlation between protein solubility and digestible amino acids in full-fat soybeans emphasizes focusing on trypsin inhibitors reduction

Carl Parsons<sup>1</sup>, Nelson<sup>2</sup> <sup>1</sup>*University of Illinois*; <sup>2</sup>*Nelson Ruiz Nutrition, LLC*

**10:45 a.m. T196**

Maximizing research results by using simulation in nutritional requirement study planning  
Dmitry Vedenov<sup>1</sup>, Rashed Alhotan<sup>2</sup>, Gene Pesti<sup>2</sup> <sup>1</sup>*Texas A&M University*; <sup>2</sup>*University of Georgia*

**11:00 a.m. Milton L. Dendy Keynote Address B-313**

Antibiotic Usage in Poultry: Assessing the Effects on Antibiotic Resistance and Human Health  
Randall Singer *University of Minnesota, St. Paul, MN USA*

**12:00 p.m. SCAD Business Meeting - B312**

**12:00 p.m. SPSS Business Meeting - B313**

## Poster Session

Chair: Dr. Kurt Perryman, *Micronutrients*

### Physiology

#### P197

Expression of Nuclear Factor [Erythroid-derived 2]-like 2 (NFE2L2) and Kelch like-ECH protein 1 (KEAP1) in breast muscle of broiler breeder males with high or low feed efficiency.

Devin Cook<sup>GS</sup>, Byung-Whi Kong, Kentu Lassiter, Elizabeth Greene, Alissa Piekarski-Welsher, Sami Dridi, Walter Bottje *University of Arkansas*

#### P198

Immunophenotyping Avian Leukocytes in the Mucosal Tissues of the Head During Aging in the White Leghorn

Madelyn Krunkosky<sup>GS</sup>, Jadyn Levin, Leticia Garza, Ebru Karpuzoglu-Belgin, Maricarmen Garcia, Robbie Williams, David Hurley, Robert Gogal *University of Georgia*

#### P199

Differential gene expression of NaK-ATPase in the salt glands in 2 lines of Pekin ducks exposed to salt water

Shelly Nolin<sup>\*</sup>, Zachary Lowman *North Carolina State University*

#### P200

The male and female contribution to parthenogenesis-induce infertility in quail

Katherine Lott<sup>UG</sup>, A. J. Kawaoku, Holly Parker, Chris Mcdaniel *Mississippi State University*

#### P201

Roles of the male and female quail in egg component alterations due to the parthenogenetic trait

A. J. Kawaoku<sup>UG</sup>, Katherine Lott, Holly Parker, Chris Mcdaniel *Mississippi State University*

#### P202

Investigating the potential to introduce *Lactobacillus acidophilus* and *Bacillus subtilis* to the broiler embryo through commercial in ovo technology

Pedro Mota<sup>UG</sup>, Melissa Triplett, David Peebles, Christopher Mcdaniel, Aaron Kiess *Mississippi State University*

#### P203

Effect of thermal manipulation during pre and post hatch on intestinal bacterial populations in male broilers challenged by chronic heat stress

Gholamreza Zaboli<sup>1</sup>, Shaban Rahimi<sup>1</sup>, Farid Shariatmadari<sup>1</sup>, Mohammad Amir Karimi Torshizi<sup>1</sup>, Ali Baghbanzadeh<sup>2</sup> *<sup>1</sup>Tarbiat Modares University; <sup>2</sup>University of Tehran*

#### P204

Comparative effects of in ovo versus subcutaneous vaccination and pre-placement holding time on scanning electron micrograph and histomorphometric measurements of small intestinal villus length and villus/crypt ratios in broiler chickens

Edgar Peebles<sup>1</sup>, Floyd Wilson<sup>1</sup>, Taylor Barbosa<sup>2</sup>, Timothy Cummings<sup>2</sup>, John Dickson<sup>2</sup>, Sharon Womack<sup>1</sup> *<sup>1</sup>Mississippi State University; <sup>2</sup>Zoetis*

### Processing & Products

#### P205

Corticosterone-induced changes in the expression of proteins and mRNAs in the magnum of laying hens

Jimin Kim<sup>\*</sup>, Yang-Ho Choi *Gyeongsang National University Institute of Agriculture and Life Sciences*

#### P206

The impact of drying time on detection of yolk and albumen solids

Alexander Williamson<sup>UG</sup>, John Carey *Texas A&M University*

#### P207

Tridosan in Campy-Cefex Agar to aid in Enumeration of Naturally Occurring *Campylobacter* spp. in Broiler Ceca

Camille Dent<sup>UG</sup>, Mark Berrang, Eric Adams, Richard Meinersmann *USDA-Agricultural Research Service*



## **P208**

Salmonella detection from chicken rinsate with surface enhanced Raman spectroscopy and RT-PCR validation

Matthew Eady<sup>\*GS1</sup>, Bosoon Park<sup>1</sup>, Gayatri Setia<sup>2</sup> <sup>1</sup>USDA-ARS; <sup>2</sup>Stony Brook University

## **P209**

Treatment with PoultryHresh to lower Campylobacter counts on broiler parts

Melissa Landrum<sup>\*GS1</sup>, Nelson Cox<sup>2</sup>, Douglas Cosby<sup>2</sup>, Mark Berrang<sup>2</sup>, Scott Russell<sup>1</sup> <sup>1</sup>University of Georgia; <sup>2</sup>U.S. National Poultry Research Center

## **P210**

Antimicrobial efficacy of acidified lactic acid, propionic acid, and lauric arginate against Salmonella in ground chicken frames

Alisha Moore<sup>\*GS</sup>, Chander Sharma *Mississippi State University*

## **P211**

The relationship between instrumental compression forces and meat quality traits of woody breast fillets during short-term storage

Sun Xiao<sup>\*GS1</sup>, Casey Owens<sup>2</sup> <sup>1</sup>Nanjing University; <sup>2</sup>University of Arkansas

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Comparison of indicator microbial populations occurring during multiple stages of commercial poultry carcass processing by conventional plating method and next generation sequencing

Steven Ricke<sup>\*</sup>, Jennifer Wages, John Handley, Si Hong Park *University of Arkansas*

## **P213**

Campylobacter in docal swabs and water supply samples from broiler slaughter assessed by direct count on mCCDA and Campy-Cefex agar.

Anderlise Borsoi<sup>\*1</sup>, Camila Gonsalves<sup>2</sup>, Caroline Hiller<sup>2</sup>, Gustavo Perdonani<sup>2</sup>, Vladimir Nascimento<sup>2</sup> <sup>1</sup>Tuiuti University of Paraná, Brazil; <sup>2</sup>Federal University of Rio Grande do Sul

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Effect of short term freezer storage on hardness of woody breast fillets

Sun Xiao<sup>\*1</sup>, Casey Owens<sup>2</sup> <sup>1</sup>Nanjing Agricultural University; <sup>2</sup>University of Arkansas

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Model response surface regression for predicting yolk colors

Elisa Ponsano<sup>\*</sup>, Lígia Sandesky, Manoel Garcia-Neto *Unesp Univ Estadual Paulista*

## **P216**

Impact of succinate on growth of cultures of cecal bacteria from commercial broilers

Arthur Hinton Jr<sup>\*</sup>, Kimberly Ingram *U. S. National Poultry Research Center*

## **P217**

Testing temperatures for the production of powdered egg products

Thiago Grassi, Elisa Ponsano<sup>\*</sup> *Unesp Univ Estadual Paulista*

## **P218**

Artemisia annua enhances tissue tocopherol status and meat lipid stability in broiler chickens

Arun Panda<sup>1</sup>, Gita Cherian<sup>\*2</sup> <sup>1</sup>Project Directorate on Poultry, India; <sup>2</sup>Oregon State University

## **P219**

Texture analyses of cooked broiler breast fillets with different degree of white striping

Gabriela Sanchez Brambila, Debolina Chatterjee<sup>\*</sup>, Brian Bowker, Hong Zhuang *USDA-ARS*

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Comparison of 3M Molecular Detection Assay (MDA) Salmonella and ANSR Salmonella methods with the FDA Bacteriological Analytical Manual (BAM) method for rapid detection of Salmonella from egg products

Lijun Hu<sup>1</sup>, Li Ma<sup>2</sup>, Shimin Zheng<sup>3</sup>, Hua Wang<sup>1</sup>, Eric Brown<sup>1</sup>, Thomas Hammack<sup>1</sup>, Guodong Zhang<sup>\*1</sup> <sup>1</sup>U.S. Food and Drug Administration; <sup>2</sup>Oklahoma State University; <sup>3</sup>Northeast Agricultural University

**P221**

Comparison of Various Methods of Probiotic Administration against Salmonella Infection in Broiler chickens

Fereshte Gholami\*, Mohammad Amir Karimi Torshizi, Fahimeh Hashemzadeh *Tarbiat Modares University*

**P222**

Arkansas Progressor and Regressor chicken lines: important models for tumor biomarker study  
Bhuwan Khatri<sup>\*GS</sup>, Ashley Hayden, Ayla Smartt, Dongwon Seo, Nicholas Anthony, Byung-Whi Kong *University of Arkansas*

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The effect of an IBD virus on Broilers and SPF birds isolated in NE Georgia  
Luis Gomez\* *MERIAL*

**P224**

Expression of antimicrobial peptides in the intestine of Eimeria-challenged chickens  
Shengchen Su<sup>\*GS1</sup>, Dylan Dwyer<sup>1</sup>, Katarzyna Miska<sup>2</sup>, Raymond Fetterer<sup>2</sup>, Mark Jenkins<sup>2</sup>, Eric Wong<sup>1</sup> *<sup>1</sup>Virginia Tech; <sup>2</sup>USDA/ARS*

**P225**

Sequential development of superficial pectoral myodegeneration and sclerosis ("Wooden Breast") in commercial broiler chickens  
Chelsea Landon\*, Matthew Livingston, John Brake, H. John Barnes *North Carolina State University*

**P226**

Assessment of the level of protection against coccidiosis in broiler breeders conferred by vaccination.  
Muhammed Shameer Abdul Rasheed<sup>\*GS</sup> *University of Arkansas*

**P227**

Isolation of Clostridium perfringens from poultry in antibiotic-free commercial farms  
F Vargas<sup>\*1</sup>, P Filsner<sup>2</sup>, L Moreno<sup>2</sup>, T Ferreira<sup>2</sup>, A Da Silva<sup>2</sup>, T Knobl<sup>2</sup>, A Moreno<sup>2</sup> *<sup>1</sup>Merck Animal Health; <sup>2</sup>University of São Paulo*

**P228**

Resistance profile and genetic characterization of Clostridium perfringens in poultry from Brazilian antibiotic-free commercial farms  
F Vargas<sup>\*1</sup>, P Filsner<sup>2</sup>, L Moreno<sup>2</sup>, T Ferreira<sup>2</sup>, A Da Silva<sup>2</sup>, T Knobl<sup>2</sup>, A Moreno<sup>2</sup> *<sup>1</sup>Merck Animal Health; <sup>2</sup>University of São Paulo*

**P229**

Comparative expression of avian beta defensins in turkey poults  
Shaimaa Hamad<sup>\*GS1</sup>, Sungwon Kim<sup>2</sup>, Eric Wong<sup>1</sup>, Rami Dalloul<sup>1</sup> *<sup>1</sup>Virginia Polytechnic Institute and State University (Virginia Tech); <sup>2</sup>The Roslin Institute, University of Edinburgh*

**P230**

Behavior a program of immunization against bursal disease in broilers to challenges variant strains detected in field.  
Nancy Christy, Salvador Infante, Josué Sánchez\* *Boehringer Ingelheim Vetmedica*

**P231**

Effect of feeding oregano essential oil on efficiency and health of broilers under a mixed intestinal challenge  
Diego Martínez<sup>\*1</sup>, Carlos Vilchez<sup>1</sup> *<sup>1</sup>LIAN Development & Service; <sup>2</sup>Universidad Nacional Agraria La Molina*

**P232**

Effect of Sporulin® on broilers inoculated with a strain of Salmonella heidelberg isolated in Brazil  
Ricardo Hayashi<sup>1</sup>, Mariana Lourenço<sup>1</sup>, Ricardo Gonzalez-Esquerre<sup>\*2</sup>, Raquel Araujo<sup>2</sup>, Fernando Rigo<sup>2</sup>, Elizabeth Santin<sup>1</sup> *<sup>1</sup>LABMOR/MESSA - Universidade Federal do Paraná; <sup>2</sup>Novus International Inc.*

### **P233**

Histomorphometry in the Anterior Latissimus Dorsi (ALD) Muscle and Determination of Activity of Enzymes CK, GGT, AST, LDH, URIC ACID and Creatinine in Broilers With Dorsal Cranial Myopathy

Renata Sesterhenn\*, Vladimir Nascimento\*, Liris Kindlein\*, Ana Hamerski, Sérgio Vieira, Guiomar Bergmann *Universidade Federal do Rio Grande do Sul*

### **P234**

Changing IBV vaccination program can improve farm profitability

Corrado Longoni<sup>1</sup>, Elisa Russo<sup>1</sup>, Giovanni Franzo<sup>2</sup>, Claudia Tucciarone<sup>2</sup>, Mattia Cecchinato<sup>2</sup>

<sup>1</sup>Merck Animal Health; <sup>2</sup>University of Padua

### **P235**

Variant Infectious Bronchitis strains in the Middle East

Husam Bakri\* *MSD-Animal Health*

### **SCAD**

### **P236**

Infectious bronchitis virus serotypes in Jordan

Saad Gharaibeh\* *Jordan University of Science and Technology*

### **P237**

Varium™ decreases the effects of necrotic enteritis

San Ching<sup>1</sup>, Fang Chi<sup>1</sup>, Sara Johnston<sup>1</sup>, Greg Mathis<sup>2</sup>, Brett Lumpkins<sup>2</sup>, Charles Hofacre<sup>3</sup>, Ron Cravens<sup>1</sup> <sup>1</sup>Amlan International; <sup>2</sup>Southern Poultry Research, Inc; <sup>3</sup>University of Georgia

### **P238**

Pathogenicity and transmission of H5 highly pathogenic avian influenza clade 2.3.4.4 viruses (H5N8 and H5N2) in domestic waterfowl (Pekin ducks and Chinese geese)

Eric Dejesus<sup>1</sup>, Diane Smith<sup>1</sup>, Mary Pantin-Jackwood<sup>1</sup>, Mar Costa-Hurtado\* <sup>1</sup>Southeast Poultry Research Laboratory, U.S. National Poultry Research Center, U.S. Dept. of Agriculture, Agricultural Research Service;

### **P239**

Effect of feeding Original XPC™ on Salmonella populations in the cecum (hindgut) of experimentally Salmonella-challenged 6 week-old broiler chickens.

Peter Rubinelli\*, Stephanie Roto, Si Park, Steven Ricke\* *University of Arkansas*

### **P240**

In vivo cellular responses to intradermal injection of phytohemagglutinin (PHA) in chickens

Kallie Sullivan<sup>\*GS</sup>, Kristen Byrne, Hyeonmin Jang, Gisela Erf *University of Arkansas*

### **P241**

Detection and quantification of viable airborne avian influenza generated indirectly from infected chickens housed on litter

Charles Balzli\*, Kateri Bertran, Lindsay Killmaster, David Swayne *USDA Agriculture Research Service*

### **P242**

Characterizing the adaptive cellular immune response of peripheral blood and splenic leukocytes in juvenile White Leghorn and Plymouth White Rock SPF chickens.

Stivalis Cardenas Garcia<sup>\*GS1</sup>, Robert Williams<sup>1</sup>, Robert Dunwoody<sup>2</sup>, Valerie Marciano<sup>1</sup>, Patti Miller<sup>3</sup>, Corrie Brown<sup>1</sup>, Claudio Afonso<sup>3</sup>, Robert Gogal Jr.<sup>1</sup> <sup>1</sup>The University of Georgia; <sup>2</sup>Mercer University; <sup>3</sup>Southeast Poultry Research Laboratory

### **P243**

Outbreaks of Avian Encephalomyelitis with unusual Lesions in young Brown Chickens

Carmen Jerry<sup>\*GS1</sup>, Lisa Stabler<sup>2</sup>, Monique Franca<sup>1</sup>, Mark Bland<sup>3</sup>, H.L. Shivaprasad<sup>4</sup> <sup>1</sup>University of Georgia; <sup>2</sup>Poultry Diagnostic Research Center; <sup>3</sup>Cutler Associates; <sup>4</sup>University of California, Davis

### **P244**

Protective effects of silymarin against cadmium induced renal and reproductive pathology in female japanese quail (coturnix japonica)

Salman Butt<sup>\*GS1</sup>, Muhammad Zargham Khan<sup>2</sup>, Ahrar Khan<sup>2</sup>, Muhammad Kashif Saleemi<sup>2</sup>, Muhammad Waseem Tahir<sup>2</sup> <sup>1</sup>University of Georgia; <sup>2</sup>University of Agriculture, Pakistan

## **P245**

Performance of coccidia challenged broiler chickens fed Gallinat<sup>®</sup> and Gallinat+<sup>®</sup>  
Greg Mathis\*, Brett Lumpkins *Southern Poultry Research, Inc.*

## **P246**

Poulvac E. coli<sup>®</sup> trial in commercial broilers seeing unusually high E. coli mortality secondary to IBV variant DMV/1639 challenge

Kalen Cookson<sup>1</sup>, Taylor Barbosa<sup>1</sup>, John Dickson<sup>1</sup>, Jon Schaeffer<sup>1</sup>, Don Ritter<sup>2</sup> <sup>1</sup>*Zoetis, U.S. Poultry*; <sup>2</sup>*Mountaire Farms*

## **P247**

Evaluation of the efficacy of different coccidiosis bioshuttle program and dietary capsicum-turmeric oleoresins as an alternative to AGPs on performance in broilers.

Tina Yun-Ting Wang<sup>1</sup>, Marilynn Finklin<sup>1</sup>, Charles Hofacre<sup>2</sup>, Greg Mathis<sup>3</sup>, Ben Johnson<sup>1</sup>, Tj Gaydos<sup>1</sup> <sup>1</sup>*Huvepharma Inc*; <sup>2</sup>*University of Georgia*; <sup>3</sup>*Southern Poultry Research Group, Inc*

## **P248**

Efficacy of live infectious bursal disease (IBD) vaccines in México.

Nancy Christy\*, Josue Sanchez *Boehringer Ingelheim Mexico*

## **P249**

Experimental evaluation of combined application of live IBV and E. coli vaccines in broilers  
Harm Geerligs, Luuk Stooker, Kalen Cookson, John Dickson, Taylor Barbosa\* *Zoetis Inc*

## **Environment, Management & Animal Well-Being**

## **P250**

Efficacy of 2-Nitropropanol and 2-Nitroethanol to reduce the growth of Salmonella Enteritidis, Salmonella Heidelberg, Salmonella Kentucky and Salmonella Typhimurium in vitro

P. A. Adhikari<sup>\*GS1</sup>, D. E. Cosby<sup>2</sup>, N. A. Cox<sup>2</sup>, W. K. Kim<sup>1</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*USDA, ARS, U.S. National Poultry Research Center, PMSPRU*

## **P251**

Biofilm growth on polyvinylchloride surface incubated in suboptimal quality warm water and effect of sanitizers on biofilm removal post biofilm formation

Pramir Maharjan<sup>\*GS1</sup>, Sonia Tsai<sup>2</sup>, Samantha Cox<sup>1</sup>, Geetha Phillips<sup>1</sup>, Wen Zhang<sup>1</sup>, Geraldine Huff<sup>2</sup>, Susan Watkins<sup>1</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*USDA*

## **P252**

Preference of young chicks for varying radiant fluxes

John Linhoss<sup>\*GS1</sup>, Joseph Purswell<sup>2</sup>, Jeremiah Davis<sup>3</sup> <sup>1</sup>*Mississippi State University*; <sup>2</sup>*USDA ARS Poultry Research Unit*; <sup>3</sup>*Auburn University*

## **P253**

The effect of pen size on water to feed ratio of broiler chickens

Abdulmohsen Alqhtani<sup>\*GS</sup>, Brian Fairchild, Michael Czarick *The University of Georgia*

## **P254**

Characterizing the broiler transport thermal environment

Douglas Aldridge<sup>\*GS</sup>, Karen Christensen, Susan Watkins, Yvonne Vizzier-Thaxton, Yi Liang *University of Arkansas*

## **P255**

Occurrence of white striping under commercial conditions in broiler chickens

Nilsa Lima<sup>\*GS1</sup>, Francieli Montagna<sup>2</sup>, Rodrigo Garcia<sup>2</sup>, Irenilza Nääs<sup>1</sup>, Fabiana Caldara<sup>2</sup> <sup>1</sup>*State University of Campinas*; <sup>2</sup>*Federal University of Grande Dourados*

## **P256**

Stocking density impacts on production qualities of broilers raised without antibiotics

Meghan Loper<sup>\*GS</sup>, Amanda McKeith *California State University, Fresno*

## **P257**

The Performances and Succetatability of Different Commercial Broilers Hybreed to Leg Disorders

Fereshte Gholami\*, Farid Shariatmadari *Tarbiat Modares University*

## **P258**

Determining the Optimal Stocking Density of Meat Type Pekin Ducks Reared on Raised Floors  
Chelsea Phillips\*, Zachary Lowman *North Carolina State University*

## **P259**

Biofilm development on polyvinylchloride surface when exposed to low microbial content warm water under treated and untreated conditions

Pramir Maharjan<sup>1</sup>, Sonia Tsai<sup>2</sup>, Samantha Cox<sup>1</sup>, Geetha Phillips<sup>1</sup>, Wen Zhang<sup>1</sup>, Geraldine Huff<sup>2</sup>, Susan Watkins<sup>1</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*USDA*

## **P260**

Gait score in broilers raised in dark house and tunnel

Beatriz Roriz<sup>1</sup>, Cristina Ayala<sup>1</sup>, Rodrigo Garcia<sup>1</sup>, Sarah Sgavioli<sup>1</sup>, Irenilza Nääs<sup>1</sup>, Fabiana Caldara<sup>1</sup>, Carla Heloisa Domingues<sup>1</sup>, Luiz Gustavo Rombola<sup>2</sup> <sup>1</sup>*Federal University of Grande Dourados*; <sup>2</sup>*Animal Scientist*

## **P261**

Spondylolisthesis in broilers raised in dark house and tunnel

Cristina Ayala<sup>1</sup>, Rodrigo Garcia<sup>1</sup>, Sarah Sgavioli<sup>1</sup>, Beatriz Roriz<sup>1</sup>, Irenilza Nääs<sup>1</sup>, Fabiana Caldara<sup>1</sup>, Carla Heloisa Domingues<sup>1</sup>, Luiz Gustavo Rombola<sup>2</sup> <sup>1</sup>*Federal University of Grande Dourados*; <sup>2</sup>*Animal Scientist*

## **P262**

Storage period of quail egg affects weight loss of eggs

Beatriz Roriz<sup>1</sup>, Sarah Sgavioli<sup>1</sup>, Rodrigo Garcia<sup>1</sup>, Irenilza Nääs<sup>1</sup>, Carla Heloisa Domingues<sup>1</sup>, Fabiana Caldara<sup>1</sup>, Cristina Ayala<sup>1</sup>, Luiz Gustavo Rombola<sup>2</sup> <sup>1</sup>*Federal University of Grande Dourados*; <sup>2</sup>*Animal Scientist*

## **P263**

Negative pressure systems and housing position influences the broiler breast surface temperature

Cristina Ayala<sup>1</sup>, Rodrigo Garcia<sup>1</sup>, Sarah Sgavioli<sup>1</sup>, Beatriz Roriz<sup>1</sup>, Irenilza Nääs<sup>1</sup>, Fabiana Caldara<sup>1</sup>, Luiz Gustavo Rombola<sup>2</sup> <sup>1</sup>*Federal University of Grande Dourados*; <sup>2</sup>*Animal Scientist*

## **P264**

Broiler surface temperature and behavioral response under two different light sources

Beatriz Roriz<sup>1</sup>, Rodrigo Garcia<sup>1</sup>, Fabrício Araújo<sup>1</sup>, Irenilza Naas<sup>1</sup>, Fabiana Caldara<sup>1</sup> *Federal University of Grande Dourados*

## **P265**

Surface Temperature of broilers under Water Diet with Lemon Grass (*Cymbopogon citratus* Stapf)

Nilsa Lima<sup>\*</sup>, Silvana Simm, Rodrigo Garcia, Irenilza Nääs, Fabiana Caldara *Federal University of Grande Dourados*

## **P266**

FIELD OBSERVATIONS: Insect populations on mixed grasses versus alfalfa pastures

Jacqueline Jacob<sup>1</sup>, Blake Newton<sup>1</sup>, Anthony Pescatore<sup>1</sup>, H. David Gillespie<sup>1</sup>, Siddhartha Dasgupta<sup>2</sup> <sup>1</sup>*University of Kentucky*; <sup>2</sup>*Kentucky State University*

## **P267**

Stress assessment complications by hematology — reactive clusters, leukergy, and white emboli

Paul Cotter<sup>\*</sup> *Cotter Laboratory, Arlington, MA, USA*

Paul Cotter<sup>\*</sup> *Cotter Laboratory*

## **P268**

Influence of light sources and photoperiod on growth performance and carcass characteristics of heavy broilers at 56 days of age.

Hammed Olanrewaju<sup>\*</sup>, Joseph Purswell, Stephanie Collier, Scott Branton *USDA-ARS*

## **P269**

A simplified dilution method for detection of *Campylobacter* in broiler ceca

Douglas Cosby<sup>\*</sup>, Nelson Cox, Mark Berrang *U.S. Department of Agriculture*

## **P270**

Persistence of artificially inoculated *Salmonella* and *Campylobacter* in the ceca, spleen and liver/gall bladder of broiler chicks

Nelson Cox<sup>1</sup>, Douglas Cosby<sup>1</sup>, Jeanna Wilson<sup>2</sup>, Beverly McIendon<sup>2</sup>, Mark Berrang<sup>1</sup> <sup>1</sup>*U.S. Department of Agriculture*; <sup>2</sup>*University of Georgia*

**P271**

Using White with Red LED Lighting to improve hatchability and chick quality in broilers and layers

Gregory Archer<sup>1</sup>, Juliette Delabbio<sup>2</sup> <sup>1</sup>*Texas A&M University*; <sup>2</sup>*ONCE Innovations Inc.*

**P272**

Supporting practice change on-farm: modifying hatching egg washing practices

Brenda Schneider<sup>\*1</sup>, Jessica Josephson<sup>1</sup>, Gary Gensler<sup>1</sup>, Nancy Robinson<sup>2</sup>, Valerie Carney<sup>1</sup>

<sup>1</sup>*Alberta Agriculture and Forestry*; <sup>2</sup>*Alberta Hatching Egg Producers*

**P273**

Including XPC<sup>™</sup> feed additive in the diet of inoculated broilers during grow-out helps control Salmonella associated with their carcasses after processing

Nelson Cox<sup>\*1</sup>, Douglas Cosby<sup>1</sup>, Jeanna Wilson<sup>2</sup>, Dianna Bourassa<sup>1</sup>, R. Buhr<sup>1</sup>, Mark Berrang<sup>1</sup>, Donald McIntyre<sup>3</sup>, Douglas Smith<sup>3</sup> <sup>1</sup>*USDA, ARS, PMSPRU*; <sup>2</sup>*University of Georgia*; <sup>3</sup>*Diamond V*

**P274**

The in vitro Clostridium perfringens and Escherichia coli toxin adsorption of Varium<sup>™</sup>.

Yeaseul Lim<sup>1</sup>, San Ching<sup>2</sup>, Fang Chi<sup>2</sup>, Sara Johnston<sup>2</sup>, Ed De Boer<sup>2</sup>, Hyun Lillehoj<sup>1</sup> <sup>1</sup>*ARS-USDA*;

<sup>2</sup>*Amlan International*

**P275**

Effect of LED Color on the Behavior at Different Growth Stage of Ducks

Kyeong Ryu<sup>\*1</sup>, Ho Choe<sup>1</sup>, Kye Kim<sup>2</sup> <sup>1</sup>*Chonbuk National University*; <sup>2</sup>*RFsemi Technologies, Inc*

**P276**

A comparison of lighting sources influence between LED and conventional light on performance of broiler chicks

Kyeong Ryu<sup>\*1</sup>, Jong Choi<sup>2</sup> <sup>1</sup>*Chonbuk National University*; <sup>2</sup>*Airtec System Co. LTD*

**P277**

The effect of microbial contaminants in feed on broiler performance during a Clostridial challenge

Kurt Richardson<sup>\*1</sup>, Chuck Hofacre<sup>2</sup>, Greg Mathias<sup>3</sup>, Brett Lumpkin<sup>3</sup> <sup>1</sup>*Anitox Corporation*;

<sup>2</sup>*University of Georgia*; <sup>3</sup>*Southern Poultry Research*

**P278**

Effects of monochromatic green and red lights during incubation on hatchability and hatchling traits

Mariana Mesquita<sup>1</sup>, Edgar Oviedo-Rondón<sup>2</sup>, Luis Bernal-Arango<sup>3</sup>, Liliane Borsatti<sup>4</sup>, Albaraa Sarour<sup>\*2</sup>, Mike Wineland<sup>2</sup> <sup>1</sup>*Universidade Federal de Goiás — Goiânia*; <sup>2</sup>*North Carolina State University*; <sup>3</sup>*Politécnico Colombiano Jaime Isaza Cadavid*; <sup>4</sup>*Universidade Federal do Rio Grande do Sul — Porto Alegre*

**P279**

Comparison of two different flooring systems for broilers

Hong Li<sup>\*1</sup>, Robert Alphin<sup>1</sup>, Zhiping Zhu<sup>2</sup>, Zhongkai Zhou<sup>4</sup>, Xin Wen<sup>3</sup> <sup>1</sup>*University of Delaware*;

<sup>2</sup>*Chinese Academy of Agriculture Sciences*; <sup>3</sup>*Hunan Agricultural University*; <sup>4</sup>*Jiangsu Academy of Agriculture Sciences*

**P280**

Effects of limestone particle size and dietary phosphorus level for pullets on bone health and performance during lay raised in deep litter systems

Pamela Eusebio-Balcazar<sup>\*</sup>, Sheila Purdum *University of Nebraska-Lincoln*

**P281**

Analysis of more than 380 mycotoxins in 556 feed and raw material samples in 2015

Verena Starkl<sup>\*</sup>, Paula Kovalsky *Biomin Holding GmbH*

**P282**

Chamomile extracts (*Matricaria recutita*) in the performance of Japanese quails (*Coturnix coturnix japonica*)

Rodrigo Garcia<sup>\*</sup>, Karine Tenório, Beatriz Roriz, Cristina Ayala, Sarah Sgavioli, Lucas Brasileiro, Wellington Dos Santos, Willian Gouvea, Fabiana Caldara, Irenilza Naas *Universidade Federal da Grande Dourados*

## **P283**

FIELD OBSERVATIONS: Effect of pasture crop selection on insect population

Jacqueline Jacob<sup>\*1</sup>, Blake Newton<sup>1</sup>, Anthony Pescatore<sup>1</sup>, H Gillespie<sup>1</sup>, Siddhartha Dasgupta<sup>2</sup>

<sup>1</sup>University of Kentucky; <sup>2</sup>Kentucky State University

## **P284**

Western Poultry Conference: Influencing practice change through innovation

Valerie Carney<sup>\*</sup>, Brenda Schneider, Jessica Josephson *Alberta Agriculture and Forestry*

## **P285**

Air quality and litter in negative pressure systems: dark house and tunnel

Rodrigo Garcia<sup>\*</sup>, Cristina Ayala, Sarah Sgavioli, Beatriz Roriz, Irenilza Naas, Fabiana Caldara,

Luiz Rombola *Universidade Federal da Grande Dourados*

## **P286**

Model-predicted ammonia emission from two broiler houses with different rearing systems

Rodrigo Garcia<sup>\*</sup>, Nilsa Lima, Irenilza Naas, Fabiana Caldara *Universidade Federal da Grande Dourados*

## **P287**

Foot scores of breeder Pekin ducks on conventional nipple water lines compared to open source water troughs

Jocelyn Romano<sup>\*1</sup>, Zachary Lowman<sup>2</sup> <sup>1</sup>Poultry Consultant; <sup>2</sup>North Carolina State University

## **P288**

Effect of monochromatic green light exposure at different times during incubation on hatchability and hatching characteristics

Mariana Mesquita<sup>1</sup>, Edgar Oviedo-Rondón<sup>2</sup>, Luis Bernal-Arango<sup>3</sup>, Albaraa Sarsour<sup>2</sup>, Liliane Borsatti<sup>4</sup>, Patricia Aristimunha<sup>4</sup>, Lindolfo Dorcino<sup>1</sup>, Mike Wineland<sup>2</sup>, Hernan Cordova<sup>2</sup>

<sup>1</sup>Universidade Federal de Goiás — Goiânia; <sup>2</sup>North Carolina State University; <sup>3</sup>Politécnico Colombiano Jaime Isaza Cadavid; <sup>4</sup>Universidade Federal do Rio Grande do Sul — Porto Alegre

## **P289**

Early colonizing bacteria in the gastrointestinal tract of day-of-hatch broilers

Evan Hutchison<sup>\*</sup>, Tom Rehberger, Eric Vang, Xandra Smith *Agro BioSciences*

## **Metabolism & Nutrition**

### **P290**

Evaluation of plant-based feed additive (AV/HLP/16) on egg quality, production performance and lipid parameters in laying hens

Kathryn Hollingsworth<sup>\*GS1</sup>, Francine Vercese<sup>1</sup>, Gita Cherian<sup>1</sup>, Shivi Maini<sup>2</sup>, Kotagiri Ravikanth<sup>2</sup>, Mohan.J Saxena<sup>2</sup> <sup>1</sup>Oregon State University; <sup>2</sup>Ayurvet Limited

### **P291**

Effect of dietary corn and sorghum on intestinal microbiota of chickens

Naiara Fagundes<sup>\*GS</sup>, Jaqueline Rafael, Maria Carolina Scienia, Cristiano Bortoluzzi, Rafaela Pereira, Glaucia Napy, José Guilherme Barbosa, José Fernando Menten *University of São Paulo*

### **P292**

Effect of cysteine protease enzyme in diet to reduce soybean meal without affecting performance of Kadaknath birds in India

Sandeep Gupta<sup>\*GS</sup>, Mukesh Mehta *College of Veterinary Science &AH, Mhow, NDVSU Jabalpur*

### **P293**

Impacts of alpha-galactosidase on ileal digestible energy and crude protein digestibility

Rocky Latham<sup>\*GS1</sup>, Ray Poureslami<sup>2</sup>, Jason Lee<sup>1</sup>, Kyle Smith<sup>1</sup> <sup>1</sup>Texas A&M University; <sup>2</sup>Kerry Inc.

### **P294**

Tissue distribution of oxidases and transaminases in broiler chickens fed methionine isomers or precursors

Shuai Zhang<sup>\*GS1</sup>, Behnam Saremi<sup>2</sup>, Elizabeth Gilbert<sup>1</sup>, Eric Wong<sup>1</sup> <sup>1</sup>Virginia Tech; <sup>2</sup>Evonik Nutrition & Care GmbH

## **P295**

Effects of Programmed Nutrition (PN) feeding strategy on the production performance, egg quality, bone quality, and liver mineral content of brown laying hens

Marquisha Paul<sup>\*GS1</sup>, Anthony Pescatore<sup>1</sup>, Tuoying Ao<sup>2</sup>, Michael Ford<sup>1</sup>, Harold Gillespie<sup>1</sup>, Austin Cantor<sup>1</sup>, Karl Dawson<sup>2</sup> <sup>1</sup>*University of Kentucky*; <sup>2</sup>*Alltech, Inc.*

## **P296**

Carcass traits of heritage chicken breeds using sorghum and field peas to replace corn and soybean meal in diets

Tatijana Fisher<sup>\*GS1</sup>, Anthony Pescatore<sup>1</sup>, Jacque Jacob<sup>1</sup>, Austin Cantor<sup>1</sup>, Mike Ford<sup>1</sup>, Tuoying Ao<sup>2</sup> <sup>1</sup>*University of Kentucky*; <sup>2</sup>*Alltech Inc.*

## **P297**

Relative bioavailability of Mn proteinate and Mn oxide through tissue Mn uptake in young chicks

Masoumeh Gholami<sup>\*GS1</sup>, Abolghasem Golian<sup>1</sup>, Tuoying Ao<sup>2</sup>, Hassan Kermanshahi<sup>1</sup>, Saeed Zerehdaran<sup>1</sup> <sup>1</sup>*Ferdowsi University of Mashhad*; <sup>2</sup>*Alltech Inc, Catnip Pike, Nicholasville, KY, USA*

## **P298**

Impact of a Bacillus direct-fed microbial supplementation on bone quality, digestive traits and performance parameters in 28-days old broilers fed Barley/Corn/Soybean-based diets

Juan Latorre<sup>\*GS1</sup>, Ross Wolfenden<sup>2</sup>, Jose Vicente<sup>2</sup>, Xochitl Hernandez-Velasco<sup>3</sup>, Lisa Bielke<sup>4</sup>, Billy Hargis<sup>1</sup>, Guillermo Tellez<sup>1</sup> <sup>1</sup>*University of Arkansas*; <sup>2</sup>*Pacific Vet Group-USA, Inc.*; <sup>3</sup>*Universidad Nacional Autónoma de México*; <sup>4</sup>*The Ohio State University*

## **P299**

Effects of different feed restriction programs on antibody response to IBD of broiler chickens

Patricia Cruz Aristimunha<sup>\*GS</sup>, Priscila Oliveira Moraes, Mariane Possamai Della, Rodrigo Borille, Gustavo Dias Lovato, Carlos Ongaratto, Kátia Cardinal, Andrea Machado Leal Ribeiro *Federal University of Rio Grande do Sul*

## **P300**

Effect of glycosaminoglycans and vitamin C injected during incubation on the bone mineral content in broiler chicks

Elaine Santos<sup>\*GS1</sup>, Diana Correa Castiblanco<sup>1</sup>, Liliana Borges<sup>1</sup>, Carla Domingues<sup>2</sup>, Thays Quadros<sup>1</sup>, Sarah Sgavioli<sup>2</sup>, Tiago Petrolli<sup>1</sup>, Giuliana Garcia<sup>1</sup>, Natália Fonseca<sup>1</sup>, Diogo Goulart<sup>1</sup>, Lizandra Amoroso<sup>1</sup>, Silvana Artoni<sup>1</sup> <sup>1</sup>*Sao Paulo State University*; <sup>2</sup>*Federal State University of Grande Dourados*

## **P301**

Effect of NSP-degrading enzyme on the performance of laying hens.

Ashley Bigge<sup>\*GS</sup>, Sheila Purdum, Kathryn Hanford *University of Nebraska-Lincoln*

## **P302**

Metabolisable energy and nutrient availability of field beans for broiler chickens

Jalil Abdulla<sup>\*</sup>, S Rose, Alexander Mackenzie, Vasil Pirgozliev *Harper Adams University*

## **P303**

Effect of Organically Complexed Zinc on Broiler Performance, Zn Concentration of Tibia and Immune response

Fereshte Gholami<sup>\*</sup>, Farid Shariatmadari, Somayeh Kamran Azad *Tarbiat Modares University*

## **P304**

Production parameters and egg quality of laying hens supplemented with vitamin E, selenium and canthaxanthin

Mariane Fernandes<sup>\*</sup>, Alexandre Rosa, Angélica Londero, Alexandre Mariani, Ana Cougo, Adrian Ertmann, Janaina Moura, Pedro Feltrin *Universidade Federal de Santa Maria*

## **P305**

Dietary pearlzyme as a regulator of performance and development of digestive organs in broilers

Seokmin Kang<sup>\*1</sup>, Jimin Kim<sup>1</sup>, Jeong Yong Yoon<sup>1</sup>, Young-Rok Yang<sup>1</sup>, Won Kim<sup>2</sup>, Jung-Soon Jang<sup>3</sup>, Yang-Ho Choi<sup>1</sup> <sup>1</sup>*Gyeongsang National University*; <sup>2</sup>*Mill Tech, Inc.*; <sup>3</sup>*Pearlzyme, Inc.*



### **P306**

Digestible valine requirement for Japanese quail from 1 to 42 days

Danilo Cavalcante<sup>\*1</sup>, Fernando Guilherme Costa<sup>1</sup>, Cristina Lima<sup>1</sup>, Jose Vidal Jr<sup>1</sup>, Gabrielle Castro<sup>1</sup>, Guilherme Lima<sup>1</sup>, Eduardo Nogueira<sup>2</sup>, Gabriel Sandt Pessoa<sup>2</sup> <sup>1</sup>*Federal University of Paraíba*; <sup>2</sup>*Ajinomoto from Brazil*

### **P307**

In ovo threonine supplementation and post-hatch intestinal morphology of chicks challenged with *Salmonella Enteritidis*

Alexandre Moreira Filho<sup>\*</sup>, Patrícia Givisiez, Celso José Oliveira, Alessandra Azevedo, Maria De Fátima Andrade, Candice De Leon, Cristina Lima, Silvana Santos *Federal University of Paraíba*

### **P308**

Digestible valine requirement for laying Japanese quail

Cavalcante Cavalcante<sup>\*1</sup>, Fernando Guilherme Costa<sup>1</sup>, Cristina Lima<sup>1</sup>, Luzia Silva<sup>1</sup>, Guilherme Lima<sup>1</sup>, Sarah Pinheiro<sup>1</sup>, Matheus Lima<sup>1</sup>, Gabrielle Castro<sup>1</sup>, Eduardo Nogueira<sup>2</sup>, Gabriel Sandt Pessoa<sup>2</sup> <sup>1</sup>*Federal University of Paraíba*; <sup>2</sup>*Ajinomoto from Brazil*

### **P309**

Hydrolyzed yeast in laying hen diets

Natalia Koiyama<sup>\*1</sup>, Bruno Locatelli<sup>2</sup>, Cristiane Araújo<sup>1</sup>, Melina Bonato<sup>3</sup>, Lucio Araujo<sup>1</sup> <sup>1</sup>*University of São Paulo*; <sup>2</sup>*Federal University of Grande Dourados*; <sup>3</sup>*ICC*

### **P310**

Welfare of Broilers Ingesting a Pre-Slaughter Hydric Diet of Lemon Grass

Ana Flávia Royer<sup>\*</sup>, Rodrigo Garcia, Irenilza Nääs, Fabiana Caldara, Sarah Sgavioli, Beatriz Roriz, Cristina Ayala *Federal University of Grande Dourados*

### **P311**

The Link Between Egg Shell Quality, Bone Alkaline Phosphatase, and Tartrate Resistant Acid Phosphatase in Breeder Hens and Their Progeny

Craig Coon<sup>\*</sup>, Andrew Magnuson, Justina Caldas, Judy England, Garrett Mullenix, Nirun Boonsinchai *University of Arkansas*

### **P312**

Relationship between Phosphorus Retention and FGF23 in Breeder Hens and Broilers

Craig Coon<sup>\*</sup>, Andrew Magnuson, Nirun Boonsinchai, Justina Caldas, Karen Vignale, Judy England *University of Arkansas*

### **P313**

Non-essential nitrogen sources and essential: total nitrogen ratios in poultry diets

Rosana Maia<sup>\*</sup>, Bruno Faria, Diego Da Silva, Luiz Albino, Horacio Rostagno *Universidade Federal de Viçosa*

### **P314**

Variation of crude protein and amino acids contents in corn, wheat, and barley among different origins

Su Hyun An<sup>\*</sup>, Changsu Kong *Konkuk University*

### **P315**

Variability in the nutrient composition of cereal grains from different origins

Jinyoung Lee<sup>\*</sup>, Changsu Kong *Konkuk University*

### **P316**

Concentrations of the Mannan-Binding Lectin in broilers fed a yeast fermented product and vaccinated against the Newcastle virus

Raul Cortes Coronado<sup>\*1</sup>, Sergio Gomez Rosales<sup>2</sup>, Maria De Angeles<sup>2</sup>, Marie Casaubon<sup>3</sup> <sup>1</sup>*Faculty of Higher Studies Cuautitlan, National Autonomous University of Mexico*; <sup>2</sup>*National Center of Disciplinary Research in Animal Physiology, INIFAP*; <sup>3</sup>*Poultry Science Department, University City, National Autonomous University of Mexico*.

### **P317**

Evaluation of multiple zinc levels and sources on male broiler performance and processing yield

Kyle Brown<sup>\*UG1</sup>, Pat Welch<sup>2</sup>, Kendre Stringfellow<sup>2</sup>, Melanie Roux<sup>2</sup>, Bob Buresh<sup>2</sup>, Rocky Latham<sup>1</sup>, Christine Alvarado<sup>1</sup>, Jason Lee<sup>1</sup> <sup>1</sup>*Texas A&M University*; <sup>2</sup>*Novus International Inc.*

### **P318**

Feasibility of using Elusieve processing to improve the nutritional profile of feed ingredients used in commercial poultry diet formulation

Ana Beatriz Oliveira<sup>UG</sup>, Wei Zhai, Kelley Wamsley *Mississippi State University*

### **P319**

The effect of herbal medicine on immune system, blood biochemical parameters, intestinal microbial population and performance of broilers

Shaban Rahimi<sup>\*</sup>, Mohammad Amir Karimi Torshizi, Mohammad Mahdi Ayyari, Saeed Yakhkeshi, Gholamreza Zaboli *Tarbiat Modares University*

### **P320**

Effects of royal jelly, honey and ethanolic extracted propolis on immune system of Japanese quails (*Coturnix coturnix japonica*)

Sakineh Babaei<sup>1</sup>, Shaban Rahimi<sup>1</sup>, Mohammad Amir Karimi Torshizi<sup>1</sup>, Naser Khaleghi Miran<sup>1</sup>, Gholamhosein Tahmasebi<sup>2</sup>, Amin Rahimi<sup>3</sup> <sup>1</sup>*Tarbiat Modares University*; <sup>2</sup>*Animal Science Research Center*; <sup>3</sup>*Islamic Azad University*

### **P321**

Effects of different levels of vermi humus supplement on productive performance and egg quality traits of laying hens

Morteza Youssefi<sup>\*</sup>, Babak Khosh Zareh, Javad Nasr *Islamic Azad University-Saveh Branch*

### **P322**

Responses of broilers to acute versus chronic heat stress

Manoel Garcia-Neto<sup>\*</sup>, Danilo Sandre, Mayara Rodrigues, Sílvia Perri, Max Faria-Júnior, Marcos Pinto *Faculdade de Medicina Veterinária de Araçatuba, UNESP - Univ Estadual Paulista*

### **P323**

Effects of herbal methionine on growth performance and gene expression for liver nutrient metabolism in pullets

Paula Sedlacek<sup>1</sup>, Shivi Maini<sup>2</sup>, Mohan Ji Saxena<sup>2</sup>, Ravikanth Kotagiri<sup>2</sup> <sup>1</sup>*University of Georgia*; <sup>2</sup>*Ayurvet Limited*

### **P324**

Energy source and not dietary electrolyte balance influenced ileal endogenous amino acid losses in 21 d-old broilers fed nitrogen-free diets

Sunday Adedokun<sup>1</sup>, Anthony Pescatore<sup>1</sup>, Austin Cantor<sup>1</sup>, Michael Ford<sup>1</sup>, Jacqueline Jacob<sup>1</sup>, Tuoying Ao<sup>2</sup>, Ariane Helmbrecht<sup>3</sup> <sup>1</sup>*University of Kentucky*; <sup>2</sup>*Alltech*; <sup>3</sup>*Evonik*

### **P325**

Apparent metabolizable energy from microalgae *Spirulina maxima* for broiler chickens

Fernando Tavernari<sup>1</sup>, Lenilson Roza<sup>2</sup>, Diego Surek<sup>1</sup>, Marcio Da Silva<sup>1</sup> <sup>1</sup>*EMBRAPA*; <sup>2</sup>*UDESC*

### **P326**

Broiler chicken ileal apparent digestibility of calcium and phosphorus from microalgae *Spirulina maxima*

Fernando Tavernari<sup>1</sup>, Diego Surek<sup>1</sup>, Lenilson Roza<sup>2</sup>, Marcio Da Silva<sup>1</sup>, Luiz Albino<sup>3</sup> <sup>1</sup>*EMBRAPA*; <sup>2</sup>*UDESC*; <sup>3</sup>*UFV*

### **P327**

The effect of Aviator supplementation compared to other feed additives on layer Performance

Gustavo Castañeda<sup>1</sup>, Sangita Jalukar<sup>2</sup>, Hans Mann<sup>3</sup> <sup>1</sup>*Universidad de San Carlos de Guatemala*; <sup>2</sup>*Arm and Hammer Animal Nutrition*; <sup>3</sup>*Desarrollo y Nutricion Animal*

### **P328**

Performance of broiler chickens fed antibiotic free diets supplemented with Ration Plus<sup>®</sup> for Poultry

David Hall<sup>1</sup>, Elizabeth Wozniak<sup>1</sup>, Danny Hooze<sup>2</sup>, Michael Sims<sup>3</sup> <sup>1</sup>*Cytozyme Laboratories, Inc.*; <sup>2</sup>*Hooze Consulting Service, LLC*; <sup>3</sup>*Virginia Diversified Research Corp.*

### **P329**

The impact of iron source on the activity of exogenous phytase

Kate Jacques<sup>\*</sup> *Alltech*

**P330**

Effects of copper source and supplementation level on broiler performance and litter moisture from 0 to 28 d of age

Terri Parr, Kurt Perryman\*, Jeff Cohen, James Usry *Micronutrients*

**P331**

Efficacy and safety of applying Sal CURB® to different feed forms using an APEC Mistcoater

Chris Rude\*, Dillon Mellick, Arlene Lamptey, Mark Bienhoff *Kemin Industries*

**P332**

Evaluation of using protease enzyme in corn-soybean meal broiler diets.

Nessrin Selim\*, Heba Habib, Hemat Abdel Magied, Amany Waly, Ahmed Fadl, Sayed Shalash *Animal Production Research Institute(APRI), ARC*

**P333**

Effects of dietary supplementation of Actigen® and Allzyme SSF® on the performance and carcass yield of boiler chicks

Tuoying Ao\*, Lizza Macalintal, Marquisha Paul, Anthony Pescatore, Austin Cantor, Mike Ford, Karl Dawson *Alltech-University of Kentucky Nutrition Research Alliance*

**P334**

Effect of Original-XPC on the cecal microbiome of broilers influencing the survival of Salmonella in an anaerobic in vitro mixed culture assay

Stephanie Roto, Peter Rubinelli, Si Hong Park, Steven Ricke\* *University of Arkansas*

**P335**

Effect of a new herbal product containing 1,25-dihydroxycholecalciferol-glycosides on broiler chicken performance.

Heinrich Bachmann\* *Herbonis Animal Health GmbH*

**P336**

Statistical design for optimization of experiments with broilers

Manoel Garcia-Neto\*, Silvia Perri, Mayara Rodrigues, Danilo Sandre, Max Faria-Júnior *FMVA - Univ Estadual Paulista*

**P337**

Effect of protease supplementation on performance, egg quality and intestinal morphometry of layers

Silvana Barbosa<sup>1</sup>, Gerusa Corrêa<sup>1</sup>, Bruno Vieira<sup>1</sup>, Guilherme Silva<sup>2</sup>, Ricardo Gonzalez-Esquerro<sup>3</sup>, Raquel Araujo<sup>3</sup> <sup>1</sup>*Universidade Federal do Mato Grosso*; <sup>2</sup>*Granja Mantiqueira*; <sup>3</sup>*Novus do Brasil Ltda*

**P338**

Protected combination of sodium butyrate and essential oils in pullets feed, a field evaluation

Monica Puyalto<sup>1</sup>, Miguel Colilla<sup>1</sup>, Teresa Flores<sup>2</sup>, Juan Mallo<sup>1</sup> <sup>1</sup>*NOREL S.A.*; <sup>2</sup>*St. John Biomedics*

**P339**

Effect of *Bacillus subtilis* supplementation and dietary crude protein on growth performance and intestinal morphological changes of meat type chicken

Kamel Mahmoud\*, Belal Obeidat, Mohammad Al-Sadi *Jordan University of Science & Technology*

**P340**

Field comparison of inclusion of two sources of protected butyric acid in broiler starter feeds

Monica Puyalto<sup>1</sup>, Miguel Colilla<sup>1</sup>, Paolo Balzarini<sup>2</sup>, Juan Mallo<sup>1</sup> <sup>1</sup>*NOREL S.A.*; <sup>2</sup>*ORSELL S.R.L.*

**P341**

Effects of Lysophospholipids product (LIPIDOLTM) supplementation to low-protein amino acid diets on growth performance, nutrient digestibility, blood profiles, and carcass traits in broilers

Byoungyun Jung<sup>1</sup>, Waewaree Boontiam<sup>2</sup>, Lin Hu Fang<sup>2</sup>, Han Bit Yoo<sup>2</sup>, Yoo Yong Kim<sup>2</sup> <sup>1</sup>*EASY BIO, Inc.*; <sup>2</sup>*Seoul National University*

**P342**

Effect of Lysophospholipids product (LIPIDOLTM) supplementation on growth performance, nutrient digestibility, blood profiles, and carcass traits in broiler chickens

Young Hyun<sup>1</sup>, Yoon Kyung Hyun<sup>1</sup>, Waewaree Boonitam<sup>2</sup>, Yoo Yong Kim<sup>2</sup>, Byoungyun Jung<sup>1</sup> <sup>1</sup>*EASY BIO, Inc.*; <sup>2</sup>*Seoul National University*

### **P343**

AZOMITE improved performance of white and brown egg layers.

Roger James<sup>1</sup>, James Mcaughton<sup>2</sup>, Al Olinde<sup>2</sup>, Damon Fodge<sup>3</sup> <sup>1</sup>AZOMITE MINERAL PRODUCTS; <sup>2</sup>AHPPharma Research, Inc.; <sup>3</sup>DF International, LLC

### **P344**

Replacing inorganic with organic trace minerals in light breeder hens

Diego Martínez<sup>1</sup>, Carlos Vilchez<sup>2</sup> <sup>1</sup>LIAN Development & Service; <sup>2</sup>Universidad Nacional Agraria La Molina

### **P345**

Effect of adding a protease in broiler diets having different phytase levels and various carbohydrases blends on performance and carcass traits

Ricardo Gonzalez-Esquerro<sup>1</sup>, Raquel Araujo<sup>1</sup>, Carlos López-Coello<sup>2</sup>, José Árce-Menocal<sup>3</sup>, Cesar Lima<sup>4</sup> <sup>1</sup>Novus International Inc.; <sup>2</sup>Universidad Nacional Autónoma de México - UNAM; <sup>3</sup>Universidad Michoacana de San Nicolás de Hidalgo; <sup>4</sup>Universidade de São Paulo

### **P346**

Effects of dietary phytase and multi-enzyme combined on growth performance and nutrient digestibility in broilers

Maziar Mohiti-Asli<sup>1</sup>, Moein Ghanaatparast-Rashti<sup>1</sup>, Abdollah Akbarian<sup>2</sup> <sup>1</sup>University of Guilan; <sup>2</sup>EASY BIO, Inc.

### **P347**

Effects of Feed Additives on Performance, Intestinal Microflora and Fecal Gas Emission of Broiler chicks

Dongwook Kim<sup>1</sup>, Ho Choe<sup>2</sup>, Kyeong Ryu<sup>2</sup> <sup>1</sup>RDA National Research Livestock Institute; <sup>2</sup>Chonbuk National University

### **P348**

Effects of Feeding Cudrania Tricuspidata Fruit on the Performance, Blood Composition and IgG in Laying Hens.

Hanbong Lee<sup>1</sup>, Kyeong Ryu<sup>2</sup>, Ho Choe<sup>2</sup> <sup>1</sup>Miracle Bio Inc; <sup>2</sup>Chonbuk National University

### **P349**

Effect of higher bioavailable sources of trace minerals on performance and quality of laying hens eggs

G. Lima<sup>1</sup>, Gabrille Castro<sup>2</sup>, Fernando Costa<sup>1</sup>, D. Cavalcante<sup>1</sup>, C. Lima<sup>1</sup>, L. Silva<sup>1</sup>, Alexandre Sechinato<sup>3</sup>, Vitor Fascina<sup>3</sup> <sup>1</sup>Universidade Federal da Paraíba - UFPB; <sup>2</sup>Universidade Federal da Paraíba; <sup>3</sup>DSM Nutritional Products

### **P350**

Effects of different levels of Probiotics in Broiler feed

Sagar Paudel<sup>\*</sup>, Damodar Neupane *Nepal Agricultural Research Council*

### **P351**

Evaluation of CALSPORIN® in feed and/or FINELACT® in water for broiler chickens given coccidial and clostridial challenge in battery pens

Matt Kato<sup>1</sup>, Toshihiro Marubashi<sup>1</sup>, Corey Farmer<sup>1</sup>, Brett Lumpkins<sup>2</sup>, Greg Mathis<sup>2</sup>, Charles Hofacre<sup>3</sup>, Danny Hooge<sup>4</sup> <sup>1</sup>Calpis America, Inc.; <sup>2</sup>Southern Poultry Research, Inc.; <sup>3</sup>University of Georgia; <sup>4</sup>Hooge Consulting Service, LLC

### **P352**

Digestible valine requirement for European quail from 1 to 42 days

Fernando Costa<sup>1</sup>, Cristina Lima<sup>1</sup>, Danilo Cavalcante<sup>1</sup>, Sarah Pinheiro<sup>1</sup>, Luzia Silva<sup>1</sup>, Gabrielle Castro<sup>1</sup>, Guilherme Lima<sup>1</sup>, Matheus Lima<sup>1</sup>, Eduardo Nogueira<sup>2</sup>, Gabriel Sandt Pessoa<sup>2</sup> <sup>1</sup>Federal University of Paraíba; <sup>2</sup>Ajinomoto from Brazil

### **P353**

Digestible valine requirement for pullets and laying hens

Fernando Perazzo Costa<sup>1</sup>, Cristina Lima<sup>1</sup>, Danilo Cavalcante<sup>1</sup>, Sarah Pinheiro<sup>1</sup>, Luzia Silva<sup>1</sup>, Gabrielle Castro<sup>1</sup>, Guilherme Lima<sup>1</sup>, Matheus Lima<sup>1</sup>, Eduardo Nogueira<sup>2</sup>, Gabriel Sandt Pessoa<sup>2</sup> <sup>1</sup>Federal University of Paraíba; <sup>2</sup>Ajinomoto from Brazil

### **P354**

Effects on broiler performance and intestinal *E. coli* population of an additive based on essentials oils and benzoic acid

Caroline Mendes<sup>2</sup>, Ricardo Abreu<sup>2</sup>, Leticia Bittencourt<sup>1</sup>, Dino Garcez<sup>1</sup>, Claudia Silva<sup>1</sup>, Rafael Hermes<sup>1</sup> <sup>1</sup>*DSM*; <sup>2</sup>*UFRB*

### **P355**

Effect of L-carnitine, vitamin E-selenium, and Newcastle disease vaccine via in ovo injection on hatchability and performance of broilers

Yasser Jameel<sup>\*</sup> *University of Kerbala*

### **P356**

Digestible lysine requirement of male market turkeys

Sally Noll<sup>1</sup>, Adam Maidman<sup>1</sup>, Zhirong Jiang<sup>2</sup>, Paul Tillman<sup>3</sup> <sup>1</sup>*University of Minnesota*; <sup>2</sup>*Ajinomoto Heartland, Inc*; <sup>3</sup>*Poultry Technical Nutrition Services, LLC*

### **P357**

Effect of three herbs anise, cumin, and rosemary and their combination on broilers lipid profile and performance

Yasser Jameel<sup>1</sup>, Ali Sahib<sup>2</sup>, Mohammed Husain<sup>1</sup>, Morouj Al-Ajeeli<sup>3</sup>, Mohammed Hashim<sup>3</sup> <sup>1</sup>*University of Kerbala*; <sup>2</sup>*University of Kufa*; <sup>3</sup>*Texas A&M University*

### **P358**

Improving broiler performance using a phytogetic feed additive in combination with/without phytase in an energy- and protein-reduced diet

Carina Schieder<sup>1</sup>, Mirjana Dukic-Stojic<sup>2</sup>, Sinisa Bjedov<sup>2</sup>, Lidija Peric<sup>2</sup> <sup>1</sup>*BIOMIN Holding GmbH*; <sup>2</sup>*University of Novi Sad*

### **P359**

Maternal dietary polyunsaturated fatty acids and antioxidant compound affect levels of trace minerals in eggs and docosahexaenoic acid content in progeny tissues

Lizza Macalintal<sup>\*</sup>, Tuoying Ao, Anthony Pescatore, Austin Cantor, P Glenney, Michael Ford, Karl Dawson *Alltech-University of Kentucky Nutrition Research Alliance*

### **P360**

Comparing different zinc programs on broiler performance

Terri Parr<sup>\*</sup>, James Usry, Jeff Cohen *Micronutrients*

### **P361**

Performance of quail supplemented with glutamine and glutamic acid from 1 to 21 days of age

Paulo Silva Junior, Patricia Givisiez, Fernando Costa<sup>\*</sup>, Danilo Cavalcante, Romilton Barros Junior *Universidade Federal da Paraiba*

### **P362**

Use of multi-strain probiotic SYNLAC<sup>TM</sup> II as a substitute for antibiotic growth promoters (AGPs) in commercial boiler duck farms in China

Chung Chien Yang *Synbiotech Inc*

### **P363**

Inclusion of a pasteurized worm leachate in the drinking water of growing broiler chickens fed commercial feeds

Jesus Maguey<sup>1</sup>, Sergio Gomez Rosales<sup>2</sup>, Maria De Angeles<sup>2</sup> <sup>1</sup>*School of Veterinary Medicine and Animal Husbandry, Metropolitan Autonomous University*; <sup>2</sup>*National Center of Disciplinary Research in Animal Physiology, INIFAP*

### **P364**

Tapioca dried meal is a valuable unconventional feed stuff in native chicken ration

Kumarave Varadharajan<sup>\*</sup> *TANUVAS*

### **P365**

Effects of low-protein diets on growth performance and carcass yield of growing White Pekin ducks

Ming Xie<sup>\*</sup>, Yong Jiang, Jing Tang, Wei Huang, Shuisheng Hou *Institute of Animal Sciences, Chinese Academy of Agricultural Sciences*

## **USPOULTRY Presentation**

B313

Monday, January 25

4:00 p.m.

Chair: Dr. John Glisson, *USPoultry*

## **Poster Reception**

B313 Foyer

Monday, January 25

4:30 p.m.

Chair: Dr. Mary M. Beck, *Mississippi State University, Mississippi State, MS*

## **Milton L. Dendy Keynote Address**

B313

Tuesday, January 26

11:00 a.m.

Dr. Randall Singer, *University of Minnesota, St. Paul, MN*

Antibiotic Usage in Poultry: Assessing the Effects on Antibiotic Resistance and Human Health

Chair: Dr. Mark Jackwood, *University of Georgia, Athens, GA*

## **SCAD Business Meeting**

B312

Tuesday, January 26

Noon

Chair: Dr. Brian Jordan, *University of Georgia, Athens, GA*

## **SPSS Business Meeting**

B313

Tuesday, January 26

Noon

Chair: Dr. David Caldwell, *Texas A&M University, College Station TX*

## 2014 SPSS Student Awards:

### **Nutrition**

Robert Sellers, Mississippi State  
Kathryn Meloche, Auburn  
C.E. Evans, NC State University  
Tucker Allcorn, Texas A&M

### **Environment Management**

Alex Gilley, U of Arkansas

### **Processing and Products**

Kimberly Wilson, U of Georgia

### **Physiology**

Jonathan Morris, U of Georgia

### **Pathology**

Silvia Carnaccini, U of Georgia

### **Posters**

Anna Kenyon, U of Georgia  
John Linhoss, Mississippi State  
Marquisha Paul, U of Kentucky

### **Don R. Sloan Undergraduate**

#### **Research Award Recipients**

Hunter Walters, Texas A&M  
Jared Chandler, Mississippi State

### **Undergraduate Research Award**

#### **Participants**

Hunter Walters, Texas A&M  
Liris Kindlein, Federal University of Rio Grande do Sul

Priscila Zorzetto, Mississippi State

Kyle Brown, Texas A&M

Jared Chandler, Mississippi State

Lasheda Brooks, Delaware State

Kelly Frazier, Hope College

Erin Alenciks, Hope College

Amanda Porter, Hope College

Caitlin Harris, U of Georgia

Sarah Mathe, Kansas State

Margarita Fernanda Gomez Meza,  
Universidad Nacional Autonoma de Mexico

Juliana Hirai, Mississippi State

Chelsea Phillips, NC State

Courtney Wade, Mississippi State

McCaide Wooten, NC State

Marie Schirmacher, VA Tech

Klint McCafferty, Auburn

Austin Jasek, Texas A&M

Kyle Smith, Texas A&M

Kolton Page, Texas A&M

Derek Elmor, U of Georgia

Kyle Teague, U of Arkansas

Lucas Graham, U of Arkansas

C.E. Harris, U of Georgia

Amanda Howard, U of Georgia

### **Alltech Student Manuscript Award**

Kathryn Meloche, Auburn

## 2015 SCAD Student Awards:

### **Best Poster Award**

Marie Schirmacher, Texas A&M University

### **Best Oral Presentation**

Christina Leyson, University of Georgia

## Past Presidents of the Southern Conference on Avian Diseases

A.L. Kleckner

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