

**Monday, March 8, 2021****Animal Behavior, Health and Well-Being**

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 86. Effect of Post-metaphylactic Interval on Health and Performance of Steers Administered Tildipirosin for the Control of Bovine Respiratory DiseaseMarshall N. Streater¹, Josh Szasz², Tony C. Bryant²¹Merck Animal Health, ²Five Rivers Cattle Feeding**7:00 a.m. 91 Maternal Programming of the Piglet Microbiome from Birth to Weaning**Kayla Law¹, Brigit Lozinski², Ivanellis Torres², Adrienne Hilbrands³, Emma Nelson⁴, Lee J. Johnston³, Andres Gomez¹¹University of Minnesota, ²University of Minnesota-Twin Cities, Department of Animal Science, ³West Central Research and Outreach Center, University of Minnesota, ⁴University of Minnesota-Twin Cities, Department of Animal Science; University of Minnesota-West Central Research and Outreach Center**7:00 a.m. 88 Foundational Investigations of Tissue Dimensions and Their Relation to Captive Bolt application Sites on Cadaver Heads from Mature Swine - A Preliminary Report**Karly N. Anderson¹, Angela Baysinger², Madonna Benjamin³, James Claus⁴, Brett O'Brien², Alejandro Ramirez⁵, Arquimides Reyes⁶, Kurt D. Vogel⁷¹University of Minnesota/University of Wisconsin-River Falls, ²Merck Animal Health, ³Michigan State University, ⁴University of Wisconsin - Madison, ⁵Iowa State University, ⁶University of Wisconsin, ⁷University of Wisconsin - River Falls**7:00 a.m. 85 Vaccination Mitigates Performance Losses During a Lawsonia Intracellularis Experimental Challenge**Emma T. Helm¹, Eric R. Burrough¹, Fernando L. Leite², Nicholas K. Gabler¹¹Iowa State University, ²Boehringer Ingelheim Animal Health**7:00 a.m. 92 Effect of Rearing Cross-fostered Piglets in Litters of Differing Within-litter Birth Weight Variation on Pre-weaning Growth and Mortality**Katherine D. Vande Pol¹, Rafael Ovidio Bautista Rivas¹, Heath Harper², Caleb M. Shull³, Katie Brown³, Mike Ellis¹¹University of Illinois, ²Carthage Veterinary Service, ³The Maschhoffs, LLC**7:00 a.m. 87 Effect of Number of Source Litters Used to Create Cross-fostered Litters on Piglet Pre-weaning Mortality and Weaning Weight**Katherine D. Vande Pol¹, Rafael Ovidio Bautista Rivas¹, Alicia Olivo Espinal¹, Heath Harper², Caleb M. Shull³, Katie Brown³, Mike Ellis¹¹University of Illinois, ²Carthage Veterinary Service, ³The Maschhoffs, LLC

7:00 a.m. 90 **Comparing Methods of Raising Twin Beef Calves**

Eduarda M. Mazzardo Bortoluzzi¹, Kolton W. Aubuchon², Nicole D. Robben¹, Mikayla Goering¹, Claiborn Bronkhorst³, John A. Odde³, Clay Breiner⁴, Karol E. Fike², Lindsey E. Hulbert², Kenneth G. Odde²

¹Kansas State University - Animal Science and Industry, ²Kansas State University, ³Odde Ranch, ⁴Cross Country Genetics

7:00 a.m. 89 **Effects of a Novel Heat Lamp Compared to Conventional Heat Lamps on Litter Performance**

Heath Harper¹, Gustavo Silva², Beau Peterson³, Joseph F. Connor¹, Amos Petersen⁴, Chris Hanson⁴

¹Carthage Veterinary Service, ²Iowa State University, ³Carthage Innovative Swine Solutions, ⁴FarrPro

David H. Baker Symposium

Chair: David Cook, Cargill, Inc

1:00 PM - 5:00 PM

Channel 1

1:00 p.m. **David H. Baker Symposium Introduction**

1:05 p.m. 8 **Functional Role of Histidine in Diets of Young Pigs**

Jaap Van Milgen¹, Nathalie Le Floc'h¹

¹PEGASE, INRAE, Institut Agro

1:40 p.m. 122 **A Mechanistic Model of Growth and Amino Acid Deposition in the Pregnant Sow: Model Development, Evaluation, and Application**

Christian D. Ramirez-Camba¹, Crystal L. Levesque¹

¹South Dakota State University

1:55 p.m. 9 **What Would Be the Next Feed Amino Acid Based on a Microbial Point of View?**

So-Young Kim¹

¹CJ CheilJedang

2:30 p.m. 172 **Effects of Dietary Valine, Isoleucine, and Tryptophan Supplementations to Diets Containing Excess Leucine from Corn Protein on Growth Performance of Growing Pigs**

Woong Bi Kwon¹, Jose A. Soto², Hans H. Stein³

¹University of Illinois, ²Ajinomoto Heartland, ³University of Illinois at Urbana-Champaign

2:45 p.m. **David H. Baker Symposium Break**

3:00 p.m. 10 **Mechanisms by Which Amino Acids May Enhance Mineral Absorption in Animals**

Jesse Goff¹

¹Iowa State University College of Veterinary Medicine

3:35 p.m. 210 **A Longer Adaptation Period to a Functional Amino Acid-supplemented Diet Improves Growth Performance and Attenuates Acute-phase Response in Salmonella Typhimurium-challenged Pigs**

Lucas A. Rodrigues¹, Michael O. Wellington², Caroline Gonzalez Vega³, John K. Htoo⁴, Andrew G. Van Kessel⁵, Daniel A. Columbus²

¹Prairie Swine Center, ²Prairie Swine Centre, Inc., ³Cargill Animal Nutrition, ⁴Evonik Operations GmbH, ⁵University of Saskatchewan

3:50 p.m. 11 **Metal Amino Acid Chelates/complexes with Emphasis on Molecule Absorption and Efficacy Differences in Swine**

Karen J. Wedekind¹

¹Novus International, Inc.

4:25 p.m. **David H. Baker Symposium Discussion**

Digestive Physiology of Pigs (DPP) Lecture

Chair: Clint Krehbiel, University of Nebraska

12:15 PM - 1:15 PM

Channel 3

12:15 p.m. **Digestive Physiology of Pigs (DPP) Lecture Introduction**

12:20 p.m. 7 **Digestive Physiology of Pigs Lecture: Past, Present and Future**

Thomas E. Burkey¹, Merlin D. Lindemann²

¹University of Nebraska-Lincoln, ²University of Kentucky

Gary Allee Symposium

Chair: Mark Newcomb, Cargill Animal Nutrition and Health

8:00 AM - 12:00 PM

Channel 1

8:00 a.m. 1 **Introduction: Review of the Career: Gary L. Allee**

Mark D. Newcomb¹

¹Cargill Animal Nutrition and Health

8:25 a.m. 2 **A Metabolic Understanding of Nutrition**

Brian J. Kerr¹

¹USDA-ARS National Laboratory for Agriculture and the Environment

9:10 a.m. 3 **Nursery Pig Research Under Dr. Gary Allee**

Kevin Touchette¹

¹Ralco

9:45 a.m. **Gary Allee Symposium Break**

9:55 a.m. 4 **Protein and Amino Acid Concepts and Use in Swine Nutrition: Gary Allee's Contributions to the Swine Industry**

Robert D. Goodband¹

¹Kansas State University

10:35 a.m. 5 **International Scientific Development and Application**
Gary Stoner¹
¹CP Group

11:15 a.m. 6 **Dr. Allee's Philosophy on Teaching, Research, and the Swine Industry--A Tribute**
Joel D. Spencer¹
¹United Animal Health

Graduate Student Oral Competition: PHD

Chair: Terry Ward, Zinpro Corporation

8:00 AM - 10:30 AM

Channel 3

8:00 a.m. **Graduate Student Oral Competition: PHD Introduction**

8:05 a.m. 32 **Assessment of Dry-Aged Beef from Commercial Aging Locations Across the United States**

Jessica M. Lancaster¹, Jaxon Smart¹, Brianna Buseman¹, Jessie B. Van Buren¹, Tanya Weber¹, Kizkitza Insausti², James Nasados¹, Benton B. Glaze¹, William Price¹, Michael J. Colle¹, Phillip D. Bass¹

¹University of Idaho, ²Public University of Navarra

8:20 a.m. 33 **Comparison of Monensin Sodium Sources for Finishing Beef Cattle**

Taylor C. Husz¹, Wyatt N. Smith², Caleb G. Lockard³, Megan Homolka⁴, Pete T. Anderson⁵, Wes Gentry⁵, Joel D. Sugg⁵, Jenny Jennings⁶, Kenneth Casey⁶

¹Texas A&M University Agri-Life Research, ²West Texas A&M, ³AgriLife Research, ⁴Texas AgriLife, ⁵Midwest PMS, LLC, ⁶Texas A&M Agri-life

8:35 a.m. 34 **Effect of Feeding Vitamin D Supplementation on Calcium and Phosphorus Metabolism When Piglets Are Fed a DON Contaminated Diet**

Béatrice Sauvé¹, Marie-Pierre Létourneau-Montminy², Frédéric Guay²

¹University Laval, ²Université Laval

8:50 a.m. 35 **Effect of Late Gestational Heat Stress on Placental Characteristics in Dairy Cattle**

Greer M. Potadle¹, Geoff Dahl², Thaigo Fabris², Jennifer M. Bundy³, Howard Tyler³

¹North Dakota State University, ²University of Florida, ³Iowa State University

9:05 a.m. 36 **Evaluation of Compensatory Growth of 90-kg Finishing Pigs Previously Fed a Low Lysine Diet**

Zhong-Xing Rao¹, Mike D. Tokach¹, Jordan T. Gebhardt², Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹

¹Kansas State University, ²Kansas State University

9:20 a.m. 41 **Effect of Biochar Supplementation in Beef Cattle Finishing Diets on Greenhouse Gas Emissions and Carcass Performance**

Jessica L. Sperber¹, Braden C. Troyer¹, Mitchell M. Norman², Levi J. McPhillips³, Andrea K. Watson¹, Galen E. Erickson¹

¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska

9:35 a.m. 38 **Evaluation of Sorghum Phenolic Compounds for Their Antimicrobial Activities Against Liver Abscess Causing Pathogens in Feedlot Cattle**

Harith M. Salih¹, Raghavendra G. Amachawadi², Cierra Roubicek², Sarah Sexton-Bowser², Jinrong Wang², Yonghui Li³, TG Nagaraja²

¹Department of Clinical Sciences, College of Veterinary Medicine, Kansas State University, ²Kansas State University, ³Department of Grain Science & Industry, Kansas State University

9:50 a.m. 39 **Muddy Environmental Conditions Cause Conceptus Free Live Weight Loss but Not a Decrease in Calf Birth Weight When Compared with Cows Housed on Wood Chips**

Kirsten Nickles¹, Alejandro E. Relling¹, Alvaro Garcia Guerra¹, Todd R. Callaway², Anthony J. Parker¹

¹The Ohio State University, ²University of Georgia

10:05 a.m. 40 **Novel Genomic Regions Associated with Igg Antibody Response to PRRSV Vaccination Revealed by Haplotype-based GWAS**

Leticia P. Sanglard¹, Yijian Huang², Kent A. Gray², Daniel Linhares¹, Jack C.M. Dekkers¹, Megan niederwerder³, Rohan Fernando¹, Nick V. Serao¹

¹Iowa State University, ²Smithfield Premium Genetics, ³Kansas State University

Graduate Student Oral Competition: MS

Chair: Glenn Duff, New Mexico State University

8:00 AM - 11:50 AM

Channel 2

8:00 a.m. **Graduate Student Oral Competition: MS Introduction**

8:05 a.m. 31 **Using Caloric Efficiency to Estimate the Energy Value of Expelled, Extruded Soybean Meal Relative to Dehulled, Solvent-extracted Soybean Meal and Its Effects on Growth Performance of Nursery Pigs**

Allison K. Blomme¹, Haley Otott¹, Charles R. Stark¹, Chad B. Paulk¹

¹Kansas State University

8:20 a.m. 17 **A De novo Recessive Mutation Causative of Mandibulofacial Dysostosis in Hereford Cattle**

Renae L. Sieck¹, Anna M. Fuller¹, Patrick Bedwell², Jack Ward², Stacy Sanders², Shi-Hua Xiang³, Sichong Peng⁴, David Steffen¹, Jessica L. Petersen⁵

¹University of Nebraska-Lincoln, ²American Hereford Association, ³University of Nebraska,

⁴University of California-Davis, ⁵University of Nebraska - Lincoln

8:35 a.m. 19 **Dietary Supplementation of Botanicals Enhanced Growth Performance and Disease Resistance of Weaned Pigs Experimentally Infected with a Pathogenic E. coli**

Braden Wong¹, Yijie He², Kwangwook Kim¹, Sharon Xu², Christopher Lingga², Xunde Li¹, Emma Wall³, Yanhong Liu¹

¹University of California, Davis, ²Department of Animal Science, University of California, Davis,

³AVT Natural

8:50 a.m. 20 **Effect of Adding Bioactive Peptide in Combination of Pharmaceutical Zinc Oxide or Organic Acids on Growth Performance, Hematology Profile, and Nutrient Digestibility in Nursery Pigs**

Richard A. Mudarra¹, Tsungcheng Cheng Tsai¹, Kristopher Bottoms¹, Thomas S. Shieh², Casey Bradly³, Charles V. Maxwell¹

¹University of Arkansas, ²Vitech Bio-Chem Corp., ³Vitech Bio-Chem Corp

9:05 a.m. 21 **Effect of Corn Silage Inclusion Rate on Live Growth Performance, Carcass Characteristics, Net Energy Utilization and Beef Production Per Hectare in Feedlot Finishing Steers**

Elizabeth M. Buckhaus¹, Zachary K. Smith²

¹SDSU Animal Science, ²South Dakota State University

9:20 a.m. 22 **Effects of Housing Cow-calf Pairs on Drylots vs Pasture on Calf Performance and Behavior Through Weaning**

Megan Myerscough¹, Wesley P. Chapple¹, William T. Meteer¹, Daniel W. Shike¹

¹University of Illinois at Urbana-Champaign

9:35 a.m. 23 **Effects of Rubber Matting on Cattle Locomotion Scores in Slatted Facilities**

Cody Dawson¹, Parker Henley², Adam Schroeder², Courtney Hayes², Tara L. Felix³, Daniel W. Shike¹, Joshua C. McCann²

¹University of Illinois at Urbana-Champaign, ²University of Illinois, ³Penn State

9:50 a.m. 24 **Effects of Spring versus Fall Calving on Fetal Growth, Vigor at Birth, and Neonatal Circulating Metabolites in Beef Calves**

Lindsey G. Wichman¹, Colby A. Redifer¹, Allison M. Meyer¹

¹Division of Animal Sciences, University of Missouri

10:05 a.m. **Graduate Student Oral Competition: MS Break**

10:20 a.m. 25 **Estimating Fetal Age Using Transabdominal Ultrasonic Measurements in Sheep Early in Gestation**

Julissa Navarrete¹, Michelle Kibler¹, Jennifer E. Earing¹, Drew W. W. Lugar¹

¹Illinois State University

10:35 a.m. 26 **Extending the Shelf-life of Beef Bone-in Short Rib Steaks Using Acerola Cherry Powder and Rosemary Extract**

Jessie B. Van Buren¹, Brianna Buseman¹, Tanya Weber¹, James Nasados¹, Jessica M. Lancaster¹, Jaxon Smart¹, Phillip D. Bass¹, Michael J. Colle¹

¹University of Idaho

10:50 a.m. 27 **Greenhouse Gas Emissions and a Partial Life Cycle Assessment When Growing Pigs Are Fed High Wheat Millrun Diets**

Agbee L. Kpogo¹, Jismol Jose¹, Josiane C. Panisson², Bernardo Predicala³, Alvin Alvarado², Joy Agnew⁴, Charley Sprenger⁵, Denise A. Beaulieu¹

¹University of Saskatchewan, ²Prairie Swine Centre, ³university of saskatchewan, ⁴Olds College,

⁵Prairie Agricultural Machinery Institute

11:05 a.m. 28 **In-feed or In-water Antibiotic Administration Did Not Influence the Fecal Prevalence and Antimicrobial Susceptibility Profiles of Salmonella in Piglets**

Victor L. Ishengoma¹, Raghavendra G. Amachawadi², Xiaorong Shi², Taghreed Mahmood³, Wade M. Hutchens², Mike D. Tokach², Steve Dritz⁴, Jason C. Woodworth², Robert D. Goodband², Joel M. DeRouchey², TG Nagaraja²

¹Department of Clinical Sciences, College of Veterinary Medicine, Manhattan, KS 66506,

²Kansas State University, ³Department of Clinical Sciences, College of Veterinary Medicine, Kansas State University, ⁴Genus PIC

11:20 a.m. 29 **Live Yeast and Yeast Extracts with and Without Pharmacological Levels of Zinc on Nursery Pig Growth Performance and Fecal Escherichia coli Antimicrobial Resistance**

Jenna A. Chance¹, Joel M. DeRouchey¹, Jordan T. Gebhardt², Raghavendra G. Amachawadi¹, Victor Ishengoma³, TG Nagaraja¹, Hilda I. Calderon⁴, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joe Loughmiller⁵

¹Kansas State University, ²Kansas State University, ³Department of Clinical Sciences, College of Veterinary Medicine, Kansas State University, ⁴Department of Statistics, College of Arts and Sciences, Kansas State University, ⁵Phileo by Lesaffre

11:35 a.m. 30 **The Effect of Creep Feed Composition and Form on Pre- and Post-weaning Growth Performance of Pigs and the Utilization of Low-quality Nursery Diets**

Brenda Christensen¹, Lee-Anne Huber¹

¹University of Guelph

Undergraduate Student Oral Competition

Chair: Grace Moeller, Iowa State University

8:00 AM - 12:20 PM

Channel 4

8:00 a.m. **Undergraduate Student Oral Competition Introduction**

8:05 a.m. 42 **Activity and Bone Lesion Analysis on Gilt Retention to the Breeding Herd**
Kathlyn Hauxwell¹, Lexi M. Ostrand¹, Ty B. Schmidt², Eric Psota³, Benny E. Mote², Gary A. Rohrer⁴

¹University of Nebraska-Lincoln, ²Department of Animal Science, University of Nebraska – Lincoln, ³University of Nebraska - Lincoln, ⁴USDA, ARS, U.S. Meat Animal Research Center

8:20 a.m. 43 **Cow Performance and Lameness Are Affected by Housing in Drylots vs Pasture During the Summer**

Lucas Hofer¹, Megan Myerscough², Wesley P. Chapple², William T. Meteer², Keela Trennepohl¹, Joshua C. McCann³, Daniel W. Shike²

¹Western Illinois University, ²University of Illinois at Urbana-Champaign, ³University of Illinois

8:35 a.m. 44 **Effects of Decreasing Corn Particle Size on Metabolizable Energy and Proportions of Fecal Volatile Fatty Acids in Gestating Sows**

Rachel Kort¹, Gage E. Nichols¹, Caitlin E. Evans¹, Julia P. Holen¹, Haley Otott¹, Jeferson M. Lourenco², Todd R. Callaway², Charles R. Stark¹, Chad B. Paulk¹

¹Kansas State University, ²University of Georgia

8:50 a.m. 45 **Effects of Grazing Management Systems on Forage Quality, Forage Availability, and Cow Performance**

Meghan Jurak¹, Michelle Johnson², Lucas T. Neira³, Joshua C. McCann⁴, Daniel W. Shike²
¹Southern Illinois University, ²University of Illinois at Urbana-Champaign, ³University of Illinois Champaign-Urbana, ⁴University of Illinois

9:05 a.m. 46 **Effects of Implants, Clover, and Fescue Variety on Stocker Steers**

Zachary T. Buessing¹, Jaymelynn K. Farney¹
¹Kansas State University

9:20 a.m. 47 **Effects of Lactobacillus and Bacillus Probiotics on Pre-ruminating Calf Growth Performance and Efficiency**

Sydney M. Bowman¹, Steven T. Quantz¹, Tom G. Rehberger², Kellen Habib¹, Kristen Smith¹, W. Boomer³, Anthony J. Tarpoff¹, Barry J. Bradford⁴, Sara E. Gragg¹, Cassandra K. Jones¹
¹Kansas State University, ²Arm & Hammer Animal and Food Production, ³Church & Dwight, ⁴Michigan State University

9:35 a.m. 48 **Evaluation of Antimicrobial Activities of Phytophenols Against Bacterial Pathogens That Cause Liver Abscesses in Feedlot Cattle**

Cierra Roubicek¹, Raghavendra G. Amachawadi¹, TG Nagaraja¹, Yonghui Li², Jinrong Wang¹, Harith M. Salih³
¹Kansas State University, ²Department of Grain Science & Industry, Kansas State University, ³Department of Clinical Sciences, College of Veterinary Medicine, Kansas State University

9:50 a.m. 49 **Histomorphologic Analysis of the Effect of Day and Level of Colostrum Intake on Jejunum Development**

Jocelyn V. Sheets¹, Aridany Suarez-Trujillo², Kelsey Teeple¹, L Kirsten Senn², Kara R. Stewart¹, Theresa Casey¹
¹Purdue University, ²Department of Animal Sciences, Purdue University

10:05 a.m. **Undergraduate Student Oral Competition Break**

10:20 a.m. 50 **Long-term Motility of Semen Following Breeding Soundness Exams for Yearling Beef Bulls**

Garrett R. Seltzer¹, Ashley R. Hartman¹, Sharon K. Tucker¹, David M. Grieger¹
¹Kansas State University

10:35 a.m. 51 **Observing the Effect of Creep Feeding on Calf Behavior Before and After Weaning**

Madelyn Heidtke¹, Miles D. Redden², Daniel W. Shike³, Joshua C. McCann¹
¹University of Illinois, ²University of Illinois Champaign-Urbana, ³University of Illinois at Urbana-Champaign

10:50 a.m. 52 **Ovarian Follicular Profiling of High- and Low-immunocrit Gilts on Postnatal Day 14**

Brianna M. Lynnes¹, Robert A. Cushman², Jeremy R. Miles³, William T. Oliver², Frank F. Bartol⁴, Carol A. Bagnell⁵, Clay A. Lents⁶
¹Department of Animal Science, University of Wyoming, ²USDA-ARS, ³USDA, ARS, U.S. Meat Animal Research Center, ⁴Department of Anatomy, Physiology, and Pharmacology, Auburn University, ⁵Department of Animal Sciences, Rutgers University, ⁶US Meat Animal Research Center, USDA Agriculture Research Service

11:05 a.m. 53 **Relationships Between Fecal Characteristics, Ruminal Ph, Intake and Digestion in Feedlot Cattle**

Chessa Brown¹, Kaylie Huizenga¹, Joshua C. McCann¹

¹University of Illinois

11:20 a.m. 54 **Relationships Between Heat Stress and Behavioral Responses with Reproductive Traits of Maternal-line Gilts**

Kristen N. Cleaver¹, Brooklyn A. Hill¹, Jay S. Johnson², Luiz Fernando F. Brito³

¹Purdue University, ²USDA-ARS Livestock Behavior Research Unit, ³Department of Animal Sciences, Purdue University, West Lafayette, IN, USA

11:35 a.m. 55 **Sow Milk Lipidome Study Reveals Changes in Fatty Acyl Residues in Triglycerides and Phosphatidylglycerol, but Not in Plasma Membrane Phospholipids Across Lactation**

Sarah Luecke¹, Aridany Suarez-Trujillo², Lea Logan³, Kara R. Stewart³, Christina Ferreira⁴, Theresa Casey³

¹Purdue University, Department of Animal Sciences, ²Department of Animal Sciences, Purdue University, ³Purdue University, ⁴Metabolomics Core, Bindley Bioscience Center, Purdue University

11:50 a.m. 56 **The Effect of a Developmental Bacillus Direct-fed Microbial on Nursery Pig Growth Performance and Health**

Karissa N. Rulon¹, Jacob A. Richert¹, Morgan T. Thayer¹, Allan P. Schinckel¹, Matthew D. Asmus², Daniel B. Jones², John Scott Radcliffe¹, Brian T. Richert¹

¹Purdue University, ²ADM

12:05 p.m. 57 **The Impact of Functional Teat Number on Piglet Survival and Sow Efficiency**

Dalton Obermier¹, Megan Eickhoff², Benny E. Mote³, Amanda Uitermarkt⁴, Hyatt Frobose⁴, Bart Borg⁵

¹University of Nebraska - Lincoln, ²University of Nebraska, ³Department of Animal Science, University of Nebraska – Lincoln, ⁴Gestal - JYGA Technologies, ⁵Standard Nutrition Services

Klopfenstein Lecture

Chair: Clint Krehbiel, University of Nebraska

11:15 AM - 11:45 AM

Channel 3

11:15 a.m. **Klopfenstein Lecture Introduction**

11:20 a.m. 296 **Klopfenstein Lecture: History of GSL Research**

Jack C. Whittier¹

¹University of Nebraska

Nonruminant Nutrition

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 66 **Strategies to Improve Phosphorus Utilization in Growing Pigs; Depletion-repletion Protocols**

Marion Lautrou¹, Candido Pomar², Philippe Schmidely³, Marie-Pierre Létourneau-Montminy⁴
¹Laval University, ²Agriculture and Agri-food Canada, ³INRA - AgroParisTech, ⁴Université Laval

7:00 a.m. 62 **Growth Performance and Mineral Status of 6 Kg Piglets Fed Reduced Levels of Dietary Calcium**

Laura A. Merriman¹, Craig Wyatt¹, Marie-Pierre Létourneau-Montminy², Xaviere Rousseau¹, Dan BUSSIÈRES³
¹AB Vista, ²Université Laval, ³Groupe CÉRÈS Inc.

7:00 a.m. 63 **Effect of a Novel Consensus Bacterial 6-phytase Variant on Mineral Digestibility and Bone Ash in Young Growing Pigs Fed Diets with Low and High Soluble Limestone**

Deepak E Velayudhan¹, Arun Kumar², Yueming Dersjant-Li³
¹Danisco Animal Nutrition, IFF, ²The University of Queensland, ³Danisco Animal Nutrition (IFF)

7:00 a.m. 64 **Total Replacement of Inorganic Phosphorus by a Novel Consensus Bacterial 6-phytase Variant in Grower Pigs Fed Corn-soybean Meal-based Diets**

Deepak E Velayudhan¹, Marta Gracia², Leon Marchal³, Yueming Dersjant-Li⁴
¹Danisco Animal Nutrition, IFF, ²IMASDE Agroalimentaria, S.L., ³DuPont Nutrition and Biosciences, ⁴Danisco Animal Nutrition (IFF)

7:00 a.m. 61 **Effects of Reducing the Concentration of Ca and P and Increasing Microbial Phytase on Gastric Ph, Fecal Score, Growth Performance, and Bone Ash of Weanling Pigs**

Vanessa Lagos¹, Michael R. Bedford², Hans H. Stein³
¹University of Illinois, ²AB Vista, ³University of Illinois at Urbana-Champaign

7:00 a.m. 58 **The Effect of Altering Dietary Manganese and Selenium Levels on the Growth Performance and Blood Manganese-superoxide Dismutase Activity in Nursery Pigs**

Clint E. Edmunds¹, Darren S. Seidel¹, Christina B. Welch², Eliza A. Lee¹, Michael J. Azain², Todd R. Callaway², C. Robert Dove¹
¹The University of Georgia, ²University of Georgia

7:00 a.m. 59 **The Ash in Metacarpals, Metatarsals, and Tibia Is Better Correlated with Total Body Bone Ash Than the Ash in Other Bones of Growing Pigs**

Su A Lee¹, Michael R. Bedford², Hans H. Stein¹
¹University of Illinois at Urbana-Champaign, ²AB Vista

7:00 a.m. 60 **Effect of a Novel Consensus Bacterial 6-phytase Variant on Mineral Digestibility and Bone Ash in Young Growing Pigs Fed Diets with Different Concentrations of Phytate**

Charmaine D. Espinosa¹, Deepak E Velayudhan², Yueming Dersjant-Li³, Hans H. Stein¹
¹University of Illinois at Urbana-Champaign, ²Danisco Animal Nutrition, IFF, ³Danisco Animal Nutrition (IFF)

7:00 a.m. 93 **Effects of a Functional Oils Blend on Intestinal Health and Growth Performance of Nursery Pigs**

Vitor Hugo C. Moita ¹, Marcos Elias Duarte ¹, Sung Woo Kim ²
¹North Carolina State University, ²NC State University

7:00 a.m. 94 **The Effects of Dietary Crude Protein, Acidifier, and Pharmacological Levels of Zinc on Growth Performance of Nursery Pigs**

Wade M. Hutchens ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Steve Dritz ², Hilda I. Calderon ³
¹Kansas State University, ²PIC North America, ³Department of Statistics, College of Arts and Sciences, Kansas State University

7:00 a.m. 95 **Growth Performance, Bone Mineralization, and Nutrient Digestibility of Nursery-grower Pigs Fed Phytase-supplemented Calcium and Phosphorus-deficient Diets**

Jung Wook Lee ¹, Tyler Chevalier ¹, Chris Sparks ², Thomas D. Crenshaw ³, Merlin D. Lindemann ¹
¹University of Kentucky, ²Huvepharma, ³Department of Animal and Dairy Sciences, University of Wisconsin-Madison

7:00 a.m. 98 **Buttiauxella Phytase Improves Growth Performance of Weanling Pigs Fed Corn, Soybean Meal, and Canola Meal Based Diets**

Carly M. Rundle ¹, Yueming Dersjant-Li ², Barthold Hillen ³, Maryane Sespere Faria de Oliveira ¹, Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign, ²Danisco Animal Nutrition (IFF), ³DuPont Nutrition and Biosciences

7:00 a.m. 97 **Formulating to Fermentable Protein Can Affect the Health and Performance of Nursery Pigs**

Richard Faris ¹, Sabrina B. May ¹, Sara Ebarb ¹, Pengcheng Xue ¹, Mark D. Newcomb ¹
¹Cargill Animal Nutrition

7:00 a.m. 96 **Nutrient Digestibility of Toasted Soybean Meal and Untoasted Soybean Meal Extruded at Different Temperatures by Weanling Pigs**

Natália C. Milani ¹, Vinicius R.C. Paula ¹, Cândida P.F. Azevedo ¹, Anderson A. Sedano ¹, Hélio Moreira Junior ¹, Dave H.A. Duarte ¹, Urbano S. Ruiz ¹
¹University of São Paulo

7:00 a.m. 100 **Hybrid Rye May Replace Corn in Diets for Nursery Pigs Without Negatively Affecting Average Daily Gain, but gain:feed May Be Reduced**

Molly L. McGhee ¹, Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign

7:00 a.m. 99 **Evaluation of IFTA NBS Alone and in Combination with Zinc Oxide on Antibiotic Free Programs During Nursery**

Gustavo Silva ¹, Brandon Knopf ², Beau Peterson ², Julia Pie ³, Carlos Domenech ³, David Díez ³, Anna Tesouro ³
¹Iowa State University, ²Carthage Innovative Swine Solutions, ³BIOVET

POSTER SESSION I
7:00 AM - 5:00 PM
ON-DEMAND

7:00 a.m. PSI-1 **Assessment of Nursing Calf Feed Intake Equations in Predicting Calf Feed Intake**

Zachary T. Buessing¹, M.E. Davis¹, Luis O. Tedeschi², B.J. White¹, P.A. Lancaster¹
¹Kansas State University, ²Department of Animal Science/Texas A&M University

7:00 a.m. PSI-5 **Effects of Bacillus and Lactobacillus in Milk Replacer on Calf Health**

Kenzie McAtee¹, Steven T. Quantz¹, Tom G. Rehberger², Kellen Habib¹, Kristen Smith¹, W. Boomer³, Anthony J. Tarpoff¹, Barry J. Bradford⁴, Sara E. Gragg¹, Cassandra K. Jones¹
¹Kansas State University, ²Arm & Hammer Animal and Food Production, ³Church & Dwight, ⁴Michigan State University

7:00 a.m. PSI-3 **Effects of Mowing on Forage Availability and Quality During the Summer**

Michelle Johnson¹, Meghan Jurak², Lucas T. Neira³, Joshua C. McCann⁴, Daniel W. Shike¹
¹University of Illinois at Urbana-Champaign, ²Southern Illinois University, ³University of Illinois Champaign-Urbana, ⁴University of Illinois

7:00 a.m. PSI-8 **Evaluating the Effects of Individual Eating Rates of Feedlot Heifers on Ruminal Fermentation Using an Ex vivo Model**

Maya Zinke¹, Kaylie Huizenga², Sara M. Tondini², Daniel W. Shike³, Joshua C. McCann²
¹Illinois State University, ²University of Illinois, ³University of Illinois at Urbana-Champaign

7:00 a.m. PSI-9 **Evaluation of an Electronically-controlled Floor Cooling Pad on Semen Quality in Boars During Moderate Heat Stress**

Hailey M. Hedrick¹, Larissa K. Shirley², Tyler Fields¹, Allan P. Schinckel¹, Jay S. Johnson³, Robert M. Stwalley¹, Kara R. Stewart¹
¹Purdue University, ²Department of Animal Science, Purdue University, ³USDA-ARS Livestock Behavior Research Unit

7:00 a.m. PSI-7 **Evaluation of Form of Supplement with or Without Ionophore on Stocker Steer Performance While on Bromegrass**

Katie Malone¹, Jaymelynn K. Farney¹
¹Kansas State University

7:00 a.m. PSI-6 **Genetic Parameters for Food Allergy Responses in Divergently-selected Pig Lines**

Yuwen Chen¹, Hinayah R. Oliveira², Amanda B. Alvarenga¹, Allan P. Schinckel¹, Terry S. Stewart¹, Luiz Fernando F. Brito³
¹Purdue University, ²Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ³Department of Animal Sciences, Purdue University, West Lafayette, IN, USA

7:00 a.m. PSI-4 **Quantification of Cooling Effects on Basic Tissue Measurements and Exposed Cross-sectional Brain Area in Cadaver Heads from Market Pigs**

Katherine Bishop¹, Karly N. Anderson², Sarah Albers¹, Kaysie Allen¹, Christina Huber¹, Ashlynn Kirk¹, Hannah Olsen¹, Kurt D. Vogel¹

¹University of Wisconsin - River Falls, ²University of Minnesota/University of Wisconsin-River Falls

7:00 a.m. PSI-2 **Spices in Free-choice Mineral Offer Gain Advantages to Cattle on Tallgrass Native Range and Promise as Fly Control**

Macie E. Reeb¹, Jaymelynn K. Farney¹

¹Kansas State University

7:00 a.m. PSI-10 **The Relationship Between Litter Size and Functional Teat Number at Farrowing on Litter Size at Weaning**

Evan C. Speckman¹, Jeremy T. Howard², Jeffrey G. Wiegert¹

¹Texas A&M University, ²Smithfield Premium Genetics

POSTER SESSION II

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. PSII-23 **Addition of Hydrogen Chloride to Collection Bags or Containers Did Not Change Basal Endogenous Losses or Digestibility of Amino Acid in Corn, Soybean Meal, or Wheat Middlings Fed to Growing Pigs**

Su A Lee¹, Laia Blavi², Diego Navarro³, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign, ²Universitat Autònoma de Barcelona, ³Hamlet Protein

7:00 a.m. PSII-15 **Dietary Supplementation of Bacillus Subtilis Modified Intestinal Microbiome of Weaned Pigs Differently to Antibiotics**

Cynthia N. Jinno¹, Yijie He², Yanhong Liu¹

¹University of California, Davis, ²Department of Animal Science, University of California, Davis

7:00 a.m. PSII-19 **Effect of a Sensory Additive on Sow Feed Intake During Lactation**

Tsungcheng Cheng Tsai¹, Nathan Davis¹, Benjamin Bass², Gemma Tedo³, Sofia Morais³, Charles V. Maxwell¹

¹University of Arkansas, ²Lucta USA, ³Lucta S. A.

7:00 a.m. PSII-18 **Effect of L-trp Source and Standard Ileal Digestible (SID) Tryptophan to Lysine Ratio on Growth Performance of Nursery Pigs**

Tsungcheng Cheng Tsai¹, Kristopher Bottom¹, Kyle Coble², Amanda J. Gerhart², Jeffrey Chewning³, Charles V. Maxwell¹, Nathan Davis¹

¹University of Arkansas, ²JBS Live Pork, ³Swine Research Services, Inc.,

7:00 a.m. PSII-12 **Effects of Available Space in Pens and Homeopathic Product Supplement Consisting of Botanicals and Mineral Mixture on the Performance and Production Traits of Finishing Pigs**

Santi Devi Upadhaya¹, Palanisamy Thanapal², Park Hyun Ju², In Ho Kim², Hong Ik Jung³

¹Dankook University, Cheonan, South Korea, ²Dankook University, ³Dankook University

7:00 a.m. PSII-16 **Effects of Oligosaccharide-based Polymer on Blood Profiles in Weanling Pigs Experimentally Infected with a Pathogenic E. coli**

Kwangwook Kim ¹, Yijie He ², Cynthia N. Jinno ¹, Seijoo Yang ¹, Xunde Li ¹, David Bravo ³, Eric Cox ⁴, Yanhong Liu ¹

¹University of California, Davis, ²Department of Animal Science, University of California, Davis, ³Pancosma|ADM, ⁴Ghent University

7:00 a.m. PSII-20 **Energy Evaluation of Heat-treated and Intact Extruded-expelled Soybean Meal for Growing Pigs**

Bonjin Koo ¹, Olumide E. Adeshakin ¹, Charles Martin Nyachoti ¹

¹University of Manitoba

7:00 a.m. PSII-17 **Phosphorus Release Values in Growing Pigs Fed Increments of Optiphos Plus Phytase in Pelleted Diets**

Thomas D. Crenshaw ¹, Caley R. Haas ², Megan Hansen ³, Mariola Grez Capdeville ¹, Jeff Booth ³, Chris Sparks ⁴

¹Department of Animal and Dairy Sciences, University of Wisconsin-Madison, ²University of Wisconsin - Madison, ³UW Madison, ⁴Huvepharma

7:00 a.m. PSII-13 **Supplemental Effects of Unrefined Fish Oil, Powdered/coated Docosahexaenoic Acid on the Growth Performance in Weaner Pigs**

Santi Devi Upadhaya ¹, Park Hyun Ju ², In Ho Kim ², Hong Ik Jung ³, Yanjiao Li ³

¹Dankook University, Cheonan, South Korea, ²Dankook University, ³Dankook university

7:00 a.m. PSII-14 **Supplementation of Bacillus Amyloquefaciens on Systemic Immunity of Weaned Pigs Experimentally Infected with a Pathogenic E. coli**

Cynthia N. Jinno ¹, Braden Wong ¹, Martina Klauenemann ², Xunde Li ¹, Yanhong Liu ¹

¹University of California, Davis, ²Evonik Operations GmbH

7:00 a.m. PSII-21 **The Effects of Lactobacillus Fermentum on Nursery Pig Performance**

Josh K. Knapp ¹, Alison Neujahr ², Shana M. Winkel ³, Melanie D. Trenhaile-Grannemann ⁴, Joice V. San Andres ³, Khang Nguyen ³, J'Nan Wittler ³, Sydney Kinstler ³, Samodha C. Fernando ², Phillip S. Miller ², Thomas E. Burkey ²

¹University of Nebraska -Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska - Lincoln, ⁴University of Lincoln-Nebraska

7:00 a.m. PSII-22 **The Effects of Lactobacillus Fermentum on Sow and Litter Performance**

Josh K. Knapp ¹, Shana M. Winkel ², Alison Neujahr ³, Melanie D. Trenhaile-Grannemann ⁴, Joice V. San Andres ², Khang Nguyen ², J'Nan Wittler ², Sydney Kinstler ², Samodha C. Fernando ³, Phillip S. Miller ³, Thomas E. Burkey ³

¹University of Nebraska -Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska-Lincoln, ⁴University of Lincoln-Nebraska

POSTER SESSION III

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. PSIII-5 **Delaying Weaning Age of Lambs Grazing Chicory (Cichorium Intybus) Increases Body Weight**

Branden J. Campbell¹, Jefferson S. McCutcheon¹, Todd R. Callaway², Anthony J. Parker¹
¹The Ohio State University, ²University of Georgia

7:00 a.m. PSIII-4 **Determining the Efficacy and Safety of Differing Caliber/Ammunition Combinations for the Humane Euthanization and Subsequent Mass Depopulation of Market Weight Pigs**

Chad A. Stahl¹, John T. Fangman², Thomas J. Fangman³
¹Food Animal Consultation & Testing Services, ²Private Contractor, ³Huvepharma, Inc

7:00 a.m. PSIII-2 **Effect of Piglet Characteristics on Blood Glucose Levels at Birth**

Rafael Ovidio Bautista Rivas¹, Naomi C. Willard¹, Katherine D. Vande Pol¹, Jenny R. Morris¹, Alicia Olivo Espinal¹, Nicole K. Moest¹, Caleb M. Shull², Mike Ellis¹
¹University of Illinois, ²The Maschhoffs, LLC

7:00 a.m. PSIII-1 **Effect of Rearing Cross-fostered Piglets in Litters of Differing Size Relative to Sow Functional Teat Number on Pre-weaning Growth and Mortality**

Katherine D. Vande Pol¹, Rafael Ovidio Bautista Rivas¹, Alicia Olivo Espinal¹, Heath Harper¹, Caleb M. Shull², Katie Brown², Mike Ellis¹
¹University of Illinois, ²The Maschhoffs, LLC

7:00 a.m. PSIII-15 **Effect of the Pelleting Process on Diet Formulations with Varying Levels of Crystalline AA and Reducing Sugars on Nursery Pig Growth Performance**

Kara M. Dunmire¹, Michaela B. Braun², Yiqin Zhang¹, Cassandra K. Jones², Yonghui Li¹, Jason C. Woodworth², Robert D. Goodband², Mike D. Tokach², Adam C. Fahrenholz³, Charles R. Stark², Chad B. Paulk²
¹Department of Grain Science & Industry, Kansas State University, ²Kansas State University, ³Department of Poultry Science, North Carolina State University

7:00 a.m. PSIII-3 **Effect of Type of Desiccant Used to Dry Piglets at Birth on Postnatal Changes in Rectal Temperature**

Alicia Olivo Espinal¹, Naomi C. Willard¹, Katherine D. Vande Pol¹, Nicole K. Moest¹, Mike Ellis¹
¹University of Illinois

7:00 a.m. PSIII-13 **Effects of Saccharomyces Cerevisiae Fermentation Products on Lactating Sow Performance**

Ricardo M. Garcia¹, Morgan T. Thayer¹, Kayla M. Mills², Jacob A. Richert¹, Katharine G. Sharp², Karissa N. Rulon¹, Derek B. Petry³, Karen Robertson⁴, Kara R. Stewart¹, John Scott Radcliffe¹, Allan P. Schinckel¹, Brian T. Richert¹
¹Purdue University, ²Department of Animal Science, Purdue University, ³Diamond V, Cargill Health Technologies, ⁴Diamond V

7:00 a.m. PSIII-11 **Evaluating the Performance of Grow-finish Pigs Supplemented with Butipearl® Z and Kemtrace® Chromium During Natural Heat Stress Exposure**

Mark Knauer ¹, Venkatesh Mani ², Tom Marsteller ², Vanessa Iseri ², Brian Kremer ²
¹North Carolina State University, ²Kemin Industries

7:00 a.m. PSIII-17 **Extrusion Enhances Nutrient and Energy Digestibility of Pulse Grain-based Diets Fed to Growing Pigs**

Joaquin J. Sanchez Zannatta ¹, Li F. Wang ², Eduardo Beltranena ², Ruurd T. Zijlstra ¹
¹University of Alberta, ²University of Alberta, Edmonton, Alberta, Canada

7:00 a.m. PSIII-23 **Feeding In-shell Hazelnuts (Corylus Spp) to Pigs Alters Fatty Acid Profile of Pork Fat**

Peter J. Lammers ¹, Ryan S. Pralle ¹, Krista R. Wellnitz ¹
¹UW-Platteville

7:00 a.m. PSIII-6 **Gene Expression Profile of Beef Heifer Placental Caruncles Is Affected by Pre-breeding and Early Gestation Micronutrient Supplementation**

Wellison Jarles Da Silva Diniz ¹, Lawrence P. Reynolds ², Alison K. Ward ¹, Pawel P. Borowicz ², Kevin K. Sedivec ¹, Kacie L. McCarthy ³, Cierrah J. J. Kassetas ⁴, Friederike Baumgaertner ¹, James D. Kirsch ¹, Sheri T. Dorsam ¹, Tammi L. Neville ⁵, J. Chris Forcherio ⁶, Ronald Scott ⁶, Joel S. Caton ¹, Carl R. Dahlen ¹
¹North Dakota State University, ²NDSU, ³University of Nebraska-Lincoln, ⁴USDA-NIFA, ⁵USDA-NIFA, ⁶Purina Animal Nutrition

7:00 a.m. PSIII-8 **Genetic Parameter Estimates for Bull Prolificacy and Its Relationship with Scrotal Circumference in a Commercial Beef Cattle Population**

Chad A. Russell ¹, E J. Pollak ¹, Matthew L. Spangler ¹
¹University of Nebraska - Lincoln

7:00 a.m. PSIII-16 **Growth Performance of Weaned Pigs Fed Barley Differing in Fermentable Starch and Fiber Profile**

Joaquin J. Sanchez Zannatta ¹, Li F. Wang ², Eduardo Beltranena ², Aaron D. Beattie ³, Rex N. Newkirk ³, Ruurd T. Zijlstra ¹
¹University of Alberta, ²University of Alberta, Edmonton, Alberta, Canada, ³University of Saskatchewan

7:00 a.m. PSIII-14 **Hybrid Rye Can Replace Corn in Diets for Growing Pigs Without Impacting Growth Performance Although Pigs Prefer to Eat Corn Rather Than Hybrid Rye If Given a Choice**

Molly L. McGhee ¹, Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign

7:00 a.m. PSIII-22 **Impact of a Dietary Phytogetic Feed Additive on Growth Performance of Growing Finishing Pigs**

Aileen Joy Mercado ¹, Terry Weeden ¹, Huyen Tran ¹, Emily Otto-Tice ¹, Murali Raghavendra Rao ¹, Peter Karnezos ¹, Brenda de Rodas ¹
¹Purina Animal Nutrition

7:00 a.m. PSIII-12 **In vitro Evaluation of Purified Fiber Sources for Production of Short-chain Fatty Acids Using Pig Cecal Content as an Inoculum**

Gabriela E. Martinez ¹, Rajesh Jha ², Vivek Fellner ¹, Eric van Heugten ¹
¹North Carolina State University, ²University of Hawaii at Manoa

7:00 a.m. PSIII-20 **Inclusion of a Live Yeast to Mixed Cereal Diets Improves Growth Performance of Nursery Pigs**

Laura A. Merriman ¹, Gustavo Cordero ¹, Pete Wilcock ¹, Joaquin Morales ²
¹AB Vista, ²PIGCHAMP Pro Europa

7:00 a.m. PSIII-21 **Optimum SID Threonine to Lysine Ratio in Nursery Pigs**

Aileen Joy Mercado ¹, Terry Weeden ¹, Emily Otto-Tice ¹, Huyen Tran ¹, Murali Raghavendra Rao ¹, Tsungcheng Cheng Tsai ², Charles V. Maxwell ², Keith D. Haydon ³, Brenda de Rodas ¹
¹Purina Animal Nutrition, ²University of Arkansas, ³CJ Bio America

7:00 a.m. PSIII-7 **Relationship of Age and Genetics with the Methylation Profile of Beef Cattle**

Andre M. Ribeiro ¹, Hiruni Wijesena ², Daniel C. Ciobanu ¹, Steve Horvath ³, Matthew L. Spangler ⁴

¹University of Nebraska-Lincoln, ²US Meat Animal Research Center, ³University of California-Los Angeles, ⁴University of Nebraska - Lincoln

7:00 a.m. PSIII-18 **Super Dose Phytase and Carbohydrase Cocktail Enhance Ileal Nutrient and Energy Digestibility of Corn-soybean Diets in Nursery Pigs**

B.V. Le Thanh ¹, Jon R. Bergstrom ², J.D. Hahn ³, Li F. Wang ⁴, Eduardo Beltranena ¹, Ruurd T. Zijlstra ¹

¹University of Alberta, ²DSM, ³DSM Nutritional Products, ⁴University of Alberta, Edmonton, Alberta, Canada

7:00 a.m. PSIII-10 **The Effect of Sire Line on Grow-finish Performance, Carcass Characteristics, and Meat Pricing Variables for Commercial Crossbred Pigs**

Hayford Manu ¹, M. Fletcher ², K. Fang ², Sudario Roberto Silva Junior ², Jenelle Dunkelberger ³, D. Boler ³, J. Eggert ³, Samuel Baidoo ¹

¹University of Minnesota Southern Research and Outreach Center, Waseca, MN, ²University of Minnesota, ³Topigs Norsvin USA

7:00 a.m. PSIII-9 **The Effect of Sire Line on Reproductive Performance During Lactation**

Hayford Manu ¹, M. Fletcher ², K. Fang ², Sudario Roberto Silva Junior ², Jenelle Dunkelberger ³, D. Boler ³, J. Eggert ³, Samuel Baidoo ¹

¹University of Minnesota Southern Research and Outreach Center, Waseca, MN, ²University of Minnesota, ³Topigs Norsvin USA

7:00 a.m. PSIII-19 **The Effect of Xylanase on Finisher Pig Performance**

Laura A. Merriman ¹, Pete Wilcock ¹, Gustavo Cordero ¹
¹AB Vista

Physiology
7:00 AM - 5:00 PM
ON-DEMAND

7:00 a.m. 80 **Use of an Electronically-controlled Floor Cooling Pad During Heat Stress on Thermoregulatory and Reproductive Performance in Boars**

Larissa K. Shirley¹, Tyler C. Field², Allan P. Schinckel², Jay S. Johnson³, Robert M. Stwalley², Kara R. Stewart²

¹Department of Animal Science, Purdue University, ²Purdue University, ³USDA-ARS Livestock Behavior Research Unit

7:00 a.m. 79 **Direct and Indirect Effects of Heat Stress on the Hepatic and Ovarian Proteome in Gilts**

Jamie M. Studer¹, Zoe E. Kiefer¹, Rafael Gianluppi¹, Malavika K. Adur¹, R. Blythe Schultz¹, Erin A. Horst¹, Edith J. Mayorga-Lozano¹, Aileen F. Keating¹, Lance H. Baumgard¹, Clay A. Lents², Jason W. Ross¹

¹Iowa State University, ²USDA, ARS, US Meat Animal Research Center, Livestock Bio-Systems Research Unit

7:00 a.m. 18 **Correlating Behavior and Feed Intake with the Thermoregulatory Response of Replacement Gilts Exposed to a Heat Stress Challenge**

Brooklyn A. Hill¹, Kristen N. Cleaver¹, Luiz F. Brito¹, Jeremy Merchant-Forde², Jay S. Johnson²

¹Purdue University, ²USDA-ARS Livestock Behavior Research Unit

7:00 a.m. 81 **Zearalenone Affects the Ovarian Proteome During Heat Stress in Prepubertal Gilts**

Crystal M. Roach¹, Edith J. Mayorga-Lozano¹, Lance H. Baumgard¹, Jason W. Ross¹, Aileen F. Keating¹

¹Iowa State University

7:00 a.m. 83 **MicroRNA574-3p Influences Porcine Oocyte Maturation and Regulates Abundance of Proteins Critical to Early Embryo Development**

Malavika K. Adur¹, Yunsheng Li², Jason W. Ross¹

¹Iowa State University, ²College of Animal Science and Technology, Anhui Agricultural University

7:00 a.m. 84 **Aging Model in Pig Oocytes as Viewed Through DNA Epigenetic Modification**

Haley A. Arena¹, Kimberly Sprungl¹, Skyla Reynolds¹, Brian D. Whitaker¹

¹University of Findlay

7:00 a.m. 82 **Methyl Donor Supplementation Alters Cytosine Methylation and Biological Processes of Cells Cultured in Divergent Glucose Media Reflecting Improvements in Mitochondrial Respiration and Cell Growth Rate**

Matthew S. Crouse¹, Wellison Jarles Da Silva Diniz², Joel S. Caton², Carl R. Dahlen², Larry P. Reynolds², Pawel P. Borowicz², Alison K. Ward²

¹USDA, ARS, U.S. Meat Animal Research Center, ²North Dakota State University

Ruminant Nutrition Symposium

Chair: Joshua McCann, University of Illinois

1:45 PM - 4:15 PM

Channel 4

1:45 p.m. **Ruminant Nutrition Symposium Introduction**

1:50 p.m. 67 **Current Status and Future Prospective of the Use of Plant Bioactive Compounds in Dairy and Beef Cattle**

Sergio Calsamiglia ¹, Maria Rodriguez-Prado ¹, Gonzalo Fernandez-Turren ², Lorena Castillejos ¹

¹Universitat Autònoma de Barcelona, ²Universidad de la República

2:25 p.m. 68 **Utility of 3-NOP in Beef Production Systems**

Karen A. Beauchemin ¹

¹Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada.

3:00 p.m. 69 **Next Steps for Microbial-derived Feed Additives**

Ehsan Khafipour ¹

¹Diamond V

3:35 p.m. 70 **Hidden Mechanisms of Nutraceutical Function**

Michael A. Ballou ¹

¹Texas Tech University, Department of Veterinary Sciences

Ruminant Nutrition

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 73 **Effect of Rate of Gain During Early Gestation on Colostrum and Milk Composition in Beef Heifers**

Friederike Baumgaertner ¹, Ana Clara B. Menezes ¹, Wellison Jarles Da Silva Diniz ¹, Kevin K. Sedivec ², James D. Kirsch ¹, Sarah R. Underdahl ¹, Sheri T. Dorsam ¹, Alison K. Ward ¹, Kacie L. McCarthy ³, Joel S. Caton ¹, Carl R. Dahlen ¹

¹North Dakota State University, ²North Dakota State University - Central Grasslands Research Extension Center, ³University of Nebraska

7:00 a.m. 76 **Growth and Health of Limousin Crossbred Dairy-beef Calves in an Automated Feeding System**

Brad J. Heins ¹, Kirsten Sharpe ¹

¹University of Minnesota

7:00 a.m. 77 **Evaluation of Models Used to Predict Dry Matter Intake in Forage-Based Diets**

Aksel Wiseman ¹, Andrea K. Watson ¹, Rick A. Stock ², Terry J. Klopfenstein ¹

¹University of Nebraska-Lincoln, ²University of Nebraska- Lincoln

7:00 a.m. 78 **Winter Hardy Small Cereal Cover Crops for Grazing and Silage in Nebraska**

Kallie Calus ¹, Mary E. Drewnoski ¹, Daren Redfearn ¹, Morgan Grabau ¹, Rob Mitchell ²
¹University of Nebraska-Lincoln, ²ARS

7:00 a.m. 75 **Management of the Young Calf When Dams Are Limit-fed in Confinement**

Morgan Grabau ¹, Karla Wilke ¹, Mary E. Drewnoski ¹
¹University of Nebraska-Lincoln

7:00 a.m. 72 **Relationships Among Lifetime Feed Efficiency Traits in Growing Heifers, Mature Cows and Their Progeny**

Phillip A. Lancaster ¹, Mike Davis ², Jack Rutledge ³, Larry Cundiff ⁴
¹Beef Cattle Institute/Kansas State University, ²Department of Animal Sciences, Ohio State University, ³Department of Animal & Dairy Sciences, University of Wisconsin-Madison, ⁴USDA Meat Animal Research Center

7:00 a.m. 71 **Evaluation of the CVDS Beef Cow Model to Estimate Biological Efficiency in Mature Cows**

Phillip A. Lancaster ¹, Mike Davis ², Luis O. Tedeschi ³, Jack Rutledge ⁴, Larry Cundiff ⁵
¹Beef Cattle Institute/Kansas State University, ²Department of Animal Sciences, Ohio State University, ³Texas A&M University, ⁴Department of Animal & Dairy Sciences, University of Wisconsin-Madison, ⁵USDA Meat Animal Research Center

Swine Translational Symposium

Chair: Ryan Samuel, Department of Animal Science, South Dakota State University

1:00 PM - 5:00 PM

Channel 2

1:00 p.m. **Swine Translational Symposium Introduction**

1:05 p.m. 12 **Equipping Humans--Optimizing Performance: The Role of Technology in Human Capital**

Jonathon Hoek ¹, Monty Miller ²
¹Summit SmarFarms, ²International Performance Solutions

1:45 p.m. 13 **Using Cameras to Predict Estrus and Ovulation**

Caleb M. Shull ¹
¹The Maschhoffs, LLC

2:25 p.m. **Swine Translational Symposium Break**

2:40 p.m. 14 **Opening the Black Box of Fertility Prediction**

K.C. Kerns ¹
¹Iowa State University

3:20 p.m. 15 **Precision Pig Nutrition: Unlocking the Potential Through Digital Data Collection**

Aidan J. Connolly ¹
¹AgriTech Capital LLC

4:00 p.m. 16 **What's a Connected Barn and How Do We Use It?**

Brett C. Ramirez ¹

¹Iowa State University

4:40 p.m. **Swine Translational Symposium Discussion**

**Graduate Student Dinner & Learn: Keep calm and graduate:
Insights on entrepreneurship after graduate school**

Márcio Gonçalves ¹, Miriam S. Martin ², Grace A. Moeller ³, Lauren A. Brizgys ⁴

¹Swine It, ²Kansas State University, ³Iowa State University, ⁴Purdue University

Tuesday, March 9, 2021

Animal Behavior, Health and Well-Being

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 179 **A Comparison of Local Anesthetic Effectiveness in Reducing Pain Associated with Dehorning in Dairy Calves**

Miriam S. Martin ¹, Michael D. Kleinhenz ¹, Abbie Viscardi ², Andrew K. Curtis ¹, Blaine Johnson ², Shawnee R. Montgomery ¹, Johann F. Coetzee ³

¹Kansas State University, ²Kansas State University College of Veterinary Medicine, ³Kansas State University College of Veterinary Medicine, Department of Anatomy and Physiology, Manhattan, KS

7:00 a.m. 180 **Comparative Pharmacokinetics of Flunixin Meglumine and Meloxicam in Tilapia (*Oreochromis Spp.*)**

Miriam S. Martin ¹, Stephen Smith ², Michael D. Kleinhenz ¹, Geraldine Magnin ¹, Zhoumeng Lin ³, David Kuhn ⁴, Shawnee R. Montgomery ¹, Johann F. Coetzee ⁵

¹Kansas State University, ²Virginia-Maryland College of Veterinary Medicine, ³Kansas State University College of Veterinary Medicine, ⁴Virginia Polytechnic Institute and State University, ⁵Kansas State University College of Veterinary Medicine, Department of Anatomy and Physiology, Manhattan, KS

7:00 a.m. 177 **Quantifying Cortisol in Hair as a Chronic Stress Biomarker in Group-housed and Stall-housed Sows During Gestation**

Talia Everding ¹, Crystal L. Levesque ¹, Yolande Seddon ², Jorge Perez Palencia ¹

¹South Dakota State University, ²Western College of Veterinary Medicine

7:00 a.m. 178 **Relationships Between Sow Blood Glucose Levels on Day of Farrowing and Sow and Litter Parameters**

Brian P. Yeich ¹, Rafael Ovidio Bautista Rivas ¹, Naomi C. Willard ¹, Katherine D. Vande Pol ¹, Jenny R. Morris ¹, Alicia Olivo Espinal ¹, Nicole K. Moest ¹, Caleb M. Shull ², Mike Ellis ¹

¹University of Illinois, ²The Maschhoffs, LLC

7:00 a.m. 181 **Utilization of the Nutrack Livestock Monitoring System to Identify Changes in General and Spatial Behaviors of Newly Weaned Nursery Exposed to an Endotoxin Challenge**

Aaron J. Holliday¹, Benny E. Mote², Eric Psota¹, Lindsey E. Hulbert³, Majid Jaber-Douraki³, Melanie D. Trenhaile-Grannemann⁴, Mikayla Goering⁵, Jared M. Mumm⁵, Eduarda M. Mazzardo Bortoluzzi⁵, Ty B. B. Schmidt⁶

¹University of Nebraska - Lincoln, ²Department of Animal Science, University of Nebraska – Lincoln, ³Kansas State University, ⁴University of Lincoln-Nebraska, ⁵Kansas State University - Animal Science and Industry, ⁶University of Nebraska-Lincoln

Bentley Lecture

Chair: Clint Krehbiel, University of Nebraska

12:00 PM - 1:00 PM

Channel 2

12:00 p.m. **Bentley Lecture Introduction**

12:05 p.m. 182 **Bentley Lecture: Precision Livestock Management**

Mark G. Trotter¹

¹Central Queensland University

Genetics, Genomics and Bioinformatics

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 130 **Utilization of Nutrack to Assess Variance Components and Heritability of Activity Traits**

Lexi M. Ostrand¹, Melanie D. Trenhaile-Grannemann², Garret See³, Ty B. B. Schmidt¹, Eric Psota³, Gary A. Rohrer⁴, Benny E. Mote⁵

¹University of Nebraska-Lincoln, ²University of Lincoln-Nebraska, ³University of Nebraska - Lincoln, ⁴USDA, ARS, U.S. Meat Animal Research Center, ⁵Department of Animal Science, University of Nebraska – Lincoln

7:00 a.m. 131 **Zilpaterol Hydrochloride and Heat Stress Each Alter the Cattle Adipose Transcriptome and Predicted to Alter Molecular Pathways After 21 Days**

Rachel R. Reith¹, Renae L. Sieck¹, Pablo Cesar Grijalva², Duarte E. E. Diaz², Ty B. B. Schmidt¹, Dustin T. Yates¹, Jessica L. L. Peterson¹

¹University of Nebraska-Lincoln, ²University of Arizona

7:00 a.m. 129 **Genomic Relationship Between PRRSV Wild-type Infection and PRRSV Vaccination for Antibody Response and Reproductive Performance**

Leticia P. Sanglard¹, Felipe M W Hickmann¹, Yijian Huang², Kent A. Gray², Daniel Linhares¹, Jack C.M. Dekkers³, Megan niederwerder⁴, Rohan Fernando¹, Nick V. Serao¹

¹Iowa State University, ²Smithfield Premium Genetics, ³Department of Animal Science, Iowa State University, ⁴Kansas State University

7:00 a.m. 128 **Differences in PRRSV Resilience for Reproductive Performance Between Landrace and Duroc Sows**

Felipe M W Hickmann ¹, José Braccini Neto ², Luke M. Kramer ¹, Kent A. Gray ³, Yijian Huang ³, Jack C.M. Dekkers ⁴, Leticia P. Sanglard ¹, Nick V. Serao ¹
¹Iowa State University, ²Iowa State State, ³Smithfield Premium Genetics, ⁴Department of Animal Science, Iowa State University

7:00 a.m. 127 **Antibody Response as an Indicator Trait for Improved Reproductive Performance During a PRRSV Outbreak: Genetic Correlations of S/P Ratio with Reproductive Traits in Landrace and Duroc Sows**

Felipe M W Hickmann ¹, José Braccini Neto ², Luke M. Kramer ¹, Kent A. Gray ³, Yijian Huang ³, Jack C.M. Dekkers ⁴, Leticia P. Sanglard ¹, Nick V. Serao ¹
¹Iowa State University, ²Iowa State State, ³Smithfield Premium Genetics, ⁴Department of Animal Science, Iowa State University

Growth, Development, Muscle Biology and Meat Science Symposium

Chair: Zachary Smith, South Dakota State University

1:45 PM - 5:00 PM

Channel 3

1:45 p.m. **Growth, Development, Muscle Biology and Meat Science Symposium Introduction**

1:50 p.m. 219 **Managing Beef Cattle Growth Amidst a Global Pandemic: Lessons Learned from 2020 and Strategies for the Future**

Bradley J. Johnson ¹, Zachary K. Smith ²
¹Texas Tech University, ²South Dakota State University

2:35 p.m. 220 **Managing Swine Supply and Swine Growth Amidst a Global Pandemic: Lessons Learned from 2020 and Strategies for the Future**

Nicholas K. Gabler ¹
¹Iowa State University

3:20 p.m. **Growth, Development, Muscle Biology and Meat Science Symposium Break**

3:30 p.m. 221 **Managing Meat Supply Amidst a Global Pandemic at the Packer, Food Industry, and Retail Level: Lessons Learned from 2020 and Strategies for the Future**

Brad Morgan ¹
¹Colorado State University, Department of Animal Sciences

4:15 p.m. **Growth, Development, Muscle Biology and Meat Science Symposium Panel**

Growth, Development, Muscle Biology and Meat Science

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 119 **Lysine Requirement of Market Gilts Immunized Against Gonadotropin-releasing Factor on Performance and Carcass Composition**

Kimberly A. Vonnahme¹, Debbie Amodie¹, John Patience², Steve Pollmann³, Lucina Galina¹, Marnie Mellencamp¹

¹Zoetis, ²Oxford Nutrition Consulting, LLC, ³DSP Consulting LLC

7:00 a.m. 117 **Improved Growth Performance in the F1 Heterozygous Generation of an SSTR2 Knockout Model in Swine**

R. Blythe Schultz¹, Malavika K. Adur¹, Yunsheng Li², Zoe E. Kiefer¹, Nicholas K. Gabler¹, Jason W. Ross¹

¹Iowa State University, ²College of Animal Science and Technology, Anhui Agricultural University

7:00 a.m. 116 **Effect of Coated and Non-coated Steroidal Implants on Growth Performance, Dietary Net Energy Utilization and Carcass Traits of Feedlot Finishing Steers**

Elizabeth M. Buckhaus¹, Zachary K. Smith²

¹SDSU Animal Science, ²South Dakota State University

7:00 a.m. 118 **Increased Growth and Carcass Attributes in Improvest®-treated Gilts Do Not Require Additional Dietary Lysine**

Kimberly A. Vonnahme¹, Leanne Van De Weyer², Debbie Amodie¹, John Patience³, Steve Pollmann⁴, Lucina Galina¹, Marnie Mellencamp¹

¹Zoetis, ²Zoetis Canada, ³Oxford Nutrition Consulting, LLC, ⁴DSP Consulting LLC

Nonruminant Nutrition Symposium I

Chair: Jon Bergstrom, DSM

8:00 AM - 12:00 PM

Channel 1

8:00 a.m. **Nonruminant Nutrition Symposium I Introduction**

Ellen Davis¹

¹Arm & Hammer Animal and Food Production

8:10 a.m. 102 **Maxwell Lectureship: Why Resist: Harnessing Immune-microbiome Interactions for Improved Swine Gut Health**

Crystal L. Loving¹

¹USDA-ARS-National Animal Disease Center

8:55 a.m. 103 **The Role of Crude Protein in Reducing the Need for Antibiotics in the Post-weaning Period**

John Pluske¹

¹Australasian Pork Research Institute Ltd.

9:25 a.m. 104 **The Danish Perspective to Remove Medicinal Zinc and Reducing the Use of Antibiotics in Swine Production**

Hanne Maribo ¹

¹Pig research Centre DK, SEGES

9:55 a.m. 105 **Feed Additives That Optimize nitrogen Bio-availability in Nursery Pigs Fed Reducing Crude Protein Diets**

Tsungcheng Cheng Tsai ¹

¹University of Arkansas

10:25 a.m. **Nonruminant Nutrition Symposium I Break**

10:35 a.m. 106 **Agriculture Residues as a Possible Sustainable Approach to Replacing Antibiotics in Animal Nutrition**

Ricardo Ekmay ¹

¹Arbion inc.

10:55 a.m. 107 **Raised Without Antibiotics, Lessons Learned**

Whitney Lincoln ¹

¹Smithfield

11:15 a.m. 108 **A Veterinarian's Perspective on How Health and Nutrition Intersect**

Sara D. Hough ¹

¹DSM

11:35 a.m. 109 **When Too Many Feed Additives Is Not a Sustainable Approach to Replacing Feed Antibiotics**

Casey L. Bradley ¹, David S. Rosero ²

¹The Sunswine Group, ²The Hanor Company

11:55 a.m. **Nonruminant Nutrition Symposium I Discussion**

Nonruminant Nutrition Symposium II

Chair: Nicholas Gabler, Iowa State University; Doug Cook, CSA Animal Nutrition

1:45 PM - 4:00 PM

Channel 1

1:45 p.m. **Nonruminant Nutrition Symposium II Introduction**

1:50 p.m. 292 **Awardee Talk: Influence of Stress and Nutrition on the Response of Pigs to Weaning and Transport**

Jay S. Johnson ¹

¹USDA-ARS Livestock Behavior Research Unit

2:20 p.m. 189 **Fundamentals, Common Mistakes, and Graduate Education in Statistics**

Nick V. Seroa ¹, Mike D. Tokach ², Neil Paton ³

¹Iowa State University, ²Kansas State University, ³Cargill Engineering and Data Science

2:45 p.m. 190 **Data Collection Practices to Reduce Variance in Swine Nutrition Trials**
Mike D. Tokach¹
¹Kansas State University

3:10 p.m. 191 **The Evolving Statistical Science on P-values and How My Count Data Methods and P-values Are Affected**
Neil Paton¹
¹Cargill Engineering and Data Science

3:35 p.m. **Nonruminant Nutrition Symposium II Discussion**

Nonruminant Nutrition

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 124 **Effects of Different Feeding Levels Prior to Farrowing on Sow and Litter Performance**
Heath Harper¹, Gustavo Silva², Beau Peterson³, Andrea Hanson⁴, Dan N. Hamilton⁵, Carine M. Vier⁵, Jose A. Soto⁶, Ning Lu⁵, Uislei A. D. A.D. Orlando⁵
¹Carthage Veterinary Service, ²Iowa State University, ³Carthage Innovative Swine Solutions, ⁴Carthage Vet Services, ⁵PIC, ⁶Ajinomoto Heartland

7:00 a.m. 123 **Effects of Different Feeding Regimes During Wean-to-estrus Interval on Sow Reproductive Performance**
Ning Lu¹, Ghenadie Popa², Ruiming Wang², Carine M. Vier³, Ron A. Navales², Wayne R. Cast³, Uislei A. Orlando³
¹PIC, ²Genus PIC, ³PIC North America

7:00 a.m. 126 **Impact of Elevating Feed Amounts in Late Gestation on Sow and Litter Performance**
Ximena A. Paz Portal¹, David S. Rosero², Scott D. Carter¹
¹Oklahoma State University, ²The Hanor Company

7:00 a.m. 125 **Effects of Dietary Fiber Supplementation in Late Gestation on Farrowing Characteristics and Sows and Litters Performance**
William R. Valadares¹, Leonardo A. Leal¹, Kevin de Almeida¹, Dani Perondi², Rafael Kummer², Carine M. Vier³, Ning Lu⁴, Uislei A. Orlando³, Rafael R. Ulguim¹, Fernando P. Bortolozzo¹, Ana Paula G. Mellagi¹
¹UFRGS, ²Master Agroindustrial, ³PIC North America, ⁴PIC

7:00 a.m. 121 **Statistical Analysis Method Counts for Sow Count Data Responses**
Richard Faris¹, Neil Paton²
¹Cargill Animal Nutrition, ²Cargill Engineering and Data Science

7:00 a.m. 120 **Impact of a Two-phase Lactation Feeding Program on Farrowing and Weaning Performance of Sows**
Allison K. Blomme¹, Nick Weihs², James Jolliff³, Trey A. Kellner⁴
¹Kansas State University, ²AMVC Management Services, ³Provimi North America, ⁴AMVC Nutritional Services

- 7:00 a.m. 167 **Effects of L-lys Hcl and Distillers Dried Grains Inclusion Rate on Growth Performance of Finishing Pigs**
Henrique S. Cemin ¹, Luke A. Swalla ¹, Jamie L. Pietig ¹, Sharlie A. Hansen ¹, Ernie L. Hansen ¹
¹Hubbard Feeds
- 7:00 a.m. 166 **Optimal tryptophan:lysine Ratio for 25-40 Kg Growing Pigs Fed Diets Containing 35 % Distillers Dried Grains with Solubles**
Maryane Sespere Faria de Oliveira ¹, John K. Khun Kyaw Htoo ², Caroline Gonzalez Vega ³, Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign, ²Evonik, ³Cargill Animal Nutrition
- 7:00 a.m. 164 **Effect of Supplemental DI-met Above Requirement on Performance and Serum Concentration of Amino Acids in Heat Stressed Pigs**
Adriana Morales ¹, Verónica Sánchez ², Bayron Pérez ², Lucero R. Pérez Mejía ¹, Caroline Gonzalez Vega ³, John K. Khun Kyaw Htoo ⁴, Miguel Cervantes-Ramírez ¹
¹Universidad Autónoma de Baja California, ²UABC, ³Cargill Animal Nutrition, ⁴Evonik
- 7:00 a.m. 165 **Effects of Digestible Lysine Level on Growth Performance and Economics of Grow-finish Pigs**
Larissa L. Becker ¹, Emily E. Scholtz ², Joel M. DeRouchey ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ³, Jon A. De Jong ², Fangzhou Wu ², Kiah M. Gourley ², Casey R. Neill ²
¹Kansas State University, ²Pipestone Nutrition, ³Kansas State University
- 7:00 a.m. 168 **Effects of Increasing Dietary Standardized Ileal Digestible Lysine Levels on Growth Performance of 12- to 26-kg Pigs Sired by High Index Boars**
Carine M. Vier ¹, Ning Lu ², Gustavo Silva ³, Luis E. Zaragoza ⁴, Brandon Knopf ⁵, Ron A. Navales ⁴, Wayne R. Cast ¹, Steve Dritz ¹, Uislei A. Orlando ¹
¹PIC North America, ²PIC, ³Iowa State University, ⁴Genus PIC, ⁵Carthage Innovative Swine Solutions
- 7:00 a.m. 169 **The Effect of Standardized Ileal Digestible isoleucine:lysine in Diets Containing 20% Dried Distillers Grains with Solubles on Finishing Pig Performance and Carcass Characteristics**
David A. Clizer ¹, Ryan S. Samuel ², Paul M. Cline ³
¹South Dakota State University, ²Department of Animal Science, South Dakota State University, ³Christenesen Farms
- 7:00 a.m. 171 **Effects of Dietary Valine, Isoleucine, and Tryptophan Supplementations to Diets Containing Excess Leucine on Nitrogen Balance of Growing Pigs**
Woong Bi Kwon ¹, Jose A. Soto ², Hans H. Stein ³
¹University of Illinois, ²Ajinomoto Heartland, ³University of Illinois at Urbana-Champaign
- 7:00 a.m. 170 **Meta-analysis to Determine the Standardized Ileal Digestible Lysine Requirements of Growing-finishing Pigs from 11- to 150-kg**
Uislei A. Orlando ¹, Carine M. Vier ¹, Wayne R. Cast ¹, Ning Lu ², Ron A. Navales ³, Steve Dritz ¹
¹PIC North America, ²PIC, ³Genus PIC
- 7:00 a.m. 205 **Dietary Strategies to Limit Average Daily Gain of Late Finishing Pigs**
Devin Goehring ¹, Katherine A. McCormick ¹, Julie Mahoney ¹, Rodney Hinson ¹
¹United Animal Health

7:00 a.m. 204 **An Investigation into the Role of Dietary Essential Fatty Acids Ratios and Linoleic Acid Level on Growth Performance and Inflammation of Grow-finish Pigs**

Spenser Becker¹, Laura L. Greiner¹

¹Iowa State University

7:00 a.m. 206 **An Investigation into the Role of Dietary Essential Fatty Acids Ratios and Energy Level on Growth Performance, Inflammation, and Joint Health of Grow-finish Pigs**

Spenser Becker¹, Laura L. Greiner¹

¹Iowa State University

7:00 a.m. 203 **Effect of a Supplemental Water Source on Performance of Growing-finishing Pigs**

Kelsey L. Hammers¹, Jessica Jasper², Simon Kern², Mike J. Boerboom³, Lee J. Johnston⁴, Jeffrey S. Knott⁵

¹University of Minnesota, ²Ideal Animal Nutrition, ³Boerboom Ag Resources, ⁴West Central Research and Outreach Center, University of Minnesota, ⁵IDEAL Animal Nutrition

7:00 a.m. 199 **Effect of the Pelleting Process on Diet Formulations with Varying Levels of Crystalline Amino Acids and Reducing Sugars on Digestibility in Growing Pigs**

Kara M. Dunmire¹, Diego A. Lopez², Chance J. Fiehler³, Yiqin Zhang¹, Cassandra K. Jones⁴, Yonghui Li¹, Jason C. Woodworth⁴, Robert D. Goodband⁴, Mike D. Tokach⁴, Charles R. Stark⁴, Hans H. Stein⁵, Chad B. Paulk⁴

¹Department of Grain Science & Industry, Kansas State University, ²Department of Animal Sciences, University of Illinois, ³Department of Animal Sciences & Industry, Kansas State University, ⁴Kansas State University, ⁵University of Illinois at Urbana-Champaign

7:00 a.m. 202 **Plasma Isoprostanes, but Not Thiobarbituic Acid Reactive Substances, Are a Reliable Measure of Lipid Oxidation in Growing Pigs Fed Peroxidized Soybean Oil**

Victoria C. Wilson¹, Brian J. Kerr²

¹Iowa State University, ²USDA-ARS National Laboratory for Agriculture and the Environment

7:00 a.m. 200 **Effect of Long-term Feeding of Deoxynivalenol (DON) Contaminated Diets on Performance of Grower-finisher Pigs**

Michael A. Bosompem¹, Michael O. Wellington², Daniel A. Columbus²

¹University of Saskatchewan, ²Prairie Swine Centre, Inc.

7:00 a.m. 201 **Impact of Water Flow Rate on Finishing Pig Performance**

Hannah E. Miller¹, Jorge Perez Palencia¹, Crystal L. Levesque¹, Robert C. Thaler¹

¹South Dakota State University

7:00 a.m. 140 **Influence of Enogen Feed Corn and Conventional Yellow Dent Corn in Pelleted or Meal-based Diets on Finishing Pig Performance and Carcass Characteristics**

Hadley Williams¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Charles R. Stark¹, Chad B. Paulk¹, Haley Otott¹

¹Kansas State University

7:00 a.m. 137 **Evaluation of Narasin Inclusion Level on the Growth Performance and Carcass Characteristics of Growing-finishing Pigs**

Christopher L. Puls¹, Roger A. Arentson², Beau Peterson³, Gustavo Silva⁴, Brandon Knopf³, Matthew J. Ritter⁵, Mark Steidinger⁶, Scott Carr¹

¹Elanco, ²Elanco Animal Health, ³Carthage Innovative Swine Solutions, ⁴Iowa State University, ⁵United Animal Health, ⁶KCP Research, Inc.

7:00 a.m. 139 **Does Feeding an Increased Level of Narasin (Skycis) Result in Improved Growth Performance and Mortality in a Commercial Wean-to-finish Swine Feeding Program?**

Trey A. Kellner¹, Josh Ellingson², Paul Thomas²

¹AMVC Nutritional Services, ²AMVC Management Services

7:00 a.m. 138 **Effects of Increasing Soybean Meal in Corn-based Diets on Growth Performance of Late-finishing Pigs**

Julia P. Holen¹, Robert D. Goodband¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹

¹Kansas State University

7:00 a.m. 142 **Evaluation of Proso Millet as a Partial or Complete Replacement for Corn in Growing-finishing Diets for Pigs**

Khang A. Nguyen¹, Melanie D. Trenhaile-Grannemann¹, Thomas E. Burkey², Phillip S. Miller²

¹University of Lincoln-Nebraska, ²University of Nebraska-Lincoln

7:00 a.m. 141 **Relationship Between Dietary Fiber and Basal Ileal Endogenous Losses of Amino Acids in Growing Pigs**

Chan Sol Park¹, Darryl Ragland¹, Olayiwola Adeola¹

¹Purdue University

7:00 a.m. 143 **Impact of Replacing Soybean Meal with Corn DDGS and Crystalline Amino Acids on Performance and Carcass Characteristics of Growing Pigs**

Brooke E. Anderson¹, Jonathan P. Holt², R.D. Boyd³, Eric van Heugten⁴

¹NC State University, ²NCSU, ³Hanor Company, ⁴Department of Animal Science, North Carolina State University

7:00 a.m. 134 **Meta-analysis to Determine the Effects of Particle Size on Nursery and Finishing Pig's Growth Performance and Stomach Morphology**

A meta-analysis was conducted to determine grain particle size (PS) effects on pig growth

Carlos J. Kippert¹, Carine M. Vier², Ning Lu³, Wayne R. Cast², Ron A. Navales⁴, Steve Dritz², Uislei A. Orlando²

¹Brazil food -BRF, ²PIC North America, ³PIC, ⁴Genus PIC

7:00 a.m. 135 **Effect of Gossypol from Cottonseed Meal on Growth Performance, Plasma Gossypol, and Complete Blood Cell Counts in Commercial Growing Pigs: A Preliminary Study on Feral Hog Control**

Richard A. Mudarra¹, Tsungcheng Cheng Tsai¹, Christopher R. Hansen¹, Brittni P. Littlejohn², Charles V. Maxwell¹, Rick W. Rorie¹

¹University of Arkansas, ²University of Arkansas System, Division of Agriculture, Department of Animal Science

7:00 a.m. 136 **Mycotoxin Contamination in United States Corn and Corn DDGS from 2019 and 2020 Harvest**

Lan Zheng¹, Chasity Pender¹, Paige N. Gott¹, Erin F. Schwandt¹, Shelby M. Ramirez¹, Ursula Hofstetter², G. Raj Murugesan³

¹BIOMIN America Inc., ²Biomin, ³BIOMIN America Inc

7:00 a.m. 133 **Influence of Particle Size of Enogen Feed Corn and Conventional Yellow Dent Corn on Nursery and Finishing Pig Performance, Carcass Characteristics and Stomach Morphology**

Hadley Williams¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Steve Dritz², Haley Otott¹, Hilda I. Calderon³

¹Kansas State University, ²PIC North America, ³Department of Statistics, College of Arts and Sciences, Kansas State University

7:00 a.m. 132 **Lack of Randomization and Its Impact on Statistical Power and Validity of Statistical Analyses**

Nick V. Serao¹, José Braccini Neto², Robert J. Tempelman³

¹Iowa State University, ²Iowa State State, ³Michigan State University

7:00 a.m. 192 **Application of Hemicell HT™ – a β -mannanase Enzyme – Retains Post-weaned Piglet Performance in the Presence of Challenging Protein Sources**

Frédéric ACJ Vangroenweghe¹, Karl Poulsen¹

¹Elanco Animal Health

7:00 a.m. 193 **Substitution of Expensive Protein Sources by Soybean Meal Supplemented with a β -mannanase Enzyme Results in Improved General Clinical Health Score During the Post-weaning Period**

Frédéric ACJ Vangroenweghe¹, Karl Poulsen¹

¹Elanco Animal Health

7:00 a.m. 196 **Effect of Exogenous Enzyme Supplementation and Fermentation of Oilseed By-products on in vitro Digestibility and Production of Short Chain Fatty Acid**

Jae C. Jang¹, Aqsa Javaid², Pedro E. Urriola¹, Gerald C. Shurson¹

¹University of Minnesota, ²International Islamic University

7:00 a.m. 195 **Does Feeding a Protease and Probiotic (Bacillus Subtilis) Combination (Syncra® SWI) Result in Improved Growth Performance and Mortality in a Commercial Wean-to-finish Swine Feeding Program?**

Trey A. Kellner¹, Josh Ellingson², Ana L. P de Souza³, Janet C. Remus⁴

¹AMVC Nutritional Services, ²AMVC Management Services, ³DuPont Animal Nutrition, ⁴Danisco Animal Nutrition & Health - IFF

7:00 a.m. 194 **Efficacy of a Multicarbohydase Containing Alpha-galactosidase in Lactating Sows: Impact on Progeny Weight and Uniformity**

Steve J. Kitt¹, Roshan Adhikari², Mark J. Bertram³, Grant I. Petersen⁴, Sara Llamas-Moya²

¹First Choice Livestock, LLC, ²Kerry Inc., ³First Choice Livestock LLC, ⁴United Animal Health

7:00 a.m. 197 **Supplementation of Bacillus Amyloquefaciens on Growth Performance and Diarrhea Score of Weaned Pigs Experimentally Infected with a Pathogenic E. coli**

Cynthia N. Jinno¹, Braden Wong¹, Martina Kluenemann², Xunde Li¹, Yanhong Liu¹

¹University of California, Davis, ²Evonik Operations GmbH

7:00 a.m. 198 **Effects of Bacillus Spp. on Pathogen Inhibition in vitro and on Growth Performance and Bacterial Shedding in Growing Finishing Pigs**

Huyen Tran ¹, Diana Ayala ², Jessica Spears ³, Peter Karnezos ¹, Brenda de Rodas ¹
¹Purina Animal Nutrition, ²Land O'Lakes, ³Bio-Cat Microbials

7:00 a.m. 216 **Effect of Spray Dried Plasma on the Standardized Ileal Digestibility of Crude Protein and Amino Acids in Diets Based on Different Ingredient Combinations Fed to Young Pigs**

Hannah M. Bailey ¹, Hans H. Stein ², Joy Campbell ³
¹University of Illinois, ²University of Illinois at Urbana-Champaign, ³APC

7:00 a.m. 215 **Effects of Increasing Dietary Standardized Ileal Digestible Lysine Levels on Growth Performance of 39- to 119-kg Pigs Sired by High Index Boars**

Ning Lu ¹, Carine M. Vier ², Gustavo Silva ³, Luis E. Zaragoza ⁴, Brandon Knopf ⁵, Ron A. Navales ⁴, Wayne R. Cast ², Steve Dritz ², Uislei A. Orlando ²
¹PIC, ²PIC North America, ³Iowa State University, ⁴Genus PIC, ⁵Carthage Innovative Swine Solutions

7:00 a.m. 214 **Effects of Reducing Digestible Lysine and Tryptophan to Lysine Ratio on Growth Performance of Grow-finish Pigs**

Andres F. Tolosa ¹, Mike D. Tokach ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ², Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Craig Steck ³, Matt Wolfe ⁴
¹Kansas State University, ²Kansas State University, ³New Horizon Farms, ⁴Provimi North America

7:00 a.m. 213 **Increased Standardized Ileal Digestible Isoleucine to Lysine Ratio Improved Feed Efficiency in Pigs Fed Distillers Dried Grains with Solubles from 11 to 80 kg**

Pengcheng Xue ¹, Chad M. Pilcher ¹, Qingyun Li ¹, Kari L. Saddoris-Clemons ²
¹Cargill Animal Nutrition, ²Cargill Animal Nutrition and Health

7:00 a.m. 212 **Conditioning and Expansion Increases Nutritional Value of Soybean Expellers**

Charmaine D. Espinosa ¹, Maryane Sespere Faria de Oliveira ¹, Joseph Limbach ², Natalia Fanelli ², Markus K. Wiltafsky-Martin ³, Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign, ²University of Illinois Urbana-Champaign, ³Evonik Operations GmbH

7:00 a.m. 217 **Effects of Dietary Protein Content and Crystalline Amino Acid Supplementation Patterns on Growth Performance of Weaned Pigs Raised Under Different Sanitary Conditions**

Jinyoung Lee ¹, Caroline Gonzalez Vega ², John K. Khun Kyaw Htoo ³, chengbo Yang ⁴, Charles Martin Nyachoti ¹
¹University of Manitoba, ²Cargill Animal Nutrition, ³Evonik, ⁴Department of Animal Science, University of Manitoba, Winnipeg, Manitoba R3T 2N2, Canada

7:00 a.m. 211 **A Corn Protein Product Has Greater Concentration of Digestible Amino Acids and Energy Than Low-oil Distillers Dried Grains with Solubles When Fed to Pigs and May Be Used in Diets for Weanling Pigs**

Jessica P. Acosta Medellin¹, Charmaine D. Espinosa², Neil Jaworski³, Hans H. Stein²
¹Monogastric Nutrition Laboratory UIUC, ²University of Illinois at Urbana-Champaign, ³University of Illinois

7:00 a.m. 218 **Ileal Digestibility of Amino Acids Is Greater in Sunflower Expellers Than in Sunflower Meal When Fed to Growing Pigs**

Jimena A. Ibagón¹, Su A Lee², Hans H. Stein²
¹University of Illinois, ²University of Illinois at Urbana-Champaign

7:00 a.m. 183 **Effects of Protein Supplementation on the Gut Bacterial Community Composition of Hybrid Striped Bass, *Morone chrysops* X *M. saxatilis***

Emily Fowler¹, Benoit St-Pierre¹, Prakash Poudel¹, Brandon White¹, Michael Brown¹
¹South Dakota State University

7:00 a.m. 185 **The Impacts of Commercial Dietary Acidifiers on Growth Performance of Nursery Pigs**

Payton L. Dahmer¹, Cassandra K. Jones¹
¹Kansas State University

7:00 a.m. 186 **Effects of a Phytogenic Feed Additive (Aromex® Pro) and Narasin (Skycis®) on Finishing Pig Growth Performance and Carcass Characteristics**

Kristen M. Ewing¹, Omarh F. Mendoza¹, Caleb M. Shull¹, Matthew J. Ritter², Scott Carr³
¹The Maschhoffs, LLC, ²United Animal Health, ³Elanco Animal Health, Inc.

7:00 a.m. 184 **Evaluation of Aviplus on Growth Performance of Nursery and Growing-finishing Pigs**

Wade M. Hutchens¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Hilda I. Calderon², Kaylee Keppy³, Kevin Stephens³, Philip Maynard³
¹Kansas State University, ²Department of Statistics, College of Arts and Sciences, Kansas State University, ³Vetagro, INC.

7:00 a.m. 187 **Effects of Oligosaccharide-based Polymer on Growth Performance, Diarrhea, and Fecal β -hemolytic Coliforms in Weanling Pigs Experimentally Infected with a Pathogenic *E. coli***

Kwangwook Kim¹, Yijie He², Cynthia N. Jinno³, Seijoo Yang³, Xunde Li³, David Bravo⁴, Eric Cox⁵, Yanhong Liu³
¹Michigan State university, ²Department of Animal Science, University of California, Davis, ³University of California, Davis, ⁴Pancosma|ADM, ⁵Ghent University

7:00 a.m. 188 **Evaluation of Alternative Summer Feeding Strategies to Optimize Performance in High Lean Genetics Using Energy, Narasin and Phytonutrient Blend Individually, Or, in Combination**

Brandon Knopf¹, Andrea Hanson², Gustavo Silva³, Beau A. Peterson¹, Kevin Soltwedel⁴, Megan Bible⁴, Fredrik Sandberg⁴
¹Carthage Innovative Swine Solutions, ²Carthage Vet Services, ³Iowa State University, ⁴Furst-McNess Company

7:00 a.m. 246 **Effects of Feeding Thermally Processed Spray-dried Egg Whites on Growth Performance, Apparent Digestibility, and Oxidative Stress in Nursery Pigs**

Victoria C. Wilson ¹, Brian J. Kerr ²

¹Iowa State University, ²USDA-ARS National Laboratory for Agriculture and the Environment

7:00 a.m. 245 **Evaluation of Cellulose in Diets with and Without Added Zno on Nursery Pig Performance**

Jenna A. Chance ¹, Mike D. Tokach ¹, Hilda I. Calderon ², Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹

¹Kansas State University, ²Department of Statistics, College of Arts and Sciences, Kansas State University

7:00 a.m. 249 **Increasing Structural Fiber Improves Growth Performance of Nursery Pigs**

Sara Ebarb ¹, Sabrina B. May ¹, Mark D. Newcomb ¹

¹Cargill Animal Nutrition

7:00 a.m. 248 **Impact of Adding a Stimbiotic or Sugar Beet Pulp to Nursery Pig Diets on Growth Performance and Individual Injections**

Laura A. Merriman ¹, Pete Wilcock ¹, Gustavo Cordero ¹, Ben Haberl ²

¹AB Vista, ²Iowa Select Farms

7:00 a.m. 247 **The Effect of Feeding Low Complexity Diets Contaminated with Deoxynivalenol and Supplemented with Nutramixtm or Fish Oil on Nursery Pig Growth Performance**

Elise Lafleur Lariviere ¹, Lee-Anne Huber ¹, Cuilan Zhu ¹

¹University of Guelph

7:00 a.m. 244 **Effect of Fiber Source and Crude Protein Level on Nursery Pig Performance**

Kelsey L. Hammers ¹, Hilda I. Calderon ², Mike D. Tokach ³, Jason C. Woodworth ³, Robert D. Goodband ³, Steve Dritz ⁴, Joel M. DeRouchey ³

¹University of Minnesota, ²Department of Statistics, College of Arts and Sciences, Kansas State University, ³Kansas State University, ⁴PIC North America

7:00 a.m. 243 **Effects of Initial Nursery Diet Budget on Growth Performance of 5.5- to 23-kg Pigs**

Henrique S. Cemin ¹, Luke A. Swalla ¹, Jamie L. Pietig ¹, Sharlie A. Hansen ¹, Ernie L. Hansen ¹

¹Hubbard Feeds

Physiology Symposium I

Chair: Kara Stewart, Purdue University

8:30 AM - 10:45 AM

Channel 2

8:30 a.m. **Physiology Symposium I Introduction**

8:35 a.m. 173 **How the Dairy Industry Has Capitalized on Advancements in Artificial Insemination**

Mitch Hockett ¹

¹

9:05 a.m. 174 **What Quality and Fertility Should We Expect When Using Semen Cryopreservation and AI with Livestock? a Comparison Across Species**

Phillip H. Purdy ¹

¹USDA National Animal Germplasm Program

9:35 a.m. 176 **Presentation: Dr. Brandon Kingsley Hopkins**

10:05 a.m. 175 **Analysis of Cryopreserved Semen Quality: With the Tools Available, What Is Possible to Be Interpreted**

Andre F. Furugen Cesar de Andrade ¹

¹University of Illinois

10:35 a.m. **Physiology Symposium I Discussion**

Physiology Symposium II

Chair: Lawrence Reynolds, NDSU

1:45 PM - 4:00 PM

Channel 2

1:45 p.m. **Physiology Symposium II Introduction**

1:50 p.m. 207 **Female Reproductive Fluids and Epigenetics**

Sebastian Canovas ¹, Raquel Romar ², Pilar Coy ²

¹Universidad de Murcia, ²University of Murcia

2:30 p.m. 208 **Sperm Retention, Storage and Release from the Oviduct: A Story of Sugars, Steroids, and Channels**

David J. Miller ¹

¹University of Illinois

3:10 p.m. 209 **Large Offspring Syndrome: Effects of in vitro Production on Embryo Epigenetics and Development**

Rocio M. Rivera ¹

¹University of Missouri

3:50 p.m. **Physiology Symposium II Discussion**

POSTER SESSION IV

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. PSIV-9 **A Multistate Evaluation of an Additional Iron Injection Administered to Piglets Before Weaning**

Tyler B. Chevalier ¹, Olayiwola Adeola ², Scott D. Carter ³, C. Robert Dove ⁴, Mark J. Estienne ⁵, Crystal L. Levesque ⁶, Charles V. Maxwell ⁷, Tsungcheng Cheng Tsai ⁷, Merlin D. Lindemann ¹

¹University of Kentucky, ²Purdue University, ³Oklahoma State University, ⁴The University of Georgia, ⁵Virginia Tech, ⁶South Dakota State University, ⁷University of Arkansas

7:00 a.m. PSIV-13 **Cell Wall Bound Ferulic and Coumaric Acids in Diets Based on Corn and Soybean Meal or Corn, Soybean Meal, and Distiller Dried Grains with Solubles Are Poorly Fermented in the Intestinal Tract of Pigs**

Jeimmy Paola Lancheros Castaneda ¹, Hans H. Stein ²

¹University of Illinois, ²University of Illinois at Urbana-Champaign

7:00 a.m. PSIV-5 **Characterization of the Fecal Bacterial Communities of Grass-fed and Grain-fed Bison Heifers**

Anlly M. Fresno Rueda ¹, Carter Kruse ², Jason Griffin ¹, Benoit St-Pierre ¹

¹South Dakota State University, ²Turner Ranches

7:00 a.m. PSIV-22 **Comparison of Corn Ethanol Co-products from Brazil and USA Apparent and Standardized Ileal Digestibility of Amino Acids in Pigs**

Vinicius R. C. Paula ¹, Natália C. Milani ¹, Cândida P.F. Azevedo ¹, Leury J. Souza ², Anderson A. Sedano ¹, Brian P. Mike ³, Gerald C. Shurson ⁴, Urbano S. Ruiz ¹

¹University of São Paulo, ²University of Sao Paulo, ³FS Bioenergia, ⁴University of Minnesota

7:00 a.m. PSIV-6 **Effect of a Direct Fed Microbial Feed Additive on Finishing Beef Cattle Performance and Liver Abscess Rate**

Kelton Adair ¹, Samodha C. Fernando ¹, Galen E. Erickson ¹, Alison Neujahr ¹, Zachary E. Carlson ²

¹University of Nebraska-Lincoln, ²University of Nebraska Lincoln

7:00 a.m. PSIV-7 **Effect of Biochar Supplementation in Beef Cattle Growing Diets on Greenhouse Gas Emissions**

Jessica L. Sperber ¹, Braden C. Troyer ¹, Mitchell M. Norman ², Levi J. McPhillips ¹, Andrea K. Watson ¹, Galen E. Erickson ¹

¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln

7:00 a.m. PSIV-1 **Effect of Corn Silage Inclusion Rate on Apparent Total Tract Digestibility of Dry Matter, Organic Matter, and Crude Protein in Finishing Steers**

Elizabeth M. Buckhaus ¹, Zachary K. Smith ²

¹SDSU Animal Science, ²South Dakota State University

7:00 a.m. PSIV-8 **Effect of Feeding Levucell SB® 10 Titan Advantage and YANG on Performance, Blood Parameters, and Fecal VFA of Nursery Pigs**

Huyen Tran ¹, Michael Shields ², Roger Arentson ³, Terry Weeden ¹, Brenda de Rodas ¹

¹Purina Animal Nutrition, ²Elanco Animal Health, USA, ³Elanco

7:00 a.m. PSIV-3 **Effect of Protein Source and Soy Hulls Inclusion in Finishing Diets of Feedlot Cattle Fed Free-choice Hay, on Performance and Carcass Characteristics**

Alejandro Pittaluga ¹, Alejandro E. Relling ¹

¹The Ohio State University

7:00 a.m. PSIV18 **Effects of Added Zn Level on Growth Performance and Hemoglobin of Nursery Pigs**

Henrique S. Cemin ¹, Luke A. Swalla ¹, Jamie L. Pietig ¹, Sharlie A. Hansen ¹, Ernie L. Hansen ¹

¹Hubbard Feeds

7:00 a.m. PSIV-11 **Effects of Phytogetic Feed Additives on Growth Performance Traits of Finishing Swine**

Pengcheng Xue ¹, Don W. Giesting ¹, Mark D. Newcomb ², Chad M. Pilcher ¹, Matthew J. Ritter ³

¹Cargill Animal Nutrition, ²Cargill Animal Nutrition and Health, ³Provimi

7:00 a.m. PSIV-17 **Effects of Trace Mineral Source and Level on Growth Performance and Carcass Characteristics of Grow-finish Pigs**

Henrique S. Cemin ¹, Luke A. Swalla ¹, Jamie L. Pietig ¹, Sharlie A. Hansen ¹, Ernie L. Hansen ¹

¹Hubbard Feeds

7:00 a.m. PSIV-16 **Evaluation of Nutritional Strategies to Reduce Growth Rate of Pigs Beyond 90-kg Body Weight**

Zhong-Xing Rao ¹, Jordan T. Gebhardt ², Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹

¹Kansas State University, ²Kansas State University

7:00 a.m. PSIV-2 **Evaluation of Relationship Between Feed Efficiency Traits and Energy Metabolism Using Comparative Slaughter Studies in Growing and Finishing Cattle**

Phillip A. Lancaster ¹

¹Beef Cattle Institute/Kansas State University

7:00 a.m. PSIV-12 **Evaluation of the Effect of Benzoic Acid with or Without a Direct Fed Microbial on the Performance and Health of Growing and Finishing Pigs**

Dalton C. Humphrey ¹, Jon R. Bergstrom ², Estefania Perez-Calvo ³, Laura L. Greiner ¹

¹Iowa State University, ²DSM, ³DSM Nutritional Products France

7:00 a.m. PSIV-19 **Flavors and Sweeteners in Nursery Pig Diets Increased Intake and Reduced Soft Feces in the First Weeks After Weaning**

Jorge Y. Perez-Palencia ¹, Xixi Chen ², Jirong Lv ³, Maíra Resende ⁴, Rhuan F. Chaves ⁵, Katelyn Zeamer ¹, David A. Clizer ¹, Ryan S. Samuel ⁶, Crystal L. Levesque ¹

¹South Dakota State University, ²DDC Nutrition, ³DadHank (Chengdu) Biotech Corp.,

⁴Universidade Federal de Lavras, ⁵Animalnutri, ⁶Department of Animal Science, South Dakota State University

7:00 a.m. PSIV-20 **Impact of High Protein Dried Distiller Grains and Soybean Meal Inclusion Level on Grow-finish Pig Performance and Carcass Traits**

David A. Clizer ¹, Jon A. De Jong ², Paul M. Cline ³, Melissa L. Jolly-Breithaupt ⁴, Ryan S. Samuel ⁵

¹South Dakota State University, ²Pipestone Nutrition, ³Christenesen Farms, ⁴Flint Hills Resources, ⁵Department of Animal Science, South Dakota State University

7:00 a.m. PSIV-21 **Impact of Increasing Standardized Ileal Digestible valine:lysine in Diets Containing 30% Dried Distillers Grains with Solubles on Early Grow-finish Pig Performance**

David A. Clizer ¹, Ryan S. Samuel ², Paul M. Cline ³

¹South Dakota State University, ²Department of Animal Science, South Dakota State University, ³Christenesen Farms

7:00 a.m. PSIV-14 **Influence of Feed Grade Amino Acid Inclusion Level in Late Nursery and Grower Diets Fed to Pigs from 10 to 35 Kg**

Hadley Williams¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Zach Post², Chad W. Hastad², Keith D. Haydon³

¹Kansas State University, ²New Fashion Pork, ³CJ Bio America

7:00 a.m. PSIV-15 **Influence of Particle Size of Enogen Feed Corn and Conventional Yellow Dent Corn on Lactating Sow Performance**

Hadley Williams¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Steve S. Dritz², Haley Otott¹, Hilda I. Calderon³

¹Kansas State University, ²Department of Diagnostic Medicine & Pathobiology, College of Veterinary Medicine, Kansas State University, ³Department of Statistics, College of Arts and Sciences, Kansas State University

7:00 a.m. PSIV-10 **The Effect of a Dacitic (rhyolitic) Tuff Breccia, a Hydrated Sodium Calcium Aluminosilicate (HSCAS), Inclusion in Corn-soybean Meal Diets on Growth Performance of Individually Housed Grower Pigs**

Tyler B. Chevalier¹, Jon Ferrel², Merlin D. Lindemann¹

¹University of Kentucky, ²Azomite

7:00 a.m. PSIV-4 **The Impacts of Feeding Corn Co-products and Ionophores to Growing Boer Goats**

Payton L. Dahmer¹, Tamra Kott¹, Alison Crane¹, James Lattimer¹, Cassandra K. Jones¹

¹Kansas State University

POSTER SESSION V

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. PSV-7 **Colostrum Intake Level Is Related to Level of Total Circulating Proteins and Essential Amino Acids**

Aridany Suarez-Trujillo¹, L Kirsten Senn¹, Kelsey Teeple², Larissa K. Shirley³, Conor McCabe¹, Kayla M. Mills³, Rebecca Klopp¹, Kara R. Stewart², Theresa Casey²

¹Department of Animal Sciences, Purdue University, ²Purdue University, ³Department of Animal Science, Purdue University

7:00 a.m. PSV-4 **Determination of Deoxynivalenol (DON) Content in Biological Samples as an Indicator of DON Intake in Grower-finisher Pigs**

Michael O. Wellington¹, Michael A. Bosompem², Veronika Nagl³, Daniel A. Columbus¹

¹Prairie Swine Centre, Inc., ²University of Saskatchewan, ³Biomin Holding GmbH

7:00 a.m. PSV-5 **Effect of Breed and Barn Location on Semen Quality at an Artificial Insemination Facility**

Ashley R. Hartman¹, Madison L. Butler¹, Esther D. McCabe¹, Megan M. Rolf¹, Robert L. Weaber¹, Jennifer M. Bormann¹, David M. Grieger¹

¹Kansas State University

7:00 a.m. PSV-6 **Effect of Farrowing Induction on the Farrowing Process and Piglet Survivability**

Larissa K. Shirley ¹, Katie Brown ², Caleb M. Shull ², Amanda Minton ³

¹Department of Animal Science, Purdue University, ²The Maschhoffs, LLC, ³Acuity Swine Genetics

7:00 a.m. PSV-18 **Effect of Feeding Fermented Soybean Meal with Coconut Oil (Cocosoya) on the Growth Performance, Nutrient Digestibility, Fecal Score, Gas Emission and Blood Profile in Weaning Pigs**

Madesh Muniyappan ¹, Park Hyun Ju ¹, In Ho Kim ¹, Seok wooJung ¹

¹Dankook University

7:00 a.m. PSV-19 **Effect of Low Nutrient Density Diet with Probiotic Mixture (B. Subtilis ms1, B. Licheniformis SF5-1, and S. Cerevisiae) Supplementation on Performance of Weaner Pigs**

Vetriselvi Sampath ¹, Park Hyun Ju ², Yong min Kim ³, Ahn Je Min ², In Ho Kim ²

¹Department of Animal Resources Science, Dankook University, ²Dankook University, ³Dankook university

7:00 a.m. PSV-8 **Effects of Air Exposure and Agitation on Quality of Stored Boar Semen Samples**

Kayode B. Balogun ¹, Kara R. Stewart ²

¹Department of Animal Sciences, Purdue University, ²Purdue University

7:00 a.m. PSV-21 **Effects of Increasing Soybean Oil Supplementation Prior to Farrowing on Sow and Litter Performance Under Commercial Conditions**

Marley Conceição dos Santos ¹, Uislei A. Orlando ², Carine M. Vier ², Leopoldo M. Almeida ¹, Ning Lu ³, simone G. Oliveira ¹

¹Universidade Federal do Paraná, ²Genus PIC, ³PIC

7:00 a.m. PSV-1 **Effects of Induction on Piglet Blood Parameters at Time of Farrowing**

Kayla M. Mills ¹, Larissa K. Shirley ¹, Katharine G. Sharp ¹, Ricardo M. Garcia ², Kara R. Stewart ²

¹Department of Animal Science, Purdue University, ²Purdue University

7:00 a.m. PSV-10 **Effects of I- α -amino Butyrate Supplementation on Oocyte Maturation**

Kimberly Sprungl ¹, Haley A. Arena ¹, Skyla Reynolds ¹, Brian D. Whitaker ¹

¹University of Findlay

7:00 a.m. PSV-9 **Effects of Natural Honey Inclusion in Dilution and Freezing Extenders on Frozen-thawed Semen Quality in Boars**

Kayode B. Balogun ¹, Griffin Nicholls ¹, Olujide Sokunbi ², Kara R. Stewart ³

¹Department of Animal Sciences, Purdue University, ²Department of Animal Science, University of Ibadan, ³Purdue University

7:00 a.m. PSV-16 **Effects of the Inclusion of a Capsicum Oleoresin-based Additive on Growth Performance, Carcass Composition and Meat Quality of Pigs Under Heat Stress Conditions**

Gemma Tedo ¹, Alba Cerisuelo ², Benjamin Bass ³, Clemente Lopez ⁴, Luis Calvo ⁵

¹Lucta S. A., ²IVIA-CITA, ³Lucta USA, ⁴Universidad Complutense de Madrid, ⁵Incarlopsa

7:00 a.m. PSV-11 **Efficacy of Quisqualic Acid as an Amino Acid Transporter Inhibitor in Pig Oocytes**

Skyla Reynolds¹, Haley A. Arena¹, Kimberly Sprungl¹, Brian D. Whitaker¹
¹University of Findlay

7:00 a.m. PSV-17 **Evaluation of the Effects of a Feed Sweetener on Nursery Pig Performance**

Thomas E. Weber¹, Julie Salyer¹, Audrey Walter¹, Yan Lei², Yulin Ma³, Xixi Chen⁴
¹Kalmbach Feeds, ²Dadhank (Chengdu) Biotech Corp, ³Hanley International, LLC, ⁴DDC Nutrition

7:00 a.m. PSV-23 **Impact of Supplemental Essential Fatty Acids in Lactation and Post-weaning Diets on Subsequent Reproduction of Sows**

Garrin Shipman¹, David S. Rosero², Ximena Paz³, R.D. Boyd⁴, Eric van Heugten⁵
¹South Dakota State University, ²The Hanor Company, ³Hanor Family of Companies, ⁴Hanor Company, ⁵North Carolina State University

7:00 a.m. PSV-3 **Milk Lactose Concentration Is Altered in Multiparous Sows Supplemented with Sugar from Mid-gestation Through Lactation**

Alexis M. Siomka¹, Jennifer M. Young², Kimberly A. Vonnahme³, Kendall C. Swanson⁴, Eric P. Berg⁴
¹University of Findlay, ²Department of Animal Sciences, North Dakota State University, ³Zoetis, ⁴North Dakota State University

7:00 a.m. PSV-22 **Nutrient Digestibility of Deactivated Soybean and Soybean Extruded at Different Temperatures by Weanling Pigs**

Natália C. Milani¹, Vinicius R.C. Paula¹, Cândida P.F. Azevedo¹, Anderson A. Sedano¹, Hélio Moreira Junior¹, Dave H.A. Duarte¹, Urbano S. Ruiz¹
¹University of São Paulo

7:00 a.m. PSV-12 **Nutrient Utilization of Black Soldier Fly-derived Feed Ingredients Is Affected by Growth Stage and Processing Method Based on in vitro Assays**

Hansol Kim¹, Eunjeong Jang¹, Sang Yun Ji², Beob G. Kim¹
¹Konkuk University, ²Rural Development Administration

7:00 a.m. PSV-20 **The Effect of Black Pepper (Piperine) Extract Supplementation on Growth Performance, Nutrient Digestibility, Fecal Microbial, Fecal Gas Emission, and Meat Quality of Finishing Pigs**

Vetriselvi Sampath¹, Park Hyun Ju², In Ho Kim², Huan Wang³, Md Raihanul Hoque¹
¹Department of Animal Resources Science, Dankook University, ²Dankook University, ³Dankook university

7:00 a.m. PSV-13 **The Effect of Supplementing Sows with the Leucine Metabolite Beta-hydroxy-beta-methylbutyrate and Vitamin D3 Pre-parturition and During Lactation on Early Piglet Weight**

John C. Fuller¹, Fabricio Castro², Rhuan F. Chaves², Mike Mohr³, John A. Rathmacher⁴
¹Metabolic Technologies LLC, ²Animalnutri, ³Intelipig LLC, ⁴MTI Biotech Inc.

7:00 a.m. PSV-14 **The Efficacy of Feeding a Bioactive Peptide in Comparison to Narasin in Growing Pigs in a Commercial System on Growth Performance and Efficiency**
Casey L. Bradley ¹, Thomas S. Shieh ², Michael J. Azain ³, Tsungcheng Cheng Tsai ⁴, Shelby Nosbisch ⁵, Roger Walk ⁵

¹The Sunswine Group, ²Vitech Bio-Chem Corp., ³University of Georgia, ⁴University of Arkansas, ⁵Walk Stock Farm

7:00 a.m. PSV-2 **Use of Pregnancy Associated Glycoproteins to Determine Fetal Age Throughout Gestation**

Adalaide C. Kline ¹, Kaitlin M. Epperson ², Jerica J J Rich ³, Saulo Menegatti Zoca ⁴, Taylor Andrews ⁴, Jim R. Rhoades ⁵, George A. Perry ⁶

¹Department of Animal Science, South Dakota State University, ²Texas A&M AgriLife Research, Overton, TX; Department of Animal Science, Texas A&M University, College Station, TX, ³Arkansas State University College of Agriculture, Jonesboro, AR, ⁴South Dakota State University, ⁵IDEXX Laboratories, ⁶Texas A&M AgriLife Research and Extension Center

7:00 a.m. PSV-15 **Variability in the Oxidative Status of Fats and Oils Used in Livestock Diets in North America**

Rachel Tonda ¹, Arlene Lamptey ¹, Brenda Reid ¹

¹Kemin Animal Nutrition & Health

Harlan Ritchie Symposium

Chair: Kelly Bruns, University of Nebraska

8:30 AM - 12:20 PM

Channel 3

8:30 a.m. **Harlan Ritchie Symposium Introduction**

8:35 a.m. 110 **The Importance of Recognizing Economic Factors Influencing the Beef Industry**

Bill Rishel ¹

¹Rishel Angus

9:10 a.m. 112 **How Will the Purebred Association Adapt to a Changing Beef Industry?**

Mark McCully ¹

¹American Angus Association

9:45 a.m. **Harlan Ritchie Symposium Q&A**

10:00 a.m. 113 **Genetics Industry Infrastructure: How Are Artificial Insemination Organizations Adapting to Changes in the Beef Industry?**

Bo Harstine ¹, Lorna Marshall ¹, Mel DeJarnette ¹

¹Select Sires, Inc.

10:35 a.m. **Harlan Ritchie Symposium Break**

10:50 a.m. 114 **What Is the Impact of Dairy Influence Cattle on the Traditional Beef Industry Structure?**

Bradley J. Johnson ¹, Luke K. Fuerniss ¹

¹Texas Tech University

11:25 a.m. 115 **The Beef Industry in a Post-Pandemic World**

Derrell S. Peel ¹

¹Oklahoma State University

12:00 p.m. **Harlan Ritchie Symposium Discussion**

Ruminant Nutrition

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 159 **Evaluation of Bacillus Subtilis PB6 Probiotic (CLOSTAT® 500) on Feedlot Phase Growth Performance, Efficiency of Dietary Net Energy Utilization, and Fecal and Subiliac Lymph Node Salmonella Prevalence**

Zachary K. Smith ¹, Paul R. Broadway ², Keith Underwood ³, Warren C. Rusche ¹, Julie Walker ¹, Nicole C. Burdick Sanchez ², Jeffery A. Carroll ², Doug LaFleur ⁴, Jerilyn Hergenreder ⁴

¹South Dakota State University, ²USDA-ARS, Livestock Issues Research Unit, ³SDSU Animal Science, ⁴Kemin Industries Inc.

7:00 a.m. 156 **Effect of Anti-yeast on Sugarcane Silage Gas Production**

Geraldo Balieiro Neto ¹, Carlos Augusto Rosa ², José Paulo Sampaio ³, José Evandro de Moraes ⁴, Carlos Alberto Toquini Junior ⁵, Laís Galerani Salgueiro ⁶, Acyr Wanderley De Paula Freitas ⁷

¹Animal Science Institute from Sao Paulo Government - BRAZIL, ²UFMG, ³Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, ⁴IZ-APTA, ⁵UNAERP, ⁶CBM, ⁷IZ/SAA

7:00 a.m. 160 **Injectable Vitamin C Prior to Transit and Transit Duration Effects on Feedlot Performance, Inflammation, and Muscle Fatigue of Beef Steers**

Aubree M. Beenken ¹, Erin L. Deters ¹, Stephanie L. Hansen ¹

¹Iowa State University

7:00 a.m. 163 **Relative Bioavailability of Bis-glycinate Bound Copper in Beef Steers Fed a High Antagonist Growing Diet**

Erin L. Deters ¹, Allison VanDerWal ¹, Katherine VanValin ², Stephanie L. Hansen ¹

¹Iowa State University, ²University of Kentucky

7:00 a.m. 161 **Effects of Supplemental Zn Source (sulfate or Bis-glycinate) on Metabolism, Apparent Absorption, and Retention of Zn by Lambs**

Erin L. Deters ¹, Allison VanDerWal ¹, Katherine VanValin ², Stephanie L. Hansen ¹

¹Iowa State University, ²University of Kentucky

7:00 a.m. 158 **Effect of Mootral™ and Forage Amount on Methane Emissions, Growth and Carcass Characteristics of Feedlot Steers**

Bryce Bitsie ¹, Andrea M. Osorio-Doblado ², Darren D. Henry ³, Breno Silva ⁴, Leticia Godoi ⁴, Chanadol Supapong ⁵, Tassilo Brand ⁶, Jon P. P. Schoonmaker ¹

¹Purdue University, ²University of Georgia, ³Texas Tech University, ⁴Universidade Federal de Vicosa, ⁵Khon Kaen University, ⁶Mootral

7:00 a.m. 157 **Effects of Monensin and Protein Type on Performance of Yearling Steers Grazing Smooth Brome**

Zachary E. Carlson ¹, Kylie Butterfield ², Levi J. McPhillips ³, Galen E. Erickson ⁴, Jim C. MacDonald ⁴

¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska, ⁴University of Nebraska- Lincoln

7:00 a.m. 162 **Increasing Concentrations of Supplemental Zinc Influence Performance, Carcass Characteristics, and Trace Mineral Status of Non-implanted and Implanted Steers**

Elizabeth M. Messersmith ¹, Stephanie L. Hansen ¹

¹Iowa State University

7:00 a.m. 255 **Evaluation of Different Corn Milling Methods for High-moisture and Dry Corn on Nutrient Digestion**

Caitlin A. Coulson ¹, Nicole Woita ², Tyler Spore ², Hannah Wilson ², Kylie Butterfield ¹, Galen E. Erickson ³

¹University of Nebraska - Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska-Lincoln

7:00 a.m. 254 **Evaluation of Different Corn Milling Methods for High-moisture and Dry Corn on Finishing Cattle Performance and Carcass Characteristics**

Caitlin A. Coulson ¹, Braden C. Troyer ², Levi J. McPhillips ³, Mitchell M. Norman ¹, Galen E. Erickson ⁴

¹University of Nebraska - Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska, ⁴University of Nebraska- Lincoln

7:00 a.m. 256 **Evaluation of Replacement of Dietary Corn with Corn Bran Plus Condensed Distillers Solubles on Growth Performance and Carcass Trait Responses in Finishing Beef Steers**

Zachary K. Smith ¹, Mallorie Wilken ²

¹South Dakota State University, ²ICM, Inc.

7:00 a.m. 252 **Effects of Increasing Urea in Corn Silage Diets and Duration of Ensiling on the Rumen Undegradable Protein Content of Corn Silage**

Tyler Spore ¹, Melissa L. Jolly-Breithaupt ¹, Nolan Meier ¹, Galen E. Erickson ², Terry J. Klopfenstein ¹, Jim C. MacDonald ², Andrea K. Watson ¹

¹University of Nebraska-Lincoln, ²University of Nebraska- Lincoln

7:00 a.m. 257 **Including Sweet Bran in the Diet of Growing Feedlot Steers Increased Body Weight and Influenced Rate of Feed Disappearance**

Katie J. Heiderscheid ¹, Aubree M. Beenken ¹, Erin L. Deters ¹, Katherine Hochmuth ¹, Trey D. Jackson ¹, Elizabeth M. Messersmith ¹, Allison VanDerWal ¹, Katherine VanValin ², Joshua Peschel ¹, Stephanie L. Hansen ¹

¹Iowa State University, ²University of Kentucky

7:00 a.m. 253 **Impact of Corn Hybrid Selection for Fiber and Starch Traits on in Vivo Nutrient Digestion in Beef Cattle**

J. Xiong ¹, Mitchell M. Norman ², Hannah Wilson ³, Caleb Crabtree ⁴, Galen E. Erickson ¹

¹University of Nebraska- Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska-Lincoln, ⁴Masters Choice

7:00 a.m. 251 **Effects of Roughage Source on Rumination Time and Ruminant Ph in Steers Fed a Steam-flaked Corn Finishing Diet**

Wyatt N. Smith ¹, Catherine L. Lockard ², Caleb G. Lockard ³, Megan Homolka ⁴, Kendall J. Karr ⁵, Ben P. Holland ⁵, Alyssa Word ⁶, Jenny Jennings ⁷

¹West Texas A&M, ²Texas AgriLife Research, ³AgriLife Research, ⁴Texas AgriLife, ⁵Cactus Research, ⁶Cactus Feeders, ⁷Texas A&M Agri-life

7:00 a.m. 250 **Effects of Bunk Management and Bulk Density of Steam-flaked Corn on Growth Performance, Carcass Characteristics, and Liver Score of Finishing Beef Cattle Fed Diets Without Tylosin Phosphate**

Taylor M. Smock ¹, Dale R. Woerner ¹, Kristin E. Hales ¹

¹Texas Tech University

Swine Translational

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 145 **Effect of Substandard Teats on Piglet and Sow Performance**

Mark Knauer ¹, Zack Peppmeier ¹

¹North Carolina State University

7:00 a.m. 146 **Association Between Gilts and Sows Body Condition and Reproductive Performance**

Isaac Huerta ¹, Pilar Fernandez ², Carine M. Vier ³, Carmen Aguero ⁴, Ning Lu ⁵, Patricia Blanco ¹, Rúben Sala ¹, Wayne R. Cast ³, Uislei A. Orlando ³

¹PIC Europe, ²Grupo Kerbest, ³PIC North America, ⁴Grupo UVESA, ⁵PIC

7:00 a.m. 144 **The Effect of Pre-farrow Meal Time on Onset of Parturition in Swine**

Dalton Obermier ¹, Amanda Uitermarkt ², Hyatt Frobose ³, Benny E. Mote ⁴, Megan Eickhoff ⁵, Jenna Kibler ⁶, Bart Borg ⁷

¹University of Nebraska - Lincoln, ²Gestal - JYGA Technologies, ³JYGA Technologies, Inc.,

⁴Department of Animal Science, University of Nebraska – Lincoln, ⁵University of Nebraska,

⁶Kansas State University, ⁷Standard Nutrition Services

7:00 a.m. 149 **Evaluation of Hammermill Tip Speed, Air Assist, and Screen Hole Diameter on Ground Corn Characteristics**

Michaela B. Braun ¹, Kara M. Dunmire ², Michael Sodak ³, Jerry Shepherd ³, Randy Fisher ³, Kyle Coble ⁴, Chad B. Paulk ¹, Charles R. Stark ¹

¹Kansas State University, ²Department of Grain Science & Industry, Kansas State University,

³JBS, ⁴JBS Live Pork

7:00 a.m. 147 **Effect of Within-pen Variation in Weaning Weight on the Growth Performance of Nursery Pigs**

Jenny R. Morris ¹, Mike Ellis ¹, Caleb M. Shull ²

¹University of Illinois, ²The Maschhoffs, LLC

7:00 a.m. 148 **Effects of the Immunization Against Gonadotropin-releasing Hormone in Gilts and Boars Under Commercial Conditions**

Gustavo Lima ¹, Angélica Camargos ², Rosiel Cavalcante Filho ¹, Carine M. Vier ³, Ning Lu ⁴, Uislei A. Orlando ³, Amanda P. Siqueira ¹, Fabyano Fonseca e Silva ⁵, Caio A. da Silva ⁶
¹Agrocere PIC, ²Agrocere Multimix, ³PIC North America, ⁴PIC, ⁵Universidade Federal de Viçosa, ⁶Universidade Estadual de Londrina

7:00 a.m. 241 **Evaluation of a DFM and OA, Alone or in Combination, on Sow Reproductive and Litter Growth Performance**

Morgan T. Thayer ¹, Jacob A. Richert ¹, Karissa N. Rulon ¹, Matthew D. Asmus ², Daniel B. Jones ², John Scott Radcliffe ¹, Brian T. Richert ¹
¹Purdue University, ²ADM

7:00 a.m. 236 **Performance and Antibiotic Use of Piglets Vaccinated with an E. coli F4/F18 Vaccination for the Prevention of F18-ETEC Post-weaning Diarrhea**

Frédéric ACJ Vangroenweghe ¹, Annelies Van Poucke ², Pascal Defoort ²
¹Elanco Animal Health, ²DAP Provet

7:00 a.m. 240 **Research Model of Colostrum Intake to Study Effect of Colostrum Bioactive Factors on Piglets Development**

Lisa Kirsten Senn ¹, Aridany Suarez-Trujillo ², Kelsey Teeple ¹, Theresa M. Casey ¹, Kara R. Stewart ¹
¹Purdue University, ²Department of Animal Sciences, Purdue University

7:00 a.m. 242 **Evaluation of a DFM and OA, Alone or in Combination, on Sow Offspring's Nursery Growth Performance**

Morgan T. Thayer ¹, Jacob A. Richert ¹, Karissa N. Rulon ¹, Matthew D. Asmus ², Daniel B. Jones ², Allan P. Schinckel ¹, John Scott Radcliffe ¹, Brian T. Richert ¹
¹Purdue University, ²ADM

7:00 a.m. 237 **Stable Performance with Reduced Antibiotic Use in Piglets Vaccinated with an E. coli F4/F18 Vaccine for the Prevention of F18-ETEC Post-weaning Diarrhea**

Frédéric ACJ Vangroenweghe ¹
¹Elanco Animal Health

7:00 a.m. 238 **Vaccination with an E. coli F4/F18 Vaccine for the Prevention of F4-ETEC Post-weaning Diarrhea Resulted in Reduced Post-weaning Mortality and Antibiotic Use**

Frédéric ACJ Vangroenweghe ¹
¹Elanco Animal Health

7:00 a.m. 239 **Body Weight and Growth in Normal Cyclic and Acyclic Gilts**

Clay A. Lents ¹, Dan J. Nonneman ²
¹USDA, ARS, US Meat Animal Research Center, Livestock Bio-Systems Research Unit,
²USDA, ARS, U.S. Meat Animal Research Center

Teaching and Extension Education

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 152 **Body Weight Standardized Cull Sow Non-edible Trim Loss Evaluation**

William E. Taylor¹, Dalton C. Humphrey¹, Ben D. Peyer², Kenneth J. Stalder¹

¹Iowa State University, ²Johnsonville Sausage LLC

7:00 a.m. 150 **A Factorial Approach to Estimate Energy Requirements and Feeding Levels for Boars in Studs**

Ning Lu¹, Michael Kleve-Feld², Mark E. Wilson³, Carine M. Vier⁴, Wayne R. Cast⁴, Ron A. Navales², Steve Dritz⁴, Uislei A. Orlando⁴

¹PIC, ²Genus PIC, ³Zinpro Corporation, ⁴PIC North America

7:00 a.m. 155 **Opportunities and Challenges of Teaching Laboratory Content of a Swine Discipline-focused Course with Limited Swine Access**

Adrian G. Austin¹, Jeffrey G. Wiegert¹

¹Texas A&M University

7:00 a.m. 151 **A Web Application to Establish Customized Feeding Program and Nutrient Specifications for Highly Prolific Sows**

Kevin S. Jerez-Bogota¹, Christian D. Ramirez-Camba¹, Ron A. Navales², Carine M. Vier³, Ning Lu⁴, Wayne R. Cast³, Steve Dritz³, Uislei A. Orlando³

¹South Dakota State University, ²Genus PIC, ³PIC North America, ⁴PIC

7:00 a.m. 153 **Characteristics of Animal Science Graduate Students Associated with Their Professional Interest in Statistics and Career Path**

Nick V. Serao¹, Amy L. Petry¹, Leticia P. Sanglard¹, Mariana C. Rossoni-Serao¹, Jennifer M. Bundy¹

¹Iowa State University

7:00 a.m. 154 **Efficacy of a Virtual Operation Main Street in Changing Perceptions of Pork Production**

Logan L. Tesch¹, Ryan S. Samuel², Al S. Eidson³, Robert C. Thaler¹

¹South Dakota State University, ²Department of Animal Science, South Dakota State University,

³Eidson & Partners

Young Scholar Award Presentations: Ruminant

Chair: Clint Krehbiel, University of Nebraska

4:30 PM - 5:05 PM

Channel 2

4:30 p.m. **Award Introduction: Outstanding Young Researcher Award**

4:35 p.m. 74 **Awardee Talk: Production Responses of an Alternative Beef Cow-calf System**

Zachary E. Carlson¹, Levi J. McPhillips², Galen E. Erickson¹, Mary E. Drewnoski¹, James C. MacDonald²

¹University of Nebraska-Lincoln, ²University of Nebraska

Wednesday, March 10, 2021

Animal Behavior, Health and Well-Being Symposium

Chair: Christopher Byrd, Department of Animal Sciences, North Dakota State University

8:30 AM - 11:30 AM

Channel 3

8:30 a.m. **Animal Behavior, Health and Well-Being Symposium Introduction**

8:35 a.m. 283 **Timely Euthanasia on Farm: Dairy Cattle and Swine**

Monique Pairis-Garcia¹, Ivelisse Robles¹

¹North Carolina State University

9:15 a.m. 284 **Prop 12 and Its Implications for Future On-farm Animal Welfare in the United States**

Kristina Horback¹

¹Department of Animal Science, University of California - Davis

9:55 a.m. **Animal Behavior, Health and Well-Being Symposium Break**

10:10 a.m. 285 **Panel: Recent Practical Advancements Related to On-farm Animal Welfare in the United States**

Angela Baysinger¹, Paul Ayers², Stephanie Wisdom³, Jonathan P. Holt⁴

¹Merck Animal Health, ²The Maschhoffs, LLC, ³National Pork Board, ⁴NCSU

10:50 a.m. 286 **Where Is On-farm Animal Welfare in the United States Headed? A Canadian Perspective**

Jennifer Brown¹

¹Prairie Swine Centre, Box 21057, 2105 8th Street E, Saskatoon, SK, S7H5N9, Department. of Animal and Poultry Science, University of Saskatchewan

Beef/Small Ruminant Translational

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 232 **Effect of Beef-dairy Cross Breed Description on the Sale Price of Lots of Steer Calves Sold Through Superior Livestock Auction in 2020 Summer Video Sales**

Esther D. McCabe¹, Mike E. King¹, Karol E. Fike¹, Glenn M. Rogers², Kenneth G. Odde¹

¹Kansas State University, ²Grassy Ridge Consulting

7:00 a.m. 234 **Effects of Housing Cow-calf Pairs on Drylots vs Pasture on Calf Performance and Behavior During the Receiving Phase**

Megan Myerscough¹, Wesley P. Chapple¹, William T. Meter¹, Daniel W. Shike¹

¹University of Illinois at Urbana-Champaign

7:00 a.m. 233 **Effects of Harvest Maturity And/or Kernel Processing on Corn Silage Processing Score and Particle Size of Corn Silage**

Thomas G. Hamilton¹, Julie Walker¹, Warren C. Rusche¹, Zachary K. Smith¹

¹South Dakota State University

7:00 a.m. 235 **Resource Use for Beef Cattle in the North Central Great Plains**
Andrew D. Lakamp¹, Dustin Aherin¹, Douglas Spencer², Robert Larson¹, Robert L. Weaber¹,
Jennifer M. Bormann¹, Megan M. Rolf¹
¹Kansas State University, ²Natural Resources Conservation Service

Genetics, Genomics and Bioinformatics Symposium

Chair: Lawrence Reynolds, NDSU
8:30 AM - 11:00 AM
Channel 2

8:30 a.m. **Genetics, Genomics and Bioinformatics Symposium Introduction**

8:35 a.m. 280 **Harnessing Proteome and Transcriptome Expression and Network/interactome Analysis to Better Understand How Nutrition Regulates Sexual Development in Prepubertal Cattle**

David A. Kenny¹

¹Teagasc Animal and Grassland Research and Innovation Centre, Grange, Dunsany, Co. Meath, Ireland

9:20 a.m. 281 **Can We Developmentally Program the Epigenome to Improve Traits Relevant to Production in Cattle?**

Robert A. Cushman¹, Alexandria Snider², Matthew S. Crouse³

¹USDA-ARS, ²USDA, ARS, U.S. Meat Animal Research Center, ³USDA

10:05 a.m. 282 **Multi-omics Approaches to Improve Animal Production**

Wellison Jarles Da Silva Diniz¹, Alison K. Ward¹

¹North Dakota State University

10:50 a.m. **Genetics, Genomics and Bioinformatics Symposium Q&A**

258 The Interactions of Change in Nutrition on Uterine Environment and Plasma Cholesterol Concentrations in Beef Cattle

Taylor Andrews¹, Kaitlin M. Epperson², Jerica JJ Rich³, Saulo Menegatti Zoca¹, Abby L. Zezeski⁴, Tom W. Geary⁴, Rhea D. Lawrence⁵, Julie Walker¹, George A. Perry⁶

¹South Dakota State University, ²Department of Animal Science, Texas A&M University, College Station, TX, ³College of Agriculture, Arkansas State University, ⁴USDA-ARS, ⁵Land O Lakes,

⁶Texas A&M AgriLife Research, Overton, TX

Nonruminant Nutrition Symposium III

Chair: Nicholas Gabler, Iowa State University
8:30 AM - 10:05 AM
Channel 1

8:30 a.m. **Nonruminant Nutrition Symposium III Introduction**

8:35 a.m. 261 **Dietary Fiber: Chemical and Physical Characteristics and Methods of Analysis**

George C. Fahey¹

¹University of Illinois at Urbana-Champaign

9:00 a.m. 262 **Fiber and Co-product Utilization in Pigs**

Ruurd T. Zijlstra¹, Eduardo Beltranena¹

¹University of Alberta

9:25 a.m. 263 **Review of Current Nutrition Knowledge and Practices for Gilt Development**

Mariana Menegat¹, Mike D. Tokach²

¹Holden Farms, ²Kansas State University

9:50 a.m. **Nonruminant Nutrition Symposium III Discussion**

Nonruminant Nutrition

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 264 **Effects of Low Dietary Crude Protein Diets Containing Coarse Wheat Bran as an Alternative to Zinc Oxide in Nursery Pig Diets**

Kelsey L. Hammers¹, Hilda I. Calderon², Mike D. Tokach³, Jason C. Woodworth³, Robert D. Goodband³, Steve Dritz⁴, Joel M. DeRouchey³

¹University of Minnesota, ²Department of Statistics, College of Arts and Sciences, Kansas State University, ³Kansas State University, ⁴PIC North America

7:00 a.m. 266 **Growth Performance, Fecal Score, and Blood Immune Parameters of Nursery Pigs Challenged with Escherichia coli F18 Fed Canola Meal-based Diet**

Jinsu Hong¹, Samuel Ariyibi¹, Joy Scaria², Steven Dilberger-Lawson², David Francis², Tofuko A. Woyengo³

¹Department of Animal Science, South Dakota State University, ²Department of Veterinary & Biomedical Sciences, South Dakota State University, ³Department of Animal Science, South Dakota University / Aarhus University

7:00 a.m. 265 **The Efficacy of Replacing Animal Protein Products in Nursery Pig Diets with a Bioactive Peptide-based Feed Additive Program on Growth Performance and Efficiency in a Commercial System**

Marissa N. LaRosae¹, Thomas S. Shieh², Shelby Nobsch³, Roger Walk³, Ryan S. Samuel⁴, Casey L. Bradley⁵

¹South Dakota State University, ²Vitech Bio-Chem Corp., ³Walk Stock Farm, ⁴Department of Animal Science, South Dakota State University, ⁵The Sunswine Group

7:00 a.m. 267 **Evaluating the Interaction Between Nursery Diet Complexity and Pharmacological Zinc and Copper**

Carson M. De Mille¹, Nicholas K. Gabler¹

¹Iowa State University

7:00 a.m. 270 **Evaluating Nutritional Strategies to Improve Performance of Poor Health Nursery Pigs**

Kayla A. Miller¹, Omarh F. Mendoza², Caleb M. Shull², Melissa Hensch³, Nicholas K. Gabler¹

¹Iowa State University, ²The Maschhoffs, LLC, ³The Maschhoffs LLC

7:00 a.m. 269 **Mycotoxin Mitigation Strategy to Improve Nursery Pig Performance During Natural Mycotoxin Challenge**

Shelby M. Ramirez ¹, Victoria C. Wilson ², Erika G. Hendel ³, Ursula Hofstetter ⁴, G. Raj Murugesan ³, Brian J. Kerr ⁵

¹BIOMIN America Inc., ²Iowa State University, ³BIOMIN America Inc, ⁴Biomin, ⁵USDA-ARS National Laboratory for Agriculture and the Environment

7:00 a.m. 268 **In-feed Antibiotics Elicit Intestinal Integrity Modifications Early in Post-weaning Life**

Jessica M. Johnson ¹, Emma T. Helm ¹, Nicholas K. Gabler ¹, Eric R. Burrough ¹, Carson M. De Mille ¹

¹Iowa State University

7:00 a.m. 271 **Investigating the Relationship Between Nursery Pig Performance and Markers of Intestinal Morphology and Integrity**

Carson M. De Mille ¹, Nicholas K. Gabler ¹

¹Iowa State University

Physiology

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. 260 **Growth Performance and Gut Integrity of Nursery Pigs Fed Diet with butyric Acid and Enzymatically Hydrolyzed Yeast Product**

Jinsu Hong ¹, Hee Seong Kim ¹, Rob Patterson ², Tofuko A. Woyengo ³

¹Department of Animal Science, South Dakota State University, ²CBS Bio-Platforms Inc.,

³Department of Animal Science, South Dakota University / Aarhus University

7:00 a.m. 259 **Effects of Saccharomyces Cerevisiae Fermentation Products on Lactating Sow's Blood and Uterine Cytokine Profiles**

Ricardo M. Garcia ¹, Morgan T. Thayer ¹, Kayla M. Mills ², Jacob A. Richert ¹, Katharine G. Sharp ², Karissa N. Rulon ¹, Derek B. Petry ³, Karen Robertson ⁴, Kara R. Stewart ¹, John Scott Radcliffe ¹, Allan P. Schinckel ¹, Brian T. Richert ¹

¹Purdue University, ²Department of Animal Science, Purdue University, ³Diamond V, Cargill Health Technologies, ⁴Diamond V

7:00 a.m. 287 **Effects of Number of Sperm and Site of Uterine Semen Deposition on Conception Rate and Number of Embryos in Weaned Sows Receiving a Single Fixed Time Insemination**

Kara R. Stewart ¹, Brad A. Belstra ², Kilby L. Willenburg ³, Domingo Gómez-López ³, Robert V. Knox ⁴

¹Purdue University, ²Fast Genetics, Ames, IA, ³Fast Genetics, ⁴University of Illinois at Urbana-Champaign

7:00 a.m. 288 **Plasma Concentrations of Cortisol During the Periparturient Period in Gilts**

Shannon L. Dierking ¹, Talia Everding ¹, Jodi Morton ², Jeffrey A. Clapper ¹, Crystal L. Levesque ¹

¹South Dakota State University, ²Southern University & A&M College

7:00 a.m. 289 **Serum Trace Minerals in Late Gestation Sows at Variable Risk for Pelvic Organ Prolapse**

Zoe E. Kiefer¹, Amanda Chipman², Lucas Showman³, Aileen F. Keating¹, Jason W. Ross¹
¹Iowa State University, ²Iowa Pork Industry Center, ³W. M. Keck Metabolomics Research Laboratory, Iowa State University

POSTER SESSION VI

7:00 AM - 5:00 PM

ON-DEMAND

7:00 a.m. PSVI-1 **Affect of Light Regiment on Farrowing Performance in Sows**

Shelby A. McLoda¹, Nichole C. Anderson², Drew W. W. Lugar¹

¹Illinois State University, ²University of Missouri

7:00 a.m. PSVI-13 **Amino Acid Supplementation During the Adaptation Period Did Not Affect the Standardized Ileal Digestibility of Amino Acids in Corn and Soybean Meal Fed to Pigs**

Hyunjun Choi¹, Sun Jong You², Beob G. Kim¹

¹Konkuk University, ²CJ Feed & Care

7:00 a.m. PSVI-14 **Blend of Additives in Nursery Pig Diets as an Antibiotics Substitute Increases the Growth Performance and Intestinal Health**

Sudario Roberto Silva Junior¹, Rhuan F. Chaves², Maíra Resende³, Ygor Henrique De Paula³, Kenio De Gouvêa Cabral⁴, Athos Silveira Marques³, Jéssica Aparecida Barbosa³, Pedro Massahiro de Matos Murata³, Vinicius de Souza Cantarelli³

¹University of Minnesota, ²Animalnutri, ³Universidade Federal de Lavras, ⁴Quinabra Química Natural Brasileira

7:00 a.m. PSVI-21 **Digestible Phosphorus Requirements of Growing Pigs Determined in Experiments Are Greater Than Those Estimated Using Modeling Approach**

Hansol Kim¹, Bokyung Hong¹, Beob G. Kim¹

¹Konkuk University

7:00 a.m. PSVI-15 **Effects of Dietary SID Lysine Restriction in the Growing Period and Number of Dietary Phases on Growth Performance of Growing-finishing Pigs**

Jadelyn G. Knight¹, Mike Ellis², Caleb M. Shull³, Omarh F. Mendoza³, Clint Schwab³, Katie Brown³

¹University of Illinois Urbana-Champaign, ²University of Illinois, ³The Maschhoffs, LLC

7:00 a.m. PSVI-5 **Effects of Feeding Corn Distillers Dried Grains with Solubles (cDDGS) Diets with and Without Supplemental Enzymes on Growth Performance of Pigs: A Meta-analysis**

Jae C. Jang¹, Zhikai Zeng¹, Pedro E. Urriola¹, Gerald C. Shurson¹

¹University of Minnesota

7:00 a.m. PSVI-9 **Effects of Mixing Prior to Automated Packaging in Extended Boar Semen**

Aridany Suarez-Trujillo¹, Amanda Minton², Griffin Nicholls¹, Kayla M. Mills³, Kara R. Stewart⁴
¹Department of Animal Sciences, Purdue University, ²Acuity Swine Genetics, ³Department of Animal Science, Purdue University, ⁴Purdue University

7:00 a.m. PSVI-4 **Efficacy of Medium Chain Fatty Acids and Fatty Acid-based Feed Additives as a Mitigation Strategy Against Porcine Epidemic Diarrhea Virus and Porcine Reproductive and Respiratory Syndrome Virus**

Olivia Harrison¹, G.E. Nichols¹, J.T. Gebhardt¹, Cassandra K. Jones¹, Jason C. Woodworth¹, S.S. K. Dritz¹, J. Bai¹, J.W. Anderson¹, E.G. Porter¹, F.B. Sandberg², A.C. Singrey³, Chad B. Paulk¹

¹Kansas State University, ²Scottish Agricultural College, ³South Dakota State University

7:00 a.m. PSI-11 **Evaluation of Electronically Controlled Cooling Pad Flush Rates on Heat Stressed Gilts**

Kristen N. Cleaver¹, Larissa K. Shirley², Tyler C. Field¹, Brooklyn A. Hill¹, Kouassi R. Kpodo¹, Jay S. Johnson³, Robert M. Stwalley¹, Allan P. Schinckel¹

¹Purdue University, ²Department of Animal Science, Purdue University, ³USDA-ARS Livestock Behavior Research Unit

7:00 a.m. PSVI-7 **Evaluation of Feed Mitigant Efficacy for Control of Porcine Epidemic Diarrhea Virus and Porcine Reproductive and Respiratory Syndrome Virus When Inoculated Either Alone or Together**

Catherine Grace Elijah¹, G.E. Nichols¹, J.T. Gebhardt¹, Cassandra K. Jones¹, Jason C. Woodworth¹, S.S. K. Dritz¹, J. Bai¹, J.W. Anderson¹, E.G. Porter¹, A.C. Singrey², Chad B. Paulk¹

¹Kansas State University, ²South Dakota State University

7:00 a.m. PSVI-12 **Full-fat Rice Bran as an Alternative Feed Ingredient for Corn in Grow-finish Pigs**

Balachandar Jayaraman¹, La Van Kinh², Phan Van Sy³, Caroline González-Vega⁴, Pradeep Krishnan¹, Girish Channarayapatna¹

¹Evonik (SEA) Pte Ltd, ²Vietnam Feed Association, ³Institute of Animal Sciences for Southern Vietnam, ⁴Evonik Operations GmbH

7:00 a.m. PSVI-3 **Gestational Inulin Supplementation Stabilizes Glucose Metabolism and Improves Reproductive Performance of Sows**

Xin Gao¹, Qiong Hu², Lawrence Chan¹, Cally Ma¹, Junmei Zhao¹

¹Cargill, ²Cargill Animal Nutrition

7:00 a.m. PSVI-10 **Impact of Soybean Inclusion Level in Late Gestation on Offspring Performance**

Abigail R. Loucks¹, Dana M. van Sambeek¹, Elizabeth A. Hines²

¹Penn State University, ²Pennsylvania State University

7:00 a.m. PSVI-8 **Meta-regression Analysis to Determine the Relationship Between Growing Pig Body Weight and Variation**

Andres F. Tolosa¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt², Matthew J. Ritter³, Chad M. Pilcher⁴

¹Kansas State University, ²Kansas State University, ³Provimi, ⁴Cargill Animal Nutrition

7:00 a.m. PSVI-18 **Nutritional Value of High-protein Yeast Products Fed to Growing Pigs in Comparison to Commonly Used Protein Sources in Swine Diets**

Ricardo S. Garavito ¹, Jorge Y. Perez-Palencia ², Kevin J. Herrick ³, Crystal L. Levesque ²
¹South Dakota State University, ²South Dakota State University, ³POET

7:00 a.m. PSVI-2 **Rising 10-year Trend in Piglet Pre-weaning Mortality in Breeding Herds Associated with Sow Herd Size and Number of Piglets Born Alive**

Yuzo Koketsu ¹
¹Meiji University

7:00 a.m. PSVI-16 **The Association of Benzoic Acid and Essential Oils Eo Reduces the Inflammatory Response of Weaned Piglets and the Diarrhea Incidence in the Nursery Phase**

Sudario Roberto Silva Junior ¹, Maíra Resende ², Rhuan F. Chaves ³, Jéssica Aparecida Barbosa ², Iana M F Silva ², Gabriel B D Arruda ⁴, Carina Fernanda Gomes Silva ², Charles Muller Ribeiro ², Francine. T Falleiros ⁵, Vitor S. Fascina ⁵, Claudia Cassimira Silva ⁵, Maurício F Prata ⁵, Adsos Passos ⁵, Vinicius de Souza Cantarelli ²
¹University of Minnesota, ²Universidade Federal de Lavras, ³Animalnutri, ⁴Universidade Federal De Lavras, ⁵DSM Nutritional Products Brazil S.A.

7:00 a.m. PSVI-19 **The Association of Benzoic Acid and Essential Oils Increases the Cecal Biodiversity in Weaned Piglets and Improves Growth Performance in Finishing Pigs**

Sudario Roberto Silva Junior ¹, Maíra Resende ², Rhuan F. Chaves ³, Athos Silveira Marques ², Pedro Massahiro de Matos Murata ², Aline Maria Silva Barbosa ², Carina Fernanda Gomes Silva ², Charles Muller Ribeiro ², Francine. T Falleiros ⁴, Vitor S. Fascina ⁴, Claudia Cassimira Silva ⁴, Maurício F Prata ⁴, Adsos Passos ⁴, Vinicius de Souza Cantarelli ²
¹University of Minnesota, ²Universidade Federal de Lavras, ³Animalnutri, ⁴DSM Nutritional Products Brazil S.A.

7:00 a.m. PSVI-17 **The Effect of Dacitic Tuff Breccia Alone or in Combination with Poultry By-products on Nursery Pig Growth Performance**

Jacob A. Richert ¹, Morgan T. Thayer ¹, Karissa N. Rulon ¹, Jon Ferrel ², John Scott Radcliffe ¹, Allan P. Schinckel ¹, Brian T. Richert ¹
¹Purdue University, ²Azomite

7:00 a.m. PSVI-11 **The Effects of Medium Chain Fatty Acid Supplementation on Sow and Piglet Performance**

Analicia J. Swanson ¹, Jorge Y. Perez-Palencia ¹, Crystal L. Levesque ¹, Amanda Hesse ²
¹South Dakota State University, ²ADM

7:00 a.m. PSVI-6 **Thresholds of Outdoor Temperatures on Fertility Measures of Different Parity Sows in Spanish Herds**

Ryosuke Iida ¹, Carlos Piñeiro ², Yuzo Koketsu ¹
¹Meiji University, ²PigCHAMP Pro Europe

7:00 a.m. PSVI-20 **Updated Amino Acid, Choline, Betaine, Folic Acid, and Vitamin B12 Concentrations in Corn DDGS and Wheat**

Kari Estes ¹, Zachary Lowman ¹, Ryan N. Dilger ², Thomas Powell ¹
¹Balchem Corporation, ²University of Illinois Urbana-Champaign

Ruminant Nutrition
7:00 AM - 5:00 PM
ON-DEMAND

7:00 a.m. 37 **Evaluation of Methane and Carbon Dioxide Production in Growing and Finishing Cattle Raised in Conventional or Confinement-based Herds**

Levi J. McPhillips¹, Galen E. Erickson², Jim C. MacDonald², Zachary E. Carlson³

¹University of Nebraska, ²University of Nebraska- Lincoln, ³University of Nebraska-Lincoln

7:00 a.m. 276 **Evaluation of a Long-acting Growth-promoting Implant (Revalor-XS) as an Initial Implant in a Re-implant Program with a revalor-200 Terminal Implant in Feedlot Cattle: A Three-study Pooled Analysis**

Grant I. Crawford¹, Wade T. Nichols¹, John P. Hutcheson¹, Marshall N. Streeter¹, Brandon L. Nuttelman¹, Lee-anne J. Walter¹, David G. Renter², David Amrine²

¹Merck Animal Health, ²Kansas State University

7:00 a.m. 278 **Effect of Feeding CARS on Digestibility in Finishing Cattle Diets**

John C. Gibbons¹, Andrea K. Watson², Galen E. Erickson³, Tyler Spore², Hannah Wilson², Jonathan W. Wilson⁴, Kylie Butterfield⁵

¹University of Nebraska Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska-Lincoln, ⁴Veramaris, ⁵University of Nebraska - Lincoln

7:00 a.m. 277 **Survey of Feedlot Nutritionists Provides Insight on How Industry Professionals Gather Practical Information**

Emma L. Riens¹, Allison VanDerWal¹, Mary E. Reynolds¹, Daniel D. Loy¹, Stephanie L. Hansen¹

¹Iowa State University

7:00 a.m. 279 **Evaluation of Green Grass Inclusion on Digestibility and Fatty Acid Flow in Finishing Diets of Beef Cattle**

Aksel Wiseman¹, Tyler Spore¹, Mitchell M. Norman², Hannah Wilson¹, Jim C. MacDonald³, Andrea K. Watson¹, Galen E. Erickson³

¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska-Lincoln

7:00 a.m. 275 **Comparison of Revalor-xh with a revalor-ih/revalor-h/revalor-200 Re-implant Program on Feedlot Cattle**

John C. Gibbons¹, Marshall N. Streeter², Brandon L. Nuttelman², Galen E. Erickson³, Bill Dicke⁴

¹University of Nebraska Lincoln, ²Merck Animal Health, ³University of Nebraska- Lincoln, ⁴Dicke Consulting

7:00 a.m. 274 **Effects of Revalor ih/revalor-200 Re-implant Program or Revalor-xh on Performance and Carcass Characteristics of Finishing Heifers Fed for 179, 200, or 221 Days**

Brandon L. Nuttelman¹, John P. Hutcheson¹, Wade T. Nichols¹, Marshall N. Streeter¹, Grant I. Crawford¹, Lee-anne J. Walter¹, David G. Renter², David Amrine², Brandon Depenbusch³, Tyler Wells³

¹Merck Animal Health, ²Kansas State University, ³ILS

7:00 a.m. 273 **Effect of Feedlot Implant Dose and Terminal Window Timing on Heifer Performance and Carcass Characteristics**

Nathan Pyatt¹, Gary Vogel¹, Mike Brown¹, Frank White², William Kayser¹, Justin Homm¹, Cory Herr¹, Ben P. Holland³, Alyssa Word⁴

¹Elanco Animal Health, ²Elanco, ³Cactus Research, ⁴Cactus Feeders

7:00 a.m. 272 **Managing for Efficiency and Quality Through Diet and Implant Strategies on Steers Selected for Superior Marbling**

Erika L. Lundy-Woolfolk¹, Aubree M. Beenken¹, Patrick B. Wall¹, Daniel D. Loy¹

¹Iowa State University

Young Scholar Award Presentations: Nonruminant

Chair: Steven Moeller, The Ohio State University

10:30 AM - 1:45 PM

Channel 1

10:30 a.m. **Award Introduction: Outstanding Young Researcher Award**

10:35 a.m. 65 **Awardee Talk: Calcium and Phosphorus Nutrition for Reproducing Sows: Resolving Challenges to the Establishment of Requirements during Gestation and Lactation**

Mariola Grez Capdeville¹, Thomas D. Crenshaw¹

¹Department of Animal and Dairy Sciences, University of Wisconsin-Madison

11:05 a.m. 293 **Awardee Talk: Dietary Supplementation of Bacillus Species on Performance and Disease Resistance of Weaned Pig**

Yijie He¹

¹Department of Animal Science, University of California, Davis

11:35 a.m. 295 **Awardee Talk: Improving Litter Size Traits by Selecting over Response to PRRSV Vaccination**

Leticia P. Sanglard¹

¹Iowa State University

12:05 p.m. 290 **Awardee Talk: Investigations into the Mechanism of Action of Xylanase in Pigs Fed Corn-based Fiber**

Amy L. Petry¹, John Patience²

¹Iowa State University, ²Oxford Nutrition Consulting, LLC

12:35 p.m. 294 **Awardee Talk: Requirements for Calcium by Growing Pigs**

Vanessa Lagos¹, Hans H. Stein²

¹University of Illinois, ²University of Illinois at Urbana-Champaign

1:05 p.m. 291 **Awardee Talk: Characterization of Farm Animal DNA Methylation Patterns to Elucidate Development- and Environment-Driven Gene Regulation**

Ryan J. Corbett¹, Haibo Liu², Dan J. Nonneman³, Timothy P. Smith⁴, Nancy E. Raney¹, Christopher K. Tuggle², Marinus F.W. te Pas⁵, Henry van den Brand⁵, Martien A.M Groenen⁵, Richard P.M.A. Crooijmans⁵, Ole Madsen⁵, Catherine W. Ernst¹

¹Michigan State University, ²Iowa State University, ³USDA, ARS, U.S. Meat Animal Research Center, ⁴USDA, Agricultural Research Service, US Meat Animal Research Center,

⁵Wageningen University & Research