



Monday, March 9, 2026

**Beef/Small Ruminant Translational Symposium:
Precision and Innovation in Livestock Systems**

Chair: Thiago Martins, University of Missouri

8:00 AM - 12:00 PM

Ballroom B

8:00 a.m. **Beef/Small Ruminant Translational Symposium Introduction**

8:05 a.m. 300 **Benefits of Precision Management of Calving Day in Beef Heifers**

Robert A. Cushman ¹

¹USDA, U.S. Meat Animal Research Center

8:35 a.m. 301 **Balancing Maternal and Terminal Traits in Cow-calf Operations Using Decision Support Platforms**

Matthew L. Spangler ¹

¹University of Nebraska

9:05 a.m. 302 **Using Body Size Measures from Computer Vision and AI to Evaluate Influences of Heifer Development on Cow Efficiency**

Derek W. Brake ¹

¹University of Missouri

9:35 a.m. 303 **Discovery of Novel Traits to Improve Efficiency and Sustainability of Beef Cattle Production**

Andrew P. Foote ¹, Darren E. Hagen ¹, David L. Lalman ¹

¹Oklahoma State University

10:05 a.m. **Beef/Small Ruminant Translational Symposium Break**

10:20 a.m. 304 **Using Multi-sensor Phenotypes to Support Management and Genetic Selection in Extensive Rangeland Systems**

Andrew S. Hess ¹

¹University of Nevada, Reno

10:50 a.m. 305 **Evaluating Virtual Fence Technology to Improve Grazing Management and Cattle Welfare on Western Rangelands**

Juliana Ranches ¹

¹Oregon State University

11:20 a.m. 306 **Characterizing Willow Browse by Cattle and Large Ungulates for Better Riparian Management or Restoration**

Melinda J. Ellison ¹, Jason Karl ¹, Daniel Lauritzen ¹, Hadley Dotts ¹, Joel Yelich ²

¹University of Idaho, ²Merck Animal Health

Billy Day Symposium - Sponsored by Billy Day Appreciation Club

Chair: Timothy Safranski, University of Missouri

8:00 AM - 12:30 PM

Ballroom C

8:00 a.m. **Billy Day Symposium Introduction**

8:05 a.m. 26 **Production-level Impacts of Heat Stress on Swine Reproduction**

Amanda Minton ¹

¹AcuFast Genetics

8:45 a.m. 27 **Long-term and Multigenerational Effects of Heat Stress in Pregnant Sows**

Matthew C. Lucy ¹

¹University of Missouri-Columbia

9:25 a.m. 28 **Invisible Effects of Heat Stress on Swine Reproduction: Biology, Critical Stages, and Solutions**

Jay S. Johnson ¹

¹University of Missouri

10:05 a.m. **Billy Day Symposium Break**

10:20 a.m. 29 **Industry-research Collaboration and Technology Adoption: An International Perspective**

Jeremy J. Cottrell ¹, Frank R. Dunshea ¹, Charles Rikard-Bell ²

¹University Of Melbourne, ²Australasian Pork Research Institute Ltd

11:00 a.m. 30 **Dairy/Poultry/Swine Parallels**

Luiz F. Brito ¹

¹Purdue University

11:40 a.m. 299 **Bentley Lecture: Lessons Learned and Remaining Questions: Optimizing Gilt Development for Sow Lifetime Productivity**

Jennifer Patterson ¹

¹University of Alberta

Poster Session 1

8:15 AM - 9:00 AM

Grand Ballroom Pre-Function

8:15 a.m. PS1-1 **Effects of Brewer's Yeast Supplement on Calf Starter and Grower Diets**

Kayla Ripperger ¹, Brandon Koch ¹

¹Kent Nutrition Group

8:15 a.m. PS1-2 **Effects of a Direct-fed Microbial Supplementation on Feedlot Lamb Growth Performance, Serum Biochemical Markers and Fecal Microbiota**

Kristen E. Kahler ¹, Kelsey Bentley ¹, Payton L. Dahmer ²

¹Kansas State University, ²Kansas State University Department of Animal Sciences & Industry

8:15 a.m. PS1-3 **Effects of Maternal Protein and Energy Supplementation to Beef Heifers During Mid-gestation on Cotyledonary Vascular Development and Proliferation**

Shelby L. Sullivan ¹, Jennifer L. Hurlbert ¹, Brooklyn M. Kuzel ¹, Roberta B. A. Dahlen ¹, Pawel P. Borowicz ¹, Virginia P. Montgomery ¹, Keven K. Sedivec ¹, Carl R. Dahlen ¹

¹North Dakota State University

8:15 a.m. PS1-4 **Influence of Maternal High-forage Versus. High-concentrate Diets During Gestation on Offspring's Growth and Metabolic Efficiency in Finishing Steers**

Christy Finck ¹, Pauliane Pucetti ¹, Joel S. Caton ¹, Carl R. Dahlen ¹, Keven K. Sedivec ¹, Samat Amat ¹, Kendall C. Swanson ¹

¹North Dakota State University

8:15 a.m. PS1-5 **Comparison of Analytical Methods for Physically Effective Fiber Estimation in Finishing Beef Cattle Diets**

Mallory E. LeDoux ¹, Andrew P. Foote ¹

¹Oklahoma State University

8:15 a.m. PS1-6 **Quantification of the Nutrients That Wash out of in Situ Bags**

Taylor Lewis ¹, Jessica Miller ¹, Paul J. Kononoff ¹, Jim C. MacDonald ¹

¹University of Nebraska-Lincoln

8:15 a.m. PS1-7 **A Polyphenol Additive Enhances Serum Vitamin E Status and Growth Performance in Nursery Pigs Under Commercial Conditions Including a Mycotoxin Challenge**

Kelly Chen ¹, Tyler Chevalier ², James Jolliff ², Yulin Ma ¹

¹Hanley International LLC, ²Kalmbach Feeds, Inc.

8:15 a.m. PS1-8 **Supplementation with a Novel Phytase Improved Growth Performance, Mineral Digestibility, and Bone Mineralization in Piglets**

Gustavo Cordero ¹, Gemma González-Ortiz ¹, Laura A. Merriman ¹, Jennifer Vazquez ², Boris Villca ², Rosil Lizardo ²

¹AB Vista, ²IRTA Animal Nutrition

8:15 a.m. PS1-10 **Causal Inference Analysis of Full- vs. Half-dose PRRS Vaccination Protocols on Nursery Feed Conversion and Mortality in One Swine Production System**

Luan Gaspat Clemente ¹, Ana Paul Serafini Poeta Silva ¹, Daniel Linhares ¹, Edison Magalhaes ¹

¹Iowa State University

8:15 a.m. PS1-12 **Effects of Microencapsulated Microminerals and Vitamins on Growth Performance and Blood Characteristics of Weanling Pigs**

Su A Lee ¹, Roger G. Campbell ², Ludovic Lahaye ³, Jean Fontaine ³, Hans H. Stein ¹

¹University of Illinois Urbana-Champaign, ²RG Campbell Advisory Pty Ltd, ³Jefo Nutrition Inc

8:15 a.m. PS1-13 **Effect of Low Crude Protein formulation Strategies and Pharmacological Zn on the Growth Performance and Fecal Dry Matter of Nursery Pigs Challenged with Enterotoxigenic *Escherichia coli* F18**

Jentry Squires ¹, Payton L. Dahmer ¹, Jessica Smallfield ¹, Shannon Rossman ¹, Samantha A. Swanson ¹, Raghavendra G. Amachawadi ², Joel M. DeRouchey ¹, Mike D. Tokach ¹, Katelyn N. Gaffield ¹, Robert D. Goodband ¹, Jason C. Woodworth ¹, Harith Salih ¹, Taghreed S. Mahmood ¹, Sara Viridis ¹, Jordan T. Gebhardt ¹

¹Kansas State University, ²Beef Cattle Institute

8:15 a.m. PS1-14 **Effects of Dietary Crude Protein and Added Zinc on Nursery Pig Growth Performance and Fecal Dry Matter**

Jentry Squires ¹, Payton L. Dahmer ¹, Robert D. Goodband ¹, Joel M. DeRouchey ¹, Julian Arroyave ¹, Katelyn N. Gaffield ¹, Jordan T. Gebhardt ¹, Joana Magoga ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹

¹Kansas State University

8:15 a.m. PS1-15 **Comparing Use of UAV Imagery for Cattle Headcounts to Conventional Headcount Practices in a Commercial Feedyard**

Maiya K. Shelor ¹, Logan E. Diller ¹, Haley E. Larson ²

¹Kansas State University, ²Kansas State University Olathe

8:15 a.m. PS1-16 **Apparent total tract digestibility of nutrients and energy of diets with fiber sources for pigs in the initial phase**

Amanda Gorrosterazú ¹, Hélio Moreira Junior ¹, José A. L. Barbosa ¹, Dener Oliveira Moreira ¹, Carlos Eduardo Martins Bertanha ¹, João Lucca Brito ¹, Samya Stefani Silva Souza ¹, Marcos L. P. L. P. Tsé ², Urbano S. Santos Ruiz ²

¹University of São Paulo, ²São Paulo State University

8:15 a.m. PS1-18 **Effects of Frequency of Asparagopsis spp. supplementation on Methane Production in Beef Steers Fed a Forage-based Diet**

Samuel R. Talley ¹, Eric A. Bailey ¹, Harley D. Naumann ¹, Sophia C. Seibert ¹, Emma R. Bauer ¹, Derek W. Brake ¹

¹University of Missouri

8:15 a.m. PS1-19 **Impact of Altering Maternal Microbiome via High-forage and High-concentrate Diets During Pregnancy on Offspring Gut Microbiome Development in Beef Cattle**

Godson Aryee ¹, Devin B. Holman ², Kell Helmuth ¹, Justine Kilama ¹, Jennifer L. Hurlbert ¹, Brooklyn M. Kuzel ¹, Sarah Underdahl ¹, Joel S. Caton ¹, Kendall C. Swanson ¹, Carl R. Dahlen ¹, Samat Amat ¹

¹North Dakota State University, ²Lacombe Research and Development Centre

Graduate Student Oral Competition PHD - Sponsored by the Gretchen Hill Appreciation Club

8:15 AM - 11:45 AM

210/211/212

8:15 a.m. 12 **Performance and Economic Viability of DDGS Diets in Growing-finishing Pigs**

Stephane A B da Motta ¹, Rhuan F. Chaves ², Rasiel Restelatto ³, Vinícius S. Cantarelli ¹

¹UFLA, ²Animalnutri, ³INPASA

8:30 a.m. 13 **Standardized Ileal Digestibility of Crude Protein and Amino Acids in Corn, White Sorghum, and Red Sorghum Fed to Growing Pigs**

Walter G. Friesen ¹, Diego A. Lopez ¹, Jason C. Woodworth ¹, Jordan T. Gebhardt ¹, Matt D. Miesner ¹, Chad B. Paulk ¹

¹Kansas State University

8:45 a.m. 14 **Feedlot Performance and Carcass Traits of Simangus Steers, Simangus × Holstein Steers and Heifers, and Holstein Steers**

Melanie Pimentel-Concepción ¹, Daniel Buskirk ¹, Jerad Jaborek ², Andrea J. Garmyn ¹, Jeaninne P. Schwehofer ²

¹Michigan State University, ²Michigan State University Extension

9:00 a.m. 15 **Leveraging Machine Learning to Predict Subsequent Farrowing Success: A Decision Support Tool for Sow Management**

Elly Kirwa ¹, Beau Peterson ², Caleb J. Grohmann ², Rafael R. da Rosa Ulguim ¹, Gustavo Silva ¹

¹Iowa State University, ²Carthage Innovative Swine Solutions, LLC

9:15 a.m. 16 **Integration of Gut Microbiome and Dietary Chemical Composition Improves Digestible Energy Prediction in High-fiber Swine Diets**

Sudario Roberto Silva Junior ¹, Andres Gomez ¹, Pedro E. Urriola ¹

¹University of Minnesota

9:30 a.m. 17 **Effects of Increasing Levels of Galacto-oligosaccharides or 2'-fucosyllactose on Intestinal Health of Nursery Pigs Fed Diets Including Bovine Milk Co-products**

Alexa R. Gormley¹, Jung Yeol Sung¹, Sung Woo Kim¹

¹NC State University

9:45 a.m. 18 **Graduate Student Oral Competition PHD Break**

10:00 a.m. 19 **Is Caloric Efficiency an Accurate Method to Estimate Soybean Meal Net Energy in Nursery Pigs?**

Ty Kim¹, Pau Salgado-Lopez¹, Jessica Smallfield¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Robert D. Goodband¹, Katelyn N. Gaffield¹, Jordan T. Gebhardt¹, Henrique S. Cemin², Ernie L. Hansen², Morgan Hart², Jamil E. G. Faccin², Jose A. Soto²

¹Kansas State University, ²Alltech

10:15 a.m. 20 **Effects of Short Chain Fatty Acids Derivatives on the Ileal Digestibility of Amino Acids in Weanling Pigs Challenged with F4 and F18 Enterotoxigenic *Escherichia coli***

Shuhan Sun¹, Sangwoo Park¹, Yating Zhao¹, Youngmin Park¹, Supatirada Wongchanla¹, Xunde Li¹, Peng Ji¹, Yanhong Liu¹

¹University of California, Davis

10:30 a.m. 21 **Effects of 25-hydroxyvitamin d₃ Supplementation in Late Gestation and Lactation Diets on Reproductive and Litter Performance and Antioxidant Capacity in Sows and Their Progeny**

Chan Ho Kwon¹, Jannell A. Torres¹, Eva S. Safaie¹, Ji Hye Lee¹, Zhaohui Yang², Pengcheng Xue², Xi Chen², Young Dal Jang¹

¹University of Georgia, ²Nutribins LLC

10:45 a.m. 22 **Management Strategy Post-breeding Through First Trimester Alters Artificial Insemination Conception Rates and Offspring Growth Through Weaning in Crossbred Beef Heifers**

Kathlyn M. Hauxwell¹, Joel S. Caton¹, Taylor N. Andrews², George A. Perry², Alexandria P. Snider³, Robert A. Cushman³

¹North Dakota State University, ²Texas A&M AgriLife Research & Extension Center, ³USDA, U.S. Meat Animal Research Center

11:00 a.m. 23 **Comprehensive Analysis of Intestinal, Hormonal, Behavioral, and Metabolic Responses in Post-weaning Pigs Fed Control or High-fiber Diets**

Caitlyn R. Sullivan¹, MaryKate Harrod Byrd², Shelby L. Diggs¹, L. Kirsten Senn³, Mckenzie R. Cecil³, Devendra Sarnaik³, Brian T. Richert³, Wayne W. Campbell³, Tzu-Wen L. Cross³, Rahim Rahimi³, Amy L. Petry¹, Jay S. Johnson¹

¹University of Missouri, ²University of Kentucky, ³Purdue University

11:15 a.m. 24 **Effects of High Soybean Meal Inclusion on the Gut Microbiome of Finishing Pigs**

Angel M. Martinez ¹, Courtney Pohlen ¹, Rafe Royall ¹, Eric M. Weaver ¹, Benoit St-Pierre ¹

¹South Dakota State University

11:30 a.m. 25 **Supplementation of Nucleotides and Branched Chain Amino Acids in the Diets of Weaned Pigs Fed Low Protein Diets and Its Effects on Intestinal Morphology, Inflammatory Markers, and Colonic Microbiota**

Abiola S. Lawal ¹, Olumide S. Olowe ¹, Olayiwola Adeola ¹, Kolapo M. Ajuwon ¹

¹Purdue University

Nonruminant Nutrition II: Nursery Pig Nutrition I

Chair: Kayla Miller, The Maschhoffs, LLC

8:30 AM - 11:45 AM

Ballroom A

8:30 a.m. 31 **Effects of Increasing Dietary Lipid Inclusion in Nursery Diets with or Without Sucrose on the Growth Performance of Weaned Pigs**

Nathan Vander Werff ¹, Nicholas K. Gabler ¹, David S. Rosero ¹

¹Iowa State University

8:45 a.m. 32 **Effect of Nursery Lactose Concentration and Feeding Duration on Subsequent Growth Performance, Fecal Dry Matter, and Fecal Scores in PIC 800-sired Wean-to-finish Pigs**

Julian Arroyave ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Katelyn N. Gaffield ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ¹, Carine M. Vier ², Weasley A. Orlando ³, Matthew Spindler ², Luis E. Zaragoza ², Haley Schwecke ⁴, Julia Holen ⁴

¹Kansas State University, ²PIC, ³Genus PIC, ⁴Swine Vet Center

9:00 a.m. 33 **Comparative Effects of Two Bacillus-based Direct-fed Microbial Products on Nursery Pig Growth Performance**

Michelle N. McCallum ¹, Christopher L. Puls ¹, Joel D. Spencer ¹, Adrienne Woodward ¹, Elizabeth Galbraith ², Josie Archibald ¹

¹United Animal Health, ²Microbial Discovery Group

9:15 a.m. 34 **Effect of Nursery Phase Feeding Budget on Growth Performance and Economics in Nursery Pigs Raised Under Commercial Conditions**

Julian Arroyave ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Mike D. Tokach ¹, Jordan T. Gebhardt ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Jorge Estrada ², Eric Parr ², Matt Frizzo ²

¹Kansas State University, ²Carthage Innovative Swine Solutions, LLC

9:30 a.m. 35 **The Effects of a Step-down In-feed Acidification Strategy on Nursery Pig Growth Performance and Survival**

Morgan Hart ¹, Sharlie A. Hansen ¹, Ernie L. Hansen ¹, Henrique S. Cemin ¹, Jamil E. G. Faccin ¹, Jose A. Soto ¹

¹Alltech

9:45 a.m. 36 **Determining the Dose-response Effects of a Modified Corn Protein Product on Growth Performance and Fecal Dry Matter in Nursery Pig Diets**

Jacob Knoy ¹, Paula Giacomini ¹, Jason C. Woodworth ¹, Katelyn N. Gaffield ¹, Mike D. Tokach ¹, Joel M. DeRouchey ¹, Jordan T. Gebhardt ¹, Robert D. Goodband ¹, Keith Mertz ², John Patience ³

¹Kansas State University, ²Cargill Starches, Sweeteners, & Texturizers, ³Oxford Nutrition Consulting LLC

10:00 a.m. **Nonruminant Nutrition II: Break**

10:15 a.m. 37 **In vitro and In vivo Evaluation of Potato Protein as Alternative Protein Source for Weaning Piglets**

Laia Blavi ¹, Francesc González-Solé ¹, Simon Tibble ¹, Astrid Koppenol ¹

¹AB Neo

10:30 a.m. 38 **Dietary Standardized Ileal Digestible PHe:Lys Requirement of Nursery Pigs from 5 to 13 kg**

Sydney Craig ¹, David Clizer ², Dalton C. Humphrey ¹, Keith D. Haydon ², Laura L. Greiner ¹

¹Iowa State University, ²CJ Bio

10:45 a.m. 39 **Evaluation of a Proprietary Blend of Prebiotics, Essential Oils and Acidifier on Intestinal Health of Nursery Pigs Challenged with F18⁺ *E coli***

Yesid R. Garavito-Duarte ¹, Jung Yeol Sung ¹, Megharaja Manangi ², Sung Woo Kim ¹

¹NC State University, ²Biomatrix International

11:00 a.m. 40 **Effects of Valoprowin and Formulation Strategy on Nursery Pig Performance and Fecal Dry Matter**

Julian Arroyave ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Mike D. Tokach ¹, Jordan T. Gebhardt ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Pau Salgado-López ², David Guillou ³, Noemi Lemoine ³

¹Kansas State University, ²Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, ³Mixscience

11:15 a.m. 41 **Effects of Monoglycerides Supplementation in Drinking Water on Growth Performance, Diarrhea and Mortality of Weanling Pigs Experimentally Infected with Enterotoxigenic *Escherichia coli* F18**

Youngmin Park ¹, Sangwoo Park ¹, Supatirada Wongchanla ¹, Shuhan Sun ¹, Yating Zhao ¹, Jinuk Nam ¹, Yanhong Liu ¹

¹University of California, Davis

11:30 a.m. 42 **Improved Vitamin D Status in Post-weaning Piglets Increased Calcium Digestibility and Modulated the Immune Response Independently of the Husbandry Conditions**

Yanhong Luo ¹, Ursula M. McCormack ¹, Jose Maria Hernandez ¹, Jincheng Zhang ¹, Zhenzhen Wang ¹, Shikui Wang ¹, Estefania Perez Calvo ¹

¹dsm-firmenich

Nonruminant Nutrition I: Gilts and Sow Nutrition I - Sponsored by DNA Genetics

Chair: Andres Bolivar Sierra, South Dakota State University

8:30 AM - 12:00 PM

205/206/207

8:30 a.m. 43 **The Effect of Sow Body Weight Change During Gestation on Sow Body Weight Change and Litter Average Daily Gain During Lactation**

Ron Aldwin S. Navales ¹, Weasley A. Orlando ², Jiyao Guo ², Lori Kociemba ², Carine M. Vier ³, Joel M. DeRouchey ⁴, Katelyn N. Gaffield ⁴, Jordan T. Gebhardt ⁴, Robert D. Goodband ⁴, Mike D. Tokach ⁴, Jason C. Woodworth ⁴

¹Cargill Philippines, Inc., ²Genus PIC, ³PIC, ⁴Kansas State University

8:45 a.m. 44 **Effects of Dietary Protein on Nitrogen Balance, Reproductive Performance, Colostrum and Milk Compositions, and Blood Immune Characteristics of Sows**

Jimena A. Ibagon ¹, Hans H. Stein ¹, Su A Lee ¹

¹University of Illinois Urbana-Champaign

9:00 a.m. 45 **Impact of Metabolizable Energy (ME) or Lactation ADFI on Sow and Litter Performance**

Katherine A. McCormick ¹, Grant I. Petersen ¹, Chris L. Eden ¹, Michael E. Johnston ¹

¹United Animal Health

9:15 a.m. 46 **Supplementary Dietary Lysine (Protein) Coupled with Exogenous Porcine Somatotropin in Late-Pregnancy: Effects on Mammary Development of Gilts**

Chantal Farmer ¹, Russell C. Hovey ², Alexandra J. Dufresne ², Lee-Anne Huber ³

¹Agriculture and Agri-Food Canada, ²University of California, Davis, ³University of Guelph

9:30 a.m. 47 **Influence of 25-hydroxycholecalciferol and Dietary Calcium and Phosphorus on Calcium and Phosphorus Digestibility by Gestating Sows**

Diego Guerrero Huerta ¹, Su A Lee ¹, Hans H. Stein ¹

¹University of Illinois Urbana-Champaign

9:45 a.m. 48 **Feeding Peanut Skins to Lactating Sows on Sow and Litter Performance**

Cristhian Daniel Valladares ¹, Eduardo Beltranena ¹

¹North Carolina State University

10:00 a.m. **Nonruminant Nutrition I: Break**

10:15 a.m. 49 **Effects of a Dietary Select Essential Oil and Prebiotic Fiber Combination on Sow Reproductive and Litter Performance**

Katherine E. Klassen ¹, Daphne Licuan ², Kara Pounds ¹, Jacob Knoy ³, Jacob A. Richert ⁴, Russell W. Fent ⁴, Carson V. Scharlau ⁴, Kevin J. Touchette ⁴, Josh P. Knapp ⁴, Shelly R. Widmer ⁴, Tingting Ju ¹, Brian T. Richert ¹

¹Purdue University, ²University of Illinois Urbana-Champaign, ³Kansas State University, ⁴Ralco Agriculture

10:30 a.m. 50 **Lactation and Reproductive Performance of Sows Fed Heightened SID Lys or Vitamin C During Late Gestation**

Steve J. Kitt ¹, Ethan W. Stephenson ², Ashley R. Hartman ³, Tom Rathje ⁴, Brady McNeil ⁴, Amanda Cross ⁴, Christine Mainquist-Whigham ²

¹Pillen Family Farms & DNA Genetics, ²Pillen Family Farms, ³Kansas State University, ⁴DNA Genetics

10:45 a.m. 51 **Characterizing Whole Body Protein Deposition and Blood Amino Acid Profiles of Gestating Sows in the First 3 Weeks After Breeding with or Without Recovery from Previous Lactation**

Ashir Foreman Atoo ¹, Ryan S. Samuel ¹, Lucas Alves Rodrigues ², Crystal L. Levesque ¹

¹South Dakota State University, ²Zinpro Corporation

11:00 a.m. 52 **Determining the Dietary Standardized Ileal Digestible Lysine Level for Lactating Sows**

Elizabeth M. Due ¹, Nicholas K. Gabler ¹, Amanda Cross ², Ashley R. Hartman ³, Steven Kitt ³, Ethan W. Stephenson ⁴

¹Iowa State University, ²DNA Genetics, ³Kansas State University, ⁴Pillen Family Farms

11:15 a.m. 53 Feeding the Prolific Sow for Success, Part I: Late-gestation Phase Feeding Improves Maternal and Progeny Micronutrient Status and Piglet Viability in Prolific Sows

Katlyn A. McClellan¹, Jesus A. Acosta Camargo², Bradley V. Lawrence², Sara Hough³, Jon R. Bergstrom³, Mark Weaver⁴, Rebecca C. Robbins⁴, Eric M. Weaver¹

¹South Dakota State University, ²Novus International, ³dsm-firmenich, ⁴Pig Improvement Company

11:30 a.m. 54 Feeding the Prolific Sow for Success, Part II: Late-gestation Phase Feeding Across Multiple Cycles Enhances Prolificacy

Katlyn A. McClellan¹, Jesus A. Acosta Camargo², Bradley V. Lawrence², Sara Hough³, Jon R. Bergstrom³, Mark Weaver⁴, Rebecca C. Robbins⁴, Eric M. Weaver¹

¹South Dakota State University, ²Novus International, ³dsm-firmenich, ⁴Pig Improvement Company

11:45 a.m. 55 Effects of Protein Supplementation During Early Gestation on Sow Reproductive Performance, Sow Metabolism, and Offspring Pre-weaning Outcomes

Hector Hernandez Espinal¹, Christian Ramirez Camba¹, Pedro E. Urriola¹, Hayford Manu²

¹University of Minnesota, Department of Animal Science, ²University of Minnesota, Southern Research and Outreach Center

Poster Session 2

10:00 AM - 10:45 AM

Grand Ballroom Pre-Function

10:00 a.m. PS2-1 Ex vivo and in vivo Methods Comparisons for Daily Methane Production Estimates in Commercial Beef x Dairy Steers

Madison L. Bemisderfer¹, Logan R. Thompson², Haley E. Larson¹

¹Kansas State University Olathe, ²Kansas State University

10:00 a.m. PS2-2 Characterization of Differentially Expressed Genes in Abscessed and Non-abscessed Livers of Beef x Holstein Feedlot Steers

Melanie Pimentel-Concepción¹, Jerad Jaborek², Andrea M. Luttman¹, Daniel Buskirk¹

¹Michigan State University, ²Michigan State University Extension

10:00 a.m. PS2-3 Assessing the Degradability of a Soybean Hull-based Baling Twine

Christy Finck¹, Marc L. Bauer¹, Kendall C. Swanson¹, Long Jiang¹

¹North Dakota State University

10:00 a.m. PS2-4 Viability of Kummerowia Stipulacea Seeds After in vitro Rumen and Abomasal Digestion

Ashlee Gibbons¹, Madison L. Bemisderfer¹, Logan R. Thompson², Haley E. Larson¹

¹Kansas State University Olathe, ²Kansas State University

10:00 a.m. PS2-5 **Association of Feedlot Pen-surface Moisture, pH, and Temperature with Unmanned Aerial Vehicle Thermal Imagery**

Logan E. Diller ¹, Logan R. Thompson ¹, Cody Schneider ², Haley E. Larson ³

¹Kansas State University, ²Cornbelt Livestock Services, ³Kansas State University Olathe

10:00 a.m. PS2-6 **Effects of Inclusion of an omega-3 Fatty Acid-based Supplement on Thermographic Temperature Measurements and Semen Quality of Beef Bulls**

Samuel Costa ¹, Allen G. Schwartz ¹, Brandon J. Fraser ¹, Danielle M. Stock ¹, Jordana Zimmermann ¹, Eduarda M. Bortoluzzi ¹, Adam Bassett ¹, Saulo Zoca ², Nicholas Dias ¹, Jason M. Warner ¹

¹Kansas State University, ²University of Tennessee

10:00 a.m. PS2-7 **A Comparison of 14-d vs 6-d CIDR Protocol on Conception Rates in Crossbred Angus Heifers**

Isabella R. Becerra ¹, Kirsten A. Midkiff ¹, Elizabeth B. Kegley ¹, Robin A. Cheek ¹, Jana L. Reynolds ¹, Alexis J. Harness ¹, Charles R. Looney ¹, Jeremy G. Powell ¹

¹University of Arkansas

10:00 a.m. PS2-8 **Early Weaning Stress Influences Intestinal Development and Functions of Nutrient Sensing, Digestion, and Transport in Pigs**

Zhaoyan Zhu ¹

¹University of Delaware

10:00 a.m. PS2-9 **Evaluation of In-utero Sperm Viability Using Heterospermic Insemination in Beef Cattle**

Cassia A. Gruis ¹, Danielle M. Stock ¹, David M. Grieger ¹

¹Kansas State University

10:00 a.m. PS2-10 **Jejunum Porcine Intestinal Organoids as a Complex in vitro Model to Study Gut Health and Reduce the Need for in vivo Experimentation**

Claudia Müller-Sánchez ¹, Sergi López-Vergé ², Gemma Tedó ², Manuel Reina ¹, Jose J. Pastor ²

¹Celltec-UB, ²Lucta SA

10:00 a.m. PS2-11 **Effect of L-proline on Boar Semen Quality Post Collection in a Variable Temperature Environment**

Kyle Lovercamp ¹, Brooke Eichelberger ¹, Leiha Glaze ¹

¹University of Central Missouri

10:00 a.m. PS2-12 **Exploring Communication Preferences in Full-Time Swine Employees to Enhance Understanding, and Workplace Effectiveness**

Jayden Lawrence ¹, Anna K. Johnson ¹, Nicholas K. Gabler ¹, Ulrike Genschel ¹

¹Department of Animal Science, Iowa State University

10:00 a.m. PS2-13 **Growth Performance of Weanling Pigs Fed Diets Supplemented with a Novel Acidifier**

Andrea Paola P. Mallea Ortiz ¹, Su A Lee ¹, Jimena A. Ibagon ¹, Hans H. Stein ¹

¹University of Illinois Urbana-Champaign

10:00 a.m. PS2-14 **Evaluation of Phase Feeding and Complete Diet Blending on Growing-finishing Pigs' Growth Performance and Diet Economics**

Ron Aldwin S. Navales ¹, Mike D. Tokach ², Mike Reard ³, Alan Warner ⁴, Chad W. Hastad ⁴, Joel M. DeRouchey ², Katelyn N. Gaffield ², Jordan T. Gebhardt ², Robert D. Goodband ², Jason C. Woodworth ²

¹Cargill Philippines, Inc., ²Kansas State University, ³ComDel Innovation, ⁴New Fashion Pork

10:00 a.m. PS2-15 **Effects of Dietary Tribasic Copper Chloride Level and Duration in Growing-finish Pigs**

Courtney Pohlen ¹, Angel Martinez ¹, Eric M. Weaver ¹, Rafe Royall ¹

¹South Dakota State University

10:00 a.m. PS2-16 **Impact of Crude Protein-deficient Diets and Benzoic Acid Supplementation on Nitrogen Utilization in Nursery Pigs**

Paulo Azevedo ¹, Alex Outlaw ¹, Jonas McAbee ¹, Andrea Ponce ¹, Marko Rudar ¹

¹Auburn University

10:00 a.m. PS2-17 **Effects of Dietary L-glutamate, L-aspartate, and Their Combination on Amino Acid Digestibility and Red Blood Cell Profiles of Weaned Piglets Challenged with Enterotoxigenic *Escherichia coli* F18**

Supatirada Wongchanla ¹, Youngmin Park ¹, Sangwoo Park ¹, Shuhan Sun ¹, Yanhong Liu ¹

¹University of California, Davis

10:00 a.m. PS2-18 **Effects of a Phytogenic Polyphenol Blend on Nursery Pig Performance**

Sabrina B. May ¹, Molly L. McGhee ¹, Brooke Smith ¹, Amanda Elsbernd ¹

¹Cargill Animal Nutrition & Health

10:00 a.m. PS2-19 **Addition of Fiber Sources in Diets for Weaning Piglets Improved Growth Performance**

Hélio Moreira Junior ¹, José A. L. Barbosa ¹, Amanda Gorrosterrazú ¹, Dener Oliveira Moreira ¹, Carlos Eduardo Martins Bertanha ¹, João Lucca Brito ¹, Samya Stefani Silva Souza ¹, Marcos L. P. L. P. Tsé ², Urbano S. Santos Ruiz ²

¹University of São Paulo, ²São Paulo State University

Beef/Small Ruminant Translational

Chair: Colby Redifer, Division of Animal Sciences, University of Missouri

11:15 AM - 12:00 PM

213/214

11:15 a.m. 56 Assessment of Free-choice Mineral and Salt Intake of Lactating Beef Cows Grazing Flint Hills Rangeland

Megan Sollors¹, Carlee M. Salisbury¹, Samuel Costa¹, Logan R. Thompson¹, Jason M. Warner¹

¹Kansas State University

11:30 a.m. 57 Comparison of Logistic Regression Models to Analyze Respiratory Health Status in Weaned Beef Calves

Audrey Tarochione¹, Miranda K. Culbertson¹, Ross Havens²

¹Iowa State University, ²Nichols Farms Ltd.

11:45 a.m. 58 Evaluating Optimal Days on Test for Reliable Methane Emissions in Beef Cattle

Jaedyn M. Condon¹, Miranda K. Culbertson¹, Ross Havens²

¹Iowa State University, ²Nichols Farms Ltd.

Physiology I: Reproductive Physiology

Chair: Kolapo Ajuwon, Purdue University

1:30 PM - 3:15 PM

213/214

1:30 p.m. 59 Single-cell Transcriptomics reveals atrazine-induced Reprogramming of Porcine Leydig Cells

Caitlin E. Ross¹, Jean-Jack M. Riethoven¹, Chia S. Liew¹, Amy T. Desaulniers¹

¹University of Nebraska-Lincoln

1:45 p.m. 60 Impact of Sow's Insulin Resistance on Reproductive and Litter Performance, and on the Colostrum Metabolomic Profile

Paolo Trevisi¹, Mattia Uguzzoni¹, Irene Borello², Federico Correa¹, Diana Luise¹, Barbara Polimeni¹, Annalisa Scollo²

¹Department of Agricultural and Food Science (DISTAL) - University of Bologna, ²Department of Veterinary Sciences - University of Turin

2:00 p.m. 61 Sow Anemia and Piglet Iron Supplementation: Impacts on Farrowing and Weaning Performance

Paolo Trevisi¹, Mattia Uguzzoni¹, Federico Correa¹, Diana Luise¹, Barbara Polimeni¹, Irene Borello², Annalisa Scollo²

¹Department of Agricultural and Food Science (DISTAL) - University of Bologna, ²Department of Veterinary Sciences - University of Turin

2:15 p.m. 62 **Evaluation of Conventional vs Sexed-sorted Semen for Fixed-time Artificial Insemination During a 14-day Estrous Synchronization in Mature Beef Cows**

Jacy L. Riddle ¹, Jeremy G. Powell ¹, Bernard W. Krumpelman ², Bryan L. Bacher ², Robin A. Cheek ¹, Cody Bright ¹, Evelyn A. Gilbreth ¹, Charles R. Looney ²

¹University of Arkansas, ²University of Arkansas Division of Agriculture

2:30 p.m. 63 **Evidence of Putative Epithelial Stem/progenitor Cells in the Bovine Endometrium: Implications for Fertility**

Isabella Sellmer Ramos ¹, Monica O. Caldeira ¹, Joao G. N. Moraes ², Scott E. Poock ¹, Matthew C. Lucy ¹, Amanda L. Patterson ¹

¹University of Missouri-Columbia, ²Oklahoma State University

2:45 p.m. 64 **Anogenital Distances Measurements Predict Heifer Reproductive Longevity and Success in Pubertal Classifications**

Karson D. Patton ¹, Brooke E. Rudloff ¹, Mackenzie Stohlmann ¹, Corrine F. Monaco ¹, Andrea S. Cupp ¹, Scott G. Kurz ¹

¹University of Nebraska-Lincoln

3:00 p.m. 65 **Maternal Performance, Metabolic Status, and Calf Size at Birth for Beef Cows with Historically Divergent Fetal Growth Fed at a Similar Nutritional Plane During Late Gestation**

Colby A. Redifer ¹, Allison M. Meyer ¹, Matthew S. Crouse ², Robert A. Cushman ²

¹Division of Animal Sciences, University of Missouri, ²USDA, U.S. Meat Animal Research Center

Graduate Student Oral Competition MS - Sponsored by the Gretchen Hill Appreciation Club

1:30 PM - 5:00 PM

210/211/212

1:30 p.m. 66 **Effects of a Second Iron Injection and Sire Line on Growth Performance, Hemoglobin Levels, Antioxidative Status and Whole-body Iron Retention in Piglets**

Jannell A. Torres ¹, Chan Ho Kwon ¹, Eva S. Safaie ¹, Savannah Locke ¹, Madison Mejia ¹, Shelby Greer ¹, Ji Hye Lee ¹, Wesley Lyons ², Scott Fritz ³, Young Dal Jang ¹

¹University of Georgia, ²Pharmacosmos Inc., ³Kansas State University

1:45 p.m. 67 **Effect of Daily Adrenocorticotrophic Hormone Injections in Lactating Ewes on Growth and Metabolism of the Ewe and Their Offspring**

Melva Tacuri-Vera ¹, Braden J. Campbell ¹, Alejandro E. Relling ¹

¹The Ohio State University

2:00 p.m. 68 **Evaluation of Increasing Trypsin Inhibitor on Nursery Pig Growth Performance, Fecal Dry Matter, and Nutrient Digestibility**

Sierra M. Collier ¹, Paige T. Soper ¹, Katelyn N. Gaffield ¹, Robert D. Goodband ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Jordan T. Gebhardt ¹, Hari B. Krishnan ²

¹Kansas State University, ²USDA-Agricultural Research Service

2:15 p.m. 69 **Determination of the Relative Bioavailability of Potentiated Zinc in Ruminants**

Emily Dahlback ¹, Dathan T. Smerchek ¹

¹Iowa State University

2:30 p.m. 70 **Validation of a Commercial Ai-driven Computer Vision Behavior Analytics Platform for Growing-finishing Pigs**

Isaac Suazo ¹, Suzanne M. Leonard ¹, Eric van Heugten ¹, Lingjuan Wang-Li ¹

¹North Carolina State University

2:45 p.m. 71 **Performance, Enteric Gas Emissions, and Protozoal Enumeration in Growing Beef Steers Supplemented with a Proprietary Essential Oil Blend**

Ashlee Gibbons ¹, Colton D. Weir ², Nathan Pike ³, Logan R. Thompson ², Haley E. Larson ¹

¹Kansas State University Olathe, ²Kansas State University, ³Alltech

3:00 p.m. **Graduate Student Oral Competition MS Break**

3:15 p.m. 73 **Effect of Residual Methane Production on Growth, Feed Intake, Feed Efficiency, Body Composition, and Gas Exchange in Growing Beef Heifers**

Pedro Simeone ¹, Anna M. Kobza ¹, Debora Gomes de Sousa ¹, Sophia Collett ¹, Paul J. Kononoff ¹, Galen E. Erickson ¹, Keara O'Reilly ¹

¹Department of Animal Science, University of Nebraska-Lincoln

3:30 p.m. 74 **Supplementing Tryptophan in Late Gestation Diets to Group-housed Sows Under Commercial Conditions: Effects on Aggressive Interactions and Sow and Litter Performance**

Carley R. Hopkins ¹, Cooper T. McAuley ², Katelyn N. Gaffield ², Jason C. Woodworth ², Clayton S. Chastain ³, Joel M. DeRouchey ², Matt Frizzo ⁴, Shelby L. Diggs ¹, Jordan T. Gebhardt ², Robert D. Goodband ², Eric Parr ⁴, Nicholas J. Prosek ¹, Caitlyn R. Sullivan ¹, Mike D. Tokach ², Jay S. Johnson ¹

¹University of Missouri, ²Kansas State University, ³Carthage Veterinary Services, ⁴Carthage Innovative Swine Solutions, LLC

3:45 p.m. 75 **Elucidating the Impact of Lubabegron on Skeletal Muscle Development and Intramuscular Adipose Tissue Response in Finishing Steers**

Anna M. Munger¹, Byungkyoo Park¹, Donghun Kang¹, Erika P. Eckhardt¹, Andrea M. Luttman¹, Andrea J. Garmyn¹, Nathan Pyatt², Jongkyoo Kim¹

¹Michigan State University, ²Elanco

4:00 p.m. 76 **Accuracy of Volumetric Supplement Doser for Gestating Sow Electronic Feeders**

Samuel Berrio¹, Pedro E. Urriola², Mike J. Boerboom³, Hyatt Frobose⁴, Amanda Uitermarkt⁴, Lee J. Johnston⁵

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

³Boerbooms Ag. Resources, ⁴Jyga Technologies - GESTAL, ⁵West Central Research and Outreach Center, University of Minnesota

4:15 p.m. 77 **Effects of Feeding Whole Corn vs. Dry-rolled Corn at 5% or 15% Forage Inclusion on Growth Performance, Feeding Behavior, and Carcass Characteristics of Finishing Steers**

Christy Finck¹, Pauliane Pucetti¹, Kendall C. Swanson¹

¹North Dakota State University

4:30 p.m. 78 **Effects of Various Combinations of Zinc and Copper Sources on Mitochondrial Zinc and Copper Status and Respiration in Different Tissues of Post-weaned Piglets**

Jose Vitor Silva Duarte¹, Jiovani Sergio Bee Tubin², Isabelle Audet², Danyel Bueno Dalto²

¹Agriculture and Agri-Food Canada / University of Saskatchewan, ²Agriculture and Agri-Food Canada

4:45 p.m. 79 **Effects of Steam Flaked Corn on Growth Performance, Carcass Characteristics, and Gastrointestinal Tract Health in Feeder Lambs**

Reanna R. Byrnes Schoen¹, Warren C. Rusche¹, Zachary K. Smith¹, Federico Podversich¹

¹South Dakota State University

Nonruminant Nutrition III: Grow-finish Pig Nutrition I

Chair: Eric Weaver, South Dakota State University

1:30 PM - 5:00 PM

Ballroom A

1:30 p.m. 80 **Effect of Standardized Ileal Digestible Lysine to Crude Protein Ratio on Growth Performance and Blood Urea Nitrogen of 45 to 125 kg Pigs**

Ron Aldwin S. Navales¹, Jessica Smallfield², Joel M. DeRouchey², Katelyn N. Gaffield², Jordan T. Gebhardt², Robert D. Goodband², Mike D. Tokach², Jason C. Woodworth²

¹Cargill Philippines, Inc., ²Kansas State University

1:45 p.m. 81 **A Method to Quantify Variation in Feed Intake and Growth Patterns in Growing Pigs**

Jaap van Milgen¹, Ludovic Brossard¹

¹INRAE

2:00 p.m. 82 **Evaluation of Pellet and Meal Feeding Programs on Finisher Pig Growth Performance and Carcass Characteristics**

Katherine A. McCormick¹, Rodney B. Hinson¹, Christopher L. Puls¹, Tricia S. Kresel¹

¹United Animal Health

2:15 p.m. 83 **Effect of Phosphorus Levels on Growth Performance, Bone, and Carcass Characteristics in PIC 800-sired Nursery and Finishing Pigs**

Tomas Porcel de Peralta¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Katelyn N. Gaffield¹, Jordan T. Gebhardt¹, Carine M. Vier², Matthew Spindler², Uislei A. Orlando³, Luis E. Zaragoza², Ning Lu³, Wayne R. Cast³, Julia Holen⁴, Haley Schwecke⁴, Alyssa Betlach⁵

¹Kansas State University, ²PIC, ³Genus PIC, ⁴Swine Vet Center, ⁵Swine Veterinary Center

2:30 p.m. 84 **Effects of Reducing Dietary Energy Density by Modifying Fat or Fiber Inclusion on Growth Performance and Carcass Characteristics of Finishing Pigs**

Pau Salgado-López¹, Jordi Bonet², Carme Soldevila², Jaume Coma²

¹Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, ²Vall Companys Group

2:45 p.m. 85 **Effects of Using an Emulsifier on Energy Digestibility and Growth Performance of Growing Pigs**

Victor G. Perez¹, Su A Lee², Hans H. Stein²

¹Kemin Industries, ²University of Illinois Urbana-Champaign

3:00 p.m. 86 **Effects of a Proprietary Copper-clay Compound and Tribasic Copper Chloride on Growth Performance, and Distal Gut Microbial Populations in Growing-finishing Pigs (25 to 133 kg BW)**

Daniel B. Jones¹, Sebastien Constantin¹, Ethan W. Stephenson², Joseph C. Sparks¹

¹Archer Daniels Midland Company, ²Pillen Family Farms

3:15 p.m. **Nonruminant Nutrition III: Break**

3:30 p.m. 87 **Effects of Different Dietary Energy Levels on Growth Performance and Carcass Characteristics of PIC 337 or 800 Sired Grow-finish Pigs**

Jiyao Guo¹, Jordi Camp Montoro², Carine M. Vier², Wayne R. Cast¹, Steve Dritz², Ning Lu¹, Luis E. Zaragoza², Danielle Wilson-Wells², Eunice Delphia², Jose Landero³, Malachy Young³, Weasley A. Orlando¹

¹Genus PIC, ²PIC, ³Gowans Feed Consulting

3:45 p.m. 88 **Effects of *Saccharomyces Cerevisiae* Postbiotics on the Performance of Growing-finishing Pigs Fed Diets with and Without Narasin**

Roger A. Arentson ¹, Jenna A. Seltzer ¹, Jake Erceg ¹, Scott N. Carr ¹, Jeff A. Hansen ¹, Matthew A. Vaughn ², Chad Yoder ¹

¹Elanco, ²Puretein Bioscience LLC

4:00 p.m. 89 **The Effects of Dietary Net Energy on Growth Performance and Carcass Characteristics of PIC 337 or PIC 800 Sired Grow-finish Pigs**

Carine M. Vier ¹, Jiyao Guo ², Jordi Camp Montoro ¹, Wayne R. Cast ², Jorge Estrada ³, Ning Lu ², Luis E. Zaragoza ¹, Danielle Wilson-Wells ¹, Eunice Delphia ¹, Matt Frizzo ³, Steve Dritz ¹, Weasley A. Orlando ²

¹PIC, ²Genus PIC, ³Carthage Innovative Swine Solutions, LLC

4:15 p.m. 90 **Methionine Hydroxy Analogue Bis-chelate Minerals Enhance Growth Rate, Closeout Feed Conversion and Total Pork Sold to Primary Markets**

Jesus A. Acosta Camargo ¹, Bradley V. Lawrence ¹, Nick Shelton ², Sue M. Knutson ², Ran Song ², Deana Hancock ¹

¹Novus International, ²NutriQuest

4:30 p.m. 91 **Strategic Use of Dietary Copper During the Growing-finishing Phase and Its Effects on Pig Growth Performance**

Jessica Lira-Silva ¹, Joseph G. Halbur ¹, Eric M. Weaver ¹, Carter Kanneth Ross ¹

¹South Dakota State University

4:45 p.m. 92 **Outperforming Probiotic Rivals: *Bacillus Velezensis* Consortium Leads in Gut Adhesion and Inflammation Control**

Katrine Bie Larsen ¹, Deepak E. Velayudhan ¹, Ester Vinyeta ¹, Steffen Yde Bak ¹, Niels Cristensen ¹, Chong Shen ¹

¹IFF

David Baker Symposium - Sponsored by David H. Baker Appreciation Club

Chair: Sung Woo Kim, NC State University

1:30 PM - 5:15 PM

Ballroom C

1:30 p.m. **David Baker Symposium Introduction**

1:35 p.m. 72 **Genetic Trends of Protein Deposition and Amino Acid Needs of Pigs**

Jiyao Guo ¹, Pieter Knap ², Steve Dritz ², Leonardo Siqueira Gloria ², Jordi Camp Montoro ², Carine M. Vier ², Wayne R. Cast ¹, Ning Lu ¹, Weasley A. Orlando ¹

¹Genus PIC, ²PIC

2:15 p.m. 99 **Implications of Increased Nitrogen Retention in Modern Pigs**

Hans H. Stein¹

¹University of Illinois Urbana-Champaign

2:55 p.m. 100 **Growth Performance Effects of Dietary Intact Protein or Synthetic Amino Acids on Early Grower Pigs**

Courtney Pohlen¹, Rafe Royall¹, Robert C. Thaler¹, Eric M. Weaver¹

¹South Dakota State University

3:10 p.m. **David Baker Symposium Break**

3:25 p.m. 101 **The indispensability of dispensable amino acids in feeding pigs**

Marko Rudar¹

¹Auburn University

4:05 p.m. 102 **Nutritional Needs of Non-essential Amino Acids for Intestinal Health and Growth Performance of Nursery Pigs Fed Diets Without Soybean Meal**

Jung Yeol Sung¹, Yesid R. Garavito-Duarte¹, Sung Woo Kim¹

¹NC State University

4:20 p.m. 103 **Redefining the Amino Acid Paradigm for Modern Sows**

Laura L. Greiner¹

¹Iowa State University

Ruminant Nutrition I: Production Enhancing Technologies in Cattle

Chair: Dathan Smerchek, Iowa State University

1:45 PM - 3:15 PM

205/206/207

1:45 p.m. 93 **Evaluation of the Maternal Bovine Appeasing Substance Administered at Arrival and Time of Reimplant on Feedlot Performance and Carcass Characteristics of Yearling Beef Steers**

Carsten Loseke¹, Galen E. Erickson¹, Tate S. Johnson¹, Jessica L. Sperber¹

¹Department of Animal Science, University of Nebraska-Lincoln

2:00 p.m. 94 **The Effect of Supplemental Calcidiol (HyD) on Implant-induced Growth After an 18-hour Transit Event**

Jacob A. Henderson¹, Stephanie L. Hansen¹

¹Iowa State University

2:15 p.m. 95 **Effect of Increasing Potency of an Initial Steroidal Implant on Growth Performance of Newly-weaned Beef Steers During the Dry-lot Phase**

Weston J. Peschel¹, Federico Podversich¹, Warren C. Rusche¹, Zachary K. Smith¹

¹South Dakota State University

2:30 p.m. 96 **Comparison of Spayed Heifers to Intact Heifers Fed Melengestrol Acetate on Feedlot Performance and Carcass Characteristics**

Tate S. Johnson¹, Rebecca L. McDermott¹, Halden Clark¹, Jim C. MacDonald¹, Jessica L. Sperber¹

¹Department of Animal Science, University of Nebraska-Lincoln

2:45 p.m. 97 **Effects of Feeding Lubabegron or Ractopamine Hydrochloride on Carcass Characteristics and Meat Tenderness in Beef Steers**

Lauryn Smidt¹, Rebecca L. McDermott¹, Jim C. MacDonald¹, Galen E. Erickson¹, Jordan Wicks¹, Jessica L. Sperber¹

¹Department of Animal Science, University of Nebraska-Lincoln

3:00 p.m. 98 **The Effect of Lubabegron Fumarate Feeding Duration on the Growth Performance and Carcass Characteristics of Finishing Steers**

Ty A. Skartvedt¹, Dathan T. Smerchek¹, Emily Dahlback¹

¹Iowa State University

Animal Behavior and Well-being Symposium: Beef on Dairy: What Are the Risk Factors for Health and Productivity Issues for the Grower, Feedlot, and Processor?

Chair: Andrea Luttmann, Michigan State University

2:00 PM - 5:00 PM

Ballroom B

2:00 p.m. **Animal Behavior, Health and Well-being Symposium Introduction**

2:05 p.m. 104 **Looks can be deceiving: Compensatory growth fails to offset carcass quality losses from early-life lung consolidation in beef x dairy calves**

Melissa C. Cantor¹

¹Pennsylvania State University

2:40 p.m. 105 **Impact of Fiber Inclusion in the Finishing Diet on the Behavior and Health of Beef x Dairy Steers**

Jerad Jaborek¹

¹Michigan State University Extension

3:15 p.m. **Animal Behavior, Health and Well-being Symposium Break**

3:30 p.m. 106 **Differences in Health, Feed Intake, and Growth Between Holstein and Beef-on-dairy Calves**

Vinicius Machado ¹

¹Texas Tech University

4:05 p.m. 107 **Behavior and Welfare Considerations for Crossbred Calves in Early Life**

Maddie Pinkerton ¹

¹Purdue University

4:40 p.m. **Animal Behavior, Health and Well-being Symposium Speaker Panel**

Undergraduate Student Oral Competition - Sponsored by the Gretchen Hill Appreciation Club

2:15 PM - 5:00 PM

215

2:15 p.m. 1 **Effects of Summer Dry Heat and Water Hardness on the Growth Performance of Pigs in the Southern Great Plains: A Preliminary Study**

Sungmin Cho ¹, Emma Traylor ¹, Aubrey Tambe ¹, Annabelle Foster ¹, Rachel Husak ¹, Chan Ho Kwon ², Young Dal Jang ², Janghan Choi ¹

¹Texas Tech University, ²University of Georgia

2:30 p.m. 2 **Comparison of Economic Selection Indexes for Beef x Beef and Beef x Dairy Breeding Objective**

Larissa Meier ¹, Matthew L. Spangler ¹

¹University of Nebraska-Lincoln

2:45 p.m. 3 **Impact of Trace In-feed Antibiotics on Growth Performance and Diarrhea Incidence in Weanling Pigs**

Carley Richardson ¹, Mariah R. Jansen ¹, Charlotte Ludorf ¹, Lily Trapp ¹, Kwangwook Kim ¹

¹Michigan State University

3:00 p.m. 4 **Evaluating Time-dependent Hydration Behavior of Fiber Sources Differing in Processing Origin and Physicochemical Properties**

Chloie Ashton ¹, Amy L. Petry ¹

¹University of Missouri

3:15 p.m. 5 **Effect of In-feed Antibiotics on the Need for Injectable Treatments in Finishing Pigs**

Paige T. Soper ¹, Joana Magoga ¹, Katelyn N. Gaffield ¹, Jordan T. Gebhardt ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Joel M. DeRouchey ¹

¹Kansas State University

3:30 p.m. **Undergraduate Student Oral Competition Break**

4:00 p.m. 8 **Effects of Bacillus Subtilis Combined with Plant Extracts on Small Intestinal Morphology in Weanling Pigs**

Lily Trapp ¹, Mariah R. Jansen ¹, Charlotte Ludorf ¹, Carley Richardson ¹, Hsinhung John Hsu ², Chung-Nan Chen ², Kwangwook Kim ¹

¹Michigan State University, ²JH Biotech, Inc.

4:15 p.m. 9 **Determination of the Most Appropriate Measure of Variability in Dry Matter Intake in Relationship to Growth Performance of Feedlot Cattle**

Natalie Evans ¹, Joshua C. McCann ²

¹Murray State University, ²University of Illinois Urbana-Champaign

4:30 p.m. 10 **Effect of Early Life Exposure to Atrazine on Uterine Maturation in Neonatal Piglets**

Samantha L. Crook ¹, Isabella Sellmer Ramos ¹, Amy T. Desaulniers ², Amanda L. Patterson ¹

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

4:45 p.m. 11 **Effect of Feeding Whole or Roasted Soybeans to Finishing Cattle on Fat Digestibility**

Emelia J. Rourke ¹, Taylor A. Lewis ¹, Melissa K. Bausch ¹, Jessica L. Miller ¹, Pablo L. Loza ¹, Galen E. Erickson ¹

¹Department of Animal Science, University of Nebraska-Lincoln

Physiology II

Chair: Kolapo Ajuwon, Purdue University

3:30 PM - 4:30 PM

213/214

3:30 p.m. 108 **Development and Validation of a Transcriptomics-based Index to Assess Metabolic and Physiological Functions in the Blood of Pigs**

Maria C. Walsh ¹, Luis F. Romero ¹, Krutik Patel ¹

¹Biofractal

3:45 p.m. 109 **Multi-block Spls-da Shows That Plasma Metabolomics Most Accurately Classifies Piglets Across Production Chains Than Fecal Metabolomics and Metagenomics**

Paolo Trevisi ¹, Federico Correa ¹, Diana Luise ¹

¹Department of Agricultural and Food Science (DISTAL) - University of Bologna

4:00 p.m. 110 **In Utero Heat Stress and Genomic Selection for Heat Tolerance Alter Seminal Plasma Metabolite Profiles Associated with Semen Quality**

Brooke E. McAnally¹, Caitlin E. Ross¹, Daniel Ahern¹, MaryKate Harrod Byrd², Jacob Musa³, Brett R. White¹, Clay A. Lents⁴, Luiz F. Brito³, Jay S. Johnson⁵, Amy T. Desaulniers¹

¹University of Nebraska-Lincoln, ²University of Kentucky, ³Purdue University, ⁴USDA, U.S. Meat Animal Research Center, ⁵University of Missouri

4:15 p.m. 111 **Validation of Rightmate Precision Mating in Simmental Seedstock Beef Herds Shows Increased Rates of Genetic Progress**

Richard G. Tait¹, Mahdi Saatchi²

¹Optimum Genomics LLC, ²Top Genomics, LLC

Ruminant Nutrition II: Animal Behavior and Management

Chair: Federico Podversich, South Dakota State University

3:30 PM - 5:00 PM

205/206/207

3:30 p.m. 112 **Comparison of Breed Feeding Behavior of Finishing Beef Steers and Heifers on Extended Days on Feed**

Garrett D. Meyer¹, Federico Podversich¹, Grace H. Olinger¹, Warren C. Rusche¹, Zachary K. Smith¹

¹South Dakota State University

3:45 p.m. 113 **Effect of Feed Access Time on Feedlot Performance, Carcass Characteristics, Feeding Behavior, and Ruminal pH of Yearling Heifers**

Carsten Loseke¹, Rebecca L. McDermott¹, Josh R. Benton², Keara O'Reilly¹, Galen E. Erickson¹, Jim C. MacDonald¹

¹Department of Animal Science, University of Nebraska-Lincoln, ²Eastern Nebraska Research, Extension, and Education Center, University of Nebraska

4:00 p.m. 114 **Estimation and Application of a Performance-derived Maintenance Energy Coefficient for Beef x Dairy Feedlot Cattle**

Nathan E. Rehder¹, Federico Podversich¹, Michael L. Galyean², Zachary K. Smith¹

¹South Dakota State University, ²Texas Tech University

4:15 p.m. 115 **Optimal Sampling Time for Indigestible Sugar Markers of Gastrointestinal Permeability in Yearling Cattle**

Liliana M. Rivas¹, Phillip A. Lancaster¹, Brad J. White¹, Geraldine J. Magnin²

¹Beef Cattle Institute, ²Kansas State University Veterinary Diagnostic Lab

4:30 p.m. 116 **Detection of Morbidity Using a Remote Sensing Ear Tag on Newly Received Steers and Feedlot Performance**

Lauryn Smidt¹, Rebecca L. McDermott¹, Jessica L. Sperber¹, Galen E. Erickson¹, Jim C. MacDonald¹

¹Department of Animal Science, University of Nebraska-Lincoln

4:45 p.m. 117 **The Effect of Weighing Protocol on Precision and Accuracy of Prediction Average Daily Gain**

Andrea Lara¹, Mary K. Drewnoski¹, Jim C. MacDonald¹

¹Department of Animal Science, University of Nebraska-Lincoln

Poster Session 3

4:15 PM - 5:00 PM

Grand Ballroom Pre-Function

4:15 p.m. PS3-1 **The Supplementation of Microencapsulated Organic Acids Improves Litter Outcomes and Performance**

Olufemi O. Babatunde¹, Chris Gwyn¹, Glenmer B. Tactacan¹, Ludovic Lahaye¹, Mariana L. de Moraes¹

¹Jefo Nutrition Inc

4:15 p.m. PS3-2 **Dietary Protein Concentration and Electrolyte Balance Affect Urine pH, Nitrogen Excretion, and Manure Odorous Compounds in Growing Pigs**

Hyunseok Do¹, Okhwa Hwang², Beob Gyun Kim¹

¹Konkuk University, ²National Institute of Animal Science

4:15 p.m. PS3-3 **Effects of Simultaneous Supplementation of 3-phytase and 6-phytase on Phosphorus and Calcium Digestibility in Growing Pigs**

Hyunseok Do¹, Beob Gyun Kim¹

¹Konkuk University

4:15 p.m. PS3-4 **The Effect of Yeast Derived Postbiotics in Mitigating the Negative Impact of Porcine Reproductive and Respiratory Syndrome (PRRS) on Health and Performance of Nursery Piglets Challenged with PRRSv**

Tadele Kiros Gebreyohannes¹, Joe Loughmiller², Brian K. Kremer²

¹Phileo by Lesaffre, ²Phileo by Lesaffre- North America

4:15 p.m. PS3-5 **Effects of Different Additives Replacing Zinc Oxide on Performance, Fecal Score, and Incidence of Diarrhea in Weaned Piglets**

Lucimauro Fonseca¹, Gabriel Cedrola¹, Gabriel Ribeiro Braga¹, Bruno Ramos¹, Gabriela da Silva¹, Anne Koontz², James Pettigrew³, Melissa Izabel Hannas¹

¹UFV, ²Alltech Inc., ³Pettigrew Research Service

4:15 p.m. PS3-6 **The Effect of a Cheese Co-product in Swine Lactation Diets on Sow and Litter Performance**

Grady Privett¹, Diego Lopez², Joel M. DeRouchey¹, Jason C. Woodworth¹, Katelyn N. Gaffield¹, Robert D. Goodband¹, Mike D. Tokach¹, Jordan T. Gebhardt¹

¹Kansas State University, ²Key Manufacturing

4:15 p.m. PS3-7 **On Top Dietary Inclusion of Wheat Middlings Modulates Intestinal Inflammation in Post-weaning Piglets Depending on Body Weight**

Júlia Suppi¹, Pau Salgado-López¹, Eudald Llauradó-Calero¹, Jaume Coma², Anna Pelegrí-Pineda³, Yolanda Saco³, Anna Bassols³, David Solà-Oriol¹

¹Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, ²Vall Companys Group, ³Veterinary Clinical Biochemistry Service (SBCV), Department of Biochemistry and Molecular Biology, Universitat Autònoma de Barcelona

4:15 p.m. PS3-8 **Effects of Short Chain Fatty Acids Derivatives on Serum Inflammatory Biomarkers and Intestinal Gene Expression in Weanling Pigs Challenged with F4 and F18 Enterotoxigenic *Escherichia Coli***

Shuhan Sun¹, Jinuk Nam¹, Sangwoo Park¹, Yating Zhao¹, Youngmin Park¹, Supatirada Wongchanla¹, Xunde Li¹, Peng Ji¹, Yanhong Liu¹

¹University of California, Davis

4:15 p.m. PS3-9 **Impact of an Early Postnatal Administration of an Energetic Supplement on Growth Performance, Behaviour and Gut Microbiota in Piglets with Different Birth Weight Classes**

Paolo Trevisi¹, Silvia Bencivenni², Diana Luise², Elizabeth Katherine Huenul Faundez³, Francesco Palumbo⁴

¹Department of Agricultural and Food Science (DISTAL) - University of Bologna, ²University of Bologna, ³Servicio de Nutrición y Bienestar Animal, Departament de Ciència Animal i dels Aliments, Universitat Autònoma de Barcelona, 08193 Bellaterra, Spain, ⁴Department of Agro-Food Sciences and Technologies, University of Bologna, Bologna, Italy

4:15 p.m. PS3-10 **Effect of Different Concentrations of Lysine on Growth Performance, Nutrient Digestibility and Faecal Scores in Weaning Pigs**

Seungjin Yun¹, Zhenyu Ding¹, Se Yeon Jang¹, In Ho Kim¹

¹Dankook University, Department of Animal Biotechnology

4:15 p.m. PS3-11 **Effects of a Lipopolysaccharide Challenge on Weaned Pigs: Evaluating the Immunomodulatory and Growth-promoting Roles of Dietary Silicate**

Seungjin Yun¹, Weihang Zhao¹, Se Yeon Jang¹, In Ho Kim¹

¹Dankook University, Department of Animal Biotechnology

4:15 p.m. PS3-12 **Effects of Non-nutritive Sweeteners on Colonic Microbiome Composition and Diversity in Weaned Pigs**

Mariah R. Jansen ¹, Charlotte Ludorf ¹, Lily Trapp ¹, Kwangwook Kim ¹

¹Michigan State University

4:15 p.m. PS3-13 **Effects of an Essential Oil Blend (ProsperEO™) on Grow Finish Pig Performance**

Josh P. Knapp ¹, Jacob A. Richert ¹, Russell W. Fent ¹, Carson V. Scharlau ¹, Kevin J. Touchette ¹, Shelly R. Widmer ¹

¹Ralco Agriculture

4:15 p.m. PS3-14 **Dietary Protein Level Modulates the Transcriptomic Response to Birth Weight in Artificially Reared Piglets**

Christina Larsen ¹, Emma Christensen ¹, Kimmie Lyderik ¹, Helena Sato ¹, Charlotte Amdi ¹, Andrew R. Williams ¹, Johannes Madsen ¹

¹University of Copenhagen

4:15 p.m. PS3-15 **Comparison of Calculated and Measured Apparent Total Tract Calcium Digestibility in Pigs**

Julien Labarre ¹, Nicolas Coquil ¹, Marie-Pierre Letourneau Montminy ¹

¹Laval University

4:15 p.m. PS3-16 **Determination of Metabolizable Energy and Amino Acid Digestibility of DDGS for Growing Pigs**

Stephane A B Da Motta ¹, Rhuan F. Chaves ², Rasiel Restelatto ³, Vinícius S. Cantarelli ¹

¹UFLA, ²Animalnutri, ³INPASA

4:15 p.m. PS3-17 **An Additional Iron Injection Improves Post-weaning Performance More Than a 7-day Low-protein Diet**

James E. Langley ¹, Jeremy J. Cottrell ¹, Surinder S. Chauhan ¹, Sally Tritton ², Frank R. Dunshea ¹, Kate J. Plush ²

¹University Of Melbourne, ²The SunPork Group

4:15 p.m. PS3-18 **The Inclusion of Ferrous Sulphate as an Iron Source in the Diet Can Increase Post-weaning Diarrhea in Weaned Pigs**

James E. Langley ¹, Cundong J. Xie ¹, Farhad J. Ahmadi ¹, Kate Phuong-Nguyen ¹, Likeeth kumar Palani Alrun ¹, David J. Cadogan ², Kate J. Plush ³, Surinder S. Chauhan ¹, John Pluske ¹, Frank R. Dunshea ¹, Jeremy J. Cottrell ¹

¹University Of Melbourne, ²Feedworks, ³The Sunpork Group

4:15 p.m. PS3-19 **Evaluation of Glucosamine or Phytogenic Supplementation in Swine Gestation Diets on Component Traits of Litter Size, Fetal, and Placental Development During Late Gestation in Primiparous Dams**

Jeremy R. Miles ¹, Qiong Hu ², Junmei Zhao ², Xiaodan Zhou ², Mark Newcomb ², Oliver T. William ¹, Clay A. Lents ¹, Alexandria P. Snider ¹, Robert A. Cushman ¹, Lea A. Rempel ¹

¹USDA, U.S. Meat Animal Research Center, ²Cargill

Growth, Development, Muscle Biology and Meat Science

Chair: Jessie Morrill, Department of Animal Science, University of Nebraska- Lincoln

4:45 PM - 5:15 PM

213/214

4:45 p.m. 118 **Long-term effects of maternal Vitamin A injection during late gestation on marbling in beef cattle revealed by an early-life transcriptomic approach**

José Oliveira ¹, Sara Laura ², Sérgio A. G. Pereira-Júnior ³, Marcos Chiaratti ³, Joshua C. McCann ¹, Marcio M. Ladeira ²

¹University of Illinois Urbana-Champaign, ²Universidade Federal de Lavras, ³Federal University of São Carlos

5:00 p.m. 119 **Transcriptomic Changes in the Skeletal Muscle of Finishing Beef Steers Subject to Acute and Chronic Heat Stress**

Erika P. Eckhardt ¹, Andrea M. Luttman ¹, Jongkyoo Kim ¹

¹Michigan State University

Tuesday, March 10, 2026

Poster Session 4 - Sponsored by the Gretchen Hill Appreciation Club

7:30 AM - 8:30 AM

Grand Ballroom Pre-Function

7:30 a.m. PS4-1 **Material Consequences: Flooring Type Modulates Sow Thermoregulation and Litter Survival in Summer Heat**

Ashley Rodman ¹, Caitlyn R. Sullivan ¹, Carley R. Hopkins ¹, Jay S. Johnson ¹

¹University of Missouri

7:30 a.m. PS4-2 **Relationship of Health Status to Growing Bull EPD, Performance, Carcass, and Fertility Traits in Red Angus, Angus, and Simmental Bulls**

Sophia Mathew ¹, Maggie McStay ², Joshua C. McCann ³, Keela Trennepohl ²

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

7:30 a.m. PS4-3 **Effects of Heat Stress on Respiration Rate and Behaviors During Different Times of Day**

Kiley D. Sons¹, Grady W. Gullickson², Joshua C. McCann³, Daniel W. Shike²

¹Southern Illinois University, ²Department of Animal Sciences, College of ACES, University of Illinois Urbana-Champaign, ³University of Illinois Urbana-Illinois

7:30 a.m. PS4-4 **Effects of Age on Gastrointestinal Morphology, Morphometrics, and Digesta Changes in High-forage, Rotationally Grazed, Mineral-supplemented, Late-weaned Ruminants with Low Reproductive Performance**

Olivia B. Smith¹, Mark W. Allison¹, Raquel Baptiste¹

¹Berea College

7:30 a.m. PS4-5 **Water Consumption Behavior of Finishing Beef Steers and Heifers with Varying Proportions of Angus and Limousin Composition**

Martina J. DeBoer¹, Federico Podversich¹, Grace H. Olinger¹, Warren C. Rusche¹, Zachary K. Smith¹

¹South Dakota State University

7:30 a.m. PS4-6 **Effects of Water-based Yeast Bioactive Supplementation on Wean Pig Growth Performance and Health During the Nursery**

Brooklyn H. Goelz¹, Crystal L. Levesque¹, Andres F. Bolivar Sierra¹, Rob Patterson², Jorge Perez-Palencia²

¹South Dakota State University, ²CBS Bio Platforms Inc

7:30 a.m. PS4-7 **Interactions Between Water Hardness and pH on the Stability and Antimicrobial Efficacy of Tannic Acid in Swine Drinking Water**

Annabelle Foster¹, Emma Traylor¹, Chan Ho Kwon², Young Dal Jang², Janghan Choi¹

¹Texas Tech University, ²University of Georgia

7:30 a.m. PS4-8 **In Vitro Antimicrobial Efficacy and Ph Modulation in Different Water Sources of a Monoglyceride, Natural Extract and Organic Acid-based Feed Mitigant Against Salmonella Typhimurium**

Aubrey Tambe¹, Emma Traylor¹, Woong B. Kwon², Fredrik Sandberg², Steve J. England², Janghan Choi¹

¹Texas Tech University, ²Furst-McNess Company

7:30 a.m. PS4-9 **Characterization of Feed-borne Microbes and Establishment of a Salmonella Contamination Model**

Rachel Husak¹, Annabelle Foster¹, Sungmin Cho¹, Woong B. Kwon², Fredrik Sandberg², Steve J. England², Janghan Choi¹

¹Texas Tech University, ²Furst-McNess Company

7:30 a.m. PS4-10 **Effect of Corn Dried Distillers Grains with Solubles Contaminated with Varying Levels of Deoxynivalenol on Growth Performance and Health of Broilers**

Bree A. Koepke ¹, Andres F. Bolivar Sierra ¹, Crystal L. Levesque ¹

¹South Dakota State University

7:30 a.m. PS4-11 **Effects of Ad Libitum Creep Feed Access on Calf Behavior Following Feeding of Cow Total Mixed Ration in a Confinement Cow-calf System**

Kavan M. Fye ¹, Grady W. Gullickson ², Joshua C. McCann ³, Daniel W. Shike ²

¹Purdue University, ²Department of Animal Sciences, College of ACES, University of Illinois Urbana-Champaign, ³University of Illinois Urbana-Champaign

7:30 a.m. PS4-12 **Evaluating the Effect of a Topical Oleic Acid Gel on Piglet Behavior and Heart Rate Variability Following Surgical Castration**

Lindsay C. Seevers ¹, Tetiana Shevtsova ¹, Andriy Voronov ¹, Christopher J. Byrd ¹

¹North Dakota State University

7:30 a.m. PS4-13 **Evaluation of Intake Consistency and Relationships with Feedlot Cattle Growth Performance and Carcass Characteristics**

Meagan S. Davis ¹, Joshua C. McCann ², Daniel W. Shike ¹, Tiago Bresolin ¹, Camila Braz ¹

¹Department of Animal Sciences, College of ACES, University of Illinois Urbana-Champaign, ²University of Illinois Urbana-Champaign

7:30 a.m. PS4-14 **The Effects of Microalgae on in vitro Ruminal Fermentation**

Mabry Bruhn ¹, Paige Berkmeyer ¹, Lance Schideman ¹, Joshua C. McCann ¹

¹University of Illinois Urbana-Champaign

7:30 a.m. PS4-15 **Effects of Water-based Yeast Carbohydrate Supplementation on Growth Performance and Fecal Consistency of Weaned Pigs**

Haylie Trowbridge ¹, Andres F. Bolivar Sierra ¹, Jorge Perez-Palencia ², Rob Patterson ², Crystal L. Levesque ¹

¹South Dakota State University, ²CBS Bio Platforms Inc

7:30 a.m. PS4-16 **Effects of Bacillus Subtilis Combined with Plant Extracts on Systemic Immunity in Weanling Pigs**

Charlotte Ludorf ¹, Mariah R. Jansen ¹, Hsinhung John Hsu ², Chung-Nan Chen ², Kwangwook Kim ¹

¹Michigan State University, ²JH Biotech, Inc.

Swine Translational Symposium: Advancing Precision Feeding Strategies in Swine Production

Chair: Christopher Puls, United Animal Health

8:00 AM - 12:00 PM

Ballroom C

8:00 a.m. **Swine Translational Symposium Introduction**

8:10 a.m. 120 **Precision Feeding: Principles and Practice—Lessons Learned from Growing–finishing Pigs**

Aline Remus ¹

¹AgriFood Canada

8:45 a.m. 121 **Precision Feeding Gilts for Lifetime Performance**

Thomas S. Bruun ¹

¹SEGES Innovation

9:20 a.m. 122 **Progress in Precision Nutrition for Sows: Current Understanding and Future Direction**

Mikayla Spinler ¹

¹Vita Plus

9:55 a.m. **Swine Translational Symposium Break**

10:10 a.m. 123 **Lessons Learned from Precision Feeding in Growing-finishing Pig**

Devin Goehring ¹, Christopher L. Puls ¹, Rebecca K. Pritchett ¹

¹United Animal Health

10:45 a.m. 124 **Precision Feeding: From Idea to Practice**

Hyatt Frobose ¹

¹Jyga Technologies - GESTAL

11:20 a.m. 125 **Economics of Precision Nutrition: Investment, Profitability, and ROI**

Lee J. Johnston ¹

¹West Central Research and Outreach Center, University of Minnesota

Harlan Ritchie Symposium - Sponsored by American Angus Association

Chair: David Lust, West Texas A&M University

8:00 AM - 12:15 PM

Ballroom B

8:00 a.m. **Harlan Ritchie Symposium Introduction**

8:10 a.m. 307 **Are University Graduates Prepared to Meet the Expectations of Industry and Society?**

Thomas G. Field ¹

¹Engler Agribusiness Entrepreneurship Program

8:40 a.m. 308 **The Current Workforce Labor Shortage and How It Is Affecting the Industry**

Marty Ropp ¹

¹Allied Genetic Resources

9:10 a.m. 309 **Artificial Intelligence (AI) and the Three-part Mission of Land Grant Universities**

Jameson R. Brennan ¹, Hector M. Menendez ¹

¹South Dakota State University

9:40 a.m. **Harlan Ritchie Symposium Panel Discussion**

10:00 a.m. **Harlan Ritchie Symposium Break**

10:15 a.m. 310 **Texas Cattle Feeders Association Junior Fed Beef Career and Leadership Program**

David G. Lust ¹

¹West Texas A&M University

10:30 a.m. 311 **Building Tomorrow's Beef Industry: Kansas State University Feedlot Boot Camp Program**

Karol E. Fike ¹, Pete T. Anderson ²

¹Kansas State University, Department of Animal Sciences & Industry, ²Midwest PMS LLC

10:45 a.m. 312 **Overview of the Timmerman Feedyard Management Internship**

Jim C. MacDonald ¹, Galen E. Erickson ¹, Jessica L. Sperber ¹

¹Department of Animal Science, University of Nebraska-Lincoln

11:00 a.m. 313 **Feedlot Nutritionist Boot Camp: Immersive Training for Graduate-level Students in Beef Cattle Nutrition**

Kendall L. Samuelson ¹, Jason K. Smith ², Kristin E. Hales ³, Jenny S. Jennings ⁴, John T. Richeson ¹, Chris D. Reinhardt ⁵

¹West Texas A&M University, ²Texas A&M AgriLife Extension, ³Texas Tech University, ⁴Five Rivers Cattle Feeding, ⁵Zinpro

11:15 a.m. 314 **Developing the Young Professional Through Educational Programs**

Mark McCully ¹

¹American Angus Assoc.

11:30 a.m. 315 **Workforce Solutions and Innovations: What Is the Pork Industry Doing?**
M. Todd See ¹

¹North Carolina State University

11:45 a.m. 316 **Strategies for Managing Trade NAFTA (TN) Visa Workers in the U.S. Swine Industry: Data-driven and Experience-based Approach**

Magdiel Lopez Soriano ¹, Talita P. Resende ², Andréia G. Arruda ³, Magnus Campler ³, Isaiah Franco ³, Kara E. Flaherty ³, Anna K. Johnson ⁴, Monique Pairis-Garcia ⁵, Samira Chatila ², Maria Pieters ², Pedro E. Urriola ⁶, Douglas Jackson-Smith ³, Timothy J. Safranski ¹

¹University of Missouri, ²University of Minnesota, ³The Ohio State University, ⁴Iowa State University, ⁵NC State University, ⁶University of Minnesota, Department of Animal Science

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

Ruminant Nutrition III: Feed Additives: Vitamins and Minerals

Chair: Dathan Smerchek, Iowa State University

8:15 AM - 10:00 AM

213/214

8:15 a.m. 126 **Impact of Rumen-protected Vitamin Supplementation on Performance and Immunity of Newly Received Beef Steers**

Shoki Hirano ¹, Jodi L. McGill ¹, Stephanie L. Hansen ¹

¹Iowa State University

8:30 a.m. 127 **Effect of Dietary Inclusion of Bromoform Stabilized in Vegetable Oil Concurrently with Succinate-producing Bacteria on Gas Emissions, Ruminal Fermentation, and Digestibility in Growing Cattle**

Anaclara Daudet ¹, Lucas Gonzalez-Chappe ¹, Alejandro Pittaluga ¹, Alejandro E. Relling ¹

¹The Ohio State University

8:45 a.m. 128 **Effect of Encapsulated Fish Oil Supplementation on Growth Performance, Carcass Characteristics, and Blood Immunometabolic Biomarkers in Feedlot Finishing Steers**

Alejandro Pittaluga ¹, G. Andres Contreras ², Alejandro E. Relling ¹

¹The Ohio State University, ²Michigan State University

9:00 a.m. 129 **Stability of Vitamin a in a Free-choice Mineral Mix During Six Months of Storage**

Tanner K. Wansing ¹, Mary K. Drewnoski ¹

¹University of Nebraska-Lincoln

9:15 a.m. 130 **Maternal Vitamin a Supplementation Effects on Beef Calf Vitamin a Concentrations**

Marissa K. Eekohff ¹, Mary K. Drewnoski ², Miranda K. Culbertson ¹, Stephanie L. Hansen ¹
¹Iowa State University, ²University of Nebraska-Lincoln

9:30 a.m. 131 **Effects of a Positive Dietary Cation–anion Difference Diet on Growth Performance and Physiological Responses of Feedlot Steers During Heat Stress**

Emily Partee ¹, Emma Rients ¹, Marissa K. Eekohff ¹, Stephanie L. Hansen ¹
¹Iowa State University

9:45 a.m. 132 **Effect of Exogeneous Enzymes on Performance of Finishing Cattle Fed Sorghum-based Diets**

Elizabeth R. Kiselewski ¹, Sarah Sexton-Bowser ¹, Tatiana M. Jones ¹, Ludmilla S. Monterio ¹, Jaymelynn K. Farney ¹, James S. Drouillard ¹
¹Kansas State University

Nonruminant Nutrition V: Soybean Meal Utilization

Chair: Katelyn Gaffield, Kansas State University

8:15 AM - 11:45 AM

210/211/212

8:15 a.m. 158 **Award Talk: Impact of Soybean Meal on Growth Performance, Net Energy, Nitrogen Retention, and Greenhouse Gas Production When Included in Diets for Growing Pigs**

Jimena A. Ibagon ¹, Hans H. Stein ¹, Su A Lee ¹
¹University of Illinois at Urbana-Champaign

8:45 a.m. 157 **Does Increasing Dietary Soybean Meal Levels Result in Improved Growth Performance, Wean-to-finish Livability, and Carcass value in a Commercial Wean-to-finish Swine Feeding Program?**

Trey A. Kellner ¹, Macie Reeb ¹, Kristin Olsen ¹, Josh Ellingson ², Bart Borg ³, R. Dean Boyd ⁴, Aaron M. Gaines ⁵, Steve Pollmann ³, Leigh Ruckman ⁶, Chad M. Pilcher ⁶
¹AMVC Nutritional Services, ²AMVC Management Services, ³United Soybean Board, ⁴Animal Nutrition Research, ⁵Ani-Tek, ⁶Cargill Animal Nutrition

9:00 a.m. 159 **Effects Of Thermo-Mechanically Processed Soybean Meal on Nursery Pig Growth and Fecal Characteristics**

Jessica Smallfield ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Mike D. Tokach ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Jordan T. Gebhardt ¹, Alan Warner ², Chad W. Hastad ², Sabrina B. May ³, Wesley Schweer ³, Chad M. Pilcher ³
¹Kansas State University, ²New Fashion Pork, ³Cargill Animal Nutrition & Health

9:15 a.m. 160 **Evaluating the Metabolizable Energy of Ultra-high Protein, Low Oligosaccharide, Soybean Meal in Growing Pigs**

Abigail Dowell ¹, Margaret Putnam ¹, Erin zess ², Matthew Begemann ², Amy L. Petry ¹

¹University of Missouri, ²Confluence Genetics

9:30 a.m. 161 **Life Cycle Impact Assessment of Soybean Meal Sourced from Argentina, Brazil, China, India, and the United States on Protein and Energy Basis in Swine Diets**

Isabel B. Walpole ¹, Pedro E. Urriola ², Jinsu Hong ¹

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

9:45 a.m. 162 **Effect of Feeding a Diet with an Elevated Level of Soybean Hulls on the Metabolic Status and Fecal Physicochemical Characteristics of Mid-gestation Sows Under Two Housing Systems**

Samuel F. Leiva ¹, Flavia Letsch ², Chloe Ashton ², Margaret Putnam ², Amy L. Petry ², David S. Rosero ¹

¹Iowa State University, ²University of Missouri

10:00 a.m. **Nonruminant Nutrition V: Break**

10:15 a.m. 163 **Release of Phosphorus and Inositol from Soybean Meal by Growing Pigs Fed Diets with Graded Levels of Microbial Phytase**

Andrea Paola P. Mallea Ortiz ¹, Su A Lee ¹, Hans H. Stein ¹

¹University of Illinois Urbana-Champaign

10:30 a.m. 164 **Modulation of Growth and Immune Function by Soy Saponins in Poultry**

Cameron S. White ¹, Ryan N. Dilger ¹

¹University of Illinois Urbana-Champaign

10:45 a.m. 165 **Validation of the Net Energy Estimate of Soybean Meal for Growing Pigs Under University and Commercial Conditions**

Gustavo Lima ¹, Stephanie Lau ¹, Nathan Vander Werff ¹, Samuel F. Leiva ¹, Colin Johnson ¹, Nicholas K. Gabler ¹, David S. Rosero ¹

¹Iowa State University

11:00 a.m. 166 **Optimizing Soybean Meal Utilization: Pig Performance Unchanged at Lower lysine:ne Ratios**

Joseph G. Halbur ¹, Jessica Lira-Silva ¹, Ryan S. Samuel ¹, Rafe Royall ¹, Robert C. Thaler ¹, Eric M. Weaver ¹

¹South Dakota State University

11:15 a.m. 167 Evaluation of Conventional and High Oleic Soybeans on Grow-finish Pig Performance

Kierstan Lampe ¹, Nicholas K. Gabler ¹, Thomas A. Crome ¹, Gene Gourley ² Leah Smith ², Emily Bruder ², Laura L. Greiner ¹, David S. Rosero ¹, Daniel B. Jones ³, Dalton C. Humphrey ¹

¹Iowa State University, ²Gourley Research Group, LLC, ³Archer Daniels Midland Company

11:30 a.m. 168 Effects of Low and High Soybean Meal Inclusion on Growth Performance and Carcass Characteristics of Grow-finish Pigs

Courtney Pohlen ¹, Angel M. Martinez ¹, Joseph G. Halbur ¹, Rafe Royall ¹, Eric M. Weaver ¹

¹South Dakota State University

Nonruminant Nutrition VI: Grow-finish Pig Nutrition II

Chair: Jim Smith, J & K Smith Family Farms

8:15 AM - 11:45 AM

Ballroom A

8:15 a.m. 133 Determination of Net Energy and Nitrogen Balance in Group-housed Pigs Fed Diets Containing Varying Levels of Fiber from Soybean Hulls

Su A Lee ¹, Hans H. Stein ¹

¹University of Illinois Urbana-Champaign

8:30 a.m. 134 Effects of Former Food Products Inclusion on Nitrogen Balance and Nutrient Digestibility in Growing-finishing Pigs

Giuseppe Bee ¹, Roxana Elena Amarie ², Marjeta Čandek-Potokar ³

¹Agroscope, ²University of Pisa, ³Agricultural Institute of Slovenia

8:45 a.m. 135 There Are Differences in Digestible Calcium Among 14 Sources of Calcium Carbonate Sourced from Latin America when Fed to Growing Pigs

Diego Guerrero Huerta ¹, Su A Lee ¹, Hans H. Stein ¹

¹University of Illinois Urbana-Champaign

9:00 a.m. 136 Evaluation of Lysine-to-energy Ratios on Performance and Profitability of Grow-finish Pigs

Juan E. Gomez ¹, Javier D. Chica ¹

¹Iluma Alliance

9:15 a.m. 137 Effects of Increasing Standardized Ileal Digestible valine:lysine Ratio on the Growth Performance of 21 to 40 kg Pigs

Samantha A. Swanson ¹, Grady Privett ¹, Jordan T. Gebhardt ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Mike D. Tokach ¹, Katelyn N. Gaffield ¹, Robert D. Goodband ¹

¹Kansas State University

9:30 a.m. 138 **Effects of Wheat Middlings Inclusion, Grinding, and Carbohydrase Supplementation in Isoenergetic Diets on Growth Performance and Carcass Characteristics of Grow-finish Pigs**

Pau Salgado-López ¹, Jordi Bonet ², Carme Soldevila ², Jaume Coma ²

¹Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, ²Vall Companys Group

9:45 a.m. 139 **Increasing the Dietary Lysine-to-Net Energy Ratio Improves Feed Efficiency of Pigs During the Growing Phase**

Camilo Cazetta Rodrigues Silva ¹, Danilo Marçal ², Eloá B. Bosso ¹, Ismael França ¹, Bárbara Thomazini Lopes ¹, Jaira de Oliveira ¹, Naiara Cristina dos Santos Silveira ¹, Eduarda Aparecida Santos ¹, Alini Mari Mari Veira ¹, Elisa Oliveira Frank ¹, Anderson Borba ¹, Luciano Hauschild ¹

¹São Paulo State University (Unesp), ²Universidade Brazil

10:00 a.m. **Nonruminant Nutrition VI: Break**

10:15 a.m. 140 **Evaluation of a Dietary Phosphorus Depletion-repletion Strategy on Grow-finish Pig Performance**

Grace C. McKibben ¹, David S. Rosero ¹, Austin Putz ¹, Nicholas K. Gabler ¹

¹Iowa State University

10:30 a.m. 141 **Growth Performance and Carcass Characteristics of Grow-finishing Pigs Fed Organic Trace Minerals at Reduced Inclusion Rates**

Jamil E. G. Faccin ¹, Morgan Hart ¹, Sharlie A. Hansen ¹, Henrique S. Cemin ¹, Jose A. Soto ¹, Ernie L. Hansen ¹

¹Alltech

10:45 a.m. 142 **Effects of Crude Protein Level on Growth Performance of Late Finishing Pigs**

Madie Johnson ¹, Paloma Bello ¹, Mikayla Spinler ², Ethan Stas ¹, Kiah M. Berg ¹, Jake Koepke ¹, Emily Radcliffe ¹, Jon A. De Jong ¹, Joel M. DeRouchey ³, Mike D. Tokach ³

¹Pipestone Nutrition, ²Vita Plus, ³Kansas State University

11:00 a.m. 143 **Effects of a Feed Additive Premix Inclusion in diets of Varying Composition on metabolizable Energy, Standardized Ileal Digestibility of Amino Acids, and Growth Performance in Growing- finishing pigs**

Walter G. Friesen ¹, Diego A. Lopez ¹, Jason C. Woodworth ¹, Jordan T. Gebhardt ¹, Matt D. Miesner ¹, Chad B. Paulk ¹

¹Kansas State University

11:15 a.m. 144 **Effects of Sorting Frequency During Harvest on Pig Growth Performance, Morbidity and Mortality, and Carcass Characteristics**

Kayla A. Miller ¹, Omarh F. Mendoza ¹, Caleb M. Shull ¹

¹The Maschhoffs, LLC

11:30 a.m. 145 Effects of Saccharomyces Yeast Postbiotics on Ileitis-affected Pig Growth Performance During Growing and Finishing

Xiaohan Li ¹, Daniela A. Alambarrio ¹, Siara Zedonek ¹, John M. Gonzalez ¹, Matthew A. Vaughn ², Chad B. Paulk ³

¹University of Georgia, ²Puretein Bioscience LLC, ³Kansas State University

Nonruminant Nutrition IV: Gilt and Sow Nutrition II

Chair: Crystal Levesque, South Dakota State University

8:30 AM - 11:30 AM

205/206/207

8:30 a.m. 146 Effect of Creep Feed Supplemented with Bacillus Subtilis on Growth Performance, Blood Inflammatory Cytokines, Gut Permeability, and Fecal Microbiome in Piglets

Eva S. Safaie ¹, Ashton Kelly ², Chan Ho Kwon ¹, Jannell A. Torres ¹, Ji Hye Lee ¹, Merlin D. Lindemann ², Enid McKinley ³, Samantha Hernandez ³, Jeferson M. Lourenco ¹, Young Dal Jang ¹

¹University of Georgia, ²University of Kentucky, ³Arm & Hammer Animal and Food Production

8:45 a.m. 147 Effect of Liquid Iron Supplementation via Milk Dosing System versus Intramuscular Injection on Post-weaning Growth and Hematological Parameters in Piglets

Laia Sobrevia ¹, Laia Blavi ¹, Francesc González-Solé ¹, Steven Laird ¹, Beatriz Martin ¹, Simon Tibble ¹, Astrid Koppenol ¹

¹AB Neo

9:00 a.m. 148 FLAVOLAC® Enhances Milk Production, Casein Content, and Litter Growth Performance in Lactating Sows

Anália Maria Ribeiro da Silva ¹, Felipe Norberto Alves Ferreira ¹, Clarice Speridião Silva Neta ¹, Fabrício Almeida Santos ¹, Marco Antônio Kunrath ¹, Ana Caroline Rodrigues da Cunha ¹, Renato Philomeno ¹

¹Agroceres Multimix

9:15 a.m. 149 The Effect of a Cheese Co-product Included in Lactation And/or Offspring Nursery Diets on Nursery Performance

Grady Privett ¹, Diego A. Lopez ¹, Joel M. DeRouchey ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Mike D. Tokach ¹, Jordan T. Gebhardt ¹

¹Kansas State University

9:30 a.m. 150 **Effect of Increasing Feed Allocation or Soluble Fiber Inclusion in Late Gestation on the Performance and Behavior of Late Sows**

Cooper T. McAuley¹, Carley R. Hopkins², Jacob Knoy¹, Jason C. Woodworth¹, Robert D. Goodband¹, Jordan T. Gebhardt¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Jay S. Johnson², Clayton S. Chastain³, Eric Parr⁴, Matt Frizzo⁴, Katelyn N. Gaffield¹

¹Kansas State University, ²University of Missouri, ³Carthage Veterinary Services, ⁴Carthage Innovative Swine Solutions, LLC

9:45 a.m. 151 **Impact of Late-gestation Vitamin and Macro Mineral Supplementation on Sow Farrowing Outcomes**

Mark Knauer¹, Sara Hough², Jon R. Bergstrom², Jerry Purvis³

¹North Carolina State University, ²dsm-firmenich, ³Purvis Farms

10:00 a.m. **Nonruminant Nutrition IV: Break**

10:15 a.m. 152 **Dietary Calcium-to-phosphorus Ratio and Vitamin 25-OH-D₃ Effects on Growth and Bone Health in Developing Gilts**

Mark Knauer¹, Eduardo Beltranena¹, Sara Hough², Mike Rahe¹, Jazz Stephens¹, Ramon Diniz Malheiros¹, Eric van Heugten¹, Jon R. Bergstrom²

¹North Carolina State University, ²dsm-firmenich

10:30 a.m. 153 **Effects of Reduced Standardized Ileal Digestible Lysine During the Rearing Period on Growth, Body Composition, and Reproductive Performance of Gilts**

Biel Márquez¹, Núria Tous², Marta Fornós¹, Rosil Lizardo³, Zaira Pardo², Jennifer Vazquez³, Josep Gasà¹, David Solà-Oriol¹

¹Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, ²Institute of Agrifood Research and Technology (IRTA), ³IRTA Animal Nutrition

10:45 a.m. 154 **Parenteral Iron Supplementation in Prolific Sows Post-weaning: A Dose-response Study**

Katlyn A. McClellan¹, Darcy Pamulaklakin¹, Eric M. Weaver¹

¹South Dakota State University

11:00 a.m. 155 **Assessing the Prevalence of Anemia and Its Association with Reproductive Performance and Mortality Risk in Prolific Sows on a High-mortality Farm**

Abigail L. Morse¹, Elle Ploeger¹, Katlyn A. McClellan¹, Eric M. Weaver¹

¹South Dakota State University

11:15 a.m. 156 **Effects of Dietary Standardized Ileal Digestible Lysine Level in Lactation Diets on Sow and Litter Performance and Subsequent Reproductive Performance**

Diego A. Rodriguez¹, Caleb M. Shull¹, Omarh F. Mendoza¹, Katie M. Brown¹, Nick Boehl¹

¹The Maschhoffs, LLC

Ruminant Nutrition IV: Early Life Nutrition and Gastrointestinal Health

Chair: Derek Brake, University of Missouri

10:30 AM - 11:45 AM

213/214

10:30 a.m. 169 Characterization of fecal pH in commercial finishing cattle relative to feeding time

Madison L. Bemisderfer ¹, Cody Schneider ², Haley E. Larson ¹

¹Kansas State University Olathe, ²Cornbelt Livestock Services

10:45 a.m. 170 Evaluating Impact of Early Life Nutrition on Finishing Phase Performance & Carcass Traits in Beef x Dairy Calves

Garland R. Dahlke ¹, Denise R. Schwab ¹, Gail Carpenter ¹

¹Iowa State University

11:00 a.m. 171 Effect of Starch Inclusion Level in Calf Starter Diet On carryover performance and Gastrointestinal function in Beef-dairy Cross Calves during the Finishing Phase

Liliana M. Rivas ¹, Phillip A. Lancaster ¹, William A. Brown ², Robert L. Larson ¹, Raghavendra G. Amachawadi ¹

¹Beef Cattle Institute, ²Kansas State University

11:15 a.m. 172 Time Postpartum and Nutritional Plane Affect Colostrum and Transition Milk Trace Minerals in Primiparous Beef Females

Allison M. Meyer ¹, Colby A. Redifer ¹, Abigail R. Rathert-Williams ¹

¹Division of Animal Sciences, University of Missouri

11:30 a.m. 173 Characterization of the Bacterial Communities Associated with 180-day-old Calf Fetuses and Their Dams Fed High-concentrate or High-forage Diets to Alter Maternal Gut Microbiome

Kell Helmuth ¹, Godson Aryee ¹, Devin B. Holman ², Justine Kilama ¹, Joel S. Caton ¹, Kendall C. Swanson ¹, Carl R. Dahlen ¹, Samat Amat ¹

¹North Dakota State University, ²Lacombe Research and Development Centre

Nonruminant Nutrition Symposium: The Science and Commercial application of Soybean Meal in Today's Pig Diets

Chair: Casey Bradley, Sunswine Group

1:00 PM - 5:00 PM

Ballroom A

1:00 p.m. Nonruminant Nutrition Symposium Introduction

1:05 p.m. 174 **History of the Corn-soy Diet**

Robert A. Easter ¹

¹University of Illinois Urbana-Champaign

1:20 p.m. 175 **Four Pillars of Soybean Meal's Unique Value to Swine Nutrition and Health**

R. Dean Boyd ¹, Aaron M. Gaines ²

¹Animal Nutrition Research, ²Ani-Tek

1:50 p.m. 176 **New Knowledge on Soybean Meal and Practical Implications to Feed Formulation**

Aaron M. Gaines ¹, R. Dean Boyd ²

¹Ani-Tek, ²Animal Nutrition Research

2:10 p.m. 177 **Modeling the Economic Value of Soybean Meal in Swine Diets: Development of a Digital Calculator for Dynamic Market Conditions**

David S. Rosero ¹, Bart Borg ²

¹Iowa State University, ²United Soybean Board

3:00 p.m. **Nonruminant Nutrition Symposium Break**

3:15 p.m. 178 **Main Factors Affecting the Nutritional Value of Soybean Meals. Importance of Quality Control and Country of Origin of the Soybeans**

Gonzalo Mateos González ¹, Rosa Lázaro ¹, Guillermo Talegón ¹, Lourdes Cámara ¹

¹Universidad Politécnica de Madrid

3:45 p.m. 179 **Evaluation of U.S. Soybean Meal Quality and Consistency and Determination of Best Analytical Practices**

Katelyn N. Gaffield ¹, Sierra M. Collier ¹, Jordan T. Gebhardt ¹, Robert D. Goodband ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Mike D. Tokach ¹

¹Kansas State University

4:15 p.m. 180 **Why a New Net Energy Value for Soybean Meal Fed to Pigs Is Needed**

Hans H. Stein ¹

¹University of Illinois Urbana-Champaign

4:45 p.m. 181 **Future Research Opportunities for Soybean Meal in Swine Production**

Nathan Augspurger ¹, David Holzgraefe ²

¹United Soybean Board, ²Holzgraefe Innovative Services, LLC

Poster Session 5
11:45 AM - 12:30 PM
Grand Ballroom Pre-Function

11:45 a.m. PS5-1 Effects of Dietary Standardized Ileal Digestible Lysine on Growth Performance and Economical Outcomes of Immunologically-castrated Male Pigs Weighing 81 to 111 kg

Benjamin M. Bohrer ¹, Blaine Hansen ², Jose Landero ³, Malachy Young ³, Leanne Van De Weyer ⁴, Alvaro Aldaz ⁴, Kimberly A. Vonnahme ⁴

¹The Ohio State University, ²BCH Consulting LLC, ³Gowans Feed Consulting, ⁴Zoetis Inc.

11:45 a.m. PS5-2 Effects of Dietary Standardized Ileal Digestible Lysine on Growth Performance and Economical Outcomes of Immunologically-castrated Male Pigs Weighing 106 to 138 kg

Benjamin M. Bohrer ¹, Blaine Hansen ², Jose Landero ³, Malachy Young ³, Leanne Van De Weyer ⁴, Alvaro Aldaz ⁴, Kimberly A. Vonnahme ⁴

¹The Ohio State University, ²BCH Consulting LLC, ³Gowans Feed Consulting, ⁴Zoetis Inc.

11:45 a.m. PS5-3 Effects of Dietary Standardized Ileal Digestible Lysine on Growth Performance and Economical Outcomes of Intact Male Pigs Weighing 26 to 42 kg

Benjamin M. Bohrer ¹, Blaine Hansen ², Jose Landero ³, Malachy Young ³, Leanne Van De Weyer ⁴, Alvaro Aldaz ⁴, Kimberly A. Vonnahme ⁴

¹The Ohio State University, ²BCH Consulting LLC, ³Gowans Feed Consulting, ⁴Zoetis Inc.

11:45 a.m. PS5-4 Effects of Dietary Standardized Ileal Digestible Lysine on Growth Performance and Economical Outcomes of Intact Male Pigs Weighing 41 to 58 kg

Benjamin M. Bohrer ¹, Blaine Hansen ², Jose Landero ³, Malachy Young ³, Leanne Van De Weyer ⁴, Alvaro Aldaz ⁴, Kimberly A. Vonnahme ⁴

¹The Ohio State University, ²BCH Consulting LLC, ³Gowans Feed Consulting, ⁴Zoetis Inc.

11:45 a.m. PS5-5 Effects of Dietary Standardized Ileal Digestible Lysine on Growth Performance and Economical Outcomes of Intact Male Pigs Weighing 59 to 81 kg

Benjamin M. Bohrer ¹, Blaine Hansen ², Jose Landero ³, Malachy Young ³, Leanne Van De Weyer ⁴, Alvaro Aldaz ⁴, Kimberly A. Vonnahme ⁴

¹The Ohio State University, ²BCH Consulting LLC, ³Gowans Feed Consulting, ⁴Zoetis Inc.

11:45 a.m. PS5-6 Basal Ileal Endogenous Phosphorus Losses in Swine Is Influenced by Age

José A. L. Barbosa ¹, Hélio Moreira Junior ¹, Amanda Gorrosterrazú ¹, Dener Oliveira Moreira ¹, Marcos L. P. L. P. Tsé ², Felipe Dilelis ², Urbano S. Santos Ruiz ²

¹University of São Paulo, ²São Paulo State University

11:45 a.m. PS5-7 **Evaluation of Trypsin Inhibitor Unit Level with or Without the Addition of Protease and an In-feed Acidifier on Nursery Pig Growth Performance, Fecal Dry Matter, and Nutrient Digestibility**

Sierra M. Collier¹, Skyler Ward¹, Katelyn N. Gaffield¹, Robert D. Goodband¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Jon R. Bergstrom², Hari B. Krishnan³, Jordan T. Gebhardt¹

¹Kansas State University, ²dsm-firmenich, ³USDA-Agricultural Research Service

11:45 a.m. PS5-8 **Effects of a *Bacillus*-based Feed Additive in Nursery Pig Diets Containing Low or High Levels of Soybean Meal**

Ty Kim¹, Grady Privett¹, Pau Salgado-Lopez¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Robert D. Goodband¹, Katelyn N. Gaffield¹, Thomas E. Weber², Kale S. Causemaker², Brooke E. Anderson², Dwight Shawk³, Noah Gainey³, Veronica Polniak³, Jordan T. Gebhardt¹

¹Kansas State University, ²KENT Nutrition, ³Hord Family Farms

11:45 a.m. PS5-9 **Digestible and Metabolizable Energy Concentrations of Various Sources of Fish Meal Fed to Nursery Pigs**

Donghyeon Lee¹, Beob Gyun Kim¹

¹Konkuk University

11:45 a.m. PS5-10 **Evaluation of Various Filter Bags for in vitro Digestion Method for Estimating the Ileal Digestibility of Crude Protein in Pigs**

Donghyeon Lee¹, Yoon Soo Song¹, Beob Gyun Kim¹

¹Konkuk University

11:45 a.m. PS5-11 **Effects of Supplementing Blends of Probiotics on Performance of Nursery Pigs Raised Under Low Sanitary Conditions**

Trevor Lutz¹, Emily Fruge¹, Matt Asmus¹, Kristy Dorton¹, Gary Reznik¹, Jon Droegmiller¹, Yuan-Tai Hung²

¹Devenish Nutrition - North America, ²Institute for Feed Education & Research

11:45 a.m. PS5-12 **Effects of Phytogenic and Postbiotic Feed Additives on Nursery Pig Performance**

Molly L. McGhee¹, Sabrina B. May¹, Brooke Smith¹, Amanda Elsbernd¹, Maud Le Gall¹, Wendeline Wouters¹

¹Cargill Animal Nutrition & Health

11:45 a.m. PS5-13 Evaluation of Two Specialty Corn Protein-based Products on Growth Performance and Fecal Dry Matter of Nursery Pigs

Tomas Porcel de Peralta ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Jordan T. Gebhardt ¹, Julia Holen ², Haley Schwecke ², Alyssa Betlach ², Keith Mertz ³, John Patience ⁴

¹Kansas State University, ²Swine Veterinary Center, ³Cargill Starches, Sweeteners, & Texturizers,

⁴Oxford Nutrition Consulting LLC

11:45 a.m. PS5-14 Increasing Dietary Standardized Ileal Digestible Arginine to Lysine Ratio Augments Gut Structure in Nursery Pig

Lillian Jeffers ¹, Alex Outlaw ¹, Paulo Azevedo ¹, Jonas McAbee ¹, Haejin Kim ¹, David Clizer ², Keith D. Haydon ², Jenna Bayne ¹, Samuel J. Rochell ¹, Marko Rudar ¹

¹Auburn University, ²CJ Bio

11:45 a.m. PS5-15 Effect of Late-gestation Micronutrient Supplementation on Sow Hemoglobin Concentration and Farrowing Outcomes

Fernando Soler ¹, Hayden Williams ², Ximena Paz ², Denny M. McKilligan ³, Eric van Heugten ¹

¹Department of Animal Science, North Carolina State University, ²The Hanor Company, ³Tech Mix

11:45 a.m. PS5-16 Practical Evaluation of Recycled Phosphorus from Swine Lagoon Sludge in Nursery Pig Diets

Fernando Soler ¹, Sarah Rubio ¹, Izadora B. Kuneff ¹, Mahmoud Sharara ², Chris Hopkins ³, Eric van Heugten ¹

¹Department of Animal Science, North Carolina State University, ²Department of Biological and Agricultural Engineering, North Carolina State University, ³Prestage Department of Poultry Science, North Carolina State University

11:45 a.m. PS5-17 How Does an Enrichment Toy at the Time of Mixing Sows Support Oral-nasal-facial Behaviors?

Deidra Bebb ¹, Suzanne T. Millman ¹, Ulrike Genschel ¹, Rebekah Scott ¹, Karl Kerns ¹, Anna K. Johnson ¹

¹Iowa State University

11:45 a.m. PS5-18 Impact of Hypo- or Hyper-methylating Diets During Early Placental Establishment on Fetal and Placental Development at 46- and 107- days Gestation

Lea A. Rempel ¹, Alexandria P. Snider ¹, Clay A. Lents ¹, Oliver T. William ¹, Hiruni R. Wijesena ¹, Jeremy R. Miles ¹

¹USDA, U.S. Meat Animal Research Center

11:45 a.m. PS5-19 Predictive Value of Parity One Body Condition for Sow Retention and Lifetime Reproductive Output Through the Third Parity

Ricardo Miranda Garcia ¹, Priscila Theil ¹, Maicon Borile ¹, Rafael Oliveira ¹, Guilherme Rehder ¹, Jose Fisher ², Pedro E. Urriola ³, Sudario Roberto Silva Junior ⁴

¹Cargill Animal Nutrition and Health, ²Agropecuária Bressiani, Brazil, ³University of Minnesota, Department of Animal Science, ⁴University of Minnesota

Poster Session 6

12:45 PM - 1:30 PM

Grand Ballroom Pre-Function

12:45 p.m. PS6-1 Exploring How Practicing Swine Veterinarians Define Swine Welfare in the United States

Jayden Lawrence ¹, Anna K. Johnson ¹, Nicholas K. Gabler ¹, Fally Masambuka-Kanchewa ¹, Monique Pairis-Garcia ², Gustavo Donoso ²

¹Iowa State University, ²North Carolina State University

12:45 p.m. PS6-2 Olive Bioactives Mitigate Oxidative Stress in Weaned Piglets Exposed to a Social Stress Challenge

Sergi López-Vergé ¹, Emily Otto-Tice ², Jose J. Pastor ¹

¹Lucta SA, ²Lucta US

12:45 p.m. PS6-3 Social Network Analysis of Tail-biting Interactions Among Growing-finishing Pigs with Intact Tails Housed in Two Group Sizes

Yuzhi Li ¹, Courtney Archer ², Storey L. Forster ³, Ty B. Schmidt ³, Benny E. Mote ³, Jon Anderson ⁴, Lee J. Johnston ¹

¹West Central Research and Outreach Center, University of Minnesota, ²Department of Animal Science, University of Minnesota, ³Department of Animal Science, University of Nebraska-Lincoln, ⁴Division of Science and Mathematics, University of Minnesota-Morris

12:45 p.m. PS6-4 Influence of Dietary Fat and Growth Promotants on Mobility and Gait in Finished Cattle

Ruth Woiwode ¹, Samuel Waldman ¹

¹University of Nebraska-Lincoln

12:45 p.m. PS6-5 Early Farrowing Pace and Parturition Outcomes

Mark Knauer ¹, Anna Brooks Murray ¹

¹North Carolina State University

12:45 p.m. PS6-6 **Effect of Dietary Calcium-to-phosphorus Ratio, Vitamin 25-OH-D₃, Litter of Origin, and Growth Rate on Serum Vitamin 25-OH-D₃ Levels of Gilts**

Mark Knauer ¹, Eduardo Beltranena ¹, Sara Hough ², Mike Rahe ¹, Ramon Diniz Malheiros ¹, Jon R. Bergstrom ²

¹North Carolina State University, ²dsm-firmenich

12:45 p.m. PS6-7 **Modeling Feed Intake in Lactation Sows Using Temperature and Humidity Covariates**

Qianqian Huang ¹, Maria Victoria Souza ¹, Hyatt Frobose ², Hinayah Rojas Oliveira ¹, Allan P. Schinckel ¹

¹Purdue University, ²Jyga Technologies - GESTAL

12:45 p.m. PS6-8 **Effect of Enterotoxigenic Escherichia coli F18 Inoculum Concentration on Clinical Response Following Orogastric Challenge in Nursery Pigs**

Jessica Smallfield ¹, Jordan T. Gebhardt ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Raghavendra G. Amachawadi ², Harith Salih ¹, Taghreed S. Mahmood ¹

¹Kansas State University, ²Beef Cattle Institute

12:45 p.m. PS6-9 **Effects of Feeding Increasing Levels of a Proprietary Preservative and Flow-agent Blend in Diets Containing Deoxynivalenol Contaminated Distillers Dried Grains with Solubles**

Tyler Chevalier ¹, Julie Salyer ¹, James Jolliff ¹

¹Kalmbach Feeds, Inc.

12:45 p.m. PS6-10 **The Effects of Supplemental Brewers Yeast on Growth Performance of Nursery Pigs**

Rachel L. Cole ¹, Brooke E. Anderson ¹, Kale S. Causemaker ¹, Thomas E. Weber ¹, Gene Gourley ²

¹KENT Nutrition, ²Gourley Research Group, LLC

12:45 p.m. PS6-11 **Effect of Insoluble and Soluble Fiber on Growth Performance, Nutrient Digestibility and Faecal Scores in Weaning Pigs**

Se Yeon Jang ¹, Zhenyu Ding ¹, Seungjin Yun ¹, In Ho Kim ¹

¹Dankook University, Department of Animal Biotechnology

12:45 p.m. PS6-12 **Effects of Different Feeding Strategies on Growth Performance, Meat Quality in Growing-finishing Pigs**

Se Yeon Jang ¹, Tian Xian Li ¹, Seungjin Yun ¹, In Ho Kim ¹

¹Dankook University, Department of Animal Biotechnology

12:45 p.m. PS6-13 **A Novel Feeding Strategy: Effects of Reduced Amylose to Amylopectin Ratio in Low-protein Diets on Growth Performance and Gut Health in Nursery Pigs**

Juho Lee ¹, Federico Correa ², Francesco Palumbo ¹, Silvia Bencivenni ², Paolo Trevisi ¹, Diana Luise ²

¹Department of Agricultural and Food Sciences, University of Bologna, Bologna, ²University of Bologna

12:45 p.m. PS6-14 **Effects of Pig Weaning Weight and Sex on Growth Performance, Fecal Score, and Blood Antioxidant Capacity in Early Nursery Period**

Ji Hye Lee ¹, Shelby Greer ¹, Chan Ho Kwon ¹, Eva S. Safaie ¹, Jannell A. Torres ¹, Yoon Soo Song ¹, Young Dal Jang ¹

¹University of Georgia

12:45 p.m. PS6-15 **Impact of Different Protein Sources and Additional Crystalline Amino Acids on Nitrogen Balance and Concentrations of Energy in Diets Fed to Growing Pigs**

Jimena A. Ibagón ¹, Su A Lee ¹, Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign

12:45 p.m. PS6-16 **Effects of Copper Feeding Strategy on Growth Performance of Nursery Pigs**

Samantha A. Swanson ¹, Jason C. Woodworth ¹, Mike D. Tokach ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Jordan T. Gebhardt ¹, Matt Einarson ²

¹Kansas State University, ²SAM HPRP Chemicals, Inc. DBA SAM Nutrition

12:45 p.m. PS6-17 **The Ileal Microbiota Profile Was Altered by Diquat-induced Oxidative Stress in Growing Pigs**

Emmanuel O. Oladejo ¹, Peixin F. Fan ², John K. Htoo ³, Jean F. Feugang ⁴, SHENGFA F. LIAO ⁴

¹Louisiana Tech University, USA, ²Mississippi State University, USA, ³Evonik Operations GmbH,

⁴Mississippi State University

12:45 p.m. PS6-18 **What Animal-based Outcomes Exclude Gilts from Entering the Breeding Herd?**

Deidra Bebb ¹, Suzanne T. Millman ¹, Ulrike Genschel ¹, Karl Kerns ¹, Anna K. Johnson ¹

¹Iowa State University

Swine Translational I - Sponsored by Zoetis

Chair: Erin Posey, USDA/APHIS, National Veterinary Services Laboratories

1:30 PM - 4:15 PM

Ballroom C

1:30 p.m. 182 Identifying factors to Predict Sows Longevity in Commercial Farms

Biel Márquez ¹, Marta Fornós ¹, Carme Soldevila ², Mercè Farré ³, Josep Gasa ¹, David Solà-Oriol ¹

¹Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, ²Vall Companys Group, ³Department of Mathematics, Area of Statistics and Operations Research, Autonomous University of Barcelona

1:45 p.m. 183 Blood Biomarker Trends in Gilts Followed Through Three Parities

Ursula M. McCormack ¹, Grady Privett ², Jon R. Bergstrom ¹, Jason C. Woodworth ², Jordan T. Gebhardt ², Katelyn N. Gaffield ², Robert D. Goodband ², Mike D. Tokach ², Joel M. DeRouchey ²
¹dsm-firmenich, ²Kansas State University

2:00 p.m. 184 The Effect of Controlling Feed Allowance in Late Lactation on Sow and Litter Performance

Dalton Obermier ¹, Jeremy Robertson ², Hyatt Frobose ³
¹JYGA Technologies Inc., ²Brenneman Pork, ³Jyga Technologies - GESTAL

2:15 p.m. 185 Effects of Increased Feed Allocation from Breeding to Day 50 of Gestation on Sow, Litter, and Subsequent Reproductive Performance of Sows Differing in Body Condition at Weaning

Jorge Estrada ¹, Eric Parr ¹, Jeremy Perez ², Caleb J. Grohmann ¹, Matt Frizzo ¹
¹Carthage Innovative Swine Solutions, LLC, ²Pig Improvement Company (PIC) - North America

2:30 p.m. 186 Defining Lactation Feed Efficiency Classifications Through Milk Production and Sow Body Composition Dynamics in Modern Gilts and Sows

Tricia Veldhuizen ¹, Hyatt Frobose ², Jeremy Robertson ³, Lane Higbie ⁴, Dalton Obermier ⁵, Danielle Wilson-Wells ⁶, Luis E. Zaragoza ⁶, Isaiah T. Spath ⁶, Dan Hamilton ⁶, Jeff Altfillisch ⁶, Carine M. Vier ⁶, Weasley A. Orlando ⁷
¹Iowa State University, ²Jyga Technologies - GESTAL, ³Brenneman Pork, ⁴Blinn College, ⁵JYGA Technologies Inc., ⁶PIC, ⁷Genus PIC

2:45 p.m. Swine Translational I Break

3:00 p.m. 187 Impact of Aggression and Social Rank at Mixing on Stall Utilization and Subsequent Farrowing Performance in Free Access Stall Systems

Simon A. Collier ¹, Andrea M. Luttman ¹, Catherine W. Ernst ¹
¹Michigan State University

3:15 p.m. 188 **Comparative Study of Healicin-abf and Alu-mend Sprays in the Treatment of Sow Shoulder Sores**

Brian Payne¹, Emma Brewer², Luci Reich³, Dylan Shaffer¹

¹Veterinary Pharmaceutical Solutions, ²Kansas State University, ³The Maschhoffs

3:30 p.m. 189 **Evaluating Working Boar Body Condition Using Caliper**

Jiyao Guo¹, Amanda Middleton², Jamie Hundley², Kevin Eggers², Jordi Camp Montoro², Carine M. Vier², Wayne R. Cast¹, Ning Lu¹, Weasley A. Orlando¹, Steve Dritz²

¹Genus PIC, ²PIC

3:45 p.m. 190 **What the Survey Says: Characterization of North American Boar Studs**

Clara K. Henry¹, Timothy J. Safranski¹

¹University of Missouri

4:00 p.m. 191 **Factors Associated with Gilt Retention in Breeding Herds Under one Production System in the Midwestern United States**

Elly Kirwa¹, Cesar A A Moura², Swaminathan Jayaraman¹, Rafael R. da Rosa Ulguim¹, Gustavo Silva¹

¹Iowa State University, ²Iowa Select Farms

Animal Behavior, Health and Well-being

Chair: Andrea Luttman, Michigan State University; Abigail Tillotson, Prairie Swine Centre

1:30 PM - 5:15 PM

210/211/212

1:30 p.m. 192 **Characterization of Microbial Communities and Bacterial Markers of PRRSV-positive and -negative Pigs**

Huyen T. Tran¹, Bipin Rimal¹, Jessica Reestman², Dan Grum¹, Ellen Davis³

¹Purina Animal Nutrition, ²NutraBlend, ³Land O Lakes

1:45 p.m. 193 **Evaluating the Effects of Maternal Stimuli and Nutritional Supplementation on Weaned Piglet Performance and Behavior**

Jordan M. Aguilar¹, Bianca F. Metallo¹, Emily M. Webberson¹, Nathaniel J. Hall¹, Edgar O. Aviles-Rosa¹

¹Texas Tech University

2:00 p.m. 194 **Can Oxidizing Air Purification Technology Improve Air Quality, Pig Health, and Pig Performance During the Nursery Phase of Production?**

Keara J. Leong-Machielse¹, Jennifer M. Young¹, Xiaoyu Feng¹, Samat Amat¹, Christopher J. Byrd¹

¹North Dakota State University

2:15 p.m. 195 **Effect of Stocking Density and Mobile Shelter on Excretion and Rooting Behavior of Outdoor Pigs in the Colombian High Plain**

Andres F. Bolivar Sierra ¹, Sergio Parra Gonzalez ², Ivan E. Mariño Guerrero ², Arley Medina Cuniche ², Kevin A. Peña Aldana ², Valeria Pacheco Sierra ², Victor L. Hurtado Nery ², Myriam C. Yunda Romero ²

¹South Dakota State University, ²Universidad de los Llanos

2:30 p.m. 196 **Evaluating Production and Transport Factors of Transit Loss in Market Hogs and Identifying High-Risk Loads Using Machine Learning**

Junhao Huang ¹, Jordan T. Gebhardt ², Mateus De Castro Duarte Cardoso ³, Jackson C. Sterle ³, Heitor De Avila ³, Edison Magalhaes ³

¹Universitat Autònoma de Barcelona, ²Kansas State University, ³Iowa State University

2:45 p.m. 197 **Data-driven Forecasting of Nursery Piglet Mortality in Commercial Swine Systems**

Mateus De Castro Duarte Cardoso ¹, Thinh Tien ¹, Jackson C. Sterle ¹, Daniel Linhares ¹, Edison Magalhaes ¹

¹Iowa State University

3:00 p.m. 198 **Machine Learning Prediction of Daily Feed Intake in Lactating Sows Using Biological, Behavioral and Environmental Data**

Maria Victoria Souza ¹, Alex Trentin ¹, Qianqian Huang ¹, Hinayah Oliveira ¹, Hyatt Frobose ², Allan P. Schinckel ¹

¹Purdue University, ²Jyga Technologies - GESTAL

3:15 p.m. **Animal Behavior, Health and Well-being Break**

3:30 p.m. 199 **Using a Voluntary Walking Test to Evaluate Perforated Rubber-matted and Concrete Flooring Under Different Conditions for Gestating Sows and Gilts**

Monica Li ¹, Abigail I. Tillotson ², Martyna Lagoda ¹, Jen-Yun Chou ²

¹University of Saskatchewan, ²Prairie Swine Centre

3:45 p.m. 200 **Using Retrospective Data to Implement a Mortality Surveillance System for Growing Pigs**

Jackson C. Sterle ¹, Mafalda Mil-Homens ¹, Mateus De Castro Duarte Cardoso ¹, Daniel Linhares ¹, Gustavo Silva ¹, Edison Magalhaes ¹

¹Iowa State University

4:00 p.m. 201 **Evaluating the Effect of Occupational and Nutritional Enrichment on Sheep Behavior**

Emily M. Webberson ¹, Edgar O. Aviles-Rosa ¹, Ramya Vallabhaneni ¹

¹Texas Tech University

4:15 p.m. 202 **Investigating the Impact of Sire Genetic Merit in Beef on Dairy Cattle**

Annika Donlick¹, Jamie Courter¹

¹University of Missouri

4:30 p.m. 203 **Livestock Inspections Facilitate Monitoring of the Geographic Spread of Native and Invasive Tick Species**

Teresa L. Steckler¹, Chris Stone¹, Lance Jones¹, Joshua C. McCann¹, Holly Tuten¹, Kylee Oglesby¹

¹University of Illinois Urbana-Champaign

4:45 p.m. 204 **Seasonality of Bovine Respiratory Disease (BRD) and Mitigation Techniques Used in Receiving Beef Cattle in the Last 10 Years: A Meta-analysis**

Robin A. Cheek¹, Elizabeth B. Kegley¹, Jeremy G. Powell¹, Samantha M. Howe¹

¹University of Arkansas

5:00 p.m. 205 **The Impact of Maternal Bovine Appeasing Substance on Behavior of Beef Heifers at Fixed Time AI**

Katlyn Branstetter¹, Elizabeth Walker¹, William McClain¹, Rodrigo Bicalho², Adam McGee¹

¹Missouri State University, ²Fera Diagnostics and Biologicals

Nonruminant Nutrition VII: Trace Mineral Nutrition in Nursery Pigs

Chair: Pengcheng (Allan) Xue, Devenish

1:45 PM - 5:00 PM

205/206/207

1:45 p.m. 206 **Microencapsulated Zinc Oxide Reduces Zinc Excretion and Feed Cost While Improving Gut Health and Growth Performance in Nursery Pigs**

Olufemi O. Babatunde¹, Glenmer B. Tactacan¹, Marcia de S Vieira¹, Ludovic Lahaye¹, Chris Gwyn¹, Mariana L. de Moraes¹

¹Jefo Nutrition Inc

2:00 p.m. 207 **Effect of Two Injectable Iron Sources and Three Administration Programs on Growth Performance and Hemoglobin Levels in Nursing Pigs**

Ginevra Piazza¹, Julian Arroyave², Jason C. Woodworth², Katelyn N. Gaffield², Mike D. Tokach², Robert D. Goodband², Joel M. DeRouchey², Jordan T. Gebhardt²

¹University of Parma, ²Kansas State University

2:15 p.m. 208 **The Effects of Dietary Iodine Supplementation on Nursery Pig Growth Performance**

Morgan Hart¹, Henrique S. Cemin¹, Jose A. Soto¹, Ernie L. Hansen¹, Jamil E. G. Faccin¹, Sharlie A. Hansen¹

¹Alltech

2:30 p.m. 209 **Effects of various combinations of zinc and copper sources on ATP concentrations and antioxidant response in different tissues of post-weaned piglets**
Danyel Bueno Dalto ¹, Jose Vitor Silva Duarte ², Jiovani Sergio Bee Tubin ¹, Isabelle Audet ¹
¹Agriculture and Agri-Food Canada, ²Agriculture and Agri-Food Canada / University of Saskatchewan

2:45 p.m. 210 **Effect of Increasing Dietary Iodine on Nursery Pig Growth Performance**
Tomas Porcel de Peralta ¹, Jordan T. Gebhardt ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹
¹Kansas State University

3:00 p.m. 211 **Effects of Different Pharmacological Zinc Withdrawal Strategies on Growth Performance of Nursery Pigs**
Joana Magoga ¹, Jordan T. Gebhardt ¹, Robert D. Goodband ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Katelyn N. Gaffield ¹, Mike D. Tokach ¹
¹Kansas State University

3:15 p.m. **Nonruminant Nutrition VII: Break**

3:30 p.m. 212 **Effects of Increasing Lactose with or Without Pharmacological Levels of Zinc on Performance, Fecal Dry Matter, and Plasma Zinc Concentration in Nursery Pigs**
Joana Magoga ¹, Julian Arroyave ¹, Jordan T. Gebhardt ¹, Robert D. Goodband ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Katelyn N. Gaffield ¹, Mike D. Tokach ¹
¹Kansas State University

3:45 p.m. 213 **The effect of levels and of various combinations of Zn and Cu sources on their homeostasis and gene expression in different tissues of post-weaned piglets**
Jiovani Sergio Bee Tubin ¹, Jose Vitor Silva Duarte ², Isabelle Audet ¹, Danyel Bueno Dalto ¹
¹Agriculture and Agri-Food Canada, ²Agriculture and Agri-Food Canada / University of Saskatchewan

4:00 p.m. 214 **Pharmacological Zinc Oxide Reduces F18 Enterotoxigenic Escherichia coli Attachment in Weanling Pigs**
Elizabeth M. Due ¹, Eric R. Burrough ², Nicholas K. Gabler ³
¹Iowa State University, ²Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, ³Department of Animal Science, Iowa State University

4:15 p.m. 215 **Zinc Source and Copper Level in Low Acid-binding Capacity Diets for Nursery Pigs as Alternatives to Pharmacological Zinc Oxide**
Juho Lee ¹, Ron Aldwin S. Navales ², Mike D. Tokach ³, Jason C. Woodworth ³, Joel M. DeRouchey ³, Robert D. Goodband ³, Katelyn N. Gaffield ³, Jordan T. Gebhardt ³, Alessandra Rigo Monteiro ⁴, Yron Joseph Y. Manaig ⁴, Paolo Trevisi ¹
¹Department of Agricultural and Food Sciences, University of Bologna, Bologna, ²Cargill Philippines, Inc., ³Kansas State University, ⁴ANIMINE

4:30 p.m. 216 **Does Selenium Source Affect Nursery Pig Performance and Livability?**

Jamil E. G. Faccin ¹, Morgan Hart ¹, Henrique S. Cemin ¹, Sharlie A. Hansen ¹, Jose A. Soto ¹, Ernie L. Hansen ¹

¹Alltech

4:45 p.m. 217 **Influence of Alternative Additives to Zinc Oxide on the Bacterial Community Composition and Intestinal Morphology of Weaned Piglets**

Lucimauro Fonseca ¹, Claudia Braga Pereira Bento ², Lutecia Rigueira Medina ¹, Maria Rogervânia Farias ¹, Wender Vieira Fernandes ¹, Jose A. Soto ³, Adriana Helena Nascimento ⁴, Melissa Izabel Hannas ¹

¹UFV, ²UFVJM, ³Alltech, ⁴Alltech do Brasil

Physiology Symposium: Recent Progress in the Area of Stress and Immunity Research, from Basis to Applied Concepts

Chair: Kolapo Ajuwon, Purdue University

1:45 PM - 5:00 PM

213/214

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

1:50 p.m. 218 **Genomic Strategies for Improving Thermotolerance in Pigs and Dairy Cattle: Progress and Prospects**

Luiz F. Brito ¹

¹Purdue University

2:25 p.m. 219 **Digestive Physiology of Pigs (DPP) Lecture: Impact of Heat Stress on Gut and Systemic Health in Animal Production: Novel Molecular Pathways**

Sami Dridi ¹

¹University of Arkansas

3:00 p.m. 220 **The Impact of Inflammation in Heat-stressed Dairy Cattle**

Agustin G. Rius ¹

¹The University of Tennessee

3:35 p.m. **Physiology Symposium Break**

3:50 p.m. 221 **Integrating physiology and genomics to improve heat stress resilience in pigs**

Jay S. Johnson ¹

¹University of Missouri

4:25 p.m. 222 **Heat Stress and Gut Integrity in Monogastrics: Past Lessons, Present Challenges, and Future Directions**

Sarah C. Pearce ¹

¹USDA-ARS

**Ruminant Nutrition Symposium: Current State of the Science on Soy (or oilseed)
Use in Cattle Diets - Sponsored by U.S. Soy**

Chair: Zachary Smith, South Dakota State University

2:00 PM - 5:00 PM

Ballroom B

2:00 p.m. **Ruminant Nutrition Symposium Introduction**

2:05 p.m. 223 **Use of Soy Protein in Beef Diets to Meet Amino Acid Requirements**

Monty Kerley ¹

¹Profectus Livestock Solutions

2:45 p.m. 224 **Using Soy Protein in Growing and Finishing Cattle Diets**

Warren C. Rusche ¹, Zachary K. Smith ¹

¹South Dakota State University

3:25 p.m. 225 **Ruminant Nutrition Symposium Break**

3:40 p.m. 226 **Soybean Byproducts on Beef Cow Nutrition: Potential Impacts on Metabolic and Physiological Parameters**

Ana Clara B. Menezes ¹

¹South Dakota State University

4:20 p.m. 227 **Soy use in cattle diets: impacts on digestive physiology and tying it all together**

Kendall C. Swanson ¹, Pauliane Pucetti ¹

¹North Dakota State University

Wednesday, March 11, 2026

Ruminant Nutrition V: Dietary Manipulation and Fat Inclusion

Chair: Zachary Smith, South Dakota State University

8:00 AM - 9:45 AM

210/211/212

8:00 a.m. 228 **Impact of the Frequency of Varying Modified Distillers Grains Plus Solubles Inclusions in Feedlot Diets on Performance, Carcass Characteristics, Feeding Behavior, and Ruminal pH of Finishing Steers**

Paige Madison ¹, Sofia Suarez-Lorences ¹, Josh R. Benton ², Keara O'Reilly ¹, Jim C. MacDonald ¹, Galen E. Erickson ³

¹University of Nebraska-Lincoln, ²Eastern Nebraska Research, Extension, and Education Center, University of Nebraska

8:15 a.m. 229 **Effects of Fat Content and Type on the Value of Distillers Grains Plus Solubles for Finishing Cattle**

Rebecca L. McDermott ¹, Jim C. MacDonald ¹, Galen E. Erickson ¹

¹University of Nebraska-Lincoln

8:30 a.m. 230 **Can Extruded Soybeans Provide Additional Fat and Protein to Cattle Diets?**

Madeliene S. Nichols ¹, Federico Podversich ¹, Warren C. Rusche ¹, Zachary K. Smith ¹

¹South Dakota State University

8:45 a.m. 231 **Evaluation of Palm Oil as an Ingredient in Finishing Beef Cattle Diets**

Tate S. Johnson ¹, Rebecca L. McDermott ¹, Josh R. Benton ², Galen E. Erickson ¹, Jessie Morrill ¹, Jim C. MacDonald ¹

¹University of Nebraska-Lincoln, ²Eastern Nebraska Research, Extension, and Education Center, University of Nebraska

9:00 a.m. 232 **Effects of Feeding Palm Oil in Beef Cattle Finishing Diets on Meat Quality**

Tate S. Johnson ¹, Jessie Morrill ¹, Kyra Elliott ¹, Rebecca L. McDermott ¹, Josh R. Benton ², Galen E. Erickson ¹, Jim C. MacDonald ¹

¹University of Nebraska-Lincoln, ²Eastern Nebraska Research, Extension, and Education Center, University of Nebraska

9:15 a.m. 233 **Hammer-milled Rye and Inter-planted Corn and Forage Sorghum Blends as Alternatives to Corn-based Ingredients for Growing Beef Steer Diets**

Sean M. Robinson ¹, Federico Podversich ¹, Zachary K. Smith ¹, Warren C. Rusche ¹

¹South Dakota State University

9:30 a.m. 234 **Effects of Kernel Processed High Moisture Ear Corn on Growth Performance and Carcass Characteristics in Finishing Cattle**

Reanna R. Byrnes Schoen ¹, Federico Podversich ¹, Zachary K. Smith ¹, Warren C. Rusche ¹

¹South Dakota State University

Nonruminant Nutrition VIII: Enzymes and Layer Nutrition

Chair: Amy Petry, University of Missouri

8:00 AM - 10:30 AM

205/206/207

8:00 a.m. 250 Award Talk: Effects of Xylanase or Stimbiotic on Apparent Ileal, Cecal, and Total Tract Digestibility of Energy and Dietary Fiber in Diets fed to Growing Pigs

Jessica P. Acosta ¹, Gemma González-Ortiz ², Hans H. Stein ³

¹University of Missouri, ²AB Vista, ³University of Illinois Urbana-Champaign

8:30 a.m. 247 Effects of a Xylanase and Beta-glucanase Combination on Growth Performance and Tissue Gene Expression in Post-weaning Pigs Fed Low and High Non-starch Polysaccharides Diets

Pau Aymerich ¹, Elizabeth Ball ², Deepak E. Velayudhan ¹, Ramon Muns ², Rachael Hardy ¹, Yueming Dersjant-Li ¹, Ester Vinyeta ¹

¹Danisco Animal Nutrition & Health (IFF), ²Agri-Food & Biosciences Institute (AFBI)

8:45 a.m. 248 Effects of Compound Enzymes in Reduced Nutrient Density Nursery Pig Diets

Ty Kim ¹, Mike D. Tokach ¹, Joel M. DeRouchey ¹, Jason C. Woodward ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Ying Zhou ², Xuerong Song ², Xiuyi Wu ²

¹Kansas State University, ²Wuhan Sunhy Biology Co., Ltd.

9:00 a.m. 249 Increasing Microbial Phytase in Diets with Moderate and High Phytate on Nursery Swine Growth Performance

Jose A. Soto ¹, Henrique S. Cemin ¹, Morgan Hart ¹, Jamil E. G. Faccin ¹, Sharlie A. Hansen ¹, Ernie L. Hansen ¹

¹Alltech

9:15 a.m. Nonruminant Nutrition VIII: Break

9:30 a.m. 251 Impact of Xylanase Supplementation on Nitrogen Utilization and Ammonia Emissions in Growing Pigs

ALINE ALVES DA SILVA ¹, Marie-Pierre Letourneau Montminy ¹, Léa Cappelaere ¹, DALILA LARIOS ², Christelle Boudry ³, Stéphane Godbout ²

¹Université Laval, ²Institut de recherche et de développement en agroenvironnement (IRDA),

³BELFEED

9:45 a.m. 252 Evaluation of Phytase Inclusion on Tissue Accretion in Pigs Fed Phosphorus Deficient Diets

Grace C. McKibben ¹, Jared A. Harshman ², Nicholas K. Gabler ¹

¹Iowa State University, ²Huvepharma Inc.

10:00 a.m. 253 **Reducing Dietary Calcium and Phosphorus Concomitantly During a Depletion–repletion Cycle Improves Phosphorus Utilization: A Meta-analysis Approach**

Nicolas Coquil ¹, Marie-Pierre Letourneau Montminy ¹

¹Laval University

10:15 a.m. 254 **Effect of a Phosphate-free Diet Supplemented with Phytase on the Growth Performance and Mineralization of Growth Pigs**

Nicolas Coquil ¹, Marie-Pierre Letourneau Montminy ¹

¹Laval University

Nonruminant Nutrition XI: Nursery and Grow Finisher Pig Nutrition

Chair: Darlene Bloxham, Adisseo USA

8:00 AM - 11:15 AM

Ballroom C

8:00 a.m. 258 **Award Talk: Effects of Supplemental Galacto-oligosaccharides and 2'-fucosyllactose, Alone or in Combination, on Intestinal Health and Growth Performance of Nursery Pigs Fed Diets Including Bovine Milk Co-products**

Alexa R. Gormley ¹, Jung Yeol Sung ¹, Sung Woo Kim ¹

¹NC State University

8:30 a.m. 255 **Effect of Guanidinoacetic Acid Supplementation Compared with Ractopamine on Performance and Body Composition of Finishing Pigs**

John K. Htoo ¹, Eloá B. Bosso ², Danilo Marçal ³, Henrique G. Brand ⁴, Luciano Hauschild ²

¹Evonik Operations GmbH, ²São Paulo State University (Unesp), ³Universidade Brazil, ⁴Evonik Brasil Ltda

8:45 a.m. 256 **Effect of Copper Source on Finishing Pig Growth Performance and Carcass Characteristics**

Samantha A. Swanson ¹, Jason C. Woodworth ¹, Mike D. Tokach ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Joel M. DeRouchey ¹, Jordan T. Gebhardt ¹, Matt Einarson ²

¹Kansas State University, ²SAM HPRP Chemicals, Inc. DBA SAM Nutrition

9:00 a.m. 257 **Individual precision feeding reduces the environmental impact of pig production in Québec, while timothy hay inclusion lowers performance and limits its environmental benefits**

Berta Llorens ¹, Aline Remus ¹, Candido Pomar ¹, Marie-Pierre Letourneau Montminy ², Laetitia Cloutier ³

¹AgriFood Canada, ²Universite Laval, ³Centre de Développement du Porc du Québec

9:15 a.m. 259 **Effect of Dietary Inclusion of a Spirulina (Arthospira Platensis) By-product in Post-weaning Diets on Pig Growth to Day 44 Post-weaning, Haematology and Selected Intestinal Gene Expression**

Joe P. Glynn¹, Clara Negrini¹, Gillian E. Gardiner², Linda Giblin³, Peadar G. Lawlor¹

¹Teagasc Animal & Grassland Research & Innovation Centre, ²South East Technological University, ³Teagasc Food Research Centre

9:30 a.m. **Nonruminant Nutrition XI Break**

9:45 a.m. 260 **Effects of Increasing Dietary Trypsin Inhibitor Levels on Growth Performance, Fecal Score, Gut Permeability and Mucosal Antioxidant Capacity of Nursery Pigs**

Chan Ho Kwon¹, Jannell A. Torres¹, Eva S. Safaie¹, Ji Hye Lee¹, S Maria S. Mendoza², Jinlei Wen², Sunhyung Kim³, Hari B. Krishnan⁴, Young Dal Jang¹

¹University of Georgia, ²Evonik Corporation, ³University of Missouri, ⁴USDA-Agricultural Research Service

10:00 a.m. 261 **Higher Dietary Protein Increases Nitrogen Retention and Improves Caloric Efficiency**

Richard Faris¹, Molly L. McGhee¹, Sandra Paredes¹, Qingyun Li¹, Chad M. Pilcher¹, Chris W. Parks¹

¹Cargill Animal Nutrition & Health

10:15 a.m. 262 **Effects of Saccharomyces Cerevisiae Postbiotics Fed in the First Nursery Diet on the Performance of Weanling Pigs**

Roger A. Arentson¹, Jenna A. Seltzer¹, Brian Melody¹, Scott N. Carr¹, Matthew A. Vaughn²

¹Elanco, ²Puretein Bioscience LLC

10:30 a.m. 263 **Ileal Digestibility of Amino Acids in Pistachio Blanks and Growth Performance of Weanling Pigs Fed Diets Containing Pistachio Blanks as a Source of Fiber**

Yeonwoo Kim¹, Hans H. Stein¹

¹University of Illinois at Urbana Champaign

10:45 a.m. 264 **Increasing Dietary Standardized Ileal Digestible Arginine to Lysine Ratio Promotes Nursery Pig Growth Performance by Increasing Apparent Total Tract Nutrient Digestibility**

Alex Outlaw¹, Lillian Jeffers¹, Jonas McAbee¹, Paulo Azevedo¹, Haejin Kim¹, David Clizer², Keith D. Haydon², Jenna Bayne¹, Samuel J. Rochell¹, Marko Rudar¹

¹Auburn University, ²CJ Bio

11:00 a.m. 265 **Effect of Increasing Standardized Ileal Digestible Lysine on Growth Performance of PIC 408 × X54 Commercial Pigs During the Late-nursery Phase**

Jordi Camp Montoro ¹, Luis E. Zaragoza ¹, Annemarie Müller ², Dirk Grote ², Christiane Tulp ³, Isaac Huerta ³, Eunice Delphia ¹, Danielle Wilson-Wells ¹, Jiyao Guo ⁴, Carine M. Vier ¹, Ning Lu ⁴, Steve Dritz ¹, Wayne R. Cast ⁴, Weasley A. Orlando ⁴

¹PIC, ²Futter Allianz, ³PIC Europe, ⁴Genus PIC

Swine Translational II

Chair: David Rosero, Iowa State University

8:00 AM - 11:15 AM

213/214

8:00 a.m. 298 **Award Talk: Developmental Impacts of Early-life Rearing Environment and Handling on Growth Performance, Immune Activity, and Stress Responses in Pigs**

Kaitlyn Sommer ¹, Jay S. Johnson ², Ryan N. Dilger ¹

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

8:30 a.m. 235 **Effects of Litter Size Above Functional Teat Count on Litter and Sow Performance**

Naomi Willard ¹, Jack Owen ², Michelle Wuebker ¹, Luis E. Zaragoza ¹, Jeremy Robertson ³, Chad Bermel ³

¹PIC, ²Kansas State University, ³Brenneman Pork

8:45 a.m. 236 **Identifying Early-life Risk Factors for Predicting Pig Survival and Growth in Commercial Farms**

Pau Salgado-López ¹, Jaume Coma ², Mercè Farré ³, Josep Gasa ¹, David Solà-Oriol ¹

¹Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, ²Vall Companys Group, ³Department of Mathematics, Area of Statistics and Operations Research, Autonomous University of Barcelona

9:00 a.m. 237 **Changes in Metabolism, Energy Reserves, and Gut Health in Newborn Piglets with Different Degrees of Intrauterine Growth Restriction**

Pau Salgado-López ¹, Júlia Suppi ¹, Jaume Coma ², Josep Gasa ¹, David Solà-Oriol ¹

¹Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, ²Vall Companys Group

9:15 a.m. 238 **Effects of Birth Weight and Age at Processing on Piglet Pre-weaning Mortality and Incidence of Scrotal Ruptures in Male Piglets**

Christopher L. Puls ¹, Chris L. Eden ¹, Bob Altman ¹, Katherine A. McCormick ¹

¹United Animal Health

9:30 a.m. **Swine Translational II Break**

9:45 a.m. 239 **Characterization of Changes in Swine Blood Metabolite Concentrations from Weaning to Finishing**

Grady Privett¹, Ursula M. McCormack², Jon R. Bergstrom², Jason C. Woodworth¹, Jordan T. Gebhardt¹, Mike D. Tokach¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Katelyn N. Gaffield¹
¹Kansas State University, ²dsm-firmenich

10:00 a.m. 240 **Effect of Nursery Pig Movement and Mixing Strategies on Performance and Health**

Brady McNeil¹, Christine Mainquist-Whigham², Ethan W. Stephenson², Steven Kitt¹, Ashley R. Hartman³, Amanda Cross¹, Tom Rathje¹
¹DNA Genetics, ²Pillen Family Farms, ³Kansas State University

10:15 a.m. 241 **Effect of Feed Outage Frequency on Pig Growth Performance and Survival During the Grow-finish Period**

Kristen M. Ewing¹, Katie M. Brown¹, Caleb M. Shull¹, Omarh F. Mendoza¹
¹The Maschhoffs, LLC

10:30 a.m. 242 **Effects of Number of Pigs Per Feeder Hole in Wet-dry Feeders and of Supplemental Water in pic®800 Sired Commercial Pigs**

Isaiah T. Spath¹, Luis E. Zaragoza¹, Michelle Wuebker¹, Matthew Spindler¹, Danielle Wilson-Wells¹, Paul F. Frahm², Erin Little², Roy Edler²
¹PIC, ²Pipestone

10:45 a.m. 243 **Effects of Precision Feeding on the Growth Performance and Variation of Growing-finishing Pigs**

Rebecca K. Pritchett¹, Christopher L. Puls¹, Devin Goehring¹, Gerielle Suffy¹, Ethan Ward¹, Eric Nyberg¹, Matthew J. Ritter¹
¹United Animal Health

11:00 a.m. 244 **Assessing the Accuracy and Reliability of the Swine Sense Hub® Camera for Estimating Body Weights of Individual Growing Pigs**

Sarah L. Phelps¹, Nathan Vander Werff¹, Eric Nyberg², John Bell², Christopher L. Puls², Matthew J. Ritter², John Kolb³, Nadav Sharon³, Tom Stein³, David S. Rosero¹
¹Iowa State University, ²United Animal Health, ³Merck

Processed Meats Symposium: Beyond Harvest: Connecting Animal Science to Processed Meat

Chair: Christi Calhoun, American Meat Science Association

8:00 AM - 12:15 PM

Ballroom B

8:00 a.m. **Symposium Overview**

8:15 a.m. 288 **Processed Meats Value and Purpose: The Consumer.**

Larry Quint ¹

¹Conagra Brands

8:30 a.m. 289 **Clarifying terminology through the AMSA Meat Lexicon: Addressing the ultra-processed foods debate and its implications for shelf life, food waste, and nutrition**

Benjamin M. Bohrer ¹

¹The Ohio State University

8:45 a.m. 290 **Muscle Biology Factors Influencing Processed Meat Functionality.**

Jeffrey J. Sindelar ¹

¹University of Wisconsin

9:05 a.m. 291 **Fresh meat quality as a functional input to processed pork**

Bailey Harsh ¹

¹University of Illinois Urbana-Champaign

9:30 a.m. 292 **Technological Strategies to Improve the Lipid Quality of Meat Products.**

Rodrigo Tarté ¹

¹Iowa State University

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

10:15 a.m. 293 **Nitrate, Nitrite, and Alternative Ingredients Used for Meat Curing**

Gary A. Sullivan ¹

¹University of Nebraska-Lincoln

10:45 a.m. 294 **Sous Vide and Emerging Thermal Processing Technologies.**

Keith Goerl ¹

¹Miniat

11:15 a.m. 295 **The Collaborative Process**

Steve Pylypiw ¹, Garrett Skaar ¹

¹JBS Prepared Foods

11:45 a.m. 296 **AMSA processed meats chapters and assessment guidelines**

Benjamin M. Bohrer ¹

¹The Ohio State University

11:50 a.m. 297 **Technical and Reference Resources for Processed Meat Science**

Christi Calhoun ¹

¹American Meat Science Association

12:00 p.m. **Symposium Summary**

Nonruminant Nutrition IX: Nursery Pig Nutrition II

Chair: Caroline Gonzalez, Old Bridge Minerals

8:00 AM - 1:00 PM

Ballroom A

8:00 a.m. 287 **Maxwell Lectureship**

Jon R. Bergstrom ¹

¹dsm-firmenich

9:00 a.m. 266 **Effects of Feed Form (meal + Crumble Basemix vs. Pellet) on Nursery Pig Growth Performance**

Michelle N. McCallum ¹, Rodney B. Hinson ¹, Christopher L. Puls ¹, Josie Archibald ¹

¹United Animal Health

9:15 a.m. 267 **Standardized Ileal Digestibility of Amino Acids in Four Egg Products Fed to Weanling Pigs**

Natalia dos Santos Fanelli ¹, Minoy Cristobal ¹, Su A Lee ¹, Yi-Chi Cheng ², Ingmar Middelbos ², Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign, ²Symrise Pet Food North America Inc.

9:30 a.m. 268 **Effects of Diet and Water Butyrate Glyceride Supplementation on Nursery Pig Performance**

Ty Kim ¹, Jason C. Woodworth ¹, Mike D. Tokach ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Katelyn N. Gaffield ¹, Jordan T. Gebhardt ¹, Ying Chen ², Ross Wolfenden ², Mark Whitney ³

¹Kansas State University, ²Eastman Chemical Company, ³QualiTech

9:45 a.m. 269 **Reduced Protein Digestibility and Growth Performance Due to Feeding Lentil-based Diets to Weaned Pigs Can Be Ameliorated by Including Benzoic Acid**

L. F. Wang ¹, Eduardo Beltranena ², Ruurd T. Zijlstra ¹

¹University of Alberta, ²North Carolina State University

10:00 a.m. 270 **Effects of Dietary L-glutamate, L-aspartate, and Their Combination on Immune Responses and Intestinal Integrity of Weaned Piglets Challenged with Enterotoxigenic *Escherichia coli* F18**

Supatirada Wongchanla ¹, Youngmin Park ¹, Sangwoo Park ¹, Shuhan Sun ¹, Yanhong Liu ¹

¹University of California, Davis

10:15 a.m. **Nonruminant Nutrition IX: Break**

10:30 a.m. 286 **Award Talk: Factors Influencing Zn Excretion in Pigs**

Julian Arroyave¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Katelyn N. Gaffield¹, Jordan T. Gebhardt¹

¹Kansas State University

11:00 a.m. 272 **Effect of Dietary Crude Protein and Acid-binding Capacity on Growth Performance, Serum Cytokine Concentration, and Intestinal Morphology in Enterotoxigenic *Escherichia coli* F18 Challenged Nursery Pigs**

Jessica Smallfield¹, Jordan T. Gebhardt¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Katelyn N. Gaffield¹, Raghavendra G. Amachawadi², Harith Salih¹, Taghreed Mahmood¹, Franco Matias Ferreyra¹, Marcelo Almeida³

¹Kansas State University, ²Beef Cattle Institute, ³Iowa State University

11:15 a.m. 273 **Impact of Different Lactose Feeding Programs on Growth Performance and Diarrhea Occurrence in Nursery Pigs**

Marco Antônio Kunrath¹, Felipe Norberto Alves Ferreira¹, Clarice Speridião Silva Neta¹, Fabrício Almeida Santos¹, Anália Maria Ribeiro da Silva¹, Ana Caroline Rodrigues da Cunha¹, Renato Philomeno¹

¹Agroceres Multimix

11:30 a.m. 274 **Evaluation of a Novel Essential Oil Blend in Nursery Pig Performance and Health Outcomes**

Jose A. Soto¹, Henrique S. Cemin¹, Morgan Hart¹, Jamil E. G. Faccin¹, Sharlie A. Hansen¹, Ernie L. Hansen¹

¹Alltech

11:45 a.m. 275 **Increasing Levels of L-glutamate in Liquid Form to Reduce the Negative Impact of Weaning Stress and Summer Transport in Pigs**

Caitlyn R. Sullivan¹, Carley R. Hopkins¹, Daniel S. Wagner¹, Jillian K. Bonderer¹, Ashley L. Rodman¹, Mikel J. Thompson¹, Juan F. Castillo Zuniga¹, Nicholas J. Prosek¹, Denny M. McKilligan², J. Ezequiel M. Guzmán², Amy L. Petry¹, Jay S. Johnson¹

¹University of Missouri, ²Tech Mix

12:00 p.m. 276 **Protected Benzoic Acid Mitigates *E. coli* F18-induced Inflammation, Gut Dysbiosis, and Enhances Performance and Health in Commercial Nursery Pigs**

Jesus A. Acosta Camargo¹, Bradley V. Lawrence¹, Alex Hintz¹, Marisol Castillo¹, Deana Hancock¹

¹Novus International

12:15 p.m. 277 **Corn Derived Deoxynivalenol's Impact on Nursery Pig Performance**
Thomas A. Crome¹, Darlene J. Bloxham², Fredrik Sandberg³, Scott Radke⁴, Nicholas K. Gabler¹
¹Iowa State University, ²Adisseo USA, ³Furst-McNess Company, ⁴Vet Diagnostic & Production
Animal Medicine, Iowa State University

12:30 p.m. 278 **A Systematic Review of Liquid Milk Supplementation in Pre-weaned Piglets**
Jackson R. Connor¹, Denny M. McKilligan², Eric van Heugten¹, Suzanne M. Leonard¹
¹North Carolina State University, ²Tech Mix

12:45 p.m. 271 **Effects of Dietary Acid-binding Capacity at pH 4 on Growth Performance and Fecal Parameters of Weaned Piglets**
Yron Joseph Y. Manaig¹, Laia Blavi², Alessandra Rigo Monteiro¹, Meike Bouwhuis¹, Astrid Koppenol², Simon Tibble²
¹ANIMINE, ²AB Neo

Nonruminant Nutrition X: Meta, Omics and Other Applications in Swine Nutrition

Chair: Robert Payne, Elanco Animal Health

10:00 AM - 12:30 PM

210/211/212

10:00 a.m. 280 **Award Talk: Beyond Amino Acids: Role of Bioactive Compounds in Soybean Meal for Intestinal Health Nursery Pigs Fed Soybean Meal Free Diets**
Yesid R. Garavito-Duarte¹, Jung Yeol Sung¹, Sung Woo Kim¹
¹NC State University

10:30 a.m. 279 **Effects of a Novel Dairy Bioactive (FXP™) on Infectivity of *Streptococcus suis* in Porcine Intestinal Epithelial Cells**
Nathan L. Horn¹, Joel D. Spencer², Arun L. Bhunia³, Nicholas Gallina³, Aaron M. Gaines⁴
¹United Animal Health; Department of Animal Science, Purdue University, ²United Animal Health, ³Department of Food Science, Purdue University, ⁴Ani-Tek

10:45 a.m. 281 **Multi-omics Uncovers Distinct Microbial Networks Associated with a Blend of Hydrolysable and Condensed Tannins in Weaned Pigs Reared Under Two Different Farming Conditions**
Paolo Trevisi¹, Federico Correa², Giorgia Palladino³, Francesco Palumbo⁴, Daniel Scicchitano³, Giulia Babbi³, Andrea Castagnetti⁵, Simone Rampelli³, Marco Candela³, Pier Luigi Martelli³, Nicola Panciroli⁶, Diana Luise²
¹Department of Agricultural and Food Science (DISTAL) - University of Bologna, ²University of Bologna, ³Department of Pharmacy and Biotechnology, University of Bologna, Bologna, Italy, ⁴Department of Agro-Food Sciences and Technologies, University of Bologna, Bologna, Italy, ⁵3Wellmicro, Bologna, Italy, ⁶Silvateam SpA, Italy

11:00 a.m. 282 **Metagenomic Analysis of the Cecum Microbiome from Pigs Fed Increasing Levels of Corn-derived Insoluble Fiber**

Hannah Miller¹, Stephan Schmitz-Esser², Aaron Ericsson¹, Amy L. Petry¹

¹University of Missouri, ²South Dakota State University

11:15 a.m. 283 **From Bench to Barn: Functional Characterization and Meta-analysis of a *Bacillus Velezensis* Consortium in Swine Nutrition**

Deepak E. Velayudhan¹, Josh Walker², Katrine Bie Larsen³, Steffen Yde Bak³, Niels Cristensen³, Nicholas Chubbs², Weiqing Zeng², Adrián Schwarzenberg², Chong Shen³, Ester Vinyeta¹

¹Danisco Animal Nutrition & Health (IFF), ²Health & Biosciences, IFF, ³IFF

11:30 a.m. 284 **Using a Screening Tool Is Effective in Choosing Costly Nursery Ingredients**

Kynna M. Crawford¹, Katlyn A. McClellan¹, Eric M. Weaver¹

¹South Dakota State University

11:45 a.m. 285 **Effects of Antibiotics on Microbial Community Composition in Pigs**

Olivier Munezero¹, James E. Wells², Oliver T. William³, Philip S. Miller⁴, Thomas E. Burkey¹, Samodha C. Fernando⁴

¹University of Nebraska-Lincoln, ²USMARC, ³USDA, U.S. Meat Animal Research Center

12:00 p.m. 317 **Award Talk: Integrating Multi-OMICs Data into Practical Swine Production**

Sudario Roberto Silva Junior¹, Andres Gomez¹, Pedro E. Urriola¹

¹University of Minnesota