



Monday, March 14, 2022

Teaching and Extension Education Symposium I

Chair: Casey Bradley, The Sunswine Group

8:00 AM - 11:15 AM

213

8:00 a.m. **Teaching and Extension Education Symposium I Introduction**

8:05 a.m. 267 **A Qualitative Exploration of Barriers and Recommendations from Women Leaders in Science and Agriculture**

Casey M. Owens¹, Julie F. Harlin², Christine Alvarado³

¹University of Arkansas, ²Texas A&M University, ³Arm and Hammer Animal and Food Production

8:30 a.m. 268 **Professional Women in the Allied Industry**

Ana Lucia P. de Souza¹

¹IFF Danisco Animal Nutrition

8:45 a.m. 269 **Academia or industry, which side of the fence is greener**

Kimberly Livingston¹

¹L & L Agriculture and Biotechnology

9:00 a.m. 270 **How to develop the right mindset—a journey from animal nutrition to human nutrition and well-being**

Lynnea Courtney¹

¹Coaching

9:15 a.m. 271 **Managing a Career and Hobbies through Mom Guilt**

Laura L. Greiner¹

¹Iowa State University

9:30 a.m. 272 **Resiliency for today's professional animal scientist**

Casey L. Bradley¹

¹The Sunswine Group

9:45 a.m. 273 **Getting Business Done**

Angela Vaske¹

¹Nutritquest

10:00 a.m. **Teaching and Extension Education Symposium I Break**

10:15 a.m. 274 **The New Girl**

Leanne Brooks¹

¹Smithfield Foods

10:30 a.m. 275 **Professional Round Table**
Janet C. Remus¹, Joy M. Campbell², Helen Cao³
¹IFF Danisco Animal Nutrition, ²APC Inc, ³New Hope

11:00 a.m. 276 **Networking to Connect: Building a Community to Support Your Career**
Katie Mayo¹
¹Insta-Pro International

Sustainability Symposium - Sponsored by ASAS Midwest Section Board

Chair: Terry Ward, Zinpro Corporation

8:00 AM - 12:00 PM

Ballroom C

8:00 a.m. **Sustainability Symposium Introduction**

8:05 a.m. 235 **Net Zero by 2030, What is the Dairy Industry Thinking?**
Jamie S. Jonker¹
¹National Milk Producers Federation

8:50 a.m. 236 **The Future of Sustainable Pork Production**
Sara Crawford¹
¹National Pork Board

9:35 a.m. **Sustainability Symposium Break**

9:50 a.m. 237 **A Framework for Sustainable Poultry & Eggs**
Angela Baysinger¹
¹Merck Animal Health

10:35 a.m. 238 **State of the Art of Sustainable Beef Production: Framework and Sector Targets**
Sara Place¹
¹Elanco Animal Health

11:20 a.m. **Sustainability Symposium Q&A**

Poster Session I

12:30 PM - 1:30 PM

Grand Ballroom Foyer

12:30 p.m. PSI-1 **Depletion and Repletion Dynamics of Individual and Regional Bone-mineral Reserves in Replacement Gilts Fed Different Levels of Dietary Phosphorus and Calcium**

Piterson Floradin¹, Candido Pomar², Marie-Pierre Létourneau-Montminy¹, Patrick Schlegel³
¹Laval University, ²AgriFood Canada, ³Agroscope

12:30 p.m. PSI-2 **Effect of Gruel Feeding and Oral Dextrose on the Survivability of Pigs After Weaning**

Andrew W. Boschert¹, Madie R. Wensley², Mike D. Tokach³, Robert D. Goodband³, Jordan T. Gebhardt³, Jason C. Woodworth³, Joel M. DeRouchey³, Ethan Stephenson⁴

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

12:30 p.m. PSI-3 **Effects of Increasing Dietary Arginine Supply on Pig Growth Performance Following Weaning Stress**

Jorge Y. Perez-Palencia¹, Noah Reiman¹, Keith D. Haydon², Crystal L. Levesque¹

¹South Dakota State University, ²CJ Bio America

12:30 p.m. PSI-4 **Effects of Sorghum Inclusion in Lamb Diets on Apparent Total Tract Digestibility**

Tiffany A. Oberdorf¹, Zachary T. Buessing¹, Skyler S. Scotten¹, Charles A. Zumbaugh¹, Cassandra K. Jones¹

¹Kansas State University

12:30 p.m. PSI-5 **Effects of Two Rotational Grazing Management Systems on Forage Quality, Forage Availability, and Cow Performance**

Ana M. Pearl¹, Kylie P. Ewing², Lucas T. Neira³, Joshua C. McCann², Daniel W. Shike²

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

12:30 p.m. PSI-6 **Evaluating Formic Acid and Glycerol Monolaurate Alone or in Combination on Weanling Pig Growth and Fecal Consistency**

Jessica Smallfield¹, Payton L. Dahmer¹, Olivia Harrison¹, Cassandra K. Jones¹

¹Kansas State University

12:30 p.m. PSI-7 **Evaluating the Relationship of Puberty Status at 10 Months of Age with Heifer Characteristics**

Grace E. Meyer¹, Kylie P. Ewing¹, Lucas T. Neira², Joshua C. McCann¹, Daniel W. Shike¹

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

12:30 p.m. PSI-8 **Exploring the Relationship Between Soil Composition And forage characteristics in Cool Season Grass/legume Pastures**

Jacob A. Henderson¹, Wesley P. Chapple¹, William T. Meter¹, Joshua C. McCann¹, Daniel W. Shike¹

¹University of Illinois at Urbana-Champaign

12:30 p.m. PSI-9 **Impacts of Formic Acid and Glycerol Monolaurate on Weanling Pig Immune Function**

Kate Lewis¹, Payton L. Dahmer¹, Olivia Harrison¹, Cassandra K. Jones¹

¹Kansas State University

12:30 p.m. PSI-10 **Relationships Between Fecal Characteristics, Rumen pH, and Intake During an Acidosis Challenge**

Tyler A. Angus¹, Haley F. Linder¹, Zachary Buessing¹, Joshua C. McCann¹

¹University of Illinois at Urbana-Champaign

12:30 p.m. PSI-11 **Testing a Computer Vision System for Automatically Detecting Piglet Interbirth Interval**

Olivia J. Kittle¹, Suzanne M. Leonard¹
¹North Carolina State University

12:30 p.m. PSI-12 **The Effects on Maternal Supplementation of Medium Chain Fatty Acids on Offspring Performance**

Leah DiPippo¹, Analicia J. Swanson¹, Crystal L. Levesque¹
¹South Dakota State University

Poster Session II
12:45 PM - 1:30 PM
Grand Ballroom Foyer

12:45 p.m. PSII-13 **Effect of a Supplemental Water Source on Growth Performance of Finishing Pigs**

Kelsey L. Hammers¹, Jessica Jasper², Simon Kern², Lee J. Johnston³, Jeffrey S. Knott⁴, Mike J. Boerboom⁵
¹University of Minnesota, ²Ideal Animal Nutrition, ³West Central Research and Outreach Center, University of Minnesota, ⁴IDEAL Animal Nutrition, ⁵Boerboom Ag Resources

12:45 p.m. PSII-14 **Effect of Body Weight, Body Temperature, and Blood Glucose on the Survivability of Pull Pigs After Removal**

Madie R. Wensley¹, Mike D. Tokach², Robert D. Goodband², Jordan T. Gebhardt², Jason C. Woodworth², Joel M. DeRouchey², Ethan Stephenson³
¹Kansas State University, ²Kansas State University, ³Pillen Family Farms

12:45 p.m. PSII-15 **Effect of Hydrolyzed Spray-dried Bovine Plasma and Spray-dried Bovine Plasma Sources on Growth Performance of Weanling Pigs**

Charmaine D. Espinosa¹, Joy Campbell², Hans H. Stein¹
¹University of Illinois at Urbana-Champaign, ²APC, LLC

12:45 p.m. PSII-16 **Effect of Secondary Iron Injection to Suckling Pigs on Growth Performance and Hematocrit Level in Suckling Period**

Sarah Albers¹, Paige Isensee¹, Emily Pintens¹, Clara L. Lemanski¹, Young Dal Jang¹
¹University of Wisconsin-River Falls

12:45 p.m. PSII-17 **Enterid™ Reduced *E. coli* Colonization in the Gastro-intestinal Tract of Young Pigs**

Aileen Joy Mercado¹, Huyen Tran¹, Peter Karnezos¹, Brenda de Rodas¹, Stacie Crowder²
¹Purina Animal Nutrition, ²PMI Additives

12:45 p.m. PSII-19 **Enzymatically Treated Yeast: An Alternative to Therapeutic Levels of Zinc Oxide in Nursery Pig Diets**

Brenda Christensen¹, Cuilan Zhu¹, Mohsen Mohammadigheisar¹, Hagen Schulze², Lee-Anne Huber¹, Elijah Kiarie¹
¹University of Guelph, ²Livalta, AB Agri Ltd

12:45 p.m. PSII-18 **Impact of *Saccharomyces Cerevisiae Boulardii* Supplementation on Nursery Pig Performance**

Aileen Joy Mercado ¹, Huyen Tran ¹, Terry Weeden ¹, Murali Raghavendra Rao ¹, Michael Shields ², Roger Arentson ², Brenda de Rodas ¹

¹Purina Animal Nutrition, ²Elanco

12:45 p.m. PSII-20 **Supplementing Calcium Beta-hydroxy-beta-methylbutyrate (CaHMB) and Vitamin D₃ to Sows Increases Piglet Weights**

Mike Mohr ¹, John A. Rathmacher ², John C. Fuller ³

¹Intelipig LLC, ²MTI Biotech Inc., ³Metabolic Technologies LLC

Physiology I

Chair: Brian Whitaker, University of Findlay

1:00 PM - 2:30 PM

216

1:00 p.m. 173 **Identification of Biological Markers to Detect Early Estrus in Pre-pubertal Gilts**

Shannon L. Dierking ¹, Jodi Morton ², Juan Carlos Pinilla ³, Michael Gonda ¹, Jeffrey A. Clapper ¹, Crystal L. Levesque ¹

¹South Dakota State University, ²Southern University & A&M College, ³PIC: Pig Improvement Company

1:15 p.m. 174 **Effects of Nursing a Large Litter and Ovarian Response to Gonadotropins at Weaning on Subsequent Fertility in First Parity Sows**

Lidia S. Arend ¹, Raquel Fernandez Vinas ¹, Gustavo Silva ², Aaron Lower ³, Joseph F. Connor ³, Robert V. Knox ¹

¹University of Illinois at Urbana-Champaign, ²Iowa State University, ³Carthage Veterinary Service

1:30 p.m. 175 **Evaluation of Electrical Impedance Spectroscopy to Determine Swine Herd Reproductive Status Using the Accuracy of Ultrasound and Hormonal Assays as Diagnostic Tools**

Raquel Fernandez Vinas ¹, Lidia S. Arend ¹, Gustavo Silva ², Aaron Lower ³, Joseph F. Connor ³, Andre F. Furugen Cesar de Andrade ⁴, Bhalerao Kaustubh ⁴, Robert V. Knox ¹

¹University of Illinois at Urbana-Champaign, ²Iowa State University, ³Carthage Veterinary Service, ⁴University of Illinois

1:45 p.m. 176 **Are Ovarian Reserve Parameters Related to Reproductive Tract Development and Fertility in Ewes?**

Robert Cushman ¹, Hannah K. Yake ¹, Alexandria P. Snider ², Thomas W. Murphy ³, Bradley Freking ¹

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

2:00 p.m. 177 **Early Weaning Impairs Reproductive Development and Fertility of the Male**

Lauryn Clifton ¹, Amber Petty ¹, Morgan Burns ¹, Amy T. Desaulniers ²

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

2:15 p.m. 179 **Sire Distribution of Calves in a Herd with Use of Fixed Time Artificial Insemination Followed by Immediate Bull Exposure for Natural Service**

Ashley R. Hartman ¹, Esther D. McCabe ¹, Devin Jacobs ¹, David M. Grieger ¹, Karol E. Fike ¹
¹Kansas State University

Ruminant Nutrition I

Chair: Kendall Swanson, North Dakota State University

1:00 PM - 3:45 PM

210/211/212

1:00 p.m. 193 **Impact of Corn Silage Moisture And/or Kernel Processing at Harvest on Finishing Steer Growth Performance, Efficiency of Dietary Net Energy Utilization and Carcass Traits**

Thomas G. Hamilton ¹, Warren C. Rusche ¹, Julie Walker ², Zachary K. Smith ¹
¹South Dakota State University, ²South Dakota State University Department of Animal Science, Brookings, SD

1:15 p.m. 194 **Evaluation of Dietary Roughage Inclusion in a Single or Two-diet System for Backgrounding and Finishing Steers**

Thomas G. Hamilton ¹, Warren C. Rusche ¹, Zachary K. Smith ¹
¹South Dakota State University

1:30 p.m. 195 **Interaction of Urea with Frequency and Amount of Distillers Grains Supplementation for Growing Steers on a High Forage Diet**

Haley F. Linder ¹, Josh Sebade ², Mary E. Drewnoski ³, James C. MacDonald ²
¹University of Illinois at Urbana-Champaign, ²University of Nebraska, ³University of Nebraska-Lincoln

1:45 p.m. 196 **Interaction of Corn Processing Method and Sweet Bran Inclusion in Finishing Diets**

Rebecca L. Sjostrand ¹, Braden C. Troyer ¹, Levi J. McPhillips ¹, Maggie Youngers ², Rick A. Stock ¹, James C. MacDonald ³, Galen E. Erickson ¹
¹University of Nebraska-Lincoln, ²Cargill, ³University of Nebraska

2:00 p.m. 197 **Effects of Sorghum Grain as a Replacement for Corn on Lamb Growth Performance, Economics, and Total Tract Digestibility**

Skyler S. Scotten ¹, Zachary T. Buessing ¹, Charles A. Zumbaugh ¹, Cassandra K. Jones ¹
¹Kansas State University

2:15 p.m. **Ruminant Nutrition I Break**

2:30 p.m. 198 **Effects of Corn Processing and Silage Inclusion Levels in Feedlot Diets on Steer Performance**

Nolan R. Meier ¹, Karla Wilke ¹, Galen E. Erickson ¹, Pablo L. Loza ²
¹University of Nebraska-Lincoln, ²University of Nebraska Lincoln

2:45 p.m. 199 **Characterizing Digestion Traits of Corn Bran Products from Corn Wet Milling**

J. Xiong¹, Chanon Suntara², Rebecca L. Sjostrand³, Tyler Spore³, Maggie Youngers⁴, Rick A. Stock³, Galen E. Erickson³, James C. MacDonald⁵

¹University of Nebraska- Lincoln, ²Khon Kaen University, ³University of Nebraska-Lincoln, ⁴Cargill, ⁵University of Nebraska

3:00 p.m. 200 **Evaluating Performance of Calf-fed Steers Fed Steam-flaked Corn Based Finishing Diets with Varying Levels of Distillers Grains**

Braden Troyer¹, Mitchell M. Norman², Levi J. McPhillips³, Andrea K. Watson³, James C. MacDonald¹, Galen E. Erickson³

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

3:15 p.m. 201 **Impact of Steam-flaked Rye Fed in Combination with Steam-flaked Corn on Performance and Carcass Characteristics of Yearling Steers**

Samantha K. Wagner¹, Galen E. Erickson², Braden C. Troyer², Levi J. McPhillips², Becca S. Brattain³

¹University of Nebraska Lincoln, ²University of Nebraska-Lincoln, ³KWS Cereals, USA

3:30 p.m. 202 **Evaluating Finishing Performance of Cattle Fed High-moisture corn:steam-flaked Corn Blends with Modified Distillers Grains**

Braden Troyer¹, Zac Carlson², Levi J. McPhillips², Andrea K. Watson², James C. MacDonald¹, Galen E. Erickson²

¹University of Nebraska, ²University of Nebraska-Lincoln

David Baker Symposium

Sponsored by CJ America, Evonik Corporation and Novus International

Chair: Sung Woo Kim, North Carolina State University

1:00 PM - 4:35 PM

Ballroom C

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

1:05 p.m. 25 **Weaning Stress and Intestinal Health**

Adam J. Moeser¹

¹Michigan State University

1:45 p.m. 26 **Biomarkers for Intestinal Mucosal Health and Its Implication to Swine Production**

Sung Woo Kim¹

¹North Carolina State University

2:25 p.m. **David Baker Symposium Break**

2:40 p.m. 28 **DPP Lecture: Nutritional Interventions for Intestinal Health of Nursery Pigs: Protein and Amino Acids**

John Pluske¹

¹Australasian Pork Research Institute Ltd.

3:20 p.m. 29 **Nutritional Interventions for Intestinal Health of Nursery Pigs: Carbohydrates**

Ruurd T. Zijlstra¹, Thava Vasanthan¹, J. Wu¹, Michael G. Gaenzle¹
¹University of Alberta

4:00 p.m. 134 **Water- and Feed-based Arginine Impacts on Gut Integrity in Weanling Pigs**

Laura L. Greiner¹, Dalton C. Humphrey¹, Victoria Wilson¹, Spenser Becker¹, Chloe S. Hagen¹, Keith D. Haydon²
¹Iowa State University, ²CJ Bio America

4:15 p.m. 171 **Effect of Supplemental DL-Methionine or DL-Methionine-hydroxy Analogue on Performance, Gene Expression and Serum Antioxidant Activity in Heat Stressed Pigs**

Sindy Pérez Mejía¹, Adriana Morales¹, Hugo Bernal², Néstor Arce¹, Lucero R. Pérez Mejía¹, Nydia Vásquez², Caroline Gonzalez Vega³, John K. Htoo⁴, Miguel Cervantes-Ramírez¹
¹Universidad Autónoma de Baja California, ²Universidad Autónoma de Nuevo León, ³Cargill Animal Nutrition, ⁴Evonik Operations GmbH

4:30 p.m. **David Baker Symposium Conclusion**

Graduate Student Oral Competition PHD II

Sponsored by Gretchen Hill Appreciation Club

1:45 PM - 3:15 PM

202

1:45 p.m. 66 **Utilizing Third Generation Sequencing to Identify Pathogen Outbreaks Rapidly and Accurately**

Alison Neujahr¹, Duan Loy¹, J. Dustin Loy¹, Bruce Brodersen¹, Samodha Fernando²
¹University of Nebraska-Lincoln, ²University of Nebraska-Lincoln

2:00 p.m. 67 **Effects of Monoglycerides on Growth Performance and Diarrhea of Weanling Pigs Experimentally Infected with a Pathogenic *Escherichia coli***

Sangwoo Park¹, Kwangwook Kim¹, Adebayo O. Sokale², Adriana Barri³, Yanhong Liu¹
¹University of California, Davis, ²BASF Corporation, ³BASF SE

2:15 p.m. 68 **Late Gestational Nutrient Restriction Decreases Blood Flow to the Mammary Gland in Lactating Primiparous Beef Females**

Colby A. Redifer¹, Lindsey G. Wichman¹, Allison M. Meyer¹
¹Division of Animal Sciences, University of Missouri

2:30 p.m. 69 **Impact of DON in a Protocol of Calcium Depletion and Repletion in Piglets**

Béatrice Sauv  ¹, Marie-Pierre L  tourneau-Montminy², Fr  d  ric Guay²
¹University Laval, ²Universit   Laval

2:45 p.m. 71 **The Effect of Different Bones and Analytical Method on Assessment of Bone Mineralization Response to Dietary P, Phytase and Vitamin D in Nursery Pigs**
Hadley Williams¹, Taylor Chin¹, Jordan T. Gebhardt², Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jon R. Bergstrom³, Michael Rahe⁴, Christopher Siepker⁴, Panchan Sitthicharoenchai⁴
¹Kansas State University, ²Kansas State University, ³DSM, ⁴Iowa State University

3:00 p.m. 72 **Life Cycle Assessment of Environmental Impacts of Swine Growing-finishing Feeding Programs Using Different Amounts of Soybean Meal, Distillers Dried Grains with Solubles, and Crystalline Amino Acids**
Zhaohui Yang¹, Yuan-Tai Hung², Jae C. Jang¹, Pedro E. Urriola¹, Lee J. Johnston³, Gerald C. Shurson¹
¹University of Minnesota, ²Devenish Nutrition, ³West Central Research and Outreach Center, University of Minnesota

Graduate Student Oral Competition PHD I
Sponsored by Gretchen Hill Appreciation Club
1:45 PM - 3:30 PM
201

1:45 p.m. 58 **Energy Values of Faba Beans and Field Peas Fed to Growing Pigs**
Abidemi A. Adekoya¹, Olayiwola Adeola¹
¹Purdue University

2:00 p.m. 59 **Divergent Planes of Nutrition Altered Concentrations of Hormones and Metabolites but Not Semen Characteristics in Mature Rams**
Kerri A. Bochantin¹, Friederike Baumgaertner¹, Jennifer L. Hurlbert¹, Ana Clara B. Menezes¹, James D. Kirsch¹, Sheri L. Dorsam¹, Christopher S. Schauer², Carl R. Dahlen¹
¹North Dakota State University, ²Hettinger Research Extension Center, North Dakota State University

2:15 p.m. 60 **Evaluation of Fat Sources and Inclusion Rate with the Supplementation of Vitamin A or Beta-carotene in Nursery Pigs**
Sarah Elefson¹, Laura L. Greiner¹
¹Iowa State University

2:30 p.m. 61 **Persistence and Distribution of African Swine Fever Virus in Feed and Feed Mill Environment over Time After Manufacture of Experimentally Inoculated Feed and Subsequent Manufactured Batches of Feed**
Catherine G. Elijah¹, Jessie Trujillo¹, Cassandra K. Jones¹, Taeyong Kwon¹, Charles R. Stark¹, Konner Cool¹, Chad B. Paulk¹, Natasha Gaudreault¹, Jason C. Woodworth¹, Igor Morozov¹, Carmina Gallardo², Jordan T. Gebhardt³, Jurgen Richt¹
¹Kansas State University, ²Animal Health Research Centre, Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria, ³Kansas State University

2:45 p.m. 262 **Ability of Model That Predict Growing-finishing Pigs Requirements to Predict Dietary Phosphorus Use in Replacement Gilts**
Piterson Floradin¹, Candido Pomar², Patrick Schlegel³, Marion Lautrou¹, Marie-Pierre Létourneau-Montminy¹
¹Laval University, ²AgriFood Canada, ³Agroscope

3:00 p.m. 63 **Effects of Dietary Calcium and Phosphorus Deficiency on Growth Performance and Subsequent Recovery of Bone Mineralisation in Replacement Gilts**
Piterson Floradin¹, Candido Pomar², Marie-Pierre Létourneau-Montminy¹, Patrick Schlegel³
¹Laval University, ²AgriFood Canada, ³Agroscope

3:15 p.m. 65 **Evaluation of Essential Fatty Acids in Lactating Sow Diets on Sow Reproductive Performance, Colostrum and Milk Composition, and Pre-weaning Litter Growth and Survivability**
Julia P. Holen¹, Jason C. Woodworth¹, Mike D. Tokach¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jordan T. Gebhardt², Ashley DeDecker³, Xochitl Martinez³
¹Kansas State University, ²Kansas State University, ³Smithfield Foods

Undergraduate Student Oral Competition
Sponsored by Gretchen Hill Appreciation Club
1:45 PM - 3:30 PM
213

1:45 p.m. 239 **Relationship Between Body Temperature and Behavior-activities of Non-pregnant Early Lactation Dairy Cows**
Mercedes E. Brunton¹, Maria Gonzalez¹, Adrianna Mann¹, Kelsey Teeple¹, Uduak George², Jaquelyn P. Boerman¹, Theresa Casey¹
¹Purdue University, ²San Diego State University

2:00 p.m. 240 **Evaluating the Effect of Hay, Fed Ad-libitum or Controlled, or Soybean Hulls During Gestation on Body Weight and Dry Matter Intake of the Ewe and Body Weight on the Offspring Until Weaning**
Kara Flaherty¹, Branden J. Campbell¹, Alejandro E. Relling¹
¹The Ohio State University

2:15 p.m. 241 **Evaluating the Effects of Lactate Adaptation in Cannulated Steers on Fermentation Characteristics in an Ex vivo Model of Ruminal Acidosis**
Bree Gaffney¹, Jenna McNelis², Zachary Buessing³, Haley F. Linder³, Keela Trennepohl¹, Daniel W. Shike³, Joshua C. McCann³
¹Western Illinois University, ²Illinois State University, ³University of Illinois at Urbana-Champaign

2:30 p.m. 242 **Effects of Providing a Liquid Sensory Attractant to Suckling Pigs in Lactation and After Weaning on Post-weaning Pig Performance**
Ty Kim¹, Madie R. Wensley², Mike D. Tokach¹, Robert D. Goodband¹, Jordan T. Gebhardt¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Denny McKilligan³, Nathan Upah⁴
¹Kansas State University, ²Kansas State University, ³TechMix Global, ⁴TechMix Inc.

2:45 p.m. 243 **Assessment of Modified Corn Protein as a Protein and Energy Source for Nursery Pigs**
Carson M. De Mille¹, Hailey Messerich¹, Jessica M. Johnson¹, Kayla A. Miller¹, Mitchell J. Nisley¹, Keith Mertz², Nicholas K. Gabler¹
¹Iowa State University, ²Cargill Starches, Sweeteners, & Texturizers

3:00 p.m. 244 **Physiological Response of Nursery Pigs Fed Cold-pressed Canola Cake-based Diets with Soluble Fiber Source or Feed Additives**

Courtney Sellner¹, Crystal L. Levesque¹, Jinsu Hong²

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

3:15 p.m. 245 **Level of Colostrum Intake Affects Vaginal Lipidome of Gilts at Three Weeks Postnatal**

Jocelyn V. Sheets¹, Kayla Mills², Kara R. Stewart¹, Theresa Casey¹

¹Purdue University, ²United States Department of Agriculture

Graduate Student Oral Competition MS

Sponsored by Gretchen Hill Appreciation Club

1:45 PM - 4:00 PM

203

1:45 p.m. 49 **Determining the Phosphorus Release of Grainzyme Phytase in Diets for Nursery Pigs**

Larissa L. Becker¹, Madie R. Wensley², Joel M. DeRouchey¹, Jason C. Woodworth¹, Mike D. Tokach¹, Robert D. Goodband¹, Jordan T. Gebhardt³, R. Michael Raab⁴, Philip Lessard⁴

¹Kansas State University, ²Kansas State University, ³Kansas State University, ⁴Agrivida Inc.

2:00 p.m. 50 **The Influence of L-glutamine Supplementation on Measures of Intestinal Permeability, Immune Function, and Physiological Stress in Holstein Heifer Calves**

Guadalupe Ceja¹, Jaquelyn P. Boerman¹, Rafael C. Neves¹, Jon P. Schoonmaker¹, Matthew Jorgensen², Jay S. Johnson²

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

2:15 p.m. 51 **Supplemental Lysine in Finishing Cattle Diets**

Hanna K. Cronk¹, Zachary Carlson², Andrea K. Watson¹, Mitch M. Norman¹, Levi J. McPhillips¹, Galen E. Erickson¹, Gary A. Ducharme³

¹University of Nebraska-Lincoln, ²North Dakota State University, ³PROJ-X, Inc.

2:30 p.m. 52 **Weaning Elicits a Distinct Increase in Plasma Cysteine Concentration in Pigs**

Alexandra M. Gachman¹, Julia Bartosh¹, Marko Rudar¹

¹Auburn University

2:45 p.m. 53 **Evaluating the Efficacy of Boot Baths with Wet and Dry Disinfectants for Porcine Epidemic Diarrhea Virus and Porcine Reproductive and Respiratory Syndrome Virus**

Olivia Harrison¹, Catherine Grace Elijah¹, Allison K. Blomme¹, Haley Otott¹, Jianfa Bai², Elizabeth Poulsen-Porter¹, Jason C. Woodworth¹, Chad B. Paulk¹, Jordan T. Gebhardt³, Cassandra K. Jones¹

¹Kansas State University, ²Kansas State University, ³Kansas State University

3:00 p.m. 54 **Eastern Red Cedar Targeted Grazing with Goats: Tree Height Significance**

Alanna Hartsfield¹, Alexander Smart¹, Lan Xu¹, Kelly Froehlich¹

¹South Dakota State University

3:15 p.m. 55 **The Effect of Feeding 0.3% Benzoic Acid to Growing Pigs, Alone or in Combination with a Direct-fed Microbial, on Nutrient Metabolism and Manure Composition and Emissions Compared to a Low Protein diet**

Dalton C. Humphrey¹, Jon R. Bergstrom², Estefania Perez-Calvo³, Steven Trabue⁴, Kenwood Scoggin⁴, Brett C. Ramirez¹, Laura L. Greiner¹

¹Iowa State University, ²DSM, ³DSM Nutritional Products France, ⁴USDA- ARS National Laboratory for Agriculture and the Environment

3:30 p.m. 56 **Vitamin and Mineral Supplementation Throughout Gestation Affects Liver Trace Mineral Status of Dam and Neonatal Calves but Not Calf Morphometric Characteristics**

Jennifer L. Hurlbert¹, Friederike Baumgaertner¹, Kerri A. Bochantin¹, Ana Clara B. Menezes¹, Wellison J. Diniz², Sarah R. Underdahl¹, James D. Kirsch¹, Sheri T. Dorsam¹, Kevin K. Sedivec¹, Carl R. Dahlen¹

¹North Dakota State University, ²Auburn University

3:45 p.m. 57 **Effect of Calcium Carbonate Level with or Without Benzoic Acid on Weanling Pig Growth Performance, Fecal Dry Matter, and Blood Ca and P Concentrations**

Alan J. Warner¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Jordan T. Gebhardt²

¹Kansas State University, ²Kansas State University

Poster Session III

4:45 PM - 5:30 PM

Grand Ballroom Foyer

4:45 p.m. PSIII-1 **Are There Attitudinal Age Differences for Mexican Swine Caretakers Toward Euthanasia?**

Jacob Yarian¹, Kenneth J. Stalder², Andréia Arruda³, Jason W. Ross², Brad Skaar², Monique Pairis-Garcia⁴, Cassandra Jass⁵, Suzanne Millman², Ivelisse Robles⁴, Anna K. Johnson²

¹USDA, ²Iowa State University, ³The Ohio State University, ⁴North Carolina State University, ⁵Iowa Select Farms

4:45 p.m. PSIII-2 **Are There Attitudinal Differences Between Male and Female Mexican Swine Caretakers Toward Euthanasia?**

Jacob Yarian¹, Kenneth J. Stalder², Andréia Arruda³, Jason W. Ross², Brad Skaar², Monique Pairis-Garcia⁴, Cassandra Jass⁵, Suzanne Millman², Ivelisse Robles⁴, Anna K. Johnson²

¹USDA, ²Iowa State University, ³The Ohio State University, ⁴North Carolina State University, ⁵Iowa Select Farms

4:45 p.m. PSIII-3 **Changes in Sow Posture from Weaning to Estrus**

Nicole K. Moest¹, Naomi C. Willard¹, Katherine D. Vande Pol¹, Caleb M. Shull², Mike Ellis¹

¹University of Illinois, ²The Maschhoffs, LLC

4:45 p.m. PSIII-4 **Characterization of Digital Overgrowth in Sow Breeding Herds: A Case Study**

Derek Henningsen¹, Grace A. Moeller¹, Marta Mainenti¹, Alyona Michael¹, Anna K. Johnson¹, Kenneth J. Stalder¹

¹Iowa State University

4:45 p.m. PSIII-13 **Dietary Supplementation of Botanical Blends Modified Fecal Microbiota of Weaned Pigs Experimentally Infected with an Enterotoxigenic *E. coli***

Cynthia N. Jinno¹, Braden Wong¹, Xunde Li¹, Emma Wall², Yanhong Liu¹

¹University of California, Davis, ²AVT Natural

4:45 p.m. PSIII-14 **Early Introduction of Structural Fiber Improves Growth Performance and Gut Health of Nursery Pigs**

Qiong Hu¹, Sandra Paredes¹, Mark Newcomb¹

¹Cargill Animal Nutrition

4:45 p.m. PSIII-15 **Effect of *Saccharomyces Cerevisiae Boulardii* CNCM I-1079 Supplementation to Sows on Colostrum IgG Concentration**

Fernando Bravo de Laguna¹, Carlos Mario Zuluaga², David Saornil¹, Eduardo Bernal², Michael Shields³, Eric Chevaux¹

¹Lallemand SAS, ²SPIN Colombia SAS, ³Elanco Animal Health, USA

4:45 p.m. PSIII-5 **Effect of Graded *Eimeria* Vaccine Challenges on Broiler Chicken Performance**

Robert A. Hernandez¹, Kirk Klasing¹, Yanhong Liu¹

¹University of California, Davis

4:45 p.m. PSIII-18 **Effect of Increasing L-Lysine-HCl and Amino Acid Ratios on Performance of Finishing Pigs from 109 to 129 kg**

Larissa L. Becker¹, Mike D. Tokach¹, Robert D. Goodband¹, Joel M. DeRouche¹, Jason C. Woodworth¹, Jordan T. Gebhardt²

¹Kansas State University, ²Kansas State University

4:45 p.m. PSIII-19 **Effect of Sensory Attractants Before and After Weaning on Nursery Pig Performance**

Madie R. Wensley¹, Mike D. Tokach², Robert D. Goodband², Jordan T. Gebhardt², Jason C. Woodworth², Joel M. DeRouche², Denny McKilligan³, Nathan Upah⁴

¹Kansas State University, ²Kansas State University, ³TechMix Global, ⁴TechMix Inc.

4:45 p.m. PSIII-9 **Effects of Dietary Carnitine Supplementation on Semen Output and Quality in Boars**

Kayode B. Balogun¹, Ning Lu², Uislei A. Orlando², Henrike Torborg³, Michael Kleve-Feld², Alicia Denton⁴, Alton Holstine⁴, Kara R. Stewart⁴

¹Department of Animal Sciences, Purdue University, ²Genus PIC, ³Kaesler Nutrition, ⁴Purdue University

4:45 p.m. PSIII-17 **Effects of Dietary Tributyrin in Young Pigs Experiencing Colitis**

Kaitlyn Sommer¹, Youngsoo Lee¹, Sharon Donovan¹, Ryan N. Dilger²

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

4:45 p.m. PSIII-10 **Heat Stress Causes Persistent Multisystemic Dysfunction**

Melissa S. Roths¹, Tori E. Rudolph¹, Alyssa Freestone¹, Lance H. Baumgard¹, Joshua T. Selsby¹

¹Iowa State University

4:45 p.m. PSIII-12 **Identification and Classification of Novel Animal Associated Viruses from the Human Skin Virome of Pet Owners and Agricultural Workers**

Ema H. Graham ¹, Joshua R. Herr ¹, Michael Adamowicz ¹, Jennifer Clarke ², Samodha C. Fernando ², Peter Angeletti ¹

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

4:45 p.m. PSIII-6 **Pre- and Postpartum Locomotor Activity in Nutrient Restricted Primiparous Beef Females**

Remie M. Johnson ¹, Colby A. Redifer ², Lindsey G. Wichman ², Abigail R. Rathert-Williams ², Allison M. Meyer ²

¹College of Veterinary Medicine, University of Missouri, ²Division of Animal Sciences, University of Missouri

4:45 p.m. PSIII-7 **The Effect of One-carbon Metabolite Supplementation in Combination with Adequate or Restricted Feed Intake During Early Gestation on Maternal Hematology**

Yssi Entzie ¹, Layla King ¹, Jessica Syring ², Mara R. Hirschert ², Joel S. Caton ², Carl R. Dahlen ², Alison K. Ward ², Matthew S. Crouse ³

¹NDSU, ²North Dakota State University, ³USDA

4:45 p.m. PSIII-8 **The Effect of Pre-breeding Vaccination with Modified-live Virus or Inactivated Virus Vaccine on Body Condition and Reproductive Performance in Beef Cows**

Kylie P. Ewing ¹, Lucas T. Neira ², Wesley P. Chapple ¹, Miles D. Redden ², Daniel W. Shike ¹

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

4:45 p.m. PSIII-20 **The Effects of Basic Copper Chloride Sources on Pig Grow-finish Performance**

Mark Knauer ¹, Chris P. A. Van de Ligt ²

¹North Carolina State University, ²Micronutrients

4:45 p.m. PSIII-16 **The effects of secondary iron injection to suckling piglets injected with two levels of iron at birth on growth performance and hematocrit level in suckling period**

Sarah Albers ¹, Paige Isensee ¹, Emily Pintens ¹, Clara L. Lemanski ¹, Young Dal Jang ¹

¹University of Wisconsin-River Falls

Tuesday, March 15, 2022

Poster Session IV

7:30 AM - 8:15 AM

Grand Ballroom Foyer

7:30 a.m. PSIV-8 **Dietary Botanical Blends Modified the Intestinal Microbiota of Weaned Pigs Experimentally Challenged with an Enterotoxigenic e. Coli**

Cynthia N. Jinno ¹, Braden Wong ¹, Xunde Li ¹, Emma Wall ², Yanhong Liu ¹

¹University of California, Davis, ²AVT Natural

7:30 a.m. PSIV-1 **Differential Gene Expression of Methionine-folate Cycle Enzymes in Heifers Supplemented with One-carbon Metabolites**

Jessica Syring¹, Joel S. Caton¹, Matthew S. Crouse², Alison K. Ward¹
¹North Dakota State University, ²USDA

7:30 a.m. PSIV-2 **Dry Matter Intake in Beef Cows Is Influenced by Weather Variables**

Mustapha Yusuf¹, Kendall C. Swanson¹, Lauren L. Hulsman Hanna¹, Marc L. Bauer¹
¹North Dakota State University

7:30 a.m. PSIV-9 **Effect of Increasing the Level of a Modified Corn Protein on Nursery Pig Growth Performance, Feed Efficiency, and Fecal Dry Matter**

Alan J. Warner¹, Keith Mertz², Jason C. Woodworth¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Robert D. Goodband¹, Jordan T. Gebhardt³
¹Kansas State University, ²Cargill Starches, Sweeteners, & Texturizers, ³Kansas State University

7:30 a.m. PSIV-10 **Effect of Micelle Silymarin Supplementation on the Growth Performance, Nutrient Digestibility, Fecal Microbiome, Gas Emissions, Blood Profile, Meat Quality, and Antioxidant Property in Finishing Pigs**

Deok Ho Koo¹, Qian Qian Zhang², Vetriselvi Sampath², In Ho Kim¹
¹Dankook University, ²Department of Animal Resources Science, Dankook University

7:30 a.m. PSIV-11 **Effects of Dietary Supplementation of Quillaja Saponin or Fructooligosaccharide and a Mixture of Both on the Growth Performance, Nutrient Digestibility, Fecal Microbial, and Gas Emissions in Growing Pigs**

Chai Bin Lim¹, Madesh Muniyappan², Goa Sanshui², In Ho Kim²
¹Department of Animal Resources Science, Dankook University, ²Dankook University

7:30 a.m. PSIV-12 **Effects of Digestible Lysine Level on Growth Performance of Nursery Pigs**

Henrique S. Cemin¹, Luke A. Swalla¹, Jamie L. Pietig¹, Sharlie A. Hansen¹, Ernie L. Hansen¹
¹Hubbard Feeds

7:30 a.m. PSIV-13 **Effects of Increasing Dietary Alpha-linolenic Acid on Nursery Pig Growth Performance and Response to Immune Challenge**

Jenna J. Bromm¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jordan T. Gebhardt²
¹Kansas State University, ²Kansas State University

7:30 a.m. PSIV-4 **Effects of Passage Rate on Rumen Microbial Composition**

Sara M. Tondini¹, Gabe Jennings², Angela R. Green-Miller³, Daniel W. Shike⁴, Darren H. Henry⁵, Joshua C. McCann⁴
¹University of Illinois, ²R. A. Brown Ranch, ³University of Illinois Urbana - Champaign, ⁴University of Illinois at Urbana-Champaign, ⁵University of Georgia

7:30 a.m. PSIV-5 **Effects of Soybean Meal Addition to Increase Crude Protein in Growing Easycare Lamb Diets**

Skyler S. Scotten¹, Payton L. Dahmer¹, Cassandra K. Jones¹
¹Kansas State University

7:30 a.m. PSIV-6 **Engineering Microbes to Develop Novel Direct Fed Microbials as an Alternative to Prophylactic Antibiotic Use in Beef Cattle Production**

Alison Neujahr¹, Tien Doan¹, Fiacre Kubwimana¹, Christopher Anderson², Samodha Fernando³

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

7:30 a.m. PSIV-7 **Evaluating Relationships Among Empty Body, Protein, and Fat Gain and Retained Energy for Pre- and Postweaning Calves**

Caleb Hildebrand¹, Phillip A. Lancaster²

¹Beef Cattle Institute, Kansas State, ²Beef Cattle Institute/Kansas State University

7:30 a.m. PSIV-14 **Feeding Broiler Chicks with *S. pombe*-expressed Phytase-containing Diet Improves Growth Performance, Phosphorus Digestibility, Toe Ash, and Footpad Lesions**

De Xin Dang¹, Muhizi Serge¹, In Ho Kim¹

¹Dankook University

7:30 a.m. PSIV-15 **Impact of Wean Age and SID Lysine Level on Performance in Lactation**

Grant I. Petersen¹, Katherine McCormick¹, Mike E. Johnston¹

¹United Animal Health

7:30 a.m. PSIV-16 **Phytase Expressed from *Schizosaccharomyces Pombe* Ameliorates Footpad Lesions in Cage-reared Broiler Chicks**

Seong Guk Chun¹, De Xin Dang¹, Olivier Munezero², In Ho Kim¹

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

7:30 a.m. PSIV-18 **Standardized Ileal Digestible Amino Acids and Digestible Energy Contents in Two Modified Soy Protein Concentrates and Soybean Meal Fed to Growing Pigs**

Lee-Anne Huber¹, Cuilan Zhu¹, Lauren Hansen¹, Cierra Kozole¹, Cristhiam Munoz Alfonso¹, Jessica Mark¹, Reza Akbari Moghaddam Kakhki¹, Youngji Rho¹, Elijah Kiarie¹

¹University of Guelph

7:30 a.m. PSIV-17 **Supplementing Gentamicin Sulfate Through the Water Impacts the Performance Response of Nursery Pigs to Structural Fiber**

Sara Ebarb¹, Sabrina B. May¹, Brent Frederick¹

¹Cargill Animal Nutrition

7:30 a.m. PSIV-20 **The Effect of Live Yeast and Yeast Extracts Included in Lactation and Nursery Diets on Nursery Pig Fecal Antimicrobial Resistance**

Jenna A. Seltzer¹, Joel M. DeRouchey², Raghavendra G. Amachawadi², Victor Ishengoma², Tiruvoor Nagaraja², Robert D. Goodband², Jason C. Woodworth², Mike D. Tokach², Qing Kang², Joe Loughmiller³, Brian Hotze³, Jordan T. Gebhardt²

¹Elanco Animal Health, ²Kansas State University, ³Phileo by Lesaffre

7:30 a.m. PSIV-19 **The Effect of Live Yeast and Yeast Extracts Included in Lactation Diets on Sow and Litter Performance and Antimicrobial Susceptibility of Sow Fecal *Escherichia coli***

Jenna A. Seltzer¹, Joel M. DeRouchey², Raghavendra G. Amachawadi², Victor Ishengoma², Tiruvoor Nagaraja², Robert D. Goodband², Jason C. Woodworth², Mike D. Tokach², Qing Kang², Joe Loughmiller³, Brian Hotze³

¹Elanco Animal Health, ²Kansas State University, ³Phileo by Lesaffre

Animal Behavior, Health and Well-Being: Production Welfare - Sponsored by Merck

Chair: Nichole Anderson, Texas Tech University

8:00 AM - 11:15 AM

205/206/207

8:00 a.m. 1 **Awardee Talk: Investigation of Pain and Analgesic Strategies in Cattle Undergoing Painful Husbandry Procedures and Disease Conditions**

Miriam S. Martin¹

¹Kansas State University

8:30 a.m. 2 **5' Untranslated Region-based Detection of Genetically Diverse APPV Strains in US Midwest**

Christian Eaton¹, Kylee Sutton¹, Benny E. Mote², Thomas E. Burkey¹, Tudor Borza³, J. Dustin Loy¹, Daniel C. Ciobanu¹

¹University of Nebraska-Lincoln, ²Department of Animal Science, University of Nebraska – Lincoln, ³Dalhousie University

8:45 a.m. 3 **Effect of Litter Size and Provision of Supplementary Liquid Milk Replacer During Lactation on Piglet Pre-weaning Performance**

Naomi C. Willard¹, Nicole K. Moest¹, Katherine D. Vande Pol¹, Alicia Olivio², Caleb M. Shull³, Denny McKilligan⁴, Mike Ellis¹

¹University of Illinois, ²University of Manitoba, ³The Maschhoffs, LLC, ⁴TechMix Global

9:00 a.m. 4 **Variation in Sow Body Temperature Following Weaning**

Naomi C. Willard¹, Nicole K. Moest¹, Katherine D. Vande Pol¹, Caleb M. Shull², Rich Pimpinella³, Christoph Grein³, Mike Ellis¹

¹University of Illinois, ²The Maschhoffs, LLC, ³Episensors

9:15 a.m. 5 **Effects of Nutrition Plans and Floor and Feeder Space on Growth Performance and Behaviors of 6- to 28-kg Nursery Pigs**

Ning Lu¹, Carine M. Vier¹, Ronan Casserly¹, Steve Dritz¹, Ron A. Navales¹, Wayne R. Cast¹, Danielle Wilson-Wells², Luis E. Zaragoza¹, Malachy Young³, Jose Luis Landero³, Fernando Gomez¹, Nat Stas¹, Uislei A. Orlando¹

¹Genus PIC, ²PIC North America, ³Gowans Feed Consulting

9:30 a.m. 6 **Effects of Plans on Growth Performance and Behaviors of 32- to 128-kg Grow-finish Pigs**

Ning Lu¹, Carine M. Vier¹, Steve Dritz¹, Ron A. Navales¹, Wayne R. Cast¹, Danielle Wilson-Wells², Ronan Casserly¹, Luis E. Zaragoza¹, Malachy Young³, Jose Luis Landero³, Uislei A. Orlando¹

¹Genus PIC, ²PIC North America, ³Gowans Feed Consulting

9:45 a.m. **Animal Behavior, Health and Well-Being Break**

10:00 a.m. 7 **Awardee Talk: Muddy Environmental Conditions Increase Net Energy Requirements and Decrease Cow and Heifer Body Weight and Body Condition During Late Gestation**

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

¹The Ohio State University, ²University of Georgia

10:30 a.m. 11 **Determination of Milk Concentrations and Pharmacokinetics of Salicylic Acid Following Acetylsalicylic Acid (aspirin) Administration in Postpartum Dairy Cows**

Bailey R. Fritz¹, Michael D. Kleinhenz², Shawnee R. Montgomery², Geraldine Magnin², Miriam S. Martin², Mikaela Weeder², Andrew K. Curtis², Johann F. Coetzee³

¹Kansas State University, Department of Anatomy and Physiology, ²Kansas State University,

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

10:45 a.m. 9 **Evaluation of Predictive Models to Determine Total Morbidity Outcome of Feedlot Cattle Based on Pen-level Feed Delivery Data During the First 15 Days on Feed**

Lilli Heinen¹, Phillip A. Lancaster², Brad J. White¹, Erik Zwiefel³

¹Beef Cattle Institute, Department of Clinical Sciences, College of Veterinary Medicine, Kansas State University, ²Beef Cattle Institute/Kansas State University, ³Machine Learning Global Black Belt Team, Microsoft

11:00 a.m. 10 **Development of an Essential Oil-based Intranasal Spray Against Bovine Respiratory Pathogens: *in Vitro* Selection Based on Antimicrobial, Antiviral, Immunomodulatory, and Antibiofilm Activities**

Samat Amat¹, AGM Rakibuzzaman¹, Devin B. Holman², Kaycie N. Schmidt¹, Luke Kosel³, Sheela Ramamoorthy¹

¹North Dakota State University, ²Agriculture Agri-Food Canada, Lacombe Research and Development Center, ³North Dakota State University, Department of Biological Sciences

Nonruminant Nutrition Symposium - Sponsored by Zoetis

Chair: Doug Cook, CSA Animal Nutrition

8:00 AM - 11:30 AM

Ballroom C

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

8:05 a.m. 124 **Early Microbiome Development for Gut Health: Intrinsic and Extrinsic Drivers**

Andres Gomez¹, Kayla Law¹

¹University of Minnesota

8:40 a.m. 125 **Shaping Gut Health in Young Pigs Through Macro-nutrient and Ingredient Manipulation**

Nicholas K. Gabler¹

¹Iowa State University

9:15 a.m. 126 **Maxwell Lectureship: Large Scale Practical Nutrition Research Sharing: Feeding the E. coli Challenged Pig: What We Have Learned to Date**

Amanda J. Gerhart ¹, Brittany Carrender ², Kyle Coble ¹
¹JBS Live Pork, ²JBS

9:45 a.m. **Nonruminant Nutrition Symposium Break**

10:00 a.m. 127 **Large Scale Practical Nutrition Research Sharing: Nursery Nutrition Research and Nutritional Technologies and Strategies to Reduce Morbidity and Mortality**

Omarh F. Mendoza ¹, Caleb M. Shull ¹
¹The Maschhoffs, LLC

10:30 a.m. 258 **Large Scale Practical Nutrition Research Sharing**

Noel H. Williams ¹, Ben Haberl ¹
¹Iowa Select Farms

11:00 a.m. **Nonruminant Nutrition Symposium Roundtable Discussion**

Genetics, Genomics and Bioinformatics Symposium

Chair: James Koltes, Iowa State University, Department of Animal Science

8:00 AM - 12:00 PM

203

8:00 a.m. **Genetics, Genomics and Bioinformatics Symposium Introduction**

8:05 a.m. 260 **AG2PI Funding Opportunities at USDA**

Frank Siewerdt ¹
¹USDA

8:15 a.m. 44 **Development and Application of Novel Phenotyping Technologies to Swine Production and Breeding**

Tom Rathje ¹, Andy Jakubowski ², Iara Del Pilar Solar Diaz ³, Emily Mauch-Swinford ¹,
Muhammed Walugembe ³, Amanda Cross ³
¹DNA Swine Genetics, ²Pillen Family Farms, ³DNA Genetics LLC

8:45 a.m. 45 **Imaging and Phenotyping Technologies for Poultry Welfare Evaluation**

Lilong Chai ¹
¹University of Georgia

9:15 a.m. 46 **An Engineers Perspective on Sensor Development and Future Applications in Livestock**

Santosh Pandey ¹
¹Iowa State University

9:45 a.m. **Genetics, Genomics and Bioinformatics Symposium Break**

10:00 a.m. 47 **Plant Phenomics and Artificial Intelligence to Glean Information from Plant Sensing Technologies**

Soumik Sarkar ¹
¹Iowa State University

10:30 a.m. 48 **Beef Precision Sensing Technologies and Applications**

Y. Xiong ¹

¹University of Nebraska-Lincoln

11:00 a.m. 261 **Computer Vision in Dairy Cattle as a Phenotyping Tool**

Joao R. Dorea ¹

¹Department of Animal and Dairy sciences, University of Wisconsin-Madison

11:30 a.m. **Genetics, Genomics and Bioinformatics Symposium Panel Discussion**

Swine Translational Symposium

Chair: Benny Mote, Department of Animal Science, University of Nebraska-Lincoln

8:00 AM - 12:00 PM

201

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

8:05 a.m. 83 **At the Slat Level: Data Needed versus What's A Waste of Time**

Jeff Mahoney ¹

¹The Maschhoffs

8:45 a.m. 84 **What Does "Found Dead" Mean? Tools for Better Record Keeping**

Ronald T. Ketchem ¹

¹30 & Up Consulting

9:25 a.m. 87 **What's Measured in Other Food Animal Species to Predict Disease?**

Marcel Sarzen ¹

¹AGL Technology

10:05 a.m. **Swine Translational Symposium Break**

10:20 a.m. 86 **Reaching Genetic Potential in Pigs: 10 Disruptive Digital Technologies**

Aidan J. Connolly ¹

¹AgriTech Capital LLC

11:00 a.m. 85 **What Does the Vaginal Lipidome Tell Us?**

Kara R. Stewart ¹, Theresa Casey ¹, Christina Ferreria ¹

¹Purdue University

11:40 a.m. **Swine Translational Symposium Panel Discussion**

Billy Day Symposium - Sponsored by Billy N. Day Appreciation Club

Chair: Tim Safranski, University of Missouri-Columbia

8:00 AM - 12:15 PM

210/211/212

8:00 a.m. 17 **Evaluation of Measures to Predict Gilt Longevity**

Benny E. Mote ¹

¹Department of Animal Science, University of Nebraska – Lincoln

8:15 a.m. 18 **Tools Used and Needed in the Gilt Pool**

Robert V. Knox ¹

¹University of Illinois at Urbana-Champaign

8:45 a.m. 19 **Technology to Efficiently and Effectively Evaluate Body Condition**

Mark Knauer ¹

¹North Carolina State University

9:15 a.m. 20 **Trials and Tribulations of Countering Insufficient Sperm Quantity with Sperm Quality, Fertility, Synchrony and Deeper Site of Insemination**

Brad A. Belstra ¹

¹MB Swine Reproduction

9:45 a.m. 21 **Technologies for Farrowing Efficiency and Piglet Survival**

Kara R. Stewart ¹

¹Purdue University

10:15 a.m. **Billy Day Symposium Break**

10:30 a.m. 22 **Semen Evaluation Technologies: Not As Far-fetched As You Think?**

K.C. Kerns ¹, Alexandra Keller ¹

¹Iowa State University

11:00 a.m. 23 **In the Boar Stud and In the Breeding Barn, Technology Matters**

Amanda Minton ¹

¹Acuity Swine Genetics

11:30 a.m. 24 **Sow Feeding Technologies: Challenges and Opportunities**

Hyatt Frobose ¹

¹Gestal - JYGA Technologies

12:00 p.m. **Billy Day Symposium Q&A**

Nonruminant Nutrition I: Enzymes - Sponsored by Zoetis

Chair: Ping Ren, Novus International, Inc

8:30 AM - 10:30 AM

Ballroom A

8:30 a.m. 88 **Effect of Increasing Levels of a Novel Consensus Bacterial 6-phytase Variant on Ileal and Total Tract Digestibility of Nutrients in Diets Fed to Young Pigs**

Charmaine D. Espinosa ¹, Deepak E Velayudhan ², Yueming Dersjant-Li ³, Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign, ²Danisco Animal Nutrition & Health (IFF), ³Danisco Animal Nutrition (IFF)

8:45 a.m. 89 **Practical Screening of Enzymes in Pigs Fed Diets Containing High Dried Distillers' Grain (DDG)**

Steve J. Kitt ¹, Mark J. Bertram ², Niall Higgins ³, Tri Duong ⁴, Sara Llamas-Moya ⁴

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

9:00 a.m. 90 **Efficacy of Different Phytases on Growth Performance, Energy and Nutrient Digestibility and Bone Quality of Weaned Piglets Fed a Wheat-corn Soybean Meal Based Complex Diet**

Deepak E Velayudhan¹, Rosil Lizardo², Boris Villca², Janet C. Remus³, Leon Marchal⁴, Yueming Dersjant-Li⁴

¹Danisco Animal Nutrition & Health (IFF), ²IRTA, ³IFF Danisco Animal Nutrition, ⁴Danisco Animal Nutrition (IFF)

9:15 a.m. 91 **Meta-analysis of 4 Trials: The Effect of Multi-enzyme Containing Xylanase, β -glucanase, Amylase and Protease on Growth Performance in Weaned Pigs**

Deepak E Velayudhan¹, Wenting Li², Georg Dusel³, Marta I. Gracia⁴, Arun Kumar⁵, Ellie Shoesmith², ESTER VINYETA-PUNTI¹, Olayiwola Adeola⁶, Leon Marchal²

¹Danisco Animal Nutrition & Health (IFF), ²Danisco Animal Nutrition (IFF), ³University of Applied Sciences Bingen, ⁴IMASDE, ⁵The University of Queensland, ⁶Purdue University

9:30 a.m. 92 **Effects of Increasing Dose of a Novel *e Coli* Phytase on Total Tract Digestibility of Minerals and Energy in Pigs**

Su A Lee¹, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign

9:45 a.m. 93 **Efficacy of Bacterial 6-phytase and Its Optimal Supplementation Level on Bone Parameters, Nutrient Digestibility, and Growth Performance of Nursery Pigs**

Vitor Hugo C. Moita¹, Marcos Elias Duarte¹, Sung Woo Kim¹

¹North Carolina State University

10:00 a.m. 94 **Feeding a Multi-carbohydrase (Rovabio® Advance) Improves the Morbidity of Wean-to-finish Pigs**

Mark A. Giesemann¹, Darlene J. Bloxham¹, Robert B. Shirley², Mark A. Giesemann², Marcio Ceccantini³, Gene Gourley⁴, Josue Chinchilla-Vargas⁴, Emily K. Bruder⁵

¹Adisseo, ²Adisseo USA, Inc., ³Adisseo FRANCE, ⁴Gourley Research Group, ⁵Gene Gourley Research Group

10:15 a.m. 95 **Carbohydrase Mixture Supplementation to High Fiber Diets on Apparent Total Tract Digestibility of Nutrients in Diets for Gestating Sows Compared to Growing Pigs**

Garrin Shipman¹, Jorge Y. Perez-Palencia¹, Rob Patterson², Crystal L. Levesque¹

¹South Dakota State University, ²CBS Bio-Platforms Inc.

Growth, Development, Muscle Biology and Meat Science Symposium

Chair: Emily Arkfeld, Triumph Foods

8:30 AM - 11:00 AM

202

8:30 a.m. **Growth, Development, Muscle Biology and Meat Science Symposium Introduction**

8:35 a.m. 73 **Commercial Management of Fresh Pork Quality Using Post-mortem Ph and Temperature Declines**

Neal Matthews¹, Brandon Fields¹, Andrzej Sosnicki¹

¹PIC North America

9:20 a.m. 74 **Characterizing Pork Color Shelf Life: Foundational Visual and Biochemical Bases of Pork Discoloration**

Bailey Harsh¹

¹University of Illinois at Urbana-Champaign

10:05 a.m. **Growth, Development, Muscle Biology and Meat Science Symposium Break**

10:15 a.m. 75 **Novel Approaches to Characterize Beef Color Changes**

Ranjith Ramanathan¹, Daqing Piao¹, Sadagopan Krishnan¹, Gretchen G. Mafi¹

¹Oklahoma State University

Nonruminant Nutrition II: Grow-Finish Ingredients, Minerals, Energy

Sponsored by Chemlock Nutrition

Chair: Qingyun Li, Cargill Animal Nutrition

8:30 AM - 11:00 AM

Ballroom B

8:30 a.m. 264 **Awardee Talk: A Systems Approach for Evaluating Productivity, Nutritional Efficiency, and Environmental Impacts of Feeding Programs for Growing-finishing Pigs**

Zhaohui Yang¹, Yuan-Tai Hung², Jae C. Jang¹, Pedro E. Urriola¹, Lee J. Johnston³, Gerald C. Shurson¹

¹University of Minnesota, ²Devenish Nutrition, ³West Central Research and Outreach Center, University of Minnesota

9:00 a.m. 96 **Effects of Soybean Meal Inclusion Rate on Growth Performance of 40- to 90-kg Pigs**

Henrique S. Cemin¹, Luke A. Swalla¹, Jamie L. Pietig¹, Sharlie A. Hansen¹, Ernie L. Hansen¹

¹Hubbard Feeds

9:15 a.m. 97 **Effects of Increasing Levels of Hybrid Rye on Growth Performance of 45 to 125 Kg Pigs**

Caitlyn R. Sullivan¹, Robert C. Thaler¹, Kiah M. Berg², Jon A. De Jong², Casey R. Neill², Joe P. Ward³, Paul F. Frahm³, Dan B. Hanson⁴, Mike J. Boerboom⁵

¹South Dakota State University, ²Pipestone Nutrition, ³Pipestone Applied Research, ⁴Pipestone applied research, ⁵Boerboom Ag Resources

9:30 a.m. 98 **Digestibility of Energy, Dry Matter, Protein, and Fat and Concentration of Metabolizable Energy in Sunflower Meal and Sunflower Expellers Fed to Growing Pigs**

Jimena A. Ibagón¹, Su A Lee², Hans H. Stein²

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

9:45 a.m. **Nonruminant Nutrition II: Grow-Finish Ingredients, Minerals, Energy Break**

10:00 a.m. 99 **Effect of Trace Mineral Inclusion Level on Growing-finishing Pig Performance, Trace Mineral Manure Concentration, and Carcass Characteristics**

Marissa N. LaRosae¹, Ryan S. Samuel², David A. Clizer¹

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

10:15 a.m. 100 **The Impact of Dietary Analyzed Ca to P Ratios and Standardized Total Tract Digestible P to Net Energy Ratios on Growth Performance, Bone, and Carcass Characteristics of Pigs**

Hadley Williams¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt², Carine M. Vier³, Ning Lu³, Wayne Cast³, Ron Navales³, Matthew Spindler³, Uislei A. Orlando³, Luis E. Zaragoza³, Alyssa Betlach⁴

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

10:30 a.m. 101 **Evaluation of Vitamin D on Performance and Bone Mineral Density in Finishing Pigs**

Leah Smith¹, Gene Gourley², Chris Sparks³, Nicholas K. Gabler⁴

¹Gourley Research Group LLC, ²Gourley Research Group, ³Huvepharma, ⁴Iowa State University

10:45 a.m. 102 **Reduced Caloric Intake Increases the Incidence Rate of Gastric Ulcers in Growing Pigs**

Nicholas K. Gabler¹, Kayla A. Miller¹, Carson M. De Mille¹, Eric R. Burrough¹, Wesley P. Schweer²

¹Iowa State University, ²Zinpro Corporation

Harlan Ritchie Symposium - Sponsored by Harlan D. Ritchie Appreciation Club

Chair: Scott Greiner, Virginia Tech

8:30 AM - 11:30 AM

213

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

8:35 a.m. 80 **Climate Change and the Beef Industry: A Rapid Expansion**

Kim R. Stackhouse-Lawson¹, Logan R. Thompson²

¹AgNext, Colorado State University, Fort Collins, CO 80523, ²Colorado State University AgNext

9:15 a.m. 265 **The Interface Between Agriculture Producers and Supply Chains in Relation to Sustainability**

Jared Knock¹

¹Millborn Seeds Inc.

9:55 a.m. **Harlan Ritchie Symposium Break**

10:10 a.m. 81 **Sustainability on the Ranch—Defining A Vision for the Future**

Trey Patterson¹

¹Padlock Ranch

10:50 a.m. 82 **Cattle Feeding in Today's Challenging Environment: Industry Perspective**

Todd Milton¹

¹Midwest PMS

Ruminant Nutrition II

Chair: Joshua McCann, University of Illinois at Urbana-Champaign

8:30 AM - 11:45 AM

214

8:30 a.m. 203 **Effect of Feed Intake and Calcium Salts of Palm Oil Inclusion on Growth Performance and Carcass Characteristics of Feedlot Finishing Steers**

Alejandro Pittaluga¹, Mairim Ortiz¹, Alejandro E. Relling¹

¹The Ohio State University

8:45 a.m. 204 **Effect of Breed Type on Maintenance Energy Requirements and Partial Efficiency of Metabolizable Energy Use in Growing/finishing Cattle**

Phillip A. Lancaster¹

¹Beef Cattle Institute/Kansas State University

9:00 a.m. 205 **Evaluation of a Direct Fed Microbial and/or an Enzymatically Hydrolyzed Cell Wall + Yeast Culture Product on Growth Performance, Dietary Net Energy Utilization, and Carcass Traits in Beef Steers**

Erin R. Gubbels¹, Warren C. Rusche¹, Tom G. Rehberger², Elliot Block², Zachary K. Smith¹

¹South Dakota State University, ²Arm & Hammer Animal and Food Production

9:15 a.m. 206 **Effects of a Direct Fed Microbial and/or an Enzymatically Hydrolyzed Yeast Product Fed to Beef Steers Provided Ractopamine Hydrochloride 28 D Before Harvest During Summer Months in the Northern Plains**

Erin R. Gubbels¹, Warren C. Rusche¹, Tom G. Rehberger², Elliot Block², Zachary K. Smith¹

¹South Dakota State University, ²Arm & Hammer Animal and Food Production

9:30 a.m. 207 **Polyclonal Antibodies Inhibit Growth of Key Cellulolytic Rumen Bacterial Species**

Sara M. Tondini¹, Roderick I. Mackie², Joshua C. McCann²

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

9:45 a.m. **Ruminant Nutrition II Break**

10:00 a.m. 208 **Nutrient Restriction During Late Gestation Alters Beef Heifer Colostrum Composition**

Allison M. Meyer¹, Colby A. Redifer¹, Lindsey G. Wichman¹, Abigail R. Rathert-Williams¹

¹Division of Animal Sciences, University of Missouri

10:15 a.m. 209 **Effects of Biochar in Finishing Beef Cattle Diets on Greenhouse Gas Emissions**

Holly A. Heil¹, Braden C. Troyer¹, Levi J. McPhillips¹, Jessica L. Sperber¹, Andrea K. Watson¹, Galen E. Erickson¹

¹University of Nebraska-Lincoln

10:30 a.m. 210 **Evaluation of the Effects of Wood-sourced Biochar as a Feedlot Pen Surface Amendment on Manure Nutrient Capture**

Jessica L. Sperber¹, Braden C. Troyer¹, Mitchell M. Norman², Levi J. McPhillips¹, Andrea K. Watson¹, Galen E. Erickson¹

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

10:45 a.m. 211 **Greenhouse Gas Emissions from Two Beef Systems from Birth to Slaughter in Eastern Nebraska**
Levi J. McPhillips¹, Zachary Carlson², James C. MacDonald³, Andy Suyker¹, Tala Awada¹, Andrea K. Watson¹, Jane Okalebo¹, Y. Xiong¹, Shree Dangal¹, Holly A. Heil¹, Rick Stowell¹, Galen E. Erickson¹
¹University of Nebraska-Lincoln, ²North Dakota State University, ³University of Nebraska

11:00 a.m. 212 **The Effects of *propionibacterium Acidipropionici* P169 in an in vitro Ruminant Acidosis Model**
Jenna McNelis¹, Bree Gaffney², Haley F. Linder³, Zachary Buessing³, Jennifer E. Earing¹, Daniel W. Shike³, Marion Bernardeau⁴, Joshua C. McCann³
¹Illinois State University, ²Western Illinois University, ³University of Illinois at Urbana-Champaign, ⁴International Flavors & Fragrances

Nonruminant Nutrition III: Management Practices - Sponsored by Topigs Norsvin USA
Chair: Carolina Feoli, CSA Animal Nutrition
10:30 AM - 12:00 PM
216

10:30 a.m. 103 **Effect of Floor Feeding Creep Feed on the Growth Performance and Morbidity and Mortality of Pigs After Weaning**
Madie R. Wensley¹, Mike D. Tokach², Robert D. Goodband², Jordan T. Gebhardt², Jason C. Woodworth², Joel M. DeRouchey², Matt W. Allerson³, Mariana Menegat³
¹Kansas State Univeristy, ²Kansas State University, ³Holden Farms

10:45 a.m. 104 **Effect of Mat Feeding on the Growth Performance and Morbidity and Mortality of Pigs After Weaning**
Madie R. Wensley¹, Mike D. Tokach², Robert D. Goodband², Jordan T. Gebhardt², Jason C. Woodworth², Joel M. DeRouchey², Matt W. Allerson³, Mariana Menegat³
¹Kansas State Univeristy, ²Kansas State University, ³Holden Farms

11:00 a.m. 105 **The Impact of Lowering Floor Space Allowance and Dietary Energy Level on Finishing Pigs, from 65 Kg to Market, on Growth Performance**
Chloe S. Hagen¹, Laura L. Greiner¹, Gustavo Silva¹, Beau Peterson², Eric Parr², Brandon Knopf², Jorge Estrada³
¹Iowa State University, ²Carthage Innovative Swine Solutions, ³Carthage Veterinary Service

11:15 a.m. 106 **Evaluation of a Novel Wet/dry Feeder in Finishing Pigs**
Laura L. Greiner¹, Dalton C. Humphrey¹, Spenser Becker¹, Chloe S. Hagen¹, Katie Holtz²
¹Iowa State University, ²PigEasy

11:30 a.m. 107 **Effect of Water Delivery System on Growth Performance of Nursery Pigs**
Kelsey L. Hammers¹, Kayla Law¹, Andres Gomez¹, Pedro E. Urriola¹, Lee J. Johnston²
¹University of Minnesota, ²West Central Research and Outreach Center, University of Minnesota

11:45 a.m. 108 **Quantifying the Presence of Viral Material in Feed Delivered in Iowa**
Trey A. Kellner¹, Josh Ellingson², Paul Thomas², Nick V. Serao³
¹AMVC Nutritional Services, ²AMVC Management Services, ³Iowa State University

Poster Session V - Sponsored by DSM

12:00 PM - 12:45 PM

Grand Ballroom Foyer

12:00 p.m. **PSV-1 Addition of Ammonium Chloride to Feed Is an Effective Strategy to Attenuate Growth in 25-kg Pigs**

Brittney P. Kokinos¹, Mariola Grez Capdeville¹, Thomas D. Crenshaw¹

¹Department of Animal and Dairy Sciences, University of Wisconsin-Madison

12:00 p.m. **PSV-2 Beneficial Impact of Black Soldier Fly (*Hermetia Illucens*) Larvae Oil on Growth Performance of Nursery Pigs**

Caitlyn Eickleberry¹, Elizabeth Koutsos², Alejandra McComb², Eric van Heugten¹

¹North Carolina State University, ²EnviroFlight LLC

12:00 p.m. **PSV-3 Changes in Sow Farrowing Performance with Parity**

Katherine D. Vande Pol¹, Caleb M. Shull², Mike Ellis¹

¹University of Illinois, ²The Maschoffs, LLC

12:00 p.m. **PSV-4 Dietary Supplementation of Botanical Extracts on Intestinal Health and Serum Inflammatory Biomarkers of Weaned Pigs Experimentally Infected with a Pathogenic *Escherichia coli***

Sangwoo Park¹, Lauren L. Kovanda¹, Braden Wong¹, Emma Wall², Yanhong Liu¹

¹University of California, Davis, ²AVT Natural

12:00 p.m. **PSV-5 Effects of Benzoic Acid and an Essential Oils Blend on Detection of Swine Viruses in Inoculated Swine Feed and Premix**

Allison K. Blomme¹, Jordan T. Gebhardt², Cassandra K. Jones¹, Jason C. Woodworth¹, Elizabeth Poulsen-Porter¹, Jianfa Bai³, Jon R. Bergstrom⁴, Chad B. Paulk¹

¹Kansas State University, ²Kansas State University, ³Kansas State University, ⁴DSM

12:00 p.m. **PSV-6 Effects of Boron Supplementation on Apparent Digestibility and Retention of Nutrients in Growing Pigs**

Tyler B. Chevalier¹, Merlin D. Lindemann¹

¹University of Kentucky

12:00 p.m. **PSV-7 Effects of Feed Additives Ambitine and Taktik X-hit on Amino Acid Digestibility in Pigs**

Robert Hoiten¹, Crystal L. Levesque¹, Ryan S. Samuel²

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

12:00 p.m. **PSV-8 Effects of Injectable Vitamin C Immediately Prior to Transit Before Slaughter on Meat Color**

Colten W. Dornbach¹, Bailey Harsh², Joshua C. McCann²

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

12:00 p.m. **PSV-9 Effects of Supplemental Methionine Sources in Finishing Pig Diets on Carcass Characteristics, Cutting Yields, and Meat Quality**

Hannah Remole ¹, Caroline Gonzalez Vega ², John K. Khun Kyaw Htoo ³, Anna Dilger ⁴, Bailey Harsh ⁴

¹University of Illinois, ²Cargill Animal Nutrition, ³Evonik, ⁴University of Illinois at Urbana-Champaign

12:00 p.m. **PSV-10 Evaluation of a Nutritional Feed Supplement (Furst Protect™) on Growth Performance in Nursery Pigs**

Fredrik Sandberg ¹, Greg Hartsook ¹, Kevin Soltwedel ¹, Megan Bible ¹

¹Furst-McNess Company

12:00 p.m. **PSV-11 Evaluation of a Supplement (ATPsorb) on Growth Performance in Nursery Pigs**

Fredrik Sandberg ¹, Eric Kwon ¹, Kevin Soltwedel ¹, Greg Hartsook ¹, Megan Bible ¹

¹Furst-McNess Company

12:00 p.m. **PSV-12 Evaluation of Iron Source and Level on Nursery Pig Performance and Blood Hemoglobin Concentrations**

Mitchell J. Nisley ¹, Nicholas K. Gabler ¹, Wesley P. Schweer ², Christof Rapp ², Alyssa S. Cornelison ²

¹Iowa State University, ²Zinpro Corporation

12:00 p.m. **PSV-13 Lawsonia Intracellularis Increases Cell Proliferation in Swine Enteroids in vitro**

Caitlin Klæui ¹, Ramya Lekha Medida ², Matthew Stone ², Lacey Marshall-lund ², Connie Gebhart ², Milena Saqui-Salces ²

¹University of Minnesota Twin Cities, ²University of Minnesota

12:00 p.m. **PSV-14 Performance and Consumer Preference Between Bone-in and Boneless Striploins Using a Precision Dry-aging System (Agenator)**

Nicolas Herrera ¹, Joseph Sonderman ², David Velazco ¹, Chris Calkins ¹

¹University of Nebraska-Lincoln, ²University of Nebraska

12:00 p.m. **PSV-15 Prediction of Nursery and Finishing Performance Based on Starting Nursery Weights**

Caitlyn M. M. Wileman ¹, Scott D. Carter ², Jared A. Harshman ², Taw Scaff ², Pornpim Aparachita ², Afton Sawyer ²

¹Department of Animal and Food Sciences, Oklahoma State University, Stillwater, OK 74078,

²Oklahoma State University

12:00 p.m. **PSV-16 Recent Mycotoxin Contamination Trends in 2021 United States Corn**

Lan Zheng ¹, Paige N. Gott ¹, Shelby M. Ramirez ², Ursula Hofstetter-Schähs ¹, G.Raj Murugesan ¹

¹DSM Nutritional Products, ²DSM Nutritional Products North America

12:00 p.m. **PSV-17 The Interaction Between Heat Stress and Zearalenone Toxicity in Porcine Skeletal Muscle**

Tori E. Rudolph¹, Crystal M. Roach¹, Lance H. Baumgard¹, Aileen F. Keating¹, Joshua T. Selsby¹

¹Iowa State University

12:00 p.m. **PSV-18 Time Since Last Meal Until the Onset of Farrowing Affects Survivability of Newborn Piglets**

Xin Gao¹, Junmei Zhao¹, Qiong Hu², Lawrence Chan¹

¹Cargill, ²Cargill Animal Nutrition

12:00 p.m. **PSV-19 Trace Amounts of Antibiotic Altered Gut Microbial Profiles of Weaned Pigs Experimentally Infected with A Pathogenic *Escherichia coli***

Kwangwook Kim¹, Cynthia N. Jinno¹, Yanhong Liu¹

¹University of California, Davis

12:00 p.m. **PSV-20 Effects of Enterid™ in Lactating Sow Diets on Sow and Litter Performance**

Huyen Tran¹, Aileen Joy Mercado¹, Murali Raghavendra Rao¹, Brenda de Rodas¹

¹Purina Animal Nutrition

Nonruminant Nutrition IV: Additives I - Sponsored by Zoetis

Chair: Darlene Bloxham, Adisseo

12:30 PM - 3:15 PM

Ballroom B

12:30 p.m. 109 **Awardee Talk: Dietary Supplementation of *Bacillus amyloliquefaciens* Influenced Systemic Immunity and Intestinal Microbiome of Weaned Pigs**

Cynthia N. Jinno¹, Yanhong Liu¹

¹University of California, Davis

1:00 p.m. 110 **Dosage and Not Time of Exposure to Deoxynivalenol Affects the Performance of Nursery Pigs Fed High Mycotoxin Diets up to 28 Days Post-wean**

Yemi O. Burden¹, Katherine A. McCormick¹, Julie Mahoney¹, Nathan Horn¹, Adrienne Woodward¹

¹United Animal Health

1:15 p.m. 111 **Evaluation of Dietary Mycotoxin Control Strategies on Nursery Pig Growth Performance and Blood Measures**

Larissa L. Becker¹, Jordan T. Gebhardt², Joel M. DeRouchey¹, Jason C. Woodworth¹, Mike D. Tokach¹, Robert D. Goodband¹, Arnau Vidal³, Christos gougoulia³

¹Kansas State University, ²Kansas State University, ³Innovad Global

1:30 p.m. 112 **A Meta-analysis on the Effect of Guanidinoacetic Acid Supplementation on Growth Performance of Growing Pigs**

Maria S. Mendoza¹, John K. Htoo², Lukas Bauer³

¹Evonik Corporation, ²Evonik Operations GmbH, ³Evonik Operations GmbH

1:45 p.m. **Nonruminant Nutrition IV: Additives I Break**

2:00 p.m. 113 **Effects of Maternal Parity and Prebiotics on the Microbiome of Nursery Pigs**

Kayla Law¹, Eduardo Rosa Medina Garcia², Chad W. Hastad³, Deborah Murray⁴, Pedro E. Urriola¹, Andres Gomez¹

¹University of Minnesota, ²University of Minnesota-Twin Cities, Department of Animal Science, ³New Fashion Pork, ⁴New Fashion Pork Inc

2:15 p.m. 114 **Evaluation of Selenium Source on Nursery Pig Growth Performance, Serum and Tissue Selenium Concentrations, and Serum Antioxidant Status**

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

¹Kansas State University, ²Kansas State University

2:30 p.m. 115 **Effects of a Chronic Lipopolysaccharide Challenge on Growth Performance and Immune Response of Nursery Pigs Fed Differing Sources of Dietary Zinc**

Jared A. Harshman¹, Scott D. Carter¹, Pornpim Aparachita¹, Taw Scaff¹, Chris P. A. Van de Ligt²

¹Oklahoma State University, ²Micronutrients

2:45 p.m. 116 **Effect of Zinc Oxide and Organic Zinc on Weanling Pig Performance**

Marissa N. LaRosae¹, Ryan S. Samuel², David A. Clizer¹

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

3:00 p.m. 117 **Evaluation of Piglet Performance in Response to Cellulose Supplementation in the Sows Diet**

Mathew A. Vaughn¹, James L. McNaughton², John M. Gonzalez³

¹Puretein Biosciences, ²AHPharma, ³University of Georgia

Nonruminant Nutrition VI: Nursery Ingredients - Sponsored by Zoetis

Chair: Diego Navarro, Hamlet Protein

1:00 PM - 2:45 PM

Ballroom A

1:00 p.m. 135 **Growth Performance of Nursery Pigs Fed Antibiotic-free Diets with Spray Dried Bovine Plasma as an Alternative for Use of High Levels of Zinc Oxide**

Joy Campbell¹, Joe Crenshaw¹, Jose Luis Landero², Malachy Young²

¹APC, LLC, ²Gowans Feed Consulting

1:15 p.m. 136 **Optimum Concentration of Spray Dried Plasma for Maximized Growth Performance, Improved Intestinal Health, and Reduced Inflammation in Weaned Pigs Housed in a Challenged Environment**

Hannah M. Bailey¹, Hans H. Stein², Joy Campbell³

¹University of Illinois, ²University of Illinois at Urbana-Champaign, ³APC, LLC

1:30 p.m. 137 **Inclusion of Spray Dried Plasma in Diets Based on Different Ingredient Combinations Increases the Digestibility of Energy, Fiber, Ca, and P by Young Pigs**

Hannah M. Bailey¹, Hans H. Stein², Joy Campbell³

¹University of Illinois, ²University of Illinois at Urbana-Champaign, ³APC, LLC

1:45 p.m. 138 **Effects of Wheat Middlings Inclusion Rate on Growth Performance of Nursery Pigs**
Henrique S. Cemin ¹, Luke A. Swalla ¹, Jamie L. Pietig ¹, Sharlie A. Hansen ¹, Ernie L. Hansen ¹
¹Hubbard Feeds

2:00 p.m. 139 **Effects of Wheat Middlings Inclusion Rate and Diet Form on Growth Performance of Nursery Pigs**
Henrique S. Cemin ¹, Luke A. Swalla ¹, Jamie L. Pietig ¹, Sharlie A. Hansen ¹, Ernie L. Hansen ¹
¹Hubbard Feeds

2:15 p.m. 140 **Effects of Calcium Carbonate Level on Weanling Pig Growth Performance and Fecal Dry Matter**
Alan J. Warner ¹, Joel M. DeRouchey ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ²
¹Kansas State University, ²Kansas State University

2:30 p.m. 141 **Evaluation of a Fermented Corn Protein Source on Growth Performance of Nursery Pigs**
Ethan Stas ¹, Jenna A. Chance ¹, Robert D. Goodband ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Jordan T. Gebhardt ²
¹Kansas State University, ²Kansas State University

Teaching and Extension Education Symposium II

Chair: Trista Strauch, University of Missouri

1:00 PM - 3:00 PM

210/211/212

1:00 p.m. 35 **Development of the National Pork Board's Pork Scholars Program**
Matilyn Wheeler ¹, Chris Hostetler ¹
¹National Pork Board

1:15 p.m. 36 **Kansas State University Feedlot Boot Camp and Teaching Program: Growing Student Interest and Engagement in the Feedlot Industry**
Karol E. Fike ¹, Pete T. Anderson ²
¹Kansas State University, ²Midwest PMS, LLC

1:30 p.m. 37 **Enhancing Student Experiences Outside the Classroom: Industry Tour and Study Abroad Opportunities**
Tara J. Swanson ¹
¹North Dakota State University

1:45 p.m. 38 **Beyond the Classroom: Community Engaged Learning in Animal Sciences**
Rocio M. Rivera ¹, Ann Marie Foley ¹, Trista Strauch ¹
¹University of Missouri

2:00 p.m. **Teaching and Extension Education Symposium II Break**

2:15 p.m. 39 **CAFNR Connections: Building Community for Underrepresented Students in Agriculture**

Addison Byrne¹

¹University of Missouri - Columbia

2:30 p.m. **Teaching and Extension Education Symposium II Panel Discussion**

Swine Translational I: Gestation and Lactation

Sponsored by The Swine Nutrition Blackbelt Podcast by swine it

Chair: Amanda Minton, Acuity Swine Genetics

1:00 PM - 4:30 PM

202

1:00 p.m. 266 **Bentley Lecture: Feeding and Management of Gilts to Maximize Lactation Performance**

Chantal Farmer¹

¹Agriculture and Agri-Food Canada

2:00 p.m. 246 **Awardee Talk: Evaluating the Impact of Essential Fatty Acids in Lactation Diets on Sow and Litter Performance**

Julia P. Holen¹, Jason C. Woodworth¹, Mike D. Tokach¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jordan T. Gebhardt², Ashley DeDecker³, Xochitl Martinez³

¹Kansas State University, ²Kansas State University, ³Smithfield Foods

2:30 p.m. 247 **Effects of Feeding Frequency During Lactation on Sow and Litter Performance**

Sudario Roberto Silva Junior¹, Hayford Manu², Drew Swartz¹, Samuel Baidoo²

¹University of Minnesota, ²University of Minnesota Southern Research and Outreach Center, Waseca, MN

2:45 p.m. **Swine Translational I: Gestation and Lactation Break**

3:00 p.m. 248 **Relationships Between Sow and Litter Parameters and Sow Rectal Temperature at the End of Farrowing**

Katherine D. Vande Pol¹, Caleb M. Shull², Mike Ellis¹

¹University of Illinois, ²The Maschhoffs, LLC

3:15 p.m. 249 **Relationships Between Sow, Litter, and Piglet Parameters and the Rectal Temperature of Piglets at Birth and 30 Min After Birth**

Katherine D. Vande Pol¹, Caleb M. Shull², Mike Ellis¹

¹University of Illinois, ²The Maschhoffs, LLC

3:30 p.m. 250 **Associations Between Sow and Litter Parameters and Piglet Birth Weight and the Within-litter Coefficient of Variation of Piglet Birth Weight**

Katherine D. Vande Pol¹, Caleb M. Shull², Mike Ellis¹

¹University of Illinois, ²The Maschhoffs, LLC

3:45 p.m. 251 **Effects of Cross-fostering and Number of Litters Used to Create Cross-fostered Litters on Piglet Pre-weaning Mortality and Weaning Weight**

Katherine D. Vande Pol ¹, Alicia Olivio ², Heath Harper ³, Caleb M. Shull ⁴, Katie Brown ⁴, Mike Ellis ¹

¹University of Illinois, ²University of Manitoba, ³Carthage Veterinary Service, ⁴The Maschhoffs, LLC

4:00 p.m. 252 **Assessment of Modern Gilts and Sows Body Weight Throughout Gestation and How Different Daily Energy Intakes Meet the Energy Requirement for Maintenance at Each Parity**

Carine M. Vier ¹, Gefferson Silva ², Lori Thomas ¹, Ning Lu ¹, Steve Dritz ¹, Ron Navales ¹, Wayne R. Cast ¹, Uislei A. Orlando ¹

¹Genus PIC, ²Agroceres PIC

4:15 p.m. 253 **Determining the Relationship Between Different Risk Factors with Pelvic Organ Prolapse Incidence in Sows**

Andre Waltrich ¹, João Victor Facchini Rodrigues ¹, Rosiel Cavalcante Filho ², Amanda P. Siqueira ², Pedro G. Lisboa ², Gefferson Silva ², Gilberto Carlos Vaz ³, Rodrigo Silva ³, Carine M. Vier ⁴, Ning Lu ⁴, Wayne R. Cast ⁴, Steve Dritz ⁴, Uislei A. Orlando ⁴

¹Federal University of Parana, Brazil, ²Agroceres PIC, ³Acadrolli System, Brazil, ⁴Genus PIC

Ruminant Nutrition III

Chair: Daniel Shike, University of Illinois at Urbana-Champaign

1:30 PM - 4:00 PM

214

1:30 p.m. 213 **Assessment of Equations Relating Shrunk, Empty Body, and Carcass Weight in Growing/finishing Cattle**

Phillip A. Lancaster ¹

¹Beef Cattle Institute/Kansas State University

1:45 p.m. 214 **Assessment of Equations Relating Empty Body Chemical Components in Growing/finishing Cattle**

Phillip A. Lancaster ¹

¹Beef Cattle Institute/Kansas State University

2:00 p.m. 215 **Assessment of Equations Relating Carcass Chemical Components in Growing/finishing Cattle**

Phillip A. Lancaster ¹

¹Beef Cattle Institute/Kansas State University

2:15 p.m. 216 **Assessment of Equations Relating Carcass with Empty Body Chemical Components in Growing/finishing Cattle**

Phillip A. Lancaster ¹

¹Beef Cattle Institute/Kansas State University

2:30 p.m. 217 **Assessment of Ultrasound Carcass Composition Equations to Predict Empty Body Gain**

Phillip A. Lancaster¹, Luis O. Tedeschi², Michael Baker³, Gordon Carstens²

¹Beef Cattle Institute/Kansas State University, ²Department of Animal Science/Texas A&M University, ³Department of Animal Science/Cornell University

2:45 p.m. **Ruminant Nutrition III Break**

3:00 p.m. 218 **Evaluation of a Direct-fed Microbial Product (DIRECTä) on Fecal Shedding of Shiga Toxin-producing *escherichia coli* in Finishing Cattle in a Commercial Feedlot**

Raghavendra G. Amachawadi¹, T G Nagaraja¹, Richard Goodall²

¹Kansas State University, ²sponcer

3:15 p.m. 219 **Economic Cost Analysis of Grazing Strategies for Beef Production in Kansas**

Minfeng Tang¹, Phillip A. Lancaster², Dustin Pendell³, Phillip A. Lancaster⁴, Walt Fick³, Adam Ahlers³, Andrew Ricketts³

¹Beef Cattle Institute, Kansas State University, ²Beef Cattle Institute/Kansas State University, ³Kansas State University, ⁴Department of Agronomy/Kansas State University

3:30 p.m. 220 **Evaluation of Forage Quality of Crested Wheat Grass**

Kelton Adair¹, Andrea K. Watson¹, James C. MacDonald², Karla Wilke¹

¹University of Nebraska-Lincoln, ²University of Nebraska

3:45 p.m. 221 **Assessment and Prediction of Acidosis Risk in Beef Steers: Relationship to Intake and Feeding Behavior During the Finishing Phase**

Colten W. Dornbach¹, Joshua C. McCann²

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

Ruminant Nutrition Symposium

Chair: Kendall Swanson, North Dakota State University

1:30 PM - 5:15 PM

Ballroom C

1:30 p.m. 229 **Feedlot Nutrition Research: A Historical Perspective and Future Needs**

Alfredo DiCostanzo¹

¹University of Minnesota

1:45 p.m. 230 **Effects of Removing Distillers Grains and Solubles on Performance of Feedlot Cattle**

Alfredo DiCostanzo¹, Galen E. Erickson²

¹University of Minnesota, ²University of Nebraska-Lincoln

2:15 p.m. 231 **Understanding Factors that Cause Variation in Growth within Pens of Feedlot Cattle**

Zachary K. Smith¹, Alfredo DiCostanzo², Fredric N. Owens³

¹South Dakota State University, ²University of Minnesota, ³Oklahoma State University

2:45 p.m. 232 **State of the Art: Zinc and Copper Nutrition for Feedlot Cattle**
Stephanie L. Hansen¹, Elizabeth M. Messersmith¹, Erin L. Deters¹
¹Iowa State University

3:15 p.m. **Ruminant Nutrition Symposium Break**

3:30 p.m. 233 **Feeding and Managing Dairy Cattle Genetics for Beef**
Pedro V. Carvalho¹, Tara L. Felix², Jerad Jaborek³
¹University of California - Davis, ²Penn State, ³Michigan State University Extension

4:00 p.m. 234 **Interrelationships Between the Microbiome, Gut Health, and Animal Growth**
Joshua C. McCann¹, Jon P. Schoonmaker²
¹University of Illinois at Urbana-Champaign, ²Purdue University

4:30 p.m. 259 **Effects of Late Gestation Energy and Protein Restriction in Beef Cows on Offspring Growth and Carcass Characteristics**
Naomi Waldon¹, Kirsten Nickles¹, Anthony J. Parker¹, Kendall C. Swanson², Alejandro E. Relling¹
¹The Ohio State University, ²North Dakota State University

5:00 p.m. **Ruminant Nutrition Symposium Q&A**

Equine Translational Symposium
Chair: Brian Whitaker, University of Findlay
2:00 PM - 3:00 PM
201

2:00 p.m. **Equine Translational Symposium Introduction**

2:05 p.m. 31 **Relationship of Mitochondrial Phenotype to Muscle Function and Performance**
Sarah H. White-Springer¹
¹Department of Animal Science, Texas A&M University; Texas A&M AgriLife Research

Genetics, Genomics and Bioinformatics
Chair: Joseph Cassady, South Dakota State University
2:00 PM - 3:00 PM
203

2:00 p.m. 40 **Deep Learning for Multi-behavioral Video Classification of Interactive Behaviors of Pigs in Single-spaced Automatic Feeders**
Junjie Han¹, Janice M. Siegford², Dirk Colbry², Raymond Lesiyon², Tomas Norton³, Chen Chen⁴, Juan P. Steibel²
¹Bayer, ²Michigan State University, ³University of Leuven, ⁴Jiangsu University

2:15 p.m. 41 **Differential Gene Expression of the Bovine Rumen Epithelial Microbiota During a Sub-acute Ruminal Acidosis (SARA) Challenge**
Chiron J. Anderson¹, Stephan Schmitz-Esser¹
¹Iowa State University

2:30 p.m. 42 **Genome-wide Association Study of Ovary Characteristics in Admixed Beef Heifers Through Comparative Bayesian Approaches**

Muhammad Anas ¹, Bin Zhao ², Nayan Bhowmik ³, Kris A. Ringwall ⁴, Carl R. Dahlen ³, Kendall C. Swanson ³, Lauren L. Hulsman Hanna ³

¹North Dakota State University, Department of Animal Sciences, ²North Dakota State University, Department of Statistics, ³North Dakota State University, ⁴North Dakota State University, Dickinson Research Extension Center

2:45 p.m. 43 **Characterization of the Fecal Virome in Beef Cattle with and Without Antibiotic Exposure**

Wesley A. Tom ¹, James Wells ², Kristin E. Hales ³, Samodha C. Fernando ¹

¹University of Nebraska-Lincoln, ²U.S. Meat Animal Research Center USMARC, ³Texas Tech University, Department of Animal and Food Sciences

Growth, Development, Muscle Biology and Meat Science

Chair: Bailey Harsh, University of Illinois at Urbana-Champaign

2:00 PM - 3:30 PM

213

2:00 p.m. 76 **Awardee Talk: Maternal Immune Activation Impacts Offspring Immune Function but Not Muscle**

Erin Bryan ¹, Brooke N. Smith ², Xiaofei Chen ³, Ryan N. Dilger ⁴, Anna Dilger ¹

¹University of Illinois, ²University of Illinois at Urbana-Champaign, ³Enshi Autonomous Prefecture Academy of Agricultural Sciences, ⁴University of Illinois Urbana-Champaign

2:30 p.m. 77 **Determination of Cellutein and Betagro Mode of Action Within Porcine Satellite Cell Cultures**

Mathew A. Vaughn ¹, John M. Gonzalez ²

¹Puretein Biosciences, ²University of Georgia

2:45 p.m. 78 **Determination for Optimal Time for Marketing in Gilts Immunized Against Gonadotropin-releasing Factor Based upon Production Measurements**

Kimberly A. Vonnahme ¹, Debbie Amodie ¹, Marnie Mellencamp ¹, Steve Pollmann ², Lucina Galina ¹

¹Zoetis, ²DSP Consulting LLC

3:00 p.m. 79 **Determination of Optimal Timing of Marketing for Carcass Quality Measurements in Gilts Administered Improvest**

Kimberly A. Vonnahme ¹, Debbie Amodie ¹, Marnie Mellencamp ¹, Steve Pollmann ², Lucina Galina ¹

¹Zoetis, ²DSP Consulting LLC

3:15 p.m. 263 **Improvest® Improves Gilt Performance**

Manuel A. Vasquez-Hidalgo ¹, Kimberly A. Vonnahme ², Steve Pollmann ³, Debbie Amodie ², Lucina Galina ², Marnie Mellencamp ²

¹North Dakota State University/Zoetis, ²Zoetis, ³DSP Consulting LLC

Physiology II

Chair: Alexis Siomka, University of Findlay

2:00 PM - 3:30 PM

205/206/207

2:00 p.m. 180 **Supplementation of One-carbon Metabolites to Beef Heifers During Early Gestation Increases Fetal Organ Weight at Day 63 of Gestation**

Layla King¹, Jessica Syring², Yssi Entzie¹, Mara R. Hirschert², Matthew S. Crouse³, Joel S. Caton², Carl R. Dahlen², Alison K. Ward²

¹NDSU, ²North Dakota State University, ³USDA

2:15 p.m. 181 **Evaluation of the Fecal Microbiota in Commercial Sows with Variable Risk for Pelvic Organ Prolapse During Late Gestation**

Zoe E. Kiefer¹, Lucas R. Koester¹, Jamie M. Studer¹, Christine Mainquist-Whigham², Stephan Schmitz-Esser¹, Jason W. Ross¹

¹Iowa State University, ²Pillen Family Farms LLC

2:30 p.m. 183 **Circulating Biomarkers and Leukocyte Profiles in Agalactic Sows**

Jamie M. Studer¹, Zoe E. Kiefer¹, Lucas R. Koester¹, Erika M. Johnson¹, Lance H. Baumgard¹, Stephan Schmitz-Esser¹, Laura L. Greiner¹, Aileen F. Keating¹, Attila Farkas², Lucina Galina³, Kimberly A. Vonnahme³, Jason W. Ross¹

¹Iowa State University, ²Carthage Veterinary Service, ³Zoetis

2:45 p.m. 184 **Correlating Microbial Community Membership of Cervical Fluid, Vagina and Feces in Post-partum Sows**

Lucas R. Koester¹, Zoe E. Kiefer¹, Jamie M. Studer¹, Erika M. Johnson¹, Lance H. Baumgard¹, Jason W. Ross¹, Laura L. Greiner¹, Aileen F. Keating¹, Attila Farkas², Lucina Galina³, Kimberly A. Vonnahme³, Stephan Schmitz-Esser¹

¹Iowa State University, ²Carthage Veterinary Service, ³Zoetis

3:00 p.m. 185 **The Validation of the Existence of the Entero-mammary Pathway and the Assessment of the Differences of the Pathway Between Gilts and Sows**

Laura L. Greiner¹, Dalton C. Humphrey¹, Shayla Holland², Chiron J. Anderson¹, Stephan Schmitz-Esser¹

¹Iowa State University, ²Iowa State University

3:15 p.m. 186 **Vitamin and Mineral Supplementation During Gestation Does Not Influence Milk Yield or Composition During Early Lactation in Grazing or Parlor-milked Beef Heifers**

Friederike Baumgaertner¹, Jennifer L. Hurlbert¹, Kerri A. Bochantin¹, Ana Clara B. Menezes¹, Kevin K. Sedivec¹, James D. Kirsch¹, Sarah R. Underdahl¹, Carl R. Dahlen¹

¹North Dakota State University

Nonruminant Nutrition VII: Nursery Nutrition-Amino Acids - Sponsored by Zoetis

Chair: Chad Pilcher, Cargill Animal Nutrition

3:00 PM - 5:00 PM

Ballroom A

3:00 p.m. 142 Effects of Increasing Dietary Standardized Ileal Digestible Lysine Levels on Growth Performance of 11- to 25-kg Pigs Sired by PIC 337 High Index Boars

Ning Lu ¹, Carine M. Vier ¹, Steve Dritz ¹, Ron A. Navales ¹, Wayne R. Cast ¹, Luis E. Zaragoza ¹, Uislei A. Orlando ¹

¹Genus PIC

3:15 p.m. 143 Effects of Increasing Dietary Standardized Ileal Digestible Lysine Levels on Growth Performance of 13- to 23-kg Pigs Sired by PIC 800 Boars

Pengcheng Xue ¹, Ning Lu ², Chad M. Pilcher ¹, Brent Frederick ¹, Molly L. McGhee ¹, Qingyun Li ¹, Carine M. Vier ², Wayne R. Cast ², Uislei A. Orlando ²

¹Cargill Animal Nutrition, ²Genus PIC

3:30 p.m. 144 Effects of Increasing Dietary Standardized Ileal Digestible Lysine Levels on Growth Performance of 15- to 23-kg Maternal Barrows

Carine M. Vier ¹, Ning Lu ¹, Steve Dritz ¹, Jorge Estrada ², Beau Peterson ³, Andrea Hanson ⁴, Wayne R. Cast ¹, Danielle Wilson-Wells ⁵, Uislei A. Orlando ¹

¹Genus PIC, ²Carthage Veterinary Service, ³Carthage Innovative Swine Solutions, ⁴Professional Swine Management, ⁵PIC North America

3:45 p.m. 145 Effects of Increasing Dietary Standardized Ileal Digestible Lysine Levels on Growth Performance of 12- to 23-kg Boars and Gilts

Gustavo Lima ¹, Gabriel Castro ², Neidilania Ribeiro ², Analia Silva ², Carine M. Vier ³, Amanda P. Siqueira ¹, Uislei A. Orlando ³, Caio A. da Silva ⁴

¹Agrocere PIC, ²Agrocere MMX, ³Genus PIC, ⁴Universidade Estadual de Londrina

4:00 p.m. 146 Evaluation of Phase Feeding and Lysine Source and Level on Nursery Pig Performance

Carson M. De Mille ¹, Kayla A. Miller ¹, Chris Sparks ², Nicholas K. Gabler ¹

¹Iowa State University, ²Huvepharma

4:15 p.m. 147 Growth Performance of Nursery Pigs Fed Diets Supplemented with DL-methionine and DL-2 hydroxy-4-methylthio-butyrate Acid at a Ratio of 65:100

Maria S. Mendoza ¹, John K. Htoo ², Caroline Gonzalez Vega ³

¹Evonik Corporation, ²Evonik Operations GmbH, ³Cargill Animal Nutrition

4:30 p.m. 148 Use of an Alpha-linolenic Acid Source to Reduce omega-6:3 Ratio in PRRS-Virus Challenged Nursery Pigs

Jenna J. Bromm ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Joel M. DeRouchey ¹, Jordan T. Gebhardt ², Chad W. Hastad ³, Zach Post ³

¹Kansas State University, ²Kansas State University, ³New Fashion Pork

4:45 p.m. 149 Effect of Dietary Structural Fiber and Fermentable Protein on Growth Performance in Post-weaning Pigs

Qiong Hu ¹, Sandra Paredes ¹, Mark Newcomb ¹

¹Cargill Animal Nutrition

Nonruminant Nutrition V: Additives II - Sponsored by Zoetis
Chair: Caroline Gonzalez Vega, Cargill Animal Nutrition
3:15 PM - 4:45 PM
Ballroom B

3:15 p.m. 128 **Effects of Feeding A Whole-cell Inactivated *Pichia guilliermondii* Yeast in Sow and/or Pig Diets on Progeny Nursery and Grow-finish Growth Performance and Carcass Characteristics - SPONSORED BY: ADM Animal Nutrition**
Morgan T. Thayer¹, Daniel B. Jones¹, Matthew D. Asmus¹, Gene Gourley², Emily Bruder²
¹ADM, ²Gourley Research Group

3:30 p.m. 129 **The Effect of Live Yeast and Yeast Extracts Included in Lactation and Nursery Diets on Nursery Pig Growth Performance**
Jenna A. Seltzer¹, Joel M. DeRouchey², Robert D. Goodband², Jason C. Woodworth², Mike D. Tokach², Joe Loughmiller³, Brian Hotze³, Jordan T. Gebhardt²
¹Elanco Animal Health, ²Kansas State University, ³Phileo by Lesaffre

3:45 p.m. 130 **Effect of Lactylate and *Bacillus subtilis* on Growth Performance, Peripheral Blood Cell Profile, and Gut Microbiota of Nursery Pigs**
Tsungcheng Cheng Tsai¹, Xiaofan Wang¹, Bin Zuo², Charles V. Maxwell¹, Xiaoyuan Wei¹, Ellen Davis³, Samantha Hernandez⁴, Evelien Jochems⁵, Tom G. Rehberger³, Jiangchao Zhao²
¹University of Arkansas, ²Department of Animal Science, University of Arkansas, Fayetteville, AR, 72701, ³Arm & Hammer Animal and Food Production, ⁴Arm & Hammer Animal and Food Production, The ScienceHearted Center, ⁵Corbion

4:00 p.m. 131 **Dietary Valerate Glycerides: Effects on Growth, Diarrhea, and Fecal Culture of Weanling Piglets Infected with *Escherichia coli* F18**
Lauren L. Kovanda¹, Sangwoo Park¹, Snehal Tawde², Jeroen Pos², Kwangwook Kim¹, Yanhong Liu¹
¹University of California, Davis, ²Perstorp Animal Nutrition

4:15 p.m. 132 **Investigating Potential Additive Effects of Formic Acid and Glycerol Monolaurate in Nursery Pig Diets**
Payton L. Dahmer¹, Olivia Harrison¹, Cassandra K. Jones¹
¹Kansas State University

4:30 p.m. 133 **Effects of Benzoic Acid and Sodium Benzoate Supplementation on Growth Performance of Nursery Pigs**
Hyunjun Choi¹, Ying Chen², Flavio Longo², Sung Woo Kim¹
¹North Carolina State University, ²Eastman Chemical Company

Poster Session VI
5:00 PM - 5:45 PM
Grand Ballroom Foyer

5:00 p.m. PSVI-1 **Effect of Dietary Sodium and Pharmacological Zinc Levels on Growth Performance of Nursery Pigs**
Ethan Stas¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt²
¹Kansas State University, ²Kansas State University

5:00 p.m. PSVI-2 **Effect of Increasing the SID tryptophan:lysine Ratio and Dietary Energy Level on Growth Performance of Growing-finishing Pigs**

Brian P. Yeich¹, Mike Ellis¹, Caleb M. Shull², Omarh F. Mendoza²

¹University of Illinois, ²The Maschhoffs, LLC

5:00 p.m. PSVI-3 **Effect of Live Yeast Supplementation on Redox Potential, Gastrointestinal Microbiota, and Short-chain Fatty Acids in Piglets**

Gustavo Cordero¹, Laura A. Merriman¹, Boris Villca², Nuria Tous², Rosil Lizardo²

¹AB Vista, ²IRTA

5:00 p.m. PSVI-4 **Effect of Phytogetic Feed Additives on Ammonia Emission in Finishing Swine**

Kory Moran¹, Sandra Chamusco¹, Tobias Aumiller²

¹Delacon Biotechnik GmbH, ²Delacon

5:00 p.m. PSVI-5 **Effects of Added Vitamin Levels on Growth Performance of Finishing Pigs**

Hilario M. Cordoba¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Jason C. Woodworth¹, Jordan T. Gebhardt¹

¹Kansas State University

5:00 p.m. PSVI-20 **Effects of Adding Potassium Bicarbonate to Diets with High or and Low Crystalline Lysine as a Way to Influence DCAD on Finishing Pig Growth Performance**

Rafe Q. Royall¹, Robert D. Goodband¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Jordan T. Gebhardt²

¹Kansas State University, ²Kansas State University

5:00 p.m. PSVI-7 **Effects of Increasing Total Dietary Fiber During Gestation and the Pre-farrowing Period on Sow and Litter Performance in Lactation**

Gabriela E. Martinez¹, David S. Rosero², Pete Wilcock³, Ximena Paz⁴, Eric van Heugten⁵

¹North Carolina State University, ²The Hanor Company, ³AB Vista, ⁴Hanor Family of Companies, ⁵Department of Animal Science, North Carolina State University

5:00 p.m. PSVI-15 **Effects of Phosphorus Level and Increasing Phytase Dose on Basal Endogenous Loss of Calcium and Balance of Phosphorus in Pigs Fed Diets Containing Phytate P at Commercial Levels**

Megan E. Nelson¹, Su A Lee¹, Yueming Dersjant-Li², Deepak E Velayudhan³, Janet C. Remus⁴, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign, ²Danisco Animal Nutrition (IFF), ³Danisco Animal Nutrition & Health (IFF), ⁴IFF Danisco Animal Nutrition

5:00 p.m. PSVI-9 **Effects of Phytogetic Feed Additives on Growth Performance in Nursery Pigs**

Lan Zheng¹, Shelby Ramirez¹, Antonia Tacconi¹, Brian J. Kerr², G.Raj Murugesan¹

¹DSM Nutritional Products, ²USDA-ARS National Laboratory for Agriculture and the Environment

5:00 p.m. PSVI-19 **Evaluation of Vegetable Protein Sources on Nursery Pig Performance in a Commercial Environment**

Rafe Q. Royall¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Jordan T. Gebhardt², Keith D. Haydon³

¹Kansas State University, ²Kansas State University, ³CJ Bio America

5:00 p.m. PSVI-11 **Flavonoid Supplementation to Low Protein Diets Recovers Growth Performance in Broilers**

Jun Ho Song¹, Md Raihanul Hoque², Md Mortuza Hossain¹, In Ho Kim¹

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

5:00 p.m. PSVI-13 **Identifying Probiotic Bacteria to Reduce Pathogen Colonization in Nursery Pigs**

Katherine R. Connell¹, Phillip S. Miller¹, Thomas E. Burkey¹, J. Dustin Loy¹, Samodha C. Fernando¹

¹University of Nebraska-Lincoln

5:00 p.m. PSVI-14 **Impact of Bacillus Subtilis and Bacillus Licheniformis on Weaning Weight and Subsequent Performance, Health and Immune Parameters When Challenged with PRRSV with and Without PRRS Vaccination**

Mark J. Bertram¹, Steve J. Kitt², Keith Kinsely³

¹First Choice Livestock LLC, ²First Choice Livestock, LLC, ³Chr. Hansen

5:00 p.m. PSVI-8 **Impact of Solubility of Dietary Fiber Fed During the Pre-farrow Period on Sow and Litter Performance in Lactation**

Gabriela E. Martinez¹, David S. Rosero², Pete Wilcock³, Eric van Heugten⁴

¹North Carolina State University, ²The Hanor Company, ³AB Vista, ⁴Department of Animal Science, North Carolina State University

5:00 p.m. PSVI-16 **Performance Response of Nursery Pigs Fed Increasing Levels of Fermentable and Structural Fiber**

Sabrina B. May¹, Sara Ebarb¹, Brent Frederick¹

¹Cargill Animal Nutrition

5:00 p.m. PSVI-17 **Supplemental Effects of Soy Protein Supplements Replacing Animal Protein Supplements on Growth Performance and Intestinal Health of Nursery Pigs**

Zixiao Deng¹, Ki Beom Jang¹, Sung Woo Kim¹

¹North Carolina State University

5:00 p.m. PSVI-18 **Tonistry PxW Improves Water Intake and Reduces Pig Mortality and Fall-behinds Post-weaning—A Meta-analysis**

CallaBria Putrino¹, Stefan G. Buzoianu¹, Mark Eisenhart¹, Chad Steinkamp¹, Ava M. Firth¹

¹Tonistry

5:00 p.m. PSVI-10 **Yeast-based High Protein DDGS Has Similar Energy Digestibility in Comparison to Commonly Used Feed Ingredients in Swine Diets**

Ricardo S. Garavito¹, Jorge Y. Perez-Palencia², Kevin J. Herrick³, Crystal L. Levesque²

¹south dakota state university, ²South Dakota State University, ³POET

Wednesday, March 16, 2022

Poster Session VII

7:30 AM - 8:15 AM

Grand Ballroom Foyer

7:30 a.m. PSVII-13 **Amplicon-based sequencing of AMR gene variants in beef cattle**
Arena E. See ¹, Wesley A. Tom ¹, Kristin E. Hales ², James E. Wells ³, Samodha C. Fernando ¹
¹University of Nebraska-Lincoln, ²Texas Tech University, Department of Animal and Food
Sciences, ³USDA

7:30 a.m. PSVII-6 **Effects of Carbohydrase Mixture Supplementation and Fiber Level
on Apparent Total Tract Digestibility of Nutrients in Diets Fed to Gestating Sows**
Garrin Shipman ¹, Jorge Y. Perez-Palencia ¹, Rob Patterson ², Crystal L. Levesque ¹
¹South Dakota State University, ²CBS Bio-Platforms Inc.

7:30 a.m. PSVII-14 **Effects of Feeding High Level of Crystalline L-Lysine on
Performance of Nursery Pigs**
Huyen Tran ¹, Aileen Joy Mercado ¹, Terry Weeden ¹, Brenda de Rodas ¹, Keith D. Haydon ²
¹Purina Animal Nutrition, ²CJ Bio America

7:30 a.m. PSVII-2 **Effects of Oxidized Beta-carotene on Sow Reproduction and Piglet
Growth Performance**
Sarah Elefson ¹, Jason W. Ross ¹, Christopher Rademacher ¹, Steve Pollmann ², Laura L.
Greiner ¹
¹Iowa State University, ²DSP Consulting LLC

7:30 a.m. PSVII-3 **Nutritional Value of a New Source of Cheese Co-product Fed to
Weanling Pigs**
Andrea Paola Mallea Ortiz ¹, Maryane Sespere Faria de Oliveira ², Diego Andres Lopez Diaz ³,
Hans H. Stein ²
¹University of Illinois, ²University of Illinois at Urbana-Champaign, ³Keys Manufacturing
Company, Inc

7:30 a.m. PSVII-15 **Polymorphism of the Follicle Stimulating Hormone Receptor Does
Not Impact Reproductive Performance or in-vitro Embryo Production in Beef Heifers**
Alexandria P. Snider ¹, Hannah K. Yake ², Camryn D. Granger ³, Shelby L. Rosasco ⁴, Tara G.
McDanel ², Warren M. Snelling ⁵, Jeremy R. Miles ², Clay A. Lents ⁶, Lacey K. Quail ⁷, Jerica J
J Rich ⁸, Kaitlin M. Epperson ⁷, Matthew S. Crouse ⁹, Adam F. Summers ¹⁰, George A. Perry ¹¹,
Gary L. Bennett ², Robert A. Cushman ¹
¹USDA-ARS, ²USDA, ARS, U.S. Meat Animal Research Center, ³South Dakota State University,
⁴University of Wyoming, ⁵USDA, ARS, Roman L Hruska U.S. Meat Animal Research Center,
⁶US Meat Animal Research Center, USDA Agriculture Research Service, ⁷Texas A&M AgriLife
Research, Overton, TX; Department of Animal Science, Texas A&M University, College Station,
TX, ⁸Arkansas State University College of Agriculture, Jonesboro, AR, ⁹USDA, ¹⁰New Mexico
State University, ¹¹Texas A&M AgriLife Research and Extension Center

7:30 a.m. PSVII-4 **Potential Value of Turkey Litter Ash and Dried Swine Lagoon Sludge as a Phosphorus Source for Growing Pigs**

Cooper T. McAuley¹, Eric van Heugten²

¹North Carolina State University, ²Department of Animal Science, North Carolina State University

7:30 a.m. PSVII-5 **Poultry Meal Autoclaving Time-related Reduction in Energy Utilization for Growing Pigs**

Jung Yeol Sung¹, Markus K. Wiltafsky-Martin², Caroline Gonzalez Vega³, Olayiwola Adeola¹

¹Purdue University, ²Evonik Operations GmbH, ³Cargill Animal Nutrition

7:30 a.m. PSVII-11 **Saccharomyces cerevisiae Fermentation Prototype Maintained Growth in Finishing Pigs Fed Diets with Reduced Energy and Protein**

Joel Kieser¹, Crystal L. Levesque¹, Jorge Y. Perez-Palencia¹

¹South Dakota State University

7:30 a.m. PSVII-1 **Sample Handling and Vitamin Analysis**

Sarah Elefson¹, Laura L. Greiner¹

¹Iowa State University

7:30 a.m. PSVII-7 **The Effects on Supplementation of Medium Chain Fatty Acids on Piglet Health and Immune Markers**

Analicia J. Swanson¹, Amanda Hesse², Crystal L. Levesque¹, Benoit St-Pierre¹, Jordan K. Jansen¹

¹South Dakota State University, ²ADM

7:30 a.m. PSVII-8 **The Impact of Dietary Essential Fatty Acids Ratios and unsaturated:saturated Ratio on Growth Performance of Grow-finish Pigs**

Spenser Becker¹, Laura L. Greiner¹

¹Iowa State University

7:30 a.m. PSVII-9 **The Impact of Increasing Dietary Manganese on the Reproductive Performance of Sows**

Clint E. Edmunds¹, Alyssa S. Cornelison², Chantal Farmer³, Christof Rapp², Valerie E. Ryman¹, Wesley P. Schweer², Mark E. Wilson⁴, C. Robert Dove¹

¹The University of Georgia, ²Zinpro Corporation, ³Agriculture and Agri-Food Canada, ⁴Swine Nutritionist

7:30 a.m. PSVII-10 **Tonistry PxW Improves Pig Performance to End-nursery**

CallaBria Putrino¹, Stefan G. Buzoianu¹, Katlyn Kahler¹, Ava M. Firth¹

¹Tonistry

7:30 a.m. PSVII-12 **Using a Multi-carbohydrolase (Rovabio®Advance) in Grow-finish Pigs: How Does Not Removing Pigs Affect Growth Performance?**

Darlene J. Bloxham¹, Mark A. Giesemann¹, Robert B. Shirley², Steven B. Moreland², Marcio Ceccantini³, Gene Gourley⁴, Josue Chinchilla-Vargas⁵, Emily K. Bruder⁶

¹Adisseo, ²Adisseo USA, Inc., ³Adisseo FRANCE, ⁴Gourley Research Group, ⁵Iowa State University, ⁶Gene Gourley Research Group

Teaching and Extension Education

Chair: Addison Byrne, University of Missouri - Columbia

8:00 AM - 8:45 AM

216

8:00 a.m. 32 **Communicating Sustainability to Consumers – Finding Common Ground**

Peter J. Ballerstedt¹

¹Barenbrug USA

8:15 a.m. 33 **Nationwide Sheep & Goat Producer Needs Assessment**

Jaeyln Quintana¹, Kelly Froehlich¹, Heidi K. Carroll¹

¹South Dakota State University

8:30 a.m. 34 **Swine Breeding Herd Practicum Winternship**

Tim J. Safranski¹

¹University of Missouri-Columbia

Nonruminant Nutrition VIII: Breeding Herd Feeding Management

Sponsored by Zoetis

Chair: Morgan Thayer, ADM

8:00 AM - 9:30 AM

Ballroom A

8:00 a.m. 150 **Impact of Prefarrow Feeding Strategy on Farrowing Duration and Piglet Survival**

Zack Peppmeier¹, Brianna McAleese¹, Chelsey Van Genderen², Luke A. Swalla³, Mark Knauer¹

¹North Carolina State University, ²U.S. Pork Center of Excellence, ³Hubbard Feeds

8:15 a.m. 151 **Impact of Feed Allotment During the Wean-to-estrus Interval on Sow Reproductive Performance**

Macie E. Reeb¹, Trey A. Kellner²

¹Kansas State University, ²AMVC Nutritional Services

8:30 a.m. 152 **Effects of Feeding Levels in Early Gestation on PIC Terminal Sows and Litter Performance**

Juliana Ribas¹, Carine M. Vier², Amanda P. Siqueira¹, Nevton Brun¹, Ning Lu², Steve Dritz², Ron Navales², Wayne R. Cast², Uislei A. Orlando²

¹Agrocere PIC, ²Genus PIC

8:45 a.m. 153 **Effects of Feeding Levels in Early Gestation on PIC Maternal Line Sows and Litter Performance**

Juliana Ribas¹, Carine M. Vier², Amanda P. Siqueira¹, Nevton Brun¹, Ning Lu², Steve Dritz², Ron Navales², Wayne R. Cast², Uislei A. Orlando²

¹Agrocere PIC, ²Genus PIC

9:00 a.m. 154 **Impact of Post-breeding Feeding Level on the Reproductive Performance of Sows**

Brooke Anderson¹, Ximena Paz², Alina Porta³, David S. Rosero³

¹Hanor, ²Hanor Family of Companies, ³The Hanor Company

9:15 a.m. 155 **Effects of Ad Libitum or Restricted Feeding from 140 to 200 Days of Age on Removal Rate and Semen Production of PIC 800 Boars**

Ning Lu ¹, Steve Dritz ¹, Carine M. Vier ¹, Ron A. Navales ¹, Wayne R. Cast ¹, Michael Klevefeld ¹, Uislei A. Orlando ¹

¹Genus PIC

Nonruminant Nutrition X: Grow-Finish Nutrition I: Lysine Requirement and Responses

Sponsored by Zoetis

Chair: Jason Schneider, DNA Genetics LLC

8:00 AM - 10:00 AM

Ballroom B

8:00 a.m. 156 **Effects of Standardized Ileal Digestible Lysine Level on Growth Performance in 35 to 80 Kg DNA Finishing Pigs**

Rafe Q. Royall ¹, Robert D. Goodband ¹, Mike D. Tokach ¹, Joel M. DeRouchey ¹, Jordan T. Gebhardt ², Jason C. Woodworth ¹

¹Kansas State University, ²Kansas State University

8:15 a.m. 157 **Effects of Standardized Ileal Digestible Lysine Level on Growth Performance in 75 to 130 Kg DNA Finishing Pigs**

Rafe Q. Royall ¹, Robert D. Goodband ¹, Mike D. Tokach ¹, Joel M. DeRouchey ¹, Jordan T. Gebhardt ², Jason C. Woodworth ¹

¹Kansas State University, ²Kansas State University

8:30 a.m. 158 **Effects of Increasing Dietary Standardized Ileal Digestible Lysine Levels on Growth Performance of Grow-finish Pigs That Were Sired by PIC 800 Boars**

Pengcheng Xue ¹, Ning Lu ², Chad M. Pilcher ¹, Brent Frederick ¹, Molly L. McGhee ¹, Qingyun Li ¹, Carine M. Vier ², Wayne R. Cast ², Uislei A. Orlando ²

¹Cargill Animal Nutrition, ²Genus PIC

8:45 a.m. 159 **Effects of Dietary Energy and Standardized Ileal Digestible Lysine Levels on Growth Performance of Grow-finish Maternal Barrows**

Jorge Estrada ¹, Andrea Hanson ², Carine M. Vier ³, Ning Lu ³, Ron A. Navales ³, Wayne R. Cast ³, Beau Peterson ⁴, Eric Parr ⁴, Uislei A. Orlando ³

¹Carthage Veterinary Service, ²Professional Swine Management, ³Genus PIC, ⁴Carthage Innovative Swine Solutions

9:00 a.m. 160 **The Compensatory Growth of Finishing Pigs Fed Increasing Dietary Lysine Following a Period of Nutrient Restriction**

Chloe S. Hagen ¹, Laura L. Greiner ¹, Joel D. Spencer ², Gregory Krahn ²

¹Iowa State University, ²United Animal Health

9:15 a.m. 161 **The Impact of Sex, Birth Weight, and Nutrient Density on the Growth Restriction and Compensatory Gain of Finishing Hogs After a Three- or Six-week Period of Nutrient Restriction**

Chloe S. Hagen ¹, Laura L. Greiner ¹, Dalton C. Humphrey ¹, Gregory Krahn ², Joel D. Spencer ²

¹Iowa State University, ²United Animal Health

9:30 a.m. 162 **Investigating Strategies to Manage Feed Supply Chain Disruptions on Grow-finish Pigs**

Kayla A. Miller¹, Erika M. Johnson¹, Stacie Matchan¹, Devin Goehring², Jason W. Ross¹, Nicholas K. Gabler¹

¹Iowa State University, ²United Animal Health

9:45 a.m. 163 **Peak-infection Application of Increased SID lysine:me Diets Does Not Improve Disease Challenge Growth Performance**

Kayla A. Miller¹, Omarh F. Mendoza², Caleb M. Shull², Tyler Baumann², Nicholas K. Gabler¹

¹Iowa State University, ²The Maschhoffs, LLC

Physiology Symposium - Sponsored by Soybean Meal Info Center
Chair: Jay Johnson, USDA-ARS Livestock Behavior Research Unit
8:00 AM - 11:45 AM
Ballroom C

8:00 a.m. 187 **Physiology Symposium Introduction**

Jay S. Johnson¹

¹USDA-ARS Livestock Behavior Research Unit

8:15 a.m. 188 **Prospects of Swine Production in the Context of Climate Change**

Wendy M. Rauw¹

¹INIA-CSIC

9:00 a.m. 189 **Swine Production and Greenhouse Gases**

Joel Tallaksen¹

¹University of Minnesota

9:30 a.m. **Physiology Symposium Break**

9:45 a.m. 190 **Nutritional Influences on Climate Change and Strategies to Improve Swine Performance**

Edith J. Mayorga¹, Sarah Pearce²

¹Iowa State University, ²USDA

10:15 a.m. 191 **Improving Climatic Resilience in Pigs Through Physiological Genomics**

Luiz Fernando F. Brito¹, Jay S. Johnson²

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

10:45 a.m. 192 **Engineering Strategies and Solutions to Improve Swine Resilience and Alleviate Physiological Stress in a Changing Climate**

Brett C. Ramirez¹

¹Iowa State University

11:15 a.m. **Physiology Symposium Panel Discussion**

Animal Behavior and Well-Being Symposium
Chair: Amanda Uitermarkt, Gestal - JYGA Technologies
8:00 AM - 12:00 PM
210/211/212

8:00 a.m. **Animal Behavior and Well-Being Symposium Introduction**

8:05 a.m. 12 **A Mobile System for Humane Mass Depopulation of Swine**
Ruth Woiwode ¹
¹University of Nebraska-Lincoln

8:45 a.m. 13 **Assessing Water-based Foam for the Mass Depopulation of Swine**
Andrew Bowman ¹
¹The Ohio State University

9:25 a.m. 14 **Decision Tree Evaluation When Mass Depopulation is the Only Option—A Case Study**
Angela Baysinger ¹
¹Merck Animal Health

10:05 a.m. **Animal Behavior and Well-Being Symposium Break**

10:20 a.m. 15 **Experiences with Swine Depopulation**
Clayton Johnson ¹
¹Carthage Veterinary Service

11:00 a.m. 16 **An Overview of the AVMA Working Group on the Psychological Impacts of Humane Endings and Related Guidance Documents**
Nathaniel S. Kollias ¹
¹American Veterinary Medical Association

11:40 a.m. **Animal Behavior and Well-Being Symposium Q&A**

Swine Translational II: Nursery and Finishing - Sponsored by Zoetis
Chair: Matthew Ritter, Provimi
8:30 AM - 9:30 AM
213

8:30 a.m. 254 **Impact of Prewearing Factors on Nursery Throughput**
Mark Knauer ¹, Terry Armstrong ², Brandon Barnes ², Austin Jones ², Bo Mobley ², Tyler O'Dell ², Lee Tyre ², Matthew Wynn ²
¹North Carolina State University, ²North Carolina Department of Agriculture Tidewater Research Station

8:45 a.m. 255 **Impact of Water Flow Rate on Finishing Pig Performance Under Commercial Conditions**
Hannah E. Miller ¹, Jorge Y. Perez-Palencia ¹, Ryan S. Samuel ², Crystal L. Levesque ¹, Robert C. Thaler ¹
¹South Dakota State University, ²Department of Animal Science, South Dakota State University

9:00 a.m. 256 **Body Condition Association with Production Records and Feed Management Decisions**

William E. Taylor¹, Romoser Matthew¹, Stender David¹, Christopher Rademacher¹, Jason W. Ross¹, Kenneth J. Stalder¹

¹Iowa State University

9:15 a.m. 257 **Effect of Drinker Design on Growth and Water Disappearance of Nursery Pigs**

Katherine D. Vande Pol¹, Nicholas Grohmann², Tom Weber³, Matthew J. Ritter⁴, Mike Ellis¹

¹University of Illinois, ²The Maschhoffs, LLC, ³AB Vista, ⁴Provimi

Poster Session VIII

8:45 AM - 9:30 AM

Grand Ballroom Foyer

8:30 a.m. PSVIII-12 **Animal Science's Challenge and Opportunity**

Peter J. Ballerstedt¹

¹Barenbrug USA

8:30 a.m. PSVIII-10 **Calcium Chloride Is a Better Calcium Source Rather Than Calcium Carbonate for Weaned Pigs**

JunYoung Mun¹, ABDOLREZA Hosseindoust¹, SangHun Ha¹, Joseph Moturi¹, Habeeb Tajudeen¹, JinSoo Kim¹

¹Kangwon National University

8:30 a.m. PSVIII-1 **Evaluating the Efficacy of Acidifiers Used in Nursery Diets in Reducing Bacterial Loads in Both Non-inoculated and Inoculated Complete Feed**

Olivia Harrison¹, Payton L. Dahmer¹, Jason C. Woodworth¹, Chad B. Paulk¹, Jordan T. Gebhardt², Valentina Trinetta¹, Cassandra K. Jones¹

¹Kansas State University, ²Kansas State University

8:30 a.m. PSVIII-2 **Evaluation of the effects of a stimbiotic and fiber source on nursery pig performance**

Tom Weber¹, Laura A. Merriman¹, Pete Wilcock¹, Gustavo Cordero¹, Nicholas K. Gabler²

¹AB Vista, ²Iowa State University

8:30 a.m. PSVIII-3 **Evaluation of the metal corrosiveness and pelleting stability of formic acid-based organic acid blend and the effects of the blend on post-weaning growth performance**

Ying Chen¹, Ana Sevarolli¹

¹Eastman Chemical Company

8:30 a.m. PSVIII-4 **Growth performance of weaned pigs fed diets containing yeast-based high protein DDGS as alternative to commonly used protein sources in nursery diets**

Ricardo Garavito Duarte¹, Jorge Y. Perez-Palencia², Kevin J. Herrick³, Crystal L. Levesque²

¹south dakota state university, ²South Dakota State University, ³POET

8:30 a.m. PSVIII-5 **Harvesting pigs with Phytase and no inorganic Phosphorus! Is that possible?**

Ana Lucia P. de Souza ¹, Janet C. Remus ¹, Maurice Zarate ², Jonathan P. Holt ³
¹IFF Danisco Animal Nutrition, ²IFF Danisco Animal nutrition, ³NCSU

8:30 a.m. PSVIII-7 **Isoquinoline alkaloids improve intestinal function of weanling pigs fed corn-soybean meal diets formulated below amino acid requirements**

Carly M. Rundle ¹, Valeria c. Artuso ², Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign, ²Phytobiotics Futterzusatzstoffe GmbH

8:30 a.m. PSVIII-8 **Physiological response of broiler chickens fed cold-pressed canola cake-based diets with soluble fiber source or feed additives**

Jinsu Hong ¹, Courtney Sellner ², Crystal L. Levesque ²
¹Department of Animal Science, South Dakota State University, ²South Dakota State University

8:30 a.m. PSVIII-9 **Survey US Soybean Meal: Does Region Influence Quality and Antinutritional Factors?**

Katie Hilton ¹, Ana Lucia P. de Souza ², Maurice Zarate ³, Janet C. Remus ²
¹Danisco Animal Nutrition, ²IFF Danisco Animal Nutrition, ³IFF Danisco Animal nutrition

8:30 a.m. PSVIII-11 **The impact of dietary crude protein and non-starch polysaccharidase inclusion on nursery pig performance**

Mitchell J. Nisley ¹, Nicholas K. Gabler ¹, Chris Sparks ², Erik Vanderbeke ², Kirsten De Keyser ²
¹Iowa State University, ²Huvepharma

8:30 a.m. PSVIII-6 **Use of a bacterial consensus 6-phytase variant expressed in *Trichoderma reesei* in a no inorganic phosphorus, high phytate diet for grow-finish pigs**

Ana Lucia P. de Souza ¹, Janet C. Remus ¹, Maurice Zarate ², Ryan S. Samuel ³
¹IFF Danisco Animal Nutrition, ²IFF Danisco Animal nutrition, ³Department of Animal Science, South Dakota State University

8:30 a.m. PSVIII-13 **Utilization of a mechanistic model to estimate the mineral deposition of females and entire males growing pigs**

Marion Lautrou ¹, Arnaud Samson ², Marie-Pierre Létourneau-Montminy ³
¹University Laval, ²ADM Animal Nutrition, ³Université Laval

8:30 a.m. PSVIII-14 **Zinc oxide augments early nursery pig feed intake**

Carson M. De Mille ¹, Eric R. Burrough ¹, Nicholas K. Gabler ¹
¹Iowa State University

Ruminant Nutrition IV

Chair: Alejandro Relling, The Ohio State University

9:00 AM - 11:00 AM

205/206/207

9:00 a.m. 222 **Awardee Talk: What We Know Now: Strategic Zinc Supplementation for Cattle Utilizing Growth Promoting Technologies**

Elizabeth M. Messersmith ¹, Dathan T. Smerchek ¹, Stephanie L. Hansen ¹
¹Iowa State University

9:30 a.m. 223 **Proteomic Analysis Reveals Differential Tissue Responses to Road Transportation in Beef Steers**

Erin L. Deters¹, Stephanie L. Hansen¹
¹Iowa State University

9:45 a.m. 224 **Net Nutrient Conversion of Human-edible Nutrients in the Beef Supply Chain**

Phillip A. Lancaster¹, Phillip A. Lancaster², Walt Fick³, Dustin Pendell³, Adam Ahlers³, Andrew Ricketts³, Minfeng Tang⁴
¹Beef Cattle Institute/Kansas State University, ²Department of Agronomy/Kansas State University, ³Kansas State University, ⁴Beef Cattle Institute, Kansas State University

10:00 a.m. 225 **Effect of Increasing Doses of Encapsulated Butyric Acid and Zinc on Beef Feedlot Steer Growth Performance, Dietary Net Energy Utilization, and Carcass Characteristics**

Forest L. Francis¹, Erin R. Gubbels¹, Thomas G. Hamilton¹, Warren C. Rusche¹, Doug LaFleur², Jerilyn Hergenreder², Zachary K. Smith¹
¹South Dakota State University, ²Kemin Industries Inc.

10:15 a.m. 226 **Evaluation of a Low-moisture, Molasses-based Block Containing Organic Trace Minerals and a *saccharomyces Cerevisiae* fermentation Culture in Newly Weaned Beef Steer Calves**

Thomas G. Hamilton¹, Warren C. Rusche¹, Julie Walker², Cody Wright¹, Zachary K. Smith¹
¹South Dakota State University, ²South Dakota State University Department of Animal Science, Brookings, SD

10:30 a.m. 227 **Diet and Management Strategies to Mitigate Decreased Feed Intake Associated with Terminal Implant Administration in Finishing Beef Steers**

Alexandria M. Kelly¹, Zachary K. Smith¹, Cody Wright¹, Michael Gonda¹
¹South Dakota State University

10:45 a.m. 228 **Hind Leg Angle and Stride Length Measured by 3-D Imaging Account for Variance of Locomotion Score and Growth Performance of Cattle in Slatted Feeding Facilities**

Cody Dawson¹, Daniel W. Shike¹, I. C. F. S. Condotta², Joshua C. McCann¹
¹University of Illinois at Urbana-Champaign, ²University of Illinois Urbana-Champaign

Nonruminant Nutrition IX: Breeding Herd Nutrition - Sponsored by Zoetis

Chair: Andrea Hanson, Professional Swine Management

9:45 AM - 11:45 AM

Ballroom A

9:45 a.m. 118 **Awardee Talk: An Empirical Model of Essential Amino Acid Requirements in the Pregnant Sow**

Christian D. Ramirez-Camba¹, Crystal L. Levesque¹
¹South Dakota State University

10:15 a.m. 119 **A Meta-regression Analysis to Evaluate the Influence of Branched-chain Amino Acids in Lactation Diets on Sow and Litter Growth Performance**

Julia P. Holen¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Jordan T. Gebhardt², Evan C. Titgemeyer¹, Robert D. Goodband¹

¹Kansas State University, ²Kansas State University

10:30 a.m. 120 **Reproductive Performance, Early Embryo Survival, Fetal Characteristics, and Tissue Fatty Acid Profiles of Sows Fed Linoleic or α -linolenic Acid**

Garrin Shipman¹, Xi Lin², Eric van Heugten³

¹South Dakota State University, ²North Carolina State University, ³Department of Animal Science, North Carolina State University

10:45 a.m. **Nonruminant Nutrition IX: Breeding Herd Nutrition Break**

11:00 a.m. 121 **Effects of Total Dietary Fiber Content During Gestation on Sow Reproductive Performance**

Ximena A. Paz Portal¹, David S. Rosero², Scott D. Carter¹, Pete Wilcock³

¹Oklahoma State University, ²The Hanor Company, ³AB Vista

11:15 a.m. 122 **Timing of Dietary Zinc Additions During Gestation for Improved Piglet Survival**

Kelsey L. Hammers¹, Pedro E. Urriola¹, Mark Schwartz², Moon-Suhn Ryu³, Andres Gomez¹, Lee J. Johnston⁴

¹University of Minnesota, ²Schwartz Farms, ³Yonsei University, ⁴West Central Research and Outreach Center, University of Minnesota

11:30 a.m. 123 **Superdosing Phytase Fed During Transition Phase in Sows Increased Piglet Weight Gain**

Gustavo Cordero¹, Tom Weber¹, Pete Wilcock¹, Antonio Palomo yague², Irene Alonso²

¹AB Vista, ²Setna ADM

**Nonruminant Nutrition XI: Grow-Finish Nutrition II:
Crude Protein, Amino Acid Ratios and Source-** Sponsored by Zoetis

Chair: Jose Soto, Alltech

10:15 AM - 12:00 PM

Ballroom B

10:15 a.m. 164 **Awardee Talk: Influence of Ingredient Quality and Diet Formulation on Amino Acid Digestibility and Growth Performance of Poultry and Swine**

Kara M. Dunmire¹, Charles R. Stark², Chad B. Paulk²

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

10:45 a.m. 166 **The Impact of Dietary Crude Protein Level on Growth Performance of Growing-finishing Pigs**

Pengcheng Xue¹, Molly L. McGhee¹, Chad M. Pilcher¹, Qingyun Li¹, Brent Frederick¹

¹Cargill Animal Nutrition

11:00 a.m. 167 **Effect of Reducing Dietary Crude Protein on Growth Performance of Fattening Pigs: A Meta-analysis**

Léa Cappelaere¹, Jaap Van Milgen², Kostas Syriopoulos³, Aude Simongiovanni⁴, William Lambert⁵, Marie-Pierre Létourneau-Montminy¹

¹Université Laval, ²PEGASE, INRAE, Institut Agro, ³METEX NØØVISTAGO, ⁴Metex Animal Nutrition, ⁵Metex

11:15 a.m. 168 **Evaluation of Increasing Dietary Threonine to Lysine Ratio in Corn-soybean Meal Diets with and Without Dried Distillers Grains with Solubles (DDGS) on Growth Performance of Grow-finish Pigs**

Andres F. Tolosa¹, Mike D. Tokach¹, Robert D. Goodband¹, Jordan T. Gebhardt², Jason C. Woodworth¹, Joel M. DeRouchey¹

¹Kansas State University, ²Kansas State University

11:30 a.m. 169 **The Effect of Increasing Valine, Isoleucine, and tryptophan:lysine Ratios on Growth Performance and Carcass Characteristics of Pigs Fed Diets with High leucine:lysine**

Hadley Williams¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt², Chad W. Hastad³, Zach Post³, Keith D. Haydon⁴

¹Kansas State University, ²Kansas State University, ³New Fashion Pork, ⁴CJ Bio America

11:45 a.m. 170 **WITHDRAWN: Increased Standardized Ileal Digestible (SID) Isoleucine to Lysine Ratio Improves Performance of Growing Pigs Fed Diets Containing 30% Distillers Dried Grains with Solubles (DDGS)**

Pengcheng Xue¹, Molly L. McGhee¹, Chad M. Pilcher¹, Qingyun Li¹, Brent Frederick¹

¹Cargill Animal Nutrition

2022 SciComm Trends for Animal Scientists: A Workshop - Sponsored by Bayer

Chair: John Vicini, Bayer Crop Sciences; Allison Devitre, Bayer

1:00 PM - 4:00 PM

214

1:00 p.m. **Social Scientist Lead**

Camille D. Ryan¹

¹Bayer Crop Science

1:45 p.m. **Technology Safety & Acceptance Lead**

John L. Vicini¹

¹Bayer Crop Sciences

2:30 p.m. **Social Media Practicum**

Ryan Goodman¹

¹Beef Runner