



**ASAS Midwest Section / ADSA Midwest Branch
2019 Joint Meeting
March 11-13, 2019 • Omaha, Nebraska**



Sunday, March 10, 2019

Sunday Registration Hours
(Pre-Registered Badge Pick-up Only)
3:00 PM - 5:00 PM
Grand Ballroom Foyer

Monday, March 11, 2019

Monday Registration Hours
7:00 AM - 6:00 PM
Grand Ballroom Foyer

Academic Quadrathlon Breakfast
7:30 AM - 8:30 AM
Blackstone A

Academic Quadrathlon Team Advisor's Meeting Room
8:00 AM - 3:00 PM
Mercer

Breeding and Genetics Symposium: FAANG
Chair: James Koltes, Iowa State University, Department of Animal Science
8:30 AM - 11:45 AM
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8:30 a.m. **Breeding and Genetics Symposium: FAANG Introduction**

8:35 a.m. 29 **Introduction to Functional Annotation of Animal Genomes Consortium**
Christopher K. Tuggle¹, Elisabetta Giuffra²
¹Iowa State University, ²INRA - laboratory of Animal Genetics and Integrative Biology

9:10 a.m. 28 **The Functional Annotation of the Sheep Genome Project**
Brenda M. Murdoch¹
¹University of Idaho

9:45 a.m. **Breeding and Genetics Symposium: FAANG Break**

10:00 a.m. 32 **Functional annotation of livestock genomes: chromatin structure and regulation of gene expression**

Sylvain Foissac¹, Sarah Djebali², Kylie Munyard³, Nathalie Vialaneix⁴, Andrea Rau⁵, Herve Acloque⁶, Sandrine Lagarrigue⁶, Elisabetta Giuffra⁷

¹GenPhySE, Université de Toulouse, INRA, INPT, ENVT, ²Université de Toulouse, INRA, INPT, ENVT, ³Curtin University, ⁴Université de Toulouse, INRA, ⁵INRA, Université Paris Saclay, ⁶, ⁷INRA - laboratory of Animal Genetics and Integrative Biology

10:35 a.m. 30 **Mutli-omic data integration in quantitative genetics**

Gota Morota¹
¹Virginia Tech

11:10 a.m. 31 **Building a functional annotation of the equine genome**

Jessica L. Petersen¹, Carrie J. Finno², Rebecca R. Bellone², Erin N. Burns², Nicole B. Kingsley², Ted Kalbfleisch³, James N. MacLeod³, Catherine Creppe⁴, Donald C. Miller⁵, Douglas F. Antczak⁵

¹University of Nebraska - Lincoln, ²University of California-Davis, ³University of Kentucky, ⁴Diagenode, ⁵Cornell University

Gary Allee Symposium

Chair: Joel Spencer, United Animal Health
9:00 AM - 12:00 PM
Grand Ballroom South

9:00 a.m. **Gary Allee Symposium Introduction**

9:05 a.m. 57 **Impact of weaning stress, disease, and diet on pig performance, intestinal function and integrity**

Nicholas K. Gabler¹, Emma T. Helm¹, Carson M. De Mille¹
¹Iowa State University

9:40 a.m. 56 **Observations on pre-weaning piglet mortality**

Mike Ellis¹, Katherine D. Vande Pol¹, Naomi C. Willard¹, Caleb M. Shull²
¹University of Illinois, ²The Maschhoffs, LLC

10:15 a.m. **Gary Allee Symposium Break**

10:30 a.m. 58 **Feed, feeding levels, and tissue analytics of Vitamins: Observations from the field**

Rodney Hinson¹, Ronny Moser¹, Matthew Ackerman², Rodger Main³
¹United Animal Health, ²Pork Veterinary Solutions, ³Iowa State University

11:15 a.m. 55 **Building a production nutrition department in an integrated production company: critical pillars for our success.**

Kyle Coble¹
¹JBS Live Pork

11:50 a.m. **Gary Allee Symposium: Panel Discussion**

Midwest Board Meeting I

9:00 AM - 4:00 PM

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Competition Judges Meeting

9:30 AM - 11:30 AM

Blackstone B

Digestive Physiology of Pigs Lecture and Lunch

12:00 PM - 1:00 PM

Grand Ballroom North

12:00 p.m. 54 **Lipid Nutrition and gut health of pigs**

Charlotte Lauridsen¹

¹Aarhus University

Poster Session I

12:45 PM - 1:30 PM

Grand Ballroom Foyer

12:45 p.m. PSI-17 **A 16S rDNA reference database of the deep-nasopharynx in steers for bacterial community analysis of cattle with bovine respiratory disease complex**

Madison T. Henniger¹, Phillip R. Myer², Timothy P. Smith³, Tara G. McDanel⁴, Larry A. Kuehn⁵, John W. Keele⁴

¹Department of Animal Science -University of Tennessee, ²Department of Animal Science-University of Tennessee, ³USDA, Agricultural Research Service, US Meat Animal Research Center, ⁴USDA-ARS, U.S. Meat Animal Research Center, ⁵USDA ARS U.S. Meat Animal Research Center

12:45 p.m. PSI-13 **Amino acid profile of GuarPro F-81, a potential protein source for swine and other agricultural animals in the United States**

Alexandra G. McCafferty¹, Rebecca Humphrey², Shamimul Hasan², Mark A. Crenshaw¹, James Brett², Brian J. Rude², Shengfa T. Liao²

¹Department of Animal & Dairy Sciences, Mississippi State University, ²Mississippi State University

12:45 p.m. PSI-11 **Anti-inflammatory treatment modifies epigenetics changes to muscle tissue caused by altered nutrient demand in early lactation dairy cows**

Carrie E. Cromer¹, Caroline M. Ylloja¹, Miriam Garcia¹, Laman K. Mamedova¹, Barry J. Bradford¹

¹Kansas State University

12:45 p.m. PSI-19 **Bovine chromosome 19 VDR and GPRC5C genotypes are associated with udder conformation traits in crossbred beef cattle**

Claudia L. May¹, Alison K. Ward², Carl R. Dahlen², Kendall C. Swanson², Kris A. Ringwall³, Lauren L. Hulsman Hanna²

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

12:45 p.m. PSI-4 **Comparison of analgesics for control of lameness-associated pain in lactating dairy cattle.**

Rochelle Warner ¹, Michael D. Kleinhenz ², Joshua Ydstie ¹, Jennifer Schleining ³, Larry Wulf ¹, Johann F. Coetzee ⁴, Patrick J. Gorden ⁵

¹Iowa State University College of Veterinary Medicine, ²Kansas State University, ³Texas A&M College of Veterinary Medicine, ⁴Kansas State University College of Veterinary Medicine, Department of Anatomy and Physiology, Manhattan, KS, ⁵Veterinary Diagnostic & Production Animal Medicine, Iowa State University

12:45 p.m. PSI-25 **Development of Local Kansas E. coli UTI Antibiograms to Improve Antimicrobial Stewardship in Companion Animal Medicine**

Brianna Salgado ¹, Katherine Kukanich ¹, Brian Lubbers ¹

¹Kansas State University

12:45 p.m. PSI-5 **Effects of fat-soluble vitamin injection on plasma and tissue vitamin concentrations in nursery pigs**

Paige K. Isensee ¹, Mikayla Rotering ², Kirsten Rinholen ², Paige Kelley ², Carli Boston-Denton ², Robert Stuart ³, Young Dal Jang ⁴

¹University of Wisconsin - River Falls, ²University of Wisconsin River Falls, ³Stuart Products Inc., ⁴University of Wisconsin-River Falls

12:45 p.m. PSI-20 **Effects of management system on heifer growth performance and fescue toxicity**

Laura C. Olander ¹, Parker Henley ¹, Frank Ireland ¹, Joshua C. McCann ¹, Daniel W. Shike ²

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

12:45 p.m. PSI-18 **Effects of supplementing polyunsaturated fatty acids during late gestation on performance of fall-calving cows**

Trenton L. Black ¹, Taoqi Shao ¹, Frank Ireland ¹, Joshua C. McCann ¹, Daniel W. Shike ²

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

12:45 p.m. PSI-15 **Factors affecting circulating metabolites and postnatal growth in spring-born neonatal beef calves**

Claiborn M. Bronkhorst ¹, Lindsey Wichman ², Ronna J. Wook ¹, Emma L. Stephenson ³, Allison M. Meyer ³, Amy E. Radunz ¹

¹University of Wisconsin-River Falls, ²University of Wisconsin - River Falls, ³Division of Animal Sciences, University of Missouri

12:45 p.m. PSI-3 **Heat stress mitigation strategies used by Midwestern cattle feeders**

Warren C. Rusche ¹, Ethan J. Blom ¹, Wesley W. Gentry ¹, Robbi H. Pritchard ², Allison VanDerWal ³, Alfredo DiCostanzo ³, Thomas M. Winders ⁴, Larry Howard ⁵, Galen E. Erickson ⁴, Joseph P. Cassady ¹

¹South Dakota State University, ²Annawan Cattle, LLC, ³University of Minnesota, ⁴University of Nebraska-Lincoln, ⁵University of Nebraska - Lincoln

12:45 p.m. PSI-2 **Impact of an extended-release dewormer on rumen VFAs and blood metabolites**

Stephanie Perkins ¹, Jerica Rich ¹, Emmalee Northrop ¹, Julie Walker ², George Perry ¹

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

12:45 p.m. PSI-8 **Impact of protein or chloride source on Boer goat carcass characteristics**

Madeline Neufeld ¹, Rachel Sorensen ¹, James Lattimer ¹, Alison Crane ¹, Jason C. Woodworth ¹

¹Kansas State University

12:45 p.m. PSI-10 **Impact of protein or chloride source on Boer goat growth performance**

Ashley L. Royce ¹, Rachel Sorensen ¹, James Lattimer ¹, Alison Crane ¹, Jason C. Woodworth ¹

¹Kansas State University

12:45 p.m. PSI-23 **Injectable Trace Minerals (Selenium, Copper, Zinc, and Manganese) on Milk Yield Performance After an Aflatoxin Challenge in Multiparous Holstein Cows**

Juliette Nye ¹

¹University of Illinois at Urbana Champaign

12:45 p.m. PSI-1 **Management and Risk of Nitrate Toxicity in Annual Forages: Results of a Beef Cattle Producer Survey**

Mary E. Lenz ¹, Jaymelynn K. Farney ², Mary E. Drewnoski ³

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

12:45 p.m. PSI-12 **Performance and carcass characteristics of finishing beef heifers managed in a bedded hoop barn versus an open feedlot in Central Missouri**

Heather R. Luebbering ¹, George R. Pettig ¹, Bruce C. Shanks ¹, Jeremia J. Markway ¹, Matt J. Kramer ¹, Eric G. Goose ¹, Doug Moeller ¹, Chris L. Boeckmann ¹, Luke Wilbers ¹, James D. Caldwell ²

¹Lincoln University, ²Delacon USA, Inc.

12:45 p.m. PSI-6 **Performance, carcass characteristics, and biological parameters by sheep offered diets with and without Actifor® Power**

Rebecca Jacquin ¹, Bruce C. Shanks ¹, James D. Caldwell ², Kevin Adams ²

¹Lincoln University, ²Delacon USA, Inc.

12:45 p.m. PSI-7 **Prevalence and distribution of Senecavirus A in United States swine feed mills**

Shannon P. Ney ¹, Vlad Petrovan ¹, Savannah C. Stewart ¹, Shania Davis ¹, Megan C. Niederwerder ¹, Valentina Trinetta ¹, Steve S. Dritz ¹, Jason C. Woodworth ¹, Bob Rowland ¹, Chad B. Paulk ¹, Cassandra K. Jones ¹

¹Kansas State University

12:45 p.m. PSI-24 **Relationship between passage rate and in vitro methane production from rumen and fecal contents**

Corina Nunez ¹, Sara M. Tondini ², Thomas G. Jennings ³, Justin W. Rickard ¹, Angela R. Green-Miller ⁴, Daniel W. Shike ⁵, Darren D. Henry ³, Joshua C. McCann ²

¹Illinois State University, ²University of Illinois, ³Texas Tech University, ⁴University of Illinois Urbana - Champaign, ⁵University of Illinois at Urbana-Champaign

12:45 p.m. PSI-14 **Relationships of neonatal beef calf vigor with metabolic status**
Lindsey Wichman ¹, Claiborn M. Bronkhorst ², Ronna J. Wook ², Emma L. Stephenson ³, Allison M. Meyer ³, Amy E. Radunz ²
¹University of Wisconsin - River Falls, ²University of Wisconsin-River Falls, ³Division of Animal Sciences, University of Missouri

12:45 p.m. PSI-16 **Sow parity structure and body condition measurements throughout lactation and relationship to piglet growth.**
Miguel A. Cervantes ¹, Michelle Garcia ², Brittney Keel ³, William T. Oliver ⁴, James E. Wells ⁴, Lea A. Rempel ⁴
¹Texas A&M University Kingsville, ²Texas A&M University - Kingsville, ³USDA, ARS, U.S. Meat Animal Research Center, ⁴USDA, ARS, USMARC

12:45 p.m. PSI-22 **The effects of cyanidin supplementation during oocyte maturation on the in vitro production of pig embryos**
Emma C. Hicks ¹, Miranda Mentler ¹, Brian D. Whitaker ¹
¹University of Findlay

12:45 p.m. PSI-21 **The effects of kuromanin supplementation during oocyte maturation on the in vitro production of pig embryos**
Miranda Mentler ¹, Emma C. Hicks ¹, Brian D. Whitaker ¹
¹University of Findlay

12:45 p.m. PSI-9 **Validation of environmental swabbing to detect Senecavirus A in feed**
Clayton A. Sardella ¹, Vlad Petrovan ¹, Shania K. Davis ¹, Savannah C. Stewart ¹, Megan C. Niederwerder ¹, Jason C. Woodworth ¹, Steve Dritz ¹, Robert Rowland ¹, Jason C. Woodworth ¹
¹Kansas State University

David Baker Symposium

Chair: Sung Woo Kim, North Carolina State University; Jeffery Escobar, Elanco
1:00 PM - 4:35 PM
Grand Ballroom South

1:00 p.m. 48 **David Baker Symposium Introduction**

1:05 p.m. 44 **Amino Acids in Livestock: A Historical Perspective**
Keith D. Haydon ¹, R.D. Boyd ²
¹CJ Bio America, ²Hanor Company

1:45 p.m. 46 **How far we could go reducing crude protein with the use of supplemental amino acids**
Candido Pomar ¹
¹Agriculture and Agri-food Canada

2:30 p.m. 47 **Young Scholar Presentation: Meta-regression analysis to predict the influence of branched-chain and large neutral amino acids on growth performance of pigs**
Henrique S. Cemin ¹, Mike D. Tokach ¹, Steve S. Dritz ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹
¹Kansas State University

2:55 p.m. **David Baker Symposium Break**

3:10 p.m. 43 **Commercial Realities of Amino Acid Nutrition in the Young Pig**

David A. Cook¹, Chad M. Pilcher², Brooke Humphrey³

¹Cargill, Inc, ²Cargill Animal Nutrition, ³Cargill Premix & Nutrition

3:50 p.m. 45 **Opportunity with functional role of supplemental amino acids**

Yanbin Shen¹, Sung Woo Kim²

¹Nutelligence, Inc, ²North Carolina State University

4:30 p.m. **David Baker Symposium Closing Remarks**

Ruminant Nutrition: General

Chair: Hugo Ramirez, Iowa State University

1:45 PM - 3:15 PM

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1:45 p.m. 332 **Young Scholar Presentation: Regulation of Immune Signaling by Extracellular Vesicles**

Caroline M. Ylloja¹, Laman K. Mamedova¹, Barry J. Bradford¹

¹Kansas State University

2:15 p.m. 228 **Modeling repeated measurements of diet composition**

Napoleon Vargas Jurado¹, Ronald M. Lewis², Kent M. Eskridge³

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

2:30 p.m. 229 **Characterization of the rumen bacterial communities of bison heifers maintained on a pasture-based diet**

Anlly M. Fresno Rueda¹, Jason Griffin¹, Carter Kruse², Benoit St-Pierre¹

¹South Dakota State University, ²Turner Ranches

2:45 p.m. 330 **Identification and Genomic Characterization of two Novel Strains of Prevotella albensis as starch utilizers in the rumen of beef cows**

Venkata Bandarupalli¹, Benoit St-Pierre²

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

3:00 p.m. 331 **Economic Comparison of March and May Calving Systems in the Nebraska Sandhills**

Devin L. Broadhead¹, Matt Stockton¹, McKay Erickson², Jackie A. Musgrave¹, Rick N. Funston³

¹University of Nebraska-Lincoln, West Central Research and Extension Center, ²University of Nebraska Lincoln, ³West Central Research, Extension, and Education Center

Graduate Student Oral Competition: MS
Chair: Steven Zinn, University of Connecticut
1:45 PM - 4:50 PM
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1:45 p.m. **Graduate Student Oral Competition: MS Introduction**

1:50 p.m. 75 **Assessment of allometric changes of visceral organs in pigs from birth to 10 kg bodyweight at 14 days post-weaning**

Sarah K. Elefson ¹, James C. Matthews ¹, Jim J. Monegue ², Merlin D. Lindemann ¹
¹University of Kentucky, ²UNIVERSITY OF KENTUCKY

2:05 p.m. 70 **Effects of copper, zinc, and manganese intake in late gestation on milk, cow plasma, and calf plasma trace mineral concentrations post-calving in beef cattle**

Emma L. Stephenson ¹, Abigail R. Rathert-Williams ¹, Heather Tucker ², Allison M. Meyer ¹
¹Division of Animal Sciences, University of Missouri, ²Novus International Inc.

2:20 p.m. 76 **Effects of replacing monensin and tylosin in finishing cattle diets with essential oils and/or benzoic acid on growth performance and carcass characteristics**

Lydia M. Wang ¹, Ira B. Mandell ¹, Benjamin M. Bohrer ¹
¹University of Guelph

2:35 p.m. 73 **Effects of vegetable and animal protein sources and nutrient specifications on the nursery pig gut microbiome**

Chloe M. Creager ¹, Hayford Manu ², Ashok Sharma ¹, Samuel Baidoo ², Andres Gomez ¹
¹University of Minnesota, ²University of Minnesota Southern Research and Outreach Center, Waseca, MN

2:50 p.m. 78 **Low allergenic full fat soybean as a suitable replacement for fishmeal in weaned pig diets**

Katelyn Zeamer ¹, Ryan S. Samuel ², Robert C. Thaler ¹, Tofuko A. Woyengo ³, Crystal L. Levesque ¹
¹South Dakota State University, ²Department of Animal Science, South Dakota State University, ³Assistant professor

3:05 p.m. **Graduate Student Oral Competition: MS Break**

3:20 p.m. 74 **Effects of dietary soy isoflavone supplementation on carcass cutability and meat quality of pigs infected with porcine reproductive and respiratory virus**

Erin Bryan ¹, Brooke N. Smith ², Lauren T. Honegger ³, Dustin D. Boler ⁴, Ryan N. Dilger ³, Anna Dilger ¹
¹University of Illinois, ²University of Illinois at Urbana-Champaign, ³University of Illinois Urbana-Champaign, ⁴University of Illinois Urbana-Champaign

3:35 p.m. 80 **Determining the effects of tryptophan biomass on growth performance of 11 to 23 kg nursery pigs**

Madie R. Wensley ¹, Jason C. Woodworth ², Joel M. DeRouchey ², Steve S. Dritz ², Mike D. Tokach ², Robert D. Goodband ², Keith D. Haydon ³
¹Kansas State University, ²Kansas State University, ³CJ Bio America

3:50 p.m. 71 **Impact of Myoglobin Oxygenation State at Freezing on Color Stability of Frozen and Thawed Beef**

Morgan Henriott¹, Felipe Ribeiro¹, Kellen Hart¹, Nicolas Herrera², Nicolas Bland³, Chris Calkins²

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

4:05 p.m. 72 **Use of aspirin to intentionally induce gastrointestinal tract barrier dysfunction in feedlot cattle**

Nathan G. Briggs¹, Kristen M. Brennan², Griffin Nicholls³, Jon P. P. Schoonmaker¹

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

4:20 p.m. 77 **Responses to alfalfa supplementation in mice**

Krysten Fries-Craft¹, Justin Anast¹, Stephan Schmitz-Esser¹, Elizabeth A. Bobeck¹

¹Iowa State University

4:35 p.m. 79 **Seeing the whole picture: Utilizing GPS technology to determine distance and time calves devote to walking post-weaning**

Kirsten Nickles¹, Alejandro E. Relling¹, Anthony J. Parker¹

¹The Ohio State University

Undergraduate Student Oral Competition II

Chair: Gretchen Hill, Michigan State University

2:00 PM - 3:50 PM

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2:00 p.m. **Undergraduate Student Oral Competition II Introduction**

2:05 p.m. 368 **Effects of average temperature, wind speed, and solar radiation on daily water intake of beef bulls in winter and early spring in Eastern South Dakota**

Dorothea Clark¹, Cody Wright¹, Michael Gonda¹

¹South Dakota State University

2:20 p.m. 372 **Effect of rumen fluid collection methodology on extent and variance of in vitro dry matter disappearance and interaction with substrate and incubation time**

Emma L. Riets¹, Sara M. Tondini², Daniel W. Shike³, Joshua C. McCann²

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

2:35 p.m. 371 **Evaluation of parasite resistance in cattle treated with extended-release eprinomectin (LongRange)**

Cody R. Dawson¹, Mareah J. Volk², Frank Ireland², Keela Trennepohl¹, Joshua C. McCann², Daniel W. Shike³

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

2:50 p.m. 367 **Organic versus conventional grain on placental factors in caprine**

Bailey Armentrout-Shoaf¹, Isabella V. Panetta¹, Matthew J. Soyland¹, Toree Williams¹, Christina Rocco¹

¹The University of Findlay

3:05 p.m. 369 **Impact of an extended-release dewormer on fetal development and subsequent calf performance**

Ashley M. Reiner¹, Stephanie Perkins², Jerica Rich², Emmalee Northrop², George Perry²

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

3:20 p.m. 370 **Predicting Nitrogen and Phosphorous Flows in Beef Open Lots**

Megan Homolka¹, Galen E. Erickson², Richard Koelsch²

¹UNIV OF NEBRASKA - LINCOLN, ²University of Nebraska-Lincoln

3:35 p.m. 366 **Effects of organic versus conventional diets on dystocia rates in Nubian dams**

Matthew J. Soyland¹, Isabella V. Panetta¹, Bailey Armentrout-Shoaf¹, Christina Rocco¹, Toree Williams¹

¹The University of Findlay

Undergraduate Student Oral Competition I

Chair: Chris Hostetler, National Pork Board

2:00 PM - 4:05 PM

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2:00 p.m. **Undergraduate Student Oral Competition I Introduction**

2:05 p.m. 360 **Effect of housing beef cows on dry lots vs pasture on cow performance and reproduction**

Ashley E. Cooney¹, Lucas T. Neira², Wesley P. Chapple³, William T. Meteer³, Joshua C. McCann¹, Daniel W. Shike³

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

2:20 p.m. 362 **Effects of organic versus conventional diets on dam and kid weight in Nubian caprine**

Isabella V. Panetta¹, Bailey Armentrout-Shoaf¹, Matthew J. Soyland¹, Christina Rocco¹, Toree Williams¹

¹The University of Findlay

2:35 p.m. 361 **Increasing duration of feeding high dietary lysine and energy before farrowing on colostrum quality and yield in mixed parity sows**

Analicia J. Swanson¹, Kiah M. Gourley¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Steve S. Dritz¹, Robert D. Goodband¹, Brent Frederick²

¹Kansas State University, ²Christensen Farms

2:50 p.m. 358 **Comparison of analytical methods for determination of nutrient concentration in beef cow colostrum and milk**

Abigail R. Rathert-Williams¹, Emma L. Stephenson¹, Ann L. Kenny¹, Allison M. Meyer¹

¹Division of Animal Sciences, University of Missouri

3:05 p.m. 359 **Determination of relative bioavailability of copper from GemStone® copper in growing beef steers**

Gabrielle C. DiRusso¹, Emma Niedermayer¹, Stephanie L. Hansen¹

¹Iowa State University

3:20 p.m. 364 **Impact of porcine reproductive and respiratory syndrome virus challenge and deoxynivalenol on intestinal integrity and nutrient transport**

Samuel Gerrard¹, Emma T. Helm¹, Blaire Todd¹, Nicholas K. Gabler¹

¹Iowa State University

3:35 p.m. 365 **Effect of feeding a blend of short, medium, and long chain fatty acids and triglycerides to lactating sows on piglet growth, feed intake, and survivability to weaning**

Larissa Becker¹, Nick Knute², Abdullah Mahfuz², Mohan Dasari², Chad W. Hastad³

¹Iowa State University, ²Feed Energy Company, ³New Fashion Pork

3:50 p.m. 363 **Evaluating the effects of day of iron injection after farrowing on preweaning performance and hematological criteria**

Cierra Roubicek¹, Hayden E. Williams¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Steve S. Dritz¹, Mike D. Tokach¹, Robert D. Goodband¹, Andrew Holtcamp²

¹Kansas State University, ²CEVA Animal Health

Graduate Student Oral Competition: PHD II

Chair: Ryan Dilger, University of Illinois Urbana-Champaign

2:30 PM - 4:20 PM

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2:30 p.m. **Graduate Student Oral Competition: PHD II Introduction**

2:35 p.m. 89 **Inclusion of GuarPro F-71 in a corn and soybean meal based diet: Effects on growth performance and nutrient metabolism in growing pigs**

Shamimul Hasan¹, Rebecca Humphrey¹, Mark A. Crenshaw², James Brett¹, Shengfa T. Liao¹

¹Mississippi State University, ²Department of Animal & Dairy Sciences, Mississippi State University

2:50 p.m. 94 **Dietary soy isoflavone ingestion alters the acute and recovery immune responses in growing pigs infected with porcine reproductive and respiratory syndrome virus**

Brooke N. Smith¹, Maci Oelschlager¹, Melissa I. Hannas², Muhammad Shameer Abdul Rasheed¹, Ryan N. Dilger³

¹University of Illinois at Urbana-Champaign, ²Universidade Federal de Viçosa, ³University of Illinois Urbana-Champaign

3:05 p.m. 93 **Host genetics help shape the rumen microbiome in beef cattle**

Waseem Abbas¹, Jeremy T. Howard², Henry A. Paz³, Kristin E. Hales⁴, James E. Wells⁵, Larry A. Kuehn⁶, Matthew L. Spangler⁷, Galen E. Erickson⁸, Samodha C. Fernando⁸

¹Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE 68583, USA,

²Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA, ³Mississippi State University, ⁴Meat Animal Research Center, Clay Center, NE 68933,, ⁵USDA, ⁶USDA ARS

U.S. Meat Animal Research Center, ⁷University of Nebraska - Lincoln, ⁸University of Nebraska-Lincoln

3:20 p.m. 90 **The influence of supplemental zinc, zinc source, and dietary energy level on performance measures of beef steers**

Remy N. Carmichael¹, Stephanie L. Hansen¹, Olivia N. Schroeder²
¹Iowa State University, ²Dairy R&D - Purina - Land O'Lakes

3:35 p.m. 95 **The effect of incremental dietary energy density from 13.8 to 15.9 MJ DE/kg on piglet vitality and growth to weaning**

Hazel B. Rooney¹, Keelin O'Driscoll², John O'Doherty³, Peadar G. Lawlor⁴
¹Teagasc & University College Dublin, ²Teagasc, ³University College Dublin, ⁴Pig Development Department, Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland

3:50 p.m. 92 **Intra-nasal oxytocin treatment does not attenuate the hypothalamo-pituitary-adrenal axis in beef heifers subjected to isolation stress or restraint and isolation stress**

Brooklyn Wagner¹, Alejandro E. Relling¹, Justin Kieffer¹, Anthony J. Parker¹
¹The Ohio State University

4:05 p.m. 91 **Effects of antibiotics on growth performance, diarrhea, and bacterial translocation in weanling pigs experimentally infected with a pathogenic E. coli**

Kwangwook Kim¹, Yijie He², Cynthia N. Jinno¹, Seijoo Yang¹, Minho Song³, Peng Ji¹, Yanhong Liu¹
¹University of California, Davis, ²Department of Animal Science, University of California, Davis, ³Chungnam National University

Graduate Student Oral Competition: PHD I

Chair: Glenn Duff, New Mexico State University

2:30 PM - 4:35 PM

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2:30 p.m. **Graduate Student Oral Competition: PHD I Introduction**

2:35 p.m. 86 **Impact of steeping corn DDGS over 72 hours without or with fiber degrading enzymes and protease alone or in combination on concentration of sugars and organic acids and pH in the liquid medium**

Youngji Rho¹, Rob Patterson², Elijah Kiarie¹
¹University of Guelph, ²CBS Bio-Platforms Inc.

2:50 p.m. 88 **Effects of cattle breed, Holstein versus Angus, and corn grain processing on diet digestibility and ruminal pH**

Pedro Carvalho¹, Tara L. Felix², Flavia Sales Silva³
¹Penn State University, ²Penn State, ³The Pennsylvania State University

3:05 p.m. 85 **Effects of feed removal on body temperature and intestinal morphology in pigs recovering from acute hyperthermia**

Kouassi R. Kpodo¹, Alan W. Duttlinger¹, Matthew P. Aardsma¹, Jacob M. Maskal¹, Jay S. Johnson²
¹Purdue University, ²USDA-ARS Livestock Behavior Research Unit

3:20 p.m. 87 **Bacterial communities of the uterus and vagina between resulting pregnant and non-pregnant postpartum beef cows**

Taylor B. Ault-Seay¹, Brooke A. Clemmons², Sydney T. Reese³, Gessica A. Franco-Johannsen⁴, Felipe G. Dantas⁵, Liesel G. Schneider⁶, Timothy P. Smith⁷, Edwards J L. Lannett⁸, Phillip R. Myer⁹, Ky G. Pohler³

¹University of Tennessee, Knoxville, ²University of Tennessee Knoxville, ³Texas A&M University, ⁴Texas &M University, ⁵University of Tennessee, ⁶Animal Science Department, University of Tennessee Institute of Agriculture, ⁷USDA, Agricultural Research Service, US Meat Animal Research Center, ⁸Department of Animal Science, University of Tennessee, ⁹Department of Animal Science- University of Tennessee

3:35 p.m. 84 **Improving dietary amino acid balance reduces heat production in lactating sows exposed to heat stress**

Sai Zhang¹, Jay S. Johnson², Nathalie Trottier¹

¹Department of Animal Science, Michigan State University, ²USDA-ARS Livestock Behavior Research Unit

3:50 p.m. 83 **Lifelong dynamics of the swine gut microbiome: from birth to market.**

Xiaofan Wang¹, Tsungcheng Cheng Tsai¹, Charles V. Maxwell¹, Jiangchao Zhao²

¹University of Arkansas, ²Department of Animal Science, University of Arkansas, Fayetteville, AR, 72701

4:05 p.m. 82 **Glucocorticoid receptor agonist (GRA): an alternative to in-feed antibiotics (ANT) for newly weaned pigs**

Hailey Wooten¹, John J. McGlone¹, Arlene Garcia¹, Amanda Rakhshandeh², Anoosh Rakhshandeh¹

¹Texas Tech University, ²South Plain Collage

4:20 p.m. 81 **Increasing withdrawal duration of corn distillers dried grains with solubles on finishing pig performance and carcass characteristics**

Annie B. Lerner¹, Mike D. Tokach², Jason C. Woodworth², Joel M. DeRouchey², Steve S. Dritz², Robert D. Goodband², Matt W. Allerson³

¹Schwartz Farms, Inc., ²Kansas State University, ³Holden Farms

Ruminant Nutrition: Vitamins and Minerals

Chair: Tara Felix, Penn State

3:30 PM - 4:45 PM

205/206

3:30 p.m. 349 **The use of low antioxidant mineral concentrations in the growing diet as a method to increase marbling deposition in feedlot cattle**

Jerad Jaborek¹, Alejandro E. Relling¹

¹The Ohio State University

3:45 p.m. 346 **Effect of supplemental vitamin E in feedlot receiving diets on steer performance and immune function**

Erin L. Deters¹, Stephanie L. Hansen¹

¹Iowa State University

4:00 p.m. 347 **Supplemental copper concentration and feed restriction influence plasma metabolome of growing beef steers**

Katherine VanValin¹, Stephanie L. Hansen¹
¹Iowa State University

4:15 p.m. 348 **Effects of supplemental copper, zinc, and manganese source on growth performance and carcass characteristics of finishing beef steers**

Jeff S. Heldt¹, Shane Davis²
¹Micronutrients, ²Bos Technica Research Services

4:30 p.m. 345 **Comparison of multiple trace mineral products provided to beef cattle as injectable, oral drench, oral paste, or bolus**

Trey D. Jackson¹, Remy N. Carmichael¹, Erin L. Deters¹, Elizabeth M. Messersmith¹, Katherine VanValin¹, Stephanie L. Hansen¹
¹Iowa State University

Poster Session II

5:00 PM - 5:45 PM

Grand Ballroom Foyer

5:00 p.m. PSII-5 **Carcass characteristics and growth performance of market pigs fed reduced lysine diets in bedded hoop barns**

Peter J. Lammers¹, Chad Stahl², Mark S. Honeyman³
¹UW-Platteville, ²Choice Genetics, ³Iowa State University

5:00 p.m. PSII-11 **Comparison of multiple heat sources in the farrowing house: Effect on production and energy efficiency**

Karli J. Lane¹, Kenneth J. Stalder¹, Jay D. Harmon¹, Locke A. Karriker¹, Anna K. Johnson¹
¹Iowa State University

5:00 p.m. PSII-8 **Defining pig sort loss with a simulation of various marketing options of pigs with the assumption that marketing cuts improve variation in carcass weight and leanness**

Ziyu Zhou¹, Benjamin M. Bohrer¹
¹University of Guelph

5:00 p.m. PSII-15 **Effect of ammoniation and harvest method on waste and consumption of corn residue bales fed to cows in a round bale feeder**

Ashley Conway¹, Zac Carlson¹, Henry Hilscher², James C. MacDonald³, Terry J. Klopfenstein¹, Mary E. Drewnoski¹
¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska

5:00 p.m. PSII-9 **Effect of avilamycin on nursery pig performance and health**

Robyn Thompson¹, Laura Greiner¹, Amanda Graham¹, Brandon Knopf¹
¹Carthage Innovative Swine Solutions

5:00 p.m. PSII-10 **Effect of gilt feeding level and length of increased feeding level in late gestation on piglet birth weight**

James K. Quick¹, Mark Knauer¹
¹North Carolina State University

5:00 p.m. PSII-20 **Effect of mixing of extended boar semen using a bulk semen delivery system after 2 and 5 days in storage**

Kayla M. Mills ¹, Tabitha Steckler ², Megan Bock ², Amanda Minton ³, Steve Terlouw ⁴, Kara R. Stewart ²

¹Department of Animal Science, Purdue University, ²Purdue University, ³Acuity Swine Genetics, ⁴United Animal Health

5:00 p.m. PSII-3 **Effect of molasses-based block supplementation on cattle fed endophyte-infected Tall Fescue (*Festuca arundinacea*) seed**

Luis Felipe Barbosa Braga. Feitoza ¹, Hans Christian. Muller ¹, Tom Williams ¹, James Drouillard ¹

¹Kansas State University

5:00 p.m. PSII-17 **Effect of supplementing algae to heifers during breeding and early gestation on growth and reproduction**

Griffin Nicholls ¹, Bethany Funnell ², Kara R. Stewart ³, Ron Lemenager ¹, Brian Campbell ⁴, Jon P. P. Schoonmaker ³

¹Department of Animal Sciences, Purdue University, ²Department of Veterinary Clinical Sciences, Purdue University, ³Purdue University, ⁴DSM

5:00 p.m. PSII-4 **Effect of Urea and Distillers Inclusion In Dry Rolled Corn Based Diets on Heifer performance and Carcass Characteristics**

Bradley M. Boyd ¹, Kristin E. Hales ², Galen E. Erickson ³

¹University of Nebraska - Lincoln, ²Meat Animal Research Center, Clay Center, NE 68933,,

³University of Nebraska-Lincoln

5:00 p.m. PSII-14 **Effects of high protein DDGS in SFC or DRC-based diets on finishing performance of steers**

Lauren Ovinge ¹, Henry Hilscher ², Bradley M. Boyd ², Galen E. Erickson ¹

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

5:00 p.m. PSII-1 **Evaluation of RUP content and digestibility of feeds from organic and conventional sources**

Elizabeth Schumacher ¹, Galen E. Erickson ², James C. MacDonald ³, Terry J. Klopfenstein ², Hannah Wilson ²

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

5:00 p.m. PSII-21 **Evaluation of the impact of the magnitude of errors in the sorting of pigs and market price for market on the optimal market weight**

Jian Cheng ¹, Joanna Claudy ², Yichen Que ³, Allan P. Schinckel ⁴

¹Iowa State University, ²Purdue university, ³University of Minnesota, ⁴Purdue University

5:00 p.m. PSII-16 **Evidence for stratification of rumen wall microbial communities revealed by 16S rRNA based amplicon sequencing.**

Lucas R. Koester ¹, Mark Lyte ¹, Stephan Schmitz-Esser ¹, Heather Allen ²

¹Iowa State University, ²National Animal Disease Center

5:00 p.m. PSII-18 **Greater feed amounts during late gestation do not improve piglets birth weight: a dose-response study performed in gilts**

Andre L. Mallmann ¹, Elisar Camilotti ², Deivison Fagundes ³, Carlos Vier ², Ana Paula G. Mellagi ⁴, Rafael R. Ulguim ⁴, Mari Bernardi ², Fernando P. Bortolozzo ⁴

¹Universidade Federal do Rio Grande do Sul, ²Universidade Federal do Rio Grande do Sul, ³Universidade Federal do Rio Grande do Sul, ⁴UFRGS

5:00 p.m. PSII-22 **Impact of stocking density and number of pigs per feeder space with wet/dry feeders: an economic analysis**

Ricardo M. Garcia ¹, Cesar A. P. Garbossa ², Marvin E. Wastell ³, Allan P. Schinckel ¹

¹Purdue University, ²University of São Paulo - USP, ³GroMaster

5:00 p.m. PSII-23 **Meat quality of Santa Inês lambs slaughtered at different backfat thickness**

Edson Luis de A. Ribeiro ¹, Francisco Fernandes Jr ¹, Camila Constantino ¹, Fernando Augusto Grandis ¹, Natália Albieri Koritiaki ¹, Filipe Alexandre B. Castro ¹, Francine Mezzomo Giotto ¹

¹Universidade Estadual de Londrina

5:00 p.m. PSII-6 **Performance based NEm requirement adjustment for heifers fed during winter months in eastern South Dakota compared to the Texas panhandle**

Zachary K. Smith ¹, Ethan J. Blom ¹, Wesley W. Gentry ¹, Wyatt Smith ¹, Rodney Preston ², Robbi H. Pritchard ³

¹South Dakota State University, ²Texas Tech University, ³Annawan Cattle, LLC

5:00 p.m. PSII-24 **Performance, carcass and meat quality of castrated and intact Dorper lambs slaughtered at different body condition scores**

Edson Luis de A. Ribeiro ¹, Francisco Fernandes Jr ¹, Camila Constantino ¹, Fernando Augusto Grandis ¹, Natália Albieri Koritiaki ¹, Filipe Alexandre B. Castro ¹, Francine Mezzomo Giotto ¹

¹Universidade Estadual de Londrina

5:00 p.m. PSII-13 **Providing on-farm handling tools to move grow-finish pig cadavers**

Ella E. Akin ¹, Anna K. Johnson ¹, Cassandra Jass ², Jason W. Ross ¹, Suzanne Millman ¹, John Stinn ², Kenneth J. Stalder ¹

¹Iowa State University, ²Iowa Select Farms

5:00 p.m. PSII-19 **Social structures, social ties, and development of tail biting in growing-finishing pigs**

Yuzhi Li ¹, Lee J. Johnston ¹

¹West Central Research and Outreach Center, University of Minnesota

5:00 p.m. PSII-12 **The effects of lift crates on sow performance and litter survival**

Dalton R. Obermier ¹, Mark Knauer ¹, Amanda Graham ², Hyatt Frobose ³

¹North Carolina State University, ²Carthage Innovative Swine Solutions, ³Gestal - JYGA Technologies

5:00 p.m. PSII-2 **The impact of essential oil supplementation on sow milk composition and fecal dry matter**

Shannon L. Dierking ¹, Jim J. Monegue ², Merlin D. Lindemann ¹

¹University of Kentucky, ²UNIVERSITY OF KENTUCKY

5:00 p.m. PSII-7 **Type I error rates of two strategies to analyze a randomized complete block design within multiple sites**

Hilda I. Calderon ¹, Christopher I. Vahl ², Steve S. Dritz ²

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

Recognition of Young Scholar Winners

5:45 PM - 6:15 PM

Grand Ballroom North

Poster Session III

6:15 PM - 7:00 PM

Grand Ballroom Foyer

6:15 p.m. PSIII-5 **Accuracy of genomic prediction of antibody response to common infectious diseases in commercial sows**

Leticia Pereira Sanglard ¹, PigGen Canada ², Benny E. Mote ³, Philip Willson ⁴, John Harding ⁴, Graham Plastow ⁵, Jack C.M. Dekkers ⁶, Nick V.L. Serão ⁶

¹Iowa State University, ²PigGen Canada, ³Department of Animal Science, University of Nebraska – Lincoln, ⁴University of Saskatchewan, ⁵University of Alberta, ⁶Iowa State University

6:15 p.m. PSIII-23 **Characterization of oxidized oil-elicited disruption of amino acid metabolism in nursery pigs through metabolomic analysis**

Yue Guo ¹, Andrea Hanson ¹, Lei Wang ¹, Brian J. Kerr ², Pedro Urriola ¹, Gerald Shurson ¹, Milena Saqui-Salces ¹, Chi Chen ¹

¹University of Minnesota, ²USDA-ARS

6:15 p.m. PSIII-10 **Effect of WUR Genotype on Resilience to a Polymicrobial Natural Disease Challenge in Pigs**

Ryan L. Jeon ¹, Austin Putz ², Michael Dyck ³, John Harding ⁴, Frederic Fortin ⁵, Graham Plastow ³, Bob Kemp ⁶, Jack C.M. Dekkers ⁷

¹Department of Animal Science, Iowa State University, Ames, IA 50011, ²Hendrix Genetics, ³University of Alberta, ⁴University of Saskatchewan, ⁵Centre de Développement du Porc du Québec Inc., ⁶PigGen Canada, Guelph, ON, Canada, ⁷Iowa State University

6:15 p.m. PSIII-3 **Genes and functions associated with tolerance to fescue toxicosis in Angus cows**

Piush Khanal ¹, Leticia P. Sanglard ², Kyle Mayberry ¹, Jeffrey Sommer ¹, Matthew H. Poore ¹, Daniel H. Poole ¹, Nick V.L. Serão ²

¹North Carolina State University, ²Iowa State University

6:15 p.m. PSIII-15 **Genetic diversity and population structure in nine beef cattle sub-populations using whole genome SNP markers**

Nayan Bhowmik ¹, Kris A. Ringwall ², Carl R. Dahlen ¹, Kendall C. Swanson ¹, Lauren L. Hulsman Hanna ¹

¹North Dakota State University, ²Dickinson Research Extension Center, North Dakota State University

6:15 p.m. PSIII-13 **Genetic parameters and the purebred–crossbred genetic correlation for growth, carcass, and meat quality traits in pigs**

Hadi Esfandyari ¹, Dinesh Thekkoot ², Robert A. Kemp ³, Graham Plastow ⁴, Jack C.M. Dekkers ¹

¹Iowa State University, ²Genesis, ³Genesis Inc., ⁴University of Alberta

6:15 p.m. PSIII-8 **Genomic Prediction of Reproductive Performance of Commercial Sows in Health Challenged Herds**

Cassandra Scanlan ¹, PigGen Canada ², Benny E. Mote ³, Philip Willson ⁴, John Harding ⁴, Graham Plastow ⁵, Jack C.M. Dekkers ¹, Nick V.L. Serão ¹

¹Iowa State University, ²PigGen Canada, ³Department of Animal Science, University of Nebraska – Lincoln, ⁴University of Saskatchewan, ⁵University of Alberta

6:15 p.m. PSIII-9 **Heritability estimates for sow prolapse**

Marcie I. Christianson ¹, Jeremy T. Howard ², Kent A. Gray ², China Supakron ¹, Kenneth J. Stalder ¹

¹Iowa State University, ²Smithfield Premium Genetics

6:15 p.m. PSIII-17 **Nutritional value of high-lysine sorghum, red sorghum, white sorghum, and corn fed to growing pigs**

Charmaine D. Espinosa ¹, Lori Thomas ², Robert D. Goodband ², Hans H. Stein ¹

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

6:15 p.m. PSIII-1 **Nutritive value of expeller-pressed carinata cake for pigs**

Tofuko A. Woyengo ¹

¹Assistant professor

6:15 p.m. PSIII-20 **Oil source and peroxidation affects performance and vitamin E status in nursery pigs**

Stephanie Walston ¹, Richard Faris ¹, Junmei Zhao ², Brian J. Kerr ³

¹Cargill Animal Nutrition, ²Cargill, ³USDA-ARS

6:15 p.m. PSIII-2 **Optimal ratio of standardized ileal digestible total sulfur amino acid to lysine for 5 to 22 kg pigs under antibiotic-free regime**

Ping Ren ¹, Uislei A. Orlando ², Marcio Goncalves ², Bradley Lawrence ¹, Yulin Ma ¹, Mercedes Vazquez ¹

¹Novus International, Inc, ²Genus PIC

6:15 p.m. PSIII-14 **Performance differences between two groups of commercial pigs following experimental infection with porcine reproductive and respiratory syndrome virus (PRRS) virus 1-7-4**

Erin Little ¹, Jenelle Dunkelberger ², Dan B. Hanson ³, J. Eggert ², Michael Gonda ⁴, Michael D. MacNeil ⁵, Scott A. Dee ¹

¹Pipestone Applied Research, ²Topigs Norsvin USA, ³Pipestone applied research, ⁴South Dakota State University, ⁵Delta G

6:15 p.m. PSIII-22 **Performance of DNA 600 Duroc sired pigs when split sex fed with commercial diets with or without a blend of phytonutrients (Lean Fuel)**

Kevin Soltwedel ¹, Steve J. England ², Fredrik Sandberg ¹, Megan Bible ¹

¹Furst-McNess Company, ²Furst-McNess

6:15 p.m. PSIII-12 **Peripheral blood parameters as proxies of performance in beef cattle: Heritability and genetic correlations between peripheral blood parameters and performance phenotypes.**

Josue Chinchilla-Vargas¹, Luke M. Kramer¹, John D. Tucker², Don S. Hubbell³, Jeremy G. Powell⁴, Toby D. Lester², Elizabeth A. Backes², Karen Anschutz², Kenneth J. Stalder¹, Max F. Rothschild¹, James E. Koltes⁵

¹Iowa State University, ²University of Arkansas, ³UA Livestock and Forestry Station, retired, ⁴University of Arkansas System, Division of Agriculture, Department of Animal Science, ⁵Iowa State University, Department of Animal Science

6:15 p.m. PSIII-4 **Preliminary exploration of relationship of automated sensor data with feed intake and efficiency in lactating dairy cattle.**

Cori J. Siberski¹, Brady M. Goetz², Lance H. Baumgard², James E. Koltes³

¹Department of Animal Science, Iowa State University, ²Iowa State University, ³Iowa State University, Department of Animal Science

6:15 p.m. PSIII-21 **Processing of food proteins of animal origin sometimes, but not always, increases values for Digestible Indispensable Amino Acid Scores**

Hannah M. Bailey¹, Eric P. Berg², Hans H. Stein³

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

6:15 p.m. PSIII-7 **Production trait differences between show pig and commercial genetic lines**

Zack Peppmeier¹, Dalton R. Obermier¹, Mark Knauer¹

¹North Carolina State University

6:15 p.m. PSIII-24 **Selenium requirement of turkeys based on tissue selenium concentration and selenoprotein activity and transcript expression**

Rachel M. Taylor¹, Roger A. Sunde²

¹University Of Wisconsin-Madison, ²University of Wisconsin Madison

6:15 p.m. PSIII-11 **Semen Quality effect on Conception Rate among Three Purebred Swine Lines**

Giselle Kruse¹, Caitlyn Bruns¹

¹DNA Genetics

6:15 p.m. PSIII-18 **Standardized total tract digestibility of Ca by growing pigs in different sources of calcium carbonate and dicalcium phosphate**

Su A Lee¹, Carrie L. Walk², Hans H. Stein¹

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

6:15 p.m. PSIII-19 **Supplementation of mint oil and yeast cell in lactation diets on performance of offspring during the early-post weaning period.**

Lily P. Hernandez¹, James L. Dunn², Joel Wenninghoff², Crystal L. Levesque¹

¹South Dakota State University, ²ADM Animal Nutrition

6:15 p.m. PSIII-16 **The Effect of Activo and a Competitor Phytogenic on growth performance and carcass characteristics of grow-finish pigs**

Rafael Cabrera¹

¹EW Nutrition, USA

Poster Reception
6:15 PM - 7:15 PM
Grand Ballroom North

AQ Quiz Bowl Finals and Awards Presentation
7:00 PM - 7:30 PM
Grand Ballroom North

Graduate Student Mixer
7:30 PM - 11:59 PM
Upper Level

Tuesday, March 12, 2019

Tuesday Registration Hours
7:00 AM - 4:00 PM
Grand Ballroom Foyer

Poster Session IV
7:30 AM - 8:15 AM
Grand Ballroom Foyer

7:30 a.m. PSIV-20 **A 6-phytase, Natuphos® E, target dosing energy release compared with fat in corn, soy diets fed to pigs**

Michael Coelho ¹, Robert Jones ², Frank Parks ²
¹BASF, ²Integrated Farm Research, Inc,

7:30 a.m. PSIV-12 **A fortified protein blend as a replacement for animal and fish proteins in nursery pig diets: Effects on growth performance, immune status, microbial metabolites, and fecal scoring**

Jorge Y P. Palencia ¹, Clayton S. Chastain ², Morgan T. Thayer ², Alan W. Duttlinger ², Kayla M. Mills ³, Julie A. Feldpausch ², Jacob A. Richert ⁴, Daniel B. Jones ⁵, Matthew D. Asmus ⁵, Vinicius S. Cantarelli ⁶, Brian T. Richert ²
¹Universidade Federal de Lavras – Brazil, ²Purdue University, ³Department of Animal Science, Purdue University, ⁴Kansas State University, ⁵ADM, ⁶Federal University of Lavras

7:30 a.m. PSIV-23 **A strong correlation between mini and commercial pigs in phosphorus digestibility of feed ingredients**

Hyunwoong Jo ¹, Beob G. Kim ¹
¹Konkuk University

7:30 a.m. PSIV-1 **Apparent ileal and total tract digestibility of energy and carbohydrates in hybrid rye and other cereal grains fed to growing pigs**

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

7:30 a.m. PSIV-13 **Basal endogenous loss, standardized total tract digestibility, and retention of Ca in sows change throughout gestation, but microbial phytase reduces basal endogenous loss of Ca by gestating sows**

Su A Lee ¹, Carrie L. Walk ², Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign, ²AB Vista

7:30 a.m. PSIV-5 **Can dietary oxidized protein induce oxidative stress in pigs?**

Carl A. Frame¹, Logan R. Kilburn², Erika M. Johnson², Mariana C. Rossoni-Serao²

¹Iowa State University - Department of Animal Science, ²Iowa State University

7:30 a.m. PSIV-24 **Comparison of amino acid digestibility in feed ingredients for mini and commercial pigs**

Hyunwoong Jo¹, John K. Htoo², Caroline González-Vega³, Beob G. Kim¹

¹Konkuk University, ²Evonik Operations GmbH, ³Evonik Operations GmbH

7:30 a.m. PSIV-3 **Comparison of nursery pig feed programs with or without spray dried plasma**

Joe D. Crenshaw¹, Joy M. Campbell¹, Javier Polo¹

¹APC Inc

7:30 a.m. PSIV-11 **Description of a novel Calorimetric unit to determine net energy in group housed pigs**

Cristhiam J. Muñoz¹, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign

7:30 a.m. PSIV-15 **Development of a modelling framework to account for P kinetics in growing and finishing pigs**

Maciej M. Misiura¹, Joao A.N. Filipe¹, Carrie L. Walk², Ilias Kyriazakis¹

¹Newcastle University, ²AB Vista

7:30 a.m. PSIV-25 **Development of an indirect calorimetry system to determine heat production in individual lactating sows**

Jay S. Johnson¹, Sai Zhang², Gabriella M. Morello³, Jacob M. Maskal⁴, Nathalie Trottier⁵

¹USDA-ARS Livestock Behavior Research Unit, ²Michigan State University, ³IBMC-Institute of Molecular and Cellular Biology, ⁴Purdue University, ⁵Department of Animal Science, Michigan State University

7:30 a.m. PSIV-7 **Diet nutrient digestibility and growth performance in weaned pigs fed steam-exploded canola meal**

Joaquin J. Sanchez Zannatta¹, B.V. Le Thanh¹, Li F. Wang², Eduardo Beltranena³, Rex N. Newkirk⁴, Ruurd T. Zijlstra¹

¹University of Alberta, ²University of Alberta, Edmonton, Alberta, Canada, ³Alberta Agriculture and Forestry, ⁴University of Saskatchewan

7:30 a.m. PSIV-19 **Dietary spray dried plasma on immune responses of lactating sows and their litters**

Byeonghyeon Kim¹, Junsu Kim¹, Kwangwook Kim², Sheena Kim¹, Jeongjae Lee¹, Joowon Kang¹, Daye Mun¹, Jangryeol Baek¹, Soyun Kim³, Peng Ji², Jeehwan Choe⁴, Minho Song¹

¹Chungnam National University, ²University of California, Davis, ³Chungnam National University, ⁴Korea National College of Agriculture and Fisheries

7:30 a.m. PSIV-2 **Digestibility evaluation of fermented soybean for nursery piglets**

Ricardo M. Garcia¹, Gabriel Arruda², Rhuan F. Chaves³, Charles Muller Ribeiro³, Melissa Mendes², Vinícius S. Cantarelli²

¹Purdue University, ²Federal University of Lavras, ³Universidade Federal de Lavras

7:30 a.m. PSIV-16 **Effect of a 1-monoglyceride, 1,2-diglyceride of butyric-, caproic- and caprilic acid, and Avilamycin on performance and intestinal E. coli when fed to piglets challenged with E. coli**

Michael Coelho ¹, Peter Ader ²

¹BASF, ²BASF SE

7:30 a.m. PSIV-17 **Effect of a 1-monoglyceride, 1,2-diglyceride of butyric-, caproic- and caprilic acid, C. butyricum Probiotic and Avilamycin on performance on pigs challenged with Salmonella**

Michael Coelho ¹, Peter Ader ²

¹BASF, ²BASF SE

7:30 a.m. PSIV-10 **Effect of a yeast product supplementation on growth performance, nutrient digestibility and cytokines mRNA expression in weanling piglets reared under low sanitary environment**

Fernando Bravo de Laguna ¹, Bruno Bertaud ², In Ho Kim ³, Yong Min Kim ⁴

¹Lallemand SAS, ²Lallemand Animal Nutrition, ³Dankook University, ⁴Dankook Univ.

7:30 a.m. PSIV-9 **Effect of carbohydrases on growth performance, nutrient digestibility, blood profiles and fecal microbiota in weanling pigs fed reduced energy diet**

Ahn Je Min ¹, Xiang Ao ¹, Haoyang Sun ², In Ho Kim ¹

¹Dankook University, ²Dankook Univ.

7:30 a.m. PSIV-4 **Effect of combinations of feed enzymes on growth performance, and nutrient digestibility in nursery pigs fed complex diets**

Yi-Chi Cheng ¹, Ki Beom Jang ¹, Debora Muratori Holanda ¹, Wenting Li ², Sung Woo Kim ¹

¹North Carolina State University, ²Dupont- Nutrition&Biosciences

7:30 a.m. PSIV-6 **Effect of dietary fiber source on growth performance and carcass characteristics of finishing pigs**

Kara M. Dunmire ¹, Lori Thomas ², Michaela B. Braun ², Courtney N. Truelock ², Mike D. Tokach ², Joel M. DeRouchey ², Robert D. Goodband ², Jason C. Woodworth ², Steve S. Dritz ², Chad B. Paulk ²

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

7:30 a.m. PSIV-22 **Effect of dietary glycine on growth performance and skin collagen abundance of nursery pigs fed low crude protein diets**

Kayla E. Silva ¹, Wilfredo Mansilla ², Anna K. Shoveller ², John K. Htoo ³, John Cant ², Lee-Anne Huber ²

¹University Of Guelph, ²University of Guelph, ³Evonik Operations GmbH

7:30 a.m. PSIV-21 **Effect of Phytase, Natuphos® E, Target Dosing on pig performance and feed cost savings from wean to finish**

Michael Coelho ¹, Robert Jones ², Frank Parks ²

¹BASF, ²Integrated Farm Research, Inc,

7:30 a.m. PSIV-8 **Effect of selenium and superoxide dismutase supplementation on heat stressed pigs**

Hieu H. Le ¹, Eva Vidacs ¹, Deborah J. Phillips ¹, Weicheng Zhao ¹, John B. Furness ¹, Nicholas K. Gabler ², David Renaudeau ³, Gene Wijffels ⁴, Frank R. Dunshea ⁵, Kristy DiGiacomo ⁵,

Eugeni Roura ⁶, Brian J. Leury ⁵, Jeremy J. Cottrell ⁵

¹Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Parkville, Australia, ²Iowa State University, ³PEGASE, INRA, Agrocampus-Ouest, ⁴Commonwealth Scientific and Industrial Research Organisation (CSIRO), ⁵The University of Melbourne, ⁶Centre for Nutrition and Food Sciences, The University of Queensland

7:30 a.m. PSIV-18 **Effect of sub-therapeutic antibiotics and pharmacological Zinc oxide on nursery pig performance and intestinal integrity and function**

Carson M. De Mille ¹, Emma T. Helm ¹, Crystal L. Loving ², Eric R. Burrough ¹, Nicholas K. Gabler ¹

¹Iowa State University, ²USDA-ARS-National Animal Disease Center

7:30 a.m. PSIV-14 **Effect of xylanase and xylo-oligosaccharides on growth performance and intestinal microbiota in piglets fed a corn-soybean meal based diet**

Gustavo Cordero ¹, Laura A. Merriman ¹, Alexandre Barbosa de Brito ¹, Caio A. da Silva ², M.A. Callegari ², Gemma Gonzalez Ortiz ¹

¹AB Vista, ²Universidade Estadual de Londrina

Student Breakfast and Learn

Chair: Ashley Conway, University of Nebraska-Lincoln; Amy Petry, Iowa State University

7:30 AM - 8:30 AM

Saint Nicholas A/B

Beef & Small Ruminant Livestock

Chair: Eric Bailey, University of Missouri

8:30 AM - 9:15 AM

211/212

8:30 a.m. 14 **Effect of implant status and non-hormone treated cattle status on sale price of beef calves-Superior Livestock Video Auction**

Esther D. McCabe ¹, Mike E. King ¹, Karol E. Fike ¹, Maggie J. Smith ¹, Kevin L. Hill ², Glenn M. Rogers ³, Kenneth G. Odde ¹

¹Kansas State University, ²Merck Animal Health, ³Grassy Ridge Consulting

8:45 a.m. 15 **Factors affecting the sale price of bred heifers sold through Superior Livestock video auctions from 2010 through 2017**

Maggie J. Smith ¹, Esther D. McCabe ¹, Mike E. King ¹, Karol E. Fike ¹, Kevin L. Hill ², Glenn M. Rogers ³, Kenneth G. Odde ¹

¹Kansas State University, ²Merck Animal Health, ³Grassy Ridge Consulting

9:00 a.m. 13 **Effect of housing cow-calf pairs on dry lots vs pasture on calf performance and behavior**

Lucas T. Neira ¹, Ashley E. Cooney ², Wesley P. Chapple ³, William T. Meter ³, Daniel W. Shike ³

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

Animal Behavior, Welfare and Housing I

Chair: Kurt Vogel, University of Wisconsin - River Falls

8:30 AM - 9:45 AM

201

8:30 a.m. 5 Effect of feeding time on behavioral and stress responses in gestation sows under isocaloric conditions

Hayford Manu¹, S. H. Lee², Q Huang², D Pangen², M. C. Keyes³, J. Cairns³, Samuel Baidoo¹

¹University of Minnesota Southern Research and Outreach Center, Waseca, MN, ²University of Minnesota, ³Remote Insights

8:45 a.m. 4 Effects of cooled floor pads and cooled drinking water on behavior of lactating sows under heat stress

Yuzhi Li¹, Maria E. Lou², Michael Reese², Eric Buchanan², Lee J. Johnston¹

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

9:00 a.m. 6 Effect of method of drying piglets at birth on rectal temperature over the first 24 hours after birth.

Katherine D. Vande Pol¹, Naomi C. Willard¹, Andres Tolosa¹, Mike Ellis¹, Caleb M. Shull², Katie Brown², Stephan Alencar³

¹University of Illinois, ²The Maschhoffs, LLC, ³Doutorando na Universidade Federal de Mato Grosso do Sul

9:15 a.m. 7 Effect of piglet birth weight and drying on post-natal changes in rectal temperature

Naomi C. Willard¹, Katherine D. Vande Pol¹, Mike Ellis¹, Yijie Xiong¹, Richard Gates²

¹University of Illinois, ²Iowa State University

9:30 a.m. 8 Effect of group size during the nursery period on wean-to-finish growth performance in a PRRS positive population of pigs.

Heath Harper¹, Rachel Schmitt¹, Mike Ellis¹, Caleb M. Shull², Clint Schwab²

¹University of Illinois, ²The Maschhoffs, LLC

Ruminant Nutrition: Protein

Chair: James MacDonald, University of Nebraska

8:30 AM - 9:45 AM

213

8:30 a.m. 335 Metabolizable protein requirement of lightweight beef calves

Miles D. Redden¹, Daniel W. Shike², Joshua C. McCann³

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

8:45 a.m. 337 Effect of Adding Urea to Finishing Diets Containing Two Different Inclusions of Distillers Grains on Steer Performance and Carcass Characteristics

Bradley M. Boyd¹, James C. MacDonald², Matthew Luebke¹, Galen E. Erickson³

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

9:00 a.m. 333 **Effects of ruminally-protected lysine and Megasphaera elsdenii on performance and carcass characteristics of finishing cattle**

Vanessa de Aguiar Veloso ¹, Lucas Horton ¹, Adrian Baker ¹, Celine Aperce ², James Drouillard ¹

¹Kansas State University, ²MS Biotec

9:15 a.m. 334 **Evaluation of sources of RUP fed to Holstein steers in a simulated organic beef production system**

Elizabeth Schumacher ¹, Galen E. Erickson ², James C. MacDonald ³, Terry J. Klopfenstein ², Zachary E. Carlson ⁴, Henry Hilscher ⁵, Levi J. McPhillips ², Hannah C. Wilson ⁴

¹University of NE - Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska, ⁴University of Nebraska Lincoln, ⁵University of Nebraska - Lincoln

9:30 a.m. 336 **Effects of Supplemental SoyPass in Forage-based Diets Containing Distillers Grains on Performance of Growing Steers**

Tyler Spore ¹, Zachary E. Carlson ², Galen E. Erickson ¹, Terry J. Klopfenstein ¹, Andrea K. Watson ¹

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

**Growth, Development, Muscle Biology and Meat Science Symposium:
Industry Views on Meat Science Research Needs**

Chair: Dustin Mohrhauser

8:30 AM - 10:05 AM

216

8:30 a.m. **Growth, Development, Muscle Biology and Meat Science Symposium:
Industry Views on Meat Science Research Needs Introduction**

8:55 a.m. 103 **Research Needs for the Development of the Pork Industry**

Brandon Fields ¹, Neal Matthews ², Saskia Bloemhof ³, Rob Fitzgerald ³, Andrzej Sosnicki ²

¹Pig Improvement Company, Inc., ²PIC North America, ³PIC

9:15 a.m. 102 **Developing Industry-Relevant Academic Research Programs in Meat Science**

Devin Gredell ¹, Heather Rode ¹, David McKenna ¹

¹Tyson Fresh Meats, Inc.

9:35 a.m. 101 **Merging Graduate Student Training and Industry Research Needs**

Roger C. Johnson ¹

¹Northwest Missouri State University

9:55 a.m. **Growth, Development, Muscle Biology and Meat Science Symposium:
Industry Views on Meat Science Research Needs Panel Discussion**

Physiology Symposium

Chair: Andrea Cupp, University of Nebraska-Lincoln; Shelby Springman
8:30 AM - 10:20 AM
205/206

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

8:35 a.m. 206 **Attainment and Maintenance of Pubertal Cyclicity May Predict High A4 cows with Reduced Fertility**

Andrea S. Cupp¹, Sarah Nafziger¹, Mohamed Abedal-Majed², Sarah Tenley³, Mariah Hart¹, Alexandria Snider⁴, Jeff Bergman¹, Scott Kurz¹, John Davis⁵, Jennifer Wood¹, Adam F. Summers⁶

¹University of Nebraska-Lincoln, ²University of Jordan, ³University of Nebraska, ⁴USDA, ARS, U.S. Meat Animal Research Center, ⁵University of Nebraska Medical Center, ⁶New Mexico State University

9:05 a.m. 204 **Genomics of age at puberty in gilts**

Daniel Ciobanu¹

¹University of Nebraska-Lincoln

9:35 a.m. 205 **Neuroendocrine Pathways and the Nutritional Control of Puberty in Heifers**

Rodolfo C. Cardoso¹, Gary L. Williams²

¹Texas A&M University, ²Animal Reproduction Laboratory, Texas A&M AgriLife Research, Beeville, TX; Department of Animal Science, Texas A&M University, College Station, TX

10:05 a.m. **Physiology Symposium Panel**

Physiology: Reproductive Physiology

Chair: Jordan Thomas, University of Missouri
8:30 AM - 10:45 AM
202

8:30 a.m. 213 **Transcriptome profiling of olfactory epithelium in normal cycling and acyclic gilts.**

Dan J. Nonneman¹, Aaron M. Dickey¹, Clay Lents²

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

8:45 a.m. 212 **Ovarian ultrasound of sows by parity and season to determine effects of induced ovulation and single PCAI on farrowing rate and litter size**

Lidia S. Arend¹, Robert V. Knox², Amanda Minton³, Clint Schwab⁴, Caleb M. Shull⁴, Steve Buysse⁵, Mike E. Johnston⁵, Catherine M. Roaten⁵, Stephen K. Weibel⁵

¹University of Illinois, ²University of Illinois at Urbana-Champaign, ³Acuity Swine Genetics, ⁴The Maschhoffs, LLC, ⁵United Animal Health

9:00 a.m. 214 **Epigenetic marks within the swine placenta are differentially expressed due to factors associated with season.**

Lea A. Rempel¹, Jeremy Miles²

¹USDA, ARS, USMARC, ²USDA

9:15 a.m. 219 **Use of a genetically-engineered swine line to elucidate the role of GnRH-II and its receptor in gilts**

Amy T. Desaulniers¹, Rebecca A. Cederberg², Ginger A. Mills³, Brett R. White³

¹School of Veterinary Medicine and Biomedical Sciences, University of Nebraska - Lincoln,

²Department of Animal Science, University of Nebraska - Lincoln, ³Department of Animal Science, University of Nebraska-Lincoln

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

9:45 a.m. 216 **Effects of low doses of GnRH at CIDR removal on estrus expression and conception rates in beef heifers**

Jerica Rich¹, Emmalee Northrop¹, Kaitlin Epperson¹, Saulo Menegatti Zoca¹, Stephanie Perkins¹, Julie Walker², Claire L. Timlin³, Nicholas W. Dias³, Vitor R. G. Mercadante⁴, George Perry¹

¹South Dakota State University, ²South Dakota State University Department of Animal Science, Brookings, SD, ³Department of Animal and Poultry Science, Virginia Tech, ⁴Virginia Tech

10:00 a.m. 218 **Effect of GnRH Injection at -72 h in MGA-PG Estrus Synchronization Protocol**

McKay Erickson¹, Rick N. Funston²

¹University of Nebraska Lincoln, ²West Central Research, Extension, and Education Center

10:15 a.m. 217 **Influence of daily temperature fluctuations on estrus activity determined by an electronic estrus detection system and conception to artificial insemination in cross-bred beef heifers**

Robert Cushman¹, Chadwick C. Chase¹, Jerica Rich², Emmalee Northrop², R. Mark. Thallman¹, Warren Snelling³, Larry A. Kuehn³, Tami M. Brown-Brandl⁴, George Perry²

¹USDA, ARS, U.S. Meat Animal Research Center, ²South Dakota State University, ³USDA ARS U.S. Meat Animal Research Center, ⁴USDA-ARS-MARC

10:30 a.m. 215 **Influence of BVDV exposure on AI conception and breeding season pregnancy success in beef herds**

Kaitlin Epperson¹, Jerica Rich¹, Saulo Menegatti Zoca¹, Stephanie Perkins¹, Emmalee Northrop¹, Russell F. Daly², Julie Walker³, Jim R. Rhoades⁴, George Perry¹

¹South Dakota State University, ²South Dakota State University Department of Veterinary & Biomedical Sciences, Brookings, SD, ³South Dakota State University Department of Animal Science, Brookings, SD, ⁴IDEXX Laboratories

Nonruminant Nutrition: Feed Additives II: Nursery

Chair: Nicholas Gabler, Iowa State University; Chad Paulk, Kansas State University

8:30 AM - 11:15 AM

214

8:30 a.m. 130 **Young Scholar Presentation: Can exogenous carbohydrase supplementation to higher-fiber diets improve gut function, microbiota, and growth performance of weaned pigs?**

Qingyun Li¹, Nicholas K. Gabler², Eric R. Burrough², Crystal L. Loving³, Stephan Schmitz-Esser², John Patience⁴, Xiyu Peng²

¹Cargill Animal Nutrition, ²Iowa State University, ³USDA-ARS-National Animal Disease Center,

⁴Oxford Nutrition Consulting, LLC

9:00 a.m. 133 **Effect of a proprietary medium chain fatty acid blend on nursery pig performance**

Dillon Mellick¹, Ana Lucia P. de Souza², Vanessa Iseri¹, Venkatesh Mani¹
¹Kemin Industries, ²Dupont

9:15 a.m. 132 **The impact of F18 ETEC challenge on intestinal integrity and immune response of nursery pigs, and the potential protective effects of direct-fed microbial blends**

Spenser Becker¹, Qingyun Li², Eric R. Burrough¹, John Patience³
¹Iowa State University, ²Cargill Animal Nutrition, ³Oxford Nutrition Consulting, LLC

9:30 a.m. 136 **The impact of Swine Awake® on commercial nursery flows from a PRRSV positive source**

Emily Sugg¹, Randy Jones², Tyler Holck³, Scott Heintzelman³, Sarah A. Weiland³
¹North Carolina State University, ²Livestock Veterinary Services, ³NutriQuest

10:00 a.m. 134 **Evaluation of a medium chain fatty acid-based feed additive for nursery pigs**

Lori Thomas¹, Hayden E. Williams¹, Jason C. Woodworth¹, Mike D. Tokach¹, Robert D. Goodband¹, Steve S. Dritz¹, Joel M. DeRouchey¹, Dillon Mellick²
¹Kansas State University, ²Kemin Industries

10:15 a.m. 129 **The effect of Activo Liquid supplemented via the water against Mecadox 50 on Nursery Pig's Growth Performance and Survival**

Rafael Cabrera¹
¹EW Nutrition, USA

10:30 a.m. 131 **Effects of Bacillus spp. probiotics on systemic immunity and intestinal health of weaned pigs experimentally infected with an enterotoxigenic Escherichia coli**

Yijie He¹, Kwangwook Kim², Cynthia N. Jinno², Zhaohai Wu², Rose Whelan³, Kiran Doranalli³, Yanhong Liu²
¹Department of Animal Science, University of California, Davis, ²University of California, Davis, ³Evonik Nutrition & Care GmbH

10:45 a.m. 135 **The effects of functional feed additive proteins with or without antibiotics on the growth and health status of nursery pigs**

Leigh Ruckman¹, John Patience²
¹Iowa State University, ²Oxford Nutrition Consulting, LLC

11:00 a.m. 128 **Effects of a Bacillus-based probiotic and prebiotics on nursery pig performance, fecal consistency, and fecal microflora**

Mariana Boscato Menegat¹, Michaela B. Braun², Joel M. DeRouchey², Jason C. Woodworth², Jim Bryte³, Mike D. Tokach², Steve S. Dritz², Robert D. Goodband²
¹Holden Farms, ²Kansas State University, ³Quality Technology International, Inc.

Nutritional Physiology and Microbiome

Chair: Allison Meyer, Division of Animal Sciences, University of Missouri

8:30 AM - 11:30 AM

203/204

8:30 a.m. 189 **Comparative transcriptomic analysis between Total RNA and mRNA isolated from feces of neonatal dairy calves**

Johan S. Osorio¹, Fernanda Rosa¹

¹South Dakota State University

8:45 a.m. 195 **Depriving piglets of maternal feces changes piglet physiology and performance before and after weaning**

Edgar O. Aviles¹, Anoosh Rakhshandeh¹, John J. McGlone¹

¹Texas Tech University

9:00 a.m. 193 **Characterisation of poor gastrointestinal tract development in gilt progeny**

Danni A. Wijesiriwardana¹, Jessica Craig², Mitchell Ringuet¹, Linda Fothergill¹, Kirrily O'Halloran³, Diana Turpin⁴, Lynette Munoz¹, Cherie Collins², John B. Furness⁵, John Pluske⁴, Jeremy Cottrell¹, Frank R. Dunshea⁶

¹University of Melbourne, ²Rivalea Australia, ³Rivalea, ⁴Murdoch University, ⁵Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Parkville, Australia, ⁶The University of Melbourne

9:15 a.m. 197 **Body temperature of pigs exposed to heat stress conditions: effect of dietary protein level**

Adriana Morales¹, Miguel J. Cervantes², Alan Valle¹, Duckens Antoine², Ernesto Avelar¹, Lucero R. Pérez Mejía¹, Lorenzo Buenabad³

¹Universidad Autónoma de Baja California, ²UABC, ³Universidad Autónoma

9:30 a.m. 196 **Direct comparison of human microbiota-associated (HMA) gnotobiotic piglet and mouse models**

Nirosh Aluthge¹, Wesley A. Tom¹, Alison Neujahr², Thomas E. Burkey², Kelly D. Heath³, Craig Kreikemeier-Bower², Hatem Kittana⁴, Amanda E. Ramer-Tait⁴, Samodha C. Fernando²

¹UNL, ²University of Nebraska-Lincoln, ³UNL IACP, ⁴Department of Food Science and Technology, University of Nebraska-Lincoln

9:45 a.m. **Nutritional Physiology and Microbiome Break**

10:00 a.m. 191 **Early weaning in pigs induces long-term alterations in intestinal nutrient transporter function and expression partially via beta adrenergic enteric neural receptors**

Yihang Li¹, Karina Matos², Mrigendra Rajput³, Adam J. Moeser⁴

¹University of Delaware, ²University of Puerto Rico, ³Arkansas Tech University, ⁴Michigan State University

10:15 a.m. 194 **Performance and febrile response of nursery pigs to a porcine reproductive and respiratory syndrome virus challenge**

Jessica Jasper¹, Emma T. Helm¹, Blaire Todd¹, Nicholas K. Gabler¹

¹Iowa State University

10:30 a.m. 192 **Effects of continuously infusing glucose or casein at the terminal ileum on biomarkers of metabolism and intestinal morphology in growing pigs**
Edith J. Mayorga-Lozano ¹, Erin A. Horst ², Mohammad Al-Qaisi ¹, Carrie S. McCarthy ¹, Brady M. Goetz ¹, Megan A. Abeyta ¹, Samantha Lei ¹, Jesus A. Acosta ³, John Patience ⁴, Lance H. Baumgard ¹
¹Iowa State University, ²Iowa State University, ³Dept. of Animal Science, Iowa State University, ⁴Oxford Nutrition Consulting, LLC

10:45 a.m. 198 **An in vivo model to investigate the effects of host stress and Salmonella typhimurium infection on nursery pigs**
Emma T. Helm ¹, Eric R. Burrough ¹, Nicholas K. Gabler ¹
¹Iowa State University

11:00 a.m. 190 **Young Scholar Presentation: Early life fecal microbiome transplantation can enhance growth and performance in neonatal dairy calves**
Fernanda Rosa ¹, Erminio Trevisi ², Johan S. Osorio ¹
¹South Dakota State University, ²Department of Animal Sciences, Food and Nutrition (DIANA), Università Cattolica del Sacro Cuore

Nonruminant Nutrition Symposium: Nursery Pig Nutrition and Health
Chair: William Oliver, USDA, ARS, USMARC; Márcio Goncalves, Wisenetix
8:30 AM - 12:00 PM
Grand Ballroom South

8:30 a.m. **Nonruminant Nutrition Symposium: Nursery Pig Nutrition and Health Introduction**

8:35 a.m. 111 **Common nutritional and infectious health challenges in nursery pigs**
Eric R. Burrough ¹, Nicholas K. Gabler ¹
¹Iowa State University

9:05 a.m. 115 **Negative Impacts of Early Weaning on Lifelong Gut Health in the Pig.**
Adam J. Moeser ¹, Yihang Li ², Mrigendra Rajput ³, Kyan M. Thelen ⁴
¹Michigan State University, ²University of Delaware, ³Arkansas Tech University, ⁴Department of Large Animal Clinical Sciences, College of Veterinary Medicine, Michigan State University

10:05 a.m. 113 **Pathogen shedding in feces of nursery swine**
James E. Wells ¹, Elaine Berry ², William T. Oliver ³
¹USDA, ²USDA ARS, ³USDA, ARS, USMARC

10:35 a.m. **Nonruminant Nutrition Symposium: Nursery Pig Nutrition and Health Break**

10:50 a.m. 114 **Role of fiber in promoting health in nursery pigs**
Ruurd T. Zijlstra ¹, Janelle M. Fohse ¹, Charlotte Heyer ², Felina Tan ¹, Thava Vasanthan ¹, Eduardo Beltranena ³, Michael G. Gaenzle ¹
¹University of Alberta, ²Department of Agricultural, Food and Nutritional Science, University of Alberta, ³Alberta Agriculture and Forestry

11:20 a.m. 112 **Beyond the gut: Systemic effects of the swine gut microbiome**
Andres Gomez ¹
¹University of Minnesota

11:50 a.m. **Nonruminant Nutrition Symposium: Nursery Pig Nutrition and Health Panel**

David Schingoethe Symposium

Chair: David Schingoethe, South Dakota State University
8:30 AM - 12:05 PM
210

8:30 a.m. **David Schingoethe Symposium Introduction**

8:35 a.m. 49 **Fat metabolism and utilization in growing dairy calves and heifers: What do we know and what still needs to be researched?**

Jill L. Anderson ¹, Chelsea R. Schossow ¹, Karla Rodriguez-Hernandez ², Rhea D. Lawrence ³, Nirosh D. Senevirathne ¹
¹SDSU, ²CIRNOC-INIFAP, ³Land O Lakes

9:20 a.m. 51 **Feedstuff fatty acid content, variation, techniques and implications on practical animal nutrition**

Cliff Ocker ¹
¹Rock River Laboratory, Inc

10:05 a.m. **David Schingoethe Symposium Break**

10:20 a.m. 52 **Young Scholar Presentation: Maternal supply of methionine during late-pregnancy alters in utero and neonatal development, hepatic one-carbon metabolism, and innate immune response in Holstein calves**

A S. Alharti ¹, Juan Loor ², Fernanda Batistel ³, Michael A. Ballou ⁴, Claudia Parys ⁵, X Y. Pan ⁶, Erminio Trevisi ⁷
¹University of Illinois- Urbana Champaign, ²University of Illinois Urbana Champaign, ³Department of Animal, Dairy, and Veterinary Sciences, Utah State University, ⁴Texas Tech University, Department of Veterinary Sciences, ⁵Evonik Nutrition & Care GmbH, ⁶University of Illinois Urbana-Champaign, ⁷Department of Animal Sciences, Food and Nutrition (DIANA), Università Cattolica del Sacro Cuore

10:50 a.m. 50 **Role of fatty acid nutrition in milk fat synthesis**

Adam L. Lock ¹
¹Michigan State University

11:35 a.m. 53 **Young Scholar Presentation: Diet Starch Concentration and Starch Fermentability Affect Energy Intake and Production of Dairy Cows During The Postpartum Period**

Rodrigo I. Albornoz ¹, Michael Allen ²
¹Agriculture Victoria Research, ²Michigan State University

DSM Symposium
Chair:
9:30 AM - 12:30 PM
211/212

9:30 a.m. **DSM Symposium: Introduction**

9:40 a.m. **Protein quality in experimental diets and amino acid digestibility**
Chan Sol Park ¹, Olayiwola Adeola ¹
¹Purdue University

10:00 a.m. **Reducing phosphorus excretion by horses**
Ashley Fowler ¹, Laurie Lawrence ¹
¹University of Kentucky

10:20 a.m. **Nutritional Intervention for the intestinal development and health of weaned pigs**
Yanhong Liu ¹
¹University of California, Davis

11:00 a.m. **Nutrition as a way to improve the dairy industry sustainability: a nutrigenomic approach**
Mario Vailati Riboni ¹, John Roche ², Ilkyu Yoon ³, Juan Loo ⁴
¹University of Illinois Urbana-Champaign, ²University of Auckland, ³Cargill, Diamond V brand, ⁴University of Illinois Urbana Champaign

11:20 a.m. **Effect of different fat sources and vitamin E status/levels on growth performance, antioxidant status, carcass characteristics, fatty acid profile, and meat quality of pigs grown to heavy slaughter weight at 150 kg**
Ding Wang ¹, Young Dal Jang ², Gregg K. Rentfrow ¹, Jim J. Monegue ³, Michael J. Azain ⁴, Merlin D. Lindemann ¹
¹University of Kentucky, ²University of Wisconsin-River Falls, ³UNIVERSITY OF KENTUCKY, ⁴University of Georgia

11:40 a.m. **DSM Symposium: Panel/Reception**

Animal Behavior, Welfare and Housing II
Chair: Kurt Vogel, University of Wisconsin - River Falls
10:00 AM - 11:00 AM
201

10:00 a.m. 10 **A Field Study to Investigate the Effect of Zuprevo Administered Alone or in Combination with Banamine Transdermal on the Health and Well-Being of Transported Feedlot Calves on Arrival at the Feedlot**
Miriam S. Martin ¹, Michael D. Kleinhenz ¹, Katie Kleinhenz ², Emily Reppert ¹, Dale A. Blasi ³, Tim Parks ⁴, Angela Baysinger ⁴, John P. Hutcheson ⁴, Johann F. Coetzee ⁵
¹Kansas State University, ²Kansas State University College of Veterinary Medicine, ³Department of Animal Sciences and Industry, Kansas State University, ⁴Merck Animal Health, ⁵Kansas State University College of Veterinary Medicine, Department of Anatomy and Physiology, Manhattan, KS

10:15 a.m. 9 **Behavioral and stress responses to feeding frequency in pregnant sows under isocaloric conditions**

Hayford Manu¹, S. H. Lee², Q Huang², D Pangeni², M. C. Keyes³, J. Cairns³, Samuel Baidoo¹

¹University of Minnesota Southern Research and Outreach Center, Waseca, MN, ²University of Minnesota, ³Remote Insights

10:30 a.m. 11 **Use of pressure mat gait analysis in measuring pain following normal parturition in dairy cows**

Michael D. Kleinhenz¹, Patrick J. Gorden², Michael Burchard³, Joshua Ydstie³, Johann F. Coetzee⁴

¹Kansas State University, ²Veterinary Diagnostic & Production Animal Medicine, Iowa State University, ³Iowa State University College of Veterinary Medicine, ⁴Kansas State University College of Veterinary Medicine, Department of Anatomy and Physiology, Manhattan, KS

10:45 a.m. 12 **A multimodal approach for piglet pain management after tail docking**

Abbie V. Viscardi¹, Patricia Turner²

¹Kansas State University, ²Charles River Laboratories

Nonruminant Nutrition: Amino Acids

Chair: Grant Petersen, United Animal Health

10:00 AM - 11:15 AM

213

10:00 a.m. 119 **Bioavailability of L-Methionine in comparison to DL-Methionine for nitrogen retention of weaned and growing pigs**

Raphael Caetano¹, Luan S. Santos², John K. Htoo³, Alini M. Veira⁴, Welex C. Silva¹, Jaqueline Gobi⁵, Alicia Fraga¹, Paulo H. R. F. Campos⁶, Nei A. A. Barbosa⁷, Luciano Hauschild¹

¹São Paulo State University, ²Federal Rural University of Rio De Janeiro, Seropédica, Brazil, ³Evonik Operations GmbH, ⁴FAPESP Scholarship, São Paulo State University, Jaboticabal, Brazil, ⁵Sao Paulo State University, ⁶Federal University of Viçosa, Viçosa, Brazil, ⁷Evonik Degussa Brasil

10:15 a.m. 117 **Determining high-lysine sorghum amino acid digestibility and the effects on nursery pig performance**

Lori Thomas¹, Robert D. Goodband¹, Charmaine D. Espinosa², Hans H. Stein², Jason C. Woodworth¹, Mike D. Tokach¹, Steve S. Dritz¹, Joel M. DeRouchey¹

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

10:30 a.m. 120 **Effects of dietary leucine concentration on branched-chain amino acid metabolism in growing pigs**

Woong Bi Kwon¹, Kevin J. Touchette², Aude Simongiovanni³, Kostas Syriopoulos³, Anna Wessels⁴, Hans H. Stein⁵

¹University of Illinois, ²AJINOMOTO ANIMAL NUTRITION NORTH AMERICA, INC., ³Ajinomoto Animal Nutrition Europe, ⁴Freie Universität Berlin, ⁵University of Illinois at Urbana-Champaign

10:45 a.m. 118 **Digestibility of amino acids in hydrolyzed feather meal, flash dried poultry protein, poultry meal, and meat and bone meal fed to broiler chickens and pigs**
Chan Sol Park ¹, Victor Naranjo ², Ariane Helmbrecht ², John K. Htoo ³, Olayiwola Adeola ¹
¹Purdue University, ²Evonik Nutrition & Care GmbH, ³Evonik Operations GmbH

11:00 a.m. 116 **Direct vs. difference method to determine amino acid digestibility in ingredients fed to pigs**
Maryane Sespere Faria de Oliveira ¹, John K. Htoo ², Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign, ²Evonik Operations GmbH

Pack and Give Back - Omaha Against Hunger Meal Packing Event

11:30 AM - 1:00 PM
Blackstone A

Academic Quadrathlon Luncheon

12:30 PM - 1:30 PM
Saint Nicholas A/B

Poster Session V

12:45 PM - 1:30 PM
Grand Ballroom Foyer

12:45 p.m. PSV-8 **Effects of soybean meal concentration in lactating sow diets on sow and litter performance**
Kiah M. Gourley ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Mike D. Tokach ¹, Steve S. Dritz ¹, Robert D. Goodband ¹
¹Kansas State University

12:45 p.m. PSV-6 **Assessment of lameness in gilts and barrows using gait score, force-plate, hoof hardness and hoof lesions**
Karen J. Wedekind ¹, Ashley LaMontagne ², Chelsie Foran ², Tom Hampton ², Ping Ren ², Juxing Chen ², Mercedes Vazquez-Anon ²
¹Novus International, Inc., ²Novus International, Inc

12:45 p.m. PSV-4 **Effect of drying and/or warming piglets at birth on rectal temperature over the first 24 hours after birth.**
Katherine D. Vande Pol ¹, Naomi C. Willard ¹, Andres Tolosa ¹, Mike Ellis ¹, Caleb M. Shull ², Katie Brown ², Stephan Alencar ³
¹University of Illinois, ²The Maschhoffs, LLC, ³Doutorando na Universidade Federal de Mato Grosso do Sul

12:45 p.m. PSV-19 **Effect of yeast bioactive compounds on the reproductive performance of sows**
Ricardo M. Garcia ¹, Rhuan F. Chaves ², Gabriel Arruda ³, Maíra Resende ², Jéssica Barbosa ³, Eduardo Oliveira ⁴, Vinícius S. Cantarelli ³
¹Purdue University, ²Universidade Federal de Lavras, ³Federal University of Lavras, ⁴NutriQuest

12:45 p.m. PSV-7 **Effects of a Bacillus-based probiotic on sow and litter performance, fecal consistency, and fecal microflora**

Mariana Boscato Menegat¹, Kiah Gourley², Michaela B. Braun², Joel M. DeRouchey², Jason C. Woodworth², Jim Bryte³, Mike D. Tokach², Steve S. Dritz², Robert D. Goodband²

¹Holden Farms, ²Kansas State University, ³Quality Technology International, Inc.

12:45 p.m. PSV-14 **Effects of Cordyceps Mushroom Powder on Nursery Pig Performance**

Jacob A. Richert¹, Jorge Y P. Palencia², Clayton S. Chastain³, Morgan T. Thayer³, Brian T. Richert³, Jim L. Nelssen¹

¹Kansas State University, ²Universidade Federal de Lavras – Brazil, ³Purdue University

12:45 p.m. PSV-16 **Effects of dietary coated omega-3 supplementation on growth performance, nutrient digestibility, blood profiles, and fatty acid composition in lactating sows and suckling piglets**

Ahn Je Min¹, Huan Wang², In Ho Kim¹

¹Dankook University, ²Dankook university

12:45 p.m. PSV-23 **Effects of different fat sources and vitamin E levels on tissue tocopherol concentration, antioxidant status, and fatty acid composition in the backfat of pigs grown to 150 kg**

Ding Wang¹, Young Dal Jang², Gregg K. Rentfrow¹, Jim J. Monegue³, Michael J. Azain⁴, Merlin D. Lindemann¹

¹University of Kentucky, ²University of Wisconsin-River Falls, ³UNIVERSITY OF KENTUCKY, ⁴University of Georgia

12:45 p.m. PSV-22 **Effects of different fat sources and vitamin E levels/isoforms on growth performance, antioxidant status, and fatty acid profile in the liver of pigs grown to 150 kg**

Ding Wang¹, Young Dal Jang², Gregg K. Rentfrow¹, Jim J. Monegue³, Michael J. Azain⁴, Merlin D. Lindemann¹

¹University of Kentucky, ²University of Wisconsin-River Falls, ³UNIVERSITY OF KENTUCKY, ⁴University of Georgia

12:45 p.m. PSV-17 **Effects of fermented soybean meal on growth performance, nutrient digestibility, blood profile and fecal microflora in weaning pigs**

Ahn Je Min¹, Zhenyu Ding², In Ho Kim¹

¹Dankook University, ²Dankook university

12:45 p.m. PSV-20 **Effects of fortified yeast cell wall extract on growth and health of newly weaned pigs under chronic dietary challenges of aflatoxin and deoxynivalenol**

Debora Muratori Holanda¹, Alexandros Yiannikouris², Sung Woo Kim¹

¹North Carolina State University, ²Alltech Inc.

12:45 p.m. PSV-12 **Effects of increasing iron dosage in newborn pigs on preweaning performance and hematological criteria**

Hayden E. Williams¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Steve S. Dritz¹, Mike D. Tokach¹, Robert D. Goodband¹, Andrew Holtcamp²

¹Kansas State University, ²CEVA Animal Health

12:45 p.m. PSV-13 **Effects of increasing iron dosage in newborn pigs on subsequent nursery performance and hematological criteria**

Hayden E. Williams¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Steve S. Dritz¹, Mike D. Tokach¹, Robert D. Goodband¹, Andrew Holtcamp²

¹Kansas State University, ²CEVA Animal Health

12:45 p.m. PSV-9 **Effects of insoluble fiber source (cellulose or distillers dried grains with solubles) on growth performance of nursery pigs**

Henrique S. Cemin¹, Mike D. Tokach¹, Steve S. Dritz¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Matt W. Allerson²

¹Kansas State University, ²Holden Farms

12:45 p.m. PSV-15 **Effects of isoquinoline alkaloids on growth performance and blood characteristics of weanling pigs fed corn-soybean meal diets**

Carly M. Rundle¹, Valeria c. Artuso², Hans H. Stein¹

¹University of Illinois at Urbana-Champaign, ²Phytobiotics Futterzusatzstoffe GmbH

12:45 p.m. PSV-24 **Effects of non-animal protein in nursery diets on wean to finish pig performance and carcass characteristics**

Q, Huang¹, D Pangen¹, Hayford Manu², L. Hanson³, Samuel Baidoo²

¹University of Minnesota, ²University of Minnesota Southern Research and Outreach Center, Waseca, MN, ³university of Minnesota

12:45 p.m. PSV-11 **Effects of plasma protein on growth performance and intestinal health of weaned pigs**

Gabriela E. Martinez¹, Ysenia Victoria Silva-Guillen², Kory Moran³, Xi Lin¹, Jack Odle¹, Eric van Heugten²

¹North Carolina State University, ²Department of Animal Science, North Carolina State University, ³Delacon Biotechnik GmbH

12:45 p.m. PSV-2 **Effects of protease on growth performance, fecal gas emission of 25- to 55-kg pigs fed low or high density diets**

Ludovic Lahaye¹, Glenmer Tactacan¹, Seung-Yeol Cho², Jinho cho³, In Ho Kim⁴, Roger Campbell⁵

¹Jefo, ²Eugenebio, ³Department of Animal Science, Chungbuk National University, ⁴Dankook University, ⁵RG CAMPBELL ADVISORY

12:45 p.m. PSV-21 **Effects of Soybean Meal and Net Energy Level on Nursery Pig Performance**

Brittany Carrender¹, Hayden E. Williams², Joel M. DeRouchey², Mike D. Tokach², Steve S. Dritz², Jason C. Woodworth², Robert D. Goodband², Kyle Coble³, Amanda J. Gerhart³

¹JBS, ²Kansas State University, ³JBS Live Pork

12:45 p.m. PSV-3 **Effects of space allowance and marketing strategy on growth performance of pigs raised to heavy market weights**

Annie B. Lerner¹, Mike D. Tokach², Joel M. DeRouchey², Steve S. Dritz², Robert D. Goodband², Travis O'Quinn², John M. Gonzalez², Emily A. Rice², Matt W. Allerson³, Hannah E. Price⁴, Dustin D. Boler⁵, Anna Dilger⁶, Steven D. Shackelford⁷, Brandon Fields⁸, Jason C. Woodworth²

¹Schwartz Farms, Inc., ²Kansas State University, ³Holden Farms, ⁴University of Illinois, Urbana-Champaign, ⁵University of Illinois Urbana-Champaign, ⁶University of Illinois, ⁷USDA, Meat Animal Research Center, ⁸Pig Improvement Company, Inc.

12:45 p.m. PSV-10 **Effects of storing three phytase sources for 90 days under high temperature and humidity on phytase stability, growth performance, and bone mineralization of nursery pigs**

Carine M. Vier¹, Mariana Boscato Menegat², Kiah Gourley³, Steve S. Dritz³, Mike D. Tokach³, Jon R. Bergstrom⁴, Robert D. Goodband³, Joel M. DeRouchey³, Jason C. Woodworth³

¹Genus PIC, ²Holden Farms, ³Kansas State University, ⁴DSM

12:45 p.m. PSV-1 **Effects of the protein level on growth performance and carcass grading in fattening pig fed ad libitum.**

Arnaud Samson¹, Claire Launay¹, Francesc Payola², Eric Schetelat³, Hervé Fortune⁴

¹NEOVIA, ²SETNA/NEOVIA, ³INZO/NEOVIA, ⁴Prisma/NEOVIA

12:45 p.m. PSV-5 **Effects of two products containing tiamulin hydrogen fumarate on drinking water intake of weaned pigs**

Kimberly A. Vonnahme¹, Debbie Amodie¹, Thomas Short¹, Marnie Mellencamp¹, Adam Mueller², Lucina Galina¹

¹Zoetis, ²Swine Services Unlimited, Inc.

12:45 p.m. PSV-18 **Effects of varying ratio of L-Arginine and Lysine on the performance of sows and their litters**

Ahn Je Min¹, Yi Yang², In Ho Kim¹

¹Dankook University, ²Dankook Univ.

Bentley Lecture and Lunch

12:50 PM - 1:40 PM

Grand Ballroom North

12:50 p.m. 16 **Long-term immune and metabolic consequences of a disrupted early life microbiota**

Ben Willing¹

¹University of Alberta

Nonruminant Nutrition: Feed Additives I

Chair: Daniel Jones, ADM

1:30 PM - 3:30 PM

203/204

1:30 p.m. 126 **Energy (ME)-releasing efficacy of graded levels of 6-phytase, Natuphos® E, and a NSPase, Natugrain® TS, in 35 kg pigs fed corn/soy diets**

Michael Coelho¹, Robert Jones², Frank Parks²

¹BASF, ²Integrated Farm Research, Inc.

1:45 p.m. 124 **Impact of heat stress and antioxidant supplements in feed or drinking water on growth, intestinal morphology, and oxidative and immune status in growing pigs**

Ysenia Victoria Silva-Guillen ¹, Gabriela E. Martinez ², Jeffrey Wiegert ¹, Consuelo Arellano ³, R.D. Boyd ⁴, Eric van Heugten ¹

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

2:00 p.m. 122 **The effect of feeding Ambitine™ Feed Additive on late finishing pig performance.**

Stacie Crowder ¹, Terry Weeden ², Benjamin Bass ³, Brenda de Rodas ², Peter Karnezos ²
¹PMI Additives, ²Purina Animal Nutrition, ³PMI

2:15 p.m. 123 **Growth performance and nutrient digestibility of multi-enzyme-supplemented low-energy and -amino acid diets for growing and finishing pigs**

Kevin S. Jerez-Bogota ¹, Christian Sanchez ², Jimena Ibagón ², Maamer Jlali ³, Pierre Cozannet ³, Aurélie Preynat ³, Tofuko A. Woyengo ⁴

¹South Dakota State University, ²SOUTH DAKOTA STATE UNIV, ANIMAL & RANGE SCIENCES, ³Adisseo France SAS, ⁴Assistant professor

2:30 p.m. **Nonruminant Nutrition: Feed Additives I Break**

2:45 p.m. 127 **A Novel Find of a Feed NSPase Enzyme, Natugrain® TS, Reducing Finish Pig Hemorrhagic Bowel Syndrome Mortality**

Michael Coelho ¹, Robert Jones ², Frank Parks ²

¹BASF, ²Integrated Farm Research, Inc,

3:00 p.m. 125 **Effects of copper hydroxychloride and increasing concentrations of dietary fat on growth performance, total tract endogenous loss of fat, and apparent total tract digestibility of fat by growing pigs**

Charmaine D. Espinosa ¹, Robert Scott Fry ², Matthew Kocher ², Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign, ²Micronutrients USA LLC

3:15 p.m. 121 **Dietary astragalus membranaceus and codonopsis pilosula extracts supplementation increases growth performance and FMD antibody titers in growing-finishing pigs**

Ahn Je Min ¹, Lei Cheng ¹, In Ho Kim ¹

¹Dankook University

Nonruminant Nutrition: Feed Additives I

Chair: Daniel Jones, ADM; Jon De Jong, Pipestone Nutrition

1:30 PM - 3:30 PM

203/204

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

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Stacie Crowder¹, Terry Weeden², Benjamin Bass³, Brenda de Rodas², Peter Karnezos²
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3:15 p.m. 121 **Dietary astragalus membranaceus and codonopsis pilosula extracts supplementation increases growth performance and FMD antibody titers in growing-finishing pigs**

Ahn Je Min¹, Lei Cheng¹, In Ho Kim¹
¹Dankook University

Ruminant Nutrition: Feedlot: Nutrition and Management

Chair: Tara Felix, Penn State

1:30 PM - 3:30 PM

213

1:30 p.m. 224 **Impact of bunk management strategy on animal performance, carcass characteristics, and hydrogen sulfide gas concentrations in steers fed modified distillers grains with solubles**

Leslie A. LeKatz¹, Bryan W. W. Neville²

¹University of Minnesota Crookston, ²U.S. Department of Agriculture

1:45 p.m. 227 **Evaluation of reimplant timing with Revalor-200 on steer performance and carcass characteristics**

Caitlin A. Coulson¹, Bradley M. Boyd¹, Henry Hilscher¹, Brandon L. Nuttelman², Grant I. Crawford², James C. MacDonald³, Galen E. Erickson⁴

¹University of Nebraska - Lincoln, ²Merck Animal Health, ³University of Nebraska, ⁴University of Nebraska-Lincoln

2:00 p.m. 220 **A Comparison of Synovex ONE alone to Synovex Choice followed by Synovex Plus as Implant Strategies for Finishing Heifers**

Elizabeth Schumacher¹, Galen E. Erickson², D.J. Jordon³, Robert Cooper⁴, Tony Scott³, Sheri Bundy³, Gary Sides⁵, Ralph Cleale⁵

¹University of NE - Lincoln, ²University of Nebraska-Lincoln, ³Cattlemen's Nutrition Services LLC, ⁴Cattlemen's Nutrition Services, LLC, ⁵Zoetis

2:15 p.m. 223 **Effects of high protein DDGS in SFC or DRC-based diets on nutrient digestibility and ruminal fermentation characteristics**

Lauren Ovinge¹, Mitch M. Norman¹, Kaylee E. Wheeler¹, Galen E. Erickson¹

¹University of Nebraska-Lincoln

2:30 p.m. 226 **Impact of Corn Silage Level on Finishing Cattle Nutrient Digestion, pH Characteristics, and Feeding Behavior**

Hannah C. Wilson¹, Melissa L. Jolly-Breithaupt², Andrea K. Watson², James C. MacDonald³, Galen E. Erickson²

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

2:45 p.m. 225 **Identifying Optimal Levels of Silage Used as a Roughage Source in Finishing Beef Cattle Performance and Liver Abscess Rate**

Hannah C. Wilson¹, Henry Hilscher², Zachary E. Carlson¹, Bradley M. Boyd², Andrea K. Watson³, James C. MacDonald⁴, Galen E. Erickson³

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

3:00 p.m. 222 **Effect of corn stalk inclusion rate on performance and rumination behavior in beef steers**

Jenny Jennings¹, Catherine L. Lockard¹, Ty E. Lawrence²

¹Texas A&M AgriLife Research, ²West Texas A&M University

3:15 p.m. 221 **Optimizing sugar inclusion in high roughage diets for growing cattle**

Allison VanDerWal¹, Josh Zeltwanger¹, Alfredo DiCostanzo¹

¹University of Minnesota

**Animal Behavior, Housing and Well-Being/Nonruminant Nutrition Symposium:
New and High-Tech: Technologies and Their Application to the Animal Industry**

Chair: Kurt Vogel, University of Wisconsin - River Falls

1:45 PM - 3:50 PM

Grand Ballroom South

1:45 p.m. **Animal Behavior, Housing and Well-Being/Nonruminant Nutrition Symposium: New and High-Tech: Technologies and Their Application to the Animal Industry Introduction**

1:50 p.m. 1 **Using RFID in Animal Management and More**

Tami M. Brown-Brandl ¹

¹USDA-ARS-MARC

2:25 p.m. 3 **Deep Frame-based tracking on nursery pigs**

Ty B. Schmidt ¹, Eric Psota ², Benny E. Mote ³, Lance Perez ², Mateus Mittek ²

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

3:00 p.m. 2 **Biosensors - New Frontiers in Animal Welfare**

Suresh Neethirajan ¹

¹GE

3:35 p.m. **Animal Behavior, Housing and Well-Being/Nonruminant Nutrition Symposium: New and High-Tech: Technologies and Their Application to the Animal Industry Panel**

Genetics, Genomics & Bioinformatics I

Chair: Nick V.L. Serão, Iowa State University

1:45 PM - 3:45 PM

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1:45 p.m. 64 **The impact of putative causal variants and animal misidentification on genome-wide association studies for carcass traits in beef cattle.**

Lindsay R. Upperman ¹, E. John Pollack ¹, Matthew L. Spangler ²

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

2:00 p.m. 61 **The impact of selective phenotyping and genotyping over generations in beef cattle**

Andrea Plotzki Reis ¹, Rodrigo Fagundes da Costa ², Fabyano Fonseca e Silva ³, Fernando Flores Cardoso ⁴, Matthew L. Spangler ¹

¹University of Nebraska - Lincoln, ²Universidade Federal de Pelotas, ³Universidade Federal de Viçosa, ⁴EMBRAPA - CPPSul

2:15 p.m. 60 **Re-ranking of estimated breeding values using different panel densities with ssGBLUP in broiler chickens**

Mayara Salvian ¹, Gerson Barreto Mourão ², Gabriel Costa Monteiro Moreira ², Mônica Corrêa Ledur ³, Luiz Lehmann Coutinho ², Matthew L. Spangler ¹

¹University of Nebraska - Lincoln, ²University of Sao Paulo - ESALQ, ³Embrapa Suínos e Aves

2:30 p.m. 63 **A comparison of clustering methods for cross-validation of genomic predictors when training on phenotypes or deregressed Estimated Breeding Values**

Johnna L. Baller ¹, Jeremy T. Howard ², Stephen D. Kachman ¹, Matthew L. Spangler ³

¹University of Nebraska-Lincoln, ²Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA, ³University of Nebraska - Lincoln

2:45 p.m. **Genetics, Genomics & Bioinformatics I Break**

3:00 p.m. 62 **Improved estimation of indirect social genetic effects in group-housed pigs by quantifying behavioral interactions**

Belcy Karine Angarita Barajas¹, Rodolfo Cantet², Kaitlin E. Wurtz³, Carly O'Malley¹, Janice M. Siegford³, Catherine W. Ernst³, Juan P. Steibel³

¹MICHIGAN STATE UNIVERSITY, ²Universidad de Buenos Aires, ³Michigan State University

3:15 p.m. 65 **Using 3D images and deep learning to predict feeder occupancy in grow-finish pigs**

Junjie Han¹, Sarah K. Chewning², Kaitlin E. Wurtz², Janice M. Siegford², Juan P. Steibel²

¹Bayer, ²Michigan State University

3:30 p.m. 59 **The Genetic Basis of Natural Antibody Titers and Relationships with Disease Resilience in Pigs**

Yulu Chen¹, Laura Laura¹, Carolyn Ashley², Austin Putz³, kyu-Sang Lim¹, Michael Dyck⁴, Frederic Fortin⁵, Graham Plastow⁴, Jack C.M. Dekkers¹, John Harding²

¹Iowa State University, ²University of Saskatchewan, ³Hendrix Genetics, ⁴University of Alberta, ⁵Centre de Développement du Porc du Québec Inc.

3:45 p.m. 375 **Identification of QTL associated with antibody response to common infectious diseases in commercial sows**

Leticia P. Sanglard¹, PigGen Canada², Benny E. Mote³, Philip Willson⁴, John Harding⁴, Graham Plastow⁵, Jack C.M. Dekkers¹, Nick V.L. Serão¹

¹Iowa State University, ²PigGen Canada, ³Department of Animal Science, University of Nebraska – Lincoln, ⁴University of Saskatchewan, ⁵University of Alberta

Nonruminant Nutrition: Feed Additives III: Nursery

Chair: Doug Cook, CSA Animal Nutrition; Shelby Curry, BIOMIN America Inc

1:45 PM - 4:00 PM

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1:45 p.m. 143 **Supplemental effects of whey permeate on growth performance and gut health of nursery pigs**

Ki Beom Jang¹, Jerry Purvis², Sung Woo Kim¹

¹North Carolina State University, ²Purvis Farms

2:00 p.m. 137 **Effects of micro-encapsulated formula of organic acids and essential oils on performance and gut integrity of weaned piglets challenged with ETEC K88**

Yetong Xu¹, Ludovic Lahaye², Zhengxiao He¹, Jinxiao Zhang², Chengbo Yang³, Xiangshu Piao⁴, Jean-Christophe Bodin²

¹China Agricultural University, ²Jefo, ³University of Manitoba, Department of Animal Science, ⁴College of Animal Science and Technology, China Agricultural University

2:15 p.m. 141 **Supplementation of Bacillus subtilis modified fecal microbiota of weaning pigs experimentally infected with pathogenic E. coli**

Cynthia N. Jinno¹, Kwangwook Kim¹, Minh Song², Peng Ji¹, Elizabeth Maga¹, Yanhong Liu¹

¹University of California, Davis, ²Chungnam National University

2:30 p.m. 140 **Effects of *Bacillus subtilis* probiotics on growth performance, diarrhea, and fecal β -hemolytic coliforms of weaned pigs experimentally infected with an enterotoxigenic *Escherichia coli***

Yijie He ¹, Kwangwook Kim ², Cynthia N. Jinno ², Lauren L. Kovanda ², Seijoo Yang ², Minh Song ³, Xunde Li ², Yanhong Liu ²

¹Department of Animal Science, University of California, Davis, ²University of California, Davis, ³Chungnam National University

2:45 p.m. **Nonruminant Nutrition: Feed Additives III: Nursery Break**

3:00 p.m. 142 **Effects of antibiotics on blood profiles in weanling pigs experimentally infected with a pathogenic *E. coli***

Kwangwook Kim ¹, Yijie He ², Cynthia N. Jinno ¹, Seijoo Yang ¹, Minh Song ³, Peng Ji ¹, Yanhong Liu ¹

¹University of California, Davis, ²Department of Animal Science, University of California, Davis, ³Chungnam National University

3:15 p.m. 138 **Evaluation of different combinations of medium chain fatty acids and monolaurin as a dietary additive for nursery pigs**

Lori Thomas ¹, Ashley R. Hartman ¹, Jason C. Woodworth ¹, Mike D. Tokach ¹, Robert D. Goodband ¹, Steve S. Dritz ¹, Joel M. DeRouchey ¹, Denny McKilligan ², Aaron Jones ²

¹Kansas State University, ²Tech Mix, LLC

3:30 p.m. 139 **Bioavailability of valine in a fermentation biomass product relative to the bioavailability in crystalline L-valine when fed to weanling pigs**

Maryane Sespere Faria de Oliveira ¹, John K. Htoo ², Caroline Gonzalez Vega ³, John E. Thomson ⁴, Hans H. Stein ¹

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

3:45 p.m. 144 **Effect of sodium butyrate (SB) on growth performance and complete blood cell count in nursery pigs: Two facility study.**

Tsungcheng Cheng Tsai ¹, Hans H. Stein ², Casey L. Bradley ³, Laia Blavi ⁴, Kristopher Bottoms ¹, Joshua Knapp ⁵, Hannah Maxwell ¹, Charles V. Maxwell ¹

¹University of Arkansas, ²University of Illinois at Urbana-Champaign, ³DSM Nutritional Products LLC, ⁴University of Illinois, ⁵University of Arkansas - Fayetteville

Nonruminant Nutrition: Sow Nutrition

Chair: Márcio Goncalves, Wisenetix; David Rosero, The Hanor Company

1:45 PM - 4:15 PM

211/212

1:45 p.m. 180 **Evaluation of soluble concentrated yeast product on sow and litter performance**

Robyn Thompson ¹, Amanda Graham ¹, Brandon Knopf ¹, Laura Greiner ¹, Sangita Jalukar ²

¹Carthage Innovative Swine Solutions, ²Church and Dwight

2:00 p.m. 182 **Influence of β -mannanase in the lactation diet on sow and litter performance and subsequent wean-to-service interval**

Emily K. Bruder¹, Sara K. Linneen², Gene Gourley³, Robert L. Payne²

¹Gene Gourley Research Group, ²Elanco Animal Health, ³Gourley Research Group

2:15 p.m. 185 **Impact of hydroxy-selenomethionine supplementation during late gestation and lactation in sows on piglet immunocompetence.**

Ningya Li¹, Zhijian Sun¹, Niel A. Karrow², Mickael Briens³, Michele De Marco³, Huazhen Liu¹

¹College of Animal Science and Veterinary Medicine, Huazhong Agricultural University,

²Department of Animal Biosciences, University of Guelph, ³Adisseo France S.A.S

2:30 p.m. 181 **Evaluation of feeding arginine in gestation and lactation on sow and litter performance**

Robyn Thompson¹, Cathy Boessen¹, Brandon Knopf¹, Laura Greiner¹, Keith D. Haydon²

¹Carthage Innovative Swine Solutions, ²CJ Bio America

2:45 p.m. **Nonruminant Nutrition: Sow Nutrition Break**

3:00 p.m. 179 **Supplementation of mint oil and yeast cell in lactation diets on the antioxidant status of the dam and performance of offspring during the suckling phase.**

Lily P. Hernandez¹, James L. Dunn², Joel Wenninghoff², Crystal L. Levesque¹

¹South Dakota State University, ²ADM Animal Nutrition

3:15 p.m. 184 **Increased feeding level in peak lactation is an effective tool to control body weight loss in hyper prolific sows**

Thomas S. Bruun¹, Camilla K. Højgaard², Anja V. Strathe³

¹SEGES Danish Pig Research Centre, ²SEGES Danish Pig Research Centre and Aarhus University, ³University of Copenhagen

3:30 p.m. 183 **Effects of increasing duration of feeding high dietary lysine and energy prior to farrowing on sow and litter performance under commercial conditions**

Kiah M. Gourley¹, Analicia J. Swanson¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Steve S. Dritz¹, Robert D. Goodband¹, Brent Frederick²

¹Kansas State University, ²Christensen Farms

3:45 p.m. 186 **Effects of soybean meal concentration in lactating sow diets on sow and litter performance**

4:00 p.m. 373 **Efficiency of standardized ileal digestible lysine utilization for whole body protein retention in pregnant gilts and sows during early and mid gestation.**

Christian D. Ramirez-Camba¹, James L. Dunn², John K. Htoo³, Kevin J. Touchette⁴, Ryan S. Samuel⁵, Crystal L. Levesque¹

¹South Dakota State University, ²ADM Animal Nutrition, ³Evonik Operations GmbH,

⁴AJINOMOTO ANIMAL NUTRITION NORTH AMERICA, INC., ⁵Department of Animal Science, South Dakota State University

Swine Translational

Chair: Russell Fent, Ralco Nutrition

1:45 PM - 4:30 PM

201

1:45 p.m. 356 **Young Scholar Presentation: An applied approach to studying heat stress: Effects of cyclic heat and zinc supplementation on body temperature, gut health, and pork quality.**

Julie A. Feldpausch¹, Kayla M. Mills², Alan W. Duttlinger¹, S M. Elly¹, Brad H. B. Kim³, John Scott Radcliffe¹, Zach Rambo⁴, Brian T. Richert¹

¹Purdue University, ²Department of Animal Science, Purdue University, ³Purdue Univ., ⁴Zinpro Corporation

2:15 p.m. 354 **The effect of OvuGel® administered to weaned sows at proestrus or estrus on reproductive performance.**

Amanda Minton¹, Caleb M. Shull², Clint Schwab², Steven G. Buysse³, Mike E. Johnston³, Stephen K. Webel³, Lidia S. Arend⁴, Robert V. Knox⁵

¹Acuity Swine Genetics, ²The Maschhoffs, LLC, ³United Animal Health, ⁴University of Illinois, ⁵University of Illinois at Urbana-Champaign

2:30 p.m. 355 **Effect of shelf setting of a wet/dry feeder on growth performance of finishing pigs.**

Julia P. Holen¹, Molly R. Renken², Tim A. Kerkaert³, Mike J. Boerboom³, Lee J. Johnston⁴, Jeffrey S. Knott⁵

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

2:45 p.m. **Swine Translational Break**

3:00 p.m. 357 **Evaluation of growth performance and physiology of nursery pigs fed deoxynivalenol (DON) contaminated feed supplemented with commercial feed additives (CFA)**

Youngji Rho¹, Conor Voth¹, Quincy Buis², David Trott³, Lee-Anne Huber¹, Elijah Kiarie¹

¹University of Guelph, ²Wallenstein Feed & Supply Ltd., Wallenstein, ³Wallenstein Feed & Supply Ltd., Wallenstei

3:15 p.m. 353 **Optimal dietary lysine for growth development of gilts until first parity**

China Supakorn¹, Clay Lents², Xochitl Martinez³, Jeff Vallet⁴, R.D. Boyd⁵, Ashley DeDecker³, Kenneth J. Stalder¹

¹Iowa State University, ²USDA, ³Smithfield Foods, ⁴USDA, ARS, US Meat Animal Research Center, ⁵Hanor Company

3:30 p.m. 350 **Effects of swab type on detection of PEDV from feed manufacturing surfaces**

Savannah C. Stewart¹, Megan C. Niederwerder¹, Jason C. Woodworth¹, Steve S. Dritz¹, Jason C. Woodworth¹

¹Kansas State University

4:00 p.m. 351 **Neonatal birth weight effects on gilt development growth and first parity reproductive efficiency**

China Supakorn¹, Clay Lents², Xochitl Martinez³, Jeff Vallet⁴, R.D. Boyd⁵, Ashley DeDecker³, Kenneth J. Stalder¹

¹Iowa State University, ²USDA, ³Smithfield Foods, ⁴USDA, ARS, US Meat Animal Research Center, ⁵Hanor Company

4:15 p.m. 352 **Associations between day one piglet serum immunocrit ratio and subsequent growth during gilt development**

China Supakorn¹, Clay Lents², Xochitl Martinez³, Jeff Vallet⁴, R.D. Boyd⁵, Gary Rohrer⁶, Ashley DeDecker³, Kenneth J. Stalder¹

¹Iowa State University, ²USDA, ³Smithfield Foods, ⁴USDA, ARS, US Meat Animal Research Center, ⁵Hanor Company, ⁶US Meat Animal Research Center

**Growth, Development, Muscle Biology and Meat Science Symposium:
Novel Alternative Approaches to Conventional Meat Production Practices**

Chair: Dustin Mohrhauser

1:45 PM - 4:35 PM

216

1:45 p.m. **Growth, Development, Muscle Biology and Meat Science Symposium:
Novel Alternative Approaches to Conventional Meat Production Practices Introduction**

1:50 p.m. 106 **Cellular Aquaculture and Agriculture: A Transformative Solution for Feeding our Planet**

Lou Cooperhouse¹

¹BlueNalu, Inc.

2:30 p.m. 104 **Gene editing in Livestock: Advancements, Opportunities and Challenges**

Anna Dilger¹

¹University of Illinois

3:10 p.m. **Growth, Development, Muscle Biology and Meat Science Symposium:
Novel Alternative Approaches to Conventional Meat Production Practices Break**

3:25 p.m. 105 **Use of Cloning in Beef Production - the WTAMU PrimeOne Project**

David G. Lust¹, Ty E. Lawrence¹, Jessica Sperber¹

¹West Texas A&M University

4:05 p.m. **Growth, Development, Muscle Biology and Meat Science Symposium:
Novel Alternative Approaches to Conventional Meat Production Practices Panel**

Dairy Translational Science Symposium

Chair: Matthew Akins, Department of Dairy Science, University of Wisconsin-Madison

1:45 PM - 5:00 PM

210

1:45 p.m. **Dairy Translational Science Symposium Introduction**

1:50 p.m. 41 **Management Effects on Long-term Crop Yield Stability in Central and Eastern Nebraska**

Virginia Jin¹, Aaron Sindelar², Marty Schmer¹, Brian Wienhold¹

¹USDA-Agricultural Research Service, ²Monsanto Company

2:30 p.m. 39 **Management of Cereal-Grain Forages for Yield and Quality**

Wayne K. Coblenz¹, Matthew Akins²

¹USDA-ARS, US Dairy Forage Research Center, ²Department of Dairy Science, University of Wisconsin-Madison

3:10 p.m. **Dairy Translational Science Symposium Break**

3:25 p.m. 40 **Alternative forages for dairy heifers**

Matthew Akins¹, Elizabeth Remick², Huawei Su³, Lingyan Li⁴, Abbey Grisham⁵, Wayne K. Coblenz⁶

¹Department of Dairy Science, University of Wisconsin-Madison, ²Rock River Laboratory, ³China Agricultural University, ⁴Heilongjiang Bayi Agricultural University, ⁵Department of Animal & Dairy Sciences, UW-Madison, ⁶USDA-ARS, US Dairy Forage Research Center

4:05 p.m. 42 **Advancements in silage management and technology for beef and dairy cattle**

Hugo Ramirez¹, Emily Branstad¹, Layla King¹

¹Iowa State University

4:45 p.m. **Dairy Translational Science Symposium Panel**

Breeding and Genetics Symposium: Genotyping Assays in Livestock

Chair: Warren Snelling, USDA ARS U.S. Meat Animal Research Center;
Amanda Lindholm-Perry, USDA, ARS, US Meat Animal Research Center

1:45 PM - 5:05 PM

205/206

1:45 p.m. **Breeding and Genetics Symposium: Genotyping Assays in Livestock Introduction**

1:50 p.m. 33 **Young Scholar Presentation: Expression quantitative trait loci and allele-specific expression exhibiting joint association with polygenic trait phenotypes in pigs**

Deborah Velez-Irizarry¹, Sebastian Casiro¹, Kaitlyn R. Daza¹, Ronald O. Bates¹, Nancy E.

Raney¹, Juan P. Steibel¹, Catherine W. Ernst¹

¹Michigan State University

2:20 p.m. 35 **Applying GGP-F250 genotypes to elucidate the biochemical basis for animal variation in meat quality attributes**

Andy King ¹, Steven D. Shackelford ², Tommy Wheeler ³

¹USDA-ARS-US Meat Animal Research Center, ²USDA, Meat Animal Research Center,

³USMARC

2:50 p.m. 36 **A Large Multi-Breed Reference Panel and Maximizes Genotype Imputation Accuracy in Cattle**

Troy N. Rowan ¹, Jesse L. Hoff ¹, Tamar Crum ¹, Jerry F. Taylor ¹, Robert D. Schnabel ¹, Jared E. Decker ¹

¹University of Missouri

3:20 p.m. **Breeding and Genetics Symposium: Genotyping Assays in Livestock Break**

3:35 p.m. 34 **Present and Future of Genomic Test Reporting in the Cattle Industry**

Rich Tait ¹, Ryan Ferretti ¹, Barry Simpson ¹, Jeremy Walker ¹, Jamie Parham ¹, Xiao-Lin Wu ¹, Stewart Bauck ¹

¹Neogen GeneSeek Operations

4:05 p.m. 38 **Genomics in Beef Production: Implications in the Age of Digital Data**

Sue DeNise ¹

¹Zoetis

4:35 p.m. 37 **Opportunities for Using a Functional Chip in Beef**

E. John Pollack ¹

¹University of Nebraska-Lincoln

Billy Day Symposium

Chair: Chris Hostetler, National Pork Board

1:45 PM - 5:30 PM

207

1:45 p.m. 18 **Does crowding in the nursery affect future sow reproductive performance and longevity in the breeding herd?**

Mark J. Estienne ¹, Stuart Callahan ², Amanda Cross ³, Ashley DeDecker ⁴, Merlin D. Lindemann ⁵

¹Virginia Tech, ²Virginia Tech-Tidewater AREC, ³DNA Genetics LLC, ⁴Smithfield Foods,

⁵University of Kentucky

2:25 p.m. 20 **Nutritional Strategies to Manage Gilt Growth and Optimize Lifetime Productivity**

Clay Lents ¹, China Supakorn ², Jeff Vallet ³, R.D. Boyd ⁴, Ashley DeDecker ⁵, Kenneth J. Stalder ²

¹USDA, ²Iowa State University, ³USDA, ARS, US Meat Animal Research Center, ⁴Hanor Company, ⁵Smithfield Foods

3:05 p.m. **Billy Day Symposium Break**

3:15 p.m. 17 **Effects of birth traits, physical or fenceline boar exposure and group size on pubertal measures and lifetime fertility of replacement gilts**

Robert V. Knox¹, Ashley Daniel², Jenny Patterson³, Lidia S. Arend², George Foxcroft³
¹University of Illinois at Urbana-Champaign, ²University of Illinois, ³University of Alberta

3:40 p.m. 19 **Overview of the National Pork Board replacement gilt feet and leg evaluation trial**

Joseph D. Stock¹, China Supakorn¹, Julia A. Calderon Diaz², Max F. Rothschild¹, Kenneth J. Stalder¹

¹Iowa State University, ²Teagasc Moorepark Grassland Research and Innovation Centre

4:10 p.m. 21 **Issues of sow lifetime productivity from an international perspective: from research to production level**

Fernando P. Bortolozzo¹, Rafael R. Ulguim¹, Ana Paula G. Mellagi¹, Andre L. Mallmann², Mari Bernardi³

¹UFRGS, ²Universidade Federal do Rio Grande do Sul, ³Universidade Federal do Rio Grande do Sul

4:40 p.m. 22 **Poor management of breeding herd replacements is a key factor in poor sow lifetime productivity: Gilty as charged**

George Foxcroft¹, Jenny Patterson¹

¹University of Alberta

5:10 p.m. **Billy Day Symposium Panel**

Growth, Development, Muscle Biology and Meat Science

Chair: Benjamin Bohrer, University of Guelph

3:45 PM - 5:30 PM

213

3:45 p.m. 100 **Young Scholar Presentation: Effects of sex, sire line, and packaging method on the relationships among early postmortem loin quality and aged loin and pork chop quality characteristics**

Jessica Lowell¹, Dustin D. Boler², Anna Dilger³

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

4:15 p.m. 98 **Final internal cooking temperature of pork chops influenced consumer eating experience more than visual color and marbling**

Lauren T. Honegger¹, Elaine Richardson¹, Emily D. Schunke¹, Anna Dilger², Dustin D. Boler³

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

4:30 p.m. 97 **Impact of diet on shelf life of beef steaks**

Nicolas Bland¹, Felipe Ribeiro², Nicolas Herrera³, Kellen Hart², Morgan Henriott², Chris Calkins³

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

4:45 p.m. 96 **Effect of 30% Wet Brewer's Grain Inclusion on the Growth and Carcass Performance of Finishing Cattle**

Danielle Belon ¹, Jennifer E. Earing ¹, Justin Rickard ¹
¹Illinois State University

5:00 p.m. 99 **Effects of replacing monensin and tylosin in finishing cattle diets with essential oil and/or benzoic acid on meat color and oxidative stability of ribeye steaks and ground beef**

Lydia M. Wang ¹, Shiqi Huang ¹, Sebastian Chalupa-Krebzdak ¹, Sandra M. Vasquez Mejia ¹, Benjamin M. Bohrer ¹
¹University of Guelph

5:15 p.m. 374 **Metabolic response of pigs to Porcine Reproductive and Respiratory Syndrome virus infection and nutrient restriction**

Emma T. Helm ¹, Shelby M. Curry ², Wesley Schweer ¹, Carson M. De Mille ¹, Eric R. Burroughs ¹, Elizabeth Zuber ¹, Steven M. Lonergan ¹, Nicholas K. Gabler ¹
¹Iowa State University, ²BIOMIN America Inc

Genetics, Genomics & Bioinformatics II

Chair: James Koltes, Iowa State University, Department of Animal Science
4:15 PM - 5:15 PM
202

4:15 p.m. 66 **A genome-wide association study for gestation length in swine**

Garret See ¹, Melanie Trenhaile-Grannemann ², Daniel Ciobanu ³, Matthew L. Spangler ¹, Benny E. Mote ⁴
¹University of Nebraska - Lincoln, ²Cobb-Vantress, ³University of Nebraska-Lincoln,
⁴Department of Animal Science, University of Nebraska – Lincoln

4:30 p.m. 68 **Genomic prediction accuracies of vulva size traits in Landrace and Yorkshire gilts.**

Flor Anita. Corredor ¹, Richard J. Leach ², Jason W. Ross ¹, Aileen F. Keating ¹, Nick V.L. Serão ¹
¹Iowa State University, ²Fast Genetics

4:45 p.m. 67 **Structural conformation differences between show pigs and commercial genetic lines**

Dalton R. Obermier ¹, Zack Peppmeier ¹, Mark Knauer ¹
¹North Carolina State University

5:00 p.m. 69 **The Effects of Feeding a Novel *Saccharomyces cerevisiae* Feed Additive on the Prevalence and Abundance of Antimicrobial Resistance Genes in the Microbiome(s) of Receiving Beef Calves**

Morgan M. Sommer-Lassa ¹, James Reecy ², Dr. Andrew Severin ², Dr. Arun Somwarpet-Seetharam ², Mary Sue Mayes ²
¹Iowa State University, ²Iowa State University

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

5:00 p.m. PSVI-4 **Assessment of undergraduate student learning in an animal science major**

Shana M. Winkel¹, Thomas E. Burkey², Dennis Brink¹, Lisa Karr³

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

5:00 p.m. PSVI-15 **Effects of Vitamin B12, Sodium Salicylate, and electrolyte supplementation on alleviating Porcine Reproductive and Respiratory Syndrome symptoms in nursery pigs**

Blaire Todd¹, Carson M. De Mille¹, Samuel Gerrard¹, Emma T. Helm¹, Locke A. Karriker¹, Nicholas K. Gabler¹

¹Iowa State University

5:00 p.m. PSVI-10 **Essential oils and benzoic acid, associated or not with antibiotic, in diets for weaned piglets on cecum microbiota composition**

Cláudio Silva Júnior¹, Claudia C. Silva², Francine T. Falleiros², Rafaela Pereira³, Polyana Tizioto³, Vinicius R.C. Paula³, Luiz Lehmann Coutinho⁴, Fábio Budiño⁵, Urbano S. Ruiz³

¹Universidade do Oeste Paulista, ²DSM, ³University of São Paulo, ⁴University of Sao Paulo - ESALQ, ⁵Instituto de Zootecnia

5:00 p.m. PSVI-18 **Establishing ideal inclusion rate of fermented soybean meal (FSBM) in nursery rations**

Joshua Knapp¹, Tsungcheng Cheng Tsai², Joshua Knapp¹, Hannah Maxwell¹, Charles V. Maxwell², Aileen Joy Mercado³, Benjamin Bass⁴, Terry Weeden³

¹University of Arkansas - Fayetteville, Dale Bumpers College of Agriculture, Department of Animal Science, ²University of Arkansas, ³Purina Animal Nutrition, ⁴Land O'Lakes

5:00 p.m. PSVI-3 **Estimation of the optimal standardized ileal digestible valine to lysine ratio required for growing-finishing pigs in low crude protein diets**

Q, Huang¹, D Pangen¹, Hayford Manu², L. Hanson¹, Samuel Baidoo²

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

5:00 p.m. PSVI-19 **Evaluating the effects of day of iron injection after farrowing on nursery performance and hematological criteria**

Hayden E. Williams¹, Cierra Roubicek¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Steve S. Dritz¹, Mike D. Tokach¹, Robert D. Goodband¹, Andrew Holtcamp²

¹Kansas State University, ²CEVA Animal Health

5:00 p.m. PSVI-1 **Evaluating the effects of feed form, with and without a nutritional water supplement, on the performance of piglets raised in a commercial research facility without feed grade antibiotics**

Fredrik Sandberg¹, Kevin Soltwedel¹, Steve J. England², Megan Bible¹

¹Furst-McNess Company, ²Furst-McNess

5:00 p.m. PSVI-20 **Evaluating the productive energy content of high-protein distillers dried grains in swine diets**

Henrique S. Cemin ¹, Mike D. Tokach ¹, Steve S. Dritz ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹

¹Kansas State University

5:00 p.m. PSVI-17 **Evaluation of a nutritional water supplement on growth performance of nursery pigs**

Afton Sawyer ¹, Scott D. Carter ¹, Carson Cooper ¹, Pornpim Aparachita ², Megan Bible ³, Fredrik Sandberg ³

¹Oklahoma State University, ²Oklahoma State University, ³Furst-McNess Company

5:00 p.m. PSVI-12 **Evaluation of amino acid digestibility in several feed ingredients fed to growing pigs**

Qiong Hu ¹, Chris van de Ligt ¹, Neil Paton ²

¹Cargill Animal Nutrition, ²Cargill Engineering and Data Science

5:00 p.m. PSVI-11 **Evaluation of essential oils and short-medium chain fatty acids in-vitro and in-vivo on performance of nursery pigs**

Kory Moran ¹, Jan Dirk van der Klis ², Glen Almond ³, Eric van Heugten ⁴

¹Delacon Biotechnik, ²Delacon Biotechnik GmbH, ³North Carolina State University, ⁴Department of Animal Science, North Carolina State University

5:00 p.m. PSVI-8 **Evaluation of National 4-H Hippology and Livestock Skillathon Contests**

Savanna Tomoson ¹, Rosemarie Nold ¹, Katherine Bertolini ¹

¹South Dakota State University

5:00 p.m. PSVI-25 **Feed NSPase Enzyme, Natugrain® TS, Improves Performance and Carcass Characteristics of Grow-finishing Pigs**

Michael Coelho ¹, Robert Jones ², Frank Parks ²

¹BASF, ²Integrated Farm Research, Inc,

5:00 p.m. PSVI-7 **Feedback Optimization: An Iterative, Value-Added Approach in a Beef Cattle Breeding Simulation**

Maria Haag ¹, Justin Le Tourneau ², Rose Marra ¹, William R. Lamberson ¹

¹University of Missouri, ²Quetza, LLC

5:00 p.m. PSVI-23 **Feeding enzymatically digested food waste altered fecal microbiota of growing-finishing pigs**

Cynthia N. Jinno ¹, Perot Saelao ¹, Elizabeth Maga ¹, Yanhong Liu ¹

¹University of California, Davis

5:00 p.m. PSVI-24 **Growth performance and immune responses of weaned pigs from lactating sows fed dietary spray dried plasma**

Sheena Kim ¹, Byeonghyeon Kim ¹, Junsu Kim ¹, Jeongjae Lee ¹, Kwangwook Kim ², Joowon Kang ¹, Daye Mun ¹, Jangryeol Baek ¹, Soyun Kim ³, Yanhong Liu ², Jeehwan Choe ⁴, Minhong Song ¹

¹Chungnam National University, ²University of California, Davis, ³Chungnam National University,

⁴Korea National College of Agriculture and Fisheries

5:00 p.m. PSVI-2 **Identification of correlations between aldehyde profiles of thermally oxidized soybean oils and growth performance of broilers**

Jieyao Yuan ¹, Brian J. Kerr ², Chi Chen ¹

¹University of Minnesota, ²USDA-ARS

5:00 p.m. PSVI-14 **Interactive effects of Cordyceps Mushroom Powder and Carbadox on Nursery Pig Performance**

Jacob A. Richert ¹, Jorge Y P. Palencia ², Clayton S. Chastain ³, Morgan T. Thayer ³, Brian T. Richert ³, Jim L. Nelssen ¹

¹Kansas State University, ²Universidade Federal de Lavras – Brazil, ³Purdue University

5:00 p.m. PSVI-21 **Interactive effects of Zn sources, Cu sources and phytase on growth performance in nursery pigs**

Ping Ren ¹, Joe Cushing ¹, Karen J. Wedekind ², Mercedes Vazquez ¹

¹Novus International, Inc, ²Novus International, Inc.

5:00 p.m. PSVI-22 **Interactive effects of Zn sources, Cu sources and phytase on mineral digestibility and tissue mineral concentrations in nursery pigs**

Ping Ren ¹, Joe Cushing ¹, Karen J. Wedekind ², Mercedes Vazquez ¹

¹Novus International, Inc, ²Novus International, Inc.

5:00 p.m. PSVI-16 **Meta-analysis of increasing lysine and energy in late gestation on piglet growth, colostrum composition and piglet throughput**

Jeffrey Wiegert ¹, Mark Knauer ²

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

5:00 p.m. PSVI-9 **Nutrient and energy digestibility of steam-exploded canola meal in cannulated grower pigs**

B.V. Le Thanh ¹, Li F. Wang ², Eduardo Beltranena ³, Rex N. Newkirk ⁴, Ruurd T. Zijlstra ¹

¹University of Alberta, ²University of Alberta, Edmonton, Alberta, Canada, ³Alberta Agriculture and Forestry, ⁴University of Saskatchewan

5:00 p.m. PSVI-13 **Responses of undergraduate students pre- and post-education on poultry industry and welfare issues**

Meaghan M. Meyer ¹, Elizabeth A. Bobeck ¹

¹Iowa State University

5:00 p.m. PSVI-6 **Undergraduate research experiences improve critical thinking ability of animal science students**

S.S. K. Dritz ¹

¹Kansas State University

5:00 p.m. PSVI-5 **Undergraduate success in animal science courses based on demographics, motivation, and online courses**

Haylee Lavoie ¹, Nathan Conner ¹, Lisa Karr ², Kathy Anderson ¹

¹University of Nebraska - Lincoln, ²UNL

Business Meeting and Awards Program

6:00 PM - 7:00 PM
Grand Ballroom North

Awards Reception

7:00 PM - 8:00 PM
Grand Ballroom North

Wednesday, March 13, 2019

Wednesday Registration Hours

7:00 AM - 11:00 AM
Grand Ballroom Foyer

Poster Session VII

Chair:

7:30 AM - 8:15 AM
Grand Ballroom Foyer

7:30 a.m. PSVII-17 **Effect of dietary digestible calcium level on growth and feed efficiency of 12 to 25 kg nursery pigs**

Amanda Elsbernd¹, Steven Smith², Jenny Picou², David S. Rosero¹, Kristin M. Olsen³, Pete Wilcock⁴, Carrie L. Walk⁴, Laura A. Merriman⁴, R.D. Boyd⁵

¹The Hanor Company, ²The Hanor Company LLC, ³Iowa State University, ⁴AB Vista, ⁵Hanor Company

7:30 a.m. PSVII-6 **Effects dietary herbal vitamin E on lamb performance, ruminal fermentation, blood biochemical profile, and meat oxidative stability**

José A. Martínez-Aispuro¹, German D. Mendoza², Jose L. Cordero¹, Marco A. Ayala³, Pedro A. Hernandez⁴, Jose A. Martínez²

¹Colegio de Postgraduados Programa de Ganadería, ²Universidad Autónoma Metropolitana Xochimilco, ³Universidad Autónoma de Guerrero MVZ, ⁴Universidad Autónoma del Estado de México Campus Amecameca

7:30 a.m. PSVII-9 **Effects of a multi-species direct-fed microbial on growth performance and carcass characteristics of grow-finish pigs**

Mariana Boscato Menegat¹, Joel M. DeRouchey², Jason C. Woodworth², Mike D. Tokach², Steve S. Dritz², Robert D. Goodband²

¹Holden Farms, ²Kansas State University

7:30 a.m. PSVII-11 **Effects of a synbiotic (probiotic+prebiotic) on the reproductive efficiency of multiparous sows**

Shelby M. Curry¹, Erika G. Hendel¹, Daniel Petri², Gene Gourley³, G. Raj Murugesan¹

¹BIOMIN America Inc, ²BIOMIN Holding GmbH, ³Gourley Research Group

7:30 a.m. PSVII-3 **Effects of oral administration of essential oils on anti-immune stress, antimicrobial and repairing the intestinal damage in broilers challenged by lipopolysaccharide**

Hanjin Oh ¹, Shudong Liu ², Won Yun ², Jihwan Lee ², Jiseon An ², Jinho cho ¹

¹Department of Animal Science, Chungbuk National University, ²Division of Food and Animal Science, Chungbuk National University

7:30 a.m. PSVII-8 **Efficacy of corn dried distillers grains with solubles as a replacement for soybean meal in a Boer goat diet**

Rachel J. Sorensen ¹, Savannah C. Stewart ¹, Jason C. Woodworth ¹, Alison R. Crane ¹, T. G. G. Nagaraja ¹, James M. Lattimer ¹

¹Kansas State University

7:30 a.m. PSVII-16 **Galactosylated chitosan-oligosaccharides have anti-adhesive effect against enterotoxigenic Escherichia coli in piglets**

Charlotte Heyer ¹, Weilan Wang ², Yalu Yan ², Michael G. Gaenzle ³, Ruurd T. Zijlstra ³

¹Department of Agricultural, Food and Nutritional Science, University of Alberta, ²Department of Agricultural, Food and Nutritional Science, University of Alberta, University of Alberta,

³University of Alberta

7:30 a.m. PSVII-7 **Impact of USDA Feeder Cattle Grade and Hide Color on Sale Price of West Virginia Feeder Cattle**

Danielle Foglesong ¹, Kevin Shaffer ¹

¹West Virginia University

7:30 a.m. PSVII-4 **Optimal standardized ileal digestible lysine and methionine + cysteine to lysine ratio for 12 to 23 kg pigs fed antibiotic-free diets**

John K. Htoo ¹, Trung T. Ho ², Thi B. A. Dao ³, Maria E. Carpena ⁴, Nu A. T. Le ², Le Q. C. Ho ²

¹Evonik Operations GmbH, ²Faculty of Animal Sciences and Veterinary Medicine, College of Agriculture and Forestry - Hue University, Vietnam, ³Institute of Animal Husbandry, Hanoi, Vietnam, ⁴Evonik (Philippines) Inc.

7:30 a.m. PSVII-19 **Potential biomarkers of intestinal injury and inflammation in nursery pigs fed prebiotics**

Joice V. San Andres ¹, Dana van Sambeek ², Sydney Kinstler ¹, Melanie Trenhaile-Grannemann ³, Shana M. Winkel ¹, Andres A. Schlageter-Tello ⁴, Phillip S. Miller ⁵, Thomas E. Burkey ⁵

¹University of Nebraska - Lincoln, ²University of Nebraska Lincoln, ³Cobb-Vantress, ⁴National Animal nutrition Program, University of Kentucky, ⁵University of Nebraska-Lincoln

7:30 a.m. PSVII-21 **Revision of the model estimating real-time Lys requirements in individual growing-finishing pigs**

Aline Remus ¹, Candido Pomar ²

¹Agriculture and Agri-Food Canada, ²Agriculture and Agri-food Canada

7:30 a.m. PSVII-12 **The Effect of Feeding a LucraFit® Nursery Program without Lactose on Piglet Performance.**

Stacie Crowder ¹, Terry Weeden ², Clayton Hankins ², Terry Meyer ², Brenda de Rodas ²

¹PMI Additives, ²Purina Animal Nutrition

7:30 a.m. PSVII-1 **The Effect of Supplementing Pigs with the BASF Annual Industry Vitamin Supplementation on performance**

Michael Coelho ¹, Robert Jones ², Frank Parks ²
¹BASF, ²Integrated Farm Research, Inc,

7:30 a.m. PSVII-15 **The effects of feeding a fortified protein blend as a replacement for animal and fish proteins in nursery pig diets**

Jorge Y P. Palencia ¹, Clayton S. Chastain ², Alan W. Duttlinger ², Kayla M. Mills ³, Julie A. Feldpausch ², Daniel B. Jones ⁴, Matthew D. Asmus ⁴, Brian T. Richert ²

¹Universidade Federal de Lavras – Brazil, ²Purdue University, ³Department of Animal Science, Purdue University, ⁴ADM

7:30 a.m. PSVII-14 **The effects of maternal dietary supplementation of cholecalciferol (vitamin D3) and 25(OH)D3 on progeny muscle fiber measures**

Morgan T. Thayer ¹, Jim L. Nelssen ², Austin J. Langemeier ³, Jodi M. Morton ⁴, John M. Gonzalez ², Stephanie R. Kruger ², Zhining Ou ⁵, Andrew J. Makowski ⁶, Jon R. Bergstrom ⁷

¹Purdue University, ²Kansas State University, ³Sioux Nation Ag Center, ⁴South Dakota State University, ⁵University of Utah, ⁶Heartland Assays LLC & Metabolic Technologies, Inc., ⁷DSM

7:30 a.m. PSVII-13 **The effects of maternal dietary supplementation of cholecalciferol (vitamin D3) and 25(OH)D3 on sow and progeny vitamin D3 status**

Morgan T. Thayer ¹, Jim L. Nelssen ², Austin J. Langemeier ³, Jodi M. Morton ⁴, John M. Gonzalez ², Stephanie R. Kruger ², Zhining Ou ⁵, Andrew J. Makowski ⁶, Jon R. Bergstrom ⁷

¹Purdue University, ²Kansas State University, ³Sioux Nation Ag Center, ⁴South Dakota State University, ⁵University of Utah, ⁶Heartland Assays LLC & Metabolic Technologies, Inc., ⁷DSM

7:30 a.m. PSVII-20 **The extraphosphoric effects of Citrobacter braakii derived phytase on carcass yield of pigs in grower and finisher phases**

Claudia C. Silva ¹, Caio A. Silva ², Marco A. Callegari ³, Ana M. Bridi ², Marco A. Callegari ³, Cleandro Pazinato Dias ⁴, rafael Sens ¹, Francine T. Falleiros ¹

¹DSM, ²UEL, ³AKEI, ⁴AKEI Animal Research

7:30 a.m. PSVII-18 **The influence of meal worm levels on growth performance, nutrient digestibility, and immune response in weaning pigs**

Seung Min Oh ¹, SeYoung Yoon ¹, KwangYeol Kim ¹, Jung Woo Choi ¹, ABDOLREZA Hosseindoust ², JinSoo Kim ²

¹kangwon National University, ²Kangwon National University

7:30 a.m. PSVII-10 **Xylanase improved the nutrient and energy digestibility of diets high in insoluble corn fiber fed to swine following a 36-d dietary adaptation period**

Amy L. Petry ¹, Nichole Huntley ², Mike Bedford ³, John Patience ⁴

¹Iowa State University, ²Mazuri, ³AB Vista, ⁴Oxford Nutrition Consulting, LLC

7:30 a.m. PSVII-5 **Zinc overload in weaned pigs: tissue accumulation, pathology, and growth impacts**

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

¹Iowa State University

Nonruminant Nutrition: Minerals

Chair: James Jolliff, Provimi North America; Wesley Schweer, Iowa State University

8:00 AM - 10:15 AM

205/206

8:00 a.m. 178 **A systematic review and meta-analysis of Ca digestibility and utilisation in growing and finishing pigs**

Maciej M. Misiura¹, Joao A.N. Filipe¹, Carrie L. Walk², Ilias Kyriazakis¹

¹Newcastle University, ²AB Vista

8:15 a.m. 171 **Standardized total tract digestible phosphorus requirement of 6- to 13-kg pigs fed diets with or without phytase**

Fangzhou Wu¹, Jason C. Woodworth¹, Mike D. Tokach¹, Steve S. Dritz¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jon R. Bergstrom²

¹Kansas State University, ²DSM

8:30 a.m. 176 **Whole-grain fiber composition modifies phosphorus digestibility in grower pigs**

Charlotte Heyer¹, Janelle M. Fohse², Thavar Vasanthan¹, Ruurd T. Zijlstra²

¹Department of Agricultural, Food and Nutritional Science, University of Alberta, ²University of Alberta

8:45 a.m. 177 **Influence of the level of dietary digestible Ca on growth performance, bone ash, plasma Ca, and abundance of genes involved in Ca absorption in 11- to 25-kg pigs fed different levels of digestible P**

Vanessa Lagos¹, Carrie L. Walk², Hans H. Stein³

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

9:00 a.m. 175 **Effects of increasing calcium to available phosphorus ratios in diets containing phytase on growth performance and bone mineral content of nursery pigs**

Jose A. Soto¹, Dean D. Koehler¹, Leah M. Kellesvig¹, Spenser Becker², Stacie Matchan², John Patience³

¹Vita Plus Corporation, ²Iowa State University, ³Oxford Nutrition Consulting, LLC

9:15 a.m. 172 **Standardized total tract digestible phosphorus requirement of 11- to 23-kg pigs fed diets containing phytase**

Carine M. Vier¹, Steve S. Dritz², Mike D. Tokach², Jason C. Woodworth², Robert D. Goodband², Joel M. DeRouchey²

¹Genus PIC, ²Kansas State University

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

9:45 a.m. 173 **Effects of dietary analyzed calcium to analyzed phosphorus ratio on growth performance, carcass characteristics, and bone mineralization in 26- to 127-kg pigs**

Carine M. Vier¹, Steve S. Dritz², Mike D. Tokach², Márcio A.D. Gonçalves³, Uislei A. D. A.D. Orlando⁴, Jon R. Bergstrom⁵, Jason C. Woodworth², Robert D. Goodband², Joel M. DeRouchey²

¹Genus PIC, ²Kansas State University, ³Jefo, ⁴PIC, ⁵DSM

10:00 a.m. 174 **Effects of dietary analyzed calcium to phosphorus ratio on growth performance, carcass characteristics, and bone mineralization of 26- to 127-kg pigs fed diets containing phytase**

Carine M. Vier¹, Steve S. Dritz², Mike D. Tokach², Márcio A.D. Gonçalves³, Uislei A. D. A.D. Orlando⁴, Jon R. Bergstrom⁵, Jason C. Woodworth², Robert D. Goodband², Joel M. DeRouchey²

¹Genus PIC, ²Kansas State University, ³Jefo, ⁴PIC, ⁵DSM

Nonruminant Nutrition: Feed Ingredients

Chair: Omarh Mendoza, The Maschoffs, LLC; Paul Cline, Christenesen Farms

8:30 AM - 10:15 AM

214

8:30 a.m. 156 **Effects of feeding increasing amounts of finishing diet blended with nursery diets on growth performance and economics of nursery pigs**

Fangzhou Wu¹, Mike D. Tokach¹, Jason C. Woodworth¹, Chad W. Hastad², Joel M. DeRouchey¹, Steve S. Dritz¹, Robert D. Goodband¹

¹Kansas State University, ²New Fashion Pork

8:45 a.m. 155 **Effects of soybean meal level and distillers dried grains with solubles inclusion on growth performance of late nursery pigs**

Henrique S. Cemin¹, Mike D. Tokach¹, Aaron M. Gaines², Brent W. Ratliff², Steve S. Dritz¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹

¹Kansas State University, ²Ani-Tek Group, LLC

9:00 a.m. 157 **Effects of dietary corn distillers dried grains with solubles withdrawal on finishing pig performance and carcass characteristics**

Annie B. Lerner¹, Mike D. Tokach², Jason C. Woodworth², Joel M. DeRouchey², Steve S. Dritz², Robert D. Goodband², Chad W. Hastad³, Kyle Coble⁴, Emily Arkfeld⁵, Hilda I. Calderon⁶, Christopher I. Vahl²

¹Schwartz Farms, Inc., ²Kansas State University, ³New Fashion Pork, ⁴JBS Live Pork, ⁵Triumph Foods, ⁶Department of Statistics, College of Arts and Sciences, Kansas State University

9:15 a.m. 152 **Effects of dietary lactose level on nursery pig performance**

Jason Frank¹, Emily Sholtz², Casey R. Neill³, Jon A. De Jong³

¹International Ingredient Corp, ²Pipestone Grow Finish, ³Pipestone Nutrition

9:30 a.m. 153 **Impacts of two energy sources (modified soy oil and medium chain triglycerides) on growth performance and health of nursery pigs**

Sara Ebarb¹, Richard Faris¹, Junmei Zhao², Sabrina Williams³, Kathryn Price⁴

¹Cargill Animal Nutrition, ²Cargill, ³Provimi, ⁴Cargill Premix & Nutrition

9:45 a.m. 151 **Effects of Carbohydrate Source On Performance and Gastrointestinal Microbiota in Nursery Pigs**

Sydney Kinstler¹, Yanshao Li², Phillip S. Miller², Thomas E. Burkey², Melanie Trenhaile-Grannemann³, Samodha C. Fernando², Allison Knoell⁴, Wesley A. Tom⁵

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

⁴Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE 68583, USA, ⁵UNL

10:00 a.m. 154 **Digestibility of amino acids, fiber, and energy, and concentrations of digestible and metabolizable energy in conventional and extruded yellow dent corn, wheat, and sorghum fed to growing pigs**

Diego A. Rodriguez ¹, Su A Lee ¹, Mary B. Muckey ², Jason C. Woodworth ³, Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign, ²Kansas State University, Manhattan, ³Kansas State University

Nonruminant Nutrition: Fiber/Enzymes

Chair: Pedro Urriola, University of Minnesota

8:30 AM - 10:15 AM

207

8:30 a.m. 163 **Xylanase and fermentable xylo-oligosaccharides improve performance in grower-finisher pigs fed a corn-soybean meal based diet**

Gustavo Cordero ¹, Jae Cheol Kim ¹, Natasha Whenham ¹, Helen Masey-O'Neill ², Saksit Srinongkote ³, Gemma Gonzalez Ortiz ¹

¹AB Vista, ²AB agri, ³Bangkok Animal Research Center Co., Ltd

8:45 a.m. 161 **Impact of insoluble dietary fiber on the efficacy of the phytase enzyme in nursery pigs**

Jesus A. Acosta ¹, John Patience ²

¹Dept. of Animal Science, Iowa State University, ²Oxford Nutrition Consulting, LLC

9:00 a.m. 162 **The interactions between dietary fiber and lipid sources alter the predicted production and absorption of caecal and colorectal volatile fatty acids in growing pigs**

Saymore PETROS. Ndou ¹, Elijah Kiarie ², Maria C. Walsh ³, Cornelis de Lange ², Charles Martin Nyachoti ⁴

¹UNIVERSITY OF MANITOBA, ²University of Guelph, ³DSM Nutritional Products, ⁴University of Manitoba

9:15 a.m. **Nonruminant Nutrition: Fiber/Enzymes Break**

9:30 a.m. 159 **Impact of dietary fiber and carbohydrases on intestinal gene transcription in enterotoxigenic E. coli challenged pigs**

Qingyun Li ¹, Eric R. Burrough ², Nicholas K. Gabler ², Stacie Matchan ², Crystal L. Loving ³, Christopher K. Tuggle ², Orhan Sahin ⁴, John Patience ⁵

¹Cargill Animal Nutrition, ²Iowa State University, ³USDA-ARS-National Animal Disease Center, ⁴Dept. of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, ⁵Oxford Nutrition Consulting, LLC

9:45 a.m. 160 **Can growth performance, digesta characteristics, and oxidative status of swine fed diets high in insoluble fiber be improved? An investigation into the mode of action of xylanase**

Amy L. Petry ¹, Nichole Huntley ², Mike Bedford ³, John Patience ⁴

¹Iowa State University, ²Mazuri, ³AB Vista, ⁴Oxford Nutrition Consulting, LLC

10:00 a.m. 158 **Growth performance of weaned pigs fed multi-enzyme supplemented corn-soybean meal-based diets – two semi-commercial studies**

Wenting Li ¹, Jie Feng ²

¹Dupont- Nutrition&Biosciences, ²College of Animal Sciences, Zhejiang University

Nonruminant Nutrition: General

Chair: Christopher Puls, Elanco

8:30 AM - 10:30 AM

216

8:30 a.m. 169 **Susceptibility of several species of gram-negative and gram-positive bacteria to organic acids and their derivatives**

Lauren L. Kovanda¹, Xunde Li¹, Wen Zhang¹, Xiaohong Wei¹, Jia Luo¹, Xixi Wu¹, Edward Robert Atwill¹, Richard Sygall², Jacob Lum², Yanhong Liu¹

¹University of California, Davis, ²Perstorp Feed and Food

8:45 a.m. 164 **Digestibility, Fecal Characteristics, and Blood Parameters of Adult Dogs Fed High Fat Diets**

Logan R. Kilburn¹, Mariana C. Rossoni-Serao¹

¹Iowa State University

9:00 a.m. 168 **Effects of proportion of pigs per feeder hole and stocking density on growth performance and tail and ear biting in the nursery**

Fernanda Laskoski¹, Jamil E G Faccin², Elisa Rigo De Conti², Ana Paula G. Mellagi³, Rafael R. Ulguim³, Fernando P. Bortolozzo³

¹Kansas State University, ²Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, ³UFRGS

9:15 a.m. 170 **Trends in Mycotoxin Contamination in the United States Corn**

Shelby M. Curry¹, Erika G. Hendel¹, Paige N. Gott², G. Raj Murugesan¹, Ursula Hofstetter³

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

9:30 a.m. 166 **Fate of Pentoses in the Small Intestine and Hindgut of Growing Pigs**

Jerubella J. Abelilla¹, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign

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

10:00 a.m. 167 **Increasing weaning age: a tool to improve pig performance in a multisite production system**

Jamil E G Faccin¹, Fernanda Laskoski², Luciana Hernig³, Rafael R. Ulguim⁴, Ana Paula G. Mellagi⁴, Fernando P. Bortolozzo⁴

¹Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, ²Kansas State University, ³Setor de Suínos UFRGS, ⁴UFRGS

10:15 a.m. 165 **Impact of mycotoxin contamination of feed on growth performance and blood metabolites of growing pigs**

Jesus A. Acosta¹, Gwendolyn M. Jones², John Patience³

¹Dept. of Animal Science, Iowa State University, ²Anco Animal Nutrition Competence GmbH,

³Oxford Nutrition Consulting, LLC

Ruminant Nutrition: Supplements and Additives

Chair: Alejandro Relling, The Ohio State University

8:30 AM - 10:30 AM

213

8:30 a.m. 343 **Feedlot performance and carcass characteristics of steers fed diets containing steam-flaked grain and corn silage from Enogen® Feed Corn**

Adrian Baker¹, Vanessa de Aguiar Veloso¹, Adrian Baker¹, Lucas Barros¹

¹Kansas State University

8:45 a.m. 342 **Evaluation of the effects of biochar on diet digestibility and methane production from growing and finishing steers**

Thomas M. Winders¹, Melissa L. Jolly-Breithaupt¹, Hannah C. Wilson², James C. MacDonald³, Galen E. Erickson¹, Andrea K. Watson¹

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

9:00 a.m. 340 **Impact of essential oils blend on beef cattle performance and carcass characteristics in diets with increasing corn silage inclusions**

Hannah C. Wilson¹, Henry Hilscher², Zachary E. Carlson¹, Bradley M. Boyd², Andrea K. Watson³, James C. MacDonald⁴, Galen E. Erickson³

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

9:15 a.m. 338 **Effect of eicosapentaenoic acid and docosahexaenoic acid supplementation on placenta and fetal liver mRNA, and fetal liver and brain fatty acids profile on early gestation in sheep.**

Jose Alejandro. Roque¹, Mario Francisco. Oviedo¹, Hector Aaron. Lee², Alejandro E. Relling¹

¹The Ohio State University, ²Facultad de Agronomía y Veterinaria, Universidad Autónoma de San Luis Potosí, México

9:30 a.m. **Ruminant Nutrition: Supplements and Additives Break**

9:45 a.m. 339 **Effect of DHA and EPA supplementation during the first third of gestation on growth, metabolism and gene expression in hypothalamus in finished lambs**

Mario Francisco. Oviedo¹, Jose Alejandro. Roque¹, Hector Aaron. Lee², Alejandro E. Relling¹

¹The Ohio State University, ²Facultad de Agronomía y Veterinaria, Universidad Autónoma de San Luis Potosí, México

10:00 a.m. 344 **Effects of blended microbial feed additives on receiving cattle performance and health**

Allison VanDerWal¹, Josh Zeltwanger¹, Devan M. Paulus Compart², Alfredo DiCostanzo¹

¹University of Minnesota, ²PMI

10:15 a.m. 341 **Evaluation of the safety of an algal biomass as an ingredient in finishing cattle diets**

Mitch M. Norman¹, Zachary E. Carlson², Fred H. Hilscher², Galen E. Erickson¹, Bruce Brodersen¹, J. Dustin Loy¹, Jonathan W. Wilson³, Christian Rabe⁴, Andrea K. Watson¹

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

Physiology Symposium: Molecular Mechanisms of Heat Stress in Livestock

Chair: Peter Hansen, University of Florida

8:30 AM - 11:05 AM

211/212

8:30 a.m. **Physiology Symposium: Molecular Mechanisms of Heat Stress in Livestock Introduction**

8:35 a.m. 211 **Young Scholar Presentation: Developing and validating a heat stress model in dairy cows**

Mohammad Al-Qaisi ¹, Erin A. Horst ², Sara Kvidera ¹, Edith J. Mayorga-Lozano ¹, Megan A. Abeyta ¹, Brady M. Goetz ¹, Leo Timms ¹, Lance H. Baumgard ¹

¹Iowa State University, ²Iowa State University

9:05 a.m. 208 **Molecular mechanisms through which heat stress compromises reproduction in pigs**

Jason W. Ross ¹, Benjamin J. Hale ², Jacob T. Seibert ³, Matthew R. Romoser ⁴, Malavika K. Adur ¹, Aileen F. Keating ¹, Lance H. Baumgard ¹

¹Iowa State University, ²East Carolina University, ³University of Minnesota, ⁴Fast Genetics

9:35 a.m. **Physiology Symposium: Molecular Mechanisms of Heat Stress in Livestock Break**

9:50 a.m. 375 **Importance of cellular resistance to elevated temperature as a determinant of the magnitude of adverse effects of heat stress on farm animals**

Peter J. Hansen ¹

¹University of Florida

10:20 a.m. 209 **Effects of Heat Stress on the Intestinal Tract of Poultry**

Marcos Rostagnos ¹

¹Phytobiotics

10:50 a.m. **Physiology Symposium: Molecular Mechanisms of Heat Stress in Livestock Panel**

Breeding and Genetics Symposium: Defining a Robust Sow

Chair: Amanda Cross, DNA Genetics LLC

8:30 AM - 11:45 AM

201

8:30 a.m. **Breeding and Genetics Symposium: Defining a Robust Sow Introduction**

8:35 a.m. 25 **Evolution of the Commercial Sow**

Gary Rohrer ¹

¹US Meat Animal Research Center

9:10 a.m. 24 **Field experience and challenges facing sow production today, industry strategies.**

Ronald T. Ketchem ¹

¹30 & Up Consulting

9:45 a.m. **Breeding and Genetics Symposium: Defining a Robust Sow Break**

10:00 a.m. 26 **Defining a robust sow: How increases in sow productivity impact the biology of reproduction, lactation and body composition**

M. Todd. See¹

¹North Carolina State University

10:35 a.m. 23 **Dietary Management of the Transition Animal: Perspectives from Dairy Cows to Sows**

Robert Van Saun¹

¹Penn State University

11:10 a.m. 27 **Defining a Robust Sow: Swine nutrition perspective on reproduction and lactation**

Joel M. DeRouchey¹, Mike D. Tokach¹, Robert D. Goodband¹, Jason C. Woodworth¹, Steve S. Dritz¹, Mariana Boscato Menegat²

¹Kansas State University, ²Holden Farms

Physiology III: Advancing Reproductive Techniques to Meet the World Demand for Food II

Chair: George Perry, South Dakota State University

8:30 AM - 11:45 AM

210

8:30 a.m. **Physiology III: Advancing reproductive techniques to Meet the World Demand for Food II Introduction**

8:35 a.m. 203 **How reproductive management technologies will shape the dairy industry 50 years from now.**

Jack H. Britt¹

¹North Carolina State University, Raleigh NC

9:10 a.m. 200 **Improving efficiency of embryo transfer (ET) programs by optimizing fertility and management of recipients.**

Milo C. Wiltbank¹, Alvaro Garcia Guerra², Rodrigo V. Sala³, Meliton Fosada³, Luciana Carrenho-Sala³, Juan F. Moreno⁴

¹University of Wisconsin-Madison, Department of Animal and Dairy Science, ²The Ohio State University, ³ST Genetics, Volms Farm, ⁴ST Genetics

9:45 a.m. **Physiology III: Advancing reproductive techniques to Meet the World Demand for Food II Break**

10:00 a.m. 201 **Development of Fertility Programs to Achieve High 21-day Pregnancy Rates in High-Producing Dairy Cows**

Paul M. Fricke¹, Paulo Carvalho², Milo C. Wiltbank³

¹UW- Madison, ²University of Wisconsin - Madison, ³University of Wisconsin-Madison, Department of Animal and Dairy Science

10:35 a.m. 202 **Factors influencing pregnancy loss in lactating dairy cows**

James Richard. Pursley¹, Thaina Mlnela¹, Joao Paulo N. Martins², Emily Middleton¹

¹Michigan State University, ²University of Wisconsin-Madison

11:10 a.m. 199 **Expanding use of fixed-time artificial insemination in beef heifers and cows through improved strategies to manage estrus and ovulation.**

David J. Patterson¹, Jordan M. Thomas¹

¹University of Missouri

Harlan Ritchie Symposium

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

8:30 AM - 12:00 PM

203/204

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

8:35 a.m. 109 **Mature Cow Size and Impacts on Cow Efficiency**

Paul A. Beck¹, PAUL A. BECK²

¹Oklahoma State University, ²Oklahoma State University, Department of Animal & Food Sciences

9:20 a.m. 108 **Impacts of dam age and milk production on cow/calf profitability**

J. T. Mulliniks¹, Joslyn K. Beard¹, Tasha King¹

¹University of Nebraska-Lincoln

10:05 a.m. **Harlan Ritchie Symposium Break**

10:20 a.m. 107 **Traceability**

John Butler¹

¹Beef Marketing Group

11:05 a.m. 110 **Current and future feedlot research needs: An industry perspective**

Ben P. Holland¹

¹Cactus Research

11:45 a.m. **Harlan Ritchie Symposium Panel**

Midwest Board Meeting

9:00 AM - 11:00 AM

Herndon

Nonruminant Nutrition: Vitamins

Chair: Josh Flohr

10:30 AM - 11:00 AM

207

10:30 a.m. 187 **Evaluation of different vitamin concentrations on grow-finish pig growth and carcass characteristics**

Leandro Del Tuffo¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹

¹Kansas State University

10:45 a.m. 188 **Effects of an antioxidant support technology and vitamin E on growth performance of naturally health-challenged nursery pigs**

Sara Ebarb ¹, Kari Saddoris-Clemons ², Kathryn Price ², James Jolliff ³, Sabrina Williams ⁴
¹Cargill Animal Nutrition, ²Cargill Premix & Nutrition, ³Provimi North America, ⁴Provimi

Nonruminant Nutrition: Feed Additives IV: Nursery

Chair:

10:30 AM - 12:00 PM

205/206

10:30 a.m. 145 **Effects of titrated levels of water soluble zinc amino acid complex on growth performance of nursery pigs**

Pornpim Aparachita ¹, Scott D. Carter ², Afton Sawyer ², Jared A. Harshman ², Zach Rambo ³, Terry Ward ³

¹Oklahoma State University, ²Oklahoma State University, ³Zinpro Corporation

10:45 a.m. 147 **Effects of added dietary Zn and Cu or an essential oils blend in a nursery feeding program**

Robyn Thompson ¹, Brandon Knopf ¹, Laura Greiner ¹, Jon R. Bergstrom ²

¹Carthage Innovative Swine Solutions, ²DSM

11:00 a.m. 149 **A bioactive, mineral-based feed additive improved growth performance in commercial nursery pigs**

Ran Song ¹, Sue Sinn ¹, Rob Musser ¹, Kim Friesen ¹

¹NutriQuest

11:15 a.m. 146 **Effects of feeding soluble fiber (dextrin) to pigs pre- and post-weaning on growth performance and volatile fatty acid (VFA) production**

Clayton S. Chastain ¹, Brian T. Richert ¹, Allan P. Schinckel ¹, Timothy A. Johnson ¹, Carmen L. Wickware ¹, Morgan T. Thayer ¹, Kayla M. Mills ², Julie A. Feldpausch ¹, Jorge Y P. Palencia ³, Jacob A. Richert ⁴, John Scott Radcliffe ¹

¹Purdue University, ²Department of Animal Science, Purdue University, ³Universidade Federal de Lavras – Brazil, ⁴Kansas State University

11:30 a.m. 148 **Effects of inclusion of a peptide based commercial product on the growth performance and fecal bacterial composition of nursery piglets**

Prakash Poudel ¹, Crystal L. Levesque ¹, Ryan S. Samuel ², Benoit St-Pierre ¹

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

11:45 a.m. 150 **A bio-active, mineral-based feed additive improved growth performance and reduced severity of diarrhea in weanling pigs challenged with enterotoxigenic Escherichia coli**

Sue Sinn ¹, Ran Song ¹, Dana Beckler ², Rob Musser ¹, Kim Friesen ¹

¹NutriQuest, ²GutBugs Inc.