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
202

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. Tuggle ¹, Elisabetta Giuffra ²
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. Murdoch ¹
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 Foissac ¹, Sarah Djebali ², Kylie Munyard ³, Nathalie Vialaneix ⁴, Andrea Rau ⁵, Herve Acloque ⁶, Sandrine Lagarrigue ⁶, Elisabetta Giuffra ⁷
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 Multi-omic data integration in quantitative genetics
Gota Morota ¹
¹Virginia Tech

11:10 a.m.  31 Building a functional annotation of the equine genome
Jessica L. Petersen ¹, Carrie J. Finno ², Rebecca R. Bellone ², Erin N. Burns ², Nicole B. Kingsley ², Ted Kalbfleisch ³, James N. MacLeod ³, Catherine Creppe ⁴, Donald C. Miller ⁵, Douglas F. Antczak ⁵
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. Gabler ¹, Emma T. Helm ¹, Carson M. De Mille ¹
¹Iowa State University

9:40 a.m.  56 Observations on pre-weaning piglet mortality
Mike Ellis ¹, Katherine D. Vande Pol ¹, Naomi C. Willard ¹, Caleb M. Shull ²
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 Hinson ¹, Ronny Moser ¹, Matthew Ackerman ², Rodger Main ³
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 Coble ¹
¹JBS Live Pork

11:50 a.m.  Gary Allee Symposium: Panel Discussion
Midwest Board Meeting I
9:00 AM - 4:00 PM
207

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 Lauridsen 1
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. Henniger 1, Phillip R. Myer 2, Timothy P. Smith 3, Tara G. McDaneld 4, Larry A. Kuehn 5, John W. Keele 4
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. McCafferty 1, Rebecca Humphrey 2, Shamimul Hasan 2, Mark A. Crenshaw 1, James Brett 2, Brian J. Rude 2, Shengfa T. Liao 2
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. Cromer 1, Caroline M. Ylioja 1, Miriam Garcia 1, Laman K. Mamedova 1, Barry J. Bradford 1
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. May 1, Alison K. Ward 2, Carl R. Dahlen 2, Kendall C. Swanson 2, Kris A. Ringwall 3, Lauren L. Hulsman Hanna 2
1Department of Animal Sciences, North Dakota State University, 2North Dakota State University, 3Dickinson Research Extension Center, North Dakota State University
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, 5Department of Anatomy and Physiology, Manhattan, KS, 6Veterinary Diagnostic & Production Animal Medicine, Iowa State University

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

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

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

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

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

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

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. Groose 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. DeRouche 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. Cook 1, Chad M. Pilcher 2, Brooke Humphrey 3
1Cargill, Inc, 2Cargill Animal Nutrition, 3Cargill Premix & Nutrition

3:50 p.m.  45  Opportunity with functional role of supplemental amino acids
Yanbin Shen 1, Sung Woo Kim 2
1Nutelligence, Inc, 2North Carolina State University

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

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Ruminant Nutrition: General
Chair: Hugo Ramirez, Iowa State University
1:45 PM - 3:15 PM
205/206

1:45 p.m.  332  Young Scholar Presentation: Regulation of Immune Signaling by Extracellular Vesicles
Caroline M. Ylioja 1, Laman K. Mamedova 1, Barry J. Bradford 1
1Kansas State University

2:15 p.m.  228  Modeling repeated measurements of diet composition
Napoleon Vargas Jurado 1, Ronald M. Lewis 2, Kent M. Eskridge 3
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 Rueda 1, Jason Griffin 1, Carter Kruse 2, Benoit St-Pierre 1
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 Bandarupalli 1, Benoit St-Pierre 2
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. Broadhead 1, Matt Stockton 1, McKay Erickson 2, Jackie A. Musgrave 1, Rick N. Funston 3
1University of Nebraska-Lincoln, West Central Research and Extension Center, 2University of Nebraska Lincoln, 3West Central Research, Extension, and Education Center
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 Henriott 1, Felipe Ribeiro 1, Kellen Hart 1, Nicolas Herrera 2, Nicolas Bland 3, Chris Calkins 2
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. Briggs 1, Kristen M. Brennan 2, Griffin Nicholls 3, Jon P. P. Schoonmaker 1
1Purdue University, 2Alltech, 3Department of Animal Sciences, Purdue University

4:20 p.m. 77 Responses to alfalfa supplementation in mice
Krysten Fries-Craft 1, Justin Anast 1, Stephan Schmitz-Esser 1, Elizabeth A. Bobeck 1
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 Nickles 1, Alejandro E. Relling 1, Anthony J. Parker 1
1The Ohio State University

Undergraduate Student Oral Competition II
Chair: Gretchen Hill, Michigan State University
2:00 PM - 3:50 PM
213

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 Clark 1, Cody Wright 1, Michael Gonda 1
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. Rients 1, Sara M. Tondini 2, Daniel W. Shike 3, Joshua C. McCann 2
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. Dawson 1, Mareah J. Volk 2, Frank Ireland 2, Keela Trennepohl 1, Joshua C. McCann 2, Daniel W. Shike 3
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-Shoaf 1, Isabella V. Panetta 1, Matthew J. Soyland 1, Toree Williams 1, Christina Rocco 1
1The University of Findlay
3:05 p.m. 369 Impact of an extended-release dewormer on fetal development and subsequent calf performance
Ashley M. Reiner 1, Stephanie Perkins 2, Jerica Rich 2, Emmalee Northrop 2, George Perry 2
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 Homolka 1, Galen E. Erickson 2, Richard Koelsch 2
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. Soyland 1, Isabella V. Panetta 1, Bailey Armentrout-Shoaf 1, Christina Rocco 1, Toree Williams 1
1The University of Findlay

Undergraduate Student Oral Competition I
Chair: Chris Hostetler, National Pork Board
2:00 PM - 4:05 PM
211/212

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. Cooney 1, Lucas T. Neira 2, Wesley P. Chapple 3, William T. Meteer 3, Joshua C. McCann 1, Daniel W. Shike 3
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. Panetta 1, Bailey Armentrout-Shoaf 1, Matthew J. Soyland 1, Christina Rocco 1, Toree Williams 1
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. Swanson 1, Kiah M. Gourley 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Mike D. Tokach 1, Steve S. Dritz 1, Robert D. Goodband 1, Brent Frederick 2
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-Williams 1, Emma L. Stephenson 1, Ann L. Kenny 1, Allison M. Meyer 1
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. DiRusso 1, Emma Niedermayer 1, Stephanie L. Hansen 1
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 Gerrard ¹, Emma T. Helm ¹, Blaire Todd ¹, Nicholas K. Gabler ¹
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 Becker ¹, Nick Knute ², Abdullah Mahfuz ², Mohan Dasari ², Chad W. Hastad ³
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 Roubicek ¹, Hayden E. Williams ¹, Joel M. DeRouchey ¹, Jason C. Woodworth ¹, Steve S. Dritz ¹, Mike D. Tokach ¹, Robert D. Goodband ¹, Andrew Holtcamp ²
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
216

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 Hasan ¹, Rebecca Humphrey ¹, Mark A. Crenshaw ², James Brett ¹, Shengfa T. Liao ¹
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. Smith ¹, Maci Oelschlager ¹, Melissa I. Hannas ², Muhammad Shameer Abdul Rasheed ¹, Ryan N. Dilger ³
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 Abbas ¹, Jeremy T. Howard ², Henry A. Paz ³, Kristin E. Hales ⁴, James E. Wells ⁵, Larry A. Kuehn ⁶, Matthew L. Spangler ⁷, Galen E. Erickson ⁸, Samodha C. Fernando ⁸
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
The influence of supplemental zinc, zinc source, and dietary energy level on performance measures of beef steers
Remy N. Carmichael 1, Stephanie L. Hansen 1, Olivia N. Schroeder 2
1Iowa State University, 2Dairy R&D - Purina - Land O'Lakes

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. Rooney 1, Keelin O'Driscoll 2, John O'Doherty 3, Peadar G. Lawlor 4
1Teagasc & University College Dublin, 2Teagasc, 3University College Dublin, 4Pig Development Department, Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland

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 Wagner 1, Alejandro E. Relling 1, Justin kieffer 1, Anthony J. Parker 1
1The Ohio State University

Effects of antibiotics on growth performance, diarrhea, and bacterial translocation in weanling pigs experimentally infected with a pathogenic E. coli
Kwangwook Kim 1, Yijie He 2, Cynthia N. Jinno 1, Seijoo Yang 1, Minho Song 3, Peng Ji 1, Yanhong Liu 1
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

Graduate Student Oral Competition: PHD I Introduction

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 Rho 1, Rob Patterson 2, Elijah Kiarie 1
1University of Guelph, 2CBS Bio-Platforms Inc.

Effects of cattle breed, Holstein versus Angus, and corn grain processing on diet digestibility and ruminal pH
Pedro Carvalho 1, Tara L. Felix 2, Flavia Sales Silva 3
1Penn State University, 2Penn State, 3The Pennsylvania State University

Effects of feed removal on body temperature and intestinal morphology in pigs recovering from acute hyperthermia
Kouassi R. Kpodo 1, Alan W. Duttlinger 1, Matthew P. Aardsma 1, Jacob M. Maskal 1, Jay S. Johnson 2
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-Seay 1, Brooke A. Clemmons 2, Sydney T. Reese 3, Gessica A. Francho-Johannsen 4, Felipe G. Dantas 5, Liesel G. Schneider 6, Timothy P. Smith 7, Edwards J L. Lannett 6, Phillip R. Myer 8, Ky G. Pohler 3
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 Zhang 1, Jay S. Johnson 2, Nathalie Trottier 1
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 Wang 1, Tsungcheng Cheng Tsai 1, Charles V. Maxwell 1, Jiangchao Zhao 2
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 Wooten 1, John J. McGlone 1, Arlene Garcia 1, Amanda Rakhshandeh 2, Anoosh Rakhshandeh 1
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. Lerner 1, Mike D. Tokach 2, Jason C. Woodworth 2, Joel M. DeRouchey 2, Steve S. Dritz 2, Robert D. Goodband 2, Matt W. Allerson 3
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
Jerald Jaborek 1, Alejandro E. Relling 1
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. Deters 1, Stephanie L. Hansen 1
1Iowa State University
4:00 p.m. 347  **Supplemental copper concentration and feed restriction influence plasma metabolome of growing beef steers**
Katherine VanValin 1, Stephanie L. Hansen 1
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. Heldt 1, Shane Davis 2
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. Jackson 1, Remy N. Carmichael 1, Erin L. Deters 1, Elizabeth M. Messersmith 1, Katherine VanValin 1, Stephanie L. Hansen 1
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. Lammers 1, Chad Stahl 2, Mark S. Honeyman 3
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. Lane 1, Kenneth J. Stalder 1, Jay D. Harmon 1, Locke A. Karriker 1, Anna K. Johnson 1
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 Zhou 1, Benjamin M. Bohrer 1
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 Conway 1, Zac Carlson 1, Henry Hilscher 2, James C. MacDonald 3, Terry J. Klopfenstein 1, Mary E. Drewnoski 1
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 Thompson 1, Laura Greiner 1, Amanda Graham 1, Brandon Knopf 1
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. Quick 1, Mark Knauer 1
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
Greater feed amounts during late gestation do not improve piglets birth weight: a dose-response study performed in gilts
Andre L. Mallmann 1, Elisa 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

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

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

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

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

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

Social structures, social ties, and development of tail biting in growing-finish pigs
Yuzhi Li 1, Lee J. Johnston 1
1West Central Research and Outreach Center, University of Minnesota

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

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 subpopulations 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, 2Genesus, 3Genesus 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, Ulisei 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
Peripheral blood parameters as proxies of performance in beef cattle: Heritability and genetic correlations between peripheral blood parameters and performance phenotypes.
Iowa State University, University of Arkansas, UA Livestock and Forestry Station, retired, University of Arkansas System, Division of Agriculture, Department of Animal Science, Iowa State University, Department of Animal Science

Preliminary exploration of relationship of automated sensor data with feed intake and efficiency in lactating dairy cattle.
Cori J. Siberski, Brady M. Goetz, Lance H. Baumgard, James E. Koltes
Department of Animal Science, Iowa State University, Iowa State University, Department of Animal Science

Processing of food proteins of animal origin sometimes, but not always, increases values for Digestible Indispensable Amino Acid Scores
Hannah M. Bailey, Eric P. Berg, Hans H. Stein
University of Illinois, North Dakota State University, University of Illinois at Urbana-Champaign

Production trait differences between show pig and commercial genetic lines
Zack Peppmeier, Dalton R. Obermier, Mark Knauer
North Carolina State University

Selenium requirement of turkeys based on tissue selenium concentration and selenoprotein activity and transcript expression
Rachel M. Taylor, Roger A. Sunde
University Of Wisconsin-Madison, University of Wisconsin Madison

Semen Quality effect on Conception Rate among Three Purebred Swine Lines
Giselle Kruse, Caitlyn Bruns
DNA Genetics

Standardized total tract digestibility of Ca by growing pigs in different sources of calcium carbonate and dicalcium phosphate
Su A Lee, Carrie L. Walk, Hans H. Stein
University of Illinois at Urbana-Champaign, AB Vista

Supplementation of mint oil and yeast cell in lactation diets on performance of offspring during the early-post weaning period.
Lily P. Hernandez, James L. Dunn, Joel Wenninghoff, Crystal L. Levesque
South Dakota State University, ADM Animal Nutrition

The Effect of Activo and a Competitor Phytogenic on growth performance and carcass characteristics of grow-finish pigs
Rafael Cabrera
EW 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. Frame 1, Logan R. Kilburn 2, Erika M. Johnson 2, Mariana C. Rossoni-Serao 2  
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 Jo 1, John K. Htoo 2, Caroline González-Vega 3, Beob G. Kim 1  
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. Crenshaw 1, Joy M. Campbell 1, Javier Polo 1  
1APC Inc

7:30 a.m. PSIV-11  Description of a novel Calorimetric unit to determine net energy in group housed pigs  
Cristhiam J. Muñoz 1, Hans H. Stein 1  
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. Misiura 1, Joao A.N. Filipe 1, Carrie L. Walk 2, Ilias Kyriazakis 1  
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. Johnson 1, Sai Zhang 2, Gabriella M. Morello 3, Jacob M. Maskal 4, Nathalie Trottier 5  
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 Zannatta 1, 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

7:30 a.m. PSIV-19  Dietary spray dried plasma on immune responses of lactating sows and their litters  
Byeonghyeon Kim 1, Junsu Kim 1, Kwangwook Kim 2, Sheena Kim 1, Jeongjae Lee 1, Joowon Kang 1, Daye Mun 1, Jangryeol Baek 1, Soyun Kim 3, Peng Ji 2, Jeehwan Choe 4, Minho Song 1  
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. Garcia 1, Gabriel Arruda 2, Rhuan F. Chaves 3, Charles Muller Ribeiro 3, Melissa Mendes 2, Vinicius S. Cantarelli 2  
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. DeRouchev 2, Robert D. Goodband 2, Jason C. Woodworth 2, Steve S. Dritz 2, Chad B. Pauk 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. Cotrell 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. Meteer 3, Daniel W. Shike 3
1University of Illinois Champaign-Urbana, 2University of Illinois, 3University of Illinois at Urbana-Champaign
8:30 a.m.  5  Effect of feeding time on behavioral and stress responses in gestation sows under isocaloric conditions  
Hayford Manu 1, S. H. Lee 2, Q Huang 2, D Pangeni 2, M. C. Keyes 3, J. Cairns 3, Samuel Baidoo 1  
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 Li 1, Maria E. Lou 2, Michael Reese 2, Eric Buchanan 2, Lee J. Johnston 1  
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 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

9:15 a.m.  7  Effect of piglet birth weight and drying on post-natal changes in rectal temperature  
Naomi C. Willard 1, Katherine D. Vande Pol 1, Mike Ellis 1, Yijie Xiong 1, Richard Gates 2  
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 Harper 1, Rachel Schmitt 1, Mike Ellis 1, Caleb M. Shull 2, Clint Schwab 2  
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. Redden 1, Daniel W. Shike 2, Joshua C. McCann 3  
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. Boyd 1, James C. MacDonald 2, Matthew Luebbe 1, Galen E. Erickson 3  
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. Cupp ¹, Sarah Nafziger ¹, Mohamed Abedal-Majed ², Sarah Tenley ³, Mariah Hart ¹, Alexandria Snider ⁴, Jeff Bergman ¹, Scott Kurz ¹, John Davis ⁵, Jennifer Wood ¹, Adam F. Summers ⁶
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 Ciobanu ¹
¹University of Nebraska-Lincoln

9:35 a.m.  205  Neuroendocrine Pathways and the Nutritional Control of Puberty in Heifers
Rodolfo C. Cardoso ¹, Gary L. Williams ²
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. Nonneman ¹, Aaron M. Dickey ¹, Clay Lents ²
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. Arend ¹, Robert V. Knox ², Amanda Minton ³, Clint Schwab ⁴, Caleb M. Shull ⁴, Steve Buysse ⁵, Mike E. Johnston ⁵, Catherine M. Roaten ⁵, Stephen K. Webel ⁵
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. Rempel ¹, Jeremy Miles ²
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. Desaulniers 1, Rebecca A. Cederberg 2, Ginger A. Mills 3, Brett R. White 3
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 Rich 1, Emmalee Northrop 1, Kaitlin Epperson 1, Saulo Menegatti Zoca 1, Stephanie Perkins 1, Julie Walker 2, Claire L. Timlin 3, Nicholas W. Dias 3, Vitor R. G. Mercadante 4, George Perry 1
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 Erickson 1, Rick N. Funston 2
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
1USDA, ARS, U.S. Meat Animal Research Center, 2South Dakota State University, 3USDA ARS U.S. Meat Animal Research Center, 4Virginia Tech

10:30 a.m. 215 Influence of BVDV exposure on AI conception and breeding season pregnancy success in beef herds
Kaitlin Epperson 1, Jerica Rich 1, Saulo Menegatti Zoca 1, Stephanie Perkins 1, Emmalee Northrop 1, Russell F. Daly 2, Julie Walker 3, Jim R. Rhoades 4, George Perry 1
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 Li 1, Nicholas K. Gabler 2, Eric R. Burrough 2, Crystal L. Loving 3, Stephan Schmitz-Esser 2, John Patience 4, Xiyu Peng 2
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 Mellick 1, Ana Lucia P. de Souza 2, Vanessa Iseri 1, Venkatesh Mani 1
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 Becker 1, Qingyun Li 2, Eric R. Burrough 1, John Patience 3
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 Sugg 1, Randy Jones 2, Tyler Holck 3, Scott Heintzelman 3, Sarah A. Weiland 3
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 Thomas 1, Hayden E. Williams 1, Jason C. Woodworth 1, Mike D. Tokach 1, Robert D. Goodband 1, Steve S. Dritz 1, Joel M. DeRouchey 1, Dillon Mellick 2
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 Cabrera 1
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 He 1, Kwangwook Kim 2, Cynthia N. Jinno 2, Zhaohai Wu 2, Rose Whelan 3, Kiran Doranalli 3, Yanhong Liu 2
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 Ruckman 1, John Patience 2
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 Menegat 1, Michaela B. Braun 2, Joel M. DeRouchey 2, Jason C. Woodworth 2, Jim Bryte 3, Mike D. Tokach 2, Steve S. Dritz 2, Robert D. Goodband 2
1Holden Farms, 2Kansas State University, 3Quality Technology International, Inc.
8:30 a.m.  189  Comparative transcriptomic analysis between Total RNA and mRNA isolated from feces of neonatal dairy calves
Johan S. Osorio 1, Fernanda Rosa 1
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. Aviles 1, Anoosh Rakhshandeh 1, John J. McGlone 1
1Texas Tech University

9:00 a.m.  193  Characterisation of poor gastrointestinal tract development in gilt progeny
Danni A. Wijesiriwardana 1, Jessica Craig 2, Mitchell Ringuet 1, Linda Fothergill 1, Kirrily O'Halloran 3, Diana Turpin 4, Lynette Munoz 1, Cherie Collins 2, John B. Furness 5, John Pluske 4, Jeremy Cottrell 1, Frank R. Dunshea 6
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 Morales 1, Miguel J. Cervantes 2, Alan Valle 1, Duckens Antoine 2, Ernesto Avelar 1, Lucero R. Pérez Mejía 1, Lorenzo Buenabad 3
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 Aluthge 1, Wesley A. Tom 1, Alisson Neujuahr 2, Thomas E. Burkey 2, Kelly D. Heath 3, Craig Kreikemeier-Bower 2, Hatem Kittana 4, Amanda E. Ramer-Tait 4, Samodha C. Fernando 2
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 Li 1, Karina Matos 2, Mrigendra Rajput 3, Adam J. Moeser 4
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 Jasper 1, Emma T. Helm 1, Blaire Todd 1, Nicholas K. Gabler 1
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. Fouhse 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  
1University of Minnesota  

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

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**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
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 Loor 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.  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 Manu 1, S. H. Lee 2, Q Huang 2, D Pangeni 2, M. C. Keyes 3, J. Cairns 3, Samuel Baidoo 1
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. Kleinhenz 1, Patrick J. Gorden 2, Michael Burchard 3, Joshua Ydstie 3, Johann F. Coetzee 4
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. Viscardi 1, Patricia Turner 2
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 Caetano 1, Luan S. Santos 2, John K. Htoo 3, Alini M. Veira 4, Welex C. Silva 1, Jaqueline Gobi 5, Alicia Fraga 1, Paulo H. R. F. Campos 6, Nei A. A. Barbosa 7, Luciano Hauschild 1
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 Thomas 1, Robert D. Goodband 1, Charmaine D. Espinosa 2, Hans H. Stein 2, Jason C. Woodworth 1, Mike D. Tokach 1, Steve S. Dritz 1, Joel M. DeRouche 1
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 Kwon 1, Kevin J. Touchette 2, Aude Simongiovanni 3, Kostas Syriopoulos 3, Anna Wessels 4, Hans H. Stein 5
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, Maira Resende 2, Jéssica Barbosa 3, Eduardo Oliveira 4, Vinicius 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 Menegat 1, Kiah Gourley 2, Michaela B. Braun 2, Joel M. DeRouchey 2, Jason C. Woodworth 2, Jim Bryte 3, Mike D. Tokach 2, Steve S. Dritz 2, Robert D. Goodband 2
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. 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

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 Min 1, Huan Wang 2, In Ho Kim 1
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 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

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 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

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 Min 1, Zhenyu Ding 2, In Ho Kim 1
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 Holanda 1, Alexandros Yiannikouris 2, Sung Woo Kim 1
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. Williams 1, Joel M. DeRouche 1, Jason C. Woodworth 1, Steve S. Dritz 1, Mike D. Tokach 1, Robert D. Goodband 1, Andrew Holtcamp 2
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. Williams 1, Joel M. DeRouchey 1, Jason C. Woodworth 1, Steve S. Dritz 1, Mike D. Tokach 1, Robert D. Goodband 1, Andrew Holtcamp 2
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. Cemin 1, Mike D. Tokach 1, Steve S. Dritz 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Robert D. Goodband 1, Matt W. Allerson 2
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. Rundle 1, Valeria c. Artuso 2, Hans H. Stein 1
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. Huang 1, D Pangeni 1, Hayford Manu 2, L. Hanson 3, Samuel Baidoo 2
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. Martinez 1, Ysenia Victoria Silva-Guillen 2, Kory Moran 3, Xi Lin 1, Jack Odle 1, Eric van Heugten 2
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 Lahaye 1, Glenmer Tactacan 1, Seung-Yeol Cho 2, Jinho cho 3, In Ho Kim 4, Roger Campbell 5
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 Carrender 1, Hayden E. Williams 2, Joel M. DeRouchey 2, Mike D. Tokach 2, Steve S. Dritz 2, Jason C. Woodworth 2, Robert D. Goodband 2, Kyle Coble 3, Amanda J. Gerhart 3
1JBS, 2Kansas State University, 3JBS Live Pork
Effects of space allowance and marketing strategy on growth performance of pigs raised to heavy market weights
Annie B. Lerner 1, Mike D. Tokach 2, Joel M. DeRouchey 2, Steve S. Dritz 2, Robert D. Goodband 2, Travis O’Quinn 2, John M. Gonzalez 2, Emily A. Rice 2, Matt W. Allerson 3, Hannah E. Price 4, Dustin D. Boler 5, Anna Dilger 6, Steven D. Shackelford 7, Brandon Fields 8, Jason C. Woodworth 2
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.

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. Vier 1, Mariana Boscato Menegat 2, Kiah Gourley 3, Steve S. Dritz 3, Mike D. Tokach 3, Jon R. Bergstrom 4, Robert D. Goodband 3, Joel M. DeRouchey 3, Jason C. Woodworth 3
1Genus PIC, 2Holden Farms, 3Kansas State University, 4DSM

Effects of the protein level on growth performance and carcass grading in fattening pig fed ad libitum.
Arnaud Samson 1, Claire Launay 1, Francesc Payola 2, Eric Schetelat 3, Hervé Fortune 4
1NEOVIA, 2SETNA/NEOVIA, 3INZO/NEOVIA, 4Prisma/NEOVIA

Effects of two products containing tiamulin hydrogen fumarate on drinking water intake of weaned pigs
Kimberly A. Vonnahme 1, Debbie Amodie 1, Thomas Short 1, Marnie Mellencamp 1, Adam Mueller 2, Lucina Galina 1
1Zoetis, 2Swine Services Unlimited, Inc.

Effects of varying ratio of L-Arginine and Lysine on the performance of sows and their litters
Ahn Je Min 1, Yi Yang 2, In Ho Kim 1
1Dankook University, 2Dankook Univ.

Bentley Lecture and Lunch
12:50 PM - 1:40 PM
Grand Ballroom North

Long-term immune and metabolic consequences of a disrupted early life microbiota
Ben Willing 1
1University of Alberta

Nonruminant Nutrition: Feed Additives I
Chair: Daniel Jones, ADM
1:30 PM - 3:30 PM
203/204

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 Coelho 1, Robert Jones 2, Frank Parks 2
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 Wiegent 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, 4Honor 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 Ibagon 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

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

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1BASF, 2Integrated Farm Research, Inc,

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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

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. LeKatz 1, Bryan W. W. Neville 2
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. Coulson 1, Bradley M. Boyd 1, Henry Hilscher 1, Brandon L. Nuttelman 2, Grant I. Crawford 2, James C. MacDonald 3, Galen E. Erickson 4
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 Schumacher 1, Galen E. Erickson 2, D.J. Jordan 3, Robert Cooper 4, Tony Scott 3, Sheri Bundy 3, Gary Sides 5, Ralph Cleale 5
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 Ovinge 1, Mitch M. Norman 1, Kaylee E. Wheeler 1, Galen E. Erickson 1
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. Wilson 1, Melissa L. Jolly-Breithaupt 2, Andrea K. Watson 2, James C. MacDonald 3, Galen E. Erickson 2
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. Wilson 1, Henry Hilscher 2, Zachary E. Carlson 1, Bradley M. Boyd 2, Andrea K. Watson 3, James C. MacDonald 4, Galen E. Erickson 3
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 Jennings 1, Catherine L. Lockard 1, Ty E. Lawrence 2
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 VanDerWal 1, Josh Zeltwanger 1, Alfredo DiCostanzo 1
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
202

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 Barajas 1, Rodolfo Cantet 2, Kaitlin E. Wurtz 3, Carly O'Malley 1, Janice M. Siegfried 3, Catherine W. Ernst 3, Juan P. Steibel 3
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 Han 1, Sarah K. Chewning 2, Kaitlin E. Wurtz 2, Janice M. Siegfried 2, Juan P. Steibel 2
1Bayer, 2Michigan State University

3:30 p.m. 59 The Genetic Basis of Natural Antibody Titers and Relationships with Disease Resilience in Pigs
Yulu Chen 1, Laura Laura 1, Carolyn Ashley 2, Austin Putz 3, kyu-Sang Lim 1, Michael Dyck 4, Frederic Fortin 5, Graham Plastow 4, Jack C.M. Dekkers 1, John Harding 2
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. Sanglard 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

Nonruminant Nutrition: Feed Additives III: Nursery
Chair: Doug Cook, CSA Animal Nutrition; Shelby Curry, BIOMIN America Inc
1:45 PM - 4:00 PM

1:45 p.m. 143 Supplemental effects of whey permeate on growth performance and gut health of nursery pigs
Ki Beom Jang 1, Jerry Purvis 2, Sung Woo Kim 1
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 Xu 1, Ludovic Lahaye 2, Zhengxiao He 1, Jinxiao Zhang 2, Chengbo Yang 3, Xiangshu Piao 4, Jean-Christophe Bodin 2
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. Jinno 1, Kwangwook Kim 1, Minho Song 2, Peng Ji 1, Elizabeth Maga 1, Yanhong Liu 1
1University of California, Davis, 2Chungnam National University
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, Minho Song 3, Xunde Li 2, Yanhong Liu 2
1Department of Animal Science, University of California, Davis, 2University of California, Davis, 3Chungnam National University

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, Minho Song 3, Peng Ji 1, Yanhong Liu 1
1University of California, Davis, 2Department of Animal Science, University of California, Davis, 3Chungnam National University

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

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

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 6, 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

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. Bruder 1, Sara K. Linneen 2, Gene Gourley 3, Robert L. Payne 2
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 Li 1, Zhijian Sun 1, Niel A. Karrow 2, Mickael Briens 3, Michele De Marco 3, Huazhen Liu 1
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 Thompson 1, Cathy Boessen 1, Brandon Knopf 1, Laura Greiner 1, Keith D. Haydon 2
1Carthage Innovative Swine Solutions, 2CJ Bio America

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. Hernandez 1, James L. Dunn 2, Joel Wenninghoff 2, Crystal L. Levesque 1
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. Bruun 1, Camilla K. Højgaard 2, Anja V. Strathe 3
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. Gourley 1, Analicia J. Swanson 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Mike D. Tokach 1, Steve S. Dritz 1, Robert D. Goodband 1, Brent Frederick 2
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-Camba 1, James L. Dunn 2, John K. Htoo 3, Kevin J. Touchette 4, Ryan S. Samuel 5, Crystal L. Levesque 1
1South Dakota State University, 2ADM Animal Nutrition, 3Evonik Operations Gmbh, 4AJINOMOTO ANIMAL NUTRITION NORTH AMERICA, INC., 5Department of Animal Science, South Dakota State University
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. Feldpausch 1, Kayla M. Mills 2, Alan W. Duttlinger 1, S M. Elly 1, Brad H. B. Kim 3, John Scott Radcliffe 1, Zach Rambo 4, Brian T. Richert 1

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 Minton 1, Caleb M. Shull 2, Clint Schwab 2, Steven G. Buysse 3, Mike E. Johnston 3, Stephen K. Webel 3, Lidia S. Arend 4, Robert V. Knox 5

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. Holen 1, Molly R. Renken 2, Tim A. Kerkaert 3, Mike J. Boerboom 3, Lee J. Johnston 4, Jeffrey S. Knott 5

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 Rho 1, Conor Voth 1, Quincy Buis 2, David Trott 3, Lee-Anne Huber 1, Elijah Kiarie 1

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

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. Stewart 1, Megan C. Niederwerder 1, Jason C. Woodworth 1, Steve S. Dritz 1, Jason C. Woodworth 1

1Kansas State University
4:00 p.m. 351 Neonatal birth weight effects on gilt development growth and first parity reproductive efficiency
China Supakorn 1, Clay Lents 2, Xochitl Martinez 3, Jeff Vallet 4, R.D. Boyd 5, Ashley DeDecker 3, Kenneth J. Stalder 1
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 Supakorn 1, Clay Lents 2, Xochitl Martinez 3, Jeff Vallet 4, R.D. Boyd 5, Gary Rohrer 6, Ashley DeDecker 3, Kenneth J. Stalder 1
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 Cooperhouse 1
1BlueNalu, Inc.

2:30 p.m. 104 Gene editing in Livestock: Advancements, Opportunities and Challenges
Anna Dilger 1
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. Lust 1, Ty E. Lawrence 1, Jessica Sperber 1
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 Jin 1, Aaron Sindelar 2, Marty Schmer 1, Brian Wienhold 1
1USDA-Agricultural Research Service, 2Monsanto Company

2:30 p.m. 39 Management of Cereal-Grain Forages for Yield and Quality
Wayne K. Coblentz 1, Matthew Akins 2
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 Akins 1, Elizabeth Remick 2, Huawei Su 3, Lingyan Li 4, Abbey Grisham 5, Wayne K. Coblentz 6
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 Ramirez 1, Emily Branstad 1, Layla King 1
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-Irizary 1, Sebastian Casiro 1, Kaitlyn R. Daza 1, Ronald O. Bates 1, Nancy E. Raney 1, Juan P. Steibel 1, Catherine W. Ernst 1
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

3:35 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. Knox 1, Ashley Daniel 2, Jenny Patterson 3, Lidia S. Arend 2, George Foxcroft 3
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. Stock 1, China Supakorn 1, Julia A. Calderon Diaz 2, Max F. Rothschild 1, Kenneth J. Stalder 1
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. Bortolozzo 1, Rafael R. Ulguim 1, Ana Paula G. Mellagi 1, Andre L. Mallmann 2, Mari Bernardi 3
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 Foxcroft 1, Jenny Patterson 1
1University of Alberta

4:15 p.m. 98 Final internal cooking temperature of pork chops influenced consumer eating experience more than visual color and marbling
Lauren T. Honegger 1, Elaine Richardson 1, Emily D. Schunke 1, Anna Dilger 2, Dustin D. Boler 3
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 Bland 1, Felipe Ribeiro 2, Nicolas Herrera 3, Kellen Hart 2, Morgan Henriott 2, Chris Calkins 3
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. Burrough 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

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 Univeristy, 2Iowa State University
5:00 p.m.  PSVI-4  Assessment of undergraduate student learning in an animal science major
Shana M. Winkel 1, Thomas E. Burkey 2, Dennis Brink 1, Lisa Karr 3
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 Todd 1, Carson M. De Mille 1, Samuel Gerrard 1, Emma T. Helm 1, Locke A. Karriker 1, Nicholas K. Gabler 1
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
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 Knapp 1, Tsungcheng Cheng Tsai 2, Joshua Knapp 1, Hannah Maxwell 1, Charles V. Maxwell 2, Aileen Joy Mercado 3, Benjamin Bass 4, Terry Weeden 3
1University of Arkansas, 2Fayetteville, Dale Bumpers College of Agriculture, Department of Animal Science, 3University of Arkansas, 4Purina Animal Nutrition, 5Land 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, Huang 1, D Pangeni 1, Hayford Manu 2, L. Hanson 1, Samuel Baidoo 2
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. Williams 1, Cierra Roubicek 1, Joel M. DeRouchey 1, Jason C. Woodworth 1, Steve S. Dritz 1, Mike D. Tokach 1, Robert D. Goodband 1, Andrew Holtcamp 2
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 Sandberg 1, Kevin Soltwedel 1, Steve J. England 2, Megan Bible 1
1Furst-McNess Company, 2Furst-McNess
Evaluating the productive energy content of high-protein distillers dried grains in swine diets
Henrique S. Cemin, Mike D. Tokach, Steve S. Dritz, Jason C. Woodworth, Joel M. DeRouchey, Robert D. Goodband
Kansas State University

Evaluation of a nutritional water supplement on growth performance of nursery pigs
Afton Sawyer, Scott D. Carter, Carson Cooper, Pornpim Aparachita, Megan Bible
Oklahoma State University, University of California, Davis

Evaluation of amino acid digestibility in several feed ingredients fed to growing pigs
Qiong Hu, Chris van de Ligt, Neil Paton
Cargill Animal Nutrition, Cargill Engineering and Data Science

Evaluation of essential oils and short-medium chain fatty acids in vitro and in vivo on performance of nursery pigs
Kory Moran, Jan Dirk van der Klis, Glen Almond, Eric van Heugten
Delacon Biotechnik, Delacon Biotechnik GmbH, North Carolina State University, Department of Animal Science, North Carolina State University

Evaluation of National 4-H Hippology and Livestock Skillathon Contests
Savanna Tomoson, Rosemarie Nold, Katherine Bertolini
South Dakota State University

Feed NSPase Enzyme, Natugrain® TS, Improves Performance and Carcass Characteristics of Grow-finishing Pigs
Michael Coelho, Robert Jones, Frank Parks
BASF, Integrated Farm Research, Inc.

Feedback Optimization: An Iterative, Value-Added Approach in a Beef Cattle Breeding Simulation
Maria Haag, Justin Le Tourneau, Rose Marra, William R. Lamberson
University of Missouri, Quetza, LLC

Feeding enzymatically digested food waste altered fecal microbiota of growing-finishing pigs
Cynthia N. Jinno, Perot Saelao, Elizabeth Maga, Yanhong Liu
University of California, Davis

Growth performance and immune responses of weaned pigs from lactating sows fed dietary spray dried plasma
Sheena Kim, Byeonghyeon Kim, Junsu Kim, Jeongjae Lee, Kwangwook Kim, Joowon Kang, Daye Mun, Jangryeol Baek, Soyun Kim, Yanhong Liu, Jeehwan Choe, Minho Song
Chungnam National University, University of California, Davis, Chungnam National University, Korea 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

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

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 Elsbernd 1, Steven Smith 2, Jenny Picou 2, David S. Rosero 1, Kristin M. Olsen 3, Peter Wilcock 4, Carrie L. Walk 4, Laura A. Merriman 4, R.D. Boyd 5
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. Martinez-Aispuro 1, German D. Mendoza 2, Jose L. Cordero 1, Marco A. Ayala 3, Pedro A. Hernandez 4, Jose A. Martinez 2
1Colegio de Postgraduados Programa de Ganaderia, 2Universidad Autonoma Metropolitana Xochimilco, 3Universidad Autónoma de Guerrero MVZ, 4Universidad Autonoma del Estado de Mexico 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 Menegat 1, Joel M. DeRouchey 2, Jason C. Woodworth 2, Mike D. Tokach 2, Steve S. Dritz 2, Robert D. Goodband 2
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. Curry 1, Erika G. Hendel 1, Daniel Petri 2, Gene Gourley 3, G. Raj Murugesan 1
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
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

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

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

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

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

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

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

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
8:00 a.m. 178  **A systematic review and meta-analysis of Ca digestibility and utilisation in growing and finishing pigs**  
Maciej M. Misiura 1, João A.N. Filipe 1, Carrie L. Walk 2, Ilias Kyriazakis 1  
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 Wu 1, Jason C. Woodworth 1, Mike D. Tokach 4, Steve S. Dritz 1, Joel M. DeRouchey 1, Robert D. Goodband 1, Jon R. Bergstrom 2  
1Kansas State University, 2DSM

8:30 a.m. 176  **Whole-grain fiber composition modifies phosphorus digestibility in grower pigs**  
Charlotte Heyer 1, Janelle M. Fouhse 2, Thavar Vasanthan 1, Ruurd T. Zijlstra 2  
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 Lagos 1, Carrie L. Walk 2, Hans H. Stein 3  
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. Soto 1, Dean D. Koehler 1, Leah M. Kellesvig 1, Spenser Becker 2, Stacie Matchan 2, John Patience 3  
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. Vier 1, Steve S. Dritz 2, Mike D. Tokach 2, Jason C. Woodworth 2, Robert D. Goodband 2, Joel M. DeRouchey 2  
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. Vier 1, Steve S. Dritz 2, Mike D. Tokach 2, Márcio A.D. Gonçalves 3, Uislei A. D. A.D. Orlando 4, Jon R. Bergstrom 5, Jason C. Woodworth 2, Robert D. Goodband 2, Joel M. DeRouchey 2  
1Genus PIC, 2Kansas State University, 3Jefo, 4PIC, 5DSM
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. Vier 1, Steve S. Dritz 2, Mike D. Tokach 2, Márcio A.D. Gonçalves 3, Uislei A. D. A.D. Orlando 4, Jon R. Bergstrom 5, Jason C. Woodworth 2, Robert D. Goodband 2, Joel M. DeRouchey 2
1Genus PIC, 2Kansas State University, 3Jefo, 4PIC, 5DSM

Nonruminant Nutrition: Feed Ingredients
Chair: Omarh Mendoza, The Maschhoffs, LLC; Paul Cline, Christenesen Farms
8:30 AM - 10:15 AM
214

Effects of feeding increasing amounts of finishing diet blended with nursery diets on growth performance and economics of nursery pigs
Fangzhou Wu 1, Mike D. Tokach 1, Jason C. Woodworth 1, Chad W. Hastad 2, Joel M. DeRouchey 1, Steve S. Dritz 1, Robert D. Goodband 1
1Kansas State University, 2New Fashion Pork

Effects of soybean meal level and distillers dried grains with solubles inclusion on growth performance of late nursery pigs
Henrique S. Cemin 1, Mike D. Tokach 1, Aaron M. Gaines 2, Brent W. Ratliff 2, Steve S. Dritz 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Robert D. Goodband 1
1Kansas State University, 2Ani-Tek Group, LLC

Effects of dietary corn distillers dried grains withdrawal on finishing pig performance and carcass characteristics
Annie B. Lerner 1, Mike D. Tokach 2, Jason C. Woodworth 2, Joel M. DeRouchey 2, Steve S. Dritz 2, Robert D. Goodband 2, Chad W. Hastad 3, Kyle Coble 4, Emily Arkfeld 5, Hilda I. Calderon 6, Christopher I. Vahl 2
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

Effects of dietary lactose level on nursery pig performance
Jason Frank 1, Emily Sholtz 2, Casey R. Neill 3, Jon A. De Jong 3
1International Ingredient Corp, 2Pipestone Grow Finish, 3Pipestone Nutrition

Impacts of two energy sources (modified soy oil and medium chain triglycerides) on growth performance and health of nursery pigs
Sara Ebarb 1, Richard Faris 1, Junmei Zhao 2, Sabrina Williams 3, Kathryn Price 4
1Cargill Animal Nutrition, 2Cargill, 3Provimi, 4Cargill Premix & Nutrition

Effects of Carbohydrate Source On Performance and Gastrointestinal Microbiota in Nursery Pigs
Sydney Kinstler 1, Yanshao Li 2, Phillip S. Miller 2, Thomas E. Burkey 2, Melanie Trenhaile-Grannemann 3, Samodha C. Fernando 2, Allison Knoell 4, Wesley A. Tom 5
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 xyllo-oligosaccharides improve performance in grower-finisher pigs fed a corn-soybean meal based diet**
Gustavo Cordero 1, Jae Cheol Kim 1, Natasha Whynam 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 Kiariie 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. Kovanda 1, Xunde Li 1, Wen Zhang 1, Xiaohong Wei 1, Jia Luo 1, Xixi Wu 1, Edward Robert Atwill 1, Richard Sygall 2, Jacob Lum 2, Yanhong Liu 1  
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. Kilburn 1, Mariana C. Rossoni-Serao 1  
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 Laskoski 1, Jamil E G Faccin 2, Elisa Rigo De Conti 2, Ana Paula G. Mellagi 3, Rafael R. Ulguim 3, Fernando P. Bortolozzo 3  
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. Curry 1, Erika G. Hendel 1, Paige N. Gott 2, G. Raj Murugesan 1, Ursula Hofstetter 3  
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. Abelilla 1, Hans H. Stein 1  
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 Faccin 1, Fernanda Laskoski 2, Luciana Hernig 3, Rafael R. Ulguim 4, Ana Paula G. Mellagi 4, Fernando P. Bortolozzo 4  
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. Acosta 1, Gwendolyn M. Jones 2, John Patience 3  
1Dept. of Animal Science, Iowa State University, 2Anco Animal Nutrition Competence GmbH, 3Oxford Nutrition Consulting, LLC
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 Baker 1, Vanessa de Aguiar Veloso 1, Adrian Baker 1, Lucas Barros 1
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. Winders 1, Melissa L. Jolly-Breithaupt 1, Hannah C. Wilson 2, James C. MacDonald 3, Galen E. Erickson 1, Andrea K. Watson 1
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. Wilson 1, Henry Hilscher 2, Zachary E. Carlson 1, Bradley M. Boyd 2, Andrea K. Watson 3, James C. MacDonald 4, Galen E. Erickson 3
1University of Nebraska Lincoln, 2University of Nebraska - Lincoln, 3University of Nebraska, 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. Roque 1, Mario Francisco. Oviedo 1, Hector Aaron. Lee 2, Alejandro E. Relling 1
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. Oviedo 1, Jose Alejandro. Roque 1, Hector Aaron. Lee 2, Alejandro E. Relling 1
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 VanDerWal 1, Josh Zeltwanger 1, Devan M. Paulus Compart 2, Alfredo DiCostanzo 1
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. Norman 1, Zachary E. Carlson 2, Fred H. Hilscher 2, Galen E. Erickson 1, Bruce Brodersen 1, J. Dustin Loy 1, Jonathan W. Wilson 3, Christian Rabe 4, Andrea K. Watson 4
1University of Nebraska-Lincoln, 2University of Nebraska Lincoln, 3Veramaris, 4Evonik
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**
Mohmmad 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. See ¹
¹North Carolina State University

10:35 a.m.  23 Dietary Management of the Transition Animal: Perspectives from Dairy Cows to Sows
Robert Van Saun ¹
¹Penn State University

11:10 a.m.  27 Defining a Robust Sow: Swine nutrition perspective on reproduction and lactation
Joel M. DeRouchey ¹, Mike D. Tokach ¹, Robert D. Goodband ¹, Jason C. Woodworth ¹, Steve S. Dritz ¹, Mariana Boscato Menegat ²
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. Britt ¹
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. Wiltbank ¹, Alvaro Garcia Guerra ², Rodrigo V. Sala ³, Meliton Fosada ³, Luciana Carrenho-Sala ³, Juan F. Moreno ⁴
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. Fricke ¹, Paulo Carvalho ², Milo C. Wiltbank ³
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. Pursley ¹, Thaina Mnela ¹, Joao Paulo N. Martins ², Emily Middleton ¹
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. Patterson ¹, Jordan M. Thomas ¹
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. Beck ¹, PAUL A. BECK ²
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. Mulliniks ¹, Joslyn K. Beard ¹, Tasha King ¹
¹University of Nebraska-Lincoln

10:05 a.m.  **Harlan Ritchie Symposium Break**

10:20 a.m.  107  **Traceability**
John Butler ¹
¹Beef Marketing Group

11:05 a.m.  110  **Current and future feedlot research needs: An industry perspective**
Ben P. Holland ¹
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 Tuffo ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹
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.