RAW Scientific Program - Online Program:

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
Academic Quadrathlon Written Exam III
8:00 AM - 3:00 PM
Cozzens

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

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

Monday Upload Room Hours
7:30 AM - 5:00 PM
215
Academic Quadrathlon Team Advisor's Meeting Room
8:00 AM - 3:00 PM
Mercer

Academic Quadrathlon Written Exam I
8:00 AM - 3:00 PM
Herndon

Academic Quadrathlon Written Exam II
8:00 AM - 3:00 PM
Washington City

Academic Quadrathlon Written Exam IV
8:00 AM - 3:00 PM
Merchants

Academic Quadrathlon Written Exam IX
8:00 AM - 3:00 PM
Rome

Academic Quadrathlon Written Exam V
8:00 AM - 3:00 PM
Paxton

Academic Quadrathlon Written Exam VI
8:00 AM - 3:00 PM
Murray

Academic Quadrathlon Written Exam VII
8:00 AM - 3:00 PM
Prague
Academic Quadrathlon Written Exam VIII  
8:00 AM - 3:00 PM  
Fontenelle

Academic Quadrathlon Written Exam X  
8:00 AM - 3:00 PM  
Flatiron

Academic Quadrathlon Written XI/Quiz Bowl I  
8:00 AM - 3:00 PM  
Saint Nicholas A

Academic Quadrathlon Written XII/Quiz Bowl II  
8:00 AM - 3:00 PM  
Saint Nicholas B

Academic Quadrathlon Written XIII/Quiz Bowl III  
8:00 AM - 3:00 PM  
Hill

Breeding and Genetics Symposium: FAANG  
Chair: James Koltes, Iowa State University  
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  
1Dept. of Animal Science, Iowa 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, Moscow, ID
9:45 a.m. Breeding and Genetics Symposium: FAANG Break

10:00 a.m. 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 7, Elisabetta Giuffra 8
1GenPhySE, Université de Toulouse, INRA, INPT, ENVT, 2Université de Toulouse, INRA, INPT, ENV7, 3Curtin University, 4Université de Toulouse, INRA, 5INRA, Université Paris Saclay, 6, 7, 8INRA - laboratory of Animal Genetics and Integrative Biology

10:35 a.m. Mutli-omic data integration in quantitative genetics
Goto Morota 1
1Virginia Tech

11:10 a.m. Building a functional annotation of the equine genome
Jessica L. Petersen 1, Carrie J. Finno 2, Rebecca R. Bellone 3, Erin N. Burns 4, Nicole B. Kingsley 5, Ted Kalbfleisch 6, James N. MacLeod 7, Catherine Creppe 8, Donald C. Miller 9, Douglas F. Antczak 10
1University of Nebraska-Lincoln, 2University of California-Davis, 3University of California-Davis, 4University of California-Davis, 5University of California-Davis, 6University of Kentucky, 7University of Kentucky, 8Diagenode, 9Cornell University, 10Cornell University

Gary Allee Symposium
Chair: Joel Spencer, JBS United, Inc
9:00 AM - 12:00 PM
Grand Ballroom South

9:00 a.m. Gary Allee Symposium Introduction

9:05 a.m. Impact of weaning stress, disease, and diet on pig performance, intestinal function and integrity
Nicholas K. Gabler 1, Emma T. Helm 2, Carson De Mille 3
1Department of Animal Science, College of Agriculture and Life Sciences, Iowa State University, 2Iowa State University, 3Iowa State University

9:40 a.m. Observations on pre-weaning piglet mortality
Michael Ellis 1, Katherine D. Vande Pol 2, Naomi Cooper 3, Caleb M. Shull 4
1University of Illinois, 2University of Illinois, 3University of Illinois, 4The Maschhoffs

10:15 a.m. Gary Allee Symposium Break
10:30 a.m.   Feed, feeding levels, and tissue analytics of Vitamins: Observations from the field
Buddy Hinson 1, Ronny Moser 2, Matthew Ackerman 3, Rodger Main 4
1United Animal Health, 2United Animal Health, 3Pork Veterinary Solutions, 4Iowa State University

11:15 a.m.   Building a production nutrition department in an integrated production company: critical pillars for our success.
Kyle F. 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.   Lipid Nutrition and gut health of pigs
Charlotte Lauridsen 1
1Aarhus University

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

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.   David Baker Symposium Introduction
1:05 p.m.  44  Amino Acids in Livestock: A Historical Perspective
Keith D. Haydon 1, R. Dean Boyd 2
1CJ America-Bio, Downers Grove, IL, 2The Hanor Company, LLC

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 2, Steve S. Dritz 3, Jason C. Woodworth 4, Joel M. DeRouchey 5, Robert D. Goodband 6
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University, 6Kansas 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 Pilcher 2, Brooke Humphrey 3
1Cargill, Inc, 2Cargill Premix & 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

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 2, Barry J. Bradford 3
1Kansas State University, 2Kansas State University, 3Kansas 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
Characterization of the rumen bacterial communities of bison heifers maintained on a pasture-based diet
Anlly Miley, Fresno Rueda, Jason Griffin, Carter Kruse, Benoit St- Pierre
South Dakota State University, South Dakota State University, Turner Enterprises (Standing Butte Ranch), South Dakota State University

Identification and Genomic Characterization of two Novel Strains of Prevotella albensis as starch utilizers in the rumen of beef cows
Venkata Bandarupalli, Benoit St- Pierre
Department of Animal Science, South Dakota State University

Economic Comparison of March and May Calving Systems in the Nebraska Sandhills
Devin L. Broadhead, Matt Stockton, McKay Erickson, Jackie A. Musgrave, Rick N. Funston
University of Nebraska-Lincoln, West Central Research and Extension Center, University of Nebraska-Lincoln, West Central Research and Extension Center, University of Nebraska-Lincoln, West Central Research and Extension Center

Graduate Student Oral Competition: MS
1:45 PM - 4:50 PM

Assessment of allometric changes of visceral organs in pigs from birth to 10 kg bodyweight at 14 days post-weaning
Sarah K. Elefson, James C. Matthews, H. J. Monegue, Merlin D. Lindemann
University of Kentucky, University of Kentucky, University of Kentucky, University of Kentucky

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, Abigail R. Rathert, Heather Tucker, Allison M. Meyer
University of Missouri, University of Missouri, Novus International, University of Missouri
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 2, Benjamin M. Bohrer 3
1University of Guelph, 2University of Guelph, 3University of Guelph

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 3, S. K. Baidoo 4, Andres Gomez 5
1University of Minnesota, 2University of Minnesota, 3University of Minnesota, 4University of Minnesota, 5University of Minnesota

Low allergenic full fat soybean as a suitable replacement for fishmeal in weaned pig diets
Katelyn M. Zeamer 1, Ryan S. Samuel 2, Robert C. Thaler 3, Tofuko A. Woyengo 4, Crystal L. Levesque 5
1South Dakota State University, 2South Dakota State University, 3South Dakota State University, 4South Dakota State University, 5South Dakota State University

Graduate Student Oral Competition: MS Break

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 Dilger 5, Anna C. Dilger 6
1University of Illinois, 2University of Illinois at Urbana-Champaign, 3University of Illinois Urbana-Champaign, 4University of Illinois Urbana-Champaign, 5University of Illinois at Urbana-Champaign, 6University of Illinois Urbana-Champaign

Determining the effects of tryptophan biomass on growth performance of 11 to 23 kg nursery pigs
Madison R. Wensley 1, Jason C. Woodworth 2, Joel M. DeRouchey 3, Steve S. Dritz 4, Mike D. Tokach 5, Robert D. Goodband 6, Keith D. Haydon 7
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University, 6Kansas State University, 7CJ America-Bio, Downers Grove, IL

Impact of Myoglobin Oxygenation State at Freezing on Color Stability of Frozen and Thawed Beef
Morgan Henriott 1, Felipe Ribeiro 2, Kellen Hart 3, Nicolas Herrera 4, Nicolas Bland 5, Chris Calkins 6
1University of Nebraska, 2University of Nebraska, 3University of Nebraska, 4University of Nebraska, 5University of Nebraska, 6University of Nebraska
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. Schoonmaker 4  
1Purdue University, 2Alltech, 3Department of Animal Sciences, Purdue University, 4Department of Animal Sciences, Purdue University

4:20 p.m.  77  **Responses to alfalfa supplementation in mice**  
Krysten Fries-Craft 1, Justin Anast 2, Stephan Schmitz-Esser 3, Elizabeth A. Bobeck 4  
1Iowa State University, 2Iowa State University, 3Iowa State University, 4Iowa 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 2, Anthony Parker 3  
1The Ohio State University, 2Department of Animal Sciences, The Ohio State University, 3The Ohio State University

**Undergraduate Student Oral Competition II**  
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 2, Michael Gonda 3  
1South Dakota State University, 2South Dakota State University, 3South 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 4  
1Southern Illinois University at Carbondale, 2University of Illinois, 3University of Illinois, 4University of Illinois

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 A. Ireland 3, Keela M. Trenepohl 4, Joshua C. McCann 5, Daniel W. Shike 6  
1Western Illinois University, 2University of Illinois, 3University of Illinois, 4Western Illinois University, 5University of Illinois, 6University of Illinois

2:50 p.m.  367  **Organic versus conventional grain on placental factors in caprine**
Impact of an extended-release dewormer on fetal development and subsequent calf performance
1Department of Animal Science, South Dakota State University, 2Department of Animal Science, South Dakota State University, 3Department of Animal Science, South Dakota State University, 4Department of Animal Science, South Dakota State University, 5Department of Animal Science, South Dakota State University

Predicting Nitrogen and Phosphorous Flows in Beef Open Lots
Megan Homolka 1, Galen E. Erickson 2, Richard Koelsch 3
1UNIV OF NEBRASKA - LINCOLN, 2Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,, 3University of Nebraska-Lincoln

Effects of organic versus conventional diets on dystocia rates in Nubian dams
Matthew J. Soyland 1, Isabella V. Panetta 2, Bailey Armentrout-Shoaf 3, Christina Rocco 4, Toree Williams 5
1The University of Findlay, 2The University of Findlay, 3The University of Findlay, 4The University of Findlay, 5The University of Findlay

Undergraduate Student Oral Competition I
2:00 PM - 4:05 PM
211/212

Undergraduate Student Oral Competition I Introduction

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 4, Joshua C. McCann 5, Daniel W. Shike 6
1University of Illinois, 2University of Illinois, 3University of Illinois, 4University of Illinois, 5University of Illinois, 6University of Illinois

Effects of organic versus conventional diets on dam and kid weight in Nubian caprine
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 2, Cassandra K. Jones 3, Joel M. DeRouchey 4, Mike D. Tokach 5, Steve S. Dritz 6, Robert D. Goodband 7, Brent Frederick 8
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University, 6Kansas State University, 7Kansas State University, 8Christensen Farms

2:50 p.m. 358 Comparison of analytical methods for determination of nutrient concentration in beef cow colostrum and milk
Abigail R. Rathert 1, Emma L. Stephenson 2, Ann L. Kenny 3, Allison M. Meyer 4
1University of Missouri, 2University of Missouri, 3University of Missouri, 4University of Missouri

3:05 p.m. 359 Determination of relative bioavailability of copper from GemStone® copper in growing beef steers
Gabrielle DiRusso 1, Emma Niedermayer 2, Stephanie L. Hansen 3
1Iowa State University, 2Iowa State University, 3Iowa 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 2, Blaire Todd 3, Nicholas K. Gabler 4
1Iowa State University, 2Iowa State University, 3Iowa State University, 4Department of Animal Science, College of Agriculture and Life Sciences, Iowa 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, Mahfuz Abdullah 3, Mohan Dasari 4, Chad W. Hastad 5
1New Fashion Pork, 2Feed Energy Company, 3Feed Energy Company, 4Feed Energy Company, 5New 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 2, Joel M. DeRouchey 3, Jason C. Woodworth 4, Steve S. Dritz 5, Mike D. Tokach 6, Robert D. Goodband 7, Andrew Holtcamp 8
Kansas State University, Kansas State University, Kansas State University, Kansas State University, Kansas State University, Kansas State University, Kansas State University, Ceva Animal Health, LLC.

Graduate Student Oral Competition: PHD II
2:30 PM - 4:20 PM
216

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

2:35 p.m. Inclusion of GuarPro F-71 in a corn and soybean meal based diet: Effects on growth performance and nutrient metabolism in growing pigs
M. Shamimul Hasan, Rebecca M. Humphrey, Mark A. Crenshaw, James Brett, Shengfa F. Liao
1Department of Animal & Dairy Sciences, Mississippi State University, 2Department of Animal & Dairy Sciences, Mississippi State University, 3Department of Animal & Dairy Sciences, Mississippi State University, 4Department of Veterinary Pathobiology & Population Medicine, Mississippi State University, 5Dept of Animal & Dairy Sciences, Mississippi State University

2:50 p.m. 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, Maci Oelschlager, Melissa Hannas, Muhammad Shameer Abdul Rasheed, Ryan Dilger
1University of Illinois at Urbana-Champaign, 2University of Illinois at Urbana-Champaign, 3Universidade Federal de Viscosa (UFV), 4University of Illinois at Urbana-Champaign, 5University of Illinois at Urbana-Champaign

3:05 p.m. Host genetics help shape the rumen microbiome in beef cattle
Waseem Abbas, Jeremy T. Howard, Henry A. Paz, Kristin E. Hales, James E. Wells, Larry A. Kuehn, Matthew L. Spangler, Galen E. Erickson, Samodha C. Fernando
1Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA, 2Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA, 3Department of Animal and Dairy Science, Mississippi State University, MS, USA, 4Meat Animal Research Center, Clay Center, NE 68933, 5Meat Animal Research Center, Clay Center, NE 68933, 6USDA-ARS, U.S. Meat Animal Research Center, 7Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA, 8Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA, 9Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA
3:20 p.m.  90  The influence of supplemental zinc, zinc source, and dietary energy level on performance measures of beef steers
Remy N. Carmichael 1, Stephanie L. Hansen 2, Olivia Genther-Schroeder 3
1Iowa State University, 2Iowa State University, 3Iowa State University

3:35 p.m.  95  The effect of incremental dietary energy density from 13.8 to 15.9 MJ DE/kg on piglet vitality and growth to weaning
Hazel B. Rooney 1, Keelin O'Driscoll 2, John O'Doherty 3, Peadar Lawlor 4
1Teagasc & University College Dublin, 2Teagasc, 3University College Dublin, 4Teagasc

3:50 p.m.  92  Intra-nasal oxytocin treatment does not attenuate the hypothalamo-pituitary-adrenal axis in beef heifers subjected to isolation stress or restraint and isolation stress
Brooklyn Wagner 1, Alejandro E. Relling 2, Justin Kieffer 3, Anthony Parker 4
1The Ohio State University, 2Department of Animal Sciences, The Ohio State University, 3The Ohio State University, 4The Ohio State University

4:05 p.m.  91  Effects of antibiotics on growth performance, diarrhea, and bacterial translocation in weanling pigs experimentally infected with a pathogenic E. coli
Kwangwook Kim 1, Yijie He 2, Cynthia Jinno 3, Seijoo Yang 4, Minho Song 5, Peng Ji 6, Yanhong Liu 7
1University of California, Davis, 2University of California, Davis, 3University of California, Davis, 4University of California, Davis, 5Chungnam National University, 6University of California, Davis, 7University of California, Davis

Graduate Student Oral Competition: PHD I
2:30 PM - 4:35 PM
214

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

2:35 p.m.  86  Impact of steeping corn DDGS over 72 hours without or with fiber degrading enzymes and protease alone or in combination on concentration of sugars and organic acids and pH in the liquid medium
Youngji Rho 1, Rob Patterson 2, Elijah Kiarie 3
1University of Guelph, 2Canadian Bio-Systems Inc., 3University of Guelph

2:50 p.m.  88  Effects of cattle breed, Holstein versus Angus, and corn grain processing on diet digestibility and ruminal pH
Pedro Carvalho 1, Tara Felix 2, Flavia Sales Silva 3
1The Pennsylvania State University, 2The Pennsylvania State University, 3The Pennsylvania State University
3:05 p.m. 85  **Effects of feed removal on body temperature and intestinal morphology in pigs recovering from acute hyperthermia**  
Kouassi R. Kpodo¹, Alan W. Duttlinger², Matthew P. Aardsma³, Jacob M. Maskal⁴, Jay S. Johnson⁵  
¹Purdue University, ²Purdue University, ³Purdue University, ⁴Purdue University, ⁵USDA-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. Ault¹, Brooke A. Clemmons², Sydney T. Reese³, Gessica A. Franco⁴, Felipe G. Dantas⁵, Liesel G. Schneider⁶, Timothy P.L. Smith⁷, J L. Edwards⁸, Phillip R. Myer⁹, Ky G. Pohler¹⁰  
¹University of Tennessee, ²University of Tennessee, ³Texas A&M University, ⁴Texas A&M University, ⁵University of Tennessee, ⁶University of Tennessee, ⁷USDA-ARS, U.S. Meat Animal Research Center, ⁸University of Tennessee, ⁹University of Tennessee, ¹⁰Texas A&M University

3:35 p.m. 84  **Improving dietary amino acid balance reduces heat production in lactating sows exposed to heat stress**  
Sai Zhang¹, Jay S. Johnson², Nathalie L. Trottier³  
¹Michigan State University, ²USDA-ARS Livestock Behavior Research Unit, ³Michigan State University

3:50 p.m. 83  **Lifelong dynamics of the swine gut microbiome: from birth to market.**  
Xiaofan Wang¹, Tsung Cheng. Tsai², Charles V. Maxwell³, Jiangchao Zhao⁴  
¹University of Arkansas, ²University of Arkansas - Fayetteville, Dale Bumpers College of Agriculture, Department of Animal Science, ³University of Arkansas - Fayetteville, ⁴University of Arkansas - Fayetteville

4:05 p.m. 82  **Glucocorticoid receptor agonist (GRA): an alternative to in-feed antibiotics (ANT) for newly weaned pigs**  
Hailey Wooten¹, John J. McGlone², Arlene Garcia³, Amanda R. Rakhshandeh⁴, Anoosh Rakhshandeh⁵  
¹Texas Tech University, ²Texas Tech University, ³Texas Tech University, ⁴South Plains College, ⁵Texas Tech University

4:20 p.m. 81  **Increasing withdrawal duration of corn distillers dried grains with solubles on finishing pig performance and carcass characteristics**  
Annie B. Lerner¹, Mike D. Tokach², Jason C. Woodworth³, Joel M. DeRouchey⁴, Steve S. Dritz⁵, Robert D. Goodband⁶, Matt W. Allerson⁷  
¹Kansas State University, ²Kansas State University, ³Kansas State University, ⁴Kansas State University, ⁵Kansas State University, ⁶Kansas State University, ⁷Holden Farms Inc.
The use of low antioxidant mineral concentrations in the growing diet as a method to increase marbling deposition in feedlot cattle
Jerad R. Jaborek 1, Alejandro E. Relling 2
1Department of Animal Sciences, The Ohio State University, 2Department of Animal Sciences, The Ohio State University

Effect of supplemental vitamin E in feedlot receiving diets on steer performance and immune function
Erin L. Deters 1, Stephanie L. Hansen 2
1Iowa State University, 2Iowa State University

Supplemental copper concentration and feed restriction influence plasma metabolome of growing beef steers
Katherine VanValin 1, Stephanie L. Hansen 2
1Iowa State University, 2Iowa State University

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 USA LLC, 2Bos Technica Research Services, Inc.

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 2, Erin L. Deters 3, Elizabeth M. Messersmith 4, Katherine VanValin 5, Stephanie L. Hansen 6
1Iowa State University, 2Iowa State University, 3Iowa State University, 4Iowa State University, 5Iowa State University, 6Iowa State University

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

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  
Upstream Brewing - 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

Student Breakfast and Learn
7:30 AM - 8:30 AM
Saint Nicholas A/B

ARPAS Exams
7:30 AM - 9:30 AM
Murray

Tuesday Upload Room Hours
7:30 AM - 5:00 PM
215

Beef & Small Ruminant Livestock
Chair: Eric Bailey
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 2, Karol E. Fike 3, Maggie J. Smith 4, Kevin L. Hill 5, Glenn M. Rogers 6, Kenneth G. Odde 7
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Merck Animal Health, 6Grassy Ridge Consulting, 7Kansas State University

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 2, Mike E. King 3, Karol E. Fike 4, Kevin L. Hill 5, Glenn M. Rogers 6, Kenneth G. Odde 7
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Merck Animal Health, 6Grassy Ridge Consulting, 7Kansas State University
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 4, Daniel W. Shike 5
1University of Illinois, 2University of Illinois, 3University of Illinois, 4University of Illinois, 5University of Illinois

Animal Behavior, Welfare and Housing I
Chair: Yolande Seddon
8:30 AM - 9:45 AM
201

8:30 a.m.  5 Effect of feeding time on behavioral and stress responses in gestation sows under isocaloric conditions
Hayford Manu 1, S. H. Lee 2, Q Huang 3, D Pangeni 4, M. C. Keyes 5, J. Cairns 6, S. K. Baidoo 7
1University of Minnesota, 2University of Minnesota, 3University of Minnesota, 4University of Minnesota, 5Remote Insights, 6Remote Insights, 7University of Minnesota

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 Lou 2, Michael Reese 3, Eric Buchanan 4, Lee J. Johnston 5
1University of Minnesota, 2University of Minnesota, 3University of Minnesota, 4University of Minnesota, 5University 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 Cooper 2, Andres Tolosa 3, Michael Ellis 4, Caleb M. Shull 5, Katie Brown 6, Stephan Alencar 7
1University of Illinois, 2University of Illinois, 3University of Illinois, 4University of Illinois, 5The Maschhoffs, 6The Maschhoffs, 7Doutorando 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 Cooper 1, Katherine D. Vande Pol 2, Michael Ellis 3, Yijie Xiong 4, Richard Gates 5
1University of Illinois, 2University of Illinois, 3University of Illinois, 4University of Illinois, 5University of Illinois

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 M. Harper 1, Rachel Schmitt 2, Michael Ellis 3, Caleb M. Shull 4, Clint R. Schwab 5
Metabolizable protein requirement of lightweight beef calves
Miles D. Redden 1, Daniel W. Shike 2, Joshua C. McCann 3
1University of Illinois, 2University of Illinois, 3University of Illinois

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 3, Galen E. Erickson 4
1University of Nebraska - Lincoln, 2University of Nebraska - Lincoln, 3University of Nebraska - Lincoln, 4Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

Effects of ruminally-protected lysine and Megasphaera elsdenii on performance and carcass characteristics of finishing cattle
Vanessa Veloso 1, Lucas Horton 2, Adrian Baker 3, Celine Aperce 4, James Drouillard 5
1Kansas State University, 2Kansas State University, 3Kansas State University, 4MS Biotec, 5Kansas State University

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 Klopfenstein 4, Zachary E. Carlson 5, Henry Hilscher 6, Levi McPhillips 7, Hannah C. Wilson 8
1University of NE - Lincoln, 2Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,, 3University of Nebraska - Lincoln, 4University of Nebraska-Lincoln, 5University of Nebraska - Lincoln, 6University of Nebraska - Lincoln, 7University of Nebraska-Lincoln, 8University of Nebraska - Lincoln

Effects of Supplemental SoyPass in Forage-based Diets Containing Distillers Grains on Performance of Growing Steers
Tyler J. Spore 1, Zachary E. Carlson 2, Galen E. Erickson 3, Terry Klopfenstein 4, Andrea K. Watson 5
1University of Nebraska-Lincoln, 2University of Nebraska - Lincoln, 3Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,, 4University of Nebraska-Lincoln, 5University of Nebraska - Lincoln
Chair: Dustin Mohrhauser
8:30 AM - 10:05 AM
216


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 4, Andrzej Sosnicki 5
1Pig Improvement Company, Inc., 2PIC, 3PIC, 4PIC, 5PIC

9:15 a.m.  102 Developing Industry-Relevant Academic Research Programs in Meat Science
Devin Gredell 1, Heather Rode 2, David McKenna 3
1Tyson Fresh Meats, Inc., 2Tyson Fresh Meats, Inc., 3Tyson Fresh Meats, Inc.

9:35 a.m.  101 Merging Graduate Student Training and Industry Research Needs
Roger Johnson 1
1


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 2, Mohamed Abedal-Majed 3, Sarah Tenley 4, Mariah Hart 5, Alexandria Snider 6, Jeff Bergman 7, Scott Kurz 8, John Davis 9, Jennifer Wood 10, Adam Summers 11
1University of Nebraska-Lincoln, 2University of Nebraska-Lincoln, 3University of Jordan, 4University of Nebraska-Lincoln, 5University of Nebraska-Lincoln, 6University of Nebraska-Lincoln, 7University of Nebraska-Lincoln, 8University of Nebraska-Lincoln, 9University of Nebraska Medical Center, 10University of Nebraska-Lincoln, 11New 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, 2Texas A&M AgriLife Research

10:05 a.m. Physiology Symposium Panel

Physiology: Reproductive Physiology
Chair: Jordan Thomas, Animal Science, 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 2, Clay A. Lents 3

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 M. Minton 3, Clint R. Schwab 4, Caleb M. Shull 5, Steve Buysse 6, Mike E. Johnston 7, Catherine M. Roaten 8, Stephen K. Webel 9
1University of Illinois, 2University of Illinois, 3The Maschhoffs, 4The Maschhoffs, 5The Maschhoffs, 6United Animal Health, 7United Animal Health, 8United Animal Health, 9United 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 R. Miles 2
1USDA, ARS, USMARC, 2USDA, ARS, USMARC

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 Cederberg 2, Ginger Mills 3, Brett White 4
1University of Central Missouri, 2University of Nebraska-Lincoln, 3University of Nebraska-Lincoln, 4University 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 J.J. Rich ¹, Emmalee J. Northrop ², Kaitlin M. Epperson ³, Saulo Menegatti Zoca ⁴, Stephanie D. Perkins ⁵, Julie A. Walker ⁶, Claire L. Timlin ⁷, Nicholas W. Dias ⁸, Vitor R. G. Mercadante ⁹, George A. Perry ¹⁰
¹Department of Animal Science, South Dakota State University, ²Department of Animal Science, South Dakota State University, ³Department of Animal Science, South Dakota State University, ⁴Department of Animal Science, South Dakota State University, ⁵Department of Animal Science, South Dakota State University, ⁶Department of Animal Science, South Dakota State University, ⁷Department of Animal and Poultry Science, Virginia Tech, ⁸Department of Animal and Poultry Science, Virginia Tech, ⁹Department of Animal and Poultry Science, Virginia Tech, ¹⁰Department of Animal Science, South Dakota State University

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, ²University of Nebraska-Lincoln, West Central Research and Extension 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

10:30 a.m.  215  Influence of BVDV exposure on AI conception and breeding season pregnancy success in beef herds
Kaitlin M. Epperson ¹, Jerica J.J. Rich ², Saulo Menegatti Zoca ³, Stephanie D. Perkins ⁴, Emmalee J. Northrop ⁵, Russell F. Daly ⁶, Julie A. Walker ⁷, Jim R. Rhoades ⁸, George A. Perry ⁹
¹Department of Animal Science, South Dakota State University, ²Department of Animal Science, South Dakota State University, ³Department of Animal Science, South Dakota State University, ⁴Department of Animal Science, South Dakota State University, ⁵Department of Animal Science, South Dakota State University, ⁶Veterinary & Biomedical Sciences, South
Nonruminant Nutrition: Feed Additives II: Nursery
Chair: Nicholas Gabler, Department of Animal Science, College of Agriculture and Life Sciences, Iowa State University
8:30 AM - 11:15 AM

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 3, Crystal L. Loving 4, Stephan Schmitz-Esser 5, John F. Patience 6
1Dept. of Animal Science, Iowa State University, 2Department of Animal Science, College of Agriculture and Life Sciences, Iowa State University, 3Iowa State University, 4USDA-ARS-National Animal Disease Center, 5Iowa State University, 6Dept. of Animal Science, Iowa State University

9:00 a.m.  133  **Effect of a proprietary medium chain fatty acid blend on nursery pig performance**
Dillon Mellick 1, Ana De Souza 2, Vanessa Iseri 3, Venkatesh Mani 4
1Kemin Industries, 2Kemin Industries, 3Kemin Industries, 4Kemin Industries

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 L. Becker 1, Qingyun Li 2, Eric R. Burrough 3, John F. Patience 4
1Dept. of Animal Science, Iowa State University, 2Dept. of Animal Science, Iowa State University, 3Iowa State University, 4Dept. of Animal Science, Iowa State University

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 4, Sarah A. Weiland 5
1North Carolina State University, 2Livestock Veterinary Services, 3NutriQuest, 4NutriQuest, 5NutriQuest

10:00 a.m.  134  **Evaluation of a medium chain fatty acid-based feed additive for nursery pigs**
Lori L. Thomas 1, Hayden E. Williams 2, Jason C. Woodworth 3, Mike D. Tokach 4, Robert D. Goodband 5, Steve S. Dritz 6, Joel M. DeRouchey 7, Dillon Mellick 8
The effect of Activo Liquid supplemented via the water against Mecadox 50 on Nursery Pig's Growth Performance and Survival
Rafael A. Cabrera
EW Nutrition USA, Inc.

Effects of Bacillus spp. probiotics on systemic immunity and intestinal health of weaned pigs experimentally infected with an enterotoxigenic Escherichia coli
Yijie He, Kwangwook Kim, Cynthia Jinno, Zhaohai Wu, Rose Whelan, Kiran Doranalli, Yanhong Liu
University of California, Davis, University of California, Davis, University of California, Davis, Evonik Nutrition & Care GmbH, Evonik Nutrition & Care GmbH, University of California, Davis

The effects of functional feed additive proteins with or without antibiotics on the growth and health status of nursery pigs
Leigh A. Ruckman, John F. Patience
Dept. of Animal Science, Iowa State University, Dept. of Animal Science, Iowa State University

Effects of a Bacillus-based probiotic and prebiotics on nursery pig performance, fecal consistency, and fecal microflora
Mariana Boscato Menegat, Michaela B. Braun, Joel M. DeRouchey, Jason C. Woodworth, Jim Bryte, Mike D. Tokach, Steve S. Dritz, Robert D. Goodband
Kansas State University, Kansas State University, Kansas State University, Kansas State University, Kansas State University, Quality Technology International, Inc., Kansas State University, Kansas State University

Comparative transcriptomic analysis between Total RNA and mRNA isolated from feces of neonatal dairy calves
Johan S. Osorio, Fernanda Rosa
South Dakota State University, South Dakota State University

Depriving piglets of maternal feces changes piglet physiology and performance before and after weaning

9:00 a.m. 193 Characterisation of poor gastrointestinal tract development in gilt progeny
Danni A. Wijesiriwardana 1, Jessica Craig 2, Mitchell Ringuet 3, Linda Fothergill 4, Kirrily O'Halloran 5, Diana Turpin 6, Lynette Munoz 7, Cherie Collins 8, John B. Furness 9, John Pluske 10, Jeremy Cottrell 11, Frank R. Dunshea 12
1University of Melbourne, 2Rivalea Australia, 3University of Melbourne, 4University of Melbourne, 5Rivalea, 6Murdoch University, 7University of Melbourne, 8Rivalea Australia, 9Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Parkville, Australia, 10Murdoch University, 11University of Melbourne, 12Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Parkville, Australia

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-Fimbres 3, Duckens Antoine 4, Ernesto Avelar 5, Lucero Camacho 6, Lorenzo Buenabad 7
1Universidad Autónoma de Baja California, 2UABC, 3UABC, 4UABC, 5Universidad Autónoma, 6UABC, 7Universidad Autónoma

9:30 a.m. 196 Direct comparison of human microbiota-associated (HMA) gnotobiotic piglet and mouse models
Nirosh D. Aluthge 1, Wesley A. Tom 2, Alison C. Bartenslager 3, Thomas E. Burkey 4, Kelly D. Heath 5, Craig Kreikemeier-Bower 6, Hatem Kittana 7, Amanda E. Ramer-Tait 8, Samodha C. Fernando 9
1Department of Animal Science, University of Nebraska-Lincoln, 2School of Biological Sciences, University of Nebraska-Lincoln, 3Department of Animal Science, University of Nebraska-Lincoln, 4Department of Animal Science, University of Nebraska-Lincoln, 5University of Nebraska-Lincoln, 6University of Nebraska-Lincoln, 7Department of Food Science and Technology, University of Nebraska-Lincoln, 8Department of Food Science and Technology, University of Nebraska-Lincoln, 9Department of Animal Science, 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 James 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 2, Blaire Todd 3, Nicholas K. Gabler 4
1Iowa State University, 2Iowa State University, 3Iowa State University, 4Department of Animal Science, College of Agriculture and Life Sciences, Iowa 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 1, Erin A. Horst 2, Mohmmad Al-Qaisi 3, Carrie S. McCarthy 4, Brady M. Goetz 5, Megan A. Abeyta 6, Samantha Lei 7, Jesus A. Acosta 8, John F. Patience 9, Lance H. Baumgard 10
1Iowa State University, 2Iowa State University, 3Iowa State University, 4Iowa State University, 5Iowa State University, 6Iowa State University, 7Iowa State University, 8Dept. of Animal Science, Iowa State University, 9Dept. of Animal Science, Iowa State University, 10Iowa State University

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 2, Nicholas K. Gabler 3
1Iowa State University, 2Department of Animal Science, College of Agriculture and Life Sciences, Iowa 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 3
1South Dakota State University, 2Universita Cattolica del Sacro Cuore, 3South Dakota State University

Nonruminant Nutrition Symposium: Nursery Pig Nutrition and Health
Chair: William Oliver, USDA, ARS, USMARC
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 2
1Iowa State University, 2Department of Animal Science, College of Agriculture and Life Sciences, Iowa State University

9:05 a.m. 115 Negative Impacts of Early Weaning on Lifelong Gut Health in the Pig.
Adam James Moeser 1, Yihang Li 2, Mrigendra Rajput 3, Kyan Thelen 4
Pathogen shedding in feces of nursery swine
James E. Wells 1, Elaine Berry 2, William T. Oliver 3
1Meat Animal Research Center, Clay Center, NE 68933,, 2USDA ARS, 3USDA, ARS, USMARC

Nonruminant Nutrition Symposium: Nursery Pig Nutrition and Health Break

Role of fiber in promoting health in nursery pigs
Ruurd T. Zijlstra 1, Janelle M. Fouhse 2, Charlotte Maria Elisabeth. Heyer 3, Felina Tan 4, Thavaratnam Vasanthan 5, Eduardo Beltranena 6, Michael G. Gänzle 7
1Department of Agricultural, Food and Nutritional Science, University of Alberta, University of Alberta, 2University of Alberta, 3University of Alberta, 4University of Alberta, 5University of Alberta, 6Alberta Agriculture and Forestry, 7University of Alberta

Beyond the gut: Systemic effects of the swine gut microbiome
Andres Gomez 1
1University of Minnesota

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 2, Karla Rodriguez-Hernandez 3, Rhea D. Lawrence 4, Nirosh D. Senevirathne 5
1SDSU, 2SDSU, 3CIRNOC-INIFAP, 4SDSU, 5SDSU

Feedstuff fatty acid content, variation, techniques and implications on practical animal nutrition
Cliff Ocker 1
1Rock River Laboratory, Inc

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 Looor 2, Fernanda Batistel 3, Michael A. Ballou 4, Claudia Parys 5, X Y. Pan 6, Erminio Trevisi 7
1University of Illinois- Urbana Champaign, 2, 3University of Illinois Urbana-Champaign, 4Texas Tech University, 5Evonik Nutrition & Care GmbH, 6University of Illinois Urbana-Champaign, 7Universita 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 Albornoz 1, Michael Allen 2
1Agriculture Victoria Research, 2Michigan State University

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

9:30 a.m.  DSM Symposium: Introduction

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

10:00 a.m.  Reducing phosphorus requirements in horses
Ashley Fowler 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
1University of II-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
1University of Kentucky

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

Animal Behavior, Welfare and Housing II
Chair: Yolande Seddon
10:00 AM - 11:00 AM
201

10:00 a.m. 10 A Field Study to Investigate the Effect of Zuprevo Administered Alone or in Combination with Banamine Transdermal on the Health and Well-Being of Transported Feedlot Calves on Arrival at the Feedlot
Miriam S. Martin 1, Michael Kleinhenz 2, Katie Kleinhenz 3, Emily Reppert 4, Dale Blasi 5, Timothy Parks 6, Angela Baysinger 7, John Hutcheson 8, Johann Coetzee 9
1Kansas State University College of Veterinary Medicine, 2Kansas State University College of Veterinary Medicine, 3Kansas State University College of Veterinary Medicine, 4Kansas State University College of Veterinary Medicine, 5Kansas State University, 6Merck Animal Health, 7Merck Animal Health, 8Merck Animal Health, 9Kansas State University College of Veterinary Medicine

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 3, D Pangeni 4, M. C. Keyes 5, J. Cairns 6, S. K. Baidoo 7
1University of Minnesota, 2University of Minnesota, 3University of Minnesota, 4University of Minnesota, 5Remote Insights, 6Remote Insights, 7University of Minnesota

10:30 a.m. 11 Use of pressure mat gait analysis in measuring pain following normal parturition in dairy cows
Michael Kleinhenz 1, Patrick Gorden 2, Michael Burchard 3, Joshua Ydstie 4, Johann Coetzee 5
1Kansas State University College of Veterinary Medicine, 2Iowa State University College of Veterinary Medicine, 3Iowa State University College of Veterinary Medicine, 4Iowa State University College of Veterinary Medicine, 5Kansas State University College of Veterinary Medicine

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
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 P. Caetano 1, Luan S. Santos 2, John K. Htoo 3, Alini M. Veira 4, Welex C. Silva 5, Jaqueline P. Gobi 6, Alicia Z. Fraga 7, Paulo H. R. F. Campos 8, Nei A. A. Barbosa 9, Luciano Hauschild 10
1São Paulo State University, 2São Paulo State University, 3Evonik Nutrition & Care Gmbh, 4São Paulo State University, 5São Paulo State University, 6São Paulo State University, 7São Paulo State University, 8Universidade Federal de Viçosa, 9Evonik Degussa Brasil, 10São Paulo State University

10:15 a.m. 117  **Determining high-lysine sorghum amino acid digestibility and the effects on nursery pig performance**
Lori L. Thomas 1, Robert D. Goodband 2, Charmaine D. Espinosa 3, Hans H. Stein 4, Jason C. Woodworth 5, Mike D. Tokach 6, Steve S. Dritz 7, Joel M. DeRouchey 8
1Kansas State University, 2Kansas State University, 3University of Illinois at Urbana-Champaign, 4University of Illinois at Urbana-Champaign, 5Kansas State University, 6Kansas State University, 7Kansas State University

10:30 a.m. 120  **Effects of dietary leucine concentration on branched-chain amino acid metabolism in growing pigs**
Woong B. Kwon 1, Kevin J. Touchette 2, Aude Simongiovanni 3, Kostas Syriopoulos 4, Anna Wessels 5, Hans H. Stein 6
1University of Illinois at Urbana-Champaign, 2AJINOMOTO ANIMAL NUTRITION NORTH AMERICA, INC., 3Ajinomoto Animal Nutrition Europe, 4Ajinomoto Animal Nutrition Europe, 5Freie Universität Berlin, 6University 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 3, John K. Htoo 4, Olayiwola Adeola 5
1Purdue University, 2Evonik Nutrition & Care Gmbh, 3Evonik Nutrition & Care Gmbh, 4Evonik Nutrition & Care Gmbh, 5Purdue University

11:00 a.m. 116  **Direct vs. difference method to determine amino acid digestibility in ingredients fed to pigs**
Maryane S. Faria de Oliveira 1, John K. Htoo 2, Hans H. Stein 3
1University of Illinois at Urbana-Champaign, 2Evonik Nutrition & Care GmbH, 3University of Illinois at Urbana-Champaign

**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

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

12:50 p.m.  16 **Long-term immune and metabolic consequences of a disrupted early life microbiota**
Benjamin P. Willing 1
1University of Alberta

**Nonruminant Nutrition: Feed Additives I**
**Chair: Dan Jones, Archer Daniels Midland Company**
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 3
1BASF, 2Integrated Farm Research, Inc., 3Integrated 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 Padilla 2, Jeffrey Wiegert 3, Consuelo Arellano 4, R. Dean Boyd 5, Eric van Heugten 6
1Department of Animal Science, North Carolina State University, 2Department of Animal Science, North Carolina State University, 3Department of Animal Science, North Carolina State University, 4Department of Statistics, North Carolina State University, 5The Hanor Company, LLC, 6Department of Animal Science, North Carolina State University

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 DeRodas 4, Theodore Karnezos 5

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 3, Maamer Jlali 4, Pierre Cozannet 5, Aurélie Preynat 6, Tofuko A. Woyengo 7
1SOUTH DAKOTA STATE UNIV, ANIMAL & RANGE SCIENCES, 2SOUTH DAKOTA STATE UNIV, ANIMAL & RANGE SCIENCES, 3SOUTH DAKOTA STATE UNIV, ANIMAL & RANGE SCIENCES, 4Adisseo France S.A.S., Center of Expertise and Research in Nutrition, 5Adisseo France S.A.S., Center of Expertise and Research in Nutrition, 6Adisseo France S.A.S., Center of Expertise and Research in Nutrition, 7South Dakota State University

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 3
1BASF, 2Integrated Farm Research, Inc., 3Integrated 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 3, Hans H. Stein 4
1University of Illinois at Urbana-Champaign, 2Micronutrients, Inc., 3Micronutrients, Inc.,
4University of Illinois at Urbana-Champaign

3:15 p.m. 121 Dietary astragalus membranaceus and codonopsis pilosula extracts supplementation increases growth performance and FMD antibody titers in growing-finishing pigs
Jemin Ahn 1, Lei Cheng 2, In Ho Kim 3
1Dankook Univ., 2Dankook Univ., 3Dankook Univ.

Nonruminant Nutrition: Feed Additives I
Chair: Dan Jones, Archer Daniels Midland Company
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 3
1BASF, 2Integrated Farm Research, Inc., 3Integrated Farm Research, Inc.,
1:45 p.m.  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 Padilla 2, Jeffrey Wiegert 3, Consuelo Arellano 4, R. Dean Boyd 5, Eric van Heugten 6
1Department of Animal Science, North Carolina State University, 2Department of Animal Science, North Carolina State University, 3Department of Animal Science, North Carolina State University, 4Department of Statistics, North Carolina State University, 5The Hanor Company, LLC, 6Department of Animal Science, North Carolina State University

2:00 p.m.  The effect of feeding Ambitine™ Feed Additive on late finishing pig performance.
Stacie Crowder 1, Terry Weeden 2, Benjamin Bass 3, Brenda DeRodas 4, Theodore Karnezos 5

2:15 p.m.  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 3, Maamer Jlali 4, Pierre Cozannet 5, Aurélie Preynat 6, Tofuko A. Woyengo 7
1SOUTH DAKOTA STATE UNIV, ANIMAL & RANGE SCIENCES, 2SOUTH DAKOTA STATE UNIV, ANIMAL & RANGE SCIENCES, 3SOUTH DAKOTA STATE UNIV, ANIMAL & RANGE SCIENCES, 4Adisseo France S.A.S., Center of Expertise and Research in Nutrition, 5Adisseo France S.A.S., Center of Expertise and Research in Nutrition, 6Adisseo France S.A.S., Center of Expertise and Research in Nutrition, 7South Dakota State University

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

2:45 p.m.  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 3
1BASF, 2Integrated Farm Research, Inc, 3Integrated Farm Research, Inc

3:00 p.m.  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 3, Hans H. Stein 4
1University of Illinois at Urbana-Champaign, 2Micronutrients, Inc., 3Micronutrients, Inc., 4University of Illinois at Urbana-Champaign
Dietary astragalus membranaceus and codonopsis pilosula extracts supplementation increases growth performance and FMD antibody titers in growing-finishing pigs
Jemin Ahn ¹, Lei Cheng ², In Ho Kim ³
¹Dankook Univ., ²Dankook Univ., ³Dankook Univ.

Ruminant Nutrition: Feedlot: Nutrition and Management
Chair: Tara Felix, The Pennsylvania State University
1:30 PM - 3:30 PM
213

Impact of bunk management strategy on animal performance, carcass characteristics, and hydrogen sulfide gas concentrations in steers fed modified distillers grains with solubles
Leslie Lekatz ¹, Bryan Neville ²
¹University of Minnesota Crookston, ²North Dakota State University

Evaluation of reimplant timing with Revalor-200 on steer performance and carcass characteristics
Caitlin A. Coulson ¹, Bradley M. Boyd ², Henry Hilscher ³, Brandon L. Nuttelman ⁴, Grant I. Crawford ⁵, James C. MacDonald ⁶, Galen E. Erickson ⁷
¹University of Nebraska - Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska - Lincoln, ⁴Merck Animal Health, ⁵Merck Animal Health, ⁶University of Nebraska - Lincoln, ⁷Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

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. Jordon ³, Robert Cooper ⁴, Tony Scott ⁵, Sheri Bundy ⁶, Gary Sides ⁷, Ralph Cleale ⁸
¹University of NE - Lincoln, ²Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA, ³Cattlemen’s Nutrition Services, LLC, ⁴Cattlemen’s Nutrition Services, LLC, ⁵Cattlemen’s Nutrition Services, LLC, ⁶Cattlemen’s Nutrition Services, LLC, ⁷Zoetis, ⁸Zoetis

Effects of high protein DDGS in SFC or DRC-based diets on nutrient digestibility and ruminal fermentation characteristics
Lauren Ovinge ¹, Mitch Norman ², Kaylee Wheeler ³, Galen E. Erickson ⁴
¹University of Nebraska-Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska-Lincoln, ⁴Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

Impact of Corn Silage Level on Finishing Cattle Nutrient Digestion, pH Characteristics, and Feeding Behavior
Hannah C. Wilson, Melissa L. Jolly-Breithaupt, Andrea K. Watson, James C. MacDonald, Galen E. Erickson
University of Nebraska - Lincoln, University of Nebraska - Lincoln, University of Nebraska - Lincoln, University of Nebraska - Lincoln, Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

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, Henry Hilscher, Zachary E. Carlson, Bradley M. Boyd, Andrea K. Watson, James C. MacDonald, Galen E. Erickson
University of Nebraska - Lincoln, University of Nebraska - Lincoln, University of Nebraska - Lincoln, University of Nebraska - Lincoln, University of Nebraska - Lincoln, University of Nebraska - Lincoln, Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

3:00 p.m. 222 **Effect of corn stalk inclusion rate on performance and rumination behavior in beef steers**
Jenny S. Jennings, Catherine L. Lockard, Ty E. Lawrence
Texas A&M AgriLife Research, Texas A&M AgriLife Research, West Texas A&M University

3:15 p.m. 221 **Optimizing sugar inclusion in high roughage diets for growing cattle**
Allison VanDerWal, Josh Zeltwanger, Alfredo DiCostanzo
University of Minnesota, University of Minnesota, University of Minnesota

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**Animal Behavior, Housing and Well-Being/Nonruminant Nutrition Symposium: New and High-Tech: Technologies and Their Application to the Animal Industry**
Chair: Yolande Seddon
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
USDA-ARS-MARC

2:25 p.m. 3 **Deep Frame-based tracking on nursery pigs**
Ty Schmidt, Eric Psota, Benny Mote, Lance Perez, Mateus Mittek
University of Nebraska-Lincoln, University of Nebraska - Lincoln, University of Nebraska - Lincoln, University of Nebraska-Lincoln, 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 2, Matthew L. Spangler 3
1University of Nebraska-Lincoln, 2University of Nebraska-Lincoln, 3Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

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 5
1University of Nebraska - Lincoln, 2Universidade Federal de Pelotas, 3University of Viçosa, 4EMBRAPA - CPPSul, 5Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

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 3, Mônica Corrêa Ledur 4, Luiz Lehmann Coutinho 5, Matthew L. Spangler 6
1University of Nebraska - Lincoln, 2University of Sao Paulo - ESALQ, 3University of Sao Paulo - ESALQ, 4Embrapa Suínos e Aves, 5University of Sao Paulo - ESALQ, 6Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

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 Baller 1, Jeremy T. Howard 2, Stephen Kachman 3, Matthew L. Spangler 4
1University of Nebraska-Lincoln, 2Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA, 3University of Nebraska-Lincoln, 4Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

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**
Beley Karine, Angarita Barajas 1, Rodolfo Cantet 2, Kaitlin E. Wurtz 3, Carly O’Malley 4, Janice Siegford 5, Catherine Ernst 6, Juan P. Steibel 7
1MICHIGAN STATE UNIVERSITY, 2Universidad de Buenos Aires, 3Michigan State University, 4MICHIGAN STATE UNIVERSITY, 5Michigan State University, 6MICHIGAN STATE UNIVERSITY, 7MSU

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 3, Janice Siegford 4, Juan P. Steibel 5
1Michigan State University, 2Michigan State University, 3Michigan State University, 4Michigan State University, 5MSU

3:30 p.m.  59  **The Genetic Basis of Natural Antibody Titers and Relationships with Disease Resilience in Pigs**
Yulu Chen 1, Laura Laura 2, Carolyn Ashley 3, Austin M. Putz 4, Kyu-Sang Lim 5, Michael Dyck 6, Frederic Fortin 7, Graham S. Plastow 8, Jack C. M. Dekkers 9, John C.S. Harding 10
1Iowa State University, 2Iowa State University, 3University of Saskatchewan, 4Department of Animal Science, Iowa State University, Ames, IA 50011, 5Iowa State University, 6Livestock Gentec Centre, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Canada, 7Centre de développement du porc du Québec inc. (CDPQ), Quebec, Canada, 8Livestock Gentec Centre, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Canada, 9Department of Animal Science, Iowa State University, Ames, IA 50011, 10Large Animal Clinical Sciences, University of Saskatchewan, Canada

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 Mote 3, Philip Willson 4, John C.S. Harding 5, Graham S. Plastow 6, Jack C. M. Dekkers 7, Nick V.L. Serão 8
1Iowa State University, 2PigGen Canada, 3University of Nebraska-Lincoln, 4University of Saskatchewan, 5Large Animal Clinical Sciences, University of Saskatchewan, Canada, 6Livestock Gentec Centre, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Canada, 7Department of Animal Science, Iowa State University, Ames, IA 50011, 8Iowa State University

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**Nonruminant Nutrition: Feed Additives III: Nursery**
*Chair: Doug Cook; Shelby Curry, BIOMIN America Inc.*
1:45 PM - 4:00 PM
214
1:45 p.m.  Supplemental effects of whey permeate on growth performance and gut health of nursery pigs
Ki Beom Jang 1, Jerry M. Purvis 2, Sung Woo Kim 3
1North Carolina State University, 2N. G. Purvis Farm Inc., Robbins, NC, 3North Carolina State University

2:00 p.m. 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 3, Jinxiao Zhang 4, Chengbo Yang 5, Xiangshu Piao 6, Jean-Christophe Bodin 7
1China Agricultural University, 2Jefo, 3China Agricultural University, 4Jefo, 5University of Manitoba, 6China Agricultural University, 7Jefo

2:15 p.m. Supplementation of Bacillus subtilis modified fecal microbiota of weaning pigs experimentally infected with pathogenic E. coli
Cynthia Jinno 1, Kwangwook Kim 2, Minho Song 3, Peng Ji 4, Elizabeth Maga 5, Yanhong Liu 6
1University of California, Davis, 2University of California, Davis, 3Chungnam National University, 4University of California, Davis, 5University of California, Davis, 6University of California, Davis

2:30 p.m. 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 Jinno 3, Lauren Kovanda 4, Seijoo Yang 5, Minho Song 6, Xunde Li 7, Yanhong Liu 8
1University of California, Davis, 2University of California, Davis, 3University of California, Davis, 4University of California, Davis, 5University of California, Davis, 6Chungnam National University, 7University of California, Davis, 8University of California, Davis

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

3:00 p.m. Effects of antibiotics on blood profiles in weanling pigs experimentally infected with a pathogenic E. coli
Kwangwook Kim 1, Yijie He 2, Cynthia Jinno 3, Seijoo Yang 4, Minho Song 5, Peng Ji 6, Yanhong Liu 7
1University of California, Davis, 2University of California, Davis, 3University of California, Davis, 4University of California, Davis, 5University of California, Davis, 6Chungnam National University, 7University of California, Davis

3:15 p.m. Evaluation of different combinations of medium chain fatty acids and monolaurin as a dietary additive for nursery pigs
Bioavailability of valine in a fermentation biomass product relative to the bioavailability in crystalline L-valine when fed to weanling pigs
Maryane S. Faria de Oliveira 1, John K. Htoo 2, Caroline J. González-Vega 3, John E. Thomson 4, Hans H. Stein 5
1University of Illinois at Urbana-Champaign, 2Evonik Nutrition & Care GmbH, 3Evonik Nutrition & Care GmbH, 4Hamlet Protein, 5University of Illinois at Urbana-Champaign

Effect of sodium butyrate (SB) on growth performance and complete blood cell count in nursery pigs: Two facility study.
Tsung Cheng. Tsai 1, Hans H. Stein 2, Casey L. Bradley 3, Laia Blavi 4, Kristopher Bottoms 5, Joshua Knapp 6, Hannah Maxwell 7, Charles V. Maxwell 8
1University of Arkansas - Fayetteville, Dale Bumpers College of Agriculture, Department of Animal Science, 2University of Illinois at Urbana-Champaign, 3DSM Nutritional Products Inc., 4University of Illinois at Urbana-Champaign, 5University of Arkansas, 6University of Arkansas - Fayetteville, 7University of Arkansas, 8University of Arkansas - Fayetteville

Evaluation of soluble concentrated yeast product on sow and litter performance
Robyn Thompson 1, Amanda Graham 2, Brandon Knopf 3, Laura Greiner 4, Sangita Jalukar 5
1Carthage Innovative Swine Solutions, 2Carthage Innovative Swine Solutions, 3Carthage Innovative Swine Solutions, 4Carthage Innovative Swine Solutions, 5ARM & HAMMER ANIMAL AND FOOD PRODUCTION

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 G. Gourley 3, Robert L. Payne 4
1Gourley Premium Pork, 2Elanco Animal Health, 3Gourley Research Group, 4Elanco Animal Health

Impact of hydroxy-selenomethionine supplementation during late gestation and lactation in sows on piglet immunocompetence.
Ningya Li 1, Zhijian Sun 2, Niel A. Karrow 3, Mickael Briens 4, Michele De Marco 5, Huazhen Liu 6
1College of Animal Science and Veterinary Medicine, Huazhong Agricultural University, 2College of Animal Science and Veterinary Medicine, Huazhong Agricultural University, 3Department of Animal Biosciences, University of Guelph, 4Adisseo France S.A.S, 5Adisseo France S.A.S, 6College of Animal Science and Veterinary Medicine, Huazhong Agricultural University

2:30 p.m. 181 Evaluation of feeding arginine in gestation and lactation on sow and litter performance
Robyn Thompson 1, Cathy Boessen 2, Brandon Knopf 3, Laura Greiner 4, Keith D. Haydon 5
1Carthage Innovative Swine Solutions, 2Carthage Innovative Swine Solutions, 3Carthage Innovative Swine Solutions, 4Carthage Innovative Swine Solutions, 5CJ America-Bio, Downers Grove, IL

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

3:00 p.m. 179 Supplementation of mint oil and yeast cell in lactation diets on the antioxidant status of the dam and performance of offspring during the suckling phase.
Lily P. Hernandez 1, James L. Dunn 2, Joel Wenninghoff 3, Crystal L. Levesque 4
1South Dakota State University, 2ADM Animal Nutrition, 3ADM Animal Nutrition, 4South Dakota State University

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 2, Jason C. Woodworth 3, Joel M. DeRouchey 4, Mike D. Tokach 5, Steve S. Dritz 6, Robert D. Goodband 7, Brent Frederick 8
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University, 6Kansas State University, 7Kansas State University, 8Christensen 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 6
1South Dakota State University, 2ADM Animal Nutrition, 3Evonik Nutrition & Care GmbH, 4AJINOMOTO ANIMAL NUTRITION NORTH AMERICA, INC., 5South Dakota State University, 6South Dakota State University

Swine Translational
Chair: Russell Fent
1:45 PM - 4:30 PM
201

1Purdue University, 2Purdue University, 3Purdue University, 4Purdue University, 5Purdue University, 6Purdue University, 7ZinPro Corporation, 8Purdue University

2:15 p.m. 354 The effect of OvuGel® administered to weaned sows at proestrus or estrus on reproductive performance. Amanda M. Minton 1, Caleb M. Shull 2, Clint R. Schwab 3, Steven G. Buysse 4, Mike E. Johnston 5, Stephen K. Webel 6, Lidia S. Arend 7, Robert V. Knox 8
1The Maschhoffs, 2The Maschhoffs, 3The Maschhoffs, 4United Animal Health, 5United Animal Health, 6United Animal Health, 7University of Illinois, 8University of Illinois

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 4, Lee J. Johnston 5, Jeffrey S. Knott 6
1University of Minnesota, 2Ideal Animal Nutrition, 3Boerboom Ag Resources, 4Boerboom Ag Resources, 5University of Minnesota, 6Ideal 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 2, Quincy Buis 3, David Trott 4, Lee-Anne Huber 5, Elijah Kiarie 6
1University of Guelph, 2University of Guelph, 3Wallenstein Feed & Supply Ltd., Wallenstein, 4Wallenstein Feed & Supply Ltd., Wallenstein, 5University of Guelph, 6University of Guelph

3:15 p.m.  353  Optimal dietary lysine for growth development of gilts until first parity
China Supakorn 1, Clay A. Lents 2, Xochitl Martinez 3, Jeff Vallet 4, R. Dean Boyd 5, Ashley DeDecker 6, Kenneth J. Stalder 7
1Iowa State University, 2USDA, ARS, U.S. Meat Animal Research Center, 3Smithfield Hog Production, 4USDA, ARS, US Meat Animal Research Center, 5The Hanor Company, LLC, 6Smithfield Hog Production, 7Iowa State University

3:30 p.m.  350  Effects of swab type on detection of PEDV from feed manufacturing surfaces
Savannah C. Stewart 1, Megan C. Niederwerder 2, Jason C. Woodworth 3, Steve S. Dritz 4, Cassandra K. Jones 5
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University

4:00 p.m.  351  Neonatal birth weight effects on gilt development growth and first parity reproductive efficiency
China Supakorn 1, Clay A. Lents 2, Xochitl Martinez 3, Jeff Vallet 4, R. Dean Boyd 5, Ashley DeDecker 6, Kenneth J. Stalder 7
1Iowa State University, 2USDA, ARS, U.S. Meat Animal Research Center, 3Smithfield Hog Production, 4USDA, ARS, US Meat Animal Research Center, 5The Hanor Company, LLC, 6Smithfield Hog Production, 7Iowa State University

4:15 p.m.  352  Associations between day one piglet serum immunocrit ratio and subsequent growth during gilt development
China Supakorn 1, Clay A. Lents 2, Xochitl Martinez 3, Jeff Vallet 4, R. Dean Boyd 5, Gary Rohrer 6, Ashley DeDecker 7, Kenneth J. Stalder 8
1Iowa State University, 2USDA, ARS, U.S. Meat Animal Research Center, 3Smithfield Hog Production, 4USDA, ARS, US Meat Animal Research Center, 5The Hanor Company, LLC, 6USMARC, 7Smithfield Hog Production, 8Iowa State University

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 C. Dilger 1
1University of Illinois Urbana-Champaign


3:25 p.m.  105 Use of Cloning in Beef Production - the WTAMU PrimeOne Project
David Lust 1, Ty E. Lawrence 2, Jessica Sperber 3
1West Texas A&M University, 2West Texas A&M University, 3West 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 3, Brian Wienhold 4
1USDA-Agricultural Research Service, 2Monsanto Company, 3USDA-Agricultural Research Service, 4USDA-Agricultural Research Service

2:30 p.m.  39 Management of Cereal-Grain Forages for Yield and Quality
Wayne K. Coblenz 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, 5Eastland Feed and Grain Inc., 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 2, Layla King 3
1Iowa State University, 2Iowa State University, 3Iowa 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, 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 allelenspecific expression exhibiting joint association with polygenic trait phenotypes in pigs
Deborah Velez-Irizary 1, Sebastian Casiro 2, Kaitlyn R. Daza 3, Ronald O. Bates 4, Nancy E. Raney 5, Juan P. Steibel 6, Catherine Ernst 7
1Michigan State University, 2Michigan State University, 3Michigan State University, 4Michigan State University, 5Michigan State University, 6Michigan State University, 7MICHIGAN 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
1

2:50 p.m. 36 A Large Multi-Breed Reference Panel and Maximizes Genotype Imputation Accuracy in Cattle
Troy Rowan 1, Jesse L. Hoff 2, Tamar Crum 3, Jerry F. Taylor 4, Robert Schnabel 5, Jared E. Decker 6
1University of Missouri, 2University of Missouri, 3University of Missouri, 4University of Missouri, 5University of Missouri, 6University 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 2, Barry Simpson 3, Jeremy Walker 4, Jamie Parham 5, Xiao-Lin Wu 6, Stewart Bauck 7

4:05 p.m.  38  Genomics in Beef Production: Implications in the Age of Digital Data
E. John Pollack 1
1University of Nebraska-Lincoln

Billy Day Symposium
Chair: Chris Hostetler
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-Tidewater AREC, 2Virginia Tech-Tidewater AREC, 3DNA Genetics, 4Smithfield Hog Production, 5University of Kentucky

2:25 p.m.  20  Nutritional Strategies to Manage Gilt Growth and Optimize Lifetime Productivity
Clay A. Lents 1, China Supakorn 2, Jeff Vallet 3, R. Dean Boyd 4, Ashley DeDecker 5, Kenneth J. Stalder 6
1USDA, ARS, U.S. Meat Animal Research Center, 2Iowa State University, 3USDA, ARS, US Meat Animal Research Center, 4The Hanor Company, LLC, 5Smithfield Hog Production, 6Iowa State University

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 4, George Foxcroft 5
1University of Illinois, 2University of Illinois, 3University of Alberta, 4University of Illinois, 5University 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 2, Julia A. Calderon Diaz 3, Max F. Rothschild 4, Kenneth J. Stalder 5
1Iowa State University, 2Iowa State University, 3Teagasc Moorepark Grassland Research and Innovation Centre, 4Iowa State University, 5Iowa State University

4:10 p.m. 21 **Issues of sow lifetime productivity from an international perspective: from research to production level**
Fernando Bortolozzo 1, Rafael Ulguim 2, Ana Paula Mellagi 3, Andre L. Mallmann 4, Mari Bernardi 5
1Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, 2Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, 3Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, 4Universidade Federal do Rio Grande do Sul, 5Universidade 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 2
1University of Alberta, 2University of Alberta

5:10 p.m. **Billy Day Symposium Panel**

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**Growth, Development, Muscle Biology and Meat Science**
**Chair: Benjamin Bohrer, University of Guelph**
3:45 PM - 5:30 PM
213

3:45 p.m. 100 **Young Scholar Presentation: Effects of sex, sire line, and packaging method on the relationships among early postmortem loin quality and aged loin and pork chop quality characteristics**
Jessica Lowell 1, Dustin D. Boler 2, Anna C. Dilger 3
1University of Illinois Urbana-Champaign, 2University of Illinois Urbana-Champaign, 3University of Illinois Urbana-Champaign

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 2, Emily D. Schunke 3, Anna C. Dilger 4, Dustin D. Boler 5
1University of Illinois Urbana-Champaign, 2University of Illinois Urbana-Champaign, 3University of Illinois Urbana-Champaign, 4University of Illinois Urbana-Champaign, 5University of Illinois Urbana-Champaign
4:30 p.m.  Impact of diet on shelf life of beef steaks
Nicolas Bland 1, Felipe Ribeiro 2, Nicolas Herrera 3, Kellen Hart 4, Morgan Henriott 5, Chris Calkins 6
1University of Nebraska, 2University of Nebraska, 3University of Nebraska, 4University of Nebraska, 5University of Nebraska, 6University of Nebraska

4:45 p.m.  Effect of 30% Wet Brewer's Grain Inclusion on the Growth and Carcass Performance of Finishing Cattle
Danielle Belon 1, Jennifer Earing 2, Justin Rickard 3
1Illinois State University, 2Illinois State University, 3Illinois State University

5:00 p.m.  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 2, Sebastian Chalupa-Krebzdak 3, Sandra M. Vasquez Mejia 4, Benjamin M. Bohrer 5
1University of Guelph, 2University of Guelph, 3University of Guelph, 4University of Guelph, 5University of Guelph

5:15 p.m.  Metabolic response of pigs to Porcine Reproductive and Respiratory Syndrome virus infection and nutrient restriction
Emma T. Helm 1, Shelby Curry 2, Wesley Schweer 3, Carson De Mille 4, Eric R. Burrough 5, Elizabeth Zuber 6, Steven Lonergan 7, Nicholas K. Gabler 8
1Iowa State University, 2BIOMIN America Inc., 3Iowa State University, 4Iowa State University, 5Iowa State University, 6Iowa State University, 7Iowa State University, 8Department of Animal Science, College of Agriculture and Life Sciences, Iowa State University

Genetics, Genomics & Bioinformatics II
Chair: James Koltes, Iowa State University
4:15 PM - 5:15 PM
202

4:15 p.m.  A genome-wide association study for gestation length in swine
Garrett See 1, Melanie Trenhaile-Gannemann 2, Daniel Ciobanu 3, Matthew L. Spangler 4, Benny Mote 5
1University of Nebraska-Lincoln, 2University of Nebraska-Lincoln, 3University of Nebraska-Lincoln, 4Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA., 5University 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 3, Aileen F. Keating 4, Nick V.L. Serão 5
1Iowa State University, 2Fast Genetics, 3Iowa State University, 4Iowa State University, 5Iowa State University

4:45 p.m.  67  **Structural conformation differences between show pigs and commercial genetic lines**
Dalton R. Obermier 1, Zack Peppmeier 2, Mark Knauer 3
1North Carolina State University, 2North Carolina State University, 3Department of Animal Science, North 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 3, Dr. Arun Somwarpet-Seetharam 4, Mary Sue Mayes 5
1Iowa State University, 2Iowa State University, 3Iowa State University, 4Iowa State University, 5Iowa State University

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

**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
7:30 AM - 8:15 AM
Grand Ballroom Foyer

Wednesday Upload Room Hours
7:30 AM - 11:00 AM
215

Nonruminant Nutrition: Minerals
Chair: James Jolliff, Cargill Premix & Nutrition; Wesley Schweer, Iowa State University
8:00 AM - 10:15 AM
205/206

8:00 a.m.  178  A systematic review and meta-analysis of Ca digestibility and utilisation in growing and finishing pigs
Maciej M. Misiura 1, Joao A.N. Filipe 2, Carrie L. Walk 3, Ilias Kyriazakis 4
1Newcastle University, 2Newcastle University, 3AB Vista, 4Newcastle University

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 2, Mike D. Tokach 3, Steve S. Dritz 4, Joel M. DeRouchey 5, Robert D. Goodband 6, Jon R. Bergstrom 7
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University, 6Kansas State University, 7DSM Nutritional Products North America

8:30 a.m.  176  Whole-grain fiber composition modifies phosphorus digestibility in grower pigs
Charlotte Maria Elisabeth. Heyer 1, Janelle M. Fouhse 2, Thavar Vasanthan 3, Ruurd T. Zijlstra 4
1University of Alberta, 2University of Alberta, 3Department of Agricultural, Food and Nutritional Science, University of Alberta, 4Department of Agricultural, Food and Nutritional Science, University of Alberta, University 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 at Urbana-Champaign, 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 2, Leah M. Kellesvig 3, Spenser L. Becker 4, Stacie A. Gould 5, John F. Patience 6
1Vita Plus Corporation, 2Vita Plus Corporation, 3Vita Plus Corporation, 4Dept. of Animal Science, Iowa State University, 5Dept. of Animal Science, Iowa State University, 6Dept. of Animal Science, Iowa State University

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 3, Jason C. Woodworth 4, Robert D. Goodband 5, Joel M. DeRouchey 6
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University, 6Kansas 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 3, Márcio A.D. Gonçalves 4, Uislei A.D. Orlando 5, Jon R. Bergstrom 6, Jason C. Woodworth 7, Robert D. Goodband 8, Joel M. DeRouchey 9
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Genus PIC, 5Genus PIC, 6DSM Nutritional Products North America, 7Kansas State University, 8Kansas State University, 9Kansas State University

10:00 a.m. 174 Effects of dietary analyzed calcium to phosphorus ratio on growth performance, carcass characteristics, and bone mineralization of 26- to 127-kg pigs fed diets containing phytase
Carine M. Vier 1, Steve S. Dritz 2, Mike D. Tokach 3, Márcio A.D. Gonçalves 4, Uislei A.D. Orlando 5, Jon R. Bergstrom 6, Jason C. Woodworth 7, Robert D. Goodband 8, Joel M. DeRouchey 9
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Genus PIC, 5Genus PIC, 6DSM Nutritional Products North America, 7Kansas State University, 8Kansas State University, 9Kansas State University
Midwest Board Meeting
8:00 AM - 11:00 AM
Herndon

Nonruminant Nutrition: Feed Ingredients
Chair: Omarh Mendoza
8:30 AM - 10:15 AM
214

8:30 a.m. 156  Effects of feeding increasing amounts of finishing diet blended with nursery diets on growth performance and economics of nursery pigs
Fangzhou Wu 1, Mike D. Tokach 2, Cassandra K. Jones 3, Chad W. Hastad 4, Joel M. DeRouchey 5, Steve S. Dritz 6, Robert D. Goodband 7
1Kansas State University, 2Kansas State University, 3Kansas State University, 4New Fashion Pork, 5Kansas State University, 6Kansas State University, 7Kansas State University

8:45 a.m. 155  Effects of soybean meal level and distillers dried grains with solubles inclusion on growth performance of late nursery pigs
Henrique S. Cemin 1, Mike D. Tokach 2, Aaron M. Gaines 3, Brent W. Ratliff 4, Steve S. Dritz 5, Jason C. Woodworth 6, Joel M. DeRouchey 7, Robert D. Goodband 8
1Kansas State University, 2Kansas State University, 3Ani-Tek Group, LLC, 4Ani-Tek Group, LLC, 5Kansas State University, 6Kansas State University, 7Kansas State University, 8Kansas State University

9:00 a.m. 157  Effects of dietary corn distillers dried grains with solubles withdrawal on finishing pig performance and carcass characteristics
Annie B. Lerner 1, Mike D. Tokach 2, Jason C. Woodworth 3, Joel M. DeRouchey 4, Steve S. Dritz 5, Robert D. Goodband 6, Chad W. Hastad 7, Kyle F. Coble 8, Emily K. Arkfeld 9, Hilda Calderon Cartagena 10, Christopher I. Vahl 11
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University, 6Kansas State University, 7Kansas State University, 8JBS Live Pork, 9Triumph Foods, 10Kansas State University, 11Kansas State University

9:15 a.m. 152  Effects of dietary lactose level on nursery pig performance
Jason Frank 1, Emily Sholtz 2, Casey Neill 3, Jon De Jong 4
1International Ingredient Corporation, 2Pipestone Grow Finish, 3Pipestone Grow Finish, 4Pipestone Grow Finish
9:30 a.m.  153  **Impacts of two energy sources (modified soy oil and medium chain triglycerides) on growth performance and health of nursery pigs**
Sara Ebarb¹, Richard Faris², Junmei Zhao³, Sabrina Williams⁴, Kathryn Price⁵  
¹Cargill Premix & Nutrition, ²Cargill Premix & Nutrition, ³Cargill Premix & Nutrition, ⁴Cargill Premix & Nutrition, ⁵Cargill Premix & Nutrition

9:45 a.m.  151  **Effects of Carbohydrate Source On Performance and Gastrointestinal Microbiota in Nursery Pigs**
Sydney Kinstler¹, Yanshao Li², Phillip Miller³, Thomas E. Burkey⁴, Melanie Trenhaile-Gannemann⁵, Samodha C. Fernando⁶, Allison Knoell⁷, Wesley A. Tom⁸  
¹University of Nebraska Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska Lincoln, ⁴Department of Animal Science, University of Nebraska-Lincoln, ⁵University of Nebraska-Lincoln, ⁶Department of Animal Science, University of Nebraska-Lincoln, ⁷University of Nebraska-Lincoln, ⁸School of Biological Sciences, University of Nebraska-Lincoln

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. Rodriguez¹, Su A Lee², Mary B. Muckey³, Cassandra K. Jones⁴, Hans H. Stein⁵  
¹University of Illinois at Urbana-Champaign, ²University of Illinois at Urbana-Champaign, ³Kansas State University, Manhattan, ⁴Kansas State University, ⁵University of Illinois at Urbana-Champaign

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**Nonruminant Nutrition: Fiber/Enzymes**  
*Chair: Pedro Urriola, Department of Animal Science, University of Minnesota*  
8:30 AM - 10:15 AM  
207

8:30 a.m.  163  **Xylanase and fermentable xylo-oligosaccharides improve performance in grower-finisher pigs fed a corn-soybean meal based diet**
Gustavo Cordero¹, Jae Cheol Kim², Natasha Whenham³, Helen Masey-O’Neill⁴, Saksit Srinongkote⁵, Gemma González-Ortiz⁶  
¹AB Vista, ²AB Vista, ³AB Vista, ⁴AB agri, ⁵Bangkok Animal Research Center Co., Ltd, ⁶AB Vista

8:45 a.m.  161  **Impact of insoluble dietary fiber on the efficacy of the phytase enzyme in nursery pigs**
Jesus A. Acosta¹, John F. Patience²  
¹Dept. of Animal Science, Iowa State University, ²Dept. of Animal Science, Iowa State University
9:00 a.m.  162  The interactions between dietary fiber and lipid sources alter the predicted production and absorption of caecal and colorectal volatile fatty acids in growing pigs
Saymore PETROS. Ndou 1, Elijah Kiarie 2, Maria Walsh 3, Cornelis de Lange 4, C. Martin Nyachoti 5
1UNIVERSITY OF MANITOBA, 2University of Guelph, 3Danisco Animal Nutrition-DuPont Industrial Biosciences, 4University of Guelph, 5University 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 3, Stacie A. Gould 4, Crystal L. Loving 5, Christopher K. Tuggle 6, Orhan Sahin 7, John F. Patience 8
1Dept. of Animal Science, Iowa State University, 2Iowa State University, 3Department of Animal Science, College of Agriculture and Life Sciences, Iowa State University, 4Dept. of Animal Science, Iowa State University, 5USDA-ARS-National Animal Disease Center, 6Dept. of Animal Science, Iowa State University, 7Dept. of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, 8Dept. of Animal Science, Iowa State University

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 F. Huntley 2, Mike R. Bedford 3, John F. Patience 4
1Iowa State University, 2Dept. of Animal Science, Iowa State University, 3AB Vista, 4Dept. of Animal Science, Iowa State University

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 Animal Nutrition, 2Zhejiang University

Nonruminant Nutrition: General
Chair: Chris Puls
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 Kovanda 1, Xunde Li 2, Wen Zhang 3, Xiaohong Wei 4, Jia Luo 5, Xixi Wu 6, Edward Robert Atwill 7, Richard Sygall 8, Jacob Lum 9, Yanhong Liu 10
1University of California, Davis, 2University of California, Davis, 3University of California, Davis, 4University of California, Davis, 5University of California, Davis, 6University of California, Davis, 7University of California, Davis, 8Perstorp Feed and Food, 9Perstorp Feed and Food, 10University of California, Davis

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 2
1Iowa State University, 2Iowa 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 3, Ana Paula Mellagi 4, Rafael Ulguim 5, Fernando Bortolozzo 6

9:15 a.m.  170  **Trends in Mycotoxin Contamination in the United States Corn**
Shelby Curry 1, Erika G. Hendel 2, Paige Gott 3, G.R. Murugesan 4, Ursula Hofstetter-Schähs 5
1BIOMIN America Inc., 2BIOMIN America Inc., 3BIOMIN America Inc., 4BIOMIN America Inc., 5BIOMIN Holding GmbH

9:30 a.m.  166  **Fate of Pentoses in the Small Intestine and Hindgut of Growing Pigs**
Jerubella J. Abelilla 1, Hans H. Stein 2
1University of Illinois at Urbana-Champaign, 2University 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 Ulguim 4, Ana Paula Mellagi 5, Fernando Bortolozzo 6
1Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, 2Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, 3Setor de Suínos UFRGS, 4Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, 5Setor de Suínos - Universidade Federal do Rio Grande do Sul - UFRGS, 6Setor de Suínos -
Impact of mycotoxin contamination of feed on growth performance and blood metabolites of growing pigs
Jesus A. Acosta 1, Gwendolyn M. Jones 2, John F. Patience 3
1Dept. of Animal Science, Iowa State University, 2Anco Animal Nutrition Competence GmbH, 3Dept. of Animal Science, Iowa State University

Ruminant Nutrition: Supplements and Additives
Chair: Alejandro Relling, Department of Animal Sciences, The Ohio State University
8:30 AM - 10:30 AM

Feedlot performance and carcass characteristics of steers fed diets containing steam-flaked grain and corn silage from Enogen® Feed Corn
Adrian Baker 1, Vanessa Veloso 2, Adrian Baker 3, Lucas Barros 4
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University

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 2, Hannah C. Wilson 3, James C. MacDonald 4, Galen E. Erickson 5, Andrea K. Watson 6
1University of Nebraska-Lincoln, 2University of Nebraska - Lincoln, 3University of Nebraska - Lincoln, 4University of Nebraska - Lincoln, 5Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,, 6University of Nebraska - Lincoln

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 3, Bradley M. Boyd 4, Andrea K. Watson 5, James C. MacDonald 6, Galen E. Erickson 7
1University of Nebraska - Lincoln, 2University of Nebraska - Lincoln, 3University of Nebraska - Lincoln, 4University of Nebraska - Lincoln, 5University of Nebraska - Lincoln, 6University of Nebraska - Lincoln, 7Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,

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 2, Hector Aaron Lee 3, Alejandro E. Relling 4
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 ², Hector Aaron. Lee ³, Alejandro E. Relling ⁴

¹The Ohio State University, ²Facultad de Agronomía y Veterinaria, Universidad Autónoma de San Luis Potosí, México, ³Facultad de Agronomía y Veterinaria, Universidad Autónoma de San Luis Potosí, México, ⁴Department of Animal Sciences, The Ohio State University

10:00 a.m. 344  **Effects of blended microbial feed additives on receiving cattle performance and health**
Allison VanDerWal ¹, Josh Zeltwanger ², Devan Paulus Compart ³, Alfredo DiCostanzo ⁴

¹University of Minnesota, ²University of Minnesota, ³PMI Nutrition Additives, ⁴University of Minnesota

10:15 a.m. 341  **Evaluation of the safety of an algal biomass as an ingredient in finishing cattle diets**
Mitch Norman ¹, Zachary E. Carlson ², Fred H. Hilscher ³, Galen E. Erickson ⁴, Bruce Brodersen ⁵, John Loy ⁶, Jonathan Wilson ⁷, Christian Rabe ⁸, Andrea K. Watson ⁹

¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska Lincoln, ⁴Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,, ⁵University of Nebraska, ⁶University of Nebraska - Lincoln, ⁷DSM Nutritional Products, ⁸Evonik, ⁹University of Nebraska - Lincoln

**Physiology Symposium: Molecular Mechanisms of Heat Stress in Livestock**
8:30 AM - 11:05 AM
211/212

8:30 a.m.  **Physiology Symposium: Molecular Mechanisms of Heat Stress in Livestock Introduction**

8:35 a.m. 211  **Young Scholar Presentation: Developing and validating a heat stress model in dairy cows**
Mohmmad Al-Qaisi ¹, Erin A. Horst ², Sara Kvidera ³, Edith J. Mayorga ⁴, Megan A. Abeyta ⁵, Brady M. Goetz ⁶, Leo Timms ⁷, Lance H. Baumgard ⁸

¹Iowa State University, ²Iowa State University, ³Iowa State University, ⁴Iowa State University, ⁵Iowa State University, ⁶Iowa State University, ⁷Iowa State University, ⁸Iowa State University
9:05 a.m.  208  Molecular mechanisms of Heat Stress in Livestock
Jason W. Ross 1
1Iowa State University

9:35 a.m.  Physiology Symposium: Molecular Mechanisms of Heat Stress in Livestock
Break

9:50 a.m.  Importance of cellular resistance to elevated temperature as a determinant of the magnitude of adverse effects of heat stress on farm animals
Peter Hansen 1
1University of Florida

10:20 a.m.  209  Cellular mechanisms of heat stress in 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
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
1USMARC

9:10 a.m.  24  Field experience and challenges facing sow production today, industry strategies.
Ronald T. Ketchem 1
1Swine Management Services, LLC

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 2, Robert D. Goodband 3, Jason C. Woodworth 4, Steve S. Dritz 5, Mariana Boscato Menegat 6
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas State University, 6Kansas State University

Physiology III: Advancing reproductive techniques to Meet the World Demand for Food II
Chair: George Perry, Department of Animal Science, 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 Wiltbank 1, Alvaro Garcia-Guerra 2, Rodrigo V. Sala 3, Meliton Fosada 4, Luciana Carrenho-Sala 5, Juan F. Moreno 6
1University of Wisconsin - Madison, 2The Ohio State University, 3ST Genetics, Volms Farm, 4ST Genetics, Volms Farm, 5ST Genetics, 6ST 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 Fricke 1, Paulo Carvalho 2, Milo Wiltbank 3
1University of Wisconsin - Madison, 2University of Wisconsin - Madison, 3University of Wisconsin - Madison
10:35 a.m. 202  Factors influencing pregnancy loss in lactating dairy cows  
James Richard. Pursley 1, Thaina MInela 2, Joao Paulo Martins 3, Emily Middleton 4  
1Michigan State University, 2Michigan State University, 3U of Wisconsin, 4Michigan State University  

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 2  
1University of Missouri, 2Animal Science, University of Missouri  

Harlan Ritchie Symposium  
Chair: Daniel Shike, University of Illinois  
8:30 AM - 12:00 PM  
203/204  

8:30 a.m.  HARLAN RITCHIE SYMPOSIUM Intro  

8:35 a.m. 109  Mature Cow Size and Impacts on Cow Efficiency  
David Lalman 1, Paul A. Beck 2  
1Oklahoma State University, 2Department of Animal and Food Sciences Oklahoma State University  

9:20 a.m. 108  Impacts of dam age and milk production on cow/calf profitability  
Travis Mulliniks 1, Joslyn Beard 2, Tasha King 3  
1University of Nebraska, 2University of Nebraska, 3University of Nebraska  

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 Feeders  

11:45 a.m.  HARLAN RITCHIE SYMPOSIUM Panel
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 2, Cassandra K. Jones 3, Joel M. DeRouchey 4, Robert D. Goodband 5
1Kansas State University, 2Kansas State University, 3Kansas State University, 4Kansas State University, 5Kansas 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 3, James Jolliff 4, Sabrina Williams 5
1Cargill Premix & Nutrition, 2Cargill Premix & Nutrition, 3Cargill Premix & Nutrition, 4Cargill Premix & Nutrition, 5Cargill Premix & Nutrition

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 Carter 2, Afton Sawyer 3, Jared Harshman 4, Zach Rambo 5, Terry Ward 6
1Oklahoma State University, 2Oklahoma State University, 3Oklahoma State University, 4Oklahoma State University, 5ZinPro Corporation, 6ZinPro 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 2, Laura Greiner 3, Jon R. Bergstrom 4
1Carthage Innovative Swine Solutions, 2Carthage Innovative Swine Solutions, 3Carthage Innovative Swine Solutions, 4DSM Nutritional Products North America

11:00 a.m. 149 A bioactive, mineral-based feed additive improved growth performance in commercial nursery pigs
Ran Song 1, Sue Sinn 2, Rob Musser 3, Kim Friesen 4
1NutriQuest, 2NutriQuest, 3NutriQuest, 4NutriQuest

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 2, Allan P. Schinckel 3, Tim A. Johnson 4, Carmen L. Wickware 5, Morgan T. Thayer 6, Kayla M. Mills 7, Julie A. Feldpausch 8, Jorge Y P. Palencia 9, Jacob A. Richert 10, John S. Radcliffe 11
1Purdue University, 2Purdue University, 3Purdue university, 4Purdue University, 5Purdue University, 6Purdue University, 7Purdue University, 8Purdue University, 9Universidade Federal de Lavras – Brazil, 10Kansas State University, 11Purdue 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 2, Ryan S. Samuel 3, Benoit St- Pierre 4
1South Dakota State University, 2South Dakota State University, 3South Dakota State University, 4South 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 2, Dana Beckler 3, Rob Musser 4, Kim Friesen 5
1NutriQuest, 2NutriQuest, 3GutBugs Inc., 4NutriQuest, 5NutriQuest