



American Dairy Science Association®
MIDWEST
American Society of Animal Science



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

Sunday, March 10, 2019

Sunday Registration Hours (Pre-Registered Badge Pick-up Only)

Chair:

3:00 PM - 5:00 PM

Grand Ballroom Foyer

Monday, March 11, 2019

Academic Quadrathlon Written Exam III

Chair:

8:00 AM - 3:00 PM

Cozzens

Monday Registration Hours

Chair:

7:00 AM - 6:00 PM

Grand Ballroom Foyer

Academic Quadrathlon Breakfast

Chair:

7:30 AM - 8:30 AM

Blackstone A

Monday Upload Room Hours

Chair:

7:30 AM - 5:00 PM

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Academic Quadrathlon Team Advisor's Meeting Room

Chair:

8:00 AM - 3:00 PM

Mercer

Academic Quadrathlon Written Exam I

Chair:

8:00 AM - 3:00 PM

Herndon

Academic Quadrathlon Written Exam II

Chair:

8:00 AM - 3:00 PM

Washington City

Academic Quadrathlon Written Exam IV

Chair:

8:00 AM - 3:00 PM

Merchants

Academic Quadrathlon Written Exam IX

Chair:

8:00 AM - 3:00 PM

Rome

Academic Quadrathlon Written Exam V

Chair:

8:00 AM - 3:00 PM

Paxton

Academic Quadrathlon Written Exam VI

Chair:

8:00 AM - 3:00 PM

Murray

Academic Quadrathlon Written Exam VII

Chair:

8:00 AM - 3:00 PM

Prague

Academic Quadrathlon Written Exam VIII

Chair:

8:00 AM - 3:00 PM

Fontenelle

Academic Quadrathlon Written Exam X

Chair:

8:00 AM - 3:00 PM

Flatiron

Academic Quadrathlon Written XI/Quiz Bowl I

Chair:

8:00 AM - 3:00 PM

Saint Nicholas A

Academic Quadrathlon Written XII/Quiz Bowl II

Chair:

8:00 AM - 3:00 PM

Saint Nicholas B

Academic Quadrathlon Written XIII/Quiz Bowl III

Chair:

8:00 AM - 3:00 PM

Hill

Breeding and Genetics Symposium: FAANG

Chair: James Koltes, Iowa State University

8:30 AM - 11:45 AM

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8:30 a.m. **Breeding and Genetics Symposium: FAANG Introduction**

8:35 a.m. 29 **Introduction to Functional Annotation of Animal Genomes Consortium**

Christopher K. 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. 32 **Functional annotation of livestock genomes: chromatin structure and regulation of gene expression**

Sylvain Foissac ¹, Sarah Djebali ², Kylie Munyard ³, Nathalie Vialaneix ⁴, Andrea Rau ⁵, Herve Acloque ⁶, Sandrine Lagarrigue ⁷, Elisabetta Giuffra ⁸

¹GenPhySE, Université de Toulouse, INRA, INPT, ENVT, ²Université de Toulouse, INRA, INPT, ENVT, ³Curtin University, ⁴Université de Toulouse, INRA, ⁵INRA, Université Paris Saclay, ⁶, ⁷, ⁸INRA - laboratory of Animal Genetics and Integrative Biology

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

Goto Morota ¹

¹Virginia Tech

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

Jessica L. Petersen ¹, Carrie J. Finno ², Rebecca R. Bellone 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. 57 **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. 56 **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. 58 **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. 55 **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

Chair:

9:00 AM - 4:00 PM

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Competition Judges Meeting

Chair:

9:30 AM - 11:30 AM

Blackstone B

Digestive Physiology of Pigs Lecture and Lunch

Chair:

12:00 PM - 1:00 PM

Grand Ballroom North

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

Charlotte Lauridsen ¹

¹Aarhus University

Poster Session I

12:45 PM - 1:30 PM

Grand Ballroom Foyer

David Baker Symposium

Chair: Sung Woo Kim, North Carolina State University; Jeffery Escobar, Elanco

1:00 PM - 4:35 PM

Grand Ballroom South

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

1:05 p.m. 44 **Amino Acids in Livestock: A Historical Perspective**

Keith D. Haydon ¹, R. 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

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

Caroline M. Ylloja 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

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

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

Anlly Miley. Fresno Rueda ¹, Jason Griffin ², Carter Kruse ³, Benoit St- Pierre ⁴

¹South Dakota State University, ²South Dakota State University, ³Turner Enterprises (Standing Butte Ranch), ⁴South Dakota State University

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

Venkata Bandurupalli ¹, Benoit St- Pierre ²

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

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

Devin L. Broadhead ¹, Matt Stockton ², McKay Erickson ³, Jackie A. Musgrave ⁴, Rick N. Funston ⁵

¹University of Nebraska-Lincoln, West Central Research and Extension Center, ²University of Nebraska-Lincoln, West Central Research and Extension Center, ³University of Nebraska Lincoln, ⁴University of Nebraska-Lincoln, West Central Research and Extension Center, ⁵University of Nebraska-Lincoln, West Central Research and Extension Center

Graduate Student Oral Competition: MS

1:45 PM - 4:50 PM

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1:45 p.m. **Graduate Student Oral Competition: MS Introduction**

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

Sarah K. Elefson ¹, James C. Matthews ², H. J. Monegue ³, Merlin D. Lindemann ⁴

¹University of Kentucky, ²University of Kentucky, ³University of Kentucky, ⁴University of Kentucky

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

Emma L. Stephenson ¹, Abigail R. Rathert ², Heather Tucker ³, Allison M. Meyer ⁴

¹University of Missouri, ²University of Missouri, ³Novus International, ⁴University of Missouri

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

Lydia M. Wang ¹, Ira B. Mandell ², Benjamin M. Bohrer ³

¹University of Guelph, ²University of Guelph, ³University of Guelph

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

Chloe M. Creager ¹, Hayford Manu ², Ashok Sharma ³, S. K. Baidoo ⁴, Andres Gomez ⁵

¹University of Minnesota, ²University of Minnesota, ³University of Minnesota, ⁴University of Minnesota, ⁵University of Minnesota

2:50 p.m. 78 **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

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

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

Erin Bryan ¹, Brooke N. Smith ², Lauren T. Honegger ³, Dustin D. Boler ⁴, Ryan 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

3:35 p.m. 80 **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

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

Morgan Henriott ¹, Felipe Ribeiro 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. Briggs¹, Kristen M. Brennan², Griffin Nicholls³, Jon P. Schoonmaker⁴

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-Craft¹, Justin Anast², Stephan Schmitz-Esser³, Elizabeth A. Bobeck⁴

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 Nickles¹, Alejandro E. Relling², Anthony Parker³

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

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

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

Dorothea Clark¹, Cody Wright², Michael Gonda³

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. Rients¹, Sara M. Tondini², Daniel W. Shike³, Joshua C. McCann⁴

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. Dawson¹, Mareah J. Volk², Frank A. Ireland³, Keela M. Trennepohl⁴, Joshua C. McCann⁵, Daniel W. Shike⁶

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**

Bailey Armentrout-Shoaf¹, Isabella V. Panetta², Matthew J. Soyland³, Toree Williams⁴, Christina Rocco⁵

¹The University of Findlay, ²The University of Findlay, ³The University of Findlay, ⁴The University of Findlay, ⁵The University of Findlay

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

Ashley M. Reiner¹, Stephanie D. Perkins², Jerica J.J. Rich³, Emmalee J. Northrop⁴, George A. Perry⁵

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

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

Megan Homolka¹, Galen E. Erickson², Richard Koelsch³

¹UNIV OF NEBRASKA - LINCOLN, ²Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, USA,, ³University of Nebraska-Lincoln

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

Matthew J. Soyland¹, Isabella V. Panetta², Bailey Armentrout-Shoaf³, Christina Rocco⁴, Toree Williams⁵

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

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

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

Ashley E. Cooney¹, Lucas T. Neira², Wesley P. Chapple³, William T. Meteer⁴, Joshua C. McCann⁵, Daniel W. Shike⁶

¹University of Illinois, ²University of Illinois, ³University of Illinois, ⁴University of Illinois, ⁵University of Illinois, ⁶University of Illinois

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

Isabella V. Panetta ¹, Bailey Armentrout-Shoaf ², Matthew J. Soyland 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

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

¹Kansas State University, ²Kansas State University, ³Kansas State University, ⁴Kansas State University, ⁵Kansas State University, ⁶Kansas State University, ⁷Kansas State University, ⁸Ceva Animal Health, LLC.

Graduate Student Oral Competition: PHD II

2:30 PM - 4:20 PM

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

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

M. Shamimul Hasan ¹, Rebecca M. Humphrey ², Mark A. Crenshaw ³, James Brett ⁴, Shengfa F. Liao ⁵

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. 94 Dietary soy isoflavone ingestion alters the acute and recovery immune responses in growing pigs infected with porcine reproductive and respiratory syndrome virus

Brooke N. Smith ¹, Maci Oelschlager ², Melissa Hannas ³, Muhammad Shameer Abdul Rasheed ⁴, Ryan Dilger ⁵

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. 93 Host genetics help shape the rumen microbiome in beef cattle

Waseem Abbas ¹, Jeremy T. Howard ², Henry A. Paz ³, Kristin E. Hales ⁴, James E. Wells ⁵, Larry A. Kuehn ⁶, Matthew L. Spangler ⁷, Galen E. Erickson ⁸, Samodha C. Fernando ⁹

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

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

Remy N. Carmichael¹, Stephanie L. Hansen², Olivia Genther-Schroeder³

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. Rooney¹, Keelin O'Driscoll², John O'Doherty³, Peadar Lawlor⁴

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 Wagner¹, Alejandro E. Relling², Justin Kieffer³, Anthony Parker⁴

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 Kim¹, Yijie He², Cynthia Jinno³, Seijoo Yang⁴, Minh Song⁵, Peng Ji⁶, Yanhong Liu⁷

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

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

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

Youngji Rho¹, Rob Patterson², Elijah Kiarie³

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 Carvalho¹, Tara Felix², Flavia Sales Silva³

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.

Ruminant Nutrition: Vitamins and Minerals

Chair: Tara Felix, The Pennsylvania State University

3:30 PM - 4:45 PM

205/206

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

Jerad R. Jaborek ¹, Alejandro E. Relling ²

¹Department of Animal Sciences, The Ohio State University, ²Department of Animal Sciences, The Ohio State University

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

Erin L. Deters ¹, Stephanie L. Hansen ²

¹Iowa State University, ²Iowa State University

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

Katherine VanValin ¹, Stephanie L. Hansen ²

¹Iowa State University, ²Iowa State University

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

Jeff S. Heldt ¹, Shane Davis ²

¹Micronutrients USA LLC, ²Bos Technica Research Services, Inc.

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

Trey D. Jackson ¹, Remy N. Carmichael 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 Pangen 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, ⁷3Doutorando 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

¹University of Illinois, ²University of Illinois, ³University of Illinois, ⁴The Maschhoffs, ⁵The Maschhoffs

Ruminant Nutrition: Protein

Chair: James MacDonald, University of Nebraska - Lincoln

8:30 AM - 9:45 AM

213

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

Miles D. Redden ¹, Daniel W. Shike ², Joshua C. McCann ³

¹University of Illinois, ²University of Illinois, ³University of Illinois

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

Bradley M. Boyd ¹, James C. MacDonald ², Matthew Luebke 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,

9:00 a.m. 333 **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

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

Elizabeth Schumacher ¹, Galen E. Erickson ², James C. MacDonald ³, Terry 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

9:30 a.m. 336 **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

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

Chair: Dustin Mohrhauser

8:30 AM - 10:05 AM

216

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

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

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

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

Physiology Symposium

Chair: Andrea Cupp, University of Nebraska-Lincoln; Shelby Springman

8:30 AM - 10:20 AM

205/206

8:30 a.m. Physiology Symposium Introduction

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

Andrea S. Cupp ¹, Sarah Nafziger 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

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

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**

Robert A. Cushman ¹, Chadwick C. Chase ², Jerica J.J. Rich ³, Emmalee J. Northrop ⁴, R. Mark. Thallman ⁵, Warren M. Snelling ⁶, Larry A. Kuehn ⁷, Tami M. Brown-Brandl ⁸, George A. Perry ⁹

¹USDA, ARS, U.S. Meat Animal Research Center, ²USDA, ARS, U.S. Meat Animal Research Center, ³Department of Animal Science, South Dakota State University, ⁴Department of Animal Science, South Dakota State University, ⁵USDA, ARS, U.S. Meat Animal Research Center, ⁶USDA, ARS, U.S. Meat Animal Research Center, ⁷USDA-ARS, U.S. Meat Animal Research Center, ⁸USDA-ARS-MARC, ⁹Department of Animal Science, South Dakota State University

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

Dakota State University, ⁷Department of Animal Science, South Dakota State University,
⁸IDEXX Laboratories, ⁹Department of Animal Science, South Dakota State University

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

214

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

Qingyun Li ¹, Nicholas K. Gabler ², Eric R. Burrough 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

¹Kansas State University, ²Kansas State University, ³Kansas State University, ⁴Kansas State University, ⁵Kansas State University, ⁶Kansas State University, ⁷Kansas State University, ⁸Kemin Industries

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

Rafael A. Cabrera ¹

¹EW Nutrition USA, Inc.

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

Yijie He ¹, Kwangwook Kim ², Cynthia Jinno ³, Zhaohai Wu ⁴, Rose Whelan ⁵, Kiran Doranalli ⁶, Yanhong Liu ⁷

¹University of California, Davis, ²University of California, Davis, ³University of California, Davis, ⁴University of California, Davis, ⁵Evonik Nutrition & Care GmbH, ⁶Evonik Nutrition & Care GmbH, ⁷University of California, Davis

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

Leigh A. Ruckman ¹, John F. Patience ²

¹Dept. of Animal Science, Iowa State University, ²Dept. of Animal Science, Iowa State University

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

Mariana Boscato Menegat ¹, Michaela B. Braun ², Joel M. DeRouchey ³, Jason C. Woodworth ⁴, Jim Bryte ⁵, Mike D. Tokach ⁶, Steve S. Dritz ⁷, Robert D. Goodband ⁸

¹Kansas State University, ²Kansas State University, ³Kansas State University, ⁴Kansas State University, ⁵Quality Technology International, Inc., ⁶Kansas State University, ⁷Kansas State University, ⁸Kansas State University

Nutritional Physiology and Microbiome

Chair: Allison Meyer, University of Missouri

8:30 AM - 11:30 AM

203/204

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

Johan S. Osorio ¹, Fernanda Rosa ²

¹South Dakota State University, ²South Dakota State University

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

Edgar O. Aviles ¹, Anoosh Rakhshandeh ², John J. McGlone ³

¹Texas Tech University, ²Texas Tech University, ³Texas Tech University

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

Danni A. Wijesiriwardana ¹, Jessica Craig ², Mitchell Ringuet ³, Linda Fothergill ⁴, Korrily 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 Jasper¹, Emma T. Helm², Blaire Todd³, Nicholas K. Gabler⁴

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. Mayorga¹, Erin A. Horst², Mohammad Al-Qaisi³, Carrie S. McCarthy⁴, Brady M. Goetz⁵, Megan A. Abeyta⁶, Samantha Lei⁷, Jesus A. Acosta⁸, John F. Patience⁹, Lance H. Baumgard¹⁰

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. Helm¹, Eric R. Burrough², Nicholas K. Gabler³

¹Iowa State University, ²Iowa State University, ³Department 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 Rosa¹, Erminio Trevisi², Johan S. Osorio³

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. Burrough¹, Nicholas K. Gabler²

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 Moeser¹, Yihang Li², Mrigendra Rajput³, Kyan Thelen⁴

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

10:05 a.m. 113 **Pathogen shedding in feces of nursery swine**

James E. Wells ¹, Elaine Berry ², William T. Oliver ³

¹Meat Animal Research Center, Clay Center, NE 68933,, ²USDA ARS, ³USDA, ARS, USMARC

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

10:50 a.m. 114 **Role of fiber in promoting health in nursery pigs**

Ruurd T. Zijlstra ¹, Janelle M. Fouhse 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

11:20 a.m. 112 **Beyond the gut: Systemic effects of the swine gut microbiome**

Andres Gomez ¹

¹University of Minnesota

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

David Schingoethe Symposium

Chair: David Schingoethe, South Dakota State University

8:30 AM - 12:05 PM

210

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

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

Jill L. Anderson ¹, Chelsea R. Schossow ², Karla Rodriguez-Hernandez ³, Rhea D. Lawrence ⁴, Nirosh D. Senevirathne ⁵

¹SDSU, ²SDSU, ³CIRNOC-INIFAP, ⁴SDSU, ⁵SDSU

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

Cliff Ocker ¹

¹Rock River Laboratory, Inc

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

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

A S. Alharti ¹, Juan Loo 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 Il-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. Caetano¹, Luan S. Santos², John K. Htoo³, Alini M. Veira⁴, Welex C. Silva⁵, Jaqueline P. Gobi⁶, Alicia Z. Fraga⁷, Paulo H. R. F. Campos⁸, Nei A. A. Barbosa⁹, Luciano Hauschild¹⁰

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. Thomas¹, Robert D. Goodband², Charmaine D. Espinosa³, Hans H. Stein⁴, Jason C. Woodworth⁵, Mike D. Tokach⁶, Steve S. Dritz⁷, Joel M. DeRouchey⁸

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, ⁸Kansas State University

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

Woong B. Kwon¹, Kevin J. Touchette², Aude Simongiovanni³, Kostas Syriopoulos⁴, Anna Wessels⁵, Hans H. Stein⁶

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 Park¹, Victor Naranjo², Ariane Helmbrecht³, John K. Htoo⁴, Olayiwola Adeola⁵

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 Oliveira¹, John K. Htoo², Hans H. Stein³

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
¹Purina Animal Nutrition, ²Purina Animal Nutrition, ³PMI, ⁴Purina Animal Nutrition, ⁵Purina Animal Nutrition

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

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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

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Stacie Crowder ¹, Terry Weeden ², Benjamin Bass ³, Brenda DeRodas ⁴, Theodore Karnezos ⁵
¹Purina Animal Nutrition, ²Purina Animal Nutrition, ³PMI, ⁴Purina Animal Nutrition, ⁵Purina Animal Nutrition

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Kevin S. Jerez Bogota ¹, Christian Sanchez ², Jimena Ibagón 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**

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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.

Ruminant Nutrition: Feedlot: Nutrition and Management

Chair: Tara Felix, The Pennsylvania State University

1:30 PM - 3:30 PM

213

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

Leslie Lekatz ¹, Bryan Neville ²

¹University of Minnesota Crookston, ²North Dakota State University

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

Caitlin A. Coulson ¹, Bradley M. Boyd 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,

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

Elizabeth Schumacher ¹, Galen E. Erickson ², D.J. 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

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

Lauren Ovinge ¹, Mitch 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,

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

Hannah C. Wilson ¹, Melissa L. Jolly-Breithaupt ², Andrea K. Watson ³, James C. MacDonald ⁴, Galen E. Erickson ⁵

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,

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

Hannah C. Wilson ¹, Henry Hilscher ², Zachary E. Carlson 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,

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

Jenny S. Jennings ¹, Catherine L. Lockard ², Ty E. Lawrence ³

¹Texas A&M AgriLife Research, ²Texas A&M AgriLife Research, ³West Texas A&M University

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

Allison VanDerWal ¹, Josh Zeltwanger ², Alfredo DiCostanzo ³

¹University of Minnesota, ²University of Minnesota, ³University of Minnesota

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 ¹

¹USDA-ARS-MARC

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

Ty Schmidt ¹, Eric Psota ², Benny Mote ³, Lance Perez ⁴, Mateus Mittek ⁵

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

Belcy 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

Nonruminant Nutrition: Feed Additives III: Nursery

Chair: Doug Cook; Shelby Curry, BIOMIN America Inc.

1:45 PM - 4:00 PM

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

Ki Beom Jang ¹, Jerry 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. 137 **Effects of micro-encapsulated formula of organic acids and essential oils on performance and gut integrity of weaned piglets challenged with ETEC K88**

Yetong Xu ¹, Ludovic Lahaye ², Zhengxiao He 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. 141 **Supplementation of *Bacillus subtilis* modified fecal microbiota of weaning pigs experimentally infected with pathogenic *E. coli***

Cynthia Jinno ¹, Kwangwook Kim ², Minh 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. 140 **Effects of *Bacillus subtilis* probiotics on growth performance, diarrhea, and fecal β -hemolytic coliforms of weaned pigs experimentally infected with an enterotoxigenic *Escherichia coli***

Yijie He ¹, Kwangwook Kim ², Cynthia Jinno ³, Lauren Kovanda ⁴, Seijoo Yang ⁵, Minh 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. 142 **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, Minh 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

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

Lori L. Thomas ¹, Ashley Hartman ², Jason C. Woodworth ³, Mike D. Tokach ⁴, Robert D. Goodband ⁵, Steve S. Dritz ⁶, Joel M. DeRouchey ⁷, Denny McKilligan ⁸, Aaron Jones ⁹

¹Kansas State University, ²Kansas State University, ³Kansas State University, ⁴Kansas State University, ⁵Kansas State University, ⁶Kansas State University, ⁷Kansas State University, ⁸Tech Mix, LLC, ⁹Tech Mix, LLC

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

Maryane 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

3:45 p.m. 144 **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

Nonruminant Nutrition: Sow Nutrition

Chair: Márcio Gonçalves, Genus PIC; David Rosero, The Hanor Company LLC

1:45 PM - 3:45 PM

211/212

1:45 p.m. 180 **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

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

Emily K. Bruder ¹, Sara K. Linneen ², Gene G. Gourley ³, Robert L. Payne ⁴

¹Gourley Premium Pork, ²Elanco Animal Health, ³Gourley Research Group, ⁴Elanco Animal Health

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

Ningya Li ¹, Zhijian Sun 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

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

Julie A. Feldpausch ¹, Kayla M. Mills ², Alan W. Duttlinger ³, S M. Elly ⁴, Yuan H. B. Kim ⁵, John S. Radcliffe ⁶, Zach Rambo ⁷, Brian T. Richert ⁸

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

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

Chair: Dustin Mohrhauser

1:45 PM - 4:35 PM

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

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

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

David 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

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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. Coblenz 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 allele-specific 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, ⁶MSU, 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

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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

¹Neogen GeneSeek Operations, ²Neogen GeneSeek Operations, ³Neogen GeneSeek Operations, ⁴Neogen GeneSeek Operations, ⁵Neogen GeneSeek Operations, ⁶Neogen GeneSeek Operations, ⁷Neogen GeneSeek Operations

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

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

E. John Pollack ¹

¹University of Nebraska-Lincoln

Billy Day Symposium

Chair: Chris Hostetler

1:45 PM - 5:30 PM

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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**

Growth, Development, Muscle Biology and Meat Science

Chair: Benjamin Bohrer, University of Guelph

3:45 PM - 5:30 PM

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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. 97 **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. 96 **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. 99 **Effects of replacing monensin and tylosin in finishing cattle diets with essential oil and/or benzoic acid on meat color and oxidative stability of ribeye steaks and ground beef**

Lydia M. Wang ¹, Shiqi Huang 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. 374 **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

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4:15 p.m. 66 **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

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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. Fohse 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 Lagos¹, Carrie L. Walk², Hans H. Stein³

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. Soto¹, Dean D. Koehler², Leah M. Kellesvig³, Spenser L. Becker⁴, Stacie A. Gould⁵, John F. Patience⁶

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. Vier¹, Steve S. Dritz², Mike D. Tokach³, Jason C. Woodworth⁴, Robert D. Goodband⁵, Joel M. DeRouchey⁶

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. Vier¹, Steve S. Dritz², Mike D. Tokach³, Márcio A.D. Gonçalves⁴, Uislei A.D. Orlando⁵, Jon R. Bergstrom⁶, Jason C. Woodworth⁷, Robert D. Goodband⁸, Joel M. DeRouchey⁹

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. Vier¹, Steve S. Dritz², Mike D. Tokach³, Márcio A.D. Gonçalves⁴, Uislei A.D. Orlando⁵, Jon R. Bergstrom⁶, Jason C. Woodworth⁷, Robert D. Goodband⁸, Joel M. DeRouchey⁹

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

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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, ⁷New Fashion Pork, 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 Ebarb ¹, Richard Faris ², Junmei Zhao ³, Sabrina Williams ⁴, Kathryn Price ⁵

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 Kinstler ¹, Yanshao Li ², Phillip Miller ³, Thomas E. Burkey ⁴, Melanie Trenhaile-Gannemann ⁵, Samodha C. Fernando ⁶, Allison Knoell ⁷, Wesley A. Tom ⁸

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. Rodriguez ¹, Su A Lee ², Mary B. Muckey ³, Cassandra K. Jones ⁴, Hans H. Stein ⁵

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

Nonruminant Nutrition: Fiber/Enzymes

Chair: Pedro Urriola, Department of Animal Science, University of Minnesota

8:30 AM - 10:15 AM

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8:30 a.m. 163 **Xylanase and fermentable xylo-oligosaccharides improve performance in grower-finisher pigs fed a corn-soybean meal based diet**

Gustavo Cordero ¹, Jae Cheol Kim ², Natasha Whenham ³, Helen Masey-O'Neill ⁴, Saksit

Srinongkote ⁵, Gemma González-Ortiz ⁶

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. Acosta ¹, John F. Patience ²

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

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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 Seroa 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

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, 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 - Universidade Federal do Rio Grande do Sul - UFRGS

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 - Universidade Federal do Rio Grande do Sul - UFRGS

10:15 a.m. 165 **Impact of mycotoxin contamination of feed on growth performance and blood metabolites of growing pigs**

Jesus A. Acosta ¹, Gwendolyn M. Jones ², John 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

213

8:30 a.m. 343 **Feedlot performance and carcass characteristics of steers fed diets containing steam-flaked grain and corn silage from Enogen® Feed Corn**

Adrian Baker ¹, Vanessa Veloso ², Adrian Baker ³, Lucas Barros ⁴

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

8:45 a.m. 342 **Evaluation of the effects of biochar on diet digestibility and methane production from growing and finishing steers**

Thomas M. Winders ¹, Melissa L. Jolly-Breithaupt 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

9:00 a.m. 340 **Impact of essential oils blend on beef cattle performance and carcass characteristics in diets with increasing corn silage inclusions**

Hannah C. Wilson ¹, Henry Hilscher ², Zachary E. Carlson 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,

9:15 a.m. 338 **Effect of eicosapentaenoic acid and docosahexaenoic acid supplementation on placenta and fetal liver mRNA, and fetal liver and brain fatty acids profile on early gestation in sheep.**

Jose Alejandro. Roque ¹, Mario Francisco. Oviedo ², Hector Aaron. Lee ³, Alejandro E. Relling ⁴

¹Facultad de Agronomía y Veterinaria, Universidad Autónoma de San Luis Potosí, México,

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

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**

Mohammad 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. Ross¹

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 Hansen¹

¹University of Florida

10:20 a.m. 209 **Cellular mechanisms of heat stress in Poultry**

Marcos Rostagnos¹

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 Rohrer¹

¹USMARC

9:10 a.m. 24 **Field experience and challenges facing sow production today, industry strategies.**

Ronald T. Ketchem¹

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. See¹

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, Volms Farm, 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 Minella 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 Unniversity, 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