Monday, March 13, 2023

Poster Session I
8:00 AM - 9:15 AM
Grand Terrace

8:15 a.m.  PSI-19  A *Saccharomyces cerevisiae*-derived postbiotic stimulates in vitro volatile fatty acid production and influences hindgut microbial population characteristics
Andrea M. Binnebose 1, Maria I. Sardi 2, Briana Kozlowicz 1, Sharon A. Norton 1
1Cargill, Incorporated, 2Cargill Biotechnology Research and Development Center-Biology

8:15 a.m.  PSI-6  Effect of calcium magnesium carbonate and/or tylosin phosphate supplementation on behavior and rumination activity in yearling beef steers fed a finishing diet
Haley Maday 1, Becca Grimes Francis 1, Forest L. Francis 1, Erin R. Gubbels 1, Thomas Norman 1, Santana Hanson 1, Thiago Maia Ribeiro 1, Zachary K. Smith 1, Cassidy Ross 1, Devan Paulus Compart 2
1South Dakota State University, 2Papillon Agricultural Company

8:15 a.m.  PSI-20  Effects of prebiotic galactooligosaccharide (GOS) on piglet growth and jejunal morphology during the peri-weaning period
Timothy E. Boston 1, Feng Wang 2, Lin Xi 1, Sung Woo Kim 1, Vivek Fellner 1, Mark F. Scott 3, Amanda L. Ziegler 4, Laurianne Van Landeghem 4, Anthony T. Blikslager 4, Jack Odle 1
1North Carolina State University, 2Department of Animal Science, North Carolina State University, 3Milk Specialties Global, 4North Carolina State University College of Veterinary Medicine

8:15 a.m.  PSI-18  Efficacy of dietary fat (tallow and palm oil) inclusion on growth efficiency, nutrient absorption, meat quality, and meat fatty acid profile in finishing pigs
Chai Bin Lim 1, Sun Gu Yu 1, Se Yeon Jang 1, Sarbani Biswas 1, In Ho Kim 2
1Department of Animal Resources Science, Dankook University, 2Dankook University

8:15 a.m.  PSI-14  Enteric challenge increases amino acids and energetic costs in growing pigs
Graziela Alves da cunha valini 1, Pedro Righetti Arnaut 2, Luciano Hauschild 3, Aline Remus 4
1Agriculture and Agri-Food Canada, 2Agriculture and Agri-food Canada, 3Faculdade de Ciências Agrárias e Veterinárias - Câmpus de Jabiaticabal - Unesp, 4AAFC
8:15 a.m.  PSI-15  Impact of dietary zinc source on post-weaning performance and livability
Wesley P. Schweer 1, Alyssa S. Cornelison 1, Casey L. Bradley 2, Roger Walk 3, Shelby Nosbisch 3, Lucas Alves Rodrigues 1
1Zinpro Corporation, 2The Sunswine Group, 3Walk Stock Farm

8:15 a.m.  PSI-17  Interactive effects of folic acid and zinc oxide on nursery pig growth performance
Larissa L. Becker 1, Mike D. Tokach 1, Jason C. Woodworth 1, Robert D. Goodband 1, Joel M. DeRouche 1, Jordan T. Gebhardt 2
1Kansas State University, 2Kansas State University

8:15 a.m.  PSI-16  Too late to catch up? Parity order and baseline overall claw quality impact on the responsiveness of sows to mineral-amino acid-complex supplementation: a case study
Ton Kramer 1, Alan Klein 1, Geraldo C. Alberton 2, Alyssa S. Cornelison 1, Wesley P. Schweer 1, Mike Socha 1, Lucas Alves Rodrigues 1
1Zinpro Corporation, 2Federal University of Parana (Campus Palotina)

Poster Session I-A
8:15 AM - 9:15 AM
Grand Terrace

8:00 a.m.  PSI-A-9  A comparison in vaginal gene expression and circulating hormone concentration in pre-pubertal gilts achieving puberty at different ages
Kallista Roers 1, Shannon L. Dierking 1, Crystal L. Levesque 1
1South Dakota State University

8:00 a.m.  PSI-A-13  Changes in daily patterns of physiological measures of heat stress on sows in cool room and in heated room with and without a cooling pad
Jemima Baributsa 1, Maria Gonzalez 1, Allan P. Schinckel 1, Robert M. Stwalley 1, Tyler C. Field 1, Samantha Neeno 1, Sakkariya Paramba 1
1Purdue University

8:00 a.m.  PSI-A-10  Correlations of NR3C1 gene expression with pork quality and carcass characteristics
Grace E. Schmidt 1, Andrea M. Luttman 1, Juan P. Steibel 2, Nancy E. Raney 1, Catherine W. Ernst 1
1Michigan State University, 2Iowa State University

8:00 a.m.  PSI-A-1  Effects of Agolin-Pig® on milk composition throughout lactation
Alicia N. Denton 1, Alexandra Fisk 1, KaLynn Harlow 1, Taw Scaff 1, Brian T. Richert 1, Ashley DeDecker 2, Marlin Hoogland 2, Mike Parsley 3, Kara R. Stewart 1
1Purdue University, 2Smithfield Foods, 3Feedworks USA

8:00 a.m.  PSI-A-5  Effects of birth body weight classification on heifer growth, dry matter intake, feed efficiency, and grazing performance
Esmeralda Lopez Hernandez 1, Hattie I. Duncan 1, Joshua C. McCann 1, Daniel W. Shike 1
1University of Illinois at Urbana-Champaign
Effects of microencapsulated zinc oxide on nursery pig growth performance and intestinal morphology
Payton L. Dahmer 1, Elizabeth Fisher 1, Cassandra K. Jones 1
1Kansas State University

Evaluation of novel and traditional cover crops utilizing cattle in high-density, short-duration grazing
Brooklyn Westerfield 1, Keela Trennepohl 2, Delson Wilcoxen 2, Joshua C. McCann 3, Mark Benards 2
1University of Illinois Urbana Champaign, 2Western Illinois University, 3University of Illinois at Urbana-Champaign

Prediction models for estimating metabolizable energy intake of pigs based on body weight and ambient temperature
No A. Park 1, Jeonghyeon Son 1, Beob G. Kim 1
1Konkuk University

The effect of rumen capacity manipulation on dry matter intake on diets differing for processing level
Grady A. Privett 1, Micah L. O’Malley 1, Lillian R. Royer 1, Amanda Holder 1
1College of the Ozarks

The effect of soybean meal and its functional compounds on growth performance, fecal scores, and fecal characteristics of nursery pigs
Rachel M. Self 1, Brooke M. Bowen 2, Kade Miller 1, Ty M. Mitchell 2, Thomas A. Crome 1, Hannah Miller 1, Jerrad F. Legako 2, Amy L. Petry 3
1Texas Tech University, 2Texas Tech University, Department of Animal and Food Sciences, 3Division of Animal Sciences, University of Missouri

The effects of a novel brewer’s yeast product on ruminal fiber fermentation in vitro
Vanessa Jensen 1, Haley F. Linder 2, Michael Cecava 3, Joshua C. McCann 2
1Illinois State University, 2University of Illinois at Urbana-Champaign, 3Wilbur-Ellis

Validation of rising plate meter for predicting herbage mass in tall-fescue pastures
Kayla R. Grey 1, Esmeralda Lopez Hernandez 1, Kylie P. Ewing 1, Joshua C. McCann 1, Daniel W. Shike 1
1University of Illinois at Urbana-Champaign
Midwest Board Symposium
Chair: Joe Loughmiller, Phileo by Lesaffre
9:00 AM - 11:45 AM
Ballroom A

9:00 a.m. Midwest Board Symposium Introduction

9:05 a.m. 1 Microbiomes from the theory to application
Seidu Adams 1, Niros D. Aluthge 1, Waseem Abbas 2, Matt L. Spangler 1, Wells James 3, Kristen E. Hales 4, Larry A. Kuehn 5, William T. Oliver 6, Thomas Burkey 1, Phillip S. Miller 1, Samodha C. Fernando 1
1University of Nebraska-Lincoln, 2Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE 68583, USA, 3USDA, ARS, USMARC, 4Texas Tech University, 5USDA, ARS, US Meat Animal Research Center, 6USDA-ARS

9:40 a.m. 2 Metagenomic detection and binning of plasmids for an improved understanding of the risk of antimicrobial resistance gene transfer events
Christopher L. Anderson 1
1USDA-ARS

10:15 a.m. 3 Midwest Board Symposium Break

10:30 a.m. 4 Is the microbiome the answer to the ultimate question of life, the universe, and everything
Francis L. R. Fluharty 1, Jeferson M. Lourenco 1
1University of Georgia

11:05 a.m. 5 DPP Lecture: Investigating the Impact of Weaning and Biological Sex on Gut Development: Discovering New Targets for Gut Inflammation
Adam J. Moeser 1
1Department of Large Animal Clinical Sciences, College of Veterinary Medicine, Michigan State University

Poster Session II
10:00 AM - 10:45 AM
Grand Terrace

10:00 a.m. PSII-10 Ammonium phosphate is an appropriate nitrogen source in nitrogen-limiting diets for growing pigs
Miranda Buchinski 1, Carley M. Camire 1, Olufemi O. Babatunde 2, Anna Kate K. Shoveller 3, Daniel A. Columbus 4
1University of Saskatchewan, 2Prairie Swine Centre, 3University of Guelph, 4Prairie Swine Centre, Inc.

10:00 a.m. PSII-19 Analysis of vitamin A and E in biological samples after prolonged processing
Laura L. Greiner 1, Sarah Elefson 1
1Iowa State University
10:00 a.m. PSII-18  Chemical composition of cassava-based feed ingredients from South-East Asia
Natalia dos Santos Fanelli ¹, Leidy J. Torres-Mendoza ¹, Jerubella J. Abelilla ², Hans H. Stein ³
¹UIUC, ²DSM Nutritional Products, ³University of Illinois at Urbana-Champaign

10:00 a.m. PSII-16  Comparison of microencapsulated zinc oxide and conventional zinc oxide on weanling pig small intestinal morphology
Payton L. Dahmer ¹, Cassandra K. Jones ¹
¹Kansas State University

10:00 a.m. PSII-6  Computational tools and resources for analysis and exploration of single-cell RNAseq data in agriculture
Muskan Kapoor ¹, Christopher K. Tuggle ¹, Tony Burdett ², Timothy Tickle ³, Peter Harrison ², Christine Elsik ⁴, Nicholas Provart ⁵, Marc Libault ⁶, Wes Warren ⁷, James E. Koltes ⁸, Alexey Sokolov ², Enrique Sapena Ventura ², Galabina Yordanova ², Irene Papatheodorou ², Nancy George ², Doreen Ware ⁹, Sunita Kumari ¹⁰, Lance Daharsh ¹¹, Benjamin Cole ¹²
¹Iowa State University, ²EMBL-EBI, Wellcome Genome Campus, ³Data Sciences Platform, The Broad Institute of MIT and Harvard, ⁴Division of Animal Science and Division of Plant Science and Technology, ⁵Department of Cell and Systems Biology/Centre for the Analysis of Genome Evolution and Function, University of Toronto, ⁶Department of Agronomy and Horticulture, University of Nebraska-Lincoln, ⁷Division of Animal Science and Division of Plant Science and Technology, University of Missouri-Columbia, ⁸Iowa State University, Department of Animal Science, ⁹Cold Spring Harbor Laboratory, U.S. Department of Agriculture, Agricultural Research Service, NEA Robert W. Holley Center for Agriculture and Health, Cornell University, ¹⁰Cold Spring Harbor Laboratory, ¹¹Genvax Technologies, ¹²DOE-Joint Genome Institute, Lawrence Berkeley National Laboratory

10:00 a.m. PSII-7  Considerations for creating an agricultural program aimed at engaging elementary students
Shannon L. Dierking ¹, Christina Bakker ¹, Crystal L. Levesque ¹
¹South Dakota State University

10:00 a.m. PSII-15  Effect of low protein diets fed to weanling pigs on growth performance, fecal score, and carcass characteristics
Minoy A. Cristobal ¹, Su A Lee ¹, Hans H. Stein ¹
¹University of Illinois at Urbana-Champaign

10:00 a.m. PSII-3  Effect of room temperature regime on growth performance and mortality of newly-weaned pigs
Jenny Morris ¹, Mike Ellis ², Caleb M. Shull ³
¹University of Illinois/Traverse Science, Inc., ²University of Illinois, ³The Maschhoffs, LLC
10:00 a.m. PSII-8  **Effects of extruded-expelled soybean meal and benzoic acid on growth performance, carcass characteristics, and carcass fat iodine value of finishing pigs**
Jenna J. Bromm ¹, Mike D. Tokach ¹, Joel M. DeRouche ¹, Kiah M. Berg ², Jon A. De Jong ², Courtney Pohlen ², Jason C. Woodworth ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ³
¹Kansas State University, ²Pipestone Nutrition, ³Kansas State University

10:00 a.m. PSII-9  **Effects of increasing omega-3 fatty acids on growth performance, mortality rate, and medication usage in PRRS-Virus challenged nursery pigs**
Jenna J. Bromm ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Joel M. DeRouche ¹, Josh Flohr ², Raymond Schmitt ², Jordan T. Gebhardt ³
¹Kansas State University, ²Seaboard Foods, ³Kansas State University

10:00 a.m. PSII-4  **Effects of rye or triticale with or without crimson clover on forage yield and quality, and gestating beef female performance**
Kylie P. Ewing ¹, Daniel W. Shike ¹
¹University of Illinois at Urbana-Champaign

10:00 a.m. PSII-13  **Effects of standardized ileal digestible lysine, fiber level, and amino acid ratios on growth performance of nursery pigs**
Henrique S. Cemin ¹, Morgan D. Hart ¹, Jamie L. Pietig ¹, Sharlie A. Hansen ¹, Jose A. Soto ², Ernie L. Hansen ¹
¹Hubbard Feeds, ²Alltech

10:00 a.m. PSII-17  **Evaluation of a microencapsulated form of zinc oxide on weanling pig growth performance and zinc excretion**
Payton L. Dahmer ¹, Cassandra K. Jones ¹
¹Kansas State University

10:00 a.m. PSII-2  **Evaluation of meloxicam in sows post-farrowing on sow and piglet performance**
Alexandra Fisk ¹, KaLynn Harlow ¹, Abigail Statler ², Grace deNeui ², Dan Rosener ³, Stacy Peters ³, Kara R. Stewart ¹
¹Purdue University, ²Iowa State University, ³Veterinary Pharmaceutical Solutions

10:00 a.m. PSII-1  **Evaluation of precision feeding on animal behavior in finishing beef cattle**
Santana Hanson ¹, Hannah Braaten ¹, Warren C. Rusche ¹, Zachary K. Smith ¹
¹South Dakota State University

10:00 a.m. PSII-12  **Growth performance of pigs fed diets containing supplemental lysine and a low or high essential amino acid-nitrogen to total nitrogen ratio**
Carley M. Camire ¹, Lucas A. Rodrigues ², Josiane C. Panisson ³, Anna Kate K. Shoveller ⁴, Daniel A. Columbus ⁵
¹University of Saskatchewan, ²Prairie Swine Center, ³Prairie Swine Centre, ⁴University of Guelph, ⁵Prairie Swine Centre, Inc.
10:00 a.m.  PSII-5  Impacts of birth body weight classification on performance, feed efficiency, and structural characteristics in beef steers
Hattie I. Duncan 1, Daniel W. Shike 1
1University of Illinois at Urbana-Champaign

10:00 a.m.  PSII-11  Supplementation of non-protein nitrogen to a nitrogen-deficient diet increases lysine requirement for nitrogen-retention
Miranda Buchinski 1, Carley M. Camire 1, Josiane C. Panisson 2, Anna Kate K. Shoveller 3, Daniel A. Columbus 4
1University of Saskatchewan, 2Prairie Swine Centre, 3University of Guelph, 4Prairie Swine Centre, Inc.

10:00 a.m.  PSII-20  The effect of hemolysis on vitamin A, E, and trace mineral analysis in plasma
Laura L. Greiner 1, Sarah Elefson 1
1Iowa State University

10:00 a.m.  PSII-14  The effect of increasing soluble dietary fiber and the addition of a stimbiotic in gestation on sow productivity in a PRRS and non-PRRS challenge
Pete Wilcock 1, Kiah M. Berg 2, Gustavo Cordero 1, Anthony Russo 3
1AB Vista, 2Pipestone Nutrition, 3Legacy Pork

Ruminant Nutrition Symposium I
Chair: Felipe Cardoso, University of Illinois at Urbana-Champaign
1:00 PM - 4:30 PM
Ballroom B

1:00 p.m.  Ruminant Nutrition Symposium I Introduction

1:05 p.m.  12  Amino acid nutrition in dairy cattle: Beyond milk protein
Felipe Cardoso 1
1University of Illinois at Urbana-Champaign

1:50 p.m.  13  Considerations when rumen protected amino acids are fed to dairy cows
Chanhee Lee 1
1The Ohio State University

2:35 p.m.  Ruminant Nutrition Symposium I Break

2:50 p.m.  14  Predicting performance responses of growing cattle to amino acid supplemenation
Evan C. Titgemeyer 1
1Kansas State University

3:35 p.m.  15  Industry perspective on the value and challenges of amino acid feeding in ruminants
Aimee Wertz-Lutz 1
1Devenish Animal Nutrition
1:00 p.m.  **Swine Translational Symposium Introduction**

1:05 p.m.  6  **Sow farm costs and hurdles to execution**  
Dave Wade  
^1^The Hanor Company  

1:50 p.m.  7  **Wean to market costs and hurdles to execution**  
Noel H. Williams  
^1^Iowa Select Farms  

2:35 p.m.  8  **Swine Translational Symposium Break**

2:50 p.m.  9  **Making “scientific” work instructions not so scientific**  
Jonathon Hoek  
^1^Summit SmartFarms  

3:35 p.m.  10  **The speed of change--are the bugs or people changing more quickly? Implications of missed execution on health**  
Christopher Rademacher  
^1^Iowa State University  

4:20 p.m.  11  **Evaluation and application of technology in swine production systems**  
David S. Rosero  
^1^The Hanor Company  

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**Graduate Student Oral Competition - PHD - Sponsored by the Gretchen Hill Appreciation Club**

Chair: Anna Dilger, University of Illinois at Urbana-Champaign; Jessica Sperber, University of Nebraska-Lincoln  
1:15 PM - 5:30 PM  
Ballroom D  

1:15 p.m.  41  **Growth performance and carcass characteristics of beef-sired steers born to Holstein dams**  
Bailey L. Basiel  
^1^Penn State,  
^2^Dept. of Dairy and Animal Sciences, Pennsylvania State University  

1:30 p.m.  42  **Concentrations of digestible and metabolizable energy, ileal digestibility of amino acids, and digestibility of phosphorus in a new variety of soybeans fed to growing pigs**  
Minoy A. Cristobal  
^1^University of Illinois at Urbana-Champaign  

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1:45 p.m.  43  Impact of pregnancy status on the transcriptome of peripheral white blood cells
Jorge A. De Los santos 1, João Paulo N N. Andrade 1, Andres Iriarte 2, Francisco Peñagaricano 1, John J. Parrish 1
1University of Wisconsin-Madison, 2Facultad de Medicina, UDELAR, Montevideo Uruguay

2:00 p.m.  44  Identification of vaginal gene expression differences in gilts achieving early or late puberty
Shannon L. Dierking 1, Jodi Morton 2, Michael Gonda 1, Hossein Rekabdarkolaee 1, Jeffrey A. Clapper 1, Crystal L. Levesque 1
1South Dakota State University, 2Southern University & A&M College

2:15 p.m.  45  Determining the phosphorus release curve for Smizyme TS G5 2,500 phytase from 500 to 2,500 FTU/kg in nursery pig diets
Katelyn Gaffield 1, Hadley Williams 1, Larissa L. Becker 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Mike D. Tokach 1, Robert D. Goodband 1, Jordan T. Gebhardt 2, Jill M. Faser 3
1Kansas State University, 2Kansas State University, 3Barentz

2:30 p.m.  46  The distribution of porcine epidemic diarrhea virus, porcine reproductive and respiratory syndrome virus, and Seneca Valley virus 1 inoculated feed after chemical mitigation to flush a feed mill
Olivia Harrison 1, Haley Otott 1, Jianfa Bai 2, Vaughn Hamill 1, Jason C. Woodworth 1, Cassandra K. Jones 1, Charles R. Stark 1, Roman Pogranichniy 1, Jordan T. Gebhardt 3, Chad B. Paulk 1
1Kansas State University, 2Kansas State Universityh, 3Kansas State University

2:45 p.m.  47  Feeding pigs with low crude protein diets: impact of pig manure nitrogen content on biogas production and digestate quality
Felipe M. W. Hickmann 1, Ines Andretta 2, Léa Cappelaere 3, Bernard Goyette 4, Marie-Pierre Létourneau-Montminy 3, Rajinikanth Rajagopal 4
1UFRGS, 2Universidade Federal do Rio Grande do Sul, 3Université Laval, 4AgriFood Canada

3:00 p.m.  48  Evaluation of branched-chain amino acid interactions in 13 to 23 kg nursery pigs using a central composite design
Dalton C. Humphrey 1, Keith D. Haydon 2, Laura L. Greiner 1
1Iowa State University, 2CJ Bio America

3:15 p.m.  Graduate Student Oral Competition - PHD Break

3:30 p.m.  49  The effect of increasing standardized ileal digestible methionine intake during lactation on whole-body nitrogen utilization of primiparous sows
Cierra Kozole 1, Cristhiam J. Munoz Alfonso 1, John K. Khun Kyaw Htoo 2, Lee-Anne Huber 1
1University of Guelph, 2Evonik
3:45 p.m.  50  Individual precision feeding can greatly reduce global warming, eutrophication, and acidification environmental impacts
Berta Llorens Marbà 1, Candido Pomar 2, Bernard Goyette 1, Rajinikanth Rajagopal 1, Ines Andretta 3, María Ángeles Latorre 4, Aline Remus 2
1AgriFood Canada, 2AAFC, 3Universidade Federal do Rio Grande do Sul, 4Universidad de Zaragoza

4:00 p.m.  51  Evaluation of the effects of a single intranasal dose of essential oil spray on the nasopharyngeal microbiota of feedlot cattle: A pilot study
Gabriela Magossi 1, Kaycie N. Schmidt 1, Devin B. Holman 2, Tommy Winders 3, Zachary E. Carlson 1, Sarah R. Underdahl 1, Kendall C. Swanson 1, Samat Amat 4
1North Dakota State University, 2Agriculture and Agri-food Canada, 3Danisco Animal Nutrition & Health (IFF), 4North Dakota State University, Department of Microbiological Sciences

4:15 p.m.  52  Feeding style and its effect on growth and spatial preference of young pigs
Kaitlyn Sommer 1, Pradeep Senthill 1, Sangyun Joung 1, Rebecca Golden 1, Ryan N. Dilger 2
1University of Illinois - Urbana Champaign, 2University of Illinois Urbana-Champaign

4:30 p.m.  53  Effect of vitamin A supplementation during gestation on vitamin A status of beef cows and their calves managed in the drylot
Hannah Speer 1, Karla Wilke 1, Mary E. Drewnoski 1
1University of Nebraska-Lincoln

4:45 p.m.  54  Impact of ileal indigestible protein on nitrogen excretion and fecal microbiota may be greater compared with total protein concentration of diets in growing pigs
Jung Yeol Sung 1, Timothy A. Johnson 1, Darryl Ragland 1, Olayiwola Adeola 1
1Purdue University

5:00 p.m.  55  The effects of dietary net energy levels on grow-finish performance and carcass characteristics of market gilts managed with Improvest®
Yifei Wang 1, Blaine Hansen 2, Steve Pollmann 3, Jose Luis Landero 4, Malachy Young 4, Benjamin M. Bohrer 1
1The Ohio State University, 2BCH Consulting LLC, 3DSP Consulting LLC, 4Gowans Feed Consulting

5:15 p.m.  56  Early weaning stress relocates epithelial enteroendocrine cells and alters intestinal nutrient sensing and transport functions in pigs
Liang-en Yu 1, Peter Mann 1, Lydia Schlitzkus 1, Jiniya Chakradhar 1, Yihang Li 1
1University of Delaware
Undergraduate Student Oral Competition
Sponsored by the Gretchen Hill Appreciation Club
Chair: Jorge Perez Palencia, South Dakota State University; Ty B. Schmidt, University of Nebraska-Lincoln
1:15 PM - 5:30 PM
Hall of Ideas J

1:15 p.m.  26 Effect of steroidal implants and zinc supplementation on circulating metabolites and insulin sensitivity in feedlot steers
Allison M. Baumhover 1, Dathan T. Smerchek 1, Emma L. Rients 1, Amy M. McLaughlin 1, Kara J. Thornton 2, Stephanie L. Hansen 1
1Iowa State University, 2Utah State University

1:30 p.m.  27 Quality variation in beef chuck eye rolls sourced from a commercial processor
Alicia Boryszewski 1, Nicholas Heller 2, Joshua C. McCann 3, Justin W. Rickard 2
1University of Illinois, 2Illinois State University, 3University of Illinois at Urbana-Champaign

1:45 p.m.  28 On-farm rapid test to assess immunological health of young pigs
Kyerra Carter 1, Eric Weaver 1, Crystal L. Levesque 1
1South Dakota State University

2:00 p.m.  29 Evaluation of diet composition on early post-weaned feed intake and intestinal health
Grace deNeui 1, Carson M. De Mille 1, Eric R. Burrough 1, Nicholas K. Gabler 1
1Iowa State University

2:15 p.m.  30 Microbiome manipulation to reduce methane emission in beef cattle
Tien Doan 1, Hannah Wilson 1, Fiacre Kubwimana 1, Alison Neujahr 1, Samodha C. Fernando 1
1University of Nebraska-Lincoln

2:30 p.m.  31 Alternative housing for beef cow/calf producers: A survey of management practices and health concerns
Sadie J. Drayer 1, Joshua C. McCann 1, Daniel W. Shike 1, William T. Meteer 1
1University of Illinois at Urbana-Champaign

2:45 p.m.  32 Effect of probiotics supplementation level on growth performance, blood parameters and fecal metabolites in nursery pigs
Karyn A. Duddeck 1, Tiffany E. Justman 1, Haley J. Adkins 1, Alexandra H. Smith 2, Samantha Hernandez 2, Seth J. Wenner 2, Chi Chen 3, Wenli Li 4, Young Dal Jang 1
1University of Wisconsin-River Falls, 2Arm & Hammer Animal and Food Production, The ScienceHearted Center, 3University of Minnesota, 4US Dairy Forage Research Center, USDA-Agricultural Research Service

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3:00 p.m.  33  Effect of utilizing nurse sows compared to no nurse sows on farrowing house productivity
Larissa E. Meier 1, Kacey N. Allen 2, Amanda Cross 3, Emily Mauch-Swinford 3, Ethan Stephenson 4, John Sonderman 3, Brady McNeil 3
1University of Nebraska-Lincoln, 2DNA Genetics, 3DNA Swine Genetics, 4Pillen Family Farms

3:15 p.m.  Undergraduate Student Oral Competition Break

3:30 p.m.  34  Assessing the ability to immunomodulate the innate immune system and oxidative status of weaned pigs through a prenatal lipopolysaccharide challenge
Ty M. Mitchell 1, Nicole C. Burdick Sanchez 2, Jeffery A. Carroll 2, Paul R. Broadway 2, Jerrad F. Legako 1, Amy L. Petry 3
1Texas Tech University, Department of Animal and Food Sciences, 2USDA-ARS, Livestock Issues Research Unit, 3Division of Animal Sciences, University of Missouri

3:45 p.m.  35  High fiber top dress effects on sows during farrowing and lactation
Sawyer J. Nickell 1, Cate Rush 1, Denny McKilligan 2, Sam Tauer 3, Paul M. Cline 4
1Christensen Farms, 2TechMix Global, 3Christensen Farms, 4Christensen Farms

4:00 p.m.  36  Effects of programmed compensatory gain on feedlot steer behavior
Jebadiah Schwager 1, Zachary Buessing 2, Bruce Hannon 2, Michael Murphy 2, Daniel W. Shike 2, Joshua C. McCann 2
1Western Illinois University, 2University of Illinois at Urbana-Champaign

4:15 p.m.  37  Effects of creep feeding duration on rumen fermentation characteristics using an ex vivo model
Jack T. Silver 1, Lindsey M. Pugh 1, William T. Meteer 1, Joshua C. McCann 1, Daniel W. Shike 1
1University of Illinois at Urbana-Champaign

4:30 p.m.  38  The effects of lysine and antibiotic usage on early nursery pig performance
Abigail Statler 1, Kayla A. Miller 1, Nicholas K. Gabler 1
1Iowa State University

4:45 p.m.  39  Using finishing pig body measurements as a tool to estimate body weight
Branigan Steichen 1, Hannah Miller 2, Crystal L. Levesque 1
1South Dakota State University, 2Texas Tech University

5:00 p.m.  40  Effect of soybean meal inclusion on grow-finish pig performance and nitrogen balance
Joseph A. Swanstrom 1, Dalton C. Humphrey 1, Sarah Elefson 1, Kayla A. Miller 1, Spenser Becker 1, Chloe S. Hagen 1, Mitchell J. Nisley 1, Laura L. Greiner 1, Nicholas K. Gabler 1
1Iowa State University
5:15 p.m. 306 **Nutrient digestibility and dietary energy values in growing pigs fed a corn distillers dried grains with soluble (cDDGS)-based diet with multi-enzyme supplementation**
Joseph G. Halbur 1, Jinsu Hong 2, Sara Llamas-Moya 3, Tri Duong 3, Steve J. Kitt 4, Eric Weaver 1, Mark Bertram 4
1South Dakota State University, 2Department of Animal Science, South Dakota State University, 3Kerry Inc., 4First Choice Livestock, LLC

**David Baker Symposium**
Chair: Karen Wedekind, Novus International, Inc.
1:30 PM - 4:30 PM
Ballroom A

1:30 p.m. **David Baker Symposium Introduction**

1:35 p.m. 16 **The global energy situation: Outlook for energy availability for fuel and feed**
Nicolas Hoyt 1
1Easy Newz

2:15 p.m. 17 **Nutritional consequences of formulating pig diets with low energy values using fibrous rich byproducts**
Albert van Dijk 1, Francesc Molist 1
1SFR Schothorst Feed Research

2:55 p.m. 18 **David Baker Symposium Break**

3:10 p.m. 19 **Formulating U.S. swine diets in a time of high energy costs**
Mike D. Tokach 1, Robert D. Goodband 1, Joel M. DeRouchey 1, Jason C. Woodworth 1, Jordan T. Gebhardt 2
1Kansas State University, 2Kansas State University

3:50 p.m. 20 **How do producers and nutritionists determine which levers to pull to optimize feed cost and profitability under differing economic conditions?**
Trey A. Kellner 1, Chad M. Pilcher 2
1AMVC Nutritional Services, 2Cargill Animal Nutrition

**Physiology Symposium**
Chair: Sarah Pearce, USDA
1:45 PM - 4:30 PM
Hall of Ideas H

1:45 p.m. **Physiology Symposium Introduction**

2:00 p.m. 21 **Intentionally induced intestinal barrier dysfunction causes inflammation, decreases growth, and alters carcass characteristics of feedlot cattle**
Jon P. Schoonmaker 1
1Purdue University
2:30 p.m.  22  **Current knowledge in ruminants**  
Gregory Penner ¹  
¹University of Saskatchewan

3:00 p.m.  **Physiology Symposium Break**

3:15 p.m.  24  **Intestinal function and integrity in health and disease—Current knowledge in swine**  
Nicholas K. Gabler ¹, Eric R. Burrough ²  
¹Iowa State University, ²Veterinary Diagnostic Laboratory, Iowa State University

3:45 p.m.  25  **Measuring intestinal permeability when urine is not an option**  
Dawn A. Koltes ¹, Maddison Wiersema ³, Brian J. Kerr ²  
¹Iowa State University, ²2USDA-ARS National Laboratory for Agriculture and the Environment

4:15 p.m.  **Physiology Symposium Q&A**

**Graduate Student Oral Competition - MS - Sponsored by the Gretchen Hill Appreciation Club**  
**Chair:** Daniel Shike, University of Illinois at Urbana-Champaign; Erin Bryan, Purina  
2:00 PM - 5:15 PM  
Ballroom C

2:00 p.m.  58  **Effects of pellet quality on growth performances of pigs when fed diets during varying weight ranges**  
Patrick Badger ¹, Haley Otott ¹, Chad B. Paulk ¹, Charles R. Stark ¹, Adam Donnelly ²  
¹Kansas State University, ²Borregaard Biopolymers

2:15 p.m.  59  **Dietary fiber source and stage of gestation impact water balance and fecal physicochemical properties of sows**  
Thomas A. Crome ¹, Kyle Vahlenkamp ¹, Mark A. Giesemann ², Amy L. Petry ³  
¹Texas Tech University, ²Adisseo, ³Division of Animal Sciences, University of Missouri

2:30 p.m.  60  **Molecular characterization of boar semen in relation to sperm quality**  
Notsile H. Dlamini ¹, Tina Nguyen ¹, Qingyu Sheng ¹, Carrie Vance ¹, Scott T. Willard ¹, Peter L. Ryan ¹, Ahmed Gad ², Dawit Tesfaye ², Shengfa T. Liao ¹, Jean M. Feugang ¹  
¹Mississippi State University, ²Colorado State University

2:45 p.m.  61  **The effects of frame score, breed, and day relative to estrus on dry matter intake and feeding behaviors of crossbred beef heifers**  
Lydia E. Hansen ¹, Sarah R. Underdahl ¹, Nayan Bhowmik ¹, Carl R. Dahlen ¹, Kris A. Ringwall ², Kimberly A. Vonnahme ³, Kendall C. Swanson ¹, Lauren L. Hanna ¹  
¹North Dakota State University, ²Dickinson Research Extension Center, North Dakota State University, ³Zoetis
3:00 p.m.  57  Concentration of digestible energy in corn-based diets fed to gestating and lactating sows is increased by adding xylanase to the diets
Jessica P. Acosta Medellin 1, Charmaine D. Espinosa 2, Gemma Gonzalez Ortiz 3, Hans H. Stein 2
1Monogastric Nutrition Laboratory UIUC, 2University of Illinois at Urbana-Champaign, 3AB Vista

3:15 p.m.  63  Biological and management factors affecting Colostrum intake and pre-weaning survival in piglets
Abigail K. Jenkins 1, William L. Flowers 1
1North Carolina State University

3:30 p.m.  Graduate Student Oral Competition - MS Break

3:45 p.m.  64  Determining the phosphorus release curve for Sunphase HT Phytase from 250 to 2,000 FTU/kg in nursery pig diets
Ty Kim 1, Katelyn Gaffield 1, Mike D. Tokach 1, Joel M. DeRouchey 1, Jason C. Woodworth 1, Robert D. Goodband 1, Jordan T. Gebhardt 2, Ying Zhou 3, Xuerong Song 3, Xiuyi Wu 3
1Kansas State University, 2Kansas State University, 3Wuhan Sunhy Biology Co., Ltd.

4:00 p.m.  65  Associations between resilience to weaning stress and startle response in nursery-age gilts
Bora Lee 1, Andrea M. Luttman 1, Catherine W. Ernst 1, Nancy E. Raney 1, Juan P. Steibel 2, Janice M. Siegford 1
1Michigan State University, 2Iowa State University

4:15 p.m.  66  Whole-body biogeography of the bacterial microbiota in newborn calves and response of these communities to prenatal vitamin and mineral supplementation
Sarah M. Luecke 1, Devin B. Holman 2, Kaycie N. Schmidt 1, Katherine E. Gzyl 2, Jennifer L. Hurlbert 1, Ana Clara B. Menezes 1, Kerri A. Bochantin 1, James D. Kirsch 1, Friederike Baumgaertner 1, Kevin K. Sedivec 3, Kendall C. Swanson 1, Carl R. Dahlen 1, Samat Amat 4
1North Dakota State University, 2Agriculture and Agri-food Canada, 3North Dakota State University - Central Grasslands Research Extension Center, 4North Dakota State University, Department of Microbiological Sciences

4:30 p.m.  67  Effect of different dietary protein sources on skeletal muscle growth characteristics and satellite cell mitotic activity of young piglets
Jorge L. Sandoval 1, Allan J. Calderon 2, Samuel F. Leiva 3, Brian L. Anderson 2, Jessica D. Starkey 1, Charles W. Starkey 2
1Department of Poultry Science, Auburn University, 2Auburn University, 3Hanor

4:45 p.m.  68  Impact of increasing levels of hybrid rye on carcass characteristics and product sensory evaluation in grow-finish pigs
Caitlyn R. Sullivan 1, Robert C. Thaler 1, Kiah M. Berg 2, Jon A. De Jong 2, Joe P. Ward 3, Paul F. Frahm 3, Mike J. Boerboom 4
1South Dakota State University, 2Pipestone Nutrition, 3Pipestone Applied Research, 4Boerboom Ag Resources
Monoglycerides of butyric, caprylic, and capric fatty acids promote intestinal integrity and host defenses in health-challenged weanling pigs
Cameron S. White 1, Chien-Che Hung 2, Saraswathi Lanka 2, Carol W. Maddox 2, Adebayo O O. Sokale 3, Adriana Barri 4, Ryan N. Dilger 1
1University of Illinois Urbana-Champaign, 2University of Illinois Urbana-Champaign College of Veterinary Medicine, 3BASF Corporation, 4BASF SE

Ruminant Nutrition I
Chair: Stephanie Hansen, Iowa State University
3:30 PM - 4:30 PM
Hall of Ideas G

Nutrient restriction during late gestation alters maternal circulating amino acid concentrations in primiparous beef females
Colby A. Redifer 1, Lindsey G. Wichman 1, Allison M. Meyer 1
1University of Missouri

Effects of late gestational nutrient restriction on calf pre-weaning growth, backgrounding and feedlot performance, and carcass composition
Allison M. Meyer 1, Abigail R. Rathert-Williams 1, Lindsey G. Wichman 1, Emily A. Petzel 1, Derek W. Brake 1, Colby A. Redifer 1
1University of Missouri

Effects of differing planes of nutrition and one-carbon metabolite supplementation of beef heifers on B12, folate, and folate intermediate concentrations in the dam and fetus
Jessica Syring 1, Matthew S. Crouse 2, Yssi L. Entzie 1, Layla King 1, Mara Hirchert 1, Alison K. Ward 1, Robert Lee 3, Larry P. Reynolds 1, Pawel P. Borowicz 1, Carl R. Dahlen 1, Joel S. Caton 1
1North Dakota State University, 2USDA, ARS, U.S. Meat Animal Research Center, 3NDSU

Effects of fatty acids sources and lysophospholipids on nutrient digestibility in lactating cows
Noah Porter 1, Kiyeon Park 1, Kirsten Clark 1, Lucas Rebelo 1, In Hyuk Kwon 2, Chanhee Lee 1
1The Ohio State University, 2EASY BIO, INC.

A preliminary evaluation on novel tryptophan additive on apparent total tract and ileal digesta of nutrients in growing pigs using cannulation technique
Sun Gu Yu 1, Vetriselvi Sampath 1, Se Yeon Jang 1, Chai Bin Lim 1, In Ho Kim 2
1Department of Animal Resources Science, Dankook University, 2Dankook University

Poster Session III
4:45 PM - 5:30 PM
Grand Terrace
Body calcium and phosphorus mobilization of sows during lactation
Julien Heurtault 1, Thomas Lemée 2, Marie-Pierre Létourneau-Montminy 3, Patrick Schlegel 2
1Agroscope, Switzerland; Laval University, Canada, 2Agroscope, 3Université Laval

Comparison of continuous monitoring and scan sampling for monitoring postural changes in sows housed in gestation crates
Nicole K. Moest 1, Naomi C. Willard 1, Katherine D. Vande Pol 1, Caleb M. Shull 2, Mike Ellis 1
1University of Illinois, 2The Maschhoffs, LLC

Correlations between body surface and rectal temperature of newly-weaned sows
Naomi C. Willard 1, Nicole K. Moest 1, Katherine D. Vande Pol 1, Caleb M. Shull 2, Rich Pimpinella 3, Christoph Grein 3, Mike Ellis 1
1University of Illinois, 2The Maschhoffs, LLC, 3Episensors

Effect of dietary clay mineral and organic selenium supplementation on broilers
Yongju Kim 1, Seyeon Chang 1, Jaewoo An 1, Youngbin go 1, Dongcheol Song 1, Hyunah Cho 1, Sehyun Park 1, Kyungho jeon 1, Jinho Cho 1
1Department of Animal Science, Chungbuk National University

Effect of microbial phytase on digestibility of phosphorus in seven sources of sunflower co-products fed to growing pigs
Jimena A. Ibagon 1, Hans H. Stein 2, Charmaine D. Espinosa 2
1University of Illinois, 2University of Illinois at Urbana-Champaign

Effect of two torula yeast sources on growth performance, intestinal health, and immune function of weanling pigs
Charmaine D. Espinosa 1, Hans H. Stein 1
1University of Illinois at Urbana-Champaign

Effect of water delivery system on intestinal microbial populations of nursery pigs
Kelsey L. Hammers 1, Kayla Law 1, Pedro E. Urriola 1, Andres Gomez 1, Lee J. Johnston 2
1University of Minnesota, 2West Central Research and Outreach Center, University of Minnesota

Effects of a specialty energy source on growth performance and fecal microbiota in nursery pigs
Tingting Wang 1, Tsungcheng Cheng Tsai 2, Charles V. Maxwell 2, Jason Frank 1
1International Ingredient Corp, 2University of Arkansas

Effects of L-Carnitine supplemented throughout grow-finish or only in late finishing on growth performance and carcass characteristics of pigs
Jamil Faccin 1, Mike D. Tokach 1, Joel M. DeRouchey 1, Jordan T. Gebhardt 2, Robert D. Goodband 1, Jason C. Woodworth 1
1Kansas State University, 2Kansas State University
4:45 p.m.  PSIII-10  **Effects of mitoquinol during an acute heat stress in growing gilts**
Alyssa D. Freestone 1, Tori E. Rudolph 1, Melissa S. Roths 1, Edith J. Mayorga 1, Megan A. Abyeta 1, Brady M. Goetz 1, Sonia Rodriguez-Jimenez 1, Julie Opgenorth 1, Joshua T. Selsby 1, Lance H. Baumgard 1
1Iowa State University

4:45 p.m.  PSIII-5  **Endosperm hardness in corn affects the digestibility of energy and fiber, and increased drying temperature reduces amino acid digestibility**
Charmaine D. Espinosa 1, Joaquin Cabañas-Ojeda 2, Edgar O. Oviedo-Rondón 2, Hans H. Stein 1
1University of Illinois at Urbana-Champaign, 2North Carolina State University

4:45 p.m.  PSIII-11  **Evaluating the effects of benzoic acid on finishing pig growth performance**
Katelyn Gaffield 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Mike D. Tokach 1, Robert D. Goodband 1, Jordan T. Gebhardt 2
1Kansas State University, 2Kansas State University

4:45 p.m.  PSIII-7  **Evaluation of Agolin-Pig® on sow and piglet performance during lactation**
Alexandra Fisk 1, KaLynn Harlow 1, Taw Scaff 1, Brian T. Richert 1, Ashley DeDecker 2, Martin Hoogland 2, Mike Parsley 3, Kara R. Stewart 1
1Purdue University, 2Smithfield Foods, 3Feedworks USA

4:45 p.m.  PSIII-17  **Evaluation of cheese co-products in comparison to specialty proteins on growth performance of weaned pigs**
Yuan-Tai Hung 1, Emily Fruge 1, Gary Reznik 1, Jon Droegmiller 1, Trevor Lutz 1
1Devenish Nutrition

4:45 p.m.  PSIII-8  **Impact of essential oil combination on performance and coughing prevalence in nursery pigs**
Mónica Florez 1, Vinicius R.C. Paula 2, Patricia V.A. Alvarenga 2, Mareike Hörstmann 1, Eduardo Raele Oliveira 3
1Biochem Zusatzstoffe, 2Biochem do Brasil Nutrição Animal Ltda, 3Insidesui Research Services

4:45 p.m.  PSIII-20  **Impact of prefarrow fat supplementation on piglet survival and subsequent reproduction**
Mark Knauer 1, Zack Peppmeier 1, Jerry Purvis 2
1North Carolina State University, 2Purvis Farms

4:45 p.m.  PSIII-1  **Preference testing of three materials on sows prior to farrowing**
Lauren L. Underwood 1, Anjali Patel 2, Arlene Garcia 3, Nichole C. Anderson 3
1Texas Tech University, Department of Animal and Food Sciences, 2Texas A&M, 3Texas Tech University
4:45 p.m.  PSIII-13  Supplementary effects of carbohydrate enzymes and protease to 2 protein levels of finishing pig’s diet on the growth performance, toxic gas emissions, meat quality, and colonic microbiota community
Sun Gu Yu 1, Chai Bin Lim 1, Se Yeon Jang 1, Qian Qian Zhang 1, In Ho Kim 2
1Department of Animal Resources Science, Dankook University, 2Dankook University

Tuesday, March 14, 2023

Poster Session IV
7:30 AM - 8:15 AM
Grand Terrace

7:30 a.m.  PSIV-20  An in vitro digestion procedure using Daisy™ incubator can replace conventional in vitro digestion procedures using flasks for estimating ileal digestibility of feed ingredients for pigs
No A. Park 1, Jeonghyeon Son 1, Beob G. Kim 1
1Konkuk University

7:30 a.m.  PSIV-3  Biofumigation to reduce swine parasite contamination on organic pastures
Yuzhi Li 1, Sara Major 2, Rick Carr 2, Alexander Hernandez 3
1West Central Research and Outreach Center, University of Minnesota, 2Rodale Institute, 3Kutztown University of Pennsylvania

7:30 a.m.  PSIV-12  Dietary supplementation of a botanical blend improved growth performance and reduced diarrhoea incidence in commercially housed weaned pigs
Atta Kofi Agyekum 1, Francis Simard 1, Mohsen Abedin 1, Leslie L. Mcknight 2
1Trouw Nutrition North America, 23Trouw Nutrition Canada Inc.

7:30 a.m.  PSIV-4  Effect of drip cooling on sow body weight and litter performance during summer
Zhong-Xing Rao 1, Kyle Coble 2, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRouche 1, Robert D. Goodband 1, Jordan T. Gebhardt 3
1Kansas State University, 2JBS Live Pork, 3Kansas State University

7:30 a.m.  PSIV-17  Effect of phytase supplementation on growth performance, bone mineralization, metabolism, and excretion of calcium and phosphorous on fattening pigs fed a diet containing no inorganic phosphate
Marcal Verdu 1, Laura A. Merriman 2, Xavier Soldevila Guitart 1, Marta Balart 1, Jaume Civis Llovet 3, Raul Teixido Montull 3, Joan Grau Comas 3, Spenser Becker 2, Diego Parra 2, Gustavo Cordero 2
1Alimentació Animal i Producció, bonÀrea Agrupa, 2AB Vista, 3SETNA – ADM Animal Nutrition

7:30 a.m.  PSIV-15  Effect of secondary iron injection timing to suckling pigs on pre- and post-weaning growth performance and hematological parameters
Clara L. Lemanski 1, Tianna J. Schott 1, Young Dal Jang 1
1University of Wisconsin-River Falls
7:30 a.m. PSIV-10  Effects of polyunsaturated fatty acids supplementation in resolvin D1 concentration in plasma and follicular fluid in ewes
Ana C. Carranza-Martin 1, Alvaro Garcia-Guerra 2, Cecilia Furnus 3, Alejandro E. Relling 2
1IGEVET, 2The Ohio State University, 3IGEVET CONICET

7:30 a.m. PSIV-14  Evaluation of a novel nutritional supplement (Furst Protect Direct™) via drinking water on growth performance in nursery pigs
Woong Bi Kwon 1, Greg Hartsook 2, Kevin Soltwedel 2, Megan Bible 2, Robert Fischer 2, Fredrik Sandberg 2
1The Furst-McNess Company, 2Furst-McNess Company

7:30 a.m. PSIV-13  Evaluation of floor space restriction and hyper-dosing of phytase on growth performance, carcass characteristics and serum chemistry of late finishing pigs
Izadora Kuneff 1, David S. Rosero 2, Pete Wilcock 3, Eric van Heugten 1
1Department of Animal Science, North Carolina State University, 2The Hanor Company, 3AB Vista

7:30 a.m. PSIV-16  Impact of amount and solubility of dietary fiber fed during late gestation and during the pre-farrowing period on sow serum chemistry and piglet vitality index
Gabriela E. Martinez 1, Suzanne Leonard 2, Eric van Heugten 3, Pete Wilcock 4, David S. Rosero 5
1CSA, 2North Carolina State University, 3Department of Animal Science, North Carolina State University, 4AB Vista, 5The Hanor Company

7:30 a.m. PSIV-6  Impact of cooling pads and dietary Moringa on measures of heat stress in sows in late gestation
Eimear C. Mannion 1, Theresa M. Casey 1, Allan P. Schinckel 1, Jung Yeol Sung 1, Wonders Oogundare 1, McKeeley Stansberry 1, Robert M. Stwalley 1, Radiah Minor 1, Samantha Neeno 1, Tyler C. Field 1
1Purdue University

7:30 a.m. PSIV-2  Impact of vitamins C and E on sow mortality and stillborn rate
Mark Knauer 1
1North Carolina State University

7:30 a.m. PSIV-18  Live yeast (Saccharomyces cerevisiae) improves body condition score and reduces rectal temperature in sows at weaning
Sophie Hiscocks 1, Laura A. Merriman 1, Gustavo Cordero 1, Pete Wilcock 1, Kolapo M. Ajuwon 2, Spenser Becker 1
1AB Vista, 2Purdue University
7:30 a.m.  PSIV-7  Multi-sire artificial insemination of beef heifers in the Nebraska sandhills may increase pregnancy rate compared to single-sire insemination
Dempster M. Christenson 1, Rick N. Funston 2, Jordan M. Thomas 3, Dan J. Kelly 4, John G. Maddux 5
1University of Nebraska, Lincoln: West Central Research, Extension, and Education Center, 2West Central Research, Extension, and Education Center, 3University of Missouri, 4Kelly Ranch, 5Maddux Cattle Company

7:30 a.m.  PSIV-1  Nutrient intervention during gilt development leads to effects on progeny growth responses
Tsungcheng Cheng Tsai 1, Bernard Abeiku Sam 1, Steve Dritz 2, Carine M. Vier 2, Jon R. Bergstrom 3, Sara D. Hough 3, Uislei A. Orlando 2, Kayla Blake 4, Nathan Davis 1, Hannah Grogan 1, Kyle Coble 5, Charles V. Maxwell 1
1University of Arkansas, 2PIC North America, 3DSM, 4JBS Live Pork Veterinarian, 5JBS Live Pork

7:30 a.m.  PSIV-9  Salmate DHA+® fish oil supplement fed to boars and impact on sperm production and spermatogenesis.
John J. Parrish 1, Tom Gall 2, Mark Wilson 3, Mike Parsley 3, Malcolm Ballard 4
1University of Wisconsin-Madison, 2Gall Consulting, 3Feedworks USA, 4The Ballard Group, Inc., Feedworks USA Inc.

7:30 a.m.  PSIV-8  The effects of quercetin supplementation during oocyte maturation on the in vitro production of pig embryos
Cameron Nau 1, Makayla Throop 1, Alayna Christy 1, Brian D. Whitaker 1
1University of Findlay

7:30 a.m.  PSIV-11  The effects of vanillic acid supplementation during in vitro oocyte maturation in pigs
Makayla Throop 1, Alayna Christy 1, Cameron Nau 1, Brian D. Whitaker 1
1University of Findlay

7:30 a.m.  PSIV-5  The utilisation of Alltech’s Seed, Feed, Weed piglet program as an alternative to zinc oxide on the growth, feed efficiency and mortality of newly weaned pigs
Hazel B. Rooney 1, Josep Roquet 1, Manuel Santos 1, Jules A. Taylor-Pickard 1
1Alltech

7:30 a.m.  PSIV-19  Understanding intestinal health in nursery pigs through potential non-invasive biomarkers
Gabriela M. Miotto Galli 1, Ines Andretta 2, Crystal L. Levesque 3, Carlos J. Kippert 4, Karine Ludwing Takeuti 5, Marcos Kipper 6
1Universidade Federal do Rio Grande do Sul/ South Dakota State University, 2Universidade Federal do Rio Grande do Sul, 3South Dakota State University, 4Brazil food -BRF, 53Departament of Veterinary Medicine Medicina Veterinária, University Feevale, Novo Hamburgo, Brazil, 6Elanco
8:00 a.m. 93 **Feedlot performance, carcass traits, and feeder calf value of beef × Holstein and Holstein steers**
Melanie Pimentel-Concepción ¹, Jerad Jaborek ², Jeannine P. Schwehofer ², Andrea Garmyn ¹, Melissa McKendree ¹, Barry J. Bradford ¹, Arnold Hentschel ³, Daniel Buskirk ¹
¹Michigan State University, ²Michigan State University Extension, ³Harbor Beach Veterinary Services, PC

8:15 a.m. 94 **Characterizing yearling beef steers grazing on smooth bromegrass pasture using global positioning technology**
Holly A. Heil ¹, B. Zhao ², Braden C. Troyer ¹, Rebecca L. Sjostrand ², J. Xiong ², Andrea K. Watson ¹, Galen E. Erickson ², J. Okalebo ², Y. Shi ², Yijie Xiong ³
¹University of Nebraska-Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska

8:30 a.m. 95 **Predicting live body weight of beef heifers using 3D imaging**
Dalton J. Anderson ¹, Travis Mulliniks ², Isabella C. F. S. Condotta ³, Andrea K. Watson ¹, Yijie Xiong ²
¹University of Nebraska-Lincoln, ²University of Nebraska, ³University of Illinois at Urbana-Champaign

8:45 a.m. 96 **Impacts of postweaning dry matter intake classification on beef heifer performance and cyclicity**
Hattie I. Duncan ¹, Daniel W. Shike ¹
¹University of Illinois at Urbana-Champaign

9:00 a.m. 97 **Effects of creep feed duration in a drylot system on cow performance and reproduction as well as calf performance through receiving**
Lindsey M. Pugh ¹, Wesley P. Chapple ¹, William T. Meteer ¹, Joshua C. McCann ¹, Daniel W. Shike ¹
¹University of Illinois at Urbana-Champaign

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**Nonruminant Nutrition III: Gro-Finish--Lysine**
Chair: Carine M. Vier, PIC
8:00 AM - 10:00 AM
Hall of Ideas I

8:00 a.m. 128 **Lysine titration for intact males and gilts during the grower-finisher period in both summer and winter seasons in a South African commercial production system**
Willem J. Steyn ¹, Casey L. Bradley ², Chantel Pennicott ³, Jaco J. Raath ¹, Myles Van Deventer ⁴
¹Swine Nutrition Management, ²The Sunswine Group LLC, ³Baynesfield Estates, ⁴Baynesfield Estate
8:15 a.m. 129 Effects of standardized ileal digestible lysine on growth performance of 12- to 136-kg PIC line 800-sired pigs
Katelyn Gaffield 1, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Robert D. Goodband 1, Jordan T. Gebhardt 2, Carine M. Vier 3, Matthew Spindler 4, Uislei A. Orlando 3, Luis E. Zaragoza 4, Ning Lu 5, Wayne R. Cast 3, Danielle Wilson-Wells 3, Julia Holen 6, Alyssa Betlach 6
1Kansas State University, 2Kansas State University, 3PIC North America, 4Genus PIC, 5PIC China, 6Swine Vet Center

8:30 a.m. 130 Effects of increasing dietary standardized ileal digestible lysine levels on growth performance of 102- to 127-kg immunocastred gilts and boars
Gustavo Lima 1, Gabriel Castro 2, Neidilania Ribeiro 2, Analia Silva 2, Carine M. Vier 3, Amanda P. Siqueira 1, Uislei A. Orlando 3, Caio A. da Silva 4
1Agroceres PIC, 2Agroceres MMX, 3PIC North America, 4Universidade Estadual de Londrina

8:45 a.m. 131 Effect of dietary standardized ileal digestible lysine concentration curve on growth performance and carcass characteristics of finishing pigs of DNA genetics
Russell W. Fent 1, Carson V. Cooper 1, Jim D. Hedges 1, Kelly M. Peper 1
1Ralco Nutrition

9:00 a.m. 132 The effects of increasing dietary standardized ileal digestible lysine levels on growth performance and carcass characteristics of 11- to 133-kg late-nursery-to-finish pigs sired by PIC 800 boars
Steve J. Kitt 1, Wayne R. Cast 2, Mark Hover 3, Carine M. Vier 2, Chris Sievers 4, Ning Lu 5, Ron A. Navales 6, Jordi Camp Montoro 7, Alyssa Betlach 4, Dan Hamilton 6, Ross Kiehne 4, Steve Dritz 2, Uislei A. Orlando 2
1First Choice Livestock, LLC, 2PIC North America, 3Reicks View Farms, 4Swine Vet Center, 5PIC China, 6Genus PIC, 7PIC Europe

9:15 a.m. 133 The effects of increasing dietary standardized ileal digestible lysine levels on growth performance and carcass characteristics of 24- to 130-kg grow-finish pigs sired by PIC 800 boars
Steve J. Kitt 1, Wayne R. Cast 2, Mark Hover 3, Carine M. Vier 2, Chris Sievers 4, Ning Lu 5, Ron A. Navales 6, Jordi Camp Montoro 7, Alyssa Betlach 4, Dan Hamilton 6, Ross Kiehne 4, Luis E. Zaragoza 6, Steve Dritz 2, Uislei A. Orlando 2
1First Choice Livestock, LLC, 2PIC North America, 3Reicks View Farms, 4Swine Vet Center, 5PIC China, 6Genus PIC, 7PIC Europe

9:30 a.m. 134 Meta-analysis to determine the standardized ileal digestible lysine requirements of growing-finishing pigs from 11- to 150-kg utilizing the ingredients database of INRA
Jordi Camp Montoro 1, Ronan Casserly 2, Carine M. Vier 3, Ron A. Navales 2, Wayne R. Cast 3, Ning Lu 4, Steve Dritz 3, Uislei A. Orlando 3
1PIC Europe, 2Genus PIC, 3PIC North America, 4PIC China
9:45 a.m.  Effects of increasing dietary standardized ileal digestible lysine levels on growth performance of PIC 337 × Camborough commercial pigs that were sired by high index boars
Ning Lu 1, Eric Parr 2, Jorge Estrada 3, Carine M. Vier 4, Julia A. Calderon Diaz 5, Michael Welsch 2, Wayne R. Cast 4, Ron A. Navales 6, Jordi Camp Montoro 5, Luis E. Zaragoza 6, Steve Dritz 4, Uislei A. Orlando 4
1PIC China, 2Carthage Innovative Swine Solutions, 3Carthage Veterinary Service, 4PIC North America, 5PIC Europe, 6Genus PIC

Animal Behavior, Health and Well-Being Symposium
Chair: Amanda Uitermarkt, Gestal - JYGA Technologies
8:00 AM - 11:15 AM
Hall of Ideas E

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

8:05 a.m.  DAWCon—The dynamic animal welfare concept: A guideline to assess, safeguard and promote animal welfare
Saskia S. Arndt 1, Vivian C. Goerlich 1, F. Josef van der Staay 1
1Utrecht University

8:45 a.m.  Deep dive into animal welfare measurements in swine and their implications
Nichole C. Anderson 1
1Texas Tech University

9:25 a.m.  Animal Behavior, Health and Well-Being Symposium Break

9:40 a.m.  After the publication: How is animal welfare research being used in the industry?
Lyndsey Jones 1
1JBS USA

10:20 a.m.  After the publication: Connecting research and live animal auditing
Collette Kaster 1
1American Meat Science Association (AMSA) and Professional Animal Auditor Certification Organization

11:00 a.m.  Animal Behavior, Health and Well-Being Symposium Q&A

Harlan Ritchie Symposium
Chair: Allison Meyer, University of Missouri
8:00 AM - 11:30 AM
Ballroom D

8:00 a.m.  Harlan Ritchie Symposium Introduction
8:05 a.m. 318 Future of Global Markets for US Beef
Bree Thompson 1
1Meat Export Federation

8:50 a.m. 79 Global competition for calories (diversion of energy from food/feed to fuel)
Brian Shultz 1
1MPB Commodities

9:35 a.m. Harlan Ritchie Symposium Break

9:50 a.m. 80 Increasing value of steers relative to heifers: An opportunity for male sexed semen
Kenneth G. Odde 1
1Kansas State University

10:35 a.m. 81 Creating a more efficient production system (feed efficiency in the real world)
Zachary K. Smith 1, Wes Gentry 2
1South Dakota State University, 2Midwest PMS, LLC

Nonruminant Nutrition Symposium I
Chair: Márcio Goncalves, Wisenetix
8:00 AM - 11:30 AM
Ballroom C

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

8:05 a.m. 82 The Ominous Storm: How to plan and execute a feeding and management program in poor health situations
Trey A. Kellner 1
1AMVC Nutritional Services

8:35 a.m. 83 Developing mortality risk profiles to better feed and manage high-producing sows
Eric Weaver 1
1South Dakota State University

9:05 a.m. 84 Dead sows don't rear piglets
Mark Knauer 1
1North Carolina State University

9:35 a.m. Nonruminant Nutrition Symposium I Break

9:50 a.m. 86 Nutrition practices in a high-producing sow herd
Kiah M. Berg 1
1Pipestone Nutrition
10:20 a.m.  87  **Improving pig livability before, during, and after parturition**  
Junmei Zhao 1, Richard Faris 2, Qiong Hu 2, Caroline Vanderhaeghe 1, Kaat Goris 1, Tobias Aumiller 3  
1Cargill, 2Cargill Animal Nutrition, 3Delacon

10:50 a.m.  88  **Integrating health and feeding management strategies during lactation: focus on the sow**  
Jorge Estrada 1, Andrea Hanson 2, Casey Neill 2, Kelsey Kyle 2, Dustin Boler 2, Clayton Johnson 1  
1Carthage Veterinary Service, 2Carthage Vet Services

11:20 a.m.  **Nonruminant Nutrition Symposium I Q&A**

Nonruminant Nutrition II: Nursery--Ingredients  
Chair: Andrea Hanson, Carthage Vet Services  
8:30 AM - 11:15 AM  
Hall of Ideas H

8:30 a.m.  118  **Estimating the net energy requirement of piglets during the first three weeks post-weaning**  
Michael O. Wellington 1, Tetske G. Hulshof 1, Lluís Fabà Camats 2, Hubërt Van Hees 1  
1Trouw Nutrition R&D Swine, 2Trouw Nutrition Innovation

8:45 a.m.  119  **Effects of replacing lactose with novel carbohydrate sources on feed intake preference in nursery pigs**  
Rafe Q. Royall 1, Jason C. Woodworth 1, Mike D. Tokach 1, Joel M. DeRoucheey 1, Jordan T. Gebhardt 2, Robert D. Goodband 1, Keith Mertz 3, John Patience 4  
1Kansas State University, 2Kansas State University, 3Cargill Starches, Sweeteners, & Texturizers, 4Oxford Nutrition Consulting, LLC

9:00 a.m.  120  **Evaluation of anchovy fish meal and fish solubles compared to other specialty protein sources on nursery pig performance**  
Ethan Stas 1, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRoucheey 1, Robert D. Goodband 1, Jordan T. Gebhardt 2  
1Kansas State University, 2Kansas State University

9:15 a.m.  121  **Use of specialty soy products as alternatives to poultry meal and spray-dried blood plasma in nursery pig diets**  
Ethan Stas 1, Jamil Faccin 1, Zach Post 2, Chad W. Hastad 2, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRoucheey 1, Robert D. Goodband 1, Jordan T. Gebhardt 3  
1Kansas State University, 2New Fashion Pork, 3Kansas State University

9:30 a.m.  122  **Effects of varying the acid-binding capacity-4 in diets utilizing specialty soy products with or without pharmacological levels of zinc on nursery pig performance**  
Ethan Stas 1, Alan Warner 2, Chad W. Hastad 2, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRoucheey 1, Robert D. Goodband 1, Jordan T. Gebhardt 3  
1Kansas State University, 2New Fashion Pork, 3Kansas State University
9:45 a.m.  Nonruminant Nutrition II: Nursery--Ingredients Break

10:00 a.m.  123 Effects of different protein sources containing highly digestible phosphorus on the basal endogenous loss of phosphorus
Megan E. Nelson 1, Su A Lee 1, Hans H. Stein 1
1University of Illinois at Urbana-Champaign

10:15 a.m.  124 Investigating the role of soybean meal and its innate bioactive compounds on nursery pig systemic health, inflammatory markers, and gastrointestinal physiology
Brooke M. Bowen 1, Cassidy Sassar 2, Nicole C. Burdick Sanchez 3, Paul R. Broadway 3, Jeffery A. Carroll 3, Jerrad F. Legako 1, Amy L. Petry 4
1Texas Tech University, Department of Animal and Food Sciences, 2Texas Tech University, 3USDA-ARS, Livestock Issues Research Unit, 4Division of Animal Sciences, University of Missouri

10:30 a.m.  125 Effects of wheat middlings and sugar beet pulp on growth performance of nursery pigs
Henrique S. Cemin 1, Morgan D. Hart 1, Jamie L. Pietig 1, Sharlie A. Hansen 1, Jose A. Soto 2, Ernie L. Hansen 1
1Hubbard Feeds, 2Alltech

10:45 a.m.  126 Effects of soy hulls and sugar beet pulp on growth performance of nursery pigs
Henrique S. Cemin 1, Morgan D. Hart 1, Jamie L. Pietig 1, Sharlie A. Hansen 1, Jose A. Soto 2, Ernie L. Hansen 1
1Hubbard Feeds, 2Alltech

11:00 a.m.  127 How to best calculate acid binding capacity at pH 4 in feed ingredients for weanling pigs
Nestor A. Gutierrez 1, Noud Aldenhoven 1, Maarten Scholtes - Timmerman 1, Neil W. Jaworski 1
1Trouw Nutrition Innovation

Ruminant Nutrition II
Chair: Kendall Swanson, North Dakota State University
8:30 AM - 11:45 AM
Hall of Ideas G

8:30 a.m.  156 Winter hardy cereal cover crops for spring grazing in Nebraska
Abigail Sartin 1, Kallie Calus 1, Mary E. Drewnoski 1, Daren Redfearn 1, Rob Mitchell 2
1University of Nebraska-Lincoln, 2ARS
8:45 a.m.  157  **Daily versus three times a week DDGS supplementation on grazing calves**  
Sydney T. Vanderhoff ¹, Rebecca L. Sjostrand ², Jim C. MacDonald ², Mary E. Drewnoski ¹, Mitchell M. Norman ³  
¹University of Nebraska-Lincoln, ²University of Nebraska- Lincoln, ³University of Nebraska - Lincoln  

9:00 a.m.  158  **Effect of weaning strategy and backgrounding length on growth performance, carcass characteristics, and mRNA expression in the longissimus muscle of beef steers**  
Alejandro Pittaluga ¹, Justin Kieffer ¹, Alejandro E. Relling ¹  
¹The Ohio State University  

9:15 a.m.  159  **Impact of constant inclusion or decreasing inclusion of distillers grains with high-quality or low-quality roughage on finishing cattle performance**  
Sofia Suarez Lorences ¹, Braden C. Troyer ¹, Mitch M. Norman ¹, Jim C. MacDonald ², Galen E. Erickson ²  
¹University of Nebraska-Lincoln, ²University of Nebraska- Lincoln  

9:30 a.m.  160  **Effect of NexPro on immune response and performance of finishing steers**  
Amy M. McLaughlin ¹, Daniel D. Loy ¹, Jodi McGill ¹, Stephanie L. Hansen ¹  
¹Iowa State University  

9:45 a.m.  161  **The effects of feeding hempseed cake on pancreatic and intestinal enzymatic activity in finishing heifers**  
Md Golam Kafi Afrose Mia ¹, Tommy Winders ², Mustapha Yusuf ³, Eric Serum ⁴, David J. Smith ⁴, Bryan W. Neville ⁶, Samat Amat ⁶, Carl R. Dahlen ³, Kendall C. Swanson ³  
¹Department of Animal Science, North Dakota State University., ²Danisco Animal Nutrition & Health (IFF), ³North Dakota State University, ⁴U.S. DEPARTMENT OF AGRICULTURE, ⁵USDA, ARS, U.S. Meat Animal Research Center, ⁶North Dakota State University, Department of Microbiological Sciences  

10:00 a.m.  **Ruminant Nutrition II Break**  

10:15 a.m.  162  **Kernel processing corn silage included at 65% of the diet (DM basis) and fed to growing beef steers increases dry matter intake, decreases apparent total tract digestibility of neutral detergent fiber, and does not enhance starch digestibility**  
Becca Grimes Francis ¹, Forest L. Francis ¹, Erin R. Gubbels ¹, Warren C. Rusche ¹, Zachary K. Smith ¹  
¹South Dakota State University  

10:30 a.m.  163  **Effect of Enogen feed corn inclusion in conventional and natural finishing cattle diets**  
Jessica L. Miller ¹, Karla Wilke ², Galen E. Erickson ³, Pablo L. Loza ¹  
¹University of Nebraska Lincoln, ²University of Nebraska-Lincoln, ³University of Nebraska-Lincoln
10:45 a.m. 164 Effect of processing method of hybrid rye on growth performance, efficiency of dietary net energy utilization, and carcass characteristics of yearling steers fed a finishing diet
Cassidy Ross 1, Scott Bird 2, Zachary K. Smith 1, Warren C. Rusche 1
1South Dakota State University, 2South Dakota State University Southeast Research Farm

11:00 a.m. 165 Interactions between steroidal implants and zinc supplementation in feedlot steers
Dathan T. Smerchek 1, Emma L. Rients 1, Amy M. McLaughlin 1, Kara J. Thornton 2, Stephanie L. Hansen 1
1Iowa State University, 2Utah State University

11:15 a.m. 166 Influence of source of metabolizable protein and implant status on feedlot performance and feeding behavior in yearling steers
Emily A. Petzel 1, Subash Acharya 1, Setsabile Shiba 1, Eric Bailey 1, Derek W. Brake 1
1University of Missouri

11:30 a.m. 167 Timing of implants use in a backgrounding system
Kylie Butterfield 1, Kelton Adair 1, Brandon L. Nuttelman 2, Galen E. Erickson 3, Mary E. Drewnoski 4, Jim C. MacDonald 3
1University of Nebraska, 2Merck Animal Health, 3University of Nebraska- Lincoln, 4University of Nebraska-Lincoln

Nonruminant Nutrition I: Breeding Herd--Feed Additives
Chair: David Rosero, The Hanor Company
8:30 AM - 12:00 PM
Hall of Ideas F

8:30 a.m. 105 Awardee Talk: Timing of dietary zinc supplementation during gestation did not affect trace element concentrations in sows and their piglets
Kelsey L. Hammers 1, Pedro E. Urriola 1, Mark Schwartz 2, Moon-Suhn Ryu 3, Lee J. Johnston 4, Andres Gomez 1
1University of Minnesota, 2Schwartz Farms, 3Yonsei University, 4West Central Research and Outreach Center, University of Minnesota

9:00 a.m. 106 Using postbiotic Saccharomyces Cerevisiae yeast in gestation and lactation diets of gilts to improve immunoglobulin transfer and offspring growth pre-weaning
Brenda Christensen 1, Hagen Schulze 2, Elijah Kiarie 1, Lee-Anne Huber 1
1University of Guelph, 2Livalta, AB Agri Ltd

9:15 a.m. 107 Yeast-based postbiotic supplementation in sow diets to enhance offspring growth and health through the nursery period
Joel Kieser 1, Jorge Perez Palencia 1, Lee J. Johnston 2, Crystal L. Levesque 1
1South Dakota State University, 2West Central Research and Outreach Center, University of Minnesota
9:30 a.m. 108 Effects of yeast carbohydrates fed to lactating sows on sow and offspring performance
Garrin Shipman 1, Jorge Perez Palencia 1, Rob Patterson 2, Crystal L. Levesque 1
1South Dakota State University, 2CBS Bio-Platforms Inc.

9:45 a.m. 109 The effect of lactation diets supplemented with a feed flavor on sow and litter performance
Mikayla Spinler 1, Jordan T. Gebhardt 2, Joel M. DeRouchey 1, Mike D. Tokach 1, Robert D. Goodband 1, Josh Kyle 3, Jason C. Woodworth 1
1Kansas State University, 2Kansas State University, 3Adisseo

10:00 a.m. 110 Effects of supplementation of refined functional carbohydrates in sow and piglet diets on performance during pre-weaning and in nursery in pigs fed diets without any antimicrobials
Sangita Jalukar 1, Antonio Vargas 2, Maria-Jose Carrion-Lopez 2
1Church and Dwight, 2Genera PM Office

10:15 a.m. 111 Nonruminant Nutrition I: Breeding Herd--Feed Additives Break

10:30 a.m. 112 Effect of selenium sources on sow productive and reproductive performance and their progeny
Darlene J. Bloxham 1, Naiara S. Fagundes 2, Denise Cardoso 3, Garros Fontinhas-Netto 3, Marco Aurélio Callegari 4, Cleandro Pazinato Dias 4, Gabrieli de Souza Romano 4, Caio A. da Silva 5
1Adisseo USA Inc, 2Adisseo Latin America, 3Adisseo, 4AKEI Animal Research, 5Universidade Estadual de Londrina

10:45 a.m. 113 Effect of birth weight on tissue copper, iron, and zinc concentrations in piglets
Kelsey L. Hammers 1, Pedro E. Urriola 1, Mark Schwartz 2, Moon-Suhn Ryu 3, Andres Gomez 1, Lee J. Johnston 4
1University of Minnesota, 2Schwartz Farms, 3Yonsei University, 4West Central Research and Outreach Center, University of Minnesota

11:00 a.m. 114 Effects of zinc supplementation in gestating sow diets on growth performance of the progeny from birth to market reared under commercial conditions
Bruna S. L. Cony 1, Edilaine C. de Araujo 1, Gabriel Martins 1, Júlio Furtado 1, Carine M. Vier 2, Uislei A. Orlando 2, Raquel Lunedo 3, Dani Perondi 3, Ines Andretta 4
1UFRGS, 2PIC North America, 3Master Agroindustrial, 4Universidade Federal do Rio Grande do Sul

11:15 a.m. 115 Sow supplementation with vitamin C enhances pig throughput
Mark Knauer 1, Jon R. Bergstrom 2, Sara D. Hough 2
1North Carolina State University, 2DSM
11:30 a.m. 116 Effect of crude protein level and a fermentation product on sow reproductive and piglet performance
Qiong Hu 1, Junmei Zhao 2, Neil Paton 3, Stephanie Walston 1, Maud Legall 1, Mark Newcomb 1
1Cargill Animal Nutrition, 2Cargill, 3Cargill Engineering and Data Science

11:45 a.m. 117 Evaluation of semen production and biomarkers produced by boars fed Microfused Essential Oil Technology in their Diet
Russell W. Fent 1, Carson V. Cooper 1, A.M. Keller 2, E.L. Keller 2, M.J. Maus 2, K.S. Jimmerson 2, Karl Kerns 3
1Ralco Nutrition, 2Iowa State University, 3Department of Animal Science, Iowa State University, Ames, Iowa, USA

Nonruminant Nutrition IV: Health Challenge x Nutrition
Chair: Qiong Hu, Cargill Animal Nutrition; Richard Faris, Cargill Animal Nutrition
8:30 AM - 12:30 PM
Ballroom A

8:30 a.m. 136 Awardee Talk: Effects of monoglycerides on intestinal morphology and immune responses of weanling pigs experimentally infected with a pathogenic Escherichia coli
Sangwoo Park 1, Shuhan Sun 1, Kwangwook Kim 2, Adebayo O O. Sokale 3, Adriana Barri 4, Yanhong Liu 1
1University of California, Davis, 2Michigan State university, 3BASF Corporation, 4BASF SE

9:00 a.m. 137 Macroalgae extracts limits Marek’s disease virus load and dissemination in vitro
Maria A. Rodriguez 1
1Olmix Group

9:15 a.m. 138 Effects of antibiotics and low crude protein diets on growth performance, carcass characteristics, and disease incidence of growing pigs
Maykelly da Silva Gomes 1, Sung Woo Kim 2, Marcos Elias Elias Duarte 3, Gabriel C. Rocha 1
1Universidade Federal de Viçosa, 2NC State University, 3North Carolina State University

9:30 a.m. 139 Trace mineral source matters for weaned pigs challenged with Escherichia coli F18 in diets without pharmacological zinc oxide
Jesus A. Acosta Camargo 1, Juxing Chen 1, Deana Hancock 2
1Novus International Inc., 2Novus International

9:45 a.m. 140 Effects of dietary inclusion of a medium chain fatty acid blend and a phytogenic feed additive on growth performance, gut health, and mortality of Escherichia coli challenged pigs
Caroline Gonzalez Vega 1, Sabrina May 1, Molly L. McGhee 1, Neil Paton 2, Kari Saddoris-Clemons 1
1Cargill Animal Nutrition, 2Cargill Engineering and Data Science
10:00 a.m. 141 Dietary supplementation of blends of organic acids and monoglycerides alleviated diarrhea and systemic inflammation of weaned pigs experimentally infected with enterotoxigenic Escherichia coli F18
Sangwoo Park 1, Shuhan Sun 1, Supatirada Wongchanla 1, Yating Zhao 1, Lauren L. Kovanda 1, Robert A. Hernandez 1, Kwangwook Kim 2, Ying Chen 3, Yanhong Liu 1
1University of California, Davis, 2Michigan State university, 3Eastman Chemical Company

10:15 a.m. 142 Evaluation of dietary fiber in health challenged nursery pigs
Kayla A. Miller 1, Omarh F. Mendoza 2, Caleb M. Shull 2, Eric R. Burrough 1, Joel D. Spencer 3, Nicholas K. Gabler 1
1Iowa State University, 2The Maschhoffs, LLC, 3United Animal Health

10:30 a.m. Nonruminant Nutrition IV: Health Challenge x Nutrition Break

10:45 a.m. 143 Awardee Talk: Improving nursery pig growth performance with supplemented tryptophan in a vaccine-induced immune challenge
Lauren A. Brizgys 1, Jacob A. Richert 1, Taw Scaff 1, Brian T. Richert 3, John Scott Radcliffe 1
1Purdue University

11:00 a.m. 144 Dose-response and functional roles of zinc glycinate on growth and intestinal health of nursery pigs challenged with F18* Escherichia coli
Ki beom Jang 1, Vitor Hugo C. Moita 1, Nicolas Martinez 2, Adebayo O O. Sokale 2, Sung Woo Kim 3
1North Carolina State University, 2BASF Corporation, 3NC State University

11:30 a.m. 145 Efficacy of zinc glycinate reducing zinc oxide on growth and intestinal health of nursery pigs challenged with F18* Escherichia coli
Ki beom Jang 1, Vitor Hugo C. Moita 1, Nicolas Martinez 2, Adebayo O O. Sokale 2, Sung Woo Kim 3
1North Carolina State University, 2BASF Corporation, 3NC State University

11:45 a.m. 146 The impact of salinomycin and crude protein level on endemically enterically challenged nursery pigs
Mitchell J. Nisley 1, Nicholas K. Gabler 1, Chris Sparks 2, Eric R. Burrough 1
1Iowa State University, 2Huvepharma

12:00 p.m. 313 Effect of dietary trace mineral source on performance, bones mineralization and mineral status in fattening pigs
Arnaud SAMSON 1, Mieke V. Zoon 2, Clémentine Oguey 2
1ADM Animal Nutrition, 2Pancosma

12:15 p.m. 144 Effect of protein source on piglet performance and dietary protein digestibility in regular nursery and Escherichia coli challenged conditions
Qiong Hu 1, Leandro Hackenhaar 1, Neil Paton 2, John de Laat 1, Mark Newcomb 1
1Cargill Animal Nutrition, 2Cargill Engineering and Data Science
Ruminant Nutrition Symposium II
Chair: Elizabeth French, USDA
8:45 AM - 11:30 AM
Ballroom B

8:45 a.m. **Ruminant Nutrition Symposium II Introduction**

8:50 a.m. **90 Microbiome-derived bioactive molecules to reduce enteric methane emissions**
Hilário Cuquetto Mantovani ¹
¹University of Wisconsin - Madison

9:35 a.m. **Ruminant Nutrition Symposium II Break**

9:50 a.m. **91 Methanogen ecology in the ruminant hindgut**
Steven C. Ricke ¹
¹University of Wisconsin

10:35 a.m. **92 Methane mitigation in dairy animals begins before birth with opportunities to impact throughout life**
Elizabeth A. French ¹
¹USDA

Genetics, Genomics and Bioinformatics
Chair: Ana Lucia de Souza, Dupont
9:30 AM - 10:45 AM
Hall of Ideas J

9:30 a.m. **316 Awardee Talk: Development and assessment of predictive models for improved swine farming**
Junjie Han ¹
¹Bayer

10:00 a.m. **98 Characterization of factors affecting the fecal microbiome in young Canadian pigs**
Bonita L. McCuaig ¹, Stephanie Saundh ¹, Raiza de Almeida Mesquita ¹, E. Luke McCarthy ¹, Maddison Arsenault ², Tausha Prisnee ³, Brandon Lillie ², Vahab Farzan ², John Harding ⁴, Ben Willing ³, Matthew Links ¹, Andrew G. Van Kessel ¹
¹University of Saskatchewan, ²University of Guelph, ³University of Alberta, ⁴Department of Large Animal Clinical Sciences, University of Saskatchewan

10:15 a.m. **99 Heritability and repeatability of structural foot and leg traits in sheep**
Hilal Yazar Gunes ¹, Natalie K. Pickering ², Milton G. Thomas ³, Scott E. Speidel ³, R. Mark Enns ³
¹University of Nebraska-Lincoln, ²Focus Genetics, ³Colorado State University
10:30 a.m.  100  Pedigree effective population size affects genomic prediction accuracy in Katahdin sheep
Sara M. Nilson 1, Joan M. Burke 2, Ronald M. Lewis 3
1University of Nebraska - Lincoln, 2USDA ARS Dale Bumpers Small Farms Research Center, 3Department of Animal Science, University of Nebraska–Lincoln

Nonruminant Nutrition V: Enzymes
Chair: Carolina Feoli, CSA Animal Nutrition
10:15 AM - 1:00 PM
Hall of Ideas I

10:15 a.m.  317  Awardee Talk: Functional roles of phytase and xylanase for nursery pigs and broiler chickens
Vitor Hugo C. Moita 1, Sung Woo Kim 2
1North Carolina State University, 2NC State University

10:45 a.m.  148  Evaluation of multicrohohydrolase supplementation in soluble and insoluble fiber-based sow diets on markers of immune function, inflammation, and oxidative status at mid and late gestation
Thomas A. Crome 1, Mark A. Giesemann 2, Amy L. Petry 3
1Texas Tech University, 2Adisseo, 3Division of Animal Sciences, University of Missouri

11:00 a.m.  149  Effects of microbial phytase on standardized total tract digestibility of phosphorus in feed phosphates fed to growing pigs
Diego A. Lopez Diaz 1, Su A Lee 2, Hans H. Stein 2
1Kansas State University, 2University of Illinois at Urbana-Champaign

11:15 a.m.  150  A new bacterial phytase can act as an overdose concept, at low levels, in improving the performance and carcass characteristics of nursery and finishing pigs
Caio A. da Silva 1, Cristina Hideshima 1, Kelly Souza 1, Marco A. Callegari 2, Cleandro A. Dias 2, Claudia C. Silva 3, rafael Sens 3, Vitor Fascina 3
1Universidade Estadual de Londrina, 2AKEI, 3DSM

11:30 a.m.  Nonruminant Nutrition V: Enzymes Break

11:45 a.m.  151  The effect of a multi-enzyme containing xylanase, β-glucanase, protease and amylase added to a high-fiber wheat-barley-rye-based diet containing by-products, on the growth performance of weaned pigs
Ester Vinyeta-Punti 1, Glenmer tactacan 1, Georg Dusel 2, Deepak E. Velayudhan 1
1Danisco Animal Nutrition & Health (IFF), 2University of Applied Sciences Bingen

12:00 p.m.  152  The effect of a multi-enzyme containing xylanase, β-glucanase, protease and amylase added to a high-fiber corn-based diet in comparison to a conventional diet, on the growth performance of weaned pigs
Ester Vinyeta-Punti 1, Glenmer tactacan 1, Arun Kumar 2, Deepak E. Velayudhan 1
1Danisco Animal Nutrition & Health (IFF), 2The University of Queensland
12:15 p.m. 153 Effect of exogenous phytase on the digestibility of amino acids and phosphorus in standard and high phytin swine diets
Tanner Wise ¹, Vitor Haetinger ¹, Emmanuel Alagbe ¹, Jose-Otavio Sorbara ², Olayiwola Adeola ¹
¹Purdue University, ²DSM Nutritional Products

12:30 p.m. 154 The effect of a novel consensus bacterial 6-phytase variant on ileal digestibility of energy in growing pigs: meta-analysis of 4 trials
Deepak E. Velayudhan ¹, Ester Vinyeta-Punti ¹, Rachael Hardy ¹, Leon Marchal ², Charles Martin Nyachoti ³, Hans H. Stein ⁴, Yueming Dersjant-Li ²
¹Danisco Animal Nutrition & Health (IFF), ²Danisco Animal Nutrition (IFF), ³University of Manitoba, ⁴University of Illinois at Urbana-Champaign

12:45 p.m. 155 Efficacy of a bacterial 6-phytase on apparent total tract digestibility of nutrients and retention of phosphorus of nursery and growing pigs
Vitor Hugo C. Moita ¹, Ki beom Jang ¹, Sung Woo Kim ²
¹North Carolina State University, ²NC State University

Physiology
Chair: Alejandro Relling, The Ohio State University
11:00 AM - 12:00 PM
Hall of Ideas J

11:00 a.m. 101 Evaluation of vaginal infusion with ampicillin on incidence of pelvic organ prolapse in late gestation sows
Zoe E. Kiefer ¹, Erika M. Johnson ¹, Jamie M. Studer ¹, Cesar A.A. Moura ², Jason W. Ross ¹
¹Iowa State University, ²Iowa Select Farms

11:15 a.m. 102 Growth performance in pigs fed a high soybean meal diet during heat stress
Erika M. Johnson ¹, Zoe E. Kiefer ¹, Jamie M. Studer ¹, Brian J. Kerr ², Laura Griener ¹, Nicholas K. Gabler ¹, Lance H. Baumgard ¹, Jason W. Ross ¹
¹Iowa State University, ²2USDA-ARS National Laboratory for Agriculture and the Environment

11:30 a.m. 103 In utero exposure to maternal heat stress impairs Leydig cell development and function in the boar
Nicole Nordell ¹, Cathy Bernhard ², Maddie Wegner ¹, Rebecca Metcalf ¹, John Rupert ¹, Dragana Lagundžin ³, Kanika Sharma ³, Katharine Sharp ², Tim J. Safranski ², Matthew Lucy ⁴, Amy T. Desaulniers ¹
¹University of Nebraska-Lincoln, ²University of Missouri-Columbia, ³Mass Spectrometry and Proteomics Core Facility, University of Nebraska Medical Center, ⁴University of Missouri

11:45 a.m. 104 Investigation into the serum metabolome and identification of biomarkers for early detection of postpartum dysgalactia syndrome in sows
Jamie M. Studer ¹, Zoe E. Kiefer ¹, Lucas R. Koester ¹, Erika M. Johnson ¹, Lance H. Baumgard ¹, Stephan Schmitz-Esser ¹, Laura L. Greiner ¹, Aileen F. Keating ¹, Attila Farkas ², Lucina Galina ³, Kimberly A. Vonnahme ³, Jason W. Ross ¹
¹Iowa State University, ²Carthage Veterinary Service, ³Zoetis
Poster Session V
12:00 PM - 12:45 PM
Grand Terrace

12:00 p.m.  PSV-9  Characterization of the rumen bacterial communities of lambs that transitioned from forage to a concentrate-based diet
Reid F. Anema 1, Emily Fowler 1, Forrest L. Francis 1, Zachary K. Smith 1, Benoit St-Pierre 1
1South Dakota State University

12:00 p.m.  PSV-11  Determining relative bioavailability of commercially available RP-Met products in lactating dairy cows
Kirsten Clark 1, Noah Porter 1, Lucas Rebolo 1, Jessie Guyader 2, Chanhee Lee 1
1The Ohio State University, 2Evonik Operations GmbH

12:00 p.m.  PSV-8  Early life adversity impacts intestinal epithelial development and stem cells activities in pigs
Liang-en Yu 1, Peter Mann 1, Lydia Schlitzkus 1, Jiniya Chakradhar 1, Yihang Li 1
1University of Delaware

12:00 p.m.  PSV-12  Effects of diet on feed intake, weight change, and gas emissions in beef cows
Amanda Holder 1, Megan A. Gross 2, Alexi Moehlenpah 2, David Lalman 2
1College of the Ozarks, 2Oklahoma State University

12:00 p.m.  PSV-14  Effects of forage or coproduct-based transition diets on the rumen microbiome and ruminal fermentation ex vivo in feedlot steers
Haley F. Linder 1, Adam Fritz 1, Joshua C. McCann 1
1University of Illinois at Urbana-Champaign

12:00 p.m.  PSV-18  Effects of replacing lactose with novel carbohydrate sources on nursery pig growth performance
Rafe Q. Royall 1, Jason C. Woodworth 1, Mike D. Tokach 1, Joel M. DeRouchey 1, Jordan T. Gebhardt 2, Robert D. Goodband 1, Keith Mertz 3, John Patience 4
1Kansas State University, 2Kansas State University, 3Cargill Starches, Sweeteners, & Texturizers, 4Oxford Nutrition Consulting, LLC

12:00 p.m.  PSV-15  Effects of supplementation of protease to different nutrient density of diets on growth performance, nutrient digestibility, blood profile, gas emission, fecal microflora in growing-finishing pig
Sehyun Park 1, Hanjin Oh 1, Yongju Kim 1, Jaewoo An 1, Seyeon Chang 1, Youngbin go 1, Hyunah Cho 1, Dongcheol Song 1, Kyeongho Jeon 1, Seok Man Hong 2, Won Yun 2, Jinho Cho 1
1Department of Animal Science, Chungbuk National University, 2WOOSUNG FEED CO.,LTD.
12:00 p.m. PSV-19 Evaluation of dietary fiber inclusion on body weight, body condition, fecal score, and metabolic indicators in mature AI boars
Taw Scaff, Jacob A. Richert, Brian T. Richert, Kara R. Stewart
Purdue University

12:00 p.m. PSV-20 Evaluation of dietary fiber inclusion on semen production and semen characteristics in mature AI boars
Taw Scaff, Brian T. Richert, Kara R. Stewart, Alicia N. Denton, Hailey M. Hedrick
Purdue University

12:00 p.m. PSV-3 Evaluation of functional properties of chitin as a novel non-meat ingredient for manufacturing meat emulsions
Brad H. B. Kim, Jin-Kyu Seo, Hyun-Wook Kim, Yong-Jae Lee
Purdue University

12:00 p.m. PSV-13 Evaluation of HydraFit pre-slaughter on finishing beef steer: Dressing percentage, hot carcass weight, and cold carcass weight
Thiago Lauro Maia Ribeiro, Erin R. Gubbels, Forest L. Francis, Jeff S. Heldt, Santana Hanson, Thomas Norman, Warren C. Rusche, Zachary K. Smith
South Dakota State University, Micronutrients USA LLC

12:00 p.m. PSV-6 Evaluation of narasin feeding duration on growth performance and carcass characteristics of growing-finishing pigs
Christopher L. Puls, Roger A. Arentson, Michael Shields, Scott Carr, Annie Lerner, Alyssa Betlach
Elanco, Elanco Animal Health

12:00 p.m. PSV-7 Evaluation of narasin inclusion level on growth performance and carcass characteristics of growing-finishing pigs
Christopher L. Puls, Roger A. Arentson, Michael Shields, Scott Carr
Elanco

12:00 p.m. PSV-2 Impact of diseases in pig production on carcass and meat quality
Marie-Pierre Fortier, Patrick Gagnon
Centre de développement du porc du Québec inc., CDPQ

12:00 p.m. PSV-5 Maternal vitamin D deficiency increases the incidence of osteochondrotic-like lesions in the distal femur of growing pigs
Brittney P. Kokinos, Laura A. Amundson, Thomas D. Crenshaw, Pamela J. Lang
Department of Animal and Dairy Sciences, University of Wisconsin-Madison, Department of Orthopedics and Rehabilitation, University of Wisconsin-Madison

12:00 p.m. PSV-1 Pasture does not impact pork quality of finishing hogs
Chelsea Becker, Elizabeth A. Hines, Jonathan Campbell
Pennsylvania State University
12:00 p.m.  PSV-4  Proteomics and metabolomics profiling of meat exudate to understand the impact of postmortem aging on oxidative stability of beef muscles
Derico Setyabrata 1, Danyi Ma 1, Shaojun Xie 1, Jyothi Thimmapuram 1, Bruce Cooper 1, Uma Aryal 1, Brad H. B. Kim 2
1Purdue University, 2Purdue Univ.

12:00 p.m.  PSV-10  Supplementing amino acid complexed or inorganic trace minerals to grazing cattle following a receiving phase dietary trace mineral comparison
Robin A. Cheek 1, Beth B. Kegley 2, Jason R. Russell 3, Lucas Horton 4, Brandon Depenbusch 5, Jana L. Reynolds 1, Benjamin P. Shoulders 1, Kirsten A. Midkiff 1, Jeremy G. Powell 1
1University of Arkansas System Division of Agriculture, 2University of Arkansas Division of Agriculture, 3Zinpro Corporation, 4Center for Outcomes Research and Epidemiology in the Department of Diagnostic Medicine and Pathobiology, Kansas State University, 5Innovative Livestock Services

12:00 p.m.  PSV-16  The effects of bodyweight-basis iron injection to newborn piglets on pre and post-weaning growth performance and hematological parameters
Ana N. Rank 1, Isaac W. Farrey 1, Orianna N. Lebal 1, Young Dal Jang 1
1University of Wisconsin-River Falls

12:00 p.m.  PSV-17  Threonine requirements for post-weaning pig in individual precision nutrition programs: a meta-analysis
Rafaela Hilgemberg 1, Cheila Lehnen 2, Candido Pomar 3, William Lambert 4, Aline Remus 3
1AAFC / UEPG, 2UEPG, 3AAFC, 4Metex

Nonruminant Nutrition VII: Nursery--Amino Acids and Crude Protein
Chair: Jorge Estrada, Carthage Veterinary Service
1:00 PM - 4:30 PM
Ballroom A

1:00 p.m.  314  Maxwell Lecture: Role of amino acids and protein in health-challenged nursery pigs
Daniel A. Columbus 1
1Prairie Swine Centre, Inc.

1:30 p.m.  206  Development and validation of an indigestible protein index to investigate the effects of protein content in weaned pigs: a multivariate approach
Olufemi O. Babatunde 1, Lucas A. Rodrigues 2, John K. Khun Kyaw Htoo 3, Maria S. Mendoza 4, Daniel A. Columbus 5
1Prairie Swine Centre, 2Prairie Swine Center, 3Evonik, 4Evonik Corporation, 5Prairie Swine Centre, Inc.
1:45 p.m.  207  **Effects of crude protein and non-essential amino acids supplementation on growth performance and gut health of nursery pigs**
Amanda Medeiros Correia 1, Sung Woo Kim 2, Marcos Elias Elias Duarte 3, Gabriel C. Rocha 1

1Universidade Federal de Viçosa, 2NC State University, 3North Carolina State University

2:00 p.m.  208  **Effect of SID LYS level with constant non-essential amino acids**
Richard Faris 1, Leandro Hackenhaar 1
1Cargill Animal Nutrition

2:15 p.m.  209  **Lowering dietary crude protein concentration decreases nitrogen excretion and pH of urine and slurry in 15-kg nursery pigs**
Jeonghyeon Son 1, Beob G. Kim 1
1Konkuk University

2:30 p.m.  210  **Effects of soybean meal and functional amino acids on growth performance of nursery pigs**
Morgan D. Hart 1, Henrique S. Cemin 1, Jamie L. Pietig 1, Sharlie A. Hansen 1, Jose A. Soto 2, Ernie L. Hansen 1
1Hubbard Feeds, 2Alltech

2:45 p.m.  **Nonruminant Nutrition VII: Nursery--Amino Acids and Crude Protein**

3:00 p.m.  211  **Evaluating the influence of soybean meal and its bioactive compounds on nutrient utilization, fermentation, and gastrointestinal metabolites of nursery pigs**
Brooke M. Bowen 1, Cassidy Sassar 2, Nicole C. Burdick Sanchez 3, Paul R. Broadway 3, Jeffery A. Carroll 3, Jerrad F. Legako 1, Amy L. Petry 4
1Texas Tech University, Department of Animal and Food Sciences, 2Texas Tech University, 3USDA-ARS, Livestock Issues Research Unit, 4Division of Animal Sciences, University of Missouri

3:15 p.m.  212  **Effect of low crude protein diets in young pigs when using crystalline isoleucine and leucine**
Richard Faris 1, Leandro Hackenhaar 1
1Cargill Animal Nutrition

3:30 p.m.  213  **Increasing growth performance by attenuating the transportation stress response in nursery pigs through L-Tryptophan supplementation**
Lauren A. Brizgys 1, Jacob A. Richert 1, Taw Scaff 1, Brian T. Richert 1, John Scott Radcliffe 1
1Purdue University
3:45 p.m. 214 Effects of dietary standardized ileal digestible (SID) lysine (Lys) levels and dietary SID tryptophan to Lys ratios on growth performance of late-nursery maternal barrows
Ning Lu 1, Carine M. Vier 2, Ellie Hewett 3, Eric Parr 4, Denise Van De Stroet 2, Jorge Estrada 5, Michael Welsch 4, Wayne R. Cast 2, Ron A. Navales 6, Jordi Camp Montoro 7, Luis E. Zaragoza 6, Steve Dritz 2, Uislei A. Orlando 2
1PIC China, 2PIC North America, 3The University of Edinburgh, 4Carthage Innovative Swine Solutions, 5Carthage Veterinary Service, 6Genus PIC, 7PIC Europe

4:00 p.m. 215 Compensatory growth following one or two weeks of lysine restriction at weaning
Richard Faris 1, Leandro Hackenhaar 1
1Cargill Animal Nutrition

4:15 p.m. 216 Effect of dietary standardized ileal digestible lysine level on growth performance of 12.4 to 31.3 kg pigs sired by PIC 800 Boars
Carson V. Cooper 1, Russell W. Fent 1
1Ralco Nutrition

Growth, Development, Muscle Biology and Meat Science
Chair: Zachary Smith, South Dakota State University
1:30 PM - 3:00 PM
Hall of Ideas F

1:30 p.m. 189 The effects of dose timing / intervals on grow-finish performance, carcass characteristics, carcass cutting yields, and meat quality of market gilts managed with Improvest®
Yifei Wang 1, Blaine Hansen 2, Steve Pollmann 3, Benjamin M. Bohrer 1
1The Ohio State University, 2BCH Consulting LLC, 3DSP Consulting LLC

1:45 p.m. 190 Effect of segregation in pigs in the nursery period by body weight (light, medium, and heavy) on the productive performance on wean-to-finish
Cristina Rodríguez Rodríguez 1, Álvaro Rojo Gómez 1, Diego Aguileras Ramos 1, José Ángel Cota 2, Elías Mikovich 2, Víctor Alfonso Martínez 2, Ricardo Alberto León 2, Luis Ángel Sánchez 2
1Cargill Animal Nutrition México, 2Grupo Soles de México

2:00 p.m. 191 Recovery of growth and body composition in 10-kg pigs after a 6-week growth attenuation by ammonium chloride additions to feed
Brittney P. Kokinos 1, Rachel A. Budde 1, Mariola Grez Capdeville 1, Laura A. Amundson 1, Andrew W. Stevens 2, Jean-Paul Chavas 2, Thomas D. Crenshaw 1
1Department of Animal and Dairy Sciences, University of Wisconsin-Madison, 2Department of Agricultural and Applied Economics, University of Wisconsin-Madison

2:15 p.m. 192 Effect of dietary anhydrous calcium chloride in early and late finishing on pig performance and body composition
Jay A. Stowater 1, Colin Johnson 1, Nicholas K. Gabler 1, Steven M. Lonergan 1
1Iowa State University
2:30 p.m.  193  Creatine Monohydrate on *In Vitro* Cultivated Bovine Cells leading to Guanidinoacetic Acid Supplementation *In Vivo*
Erika P. Eckhardt 1, WonSeob Kim 1, Jongkyoo Kim 1
1Michigan State University

2:45 p.m.  194  A systems approach to deriving carcass value from Holstein x SimAngus cattle in an accelerated finishing model.
Teagan Schnurbusch 1, Derek W. Brake 1, Emily A. Petzel 1, Zachary D. Callahan 1, Scott E. Poock 1, Bryon R. Wiegand 1
1University of Missouri

*Genetics, Genomics and Bioinformatics Symposium*
Chair: Ana Lucia de Souza, Dupont
1:30 PM - 3:45 PM
Ballroom B

1:30 p.m.  Genetics, Genomics and Bioinformatics Symposium Introduction

1:35 p.m.  175  Building the tools to solve the genome to phenome puzzle in agriculture
Christopher K. Tuggle 1, Nicole Scott 1, Jennifer Clarke 2, Brenda M. Murdoch 3, Jack C.M. Dekkers 4, David Ertl 5, Carolyn J. Lawrence-Dill 1, Eric Lyons 6, Patrick S. Schnable 1
1Iowa State University, 2University of Nebraska-Lincoln, 3University of Idaho, 4Department of Animal Science, Iowa State University, 5Iowa Corn Promotion Board, 6University of Arizona

2:00 p.m.  176  Functional annotation of the equine genome: From sample collection to FAIR data
Jessica L. L. Peterson 1, Alexa Barber 1, Carrie J. Finno 2, Rebecca R. Bellone 2, Sichong Peng 2, Nicole B. Kingsley 2, Eleonora Capelletti 3, Francesca M. Piras 3, Elena Giulotto 3, Ted Kalbfleisch 4
1University of Nebraska-Lincoln, 2University of California-Davis, 3University of Pavia, Italy, 4University of Kentucky

2:20 p.m.  177  Functional annotation of an array of immune cells and various tissues in the chicken
Yvonne Drechsler 1, Theros Ng 1, Brandi Sparling 1, R. David Hawkins 2
1Western University of Health Sciences, 2University of Washington

2:40 p.m.  Genetics, Genomics and Bioinformatics Symposium Break

2:55 p.m.  178  Functional role of regulatory elements informs complex trait variation and domestication selection in farm animals
Huaijun Zhou 1
1University of California, Davis

3:15 p.m.  179  Identification of regulatory mutations affecting complex traits
Luiz Lehmann Coutinho 1
1University of Sao Paulo - ESALQ
Nonruminant Nutrition Symposium II
Chair: Márcio Goncalves, Wisenetix
1:30 PM - 4:30 PM
Ballroom C

1:30 p.m.  Nonruminant Nutrition Symposium II Introduction

1:35 p.m.  168  Bentley Lecture: Feeding co-products to pigs to reach sustainable food production and reduce feed cost
Ruurd T. Zijlstra 1, E. Beltranena 1
1University of Alberta

2:00 p.m.  169  Minimizing sow feeding cost while enhancing production
Mariana Menegat 1
1Holden Farms

2:30 p.m.  170  Do you have the energy to grind feed costs and maximize net income in demanding economic times?
John Patience 1, Qingyun Li 2
1Oxford Nutrition Consulting, LLC, 2Cargill Animal Nutrition

3:00 p.m.  Nonruminant Nutrition Symposium II Break

3:15 p.m.  172  Feed cost and the influence of feed manufacturing
Chad B. Paulk 1
1Kansas State University

3:45 p.m.  173  Optimum ratios of calcium, phosphorus, and phytase to maximize feed conversion rates in growing pigs
Hans H. Stein 1
1University of Illinois at Urbana-Champaign

4:15 p.m.  174  Nonruminant Nutrition Symposium II Q&A

Nonruminant Nutrition IX: Grow-Finish--Amino Acid Ratios, Crude Protein and Sources
Chair: Omarh Mendoza, The Maschhoffs, LLC
1:30 PM - 4:45 PM
Ballroom D

1:30 p.m.  237  Effects of increasing soybean meal and valine:lysine and tryptophan:lysine ratios on finishing pig performance
Macie E. Reeb 1, Jamil Faccin 1, Robert D. Goodband 1, Jason C. Woodworth 1, Joel M. DeRouche 1, Mike D. Tokach 1, Jordan T. Gebhardt 2
1Kansas State University, 2Kansas State University
1:45 p.m. 238 Impact of increasing standardized ileal digestible tryptophan to lysine ratio in diets containing 20% corn distiller’s dried grains with solubles fed to growing-finishing pigs
Pengcheng Xue 1, Molly L. McGhee 1, Chad M. Pilcher 1, Qingyun Li 1, Zhenbin Zhang 1
1Cargill Animal Nutrition

2:00 p.m. 239 Effects of increasing soybean meal in corn- or corn-DDGS-based diets on growth performance of early finishing pigs
Jamil Faccin 1, Mike D. Tokach 1, Joel M. DeRouchefey 1, Jordan T. Gebhardt 2, Robert D. Goodband 1, Jason C. Woodworth 1
1Kansas State University, 2Kansas State University

2:15 p.m. 240 Comparing increasing tryptophan: Lysine ratios in distiller dried grains based diets with or without distiller dried grains withdrawal strategy on growth and carcass performance of grow-finish pigs
Mikayla Spinler 1, Andres F. Tolosa 1, Jason C. Woodworth 1, Mike D. Tokach 1, Robert D. Goodband 1, Joel M. DeRouchefey 1, Kyle Coble 2, Amanda J. Gerhart 2, Jose A. Soto 3, Jordan T. Gebhardt 4
1Kansas State University, 2JBS Live Pork, 3Alltech, 4Kansas State University

2:30 p.m. 242 Effects of standardized ileal digestible threonine to lysine ratio on growth performance of PIC line 337-sired grow-finish pigs
Rafe Q. Royall 1, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRouchefey 1, Robert D. Goodband 1, Jordan T. Gebhardt 2, Carine M. Vier 3, Matthew Spindler 4, Uislei A. Orlando 3, Luis E. Zaragoza 4, Ning Lu 5, Wayne R. Cast 3, Danielle Wilson-Wells 3, Julia Holen 6, Alyssa Betlach 6
1Kansas State University, 2Kansas State University, 3PIC North America, 4Genus PIC, 5PIC China, 6Swine Vet Center

2:45 p.m. Nonruminant Nutrition IX: Grow-Finish--Amino Acid Ratios, Crude Protein and Sources Break

3:00 p.m. 243 The effect of totally or partially replacing soybean meal by alternative protein sources on performance and carcass characteristics of growing finishing pigs
Xiaonan Guan 1, Albert van Dijk 1, Francesc Molist 1
1SFR Schothorst Feed Research

3:15 p.m. 244 Effects of Leucine and Histidine to lysine ratios in low crude protein diets on the productive performance of growing pigs
Pau Aymerich 1, Carme Soldevila 1, Jordi Bonet 1, Jaume Coma 1
1Vall Companys Group
Effects of standardized ileal digestible tryptophan to lysine ratio on growth performance of PIC line 337-sired grow-finish pigs
Rafe Q. Royall 1, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Robert D. Goodband 1, Jordan T. Gebhardt 2, Carine M. Vier 3, Matthew Spindler 4, Uislei A. Orlando 3, Luis E. Zaragoza 4, Ning Lu 5, Wayne R. Cast 3, Danielle Wilson-Wells 3, Julia Holen 6, Alyssa Betlach 6
1Kansas State University, 2Kansas State University, 3PIC North America, 4Genus PIC, 5PIC China, 6Swine Vet Center

Evaluation of the complete replacement of soybean meal by rapeseed meal on performance and carcass composition of grow-finish pigs
Pau Aymerich 1, Carme Soldevila 1, Jordi Bonet 1, Josep Gasa 2, Jaume Coma 1, David Solà-Oriol 2
1Vall Companys Group, 2Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain

Effects of branched-chain amino acids to lysine ratios in cDDGS diets on growth performance, plasma nitrogen profile, carcass traits, and economic analysis in growing-finishing pigs
Jinsu Hong 1, David Clizer 2, Paul M. Cline 2, Ryan S. Samuel 1
1Department of Animal Science, South Dakota State University, 2Christensen Farms

Nonruminant Nutrition VIII: Nursery--Additives
Chair: Caroline Gonzalez Vega, Cargill Animal Nutrition
1:30 PM - 4:45 PM
Hall of Ideas H

The effect of different analytical methods on assessment of bone mineralization of various rib bones in response to dietary P, phytase, and vitamin D in nursery pigs
Hadley Williams 1, Brianna Moore 1, Jordan T. Gebhardt 2, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Robert D. Goodband 1
1Kansas State University, 2Kansas State University

Modulation of zinc, copper and iron transporters in weaned pigs fed different dietary zinc/copper ratios
Danyel Bueno Dalto 1, Karine Deschêne 1, Geneviève Villeneuve 1, Frédéric Guay 2, Yan Martel-Kennes 2, Guylaine Talbot 1, J. Jacques Matte 1, Jérôme Lapointe 1
1Agriculture and Agri-Food Canada, 2Université Laval

Varying the acid biding capacity of high and ZnO-free diets influences weanling pig growth performance
Nestor A. Gutierrez 1, Leslie L. Mcknight 2, Christopher Powell 1, Atta Kofi Agyekum 3, Francis Simard 3, Ruben Decaluwe 1, Yanming Han 1, Neil W. Jaworski 1, Mohsen Abedin 3
1Trouw Nutrition Innovation, 3Trouw Nutrition Canada Inc., 3Trouw Nutrition North America
2:15 p.m. 228 Effect of benzoic acid feeding strategy on weanling pig growth performance
Katelyn Gaffield 1, Jason C. Woodworth 1, Joel M. DeRouche 1, Mike D. Tokach 1, Robert D. Goodband 1, Jordan T. Gebhardt 2
1Kansas State University, 2Kansas State University

2:30 p.m. 229 Effect of two sources of zinc on growth performance and gut health of piglets with a low or normal birth weight
Clara Negrini 1, Diana Luise 1, Federico Correa 1, Laura Amatucci 1, Sara Virdis 1, Agathe Romeo 2, Axel Minetto 2, Paolo Bosi 1, Paolo Trevisi 1, Alessandra Monteiro 2
1University of Bologna, 2Animine

2:45 p.m. Nonruminant Nutrition VIII: Nursery--Additives Break

3:00 p.m. 230 Effect of supplementing a Bacillus spp. based probiotic on performance, body temperature, and intestinal histology of heat stressed pigs
Fernanda González 1, Adriana Morales 1, Alan Valle 1, Cecilia Hernández 1, Néstor Arce 1, Ernesto Avelar 1, Maria S. Mendoza 2, John K. Khun Kyaw Htoo 3, Miguel Cervantes-Ramirez 1
1Universidad Autónoma de Baja California, 2Evonik Corporation, 3Evonik

3:15 p.m. 231 Efficacy of mycotoxin mitigation product containing yeast extract on intestinal health and growth of newly weaned pigs under chronic dietary challenges of fumonisin and aflatoxin
Zixiao Deng 1, Ki beom Jang 2, Sung Woo Kim 3
1PhD Student, 2North Carolina State University, 3NC State University

3:30 p.m. 232 Evaluation of clay-based binders and in-feed antimicrobial on growth performance and biological measurements in nursery pigs
Larissa L. Becker 1, Jordan T. Gebhardt 2, Mike D. Tokach 1, Robert D. Goodband 1, Joel M. DeRouche 1, Jason C. Woodworth 1, Raghavendra G. Amachawadi 3, Ramya Kalam 1, Xiaorong Shi 1, T. G. G. Nagaraja 1
1Kansas State University, 2Kansas State University, 3Kansas State University College of Veterinary Medicine

3:45 p.m. 233 Encapsulated butyrate supplementation improved growth performance of nursery pigs without added ZnO
Ying Chen 1, James Jolliff 2, Jeff Kaufman 2
1Eastman Chemical Company, 2Kalmbach Feeds

4:00 p.m. 234 Effects of feeding a phytogenic blend with or without supplementation of specialty fats on growth performance of nursery pigs
Sabrina May 1, Caroline Gonzalez Vega 1, Molly L. McGhee 1
1Cargill Animal Nutrition
4:15 p.m. 235 Interactive effects of zinc oxide and Mannan oligosaccharides on nursery swine performance
Jose A. Soto 1, Henrique S. Cemin 2, Morgan D. Hart 2, Jamie L. Pietig 2, Sharlie A. Hansen 2, Ernie L. Hansen 2
1Alltech, 2Hubbard Feeds

4:30 p.m. 236 Effects of dietary supplementation of mixed Ulva spp. and Solieria chordalis on intestinal health and growth performance of nursery pigs
Yi-Chi Cheng 1, Marie Gallissot 2, Maria Garcia Suarez 2, Sung Woo Kim 3
1North Carolina State University, 2Olmix, 3NC State University

Animal Behavior, Health and Well-Being
Chair: Kelsey Bruno, Oklahoma State University
2:00 PM - 4:45 PM
Hall of Ideas J

2:00 p.m. 180 Effect of providing liquid milk replacer during lactation to litters of different size on piglet pre-weaning performance
Naomi C. Willard 1, Nicole K. Moest 1, Caleb M. Shull 2, Denny McKilligan 3, Mike Ellis 1
1University of Illinois, 2The Maschhoffs, LLC, 3TechMix Global

2:15 p.m. 181 Effect of mixing at weaning and dietary nutrient density on growth performance and welfare of pigs
Francesc González-Solé 1, Jordi Camp Montoro 2, David Solà-Oriol 1, José Francisco Pérez 1, Peadar G. Lawlor 3, Laura A. A. Boyle 3, Edgar Garcia Manzanilla 3
1Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain, 2PIC Europe, 3Pig Development Department, Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland

2:30 p.m. 182 Influence of group size on performance and tail damage caused by tail biting in undocked growing-finishing pigs
Courtney Archer 1, Adrienne Hilbrands 2, Lee J. Johnston 2, Benny E. Mote 3, Ty B. B. Schmidt 4, Yuzhi Li 2
1Department of Animal Science, University of Minnesota, 2West Central Research and Outreach Center, University of Minnesota, 3Department of Animal Science, University of Nebraska – Lincoln, 4University of Nebraska-Lincoln

2:45 p.m. 183 Ramped piglet housing during the nursery phase increases speed of loading during transportation to market
Mary L. Kasakamu 1, Jennifer M. Young 1, Ryan S. Samuel 2, Sarah A. Wagner 3, Christopher J. Byrd 1
1Department of Animal Sciences, North Dakota State University, 2Department of Animal Science, South Dakota State University, 3Texas Tech University School of Veterinary Medicine
3:00 p.m. 184 Genetic parameters for human-directed behavior and intraspecific social aggression traits in growing pigs
Julia A. Calderon Diaz¹, Suzanne Desire², Craig Lewis¹, Rainer Roehe³, Simon Turner Turner³
¹PIC Europe, ²SRUC Scotland’s Rural College, ³SRUC (Scotland’s Rural College)

3:15 p.m. Animal Behavior, Health and Well-Being Break

3:30 p.m. 185 Effect of ad libitum vs. limit-feeding program at receiving on morbidity and performance of feedlot calves
Rebecca A. Funk¹, Braden C. Troyer¹, Mitchell M. Norman², Levi J. McPhillips², Galen E. Erickson³
¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln, ³University of Nebraska-Lincoln

3:45 p.m. 186 Examining the vaginal microbiome during gilt reproductive development
Emily Fowler¹, Shannon L. Dierking¹, Crystal L. Levesque¹, Benoit St-Pierre¹
¹South Dakota State University

4:00 p.m. 187 Effect of piglet weaning weight on wean-to-finish growth performance and ultrasound carcass measures
Nicole K. Moest¹, Naomi C. Willard¹, Caleb M. Shull², Denny McKilligan³, Mike Ellis¹
¹University of Illinois, ²The Maschhoffs, LLC, ³TechMix Global

4:15 p.m. 188 Characterization of the vagino-uterine microbiota in pregnant and non-pregnant beef cattle using 16S rRNA gene sequencing and culturing
Emily M. Webb¹, Devin B. Holman², Kaycie N. Schmidt¹, Beena Pun¹, Kevin K. Sedivec³, Jennifer L. Hurlbert¹, Kerri A. Bochantin¹, Alison K. Ward¹, Carl R. Dahlen¹, Samat Amat⁴
¹North Dakota State University, ²Agriculture and Agri-food Canada, ³North Dakota State University - Central Grasslands Research Extension Center, ⁴North Dakota State University, Department of Microbiological Sciences

4:30 p.m. 62 The impact of hair coat color on body temperature in beef cattle
CarrieLee M. Holliday¹, Jeffery A. Carroll², Nicole C. Burdick Sanchez², Michael Goerndt³, Elizabeth Walker¹, Adam McGee¹
¹Animal Science Department, Missouri State University, ²USDA-ARS, Livestock Issues Research Unit, ³Environmental Plant Science and Natural Resources, Missouri State University

Ruminant Nutrition III
Chair: Derek Brake, University of Missouri
2:00 PM - 4:45 PM
Hall of Ideas E

2:00 p.m. 258 Investigating the ruminal metagenome of neonatal Holstein dairy calves fed an essential oil-based feed additive
Anlly M. Fresno Rueda¹, Benoit St-Pierre¹
¹South Dakota State University
2:15 p.m. 259 Evaluation of methane and carbon dioxide production from cattle on different diet adaptation strategies
Cindy Mansfield 1, Rebecca L. Sjostrand 2, Braden C. Troyer 1, Holly A. Heil 1, Mitchell M. Norman 3, Maggie Youngers 4, Andrea K. Watson 1, Galen E. Erickson 2
1University of Nebraska-Lincoln, 2University of Nebraska- Lincoln, 3University of Nebraska - Lincoln, 4Cargill

2:30 p.m. 260 Effect of biochar inclusion in finishing beef cattle diets on enteric methane production and performance
Hanna K. Cronk 1, Holly A. Heil 1, Rebecca L. Sjostrand 2, Mitch M. Norman 1, Galen E. Erickson 2, Andrea K. Watson 1
1University of Nebraska-Lincoln, 2University of Nebraska- Lincoln

2:45 p.m. 261 Effect of Alga 1.0 on reducing enteric methane emissions from cattle
Reba L. Colin 1, Kassidy K. Buse 1, Andrea K. Watson 2, Galen E. Erickson 3, Paul J. Kononoff 1
1University of Nebraska Lincoln, 2University of Nebraska-Lincoln, 3University of Nebraska- Lincoln

3:00 p.m. 262 Evaluation of a single growing-finishing diet for single source, pre-conditioned beef steers of lighter (273 kg) and heavier (356 kg) initial body weight
Tommy Norman 1, Thiago Maia Ribeiro 2, Forest L. Francis 2, Erin R. Gubbels 2, Santana Hanson 2, Becca Grimes Francis 2, Warren C. Rusche 2, Zachary K. Smith 2
1South Dakota State University Animal Science, 2South Dakota State University

3:15 p.m. Ruminant Nutrition III Break

3:30 p.m. 263 Effects of programmed compensatory gain on feedlot steer performance
Zachary Buessing 1, Jebadiah Schwager 2, Michael Murphy 1, Bruce Hannon 1, Daniel W. Shike 1, Joshua C. McCann 1
1University of Illinois at Urbana-Champaign, 2Western Illinois University

3:45 p.m. 264 Evaluation of precision feeding on production efficiency responses in finishing beef cattle
Santana Hanson 1, Warren C. Rusche 1, Zachary K. Smith 1
1South Dakota State University

4:00 p.m. 265 Manger space restriction does not negatively impact growth efficiency of feedlot heifers program fed a concentrate-based diet to gain 1.36 kg daily
Erin R. Gubbels 1, Forest L. Francis 1, Warren C. Rusche 1, Zachary K. Smith 1
1South Dakota State University
4:15 p.m. 266 Comparing the prediction accuracy of models for estimating DMI of beef heifers using surface area, volume, body measurements or body weight by the elastic net regularized regression method
Mustapha Yusuf 1, Macie K. Mosher 1, Ananda B. P Fontoura 2, Lauren L. Hanna 1, Marc L. Bauer 1, Kris A. Ringwall 3, Kendall C. Swanson 1
1North Dakota State University, 2Cornell University, 3Dickinson Research Extension Center, North Dakota State University

4:30 p.m. 267 Efficacy of using the elastic net regularized regression method to predict body weight of beef heifers using body measurements and calculated frame score
Mustapha Yusuf 1, Macie K. Mosher 1, Ananda B. P Fontoura 2, Lauren L. Hanna 1, Marc L. Bauer 1, Kris A. Ringwall 3, Kendall C. Swanson 1
1North Dakota State University, 2Cornell University, 3Dickinson Research Extension Center, North Dakota State University

Nonruminant Nutrition X: Grow-Finish--Ingredients, Energy and Minerals
Chair: Chad Pilcher, Cargill Animal Nutrition
2:00 PM - 5:00 PM
Hall of Ideas I

2:00 p.m. 247 Hybrid rye in commercial grow-finish production diets: A case study
Carly M. Rundle 1, Rebecca S. Brattain 2, Jeffrey S. Knott 3
1KWS Cereals, USA, 2KWS Cereals USA, LLC., 3IDEAL Animal Nutrition

2:15 p.m. 248 Concentration of net energy in corn without or with microbial phytase fed to group-housed pigs
Diego A. Rodriguez 1, Su A Lee 1, Hans H. Stein 1
1University of Illinois at Urbana-Champaign

2:30 p.m. 249 The impact high soyhull and soybean meal diet formulations on grow-finish pig performance
Kayla A. Miller 1, Omarh F. Mendoza 2, Caleb M. Shull 2, Nicholas K. Gabler 1
1Iowa State University, 2The Maschhoffs, LLC

2:45 p.m. 250 The impact of increasing levels of dried distillers grains and solubles on finishing pig performance
Ethan Stephenson 1, Emily Mauch-Swinfo 2, Brady McNeil 2, Christine Mainquist-Whigham 3, Jason Schneider 4
1Pillen Family Farms, 2DNA Swine Genetics, 3Pillen Family Farms LLC, 4DNA Genetics LLC

3:00 p.m. 251 Effects of fat source and level on growth performance and carcass characteristics of commercial finishing pigs
Jenna J. Bromm 1, Mike D. Tokach 1, Jason C. Woodworth 1, Robert D. Goodband 1, Joel M. DeRouche 1, Jon A. De Jong 2, Kiah M. Berg 2, Courtney Pohlen 2, Jordan T. Gebhardt 3
1Kansas State University, 2Pipestone Nutrition, 3Kansas State University
3:15 p.m. 252 Imprecision in nutrition leads to more desired feed intake in growing and finishing pigs
Noud Aldenhoven 1, Nestor A. Gutierrez 1, Neil W. Jaworski 1
1Trouw Nutrition Innovation

3:30 p.m. Nonruminant Nutrition X: Grow-Finish--Ingredients, Energy and Minerals
Break

3:45 p.m. 253 A survey of added trace mineral levels in diets utilized in the U.S. swine industry
Jamil Faccin 1, Mike D. Tokach 1, Joel M. DeRouchey 1, Jordan T. Gebhardt 2, Robert D. Goodband 1, Jason C. Woodworth 1
1Kansas State University, 2Kansas State University

4:00 p.m. 254 Mineral source matters for cartilage development to support structural integrity
Karen J. Wedekind 1, Joe Cushing 2, Chelsie K. Foran 3, Jesus A. Acosta Camargo 3, Juxing Chen 3, Mercedes Vazquez 2

4:15 p.m. 255 Evaluation of growth performance and bone mineral density in grower pigs fed phosphorus, calcium, and vitamin D deficient diets
Leah Smith 1, Chris Sparks 2, Nicholas K. Gabler 3
1Gourley Research Group, 2Huvepharma, 3Iowa State University

4:30 p.m. 256 Evaluation calcium and phosphorus ratios in the presence of phytase on performance and whole body bone mineralization in growing pigs
Leah Smith 1, Chris Sparks 2, Nicholas K. Gabler 3
1Gourley Research Group, 2Huvepharma, 3Iowa State University

4:45 p.m. 257 Survey of biological measurements used to determine bone mineralization in pigs across the US swine industry
Hadley Williams 1, Jordan T. Gebhardt 2, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Robert D. Goodband 1, Jon R. Bergstrom 3, Michael Rahe 4, Christopher Siepker 4, Panchan Sitthicharoenchais 4
1Kansas State University, 2Kansas State University, 3DSM, 4Iowa State University

Swine Translational
Chair: Matthew Ritter, United Animal Health
2:00 PM - 5:00 PM
Hall of Ideas G

2:00 p.m. 195 The impact of developmental housing type on toe growth and wear in sows
Dalton Obermier 1, Benny E. Mote 2, Melanie Trenhaile-Grannemann 3
1University of Nebraska - Lincoln, 2Department of Animal Science, University of Nebraska – Lincoln, 3Cobb-Vantress
2:15 p.m.  196  Serum trace minerals and tumor necrosis factor alpha concentrations in prolapsed and non-prolapsed sows
Jared A. Harshman 1, Scott D. Carter 1, C Scanlon Daniels 2, Kyle Coble 3, Darin Madson 3
1Oklahoma State University, 2Circle H Headquarters LLC, 3JBS Live Pork

2:30 p.m.  197  Evaluating the associations between piglet’s characteristics at birth and growth performance during lactation period on piglets from hyperprolific sows
Pau Salgado-López 1, Pau Aymerich 2, Josep Gasa 1, Joaquim Casellas 3, David Solá-Oriol 1
1Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain, 2Vall Companys Group, 3Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain

2:45 p.m.  198  Differential gene expression and metabolic pathway comparisons, of liver and duodenum from suckling piglets given one or two iron dextran injections.
James L. Pierce 1, James W. Lyons 2, Tyler B. Chevalier 3, Duncan B. Paczosa 3, Merlin D. Lindemann 3
1James L Pierce Consulting, 2Pharmacosmos Inc., 3University of Kentucky

3:00 p.m.  199  Effects of an additional injection of iron administered to piglets on hemoglobin concentration, growth performance, and carcass characteristics through market weight
Tyler B. Chevalier 1, James W. Lyons 2, Duncan B. Paczosa 1, Gregg K. Rentfrow 1, Merlin D. Lindemann 1
1University of Kentucky, 2Pharmacosmos Inc.

3:15 p.m.  200  Effect of utilizing nurse sows compared to no nurse sows on nursery productivity
Kacey N. Allen 1, Larissa E. Meier 2, Ethan Stephenson 3, Emily Mauch-Swinford 4, Brady McNeil 4, John Sonderman 4, Amanda Cross 4
1DNA Genetics, 2University of Nebraska-Lincoln, 3Pillen Family Farms, 4DNA Swine Genetics

3:30 p.m.  Swine Translational Break

3:45 p.m.  201  Transmission of zearalenone, deoxynivalenol and their metabolites from sows to piglets during lactation with or without an algae-clay-based decontaminant
Xandra Benthem de Grave 1, Janine Saltzmann 2, Maria A. Rodriguez 3, Francesc Molist 4, Sven Danicke 2, Regiane R. Santos 1
1Schothorst Feed Research, 2Institute of Animal Nutrition, Friedrich-Loeffler-Institute, 3Olmix Group, 4SFR Schothorst Feed Research

4:00 p.m.  203  Effects of feeding varying levels of mycotoxin-containing corn fines on diet choice and growth performance of nursery pigs
Duncan B. Paczosa 1, Tyler B. Chevalier 1, Merlin D. Lindemann 1
1University of Kentucky
4:15 p.m.  202  **Evaluation of increasing levels of mycotoxin-containing corn fines fed to nursery pigs on growth performance**
Duncan B. Paczosa 1, Tyler B. Chevalier 1, Lan Zheng 2, Frank Berry 1, Merlin D. Lindemann 1
1University of Kentucky, 2DSM Nutritional Products

4:30 p.m.  204  **Effects of feeding celluTEIN to pigs at various concentrations from weaning through finishing**
Mathew A. Vaughn 1, Mike Barnas 2, James L. McNaughton 2, John M. Gonzalez 3
1Puretein Biosciences, 2AHPharma, 3University of Georgia

4:45 p.m.  205  **Relationship of resiliency to weaning stress with growth, carcass, and meat quality traits in pigs.**
Andrea M. Luttman 1, Grace E. Schmidt 1, Nancy E. Raney 1, Juan P. Steibel 2, Catherine W. Ernst 1
1Michigan State University, 2Iowa State University

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**Nonruminant Nutrition VI: Breeding Herd--Feeding Management**
Chair: Carine M. Vier, PIC
3:15 PM - 5:15 PM
Hall of Ideas F

3:15 p.m.  217  **Effect of sow feeder design on sow body weight, litter performance, and feeder cleaning criteria**
Zhong-Xing Rao 1, Kyle Coble 2, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Robert D. Goodband 1, Jordan T. Gebhardt 3
1Kansas State University, 2JBS Live Pork, 3Kansas State University

3:30 p.m.  218  **Simple blending of gestation and lactation diets during the transition period minimizes losses in back fat depth around parturition for primi and multiparous sows**
Nicole Gregory 1, Lee-Anne Huber 1
1University of Guelph

3:45 p.m.  219  **Effects of precision feeding and the “bump feeding” strategy in gestating sows on performances and body condition in sows monitored for the first two gestation-lactation cycles**
Laetitia Cloutier 1, Lucie Galiot 1, Frédéric Guay 2, Gabrielle Dumas 1, Charlotte Gaillard 3, Jean-Yves Dourmad 3, Aude Simongiovanni 4, Patrick Gagnon 1
1CDPQ, 2Université Laval, 3INRAE, 4Metex Animal Nutrition

4:00 p.m.  220  **Impact of bump feeding during late gestation on reproductive performance of over-conditioned sows**
Brooke Anderson 1, David S. Rosero 2, Sergio Canavate 3, Samuel F. Leiva 1, Carine M. Vier 3, Hugo Hidalgo 1, Julia A. Calderon Diaz 4, Ning Lu 5, Uislei A. Orlando 3
1Hanor, 2The Hanor Company, 3PIC North America, 4PIC Europe, 5PIC China
4:15 p.m. 221 Assessment of modern gilts and sows body weight throughout gestation and how different gilt body weight at breeding impact the energy requirement for maintenance at each parity
Uislei A. Orlando 1, Carine M. Vier 1, Ron A. Navales 2, Gefferson Silva 3, Lori Thomas 2, Ning Lu 4, Jordi Camp Montoro 5, Wayne R. Cast 1, Steve Dritz 1
1PIC North America, 2Genus PIC, 3Agroceres PIC, 4PIC China, 5PIC Europe

4:30 p.m. 222 Effects of nutritional strategies of growth rate manipulation during the gilt development phases on growth and reproductive performance
Samuel F. Leiva 1, David S. Rosero 2, Sergio Canavate 3, Brooke Anderson 1, Carine M. Vier 3, Hugo Hidalgo 1, Julia A. Calderon Diaz 4, Ning Lu 5, Uislei A. Orlando 3
1Hanor, 2The Hanor Company, 3PIC North America, 4PIC Europe, 5PIC China

4:45 p.m. 223 Impact of bump feeding in late gestation on reproductive performance and body weight and body condition at pre- and post-farrowing and at weaning in hyper prolific gilts
Patricia Blanco 1, Isaac Huerta 1, Jordi Camp Montoro 1, Serhii Shevchenko 1, Pablo Magallón 1, María Ros 1, Adrian Lopez 1, Julia A. Calderon Diaz 1, Jose Antonio Molina 2, Carine M. Vier 3, Rúben Sala 1, Juan Manuel Herrero 1, Uislei A. Orlando 3
1PIC Europe, 2Copiso, 3PIC North America

5:00 p.m. 224 Average daily feed intake in previous lactations is associated with subsequent reproductive performance in sows
Pablo Magallón 1, Danielle Wilson-Wells 2, Maria Ros 1, Adrian Lopez 1, Patricia Blanco 1, Rúben Sala 1, Serhii Shevchenko 1, José Manuel Lara 3, Pilar Fernández 4, Denise Van De Stroet 2, Julia A. Calderon Diaz 1, Jordi Camp Montoro 1, Isaac Huerta 1
1PIC Europe, 2PIC North America, 3Grupo UVESA, 4Grupo Kerbest

Poster Session VI - Sponsored by DSM Nutritional Products
5:00 PM - 5:45 PM
Grand Terrace

5:00 p.m. PSVI-16 CAPS C2PG, a blend of spice oleoresins, can substitute the growth promoting effect of an ionophore feed premix on grow-finish pigs
Bertrand MEDINA 1, Dan BUSSIÈRES 2, Ashley L. Wagner 1
1Probiotech International Inc., 2Groupe CÉRÈS Inc.

5:00 p.m. PSVI-17 DIGESTAWell® XG improves piglet performance when dietary net energy content is decreased
Leni KUTERNA 1, Joan E. EDWARDS 1, Dan BUSSIÈRES 2, Ashley L. Wagner 3
1Palital Feed Additives B.V., 2Groupe CÉRÈS Inc., 3Probiotech International Inc.

5:00 p.m. PSVI-7 Digestible energy and metabolizable energy concentrations of corn, oilseed meals, and fibrous ingredients for growing pig
Jeonghyeon Son 1, Beob G. Kim 1
1Konkuk University
5:00 p.m.  PSVI-2  Economic evaluation of forage-fed vs concentrate-fed beef finishing systems
Micah L. O'Malley 1, Caleb Robertson 1, Amanda Holder 1
1College of the Ozarks

5:00 p.m.  PSVI-1  Effect of soy co-products in supplements for growing cattle on hemocytology following a lipopolysaccharide challenge
Kirsten A. Midkiff 1, Rachel M. Scott 2, Sidney N. Dunkel 2, Robin A. Cheek 1, Bralee S. Lansdell 2, Brittni P. Littlejohn 2, Jeremy G. Powell 1, Doug L. Galloway 1, Jana L. Reynolds 1, Beth B. Kegley 3
1University of Arkansas System Division of Agriculture, 2University of Arkansas System, Division of Agriculture, 3University of Arkansas Division of Agriculture

5:00 p.m.  PSVI-15  Effect of split iron injection to suckling pigs on growth performance and hematological parameters in pre- and post-weaning periods
Gabriella Cristina Veloso Lima 1, Merit N. Lemunyete 1, Alaina J. Johnson 1, Young Dal Jang 1
1University of Wisconsin-River Falls

5:00 p.m.  PSVI-8  Effects of dietary supplementation of Pediococcus pentosaceus strains isolated from white kimchi in weaned piglet challenged with E.coli and salmonella Typhimurium
Dongcheol Song 1, Hanjin Oh 1, Yongju Kim 1, Jaewoo An 1, Seyeon Chang 1, Youngbin go 1, Hyunah Cho 1, Sehyun Park 1, Kyungho jeon 1, Jinho Cho 1
1Department of Animal Science, Chungbuk National University

5:00 p.m.  PSVI-3  Effects of different concentrate inclusion levels in diets containing AGRI002E sorghum silage on intake and digestibility in growing Nellore bulls
Pauliane Pucetti 1, Sebastião de Campos Valadares Filho 2, Julia Travassos da Silva 3, Fernando Alerrandro Alerrandro Andrade Cidrini 4, Gilyard Angelo Angelo Pinheiro de Souza 4, Lucas G. Hollerbach 5, Kendall C. Swanson 6
1Universidade Federal de Viçosa / North Dakota State University, 2Universidade Federal de Viçosa, 3Universidade Federal de Vicsosa / NDSU, 4Universidade Federal de Vicsosa, 5University of California - Davis, 6North Dakota State University

5:00 p.m.  PSVI-6  Effects of partial or total replacement of soybean meal with urea on feed efficiency in Nellore × Red Angus growing bulls
Julia Travassos da Silva 1, Sebastião de Campos Valadares Filho 2, Pauliane Pucetti 3, Éllem Maria de Almeida Matos 4, Julia Gabriela Baroni Alves 4, Gabriela Herculano Salles 4, Yuri Cesconetto Ebani 2, Kendall C. Swanson 5
1Universidade Federal de Viçosa / NDSU, 2Universidade Federal de Viçosa, 3Universidade Federal de Viçosa / North Dakota State University, 4Universidade Federal de Vicsosa, 5North Dakota State University
5:00 p.m.  PSVI-18  **Effects of vitamin U supplementation on growth performance, carcass and gastric keratinization scores in aspirin-induced gastric ulcer finishing pigs**

Se Yeon Jang 1, Sun Gu Yu 1, Chai Bin Lim 1, Cao Shanchuan 1, In Ho Kim 2

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

5:00 p.m.  PSVI-10  **Evaluation of corn protein source on feed intake preference in nursery pigs**

Ethan Stas 1, Robert D. Goodband 1, Mike D. Tokach 1, Jason C. Woodworth 1, Joel M. DeRouchey 1, Jordan T. Gebhardt 2

1Kansas State University, 2Kansas State Unversity

5:00 p.m.  PSVI-11  **Evaluation of the acid binding capacity of ingredients and complete diets commonly used for weanling pigs**

Ethan Stas 1, Mike D. Tokach 1, Joel M. DeRouchey 1, Robert D. Goodband 1, Jason C. Woodworth 1, Jordan T. Gebhardt 2

1Kansas State University, 2Kansas State Unversity

5:00 p.m.  PSVI-19  **Impact of sow body condition on macro reproductive performance**

Junmei Zhao 1, Qiong Hu 2, Neil Paton 3, Kaat Goris 1, Caroline Vanderhaeghe 1, Stephanie Walston 2

1Cargill, 2Cargill Animal Nutrition, 3Cargill Engineering and Data Science

5:00 p.m.  PSVI-14  **Mitigating the Negative Effects of Heat Stress in Grow-Finish Pigs Using Water Delivered Oregano Essential Oil**

Isabel Turner 1, Candace Young 1, Lauren A. Brizgys 1, Taw Scaff 1, Jacob A. Richert 1, Brian T. Richert 1, Jonathan A. Pasternak 1, John Scott Radcliffe 1

1Purdue University

5:00 p.m.  PSVI-12  **Nutritional value of corn sourced from U.S. and Ukraine on growth performance, energy digestibility, and amino acid digestibility in pigs**

Caitlyn R. Sullivan 1, Jinsu Hong 2, Crystal L. Levesque 1, Robert C. Thaler 1

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

5:00 p.m.  PSVI-13  **Nutritional value of corn sourced from US, Brazil, and Argentina on growth performance, energy digestibility, and amino acid digestibility in pigs**

Caitlyn R. Sullivan 1, Jordan K. Jansen 1, Jinsu Hong 2, Jorge Perez Palencia 1, Crystal L. Levesque 1, Robert C. Thaler 1

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

5:00 p.m.  PSVI-9  **Pigs weaned from sows fed a feed flavor had improved nursery growth performance, but added feed flavor in nursery diets did not impact performance**

Mikayla Spinler 1, Jordan T. Gebhardt 2, Joel M. DeRouchey 1, Mike D. Tokach 1, Robert D. Goodband 1, Josh Kyle 3, Jason C. Woodworth 1

1Kansas State University, 2Kansas State University, 3Adisseo
The influence of diet type on beef cattle performance and meat quality characteristics
Lillian R. Royer 1, Micah L. O’Malley 1, Grady A. Privett 1, Amanda Holder 1
1College of the Ozarks

Trends in mycotoxin contamination of the 2022 United States corn crop
Lan Zheng 1, Paige N. Gott 1, Ursula Hofstetter-Schähs 1, April W. Levy 1
1DSM Nutritional Products

Using red clover extract to mitigate tall fescue toxicosis
Ivan R. Thomas 1, Ken Coffey 2, Christine C. Nieman 3, Ally J. Grote 4, Sarah W. Alvey 5
1University of Arkansas, 2University of Arkansas System Division of Agriculture Department of Animal Science, 3USDA-ARS, 4Oklahoma State University, 5Simmons Food

Wednesday, March 15, 2023

Nonruminant Nutrition XIV: Management Practices
Chair: Jamil Faccin, Kansas State University
8:00 AM - 9:45 AM
Hall of Ideas I

Effect of early vs. late maturing sire lines and creep feeding on the stress response, intestinal permeability, and growth performance of nursery and finishing pigs
Madie R. Wensley 1, Jason C. Woodworth 2, Mike D. Tokach 2, Robert D. Goodband 2, Joel M. DeRouechy 2, Jordan T. Gebhardt 3
1Pipestone, 2Kansas State University, 3Kansas State University

Effect of providing supplemental milk and liquid starter diet for 4 and 11 days post-weaning on feed intake, growth and intestinal structure and function of newly weaned piglets.
Shiv R. Vasa 1, Elisa A. Arnaud 1, Gillian E. Gardiner 2, Keelin O’Driscoll 1, Giuseppe Bee 3, Peadar G. Lawlor 4
1Teagasc, 2South East Technological University, 3Agroscope, 4Pig Development Department, Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland

The effect of creep feed and nursery diet flavoring on piglet lactation and nursery performance
Kara Pounds 1, Jacob A. Richert 1, Taw Scaff 1, Lauren A. Brizgys 1, Mekenzie Cecil 1, Caden Helfrich 1, John Scott Radcliffe 1, Allan P. Schinckel 1, Brian T. Richert 1, Matthew D. Asmus 2, Daniel B. Jones 2, Morgan T. Thayer 2
1Purdue University, 2ADM
8:45 a.m.  294  **Evaluation of variation in nursery pig growth performance utilizing different allotment strategies**
Abigail K. Jenkins 1, Jenna J. Bromm 1, Jordan T. Gebhardt 2, Jason C. Woodworth 1, Mike D. Tokach 1, Joel M. DeRouchey 1, Robert D. Goodband 1
1Kansas State University, 2Kansas State University

9:00 a.m.  295  **The effect of weaning age and diet complexity on nursery pig growth performance and weight at market**
Jacob A. Richert 1, Taw Scaff 1, Lauren A. Brizgys 1, Jon Ferrel 2, Allan P. Schinckel 1, John Scott Radcliffe 1, Brian T. Richert 1
1Purdue University, 2Azomite

9:15 a.m.  296  **Short-term diurnal heat stress modulation of growing gilt and barrow growth and feed intake**
Elizabeth M. Due 1, Thomas Weber 2, Nicholas K. Gabler 1
1Iowa State University, 2Kent Nutrition Group

9:30 a.m.  297  **Determining the effects of energy concentrations and diet forms on growth performance of nursery pigs**
Raquel Lunedo 1, Gerson Schlesner 1, Dani Perondi 1, Ademir Dahmer Junior 1, Carine M. Vier 2, Ning Lu 3, Uislei A. Orlando 2, Mônica Santi 1, Rafael Kummer 1
1Master Agroindustrial, 2PIC North America, 3PIC China

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Growth, Development, Muscle Biology and Meat Science Symposium
Chair: Zachary Smith, South Dakota State University
8:00 AM - 10:00 AM
Ballroom B

8:00 a.m.  **Growth, Development, Muscle Biology and Meat Science Symposium**
**Introduction**

8:05 a.m.  268  **Heat stress impacts on cattle production**
Lance H. Baumgard 1, Robert P. Rhoads 2
1Iowa State University, 2Virginia Tech

8:40 a.m.  269  **Bioenergetic consequences of pre- and postnatal heat stress on swine productivity**
Jay S. Johnson 1
1USDA-ARS Livestock Behavior Research Unit

9:20 a.m.  270  **Cellular response to heat exposure: Influences on the growth potential of bovine skeletal muscle and adipose tissue**
Jongkyoo Kim 1
1Michigan State University
Comparison of amino acid digestibility in pulses between broiler chickens and pigs
Abidemi A. Adekoya, Olayiwola Adeola
Purdue University

Poultry meal autoclaving time-related reduction in amino acid digestibility for broiler chickens and growing pigs
Jung Yeol Sung, Chan Sol Park, Darryl Ragland, Markus K. Wiltafsky-Martin, Olayiwola Adeola
Purdue University, Pathway Intermediates, Evonik Operations GmbH

Metabolizable energy and amino acid digestibility by growing pigs may be reduced if excessive heat is applied during drying of corn
Maryane Sespere Faria de Oliveira, Leidy J. Torres-Mendoza, Markus K. Wiltafsky-Martin, Hans H. Stein
University of Illinois at Urbana-Champaign, UIUC, Evonik Operations GmbH

Effects of different sources and particle sizes of field peas on ileal digestibility of amino acids and starch by growing pigs
Jimena A. Ibagon, Su A Lee, Charles Martin Nyachoti, Hans H. Stein
University of Illinois, University of Illinois at Urbana-Champaign, University of Manitoba

Interactive effects of pelleting and particle size reduction of corn on net energy and digestibility of nutrients in corn-soybean meal diets fed to group-housed pigs
Su A Lee, Diego A. Rodriguez, Hans H. Stein
University of Illinois at Urbana-Champaign

Investigating the impact of fiber type and multicarbohydrase supplementation on nutrient digestibility and energy balance of gestating sows
Thomas A. Crome, Mark A. Giesemann, Amy L. Petry
Texas Tech University, Adisseo, Division of Animal Sciences, University of Missouri

Dietary carbohydase mixture supplementation and fiber levels on ileal digestibility of nutrients in diets for gestating sows
Garrin Shipman, Jorge Perez Palencia, Rob Patterson, Crystal L. Levesque
South Dakota State University, CBS Bio-Platforms Inc.
Nonruminant Nutrition XIII: Grow-Finish Additives
Chair: Jose Soto, Alltech
8:00 AM - 10:45 AM
Hall of Ideas F

8:00 a.m.  282  Awardee Talk: Effects of various feed additives on finishing pig feed efficiency: A review
Zhong-Xing Rao ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ²
¹Kansas State University, ²Kansas State University

8:30 a.m.  283  Growth performance, carcass characteristics and economic parameters comparison between medicated and antibiotics free programs in wean-to-finish pigs
Rafael A. Cabrera ¹, Dolores Cabrera ¹, Emily Bruder ², Gene Gourley ³
¹Nutrinae LLC, ²Protein Sources, ³Gourley Research Group

8:45 a.m.  284  A meta-regression analysis to evaluate the effects of narasin on grow-finish pig performance
Larissa L. Becker ¹, Jordan T. Gebhardt ², Mike D. Tokach ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Joel M. DeRouchey ¹, Jenna A. Seltzer ³, Roger A. Arentson ³, Michael Shields ³, Christopher L. Puls ³
¹Kansas State University, ²Kansas State University, ³Elanco Animal Health

9:00 a.m.  285  Effects of dietary lysozyme supplementation on nitrogen balance, microbiota diversity and growth performance of growing pigs
Bruna Schroeder ¹, Candido Pomar ², Ines Andretta ³, Renée Petri ², Jennifer Ronholm ⁴, Jeffery Escobar ⁵, Sara Ricci ², Aline Remus ²
¹AAFC/ UFRGS, ²AAFC, ³Universidade Federal do Rio Grande do Sul, ⁴McGill University, ⁵BiomEdit

9:15 a.m.  286  Nonruminant Nutrition XIII: Grow-Finish Additives Break

9:30 a.m.  286  The effect of dietary copper levels and source on the performance and profitability of finishing pigs
Casey L. Bradley ¹, S'phamandla B. Mshengu ², Jaco J. Raath ³, Liliana Nolasco ⁴, Myles Van Deventer ², Willem J. Steyn ³, Chantel Pennicott ⁵
¹The Sunswine Group LLC, ²Baynesfield Estate, ³Swine Nutrition Management, ⁴The Sunswine Group, LLC, ⁵Baynesfield Estates

9:45 a.m.  287  The effect of higher inclusion levels of DDGS with or without a Syncra® SWI in swine grower-finisher diets on performance and economics
Casey L. Bradley ¹, Jaco J. Raath ², Chantel Pennicott ³, Mitchell Rowland ⁴, Myles Van Deventer ⁵, Willem J. Steyn ²
¹The Sunswine Group LLC, ²Swine Nutrition Management, ³Baynesfield Estates, ⁴The Sunswine Group, LLC, ⁵Baynesfield Estate
10:00 a.m.  288  **Effect of increasing Mn from Mn Hydroxychloride on growth performance and carcass characteristics of grow-finish pigs**
Hilario M. Cordoba ¹, Jason C. Woodworth ¹, Mike D. Tokach ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ², Chris P. A. Van de Ligt ³
¹Kansas State University, ²Kansas State University, ³Micronutrients

10:15 a.m.  289  **Zinc source and genotype influenced the growth rate and carcass characteristics of commercially-housed fattening pigs**
Leslie L. Mcknight ¹, Atta Kofi Agyekum ², Francis Simard ², Mohsen Abedin ², Yanming Han ³
¹3Trouw Nutrition Canada Inc., ²Trouw Nutrition North America, ³Trouw Nutrition Innovation

10:30 a.m.  290  **Vitamin A and beta-carotene supplementation on growth performance, immune system, and mammary gland development in finishing pigs**
Sarah Elefson ¹, Laura L. Greiner ¹
¹Iowa State University

**Nonruminant Nutrition XII: Microbiome**
Chair: Sarah Pearce, USDA
8:30 AM - 10:30 AM
Hall of Ideas E

8:30 a.m.  275  **Awardee Talk: Gnotobiotic porcine models to better understand gut microbiome-host interactions in human and porcine hosts**
Nirosh D. Aluthge ¹
¹University of Nebraska-Lincoln

9:00 a.m.  276  **Investigating the colonization history of early-life microbiome of piglets**
Seidu Adams ¹, Josh P. Knapp ¹, Alison Neujahr ¹, Thomas Burkey ¹, Phillip S. Miller ¹, Samodha C. Fernando ¹
¹University of Nebraska-Lincoln

9:15 a.m.  277  **Effect of mode of delivery of fecal microbiota transplants on growth performance and gut microbiome in weaning piglets**
Paul Oladele ¹, Wexuan Dong ¹, Brian T. Richert ¹, Timothy A. Johnson ¹
¹Purdue University

9:30 a.m.  278  **Effects of yeast postbiotic supplementation on the gut bacterial community composition of sows and microbial succession of subsequent offspring**
Joel Kieser ¹, Emily Fowler ¹, Benoit St-Pierre ¹, Crystal L. Levesque ¹
¹South Dakota State University

9:45 a.m.  279  **Maternal programming of the piglet microbiome through supplementation with a yeast feed additive**
Kayla Law ¹, Lee J. Johnston ², Andres Gomez ¹, Pedro E. Urriola ¹, Tadele G. G. Kiros ³, Joe Loughmiller ³
¹University of Minnesota, ²West Central Research and Outreach Center, University of Minnesota, ³Phileo by Lesaffre
10:00 a.m.  280  Effects of a yeast feed additive for maternal programming of the postweaning pig microbiome
Kayla Law 1, Lee J. Johnston 2, Pedro E. Urriola 1, Joe Loughmiller 3, Tadele G. G. Kiros 3, Andres Gomez 1
1University of Minnesota, 2West Central Research and Outreach Center, University of Minnesota, 3Phileo by Lesaffre

10:15 a.m.  281  Effects of Corynebacterium glutamicum cell mass supplementation on modulation of mucosa-associated microbiota to intestinal health of nursery pigs
Yi-Chi Cheng 1, Marcos Elias Elias Duarte 1, Sung Woo Kim 2
1North Carolina State University, 2NC State University

Ruminant Nutrition IV
Chair: Joshua McCann, University of Illinois at Urbana-Champaign
8:30 AM - 10:30 AM
Hall of Ideas G

8:30 a.m.  315  Awardee Talk: Late gestational nutrient restriction alters postnatal nutrient delivery and calf pre-weaning growth in the primiparous beef female
Colby A. Redifer 1, Allison M. Meyer 1
1University of Missouri

9:00 a.m.  307  Effect of calcium magnesium carbonate and/or tylosin phosphate supplementation on receiving period growth performance in yearling beef steers
Becca Grimes Francis 1, Forest L. Francis 1, Erin R. Gubbels 1, Warren C. Rusche 1, Zachary K. Smith 1, Devan Paulus Compart 2
1South Dakota State University, 2Papillon Agricultural Company

9:15 a.m.  308  Zinc supplementation and implant abscess effects on growth performance and immune system of growing beef steers
Emma L. Rients 1, Carlos Franco 1, Fabian Diaz 2, Jodi McGill 1, Stephanie L. Hansen 1
1Iowa State University, 2Iowa State University

9:30 a.m.  309  Evaluation of encapsulated Megasphaera Elsdonii NCIMB 41125 in an accelerated beef step-up program and an acidosis challenge model
Cindy Mansfield 1, Rebecca L. Sjostrand 2, Braden C. Troyer 1, Mitchell M. Norman 3, Tyler Spore 4, Mark Corrigan 4, Galen E. Erickson 2, Jim C. MacDonald 2
1University of Nebraska-Lincoln, 2University of Nebraska- Lincoln, 3University of Nebraska - Lincoln, 4MS Biotec

9:45 a.m.  310  Evaluation of orally administered Megasphaera elsdenii in preconditioned calves abruptly transitioned from a receiving diet with 4% dietary starch to a growing diet with 37% dietary starch
Forest L. Francis 1, Erin R. Gubbels 1, Santana Hanson 1, Thomas Norman 1, Thiago Lauro Maia Ribeiro 1, Warren C. Rusche 1, Zachary K. Smith 1
1South Dakota State University
10:00 a.m. 311 Evaluation of rumen protected B-vitamin blend on finishing steer growth performance, efficiency of dietary net energy utilization, carcass trait responses, and liver abscess prevalence and severity
Thiago Lauro Maia Ribeiro 1, Erin R. Gubbels 1, Forest L. Francis 1, Jeff S. Heldt 2, Santana Hanson 1, Thomas Norman 1, Warren C. Rusche 1, Zachary K. Smith 1
1South Dakota State University, 2Micronutrients USA LLC

10:15 a.m. 312 Evaluation of dietary roughage manipulation during the feeding of ractopamine hydrochloride as a method to improve ruminal health and control liver abscess severity in feedlot steers
Forest L. Francis 1, Erin R. Gubbels 1, Santana Hanson 1, Thomas Norman 1, Thiago Lauro Maia Ribeiro 1, Warren C. Rusche 1, Zachary K. Smith 1
1South Dakota State University

Nonruminant Nutrition XI: Breeding Herd--Nutrition
Chair: Carolina Feoli, CSA Animal Nutrition
9:30 AM - 10:30 AM
Hall of Ideas H

9:30 a.m. 271 Impact of amount and solubility of dietary fiber fed during late gestation and during the pre-farrowing period on sow and litter performance in lactation
Gabriela E. Martinez 1, Pete Wilcock 2, Eric van Heugten 3, David S. Rosero 4
1CSA, 2AB Vista, 3Department of Animal Science, North Carolina State University, 4The Hanor Company

9:45 a.m. 272 The effect of increasing standardized ileal digestible methionine intake on whole-body nitrogen retention and plasma amino acids, homocysteine, and glutathione of gilts in late gestation
Cristhiam J. Munoz Alfonso 1, Cierra Kozole 1, John K. Khun Kyaw Htoo 2, Lee-Anne Huber 1
1University of Guelph, 2Evonik

10:00 a.m. 273 Dynamics of bone mineralization in primiparous sows as a function of dietary phosphorus and calcium during lactation
Julien Heurtault 1, Marie-Pierre Létourneau-Montminy 2, Patrick Schlegel 3
1Agroscope, Switzerland ; Laval University, Canada, 2Université Laval, 3Agroscope

10:15 a.m. 273 Longitudinal investigation of nutrient intervention during gilts development on sow reproductive performance and longevity
Tsungcheng Cheng Tsai 1, Bernard Abeiku Sam 1, Nathan Davis 1, Hannah Grogan 1, Jon R. Bergstrom 2, Kyle Coble 3, Uislei A. Orlando 4, Sara D. Hough 2, Kayla Blake 5, Steve Dritz 4, Carine M. Vier 4, Charles V. Maxwell 1
1University of Arkansas, 2DSM, 3JBS Live Pork, 4PIC North America, 5JBS Live Pork
Veterinarian