



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. Binnebose¹, Maria I. Sardi², Briana Kozlowicz¹, Sharon A. Norton¹

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 Maday¹, Becca Grimes Francis¹, Forest L. Francis¹, Erin R. Gubbels¹, Thomas Norman¹, Santana Hanson¹, Thiago Maia Ribeiro¹, Zachary K. Smith¹, Cassidy Ross¹, Devan Paulus Compart²

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. Boston¹, Feng Wang², Lin Xi¹, Sung Woo Kim¹, Vivek Fellner¹, Mark F. Scott³, Amanda L. Ziegler⁴, Laurianne Van Landeghem⁴, Anthony T. Blikslager⁴, Jack Odle¹

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 Lim¹, Sun Gu Yu¹, Se Yeon Jang¹, Sarbani Biswas¹, In Ho Kim²

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 valini¹, Pedro Righetti Arnaut², Luciano Hauschild³, Aline Remus⁴

¹Agriculture and Agri-Food Canada, ²Agriculture and Agri-food Canada, ³Faculdade de Ciências Agrárias e Veterinárias - Câmpus de Jaboticabal - Unesp, ⁴AAFC

8:15 a.m. PSI-15 **Impact of dietary zinc source on post-weaning performance and livability**

Wesley P. Schweer¹, Alyssa S. Cornelison¹, Casey L. Bradley², Roger Walk³, Shelby Nosbisch³, Lucas Alves Rodrigues¹

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. Becker¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jordan T. Gebhardt²

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 Kramer¹, Alan Klein¹, Geraldo C. Alberton², Alyssa S. Cornelison¹, Wesley P. Schweer¹, Mike Socha¹, Lucas Alves Rodrigues¹

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 Roers¹, Shannon L. Dierking¹, Crystal L. Levesque¹

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 Baributsa¹, Maria Gonzalez¹, Allan P. Schinckel¹, Robert M. Stwalley¹, Tyler C. Field¹, Samantha Neeno¹, Sakkariya Paramba¹

¹Purdue University

8:00 a.m. PSI-A-10 **Correlations of NR3C1 gene expression with pork quality and carcass characteristics**

Grace E. Schmidt¹, Andrea M. Luttmann¹, Juan P. Steibel², Nancy E. Raney¹, Catherine W. Ernst¹

¹Michigan State University, ²Iowa State University

8:00 a.m. PSI-A-1 **Effects of Agolin-Pig® on milk composition throughout lactation**

Alicia N. Denton¹, Alexandra Fisk¹, KaLynn Harlow¹, Taw Scaff¹, Brian T. Richert¹, Ashley DeDecker², Marlin Hoogland², Mike Parsley³, Kara R. Stewart¹

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 Hernandez¹, Hattie I. Duncan¹, Joshua C. McCann¹, Daniel W. Shike¹

¹University of Illinois at Urbana-Champaign

8:00 a.m. PSI-A-2 **Effects of microencapsulated zinc oxide on nursery pig growth performance and intestinal morphology**

Payton L. Dahmer¹, Elizabeth Fisher¹, Cassandra K. Jones¹

¹Kansas State University

8:00 a.m. PSI-A-12 **Evaluation of novel and traditional cover crops utilizing cattle in high-density, short-duration grazing**

Brooklyn Westerfield¹, Keela Trennepohl², Delson Wilcoxon², Joshua C. McCann³, Mark Benards²

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

8:00 a.m. PSI-A-7 **Prediction models for estimating metabolizable energy intake of pigs based on body weight and ambient temperature**

No A. Park¹, Jeonghyeon Son¹, Beob G. Kim¹

¹Konkuk University

8:00 a.m. PSI-A-8 **The effect of rumen capacity manipulation on dry matter intake on diets differing for processing level**

Grady A. Privett¹, Micah L. O'Malley¹, Lillian R. Royer¹, Amanda Holder¹

¹College of the Ozarks

8:00 a.m. PSI-A-11 **The effect of soybean meal and its functional compounds on growth performance, fecal scores, and fecal characteristics of nursery pigs**

Rachel M. Self¹, Brooke M. Bowen², Kade Miller¹, Ty M. Mitchell², Thomas A. Crome¹, Hannah Miller¹, Jerrad F. Legako², Amy L. Petry³

¹Texas Tech University, ²Texas Tech University, Department of Animal and Food Sciences, ³Division of Animal Sciences, University of Missouri

8:00 a.m. PSI-A-4 **The effects of a novel brewer's yeast product on ruminal fiber fermentation in vitro**

Vanessa Jensen¹, Haley F. Linder², Michael Cecava³, Joshua C. McCann²

¹Illinois State University, ²University of Illinois at Urbana-Champaign, ³Wilbur-Ellis

8:00 a.m. PSI-A-3 **Validation of rising plate meter for predicting herbage mass in tall-fescue pastures**

Kayla R. Grey¹, Esmeralda Lopez Hernandez¹, Kylie P. Ewing¹, Joshua C. McCann¹, Daniel W. Shike¹

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 Adams¹, Nirosh D. Aluthge¹, Waseem Abbas², Matt L. Spangler¹, Wells James³, Kristen E. Hales⁴, Larry A. Kuehn⁵, William T. Oliver⁶, Thomas Burkey¹, Phillip S. Miller¹, Samodha C. Fernando¹

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. Anderson¹

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. Fluharty¹, Jeferson M. Lourenco¹

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. Moeser¹

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 Buchinski¹, Carley M. Camire¹, Olufemi O. Babatunde², Anna Kate K. Shoveller³, Daniel A. Columbus⁴

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. Greiner¹, Sarah Elefson¹

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. Bromm¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Kiah M. Berg², Jon A. De Jong², Courtney Pohlen², Jason C. Woodworth¹, Robert D. Goodband¹, Jordan T. Gebhardt³

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. Bromm¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Josh Flohr², Raymond Schmitt², Jordan T. Gebhardt³

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. Ewing¹, Daniel W. Shike¹

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. Cemin¹, Morgan D. Hart¹, Jamie L. Pietig¹, Sharlie A. Hansen¹, Jose A. Soto², Ernie L. Hansen¹

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. Dahmer¹, Cassandra K. Jones¹

¹Kansas State University

10:00 a.m. PSII-2 **Evaluation of meloxicam in sows post-farrowing on sow and piglet performance**

Alexandra Fisk¹, KaLynn Harlow¹, Abigail Statler², Grace deNeui², Dan Rosener³, Stacy Peters³, Kara R. Stewart¹

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 Hanson¹, Hannah Braaten¹, Warren C. Rusche¹, Zachary K. Smith¹

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. Camire¹, Lucas A. Rodrigues², Josiane C. Panisson³, Anna Kate K. Shoveller⁴, Daniel A. Columbus⁵

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. Duncan¹, Daniel W. Shike¹

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 Buchinski¹, Carley M. Camire¹, Josiane C. Panisson², Anna Kate K. Shoveller³, Daniel A. Columbus⁴

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. Greiner¹, Sarah Elefson¹

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 Wilcock¹, Kiah M. Berg², Gustavo Cordero¹, Anthony Russo³

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 Cardoso¹

¹University of Illinois at Urbana-Champaign

1:50 p.m. 13 **Considerations when rumen protected amino acids are fed to dairy cows**

Chanhee Lee¹

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 supplementation**

Evan C. Titgemeyer¹

¹Kansas State University

3:35 p.m. 15 **Industry perspective on the value and challenges of amino acid feeding in ruminants**

Aimee Wertz-Lutz¹

¹Devenish Animal Nutrition

Swine Translational Symposium
Chair: Amanda Minton, Acuity Genetics
1:00 PM - 5:00 PM
Hall of Ideas E

1:00 p.m. **Swine Translational Symposium Introduction**

1:05 p.m. 6 **Sow farm costs and hurdles to execution**

Dave Wade ¹

¹The Hanor Company

1:50 p.m. 7 **Wean to market costs and hurdles to execution**

Noel H. Williams ¹

¹Iowa 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

¹Summit 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

¹Iowa State University

4:20 p.m. 11 **Evaluation and application of technology in swine production systems**

David S. Rosero ¹

¹The Hanor Company

**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, Tara L. Felix ²

¹Penn State, ²Dept. 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, Carl M. Parsons ¹, Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign

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 Rekabdarkolae 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 University, 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. Baumhover¹, Dathan T. Smerchek¹, Emma L. Rients¹, Amy M. McLaughlin¹, Kara J. Thornton², Stephanie L. Hansen¹

¹Iowa State University, ²Utah State University

1:30 p.m. 27 **Quality variation in beef chuck eye rolls sourced from a commercial processor**

Alicia Boryszewski¹, Nicholas Heller², Joshua C. McCann³, Justin W. Rickard²

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 Carter¹, Eric Weaver¹, Crystal L. Levesque¹

¹South Dakota State University

2:00 p.m. 29 **Evaluation of diet composition on early post-weaned feed intake and intestinal health**

Grace deNeui¹, Carson M. De Mille¹, Eric R. Burrough¹, Nicholas K. Gabler¹

¹Iowa State University

2:15 p.m. 30 **Microbiome manipulation to reduce methane emission in beef cattle**

Tien Doan¹, Hannah Wilson¹, Fiacre Kubwimana¹, Alison Neujahr¹, Samodha C. Fernando¹

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. Drayer¹, Joshua C. McCann¹, Daniel W. Shike¹, William T. Meter¹

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. Duddeck¹, Tiffany E. Justman¹, Haley J. Adkins¹, Alexandra H. Smith², Samantha Hernandez², Seth J. Wenner², Chi Chen³, Wenli Li⁴, Young Dal Jang¹

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

- 3:00 p.m. 33 **Effect of utilizing nurse sows compared to no nurse sows on farrowing house productivity**
 Larissa E. Meier¹, Kacey N. Allen², Amanda Cross³, Emily Mauch-Swinford³, Ethan Stephenson⁴, John Sonderman³, Brady McNeil³
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. Mitchell¹, Nicole C. Burdick Sanchez², Jeffery A. Carroll², Paul R. Broadway², Jerrad F. Legako¹, Amy L. Petry³
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. Nickell¹, Cate Rush¹, Denny McKilligan², Sam Tauer³, Paul M. Cline⁴
¹Christensen Farms, ²TechMix Global, ³christensen farms, ⁴Christenesen Farms
- 4:00 p.m. 36 **Effects of programmed compensatory gain on feedlot steer behavior**
 Jebadiah Schwager¹, Zachary Buessing², Bruce Hannon², Michael Murphy², Daniel W. Shike², Joshua C. McCann²
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. Silver¹, Lindsey M. Pugh¹, William T. Meteer¹, Joshua C. McCann¹, Daniel W. Shike¹
¹University of Illinois at Urbana-Champaign
- 4:30 p.m. 38 **The effects of lysine and antibiotic usage on early nursery pig performance**
 Abigail Statler¹, Kayla A. Miller¹, Nicholas K. Gabler¹
¹Iowa State University
- 4:45 p.m. 39 **Using finishing pig body measurements as a tool to estimate body weight**
 Branigan Steichen¹, Hannah Miller², Crystal L. Levesque¹
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. Swanstrom¹, Dalton C. Humphrey¹, Sarah Elefson¹, Kayla A. Miller¹, Spenser Becker¹, Chloe S. Hagen¹, Mitchell J. Nisley¹, Laura L. Greiner¹, Nicholas K. Gabler¹
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. Halbur¹, Jinsu Hong², Sara Llamas-Moya³, Tri Duong³, Steve J. Kitt⁴, Eric Weaver¹, Mark Bertram⁴

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 Hoyt¹

¹Easy Newz

2:15 p.m. 17 **Nutritional consequences of formulating pig diets with low energy values using fibrous rich byproducts**

Albert van Dijk¹, Francesc Molist¹

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. Tokach¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Jordan T. Gebhardt²

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. Kellner¹, Chad M. Pilcher²

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. Schoonmaker¹

¹Purdue University

2:30 p.m. 22 **Current knowledge in ruminants**

Gregory Penner¹

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. Gabler¹, Eric R. Burrough²

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. Koltes¹, Maddison Wiersema¹, Brian J. Kerr²

¹Iowa State University, ²USDA-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 Badger¹, Haley Otott¹, Chad B. Paulk¹, Charles R. Stark¹, Adam Donnelly²

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. Crome¹, Kyle Vahlenkamp¹, Mark A. Giesemann², Amy L. Petry³

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. Dlamini¹, Tina Nguyen¹, Qingyu Sheng¹, Carrie Vance¹, Scott T. Willard¹, Peter L. Ryan¹, Ahmed Gad², Dawit Tesfaye², Shengfa T. Liao¹, Jean M. Feugang¹

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. Hansen¹, Sarah R. Underdahl¹, Nayan Bhowmik¹, Carl R. Dahlen¹, Kris A. Ringwall², Kimberly A. Vonnahme³, Kendall C. Swanson¹, Lauren L. Hanna¹

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

5:00 p.m. 69 **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. 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

3:30 p.m. 70 **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

3:45 p.m. 71 **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

4:00 p.m. 72 **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

4:15 p.m. 73 **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.

Poster Session III

4:45 PM - 5:30 PM
Grand Terrace

4:45 p.m. PSIII-12 **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

4:45 p.m. PSIII-16 **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

4:45 p.m. PSIII-2 **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

4:45 p.m. PSIII-3 **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

4:45 p.m. PSIII-19 **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

4:45 p.m. PSIII-18 **Effect of microbial phytase on digestibility of phosphorus in seven sources of sunflower co-products fed to growing pigs**

Jimena A. Ibagón ¹, Hans H. Stein ², Charmaine D. Espinosa ²
¹University of Illinois, ²University of Illinois at Urbana-Champaign

4:45 p.m. PSIII-4 **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

4:45 p.m. PSIII-14 **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

4:45 p.m. PSIII-9 **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

4:45 p.m. PSIII-6 **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. Freestone¹, Tori E. Rudolph¹, Melissa S. Roths¹, Edith J. Mayorga¹, Megan A. Abeyta¹, Brady M. Goetz¹, Sonia Rodriguez-Jimenez¹, Julie Opgenorth¹, Joshua T. Selsby¹, Lance H. Baumgard¹

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. Espinosa¹, Joaquin Cabañas-Ojeda², Edgar O. Oviedo-Rondón², Hans H. Stein¹

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 Gaffield¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Robert D. Goodband¹, Jordan T. Gebhardt²

¹Kansas State University, ²Kansas State University

4:45 p.m. PSIII-7 **Evaluation of Agolin-Pig® on sow and piglet performance during lactation**

Alexandra Fisk¹, KaLynn Harlow¹, Taw Scaff¹, Brian T. Richert¹, Ashley DeDecker², Marlin Hoogland², Mike Parsley³, Kara R. Stewart¹

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 Hung¹, Emily Fruge¹, Gary Reznik¹, Jon Droegmiller¹, Trevor Lutz¹

¹Devenish Nutrition

4:45 p.m. PSIII-8 **Impact of essential oil combination on performance and coughing prevalence in nursery pigs**

Mónica Florez¹, Vinicius R.C. Paula², Patricia V.A. Alvarenga², Mareike Hörstmann¹, Eduardo Raele Oliveira³

¹Biochem Zusatzstoffe, ²Biochem do Brasil Nutrição Animal Ltda, ³Insidesui Research Services

4:45 p.m. PSIII-20 **Impact of pre-farrow fat supplementation on piglet survival and subsequent reproduction**

Mark Knauer¹, Zack Peppmeier¹, Jerry Purvis²

¹North Carolina State University, ²Purvis Farms

4:45 p.m. PSIII-1 **Preference testing of three materials on sows prior to farrowing**

Lauren L. Underwood¹, Anjali Patel², Arlene Garcia³, Nichole C. Anderson³

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, ²Trouw 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.

DeRouchey 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**

Marçal 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. Christenson¹, Rick N. Funston², Jordan M. Thomas³, Dan J. Kelly⁴, John G. Maddux⁵

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 Tsai¹, Bernard Abeiku Sam¹, Steve Dritz², Carine M. Vier², Jon R. Bergstrom³, Sara D. Hough³, Uislei A. Orlando², Kayla Blake⁴, Nathan Davis¹, Hannah Grogan¹, Kyle Coble⁵, Charles V. Maxwell¹

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. Parrish¹, Tom Gall², Mark Wilson³, Mike Parsley³, Malcolm Ballard⁴

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 Nau¹, Makayla Throop¹, Alayna Christy¹, Brian D. Whitaker¹

¹University of Findlay

7:30 a.m. PSIV-11 **The effects of vanillic acid supplementation during in vitro oocyte maturation in pigs**

Makayla Throop¹, Alayna Christy¹, Cameron Nau¹, Brian D. Whitaker¹

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. Rooney¹, Josep Roquet¹, Manuel Santos¹, Jules A. Taylor-Pickard¹

¹Alltech

7:30 a.m. PSIV-19 **Understanding intestinal health in nursery pigs through potential non-invasive biomarkers**

Gabriela M. Miotto Galli¹, Ines Andretta², Crystal L. Levesque³, Carlos J. Kippert⁴, Karine Ludwing Takeuti⁵, Marcos Kipper⁶

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

Beef/Small Ruminant Translational

Chair: Ted Perry, Purina

8:00 AM - 9:15 AM

Hall of Ideas J

8:00 a.m. 93 Feedlot performance, carcass traits, and feeder calf value of beef × Holstein and Holstein steers

Melanie Pimentel-Concepción¹, Jerad Jaborek², Jeannine P. Schweihofe², Andrea Garmyn¹, Melissa McKendree¹, Barry J. Bradford¹, Arnold Hentschl³, Daniel Buskirk¹

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. Heil¹, B. Zhao², Braden C. Troyer¹, Rebecca L. Sjostrand², J. Xiong², Andrea K. Watson¹, Galen E. Erickson², J. Okalebo², Y. Shi², Yijie Xiong³

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. Anderson¹, Travis Mulliniks², Isabella C. F. S. Condotta³, Andrea K. Watson¹, Yijie Xiong²

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. Duncan¹, Daniel W. Shike¹

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. Pugh¹, Wesley P. Chapple¹, William T. Meteer¹, Joshua C. McCann¹, Daniel W. Shike¹

¹University of Illinois at Urbana-Champaign

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. Steyn¹, Casey L. Bradley², Chantel Pennicott³, Jaco J. Raath¹, Myles Van Deventer⁴

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 Gaffield¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt², Carine M. Vier³, Matthew Spindler⁴, Uislei A. Orlando³, Luis E. Zaragoza⁴, Ning Lu⁵, Wayne R. Cast³, Danielle Wilson-Wells³, Julia Holen⁶, Alyssa Betlach⁶

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 immunocastrated gilts and boars**

Gustavo Lima¹, Gabriel Castro², Neidilania Ribeiro², Analia Silva², Carine M. Vier³, Amanda P. Siqueira¹, Uislei A. Orlando³, Caio A. da Silva⁴

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. Fent¹, Carson V. Cooper¹, Jim D. Hedges¹, Kelly M. Peper¹

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. Kitt¹, Wayne R. Cast², Mark Hover³, Carine M. Vier², Chris Sievers⁴, Ning Lu⁵, Ron A. Navales⁶, Jordi Camp Montoro⁷, Alyssa Betlach⁴, Dan Hamilton⁶, Ross Kiehne⁴, Steve Dritz², Uislei A. Orlando²

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. Kitt¹, Wayne R. Cast², Mark Hover³, Carine M. Vier², Chris Sievers⁴, Ning Lu⁵, Ron A. Navales⁶, Jordi Camp Montoro⁷, Alyssa Betlach⁴, Dan Hamilton⁶, Ross Kiehne⁴, Luis E. Zaragoza⁶, Steve Dritz², Uislei A. Orlando²

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 Montoro¹, Ronan Casserly², Carine M. Vier³, Ron A. Navales², Wayne R. Cast³, Ning Lu⁴, Steve Dritz³, Uislei A. Orlando³

¹PIC Europe, ²Genus PIC, ³PIC North America, ⁴PIC China

9:45 a.m. 135 **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 Lu¹, Eric Parr², Jorge Estrada³, Carine M. Vier⁴, Julia A. Calderon Diaz⁵, Michael Welsch², Wayne R. Cast⁴, Ron A. Navales⁶, Jordi Camp Montoro⁵, Luis E. Zaragoza⁶, Steve Dritz⁴, Uislei A. Orlando⁴

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. 74 **DAWCon—The dynamic animal welfare concept: A guideline to assess, safeguard and promote animal welfare**

Saskia S. Arndt¹, Vivian C. Goerlich¹, F. Josef van der Staay¹

¹Utrecht University

8:45 a.m. 75 **Deep dive into animal welfare measurements in swine and their implications**

Nichole C. Anderson¹

¹Texas Tech University

9:25 a.m. 76 **Animal Behavior, Health and Well-Being Symposium Break**

9:40 a.m. 77 **After the publication: How is animal welfare research being used in the industry?**

Lyndsey Jones¹

¹JBS USA

10:20 a.m. 78 **After the publication: Connecting research and live animal auditing**

Collette Kaster¹

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, Hubèrt 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. 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

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. DeRouchey 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. DeRouchey 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. DeRouchey 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. Vanderhoff¹, Rebecca L. Sjostrand², Jim C. MacDonald², Mary E. Drewnoski¹, Mitchell M. Norman³

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 Pittaluga¹, Justin Kieffer¹, Alejandro E. Relling¹

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 Lorences¹, Braden C. Troyer¹, Mitch M. Norman¹, Jim C. MacDonald², Galen E. Erickson²

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. McLaughlin¹, Daniel D. Loy¹, Jodi McGill¹, Stephanie L. Hansen¹

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 Mia¹, Tommy Winders², Mustapha Yusuf³, Eric Serum⁴, David J. Smith⁴, Bryan W. Neville⁵, Samat Amat⁶, Carl R. Dahlen³, Kendall C. Swanson³

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 Francis¹, Forest L. Francis¹, Erin R. Gubbels¹, Warren C. Rusche¹, Zachary K. Smith¹

¹South Dakota State University

10:30 a.m. 163 **Effect of Enogen feed corn inclusion in conventional and natural finishing cattle diets**

Jessica L. Miller¹, Karla Wilke², Galen E. Erickson³, Pablo L. Loza¹

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 Shipman¹, Jorge Perez Palencia¹, Rob Patterson², Crystal L. Levesque¹

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 Spinler¹, Jordan T. Gebhardt², Joel M. DeRouchey¹, Mike D. Tokach¹, Robert D. Goodband¹, Josh Kyle³, Jason C. Woodworth¹

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 Jalukar¹, Antonio Vargas², Maria-Jose Carrion-Lopez²

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. Bloxham¹, Naiara S. Fagundes², Denise Cardoso³, Garros Fontinhas-Netto³, Marco Aurélio Callegari⁴, Cleandro Pazinato Dias⁴, Gabrieli de Souza Romano⁴, Caio A. da Silva⁵

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. Hammers¹, Pedro E. Urriola¹, Mark Schwartz², Moon-Suhn Ryu³, Andres Gomez¹, Lee J. Johnston⁴

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. Cony¹, Edilaine C. de Araujo¹, Gabriel Martins¹, Júlio Furtado¹, Carine M. Vier², Uislei A. Orlando², Raquel Lunedo³, Dani Perondi³, Ines Andretta⁴

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 Knauer¹, Jon R. Bergstrom², Sara D. Hough²

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 Hu¹, Junmei Zhao², Neil Paton³, Stephanie Walston¹, Maud Legall¹, Mark Newcomb¹

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. Fent¹, Carson V. Cooper¹, A.M. Keller², E.L. Keller², M.J. Maus², K.S. Jimmerson², Karl Kerns³

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 Park¹, Shuhan Sun¹, Kwangwook Kim², Adebayo O O. Sokale³, Adriana Barri⁴, Yanhong Liu¹

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. Rodriguez¹

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 Gomes¹, Sung Woo Kim², Marcos Elias Elias Duarte³, Gabriel C. Rocha¹

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 Camargo¹, Juxing Chen¹, Deana Hancock²

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 Vega¹, Sabrina May¹, Molly L. McGhee¹, Neil Paton², Kari Saddoris-Clemons¹

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 Park¹, Shuhan Sun¹, Supatirada Wongchanla¹, Yating Zhao¹, Lauren L. Kovanda¹, Robert A. Hernandez¹, Kwangwook Kim², Ying Chen³, Yanhong Liu¹
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. Miller¹, Omarh F. Mendoza², Caleb M. Shull², Eric R. Burrough¹, Joel D. Spencer³, Nicholas K. Gabler¹
¹Iowa State University, ²The Maschoffs, 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. Brizgys¹, Jacob A. Richert¹, Taw Scaff¹, Brian T. Richert¹, John Scott Radcliffe¹
¹Purdue University

11:15 a.m. 145 **Dose-response and functional roles of zinc glycinate on growth and intestinal health of nursery pigs challenged with F18+ *Escherichia coli***

Ki beom Jang¹, Vitor Hugo C. Moita¹, Nicolas Martinez², Adebayo O O. Sokale², Sung Woo Kim³
¹North Carolina State University, ²BASF Corporation, ³NC State University

11:30 a.m. 146 **Efficacy of zinc glycinate reducing zinc oxide on growth and intestinal health of nursery pigs challenged with F18+ *Escherichia coli***

Ki beom Jang¹, Vitor Hugo C. Moita¹, Nicolas Martinez², Adebayo O O. Sokale², Sung Woo Kim³
¹North Carolina State University, ²BASF Corporation, ³NC State University

11:45 a.m. 147 **The impact of salinomycin and crude protein level on endemically enterically challenged nursery pigs**

Mitchell J. Nisley¹, Nicholas K. Gabler¹, Chris Sparks², Eric R. Burrough¹
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 SAMSON¹, Mieke V. Zoon², Clémentine Oguey²
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 Hu¹, Leandro Hackenhaar¹, Neil Paton², John de Laat¹, Mark Newcomb¹
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. Nilson¹, Joan M. Burke², Ronald M. Lewis³

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. Moita¹, Sung Woo Kim²

¹North Carolina State University, ²NC State University

10:45 a.m. 148 **Evaluation of multicarbohydase 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. Crome¹, Mark A. Gieseemann², Amy L. Petry³

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 Diaz¹, Su A Lee², Hans H. Stein²

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 Silva¹, Cristina Hideshima¹, Kelly Souza¹, Marco A. Callegari², Cleandro A. Dias², Claudia C. Silva³, rafael Sens³, Vitor Fascina³

¹Universidade Estadual de Londrina, ²AKEL, 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-Punti¹, Glenmer tactacan¹, Georg Dusel², Deepak E. Velayudhan¹

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-Punti¹, Glenmer tactacan¹, Arun Kumar², Deepak E. Velayudhan¹

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 Wise¹, Vitor Haetinger¹, Emmanuel Alagbe¹, Jose-Otavio Sorbara², Olayiwola Adeola¹

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. Velayudhan¹, Ester Vinyeta-Punti¹, Rachael Hardy¹, Leon Marchal², Charles Martin Nyachoti³, Hans H. Stein⁴, Yueming Dersjant-Li²

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. Moita¹, Ki beom Jang¹, Sung Woo Kim²

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. Kiefer¹, Erika M. Johnson¹, Jamie M. Studer¹, Cesar A.A. Moura², Jason W. Ross¹

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. Johnson¹, Zoe E. Kiefer¹, Jamie M. Studer¹, Brian J. Kerr², Laura Griener¹, Nicholas K. Gabler¹, Lance H. Baumgard¹, Jason W. Ross¹

¹Iowa State University, ²USDA-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 Nordell¹, Cathy Bernhard², Maddie Wegner¹, Rebecca Metcalf¹, John Rupert¹, Dragana Lagundžin³, Kanika Sharma³, Katharine Sharp², Tim J. Safranski², Matthew Lucy⁴, Amy T. Desaulniers¹

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. Studer¹, Zoe E. Kiefer¹, Lucas R. Koester¹, Erika M. Johnson¹, Lance H. Baumgard¹, Stephan Schmitz-Esser¹, Laura L. Greiner¹, Aileen F. Keating¹, Attila Farkas², Lucina Galina³, Kimberly A. Vonnahme³, Jason W. Ross¹

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. Anema¹, Emily Fowler¹, Forest L. Francis¹, Zachary K. Smith¹, Benoit St-Pierre¹
¹South Dakota State University

12:00 p.m. PSV-11 **Determining relative bioavailability of commercially available RP-Met products in lactating dairy cows**

Kirsten Clark¹, Noah Porter¹, Lucas Rebelo¹, Jessie Guyader², Chanhee Lee¹
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 Yu¹, Peter Mann¹, Lydia Schlitzkus¹, Jiniya Chakradhar¹, Yihang Li¹
¹University of Delaware

12:00 p.m. PSV-12 **Effects of diet on feed intake, weight change, and gas emissions in beef cows**

Amanda Holder¹, Megan A. Gross², Alexi Moehlenpah², David Lalman²
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. Linder¹, Adam Fritz¹, Joshua C. McCann¹
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. Royall¹, Jason C. Woodworth¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Jordan T. Gebhardt², Robert D. Goodband¹, Keith Mertz³, John Patience⁴
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 Park¹, Hanjin Oh¹, Yongju Kim¹, Jaewoo An¹, Seyeon Chang¹, Youngbin go¹, Hyunah Cho¹, Dongcheol Song¹, Kyeongho Jeon¹, Seok Man Hong², Won Yun², Jinho Cho¹
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 Scaff¹, Jacob A. Richert¹, Brian T. Richert¹, Kara R. Stewart¹

¹Purdue University

12:00 p.m. PSV-20 **Evaluation of dietary fiber inclusion on semen production and semen characteristics in mature AI boars**

Taw Scaff¹, Brian T. Richert¹, Kara R. Stewart¹, Alicia N. Denton¹, Hailey M. Hedrick¹

¹Purdue 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. Kim¹, Jin-Kyu Seo², Hyun-Wook Kim², Yong-Jae Lee²

¹Purdue Univ., ²Purdue 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 Ribeiro¹, Erin R. Gubbels¹, Forest L. Francis¹, Jeff S. Heldt², Santana Hanson¹, Thomas Norman¹, Warren C. Rusche¹, Zachary K. Smith¹

¹South Dakota State University, ²Micronutrients 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. Puls¹, Roger A. Arentson², Michael Shields², Scott Carr¹, Annie Lerner³, Alyssa Betlach⁴

¹Elanco, ²Elanco Animal Health, ³Schwartz Farms, ⁴Swine Vet Center

12:00 p.m. PSV-7 **Evaluation of narasin inclusion level on growth performance and carcass characteristics of growing-finishing pigs**

Christopher L. Puls¹, Roger A. Arentson², Michael Shields², Scott Carr¹

¹Elanco, ²Elanco Animal Health

12:00 p.m. PSV-2 **Impact of diseases in pig production on carcass and meat quality**

Marie-Pierre Fortier¹, Patrick Gagnon²

¹Centre de développement du porc du Québec inc., ²CDPQ

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. Kokinos¹, Laura A. Amundson¹, Thomas D. Crenshaw¹, Pamela J. Lang²

¹Department of Animal and Dairy Sciences, University of Wisconsin-Madison, ²Department of Orthopedics and Rehabilitation, University of Wisconsin-Madison

12:00 p.m. PSV-1 **Pasture does not impact pork quality of finishing hogs**

Chelsea Becker¹, Elizabeth A. Hines¹, Jonathan Campbell¹

¹Pennsylvania 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 Setyabrata¹, Danyi Ma¹, Shaojun Xie¹, Jyothi Thimmapuram¹, Bruce Cooper¹,
Uma Aryal¹, Brad H. B. Kim²

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. Cheek¹, Beth B. Kegley², Jason R. Russell³, Lucas Horton⁴, Brandon Depenbusch⁵, Jana L. Reynolds¹, Benjamin P. Shoulders¹, Kirsten A. Midkiff¹, Jeremy G. Powell¹

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. Rank¹, Isaac W. Farrey¹, Orianna N. Lebal¹, Young Dal Jang¹

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 Hilgemberg¹, Cheila Lehnen², Candido Pomar³, William Lambert⁴, Aline Remus³
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. Columbus¹

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. Babatunde¹, Lucas A. Rodrigues², John K. Khun Kyaw Htoo³, Maria S. Mendoza⁴, Daniel A. Columbus⁵

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 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 Break**

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 Rodriguez Rodriguez ¹, Álvaro Rojo Gómez ¹, Diego Aguilera Ramos ¹, José Angel Cota ², Elías Mikovich ², Víctor Alfonso Martínez ², Ricardo Alberto León ², Luis Angel 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. Pooch 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**

Huajun 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. DeRouchey 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 Xue¹, Molly L. McGhee¹, Chad M. Pilcher¹, Qingyun Li¹, Zhenbin Zhang¹
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 Faccin¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Jordan T. Gebhardt², Robert D. Goodband¹, Jason C. Woodworth¹
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 Spinler¹, Andres F. Tolosa¹, Jason C. Woodworth¹, Mike D. Tokach¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Kyle Coble², Amanda J. Gerhart², Jose A. Soto³, Jordan T. Gebhardt⁴
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. Royall¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt², Carine M. Vier³, Matthew Spindler⁴, Uislei A. Orlando³, Luis E. Zaragoza⁴, Ning Lu⁵, Wayne R. Cast³, Danielle Wilson-Wells³, Julia Holen⁶, Alyssa Betlach⁶
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 Guan¹, Albert van Dijk¹, Francesc Molist¹
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 Aymerich¹, Carme Soldevila¹, Jordi Bonet¹, Jaume Coma¹
¹Vall Companys Group

4:00 p.m. 245 **Effects of standardized ileal digestible tryptophan to lysine ratio on growth performance of PIC line 337-sired grow-finish pigs**

Rafe Q. Royall¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt², Carine M. Vier³, Matthew Spindler⁴, Uislei A. Orlando³, Luis E. Zaragoza⁴, Ning Lu⁵, Wayne R. Cast³, Danielle Wilson-Wells³, Julia Holen⁶, Alyssa Betlach⁶

¹Kansas State University, ²Kansas State University, ³PIC North America, ⁴Genus PIC, ⁵PIC China, ⁶Swine Vet Center

4:15 p.m. 246 **Evaluation of the complete replacement of soybean meal by rapeseed meal on performance and carcass composition of grow-finishing pigs**

Pau Aymerich¹, Carme Soldevila¹, Jordi Bonet¹, Josep Gasa², Jaume Coma¹, David Solà-Oriol²

¹Vall Companys Group, ²Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain

4:30 p.m. 319 **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 Hong¹, David Clizer², Paul M. Cline², Ryan S. Samuel¹

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

Nonruminant Nutrition VIII: Nursery--Additives

Chair: Caroline Gonzalez Vega, Cargill Animal Nutrition

1:30 PM - 4:45 PM

Hall of Ideas H

1:30 p.m. 225 **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 Williams¹, Brianna Moore¹, Jordan T. Gebhardt², Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹

¹Kansas State University, ²Kansas State University

1:45 p.m. 226 **Modulation of zinc, copper and iron transporters in weaned pigs fed different dietary zinc/copper ratios**

Danyel Bueno Dalto¹, Karine Deschêne¹, Geneviève Villeneuve¹, Frédéric Guay², Yan Martel-Kennes², Guylaine Talbot¹, J. Jacques Matte¹, Jérôme Lapointe¹

¹Agriculture and Agri-Food Canada, ²Université Laval

2:00 p.m. 227 **Varying the acid binding capacity of high and ZnO-free diets influences weanling pig growth performance**

Nestor A. Gutierrez¹, Leslie L. Mcknight², Christopher Powell¹, Atta Kofi Agyekum³, Francis Simard³, Ruben Decaluwe¹, Yanming Han¹, Neil W. Jaworski¹, Mohsen Abedin³

¹Trouw Nutrition Innovation, ²Trouw Nutrition Canada Inc., ³Trouw Nutrition North America

2:15 p.m. 228 **Effect of benzoic acid feeding strategy on weanling pig growth performance**

Katelyn Gaffield¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Robert D. Goodband¹, Jordan T. Gebhardt²

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 Negrini¹, Diana Luise¹, Federico Correa¹, Laura Amatucci¹, Sara Viridis¹, Agathe Romeo², Axel Minetto², Paolo Bosi¹, Paolo Trevisi¹, Alessandra Monteiro²

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 González¹, Adriana Morales¹, Alan Valle¹, Cecilia Hernández¹, Néstor Arce¹, Ernesto Avelar¹, Maria S. Mendoza², John K. Khun Kyaw Htoo³, Miguel Cervantes-Ramírez¹

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 Deng¹, Ki beom Jang², Sung Woo Kim³

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. Becker¹, Jordan T. Gebhardt², Mike D. Tokach¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Raghavendra G. Amachawadi³, Ramya Kalam¹, Xiaorong Shi¹, T. G. G. Nagaraja¹

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 Chen¹, James Jolliff², Jeff Kaufman²

¹Eastman Chemical Company, ²Kalmbach Feeds

4:00 p.m. 234 **Effects of feeding a phytogetic blend with or without supplementation of specialty fats on growth performance of nursery pigs**

Sabrina May¹, Caroline Gonzalez Vega¹, Molly L. McGhee¹

¹Cargill Animal Nutrition

4:15 p.m. 235 **Interactive effects of zinc oxide and Mannan oligosaccharides on nursery swine performance**

Jose A. Soto¹, Henrique S. Cemin², Morgan D. Hart², Jamie L. Pietig², Sharlie A. Hansen², Ernie L. Hansen²

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 Cheng¹, Marie Gallissot², Maria Garcia Suarez², Sung Woo Kim³

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. Willard¹, Nicole K. Moest¹, Caleb M. Shull², Denny McKilligan³, Mike Ellis¹

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-Solé¹, Jordi Camp Montoro², David Solà-Oriol¹, José Francisco Pérez¹, Peadar G. Lawlor³, Laura A. A. Boyle³, Edgar Garcia Manzanilla³

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 Archer¹, Adrienne Hilbrands², Lee J. Johnston², Benny E. Mote³, Ty B. B. Schmidt⁴, Yuzhi Li²

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. Kasakamu¹, Jennifer M. Young¹, Ryan S. Samuel², Sarah A. Wagner³, Christopher J. Byrd¹

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 Diaz ¹, Suzanne Desire ², Craig Lewis ¹, Rainer Roehe ³, Simon Turner Turner ³

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. Funk ¹, Braden C. Troyer ¹, Mitchell M. Norman ², Levi J. McPhillips ², Galen E. Erickson ³

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 Fowler ¹, Shannon L. Dierking ¹, Crystal L. Levesque ¹, Benoit St-Pierre ¹

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. Moest ¹, Naomi C. Willard ¹, Caleb M. Shull ², Denny McKilligan ³, Mike Ellis ¹

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. Webb ¹, Devin B. Holman ², Kaycie N. Schmidt ¹, Beena Pun ¹, Kevin K. Sedivec ³, Jennifer L. Hurlbert ¹, Kerri A. Bochantin ¹, Alison K. Ward 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. 62 **The impact of hair coat color on body temperature in beef cattle**

CarrieLee M. Holliday ¹, Jeffery A. Carroll ², Nicole C. Burdick Sanchez ², Michael Goerndt ³, Elizabeth Walker ¹, Adam McGee ¹

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 Rueda ¹, Benoit St-Pierre ¹

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 Yusuf¹, Macie K. Mosher¹, Ananda B. P Fontoura², Lauren L. Hanna¹, Marc L. Bauer¹, Kris A. Ringwall³, Kendall C. Swanson¹

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 Yusuf¹, Macie K. Mosher¹, Ananda B. P Fontoura², Lauren L. Hanna¹, Marc L. Bauer¹, Kris A. Ringwall³, Kendall C. Swanson¹

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. Rundle¹, Rebecca S. Brattain², Jeffrey S. Knott³

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. Rodriguez¹, Su A Lee¹, Hans H. Stein¹

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. Miller¹, Omarh F. Mendoza², Caleb M. Shull², Nicholas K. Gabler¹

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 Stephenson¹, Emily Mauch-Swinford², Brady McNeil², Christine Mainquist-Whigham³, Jason Schneider⁴

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. Bromm¹, Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jon A. De Jong², Kiah M. Berg², Courtney Pohlen², Jordan T. Gebhardt³

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 Aldenhoven¹, Nestor A. Gutierrez¹, Neil W. Jaworski¹

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 Faccin¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Jordan T. Gebhardt², Robert D. Goodband¹, Jason C. Woodworth¹

¹Kansas State University, ²Kansas State University

4:00 p.m. 254 **Mineral source matters for cartilage development to support structural integrity**

Karen J. Wedekind¹, Joe Cushing², Chelsie K. Foran³, Jesus A. Acosta Camargo³, Juxing Chen³, Mercedes Vazquez²

¹Novus International, Inc., ²Novus International, Inc., ³Novus International Inc.

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 Smith¹, Chris Sparks², Nicholas K. Gabler³

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 Smith¹, Chris Sparks², Nicholas K. Gabler³

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 Williams¹, Jordan T. Gebhardt², Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jon R. Bergstrom³, Michael Rahe⁴, Christopher Siepker⁴, Panchan Sitthicharoenchai⁴

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 Obermier¹, Benny E. Mote², Melanie Trenhaile-Grannemann³

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. Harshman¹, Scott D. Carter¹, C Scanlon Daniels², Kyle Coble³, Darin Madson³
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-López¹, Pau Aymerich², Josep Gasa¹, Joaquim Casellas³, David Solà-Oriol¹
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. Pierce¹, James W. Lyons², Tyler B. Chevalier³, Duncan B. Paczosa³, Merlin D. Lindemann³
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. Chevalier¹, James W. Lyons², Duncan B. Paczosa¹, Gregg K. Rentfrow¹, Merlin D. Lindemann¹
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. Allen¹, Larissa E. Meier², Ethan Stephenson³, Emily Mauch-Swinford⁴, Brady McNeil⁴, John Sonderman⁴, Amanda Cross⁴
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 Grave¹, Janine Saltzmann², Maria A. Rodriguez³, Francesc Molist⁴, Sven Danicke², Regiane R. Santos¹
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. Paczosa¹, Tyler B. Chevalier¹, Merlin D. Lindemann¹
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. Paczosa¹, Tyler B. Chevalier¹, Lan Zheng², Frank Berry¹, Merlin D. Lindemann¹

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. Vaughn¹, Mike Barnas², James L. McNaughton², John M. Gonzalez³

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. Luttman¹, Grace E. Schmidt¹, Nancy E. Raney¹, Juan P. Steibel², Catherine W. Ernst¹

¹Michigan State University, ²Iowa State University

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 Rao¹, Kyle Coble², Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt³

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 Gregory¹, Lee-Anne Huber¹

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 Cloutier¹, Lucie Galiot¹, Frédéric Guay², Gabrielle Dumas¹, Charlotte Gaillard³, Jean-Yves Dourmad³, Aude Simongiovanni⁴, Patrick Gagnon¹

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 Anderson¹, David S. Rosero², Sergio Canavate³, Samuel F. Leiva¹, Carine M. Vier³, Hugo Hidalgo¹, Julia A. Calderon Diaz⁴, Ning Lu⁵, Uislei A. Orlando³

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, Maria 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'Malley¹, Caleb Robertson¹, Amanda Holder¹

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. Midkiff¹, Rachel M. Scott², Sidney N. Dunkel², Robin A. Cheek¹, Bralee S. Lansdell², Brittni P. Littlejohn², Jeremy G. Powell¹, Doug L. Galloway¹, Jana L. Reynolds¹, Beth B. Kegley³

¹University of Arkansas System Division of Agriculture, ²University of Arkansas System, Division of Agriculture, Department of Animal Science, ³University of Arkansas Division of Agriculture

5:00 p.m. PSVI-15 **Effect of split iron injection to sucking pigs on growth performance and hematological parameters in pre- and post-weaning periods**

Gabriella Cristina Veloso Lima¹, Merit N. Lemunye¹, Alaina J. Johnson¹, Young Dal Jang¹

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 *salmonellaTyphimurium***

Dongcheol Song¹, Hanjin Oh¹, Yongju Kim¹, Jaewoo An¹, Seyeon Chang¹, Youngbin go¹, Hyunah Cho¹, Sehyun Park¹, Kyungho jeon¹, Jinho Cho¹

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 Pucetti¹, Sebastião de Campos Valadares Filho², Julia Travassos da Silva³, Fernando Alerrandro Alerrandro Andrade Cidrini⁴, Gilyard Angelo Angelo Pinheiro de Souza⁴, Lucas G. Hollerbach⁵, Kendall C. Swanson⁶

¹Universidade Federal de Viçosa / North Dakota State University, ²Universidade Federal de Viçosa, ³Universidade Federal de Vicoso / NDSU, ⁴Universidade Federal de Vicoso, 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 Silva¹, Sebastião de Campos Valadares Filho², Pauliane Pucetti³, Élle Maria de Almeida Matos⁴, Julia Gabriela Baroni Alves⁴, Gabriela Herculano Salles⁴, Yuri Cesconetto Ebani², Kendall C. Swanson⁵

¹Universidade Federal de Vicoso / NDSU, ²Universidade Federal de Viçosa, ³Universidade Federal de Viçosa / North Dakota State University, ⁴Universidade Federal de Vicoso, 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 Jang¹, Sun Gu Yu¹, Chai Bin Lim¹, Cao Shanchuan¹, In Ho Kim²

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 Stas¹, Robert D. Goodband¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Jordan T. Gebhardt²

¹Kansas State University, ²Kansas State University

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

Ethan Stas¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jason C. Woodworth¹, Jordan T. Gebhardt²

¹Kansas State University, ²Kansas State University

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

Junmei Zhao¹, Qiong Hu², Neil Paton³, Kaat Goris¹, Caroline Vanderhaeghe¹, Stephanie Walston²

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 Turner¹, Candace Young¹, Lauren A. Brizgys¹, Taw Scaff¹, Jacob A. Richert¹, Brian T. Richert¹, Jonathan A. Pasternak¹, John Scott Radcliffe¹

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. Sullivan¹, Jinsu Hong², Crystal L. Levesque¹, Robert C. Thaler¹

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. Sullivan¹, Jordan K. Jansen¹, Jinsu Hong², Jorge Perez Palencia¹, Crystal L. Levesque¹, Robert C. Thaler¹

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 Spinler¹, Jordan T. Gebhardt², Joel M. DeRouchey¹, Mike D. Tokach¹, Robert D. Goodband¹, Josh Kyle³, Jason C. Woodworth¹

¹Kansas State University, ²Kansas State University, ³Adisseo

5:00 p.m. PSVI-4 **The influence of diet type on beef cattle performance and meat quality characteristics**

Lillian R. Royer¹, Micah L. O'Malley¹, Grady A. Privett¹, Amanda Holder¹

¹College of the Ozarks

5:00 p.m. PSVI-20 **Trends in mycotoxin contamination of the 2022 United States corn crop**

Lan Zheng¹, Paige N. Gott¹, Ursula Hofstetter-Schähs¹, April W. Levy¹

¹DSM Nutritional Products

5:00 p.m. PSVI-5 **Using red clover extract to mitigate tall fescue toxicosis**

Ivan R. Thomas¹, Ken Coffey², Christine C. Nieman³, Ally J. Grote⁴, Sarah W. Alvey⁵

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

8:00 a.m. 291 **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. Wensley¹, Jason C. Woodworth², Mike D. Tokach², Robert D. Goodband², Joel M. DeRouchey², Jordan T. Gebhardt³

¹Pipestone, ²Kansas State University, ³Kansas State University

8:15 a.m. 292 **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. Vasa¹, Elisa A. Arnaud¹, Gillian E. Gardiner², Keelin O'Driscoll¹, Giuseppe Bee³, Peadar G. Lawlor⁴

¹Teagasc, ²South East Technological University, ³Agroscope, ⁴Pig Development Department, Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland

8:30 a.m. 293 **The effect of creep feed and nursery diet flavoring on piglet lactation and nursery performance**

Kara Pounds¹, Jacob A. Richert¹, Taw Scaff¹, Lauren A. Brizgys¹, Mekenzie Cecil¹, Caden Helfrich¹, John Scott Radcliffe¹, Allan P. Schinckel¹, Brian T. Richert¹, Matthew D. Asmus², Daniel B. Jones², Morgan T. Thayer²

¹Purdue University, ²ADM

8:45 a.m. 294 **Evaluation of variation in nursery pig growth performance utilizing different allotment strategies**

Abigail K. Jenkins¹, Jenna J. Bromm¹, Jordan T. Gebhardt², Jason C. Woodworth¹, Mike D. Tokach¹, Joel M. DeRouchey¹, Robert D. Goodband¹

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. Richert¹, Taw Scaff¹, Lauren A. Brizgys¹, Jon Ferrel², Allan P. Schinckel¹, John Scott Radcliffe¹, Brian T. Richert¹

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. Due¹, Thomas Weber², Nicholas K. Gabler¹

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 Lunedo¹, Gerson Schlesner¹, Dani Perondi¹, Ademir Dahmer Junior¹, Carine M. Vier², Ning Lu³, Uislei A. Orlando², Mônica Santi¹, Rafael Kummer¹

¹Master Agroindustrial, ²PIC North America, ³PIC China

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. Baumgard¹, Robert P. Rhoads²

¹Iowa State University, ²Virginia Tech

8:40 a.m. 269 **Bioenergetic consequences of pre- and postnatal heat stress on swine productivity**

Jay S. Johnson¹

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 Kim¹

¹Michigan State University

Nonruminant Nutrition XV: Ingredients Evaluation/Digestibility

Chair: Qingyun Li, Cargill Animal Nutrition

8:00 AM - 10:15 AM

Hall of Ideas J

8:00 a.m. 298 **Comparison of amino acid digestibility in pulses between broiler chickens and pigs**

Abidemi A. Adekoya¹, Olayiwola Adeola¹

¹Purdue University

8:15 a.m. 299 **Poultry meal autoclaving time-related reduction in amino acid digestibility for broiler chickens and growing pigs**

Jung Yeol Sung¹, Chan Sol Park², Darryl Ragland¹, Markus K. Wiltafsky-Martin³, Olayiwola Adeola¹

¹Purdue University, ²Pathway Intermediates, ³Evonik Operations GmbH

8:30 a.m. 300 **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 Oliveira¹, Leidy J. Torres-Mendoza², Markus K. Wiltafsky-Martin³, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign, ²UIUC, ³Evonik Operations GmbH

8:45 a.m. 301 **Effects of different sources and particle sizes of field peas on ileal digestibility of amino acids and starch by growing pigs**

Jimena A. Ibagón¹, Su A Lee², Charles Martin Nyachoti³, Hans H. Stein²

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

9:00 a.m. 302 **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 Lee¹, Diego A. Rodriguez¹, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign

9:15 a.m. **Nonruminant Nutrition XV: Ingredients Evaluation/Digestibility Break**

9:30 a.m. 303 **Interactive effects of pelleting and particle size reduction of corn on ileal digestibility of starch and amino acids in corn-soybean meal diets fed to pigs**

Su A Lee¹, Diego A. Rodriguez¹, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign

9:45 a.m. 304 **Investigating the impact of fiber type and multicarbohydase supplementation on nutrient digestibility and energy balance of gestating sows**

Thomas A. Crome¹, Mark A. Giesemann², Amy L. Petry³

¹Texas Tech University, ²Adisseo, ³Division of Animal Sciences, University of Missouri

10:00 a.m. 305 **Dietary carbohydase mixture supplementation and fiber levels on ileal digestibility of nutrients in diets for gestating sows**

Garrin Shipman¹, Jorge Perez Palencia¹, Rob Patterson², Crystal L. Levesque¹

¹South Dakota State University, ²CBS 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 Rao¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt²

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. Cabrera¹, Dolores Cabrera¹, Emily Bruder², Gene Gourley³

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. Becker¹, Jordan T. Gebhardt², Mike D. Tokach¹, Jason C. Woodworth¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jenna A. Seltzer³, Roger A. Arentson³, Michael Shields³, Christopher L. Puls³

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 Schroeder¹, Candido Pomar², Ines Andretta³, Renée Petri², Jennifer Ronholm⁴, Jeffery Escobar⁵, Sara Ricci², Aline Remus²

¹AAFC/ UFRGS, ²AAFC, ³Universidade Federal do Rio Grande do Sul, ⁴McGill University, ⁵BiomEdit

9:15 a.m. **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. Bradley¹, S'phamandla B. Mshengu², Jaco J. Raath³, Liliana Nolasco⁴, Myles Van Deventer², Willem J. Steyn³, Chantel Pennicott⁵

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. Bradley¹, Jaco J. Raath², Chantel Pennicott³, Mitchell Rowland⁴, Myles Van Deventer⁵, Willem J. Steyn²

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
¹Trouw 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, Wenxuan 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 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 Univeristy

9:30 a.m. 309 **Evaluation of encapsulated *Megasphaera Elsdenii* 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