

ORAL PRESENTATIONS RAW UNFORMATTED SCIENTIFIC PROGRAM

(12/23/22)

Monday, March 13, 2023

Midwest Board Symposium: Microbiome, Nutrition, and Health

9:00 AM - 11:45 AM
Ballroom A

9:00 a.m. Midwest Board Symposium Introduction

9:05 a.m. Microbiomes from the theory to application

Seidu Adams¹, Nirosh Aluthge¹, Waseem Abbas², Matt L. Spangler¹, James Wells³, Kristen E. Hales⁴, Larry A. Kuehn³, William T. Oliver³, Thomas Burkey¹, Phillip S. Miller¹, Samodha C. Fernando¹

¹University of Nebraska-Lincoln, ²Department of Animal Science, University of Nebraska-Lincoln, ³USDA-ARS, USMARC, ⁴Texas Tech University

9:40 a.m. 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. Midwest Board Symposium Break

10:30 a.m. Is the microbiome the answer to the ultimate question of life, the universe, and everything

Todd R. Callaway¹

¹University of Georgia

11:05 a.m. Swine-centric presentation

Adam J. Moeser¹

¹Michigan State University

**Ruminant Nutrition Symposium I:
Lessons Learned from Feeding Amino Acids in Beef and Dairy Cattle Diets**
1:00 PM - 4:30 PM
Ballroom B

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

1:05 p.m. **Amino acid nutrition in dairy cattle: Beyond milk protein**

Felipe Cardoso ¹

¹University of Illinois

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

Chanhee Lee ¹

¹The Ohio State University

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

2:50 p.m. **Predicting performance responses of growing cattle to amino acid supplementation**

Evan C. Titgemeyer ¹

¹Kansas State University

3:35 p.m. **Industry Perspective on the Value and Challenges of Amino Acid Feeding in Ruminants**

Aimee Wertz-Lutz ¹

¹Devenish Animal Nutrition

**David Baker Symposium:
Importance of Energy and Impact on Amino Acids in Swine Formulations**

1:30 PM – 4:30 PM

Ballroom A

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

1:35 p.m. **The global energy situation: Outlook for energy availability for fuel and feed**

Nicolas Hoyt ¹

¹Smithfield Foods

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

Albert van Dijk ¹, Francesc Molist ¹

¹SFR Schothorst Feed Research

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

3:10 p.m. **Formulating U.S. swine diets in a time of high energy costs.**

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

¹Kansas State University, ²Kansas State University

3:50 p.m. **How do producers and nutritionists determine which levers to pull to optimize feed cost and profitability under differing economic conditions?**

Trey A. Kellner ¹, Chad M. Pilcher ²

¹AMVC Nutritional Services, ²Cargill Animal Nutrition

Physiology Symposium: Effect of Gut Permeability in Animal Production

1:45 PM – 4:30 PM

Hall of Ideas H

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

2:00 p.m. **In vitro vs. in vivo methods benefits and limitations**

Lautaro Rostoll Cangiano ¹

¹University of Guelph

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

Gregory Penner ¹

¹University of Saskatchewan

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

3:15 p.m. **Current knowledge in swine**

Nicholas K. Gabler ¹

¹Iowa State University

3:45 p.m. **Measuring intestinal permeability when urine is not an option**

Dawn A. Koltes ¹, Maddison Wiersema ¹, Brian J. Kerr ²

¹Iowa State University, ²USDA-ARS National Laboratory for Agriculture and the Environment

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

**Swine Translational Symposium: Execution on Swine Farms:
Costs, Hurdles and Empowering Success**

1:00 PM - 5:00 PM

Hall of Ideas E

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

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

Dave Wade ¹

¹The Hanor Company

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

Noel H. Williams ¹

¹Iowa Select Farms

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

2:50 p.m. **Making “scientific” work instructions not so scientific**

Jonathon Hoek ¹

¹Summit SmarFarms

3:35 p.m. **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. **Current state use of technology and the next 3 to 5 years**

Aidan J. Connolly ¹

¹AgriTech Capital LLC

Undergraduate Student Oral Competition

1:15 PM - 5:15 PM

Hall of Ideas J

1:15 p.m. **Effect of steroidal implants and zinc supplementation on circulating
metabolites and insulin sensitivity in feedlot steers**

Dathan T. Smerchek ¹, Allison M. Baumhover ¹, Emma L. Rients ¹, Amy McLaughlin ¹, Kara J.
Thornton-Kurth ², Stephanie L. Hansen ¹

¹Iowa State University, ²Utah State University

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

Alicia Boryszewski ¹, Nicholas Heller ², Joshua C. McCann ³, Justin W. Rickard ²

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

1:45 p.m. **On-farm rapid test to assess immunological health of young pigs**

Kyerra Carter ¹, Eric Weaver ¹, Crystal L. Levesque ¹

¹South Dakota State University

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

Grace deNeui ¹, Carson M. De Mille ¹, Eric R. Burrough ¹, Nicholas K. Gabler ¹

¹Iowa State University

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

Tien Doan ¹, Hannah Wilson ¹, Fiacre Kubwimana ¹, Alison Neujahr ¹, Samodha C. Fernando ¹

¹University of Nebraska-Lincoln

2:30 p.m. **Alternative Housing for Beef Cow/Calf producers: A Survey of Management Practices and Health Concerns**

Sadie J. Drayer ¹, Joshua C. McCann ¹, Daniel W. Shike ¹, William T. Meter ¹

¹University of Illinois at Urbana-Champaign

2:45 p.m. **Effect of probiotics supplementation level on growth performance, blood parameters and fecal metabolites in nursery pigs**

Karyn A. Duddeck ¹, Tiffany E. Justman ¹, Haley J. Adkins ¹, Alexandra H. Smith ², Samantha Hernandez ², Seth J. Wenner ², Chi Chen ³, Wenli Li ⁴, Young Dal Jang ¹

¹University of Wisconsin-River Falls, ²Arm & Hammer Animal and Food Production, The ScienceHearted Center, ³University of Minnesota, ⁴US Dairy Forage Research Center, USDA-Agricultural Research Service

3:00 p.m. **Effect of Utilizing Nurse Sows Compared to No Nurse Sows on Farrowing House Productivity**

Larissa E. Meier ¹, Kacey Allen ², Amanda Cross ³, Emily Mauch-Swinford ³, Ethan Stephenson ⁴, John Sonderman ³, Brady McNeil ³

¹University of Nebraska-Lincoln, ²Kansas State University, ³DNA Swine Genetics, ⁴Pillen Family Farms

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

3:30 p.m. **Assessing the ability to immunomodulate the innate immune system and oxidative status of weaned pigs through a prenatal lipopolysaccharide challenge**

Ty M. Mitchell ¹, Nicole C. Burdick Sanchez ², Jeff A. Carroll ², Rand P. Broadway ³, Jerrad A. Legako ⁴, Amy L. Petry ⁴

¹Texas Tech, ²USDA ARS, ³Livestock Issues Research Unit, Agricultural Research Service, United States Department of Agriculture, ⁴Texas Tech University

3:45 p.m. **High Fiber Top Dress Effects On Sows During Farrowing and Lactation**

Sawyer j. Nickell ¹, Cate Rush ¹, Denny McKilligan ², Sam Tauer ³, Paul M. Cline ⁴

¹Christensen Farms, ²TechMix Global, ³christensen farms, ⁴Christenesen Farms

4:00 p.m. **Effects of programmed compensatory gain on feedlot steer behavior**
Jebadiah Schwager ¹, Zachary Buessing ², Bruce Hannon ², Michael Murphy ², Daniel W. Shike ³,
Joshua C. McCann ³

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

4:15 p.m. **Effects of creep feeding duration on rumen fermentation characteristics using an ex vivo model**

Jack T. Silver ¹, Lindsey M. Pugh ¹, William T. Meter ¹, Joshua C. McCann ¹, Daniel W. Shike ¹

¹University of Illinois at Urbana-Champaign

4:30 p.m. **The effects of lysine and antibiotic usage on early nursery pig performance**

Abigail Statler ¹, Kayla A. Miller ¹, Nicholas K. Gabler ¹

¹Iowa State University

4:45 p.m. **Using finishing pig body measurements as a tool to estimate body weight**

Branigan Steichen ¹, Hannah Miller ², Crystal L. Levesque ¹

¹South Dakota State University, ²Texas Tech University

5:00 p.m. **Effect of soybean meal inclusion on grow-finish pig performance and nitrogen balance**

Joseph A. Swanstrom ¹, Dalton C. Humphrey ¹, Sarah Elefson ¹, Kayla A. Miller ¹, Spenser Becker ¹,
Chloe S. Hagen ¹, Mitchell J. Nisley ¹, Laura L. Greiner ¹, Nicholas K. Gabler ¹

¹Iowa State University

Graduate Student Oral Competition - PHD

1:15 PM - 5:30 PM

Ballroom D

1:15 p.m. **Growth performance and carcass characteristics of beef-sired steers born to Holstein dams**

Bailey L. Basiel ¹, Tara L. Felix ¹

¹Penn State

1:30 p.m. **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. M. Parsons ¹, Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign

1:45 p.m. **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 Penagaricano ¹, John J. Parrish ³

¹University of Madison Wisconsin, ²Facultad de Medicina, UDELAR, Montevideo Uruguay., ³UW-Madison

2:00 p.m. Identification of vaginal gene expression differences in gilts achieving early or late puberty

Shannon L. Dierking¹, Jodi Morton², Michael Gonda¹, Hossein Rekabdarkolaei¹, Jeffrey A. Clapper¹, Crystal L. Levesque¹

¹South Dakota State University, ²Southern University & A&M College

2:15 p.m. Determining the phosphorus release curve for Smizyme TS G5 2,500 phytase from 500 to 2,500 FTU/kg in nursery pig diets

Katelyn Gaffield¹, Hadley Williams¹, Larissa L. Becker¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Robert D. Goodband¹, Jordan T. Gebhardt¹, Jill M. Faser²

¹Kansas State University, ²Barentz

2:30 p.m. 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 Harrison¹, Haley Otott¹, Jianfa Bai², Vaughn Hamill¹, Jason C. Woodworth¹, Cassandra K. Jones¹, Charles R. Stark¹, Roman Pogranichniy¹, Jordan T. Gebhardt³, Chad B. Paulk¹

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

2:45 p.m. Feeding pigs with low crude protein diets: impact of pig manure nitrogen content on biogas production and digestate quality

Felipe M. W. Hickmann¹, Ines Andretta², Léa Cappelaere³, Bernard Goyette⁴, Marie-Pierre Létourneau-Montminy³, Rajinikanth Rajagopal⁴

¹UFRGS, ²Universidade Federal do Rio Grande do Sul, ³Université Laval, ⁴AgriFood Canada

3:00 p.m. Evaluation of branched-chain amino acid interactions in 13 to 23 kg nursery pigs using a central composite design

Dalton C. Humphrey¹, Keith D. Haydon², Laura L. Greiner¹

¹Iowa State University, ²CJ Bio America

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

3:30 p.m. The effect of increasing standardized ileal digestible methionine intake during lactation on whole-body nitrogen utilization of primiparous sows

Cierra Kozole¹, Cristhiam Munoz Alfonso¹, John K. Htoo², Lee-Anne Huber¹

¹University of Guelph, ²Evonik Operations GmbH

3:45 p.m. Individual precision feeding can greatly reduce global warming, eutrophication, and acidification environmental impacts

Berta Llorens¹, Candido Pomar¹, Bernard Goyette¹, Rajinikanth Rajagopal¹, Ines Andretta², María Ángeles Latorre³, Aline Remus⁴

¹AgriFood Canada, ²Universidade Federal do Rio Grande do Sul, ³Universidad de Zaragoza, ⁴AAFC

4:00 p.m. **Evaluation of the Effects of a Single Intranasal Dose of Essential Oil Spray on the Nasopharyngeal Microbiota of Feedlot Cattle: A Pilot Study**

Gabriela Magossi¹, Kaycie N. Schmidt¹, Devin B. Holman², Thomas Winders³, Zachary Carlson¹, Sarah R. Underdahl¹, Kendall C. Swanson¹, Samat Amat¹

¹North Dakota State University, ²Agriculture Agri-Food Canada, Lacombe Research and Development Center, ³IFF

4:15 p.m. **Feeding style and its effect on growth and spatial preference of young pigs**

Kaitlyn Sommer¹, Pradeep Senthill¹, Sangyun Joung¹, Rebecca Golden¹, Ryan N. Dilger²

¹University of Illinois - Urbana Champaign, ²University of Illinois Urbana-Champaign

4:30 p.m. **Effect of vitamin A supplementation during gestation on vitamin A status of beef cows and their calves managed in the drylot**

Hannah Speer¹, Karla Wilke¹, Mary E. Drewnoski¹

¹University of Nebraska-Lincoln

4:45 p.m. **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 Sung¹, Timothy A. Johnson¹, Darryl Ragland¹, Olayiwola Adeola¹

¹Purdue University

5:00 p.m. **The effects of dietary net energy levels on grow-finish performance and carcass characteristics of market gilts managed with Improvest®**

Yifei Wang¹, Blaine Hansen², Steve Pollmann³, Jose Luis Landero⁴, Malachy Young⁴, Benjamin M. Bohrer¹

¹The Ohio State University, ²BCH Consulting LLC, ³DSP Consulting LLC, ⁴Gowans Feed Consulting

5:15 p.m. **Early weaning stress relocates epithelial enteroendocrine cells and alters intestinal nutrient sensing and transport functions in pigs**

Liang-en Yu¹, Peter Mann¹, Lydia Schlitzkus¹, Jiniya Chakradhar¹, Yihang Li¹

¹University of Delaware

Graduate Student Oral Competition - MS

1:45 PM – 5:15 PM

Ballroom C

1:45 p.m. **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 Medellin¹, Charmaine D. Espinosa², Gemma Gonzalez Ortiz³, Hans H. Stein²

¹Monogastric Nutrition Laboratory UIUC, ²University of Illinois at Urbana-Champaign, ³AB Vista

2:00 p.m. Effects of pellet quality on growth performances of pigs when fed diets during varying weight ranges

Patrick Badger ¹, Haley Otott ¹, Chad B. Paulk ¹, Charles R. Stark ¹, Adam Donnelly ²

¹Kansas State University, ²Borregaard Biopolymers

2:15 p.m. Dietary fiber source and stage of gestation impact water balance and fecal physicochemical properties of sows

Thomas A. Crome ¹, Kyle Vahlenkamp ¹, Mark A. Gieseemann ², Amy L. Petry ¹

¹Texas Tech University, ²Adisseo

2:30 p.m. Molecular characterization of boar semen in relation to sperm quality

Notsile H. Dlamini ¹, Tina Nguyen ¹, Qingyu Sheng ¹, Carrie Vance ¹, Scott T. Willard ¹, Peter L. Ryan ¹, Ahmed Gad ², Dawit Tesfaye ², Shengfa T. Liao ¹, Jean M. Feugang ¹

¹Mississippi State University, ²Colorado State University

2:45 p.m. The effects of frame score, breed, and day relative to estrus on dry matter intake and feeding behaviors of crossbred beef heifers

Lydia E. Hansen ¹, Sarah R. Underdahl ¹, Nayan Bhowmik ¹, Carl R. Dahlen ¹, Kris A. Ringwall ², Kimberly A. Vonnahme ³, Kendall C. Swanson ¹, Lauren L. Hulsman Hanna ¹

¹North Dakota State University, ²Dickinson Research Extension Center, North Dakota State University, ³Zoetis

3:00 p.m. The Impact of Hair Coat Color on Body Temperature in Beef Cattle

CarrieLee M. Holliday ¹, Jeff 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, ³Environmental Plant Science and Natural Resources, Missouri State University

3:15 p.m. Biological and management factors affecting colostrum intake and pre-weaning survival in piglets

Abigail K. Jenkins ¹, William L. Flowers ²

¹Kansas State University, ²North Carolina State University

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

3:45 p.m. 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. Associations between resilience to weaning stress and startle response in nursery-age gilts

Bora N. 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. **Whole-body Biogeography of the Bacterial Microbiota in Newborn Calves and Response of these Communities to Prenatal Vitamin and Mineral Supplementation**

Sarah Luecke¹, Devin B. Holman², Kaycie N. Schmidt¹, Katherine James-Gzyl², Jennifer L. Hurlbert¹, Ana Clara B. Menezes¹, Kerri A. Bochantin¹, James D. Kirsch¹, Friederike Baumgaertner¹, Kevin K. Sedivec¹, Kendall C. Swanson¹, Carl R. Dahlen¹, Samat Amat¹

¹North Dakota State University, ²Agriculture Agri-Food Canada, Lacombe Research and Development Center

4:30 p.m. **Effect of different dietary protein sources on skeletal muscle growth characteristics and satellite cell mitotic activity of young piglets**

Jorge L. Sandoval¹, Allan J. Calderon¹, Samuel F. Leiva¹, Brian L. Anderson¹, Jessica D. Starkey¹, Charles W. Starkey¹

¹Auburn University

4:45 p.m. **Impact of increasing levels of hybrid rye on carcass characteristics and product sensory evaluation in grow-finish pigs**

Caitlyn R. Sullivan¹, Robert C. Thaler¹, Kiah M. Berg², Jon A. De Jong², Joe P. Ward³, Paul F. Frahm³, Mike J. Boerboom⁴

¹South Dakota State University, ²Pipestone Nutrition, ³Pipestone Applied Research, ⁴Boerboom Ag Resources

5:00 p.m. **Monoglycerides of butyric, caprylic, and capric fatty acids promote intestinal integrity and host defenses in health-challenged weanling pigs**

Cameron S. White¹, Chien-Che Hung², Saraswathi Lanka², Carol W. Maddox², Adebayo O. Sokale³, Adriana Barri⁴, Ryan N. Dilger¹

¹University of Illinois Urbana-Champaign, ²University of Illinois Urbana-Champaign College of Veterinary Medicine, ³BASF Corporation, ⁴BASF SE

Ruminant Nutrition I

3:30 PM - 4:30 PM

Hall of Ideas G

3:30 p.m. **Nutrient restriction during late gestation alters maternal circulating amino acid concentrations in primiparous beef females**

Colby A. Redifer¹, Lindsey G. Wichman¹, Allison M. Meyer¹

¹Division of Animal Sciences, University of Missouri

3:45 p.m. **Effects of late gestational nutrient restriction on calf pre-weaning growth, backgrounding and feedlot performance, and carcass composition**

Allison M. Meyer¹, Abigail R. Rathert-Williams¹, Lindsey G. Wichman¹, Emily A. Petzel¹, Derek W. Brake¹, Colby A. Redifer¹

¹Division of Animal Sciences, University of Missouri

4:00 p.m. **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 Syring¹, Matthew S. Crouse², Yssi Entzie³, Layla King³, Mara Hirschert³, Alison K. Ward¹, Robert Lee³, Lawrence P. Reynolds³, Pawel P. Borowicz³, Carl R. Dahlen¹, Joel S. Caton¹
¹North Dakota State University, ²USDA, ³NDSU

4:15 p.m. **Effects of fatty acids sources and lysophospholipids on nutrient digestibility in lactating cows**

Noah Porter¹, Kiyeon Park¹, Kirsten Clark¹, Lucas Rebelo¹, In Hyuk Kwon², Chanhee Lee¹
¹The Ohio State University, ²EASY BIO, INC.

Tuesday, March 14, 2023

Beef/Small Ruminant Translational

8:00 AM - 9:15 AM

Hall of Ideas E

8:00 a.m. **Feedlot Performance, Carcass Traits, and Feeder Calf Value of Beef × Holstein and Holstein Steers**

Melanie Pimentel Concepción¹, Jerad Jaborek², Jeannine P. Schweihofer², 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. **Characterizing yearling beef steers grazing on smooth brome grass pasture using global positioning technology**

Holly A. Heil¹, B. Zhao², Braden C. Troyer¹, Rebecca L. Sjostrand¹, J. Xiong², Andrea K. Watson¹, Galen E. Erickson¹, J. Okalebo², Y. Shi², Y. Xiong¹
¹University of Nebraska-Lincoln, ²University of Nebraska- Lincoln

8:30 a.m. **Predicting live body weight of beef heifers using 3D imaging**

Dalton J. Anderson¹, J. T. Mulliniks¹, I. C. F. S. Condotta², Andrea K. Watson¹, Y. Xiong¹
¹University of Nebraska-Lincoln, ²University of Illinois Urbana-Champaign

8:45 a.m. **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. **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. Meter¹, Joshua C. McCann¹, Daniel W. Shike¹
¹University of Illinois at Urbana-Champaign

Nonruminant Nutrition III: Gro-Finish--Lysine

8:00 AM - 10:00 AM

Hall of Ideas I

8:00 a.m. **Lysine titration for intact males and gilts during the grower-finisher period in both summer and winter seasons in a South African commercial production system.**

Willem J. Steyn ¹, Casey L. Bradley ², Chantel Pennicott ³, Jaco Raath ¹, Myles Van Deventer ⁴

¹Swine Nutrition Management, ²The Sunswine Group LLC, ³Baynesfield Estates, ⁴Baynesfield Estate

8:15 a.m. **Effects of standardized ileal digestible lysine on growth performance of 12- to 136-kg PIC line 800-sired pigs**

Katelyn Gaffield ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D.

Goodband ¹, Jordan T. Gebhardt ¹, Carine M. Vier ², Matthew Spindler ², Uislei A. Orlando ², Luis E. Zaragoza ², Ning Lu ², Wayne R. Cast ², Danielle Wilson-Wells ³, Julia Holen ⁴, Alyssa Betlach ⁴

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

8:30 a.m. **Effects of increasing dietary standardized ileal digestible lysine levels on growth performance of 102- to 127-kg immunocastrated gilts and boars**

Gustavo Lima ¹, Gabriel Castro ², Neidilania Ribeiro ², Analia Silva ², Carine M. Vier ³, Amanda P. Siqueira ¹, Uislei A. Orlando ³, Caio A. da Silva ⁴

¹Agrocere PIC, ²Agrocere MMX, ³Genus PIC, ⁴Universidade Estadual de Londrina

8:45 a.m. **Effect of Dietary Standardized Ileal Digestible Lysine Concentration Curve on Growth Performance and Carcass Characteristics of Finishing Pigs of DNA Genetics**

Russell W. Fent ¹, Carson V. Cooper ¹, Jim D. Hedges ¹, Kelly M. Peper ¹

¹Ralco Nutrition

9:00 a.m. **The effects of increasing dietary standardized ileal digestible lysine levels on growth performance and carcass characteristics of 11- to 133-kg late-nursery-to-finish pigs sired by PIC 800 boars**

Steve J. Kitt ¹, Wayne R. Cast ², Mark Hover ³, Carine M. Vier ², Chris Sievers ⁴, Ning Lu ², Ron A. Navales ², Jordi Camp Montoro ⁵, Alyssa Betlach ⁴, Dan Hamilton ², Ross Kiehne ⁴, Steve Dritz ², Uislei A. Orlando ²

¹First Choice Livestock, LLC, ²Genus PIC, ³Reicks View Farms, ⁴Swine Vet Center, ⁵PIC Europe

9:15 a.m. **The effects of increasing dietary standardized ileal digestible lysine levels on growth performance and carcass characteristics of 24- to 130-kg grow-finish pigs sired by PIC 800 boars**

Steve J. Kitt ¹, Wayne R. Cast ², Mark Hover ³, Carine M. Vier ², Chris Sievers ⁴, Ning Lu ², Ron A. Navales ², Jordi Camp Montoro ⁵, Alyssa Betlach ⁴, Dan Hamilton ², Ross Kiehne ⁴, Luis E. Zaragoza ², Steve Dritz ², Uislei A. Orlando ²

¹First Choice Livestock, LLC, ²Genus PIC, ³Reicks View Farms, ⁴Swine Vet Center, ⁵PIC Europe

9:30 a.m. **Meta-analysis to determine the standardized ileal digestible lysine requirements of growing-finishing pigs from 11- to 150-kg utilizing the ingredients database of INRA**

Jordi Camp Montoro ¹, Ronan Casserly ², Carine M. Vier ², Ron Navales ², Wayne R. Cast ², Ning Lu ², Steve Dritz ², Uislei A. Orlando ²

¹PIC Europe, ²Genus PIC

9:45 a.m. **Effects of increasing dietary standardized ileal digestible lysine levels on growth performance of PIC 337 × Camborough commercial pigs that were sired by high index boars**

Ning Lu ¹, Eric Parr ², Jorge Estrada ³, Carine M. Vier ¹, Julia A. Calderon Diaz ⁴, Michael Welsch ², Wayne R. Cast ¹, Ron A. Navales ¹, Jordi Camp Montoro ⁴, Luis E. Zaragoza ¹, Steve Dritz ¹, Uislei A. Orlando ¹

¹Genus PIC, ²Carthage Innovative Swine Solutions, ³Carthage Veterinary Service, ⁴PIC Europe

Nonruminant Nutrition Symposium I: How to Improve Pigs Weaned Per Sow Per Year Under Constant Sow Farm Health Challenges

8:00 AM - 11:30 AM

Ballroom C

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

8:05 a.m. **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. **Developing mortality risk profiles to better feed and manage high-producing sows**

Eric Weaver ¹

¹South Dakota State University

9:05 a.m. **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. **Nutrition practices in a high-producing sow herd**

Kiah M. Berg ¹

¹Pipestone Nutrition

10:20 a.m. **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. **Integrating health and feeding management strategies during lactation: focus on the sow**

Jorge Estrada ¹

¹Carthage Vet Services

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

Ruminant Nutrition Symposium II: Sustainable Methane Mitigation Feeding Strategies that Support Local/Regional Economic and Agronomic Sectors in Ruminants

8:00 AM - 11:30 AM

Ballroom B

8:00 a.m. **Ruminant Nutrition Symposium II Introduction**

8:05 a.m. **Methane mitigation and sustainability of beef systems**

Jasmine A. Dillon ¹

¹Colorado State University

8:50 a.m. **Microbiome-derived bioactive molecules to reduce enteric methane emissions**

Hilario Mantovani ¹

¹University of Wisconsin-Madison

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

9:50 a.m. **Methanogen Ecology in the Ruminant Hindgut**

Steven C. Ricke ¹

¹University of Wisconsin

10:35 a.m. **Methane mitigation in dairy animals begins before birth with opportunities to impact throughout life**

Elizabeth A. French ¹

¹USDA

**Animal Behavior, Health and Well-Being Symposium:
Back to the Basics on Animal Welfare: How, What, and Why Are We Measuring?**

8:00 AM – 11:15 AM

Hall of Ideas J

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

8:05 a.m. **DAWCon–The dynamic animal welfare concept: A guideline to assess, safeguard and promote animal welfare**

Saskia Arndt ¹

¹Utrecht University

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

Nichole Chapel C. Anderson ¹

¹Texas Tech University

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

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

Lyndsey Jones ¹

¹JBS USA

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

Collette Kaster ¹

¹American Meat Science Association (AMSA)

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

Harlan Ritchie Symposium: Creating Value for U.S. Beef in a Global Market

8:00 AM - 12:00 PM

Ballroom D

8:00 a.m. **Harlan Ritchie Symposium Introduction**

8:00 a.m. **Global competition for calories (diversion of energy from food/feed to fuel)**

8:00 a.m. **Creating more value for heifers**

Kenneth G. Odde ¹

¹Kansas State University

8:00 a.m. **Harlan Ritchie Symposium Break**

8:00 a.m. **Creating a more efficient production system (feed efficiency in the real world)**

Wes Gentry ¹, Zachary K. Smith ²

¹Midwest PMS, LLC, ²South Dakota State University

Nonruminant Nutrition II: Nursery--Ingredients

8:30 AM - 11:15 AM

Hall of Ideas H

8:30 a.m. Estimating the net energy requirement of piglets during the first three weeks post-weaning

Michael O. Wellington¹, Tetske G. Hulshof¹, Lluís Fabà Camats¹, Hubert Van Hees¹

¹Trouw Nutrition R&D Swine

8:45 a.m. Effects of replacing lactose with novel carbohydrate sources on feed intake preference in nursery pigs

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

9:00 a.m. Evaluation of anchovy fish meal and fish solubles compared to other specialty protein sources on nursery pig performance

Ethan Stas¹, Mike D. Tokach¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Robert D.

Goodband¹, Jordan T. Gebhardt²

¹Kansas State University, ²Kansas State University

9:15 a.m. Use of specialty soy products as alternatives to poultry meal and spray-dried blood plasma in nursery pig diets

Ethan Stas¹, Jamil Faccin¹, Zach Post², Chad W. Hastad², Mike D. Tokach¹, Jason C.

Woodworth¹, Joel M. DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt³

¹Kansas State University, ²New Fashion Pork, ³Kansas State University

9:30 a.m. 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 Stas¹, Alan Warner², Chad W. Hastad², Mike D. Tokach¹, Jason C. Woodworth¹, Joel M.

DeRouchey¹, Robert D. Goodband¹, Jordan T. Gebhardt³

¹Kansas State University, ²New Fashion Pork, ³Kansas State University

9:45 a.m. Nonruminant Nutrition II: Nursery—Ingredients Break

10:00 a.m. Effects of different protein sources containing highly digestible phosphorus on the basal endogenous loss of phosphorus

Megan E. Nelson¹, Su A Lee¹, Hans H. Stein¹

¹University of Illinois at Urbana-Champaign

10:15 a.m. Investigating the role of soybean meal and its innate bioactive compounds on nursery pig systemic health, inflammatory markers, and gastrointestinal physiology

Brooke M. Bowen¹, Cassidy Sassar¹, Nicole C. Burdick Sanchez², Rand P. Broadway³, Jeff A.

Carroll², Jerrad A. Legako¹, Amy L. Petry¹

¹Texas Tech University, ²USDA ARS, ³Livestock Issues Research Unit, Agricultural Research Service, United States Department of Agriculture

10:30 a.m. **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. **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. **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

Nonruminant Nutrition I: Breeding Herd--Feed Additives

8:30 AM - 12:00 PM

Hall of Ideas F

8:30 a.m. **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. **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. **Yeast-based postbiotic supplementation in sow diets to enhance offspring growth and health through the nursery period**

Joel Kieser ¹, Jorge Y. 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. **Effects of yeast carbohydrates fed to lactating sows on sow and offspring performance**

Garrin Shipman ¹, Jorge Y. Perez-Palencia ¹, Rob Patterson ², Crystal L. Levesque ¹

¹South Dakota State University, ²CBS Bio-Platforms Inc.

9:45 a.m. **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. **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. **Nonruminant Nutrition I: Breeding Herd--Feed Additives Break**

10:30 a.m. **Effect of selenium sources on sow productive and reproductive performance and their progeny**

Darlene J. Bloxham¹, Naiara Simarro Fagundes¹, Denise Cardoso¹, Garros Fontinhas-Netto¹, Marco Aurélio Callegari², Cleandro Pazinato Dias², Gabrieli de Souza Romano², Caio A. da Silva³

¹Adisseo, ²AKEI Animal Research, ³Universidade Estadual de Londrina

10:45 a.m. **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. **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, ²Genus PIC, ³Master Agroindustrial, ⁴Universidade Federal do Rio Grande do Sul

11:15 a.m. **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. **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. **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, K.C. Kerns²

¹Ralco Nutrition, ²Iowa State University

Ruminant Nutrition II

8:30 AM - 11:45 AM

Hall of Ideas G

8:30 a.m. **Winter hardy cereal cover crops for spring grazing in Nebraska**

Abigail Sartin¹, Kallie Calus¹, Mary E. Drewnoski¹, Daren Redfearn¹, Rob Mitchell²

¹University of Nebraska-Lincoln, ²ARS

8:45 a.m. **Daily Versus Three Times a Week DDGS Supplementation on Grazing Calves**

Sydney T. Vanderhoff¹, Rebecca L. Sjostrand¹, James C. MacDonald², Mary E. Drewnoski¹, Mitchell M. Norman³

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

9:00 a.m. **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. **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, James C. MacDonald², Galen E. Erickson¹

¹University of Nebraska-Lincoln, ²University of Nebraska

9:30 a.m. **Effect of NexPro on immune response and performance of finishing steers**

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

¹Iowa State University

9:45 a.m. **The effects of feeding hempseed cake on pancreatic and intestinal enzymatic activity in finishing heifers**

Md Golam Kafi Afroze Mia¹, Thomas Winders², Mustapha Yusuf³, Eric Serum⁴, David J. Smith⁴, Bryan W. W. Neville⁴, Samat Amat³, Carl R. Dahlen³, Kendall C. Swanson³

¹Department of Animal Science, North Dakota State University., ²IFF, ³North Dakota State University, ⁴U.S. DEPARTMENT OF AGRICULTURE

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

10:15 a.m. **Kernel processing corn silage included at 65% of the diet (DM basis) and fed to growing beef steers increases apparent total tract digestibility of neutral detergent fiber but not starch**

Becca Grimes¹, Forest L. Francis¹, Erin R. Gubbels¹, Warren C. Rusche¹, Zachary K. Smith¹

¹South Dakota State University

10:30 a.m. **Effect of Enogen Feed Corn Inclusion in Conventional and Natural Finishing Cattle Diets**

Jessica L. Miller¹, Karla Wilke², Galen E. Erickson², Pablo L. Loza¹

¹University of Nebraska Lincoln, ²University of Nebraska-Lincoln

10:45 a.m. **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 Agricultural Experiment Station, Southeast Research Farm

11:00 a.m. **Interactions between steroidal implants and zinc supplementation in feedlot steers**

Dathan T. Smerchek ¹, Emma L. Rients ¹, Amy McLaughlin ¹, Kara J. Thornton-Kurth ², Stephanie L. Hansen ¹

¹Iowa State University, ²Utah State University

11:15 a.m. **Influence of source of metabolizable protein and implant status on feedlot performance and feeding behavior in yearling steers**

Emily A. Petzel ¹, Subash Acharya ², Setsabile Shiba ², Eric Bailey ², Derek W. Brake ¹

¹Division of Animal Sciences, University of Missouri, ²University of Missouri

11:30 a.m. **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 ³, James C. MacDonald ¹

¹University of Nebraska, ²Merck Animal Health, ³University of Nebraska-Lincoln

Nonruminant Nutrition IV: Health Challenge x Nutrition

8:30 AM - 12:00 PM

Ballroom A

8:30 a.m. **Awardee Talk: Effects of monoglycerides on intestinal morphology and immune responses of weanling pigs experimentally infected with a pathogenic *Escherichia coli***

Sangwoo Park ¹, Shuhan Sun ¹, Kwangwook Kim ¹, Adebayo O. Sokale ², Adriana Barri ³, Yanhong Liu ¹

¹University of California, Davis, ²BASF Corporation, ³BASF SE

9:00 a.m. **Macroalgae extracts limits Marek's disease virus load and dissemination *in vitro***

Maria Garcia Suarez ¹

¹Olmix

9:15 a.m. **Effects of antibiotics and low crude protein diets on growth performance, carcass characteristics, and disease incidence of growing pigs**

Maykelly da Silva Gomes ¹, Sung Woo Kim ², Marcos Elias Duarte ², Gabriel C. Rocha ¹

¹Universidade Federal de Viçosa, ²North Carolina State University

9:30 a.m. **Trace mineral source matters for weaned pigs challenged with *Escherichia coli* F18 in diets without pharmacological zinc oxide**

Jesus A. Acosta ¹, Juxing Chen ¹, Deana Hancock ¹

¹Novus International Inc.

9:45 a.m. **Effects of dietary inclusion of a medium chain fatty acid blend and a phytogetic feed additive on growth performance, gut health, and mortality of *Escherichia coli* challenged pigs**

Caroline Gonzalez Vega ¹, Sabrina May ¹, Molly L. McGhee ¹, Neil Paton ², Kari Saddoris-Clemons ¹

¹Cargill Animal Nutrition, ²Cargill Engineering and Data Science

10:00 a.m. **Dietary supplementation of blends of organic acids and monoglycerides alleviated diarrhea and systemic inflammation of weaned pigs experimentally infected with enterotoxigenic *Escherichia coli* F18**

Sangwoo Park ¹, Shuhan Sun ¹, Supatirada Wongchanla ¹, Yating Zhao ¹, Lauren L. Kovanda ¹, Robert A. Hernandez ¹, Kwangwook Kim ¹, Ying Chen ², Yanhong Liu ¹

¹University of California, Davis, ²Eastman Chemical Company

10:15 a.m. **Nonruminant Nutrition IV: Health Challenge x Nutrition Break**

10:30 a.m. **Evaluation of dietary fiber in health challenged nursery pigs**

Kayla A. Miller ¹, Omarh F. Mendoza ², Caleb M. Shull ², Eric R. Burrough ¹, Joel D. Spencer ³, Nicholas K. Gabler ¹

¹Iowa State University, ²The Maschhoffs, LLC, ³United Animal Health

10:45 a.m. **Improving Nursery Pig Growth Performance with Supplemented Tryptophan in a Vaccine-Induced Immune Challenge**

Lauren A. Brizgys ¹, Jacob A. Richert ¹, Taw Scaff ¹, Brian T. Richert ¹, John Scott Radcliffe ¹

¹Purdue University

11:00 a.m. **Effect of protein source on piglet performance and dietary protein digestibility in regular nursery and *Escherichia coli* challenged conditions**

Qiong Hu ¹, Leandro Hackenhaar ¹, Neil Paton ², John de Laat ¹, Mark Newcomb ¹

¹Cargill Animal Nutrition, ²Cargill Engineering and Data Science

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

Ki Beom Jang ¹, Vitor Hugo C. Moita ¹, Nicolas Martinez ², Adebayo O. Sokale ², Sung Woo Kim ¹

¹North Carolina State University, ²BASF Corporation

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

Ki Beom Jang ¹, Vitor Hugo C. Moita ¹, Nicolas Martinez ², Adebayo O. Sokale ², Sung Woo Kim ¹

¹North Carolina State University, ²BASF Corporation

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

Mitchell J. Nisley ¹, Nicholas K. Gabler ¹, Chris Sparks ², Eric R. Burrough ¹

¹Iowa State University, ²Huvepharma

Genetics, Genomics and Bioinformatics

9:30 AM - 10:15 AM

Hall of Ideas E

9:30 a.m. Characterization of factors affecting the fecal microbiome in young Canadian pigs

Bonita L. McCuaig¹, Stephanie Saundh¹, Raiza de Almeida Mesquita¹, E. Luke McCarthy¹, Maddison Arsenault², Tausha Prisnee³, Brandon Lillie², Vahab Farzan², John Harding¹, Ben Willing³, Matthew Links¹, Andrew G. Van Kessel¹

¹University of Saskatchewan, ²University of Guelph, ³University of Alberta

9:45 a.m. Heritability and repeatability of structural foot and leg traits in sheep

Hilal Yazar Gunes¹, Natalie K. Pickering², Milton G. G. Thomas³, Scott E. Speidel³, R. Mark Enns³

¹University of Nebraska-Lincoln, ²Focus Genetics, ³Colorado State University

10:00 a.m. Pedigree effective population size affects genomic prediction accuracy in Katahdin sheep

Sara M. Nilson¹, Joan M. Burke², Ronald M. Lewis¹

¹University of Nebraska - Lincoln, ²USDA, ARS, Dale Bumpers Small Farms Research Center

Nonruminant Nutrition V: Enzymes

10:15 AM - 12:15 PM

Hall of Ideas I

10:15 a.m. 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. Petry¹

¹Texas Tech University, ²Adisseo

10:30 a.m. 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

10:45 a.m. 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, ²AKEI, ³DSM

11:00 a.m. 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

11:15 a.m. **The effect of a multi-enzyme containing xylanase, β -glucanase, protease and amylase added to a high-fiber corn-based diet in comparison to a conventional diet, on the growth performance of weaned pigs**

ESTER VINYETA-PUNTI ¹, Glenmer tactacan ¹, Arun Kumar ², Deepak E Velayudhan ¹

¹Danisco Animal Nutrition & Health (IFF), ²The University of Queensland

11:30 a.m. **Effect of exogenous phytase on the digestibility of amino acids and phosphorus in standard and high phytin swine diets**

Tanner Wise ¹, Vitor Haetinger ¹, Emmanuel Alagbe ¹, Jose-Otavio Sorbara ², Olayiwola Adeola ¹

¹Purdue University, ²DSM Nutritional Products

11:45 a.m. **The effect of a novel consensus bacterial 6-phytase variant on ileal digestibility of energy in growing pigs: meta-analysis of 4 trials**

Deepak E Velayudhan ¹, ESTER VINYETA-PUNTI ¹, Rachael Hardy ¹, Leon Marchal ², Charles Martin Nyachoti ³, Hans H. Stein ⁴, Yueming Dersjant-Li ²

¹Danisco Animal Nutrition & Health (IFF), ²Danisco Animal Nutrition (IFF), ³University of Manitoba,

⁴University of Illinois at Urbana-Champaign

12:00 p.m. **Efficacy of a bacterial 6-phytase on apparent total tract digestibility of nutrients and retention of phosphorus of nursery and growing pigs**

Vitor Hugo C. Moita ¹, Ki Beom Jang ¹, Sung Woo Kim ¹

¹North Carolina State University

Physiology

10:30 AM - 11:30 AM

Hall of Ideas E

10:30 a.m. **Evaluation of vaginal infusion with ampicillin on incidence of pelvic organ prolapse in late gestation sows**

Zoe E. Kiefer ¹, Erika M. Johnson ¹, Jamie M. Studer ¹, Cesar A.A. Moura ², Jason W. Ross ¹

¹Iowa State University, ²Iowa Select Farms

10:45 a.m. **Growth performance in pigs fed a high soybean meal diet during heat stress**

Erika M. Johnson ¹, Zoe E. Kiefer ¹, Jamie M. Studer ¹, Brian J. Kerr ², Laura Griener ¹, Lance H. Baumgard ¹, Jason W. Ross ¹

¹Iowa State University, ²USDA-ARS National Laboratory for Agriculture and the Environment

11:00 a.m. ***In utero* exposure to maternal heat stress impairs Leydig cell development and function in the boar**

Nicole Nordell ¹, Cathy Bernhard ², Maddie Wegner ¹, Rebecca Metcalf ¹, John Rupert ¹, Dragana Lagundžin ³, Kanika Sharma ³, Katharine Sharp ², Tim J. Safranski ², Matt Lucy ², Amy T. Desaulniers ¹

¹University of Nebraska-Lincoln, ²University of Missouri-Columbia, ³Mass Spectrometry and Proteomics Core Facility, University of Nebraska Medical Center

11:15 a.m. **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

Growth, Development, Muscle Biology and Meat Science

1:30 PM - 3:00 PM

Hall of Ideas F

1:30 p.m. **The effects of dose timing / intervals on grow-finish performance, carcass characteristics, carcass cutting yields, and meat quality of market gilts managed with Improvev®**

Yifei Wang¹, Blaine Hansen², Steve Pollmann³, Benjamin M. Bohrer¹

¹The Ohio State University, ²BCH Consulting LLC, ³DSP Consulting LLC

1:45 p.m. **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 Rodriguez¹, Álvaro Rojo Gómez¹, Diego Aguilera Ramos¹, José Angel Cota², Elías Mikovich², Víctor Alfonso Martínez², Ricardo Alberto León², Luis Angel Sánchez²

¹Cargill Animal Nutrition México, ²Grupo Soles de México

2:00 p.m. **Recovery of growth and body composition in 10-kg pigs after a 6-week growth attenuation by ammonium chloride additions to feed**

Brittney P. Kokinos¹, Rachel A. Budde¹, Mariola Grez Capdeville¹, Laura A. Amundson¹, Andrew W. Stevens², Jean-Paul Chavas², Thomas D. Crenshaw¹

¹Department of Animal and Dairy Sciences, University of Wisconsin-Madison, ²Department of Agricultural and Applied Economics, University of Wisconsin-Madison

2:15 p.m. **Effect of dietary anhydrous calcium chloride in early and late finishing on pig performance and body composition**

Jay A. Stowater¹, Colin Johnson¹, Nicholas K. Gabler¹, Steven M. Lonergan¹

¹Iowa State University

2:30 p.m. **Creatine Monohydrate on *In Vitro* Cultivated Bovine Cells leading to Guanidinoacetic Acid Supplementation *In Vivo***

Erika P. Eckhardt¹, WonSeob Kim¹, Jongkyoo Kim¹

¹Michigan State University

2:45 p.m. **A systems approach to deriving carcass value from Holstein x SimAngus cattle in an accelerated finishing model.**

Teagan Schnurbusch¹, Derek W. Brake², Emily A. Petzel², Zachary D. Callahan¹, Scott E. Poock¹, Bryon R. Wiegand¹

¹University of Missouri, ²Division of Animal Sciences, University of Missouri

**Nonruminant Nutrition Symposium II: How to Minimize Feed Cost While
Enhancing Production in a Dynamic Economic Landscape**

1:30 PM - 4:30 PM

Ballroom C

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

1:35 p.m. **Bentley Lecture: Feeding co-products to pigs to reach sustainable food
production and reduce feed cost**

Ruurd T. Zijlstra ¹, Eduardo Beltranena ¹

¹University of Alberta

2:00 p.m. **Minimizing Sow Feeding Cost while Enhancing Production**

Mariana Menegat ¹

¹Holden Farms

2:30 p.m. **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. **Feed cost and the influence of feed manufacturing**

Chad B. Paulk ¹

¹Kansas State University

3:45 p.m. **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. **Nonruminant Nutrition Symposium II Q&A**

Nonruminant Nutrition VII: Nursery--Amino Acids and Crude Protein

1:30 PM - 4:30 PM

Ballroom A

1:30 p.m. **Development and validation of an indigestible protein index to investigate the
effects of protein content in weaned pigs: a multivariate approach**

Olufemi O. Babatunde ¹, Lucas A. Rodrigues ², John K. Htoo ³, Maria S. Mendoza ⁴, Daniel A.
Columbus ¹

¹Prairie Swine Centre, ²Prairie Swine Center, ³Evonik Operations GmbH, ⁴Evonik Corporation

1:45 p.m. **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 ², Gabriel C. Rocha ¹

¹Universidade Federal de Viçosa, ²North Carolina State University

2:00 p.m. **Effect of SID LYS level with constant non-essential amino acids**

Richard Faris ¹, Leandro Hackenhaar ¹

¹Cargill Animal Nutrition

2:15 p.m. **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. **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. **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 ¹, Nicole C. Burdick Sanchez ², Rand P. Broadway ³, Jeff A. Carroll ², Jerrad A. Legako ¹, Amy L. Petry ¹

¹Texas Tech University, ²USDA ARS, ³Livestock Issues Research Unit, Agricultural Research Service, United States Department of Agriculture

3:00 p.m. **Nonruminant Nutrition VII: Nursery--Amino Acids and Crude Protein Break**

3:15 p.m. **Effect of low crude protein diets in young pigs when using crystalline isoleucine and leucine**

Richard Faris ¹, Leandro Hackenhaar ¹

¹Cargill Animal Nutrition

3:45 p.m. **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 ¹, Ellie Hewett ², Eric Parr ³, Denise Van De Stroet ⁴, Jorge Estrada ⁵, Michael Welsch ³, Wayne R. Cast ¹, Ron A. Navales ¹, Jordi Camp Montoro ⁶, Luis E. Zaragoza ¹, Steve Dritz ¹, Uislei A. Orlando ¹

¹Genus PIC, ²The University of Edinburgh, ³Carthage Innovative Swine Solutions, ⁴PIC North America, ⁵Carthage Veterinary Service, ⁶PIC Europe

4:00 p.m. **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. **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

Nonruminant Nutrition IX: Grow-Finish--Amino Acid Ratios, Crude Protein and Sources

1:30 PM - 4:45 PM

Ballroom D

1:30 p.m. Effects of increasing soybean meal and valine:lysine and tryptophan:lysine ratios on finishing pig performance

Macie E. Reeb¹, Jamil Faccin¹, Robert D. Goodband¹, Jason C. Woodworth¹, Joel M. DeRouchey¹, Mike D. Tokach¹, Jordan T. Gebhardt²

¹Kansas State University, ²Kansas State University

1:45 p.m. 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. 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. 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. 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 Spindler³, Uislei A. Orlando³, Luis E. Zaragoza³, Ning Lu³, Wayne R. Cast³, Danielle Wilson-Wells⁴, Julia Holen⁵, Alyssa Betlach⁵

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

2:45 p.m. Nonruminant Nutrition IX: Grow-Finish Break

3:00 p.m. 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. Effects of Leucine and Histidine to Lysine Ratios in Low Crude Protein Diets on the Productive Performance of Growing Pigs

Pau Aymerich ¹, Carme Soldevila ¹, Jordi Bonet ¹, Jaume Coma ¹

¹Vall Companys Group

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

Rafe Q. Royall ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ², Carine M. Vier ³, Matthew Spindler ³, Uislei A. Orlando ³, Luis E. Zaragoza ³, Ning Lu ³, Wayne R. Cast ³, Danielle Wilson-Wells ⁴, Julia Holen ⁵, Alyssa Betlach ⁵

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

4:15 p.m. Evaluation of the Complete Replacement of Soybean Meal by Rapeseed Meal on Performance and Carcass Composition of Grow-Finishing Pigs

Pau Aymerich ¹, Carme Soldevila ¹, Jordi Bonet ¹, Josep Gasa ², Jaume Coma ¹, David Solà-Oriol ²

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

4:30 p.m. Effects of branched-chain amino acids to lysine ratios in cDDGS diets on growth performance, plasma nitrogen profile, carcass traits, and economic analysis in growing-finishing pigs

Jinsu Hong ¹, David Clizer ², Paul M. Cline ², Ryan S. Samuel ¹

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

Nonruminant Nutrition VIII: Nursery--Additives

1:30 PM - 4:45 PM

Hall of Ideas H

1:30 p.m. The effect of different analytical methods on assessment of bone mineralization of various rib bones in response to dietary P, phytase, and vitamin D in nursery pigs

Hadley Williams ¹, Brianna Moore ¹, Jordan T. Gebhardt ², Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹

¹Kansas State University, ²Kansas State University

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

Danyel Bueno Dalto ¹, Karine Deschêne ¹, Geneviève Villeneuve ¹, Frédéric Guay ², Yan Martel-Kennes ², Guylaine Talbot ¹, J. Jacques Matte ¹, Jérôme Lapointe ¹

¹Agriculture and Agri-Food Canada, ²Université Laval

2:00 p.m. **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 Agyekum², Francis Simard², Ruben Decaluwe¹, Yanming Han¹, Neil W. Jaworski¹, Mohsen Abedin²

¹Trouw Nutrition Innovation, ²Trouw Nutrition North America

2:15 p.m. **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. Gebhardt¹

¹Kansas State University

2:30 p.m. **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 VIRDIS¹, Agathe ROMEO², Axel MINETTO², Paolo BOSI¹, Paolo TREVISI¹

¹University of Bologna, ²ANIMINE

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

3:00 p.m. **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. Htoo³, Miguel Cervantes-Ramírez¹

¹Universidad Autónoma de Baja California, ²Evonik Corporation, ³Evonik Operations GmbH

3:15 p.m. **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 Jang¹, Sung Woo Kim¹

¹North Carolina State University

3:30 p.m. **Evaluation of clay-based binders and in-feed antimicrobial on growth performance and biological measurements in nursery pigs**

Larissa L. Becker¹, Jordan T. Gebhardt¹, Mike D. Tokach¹, Robert D. Goodband¹, Joel M. DeRouchey¹, Jason C. Woodworth¹, Raghavendra G. Amachawadi¹, Ramya Kalam¹, Xiaorong Shi¹, T. G. G. Nagaraja¹

¹Kansas State University

3:45 p.m. **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. **Effects of feeding a phytogetic blend with or without supplementation of specialty fats on growth performance of nursery pigs**

Sabrina May ¹, Caroline Gonzalez Vega ¹, Molly L. McGhee ¹

¹Cargill Animal Nutrition

4:15 p.m. **Interactive effects of Zinc Oxide and Mannan oligosaccharides on nursery swine performance**

Jose A. Soto ¹, Henrique S. Cemin ², Morgan D. Hart ², Jamie L. Pietig ², Sharlie A. Hansen ², Ernie L. Hansen ²

¹Alltech, ²Hubbard Feeds

4:30 p.m. **Effects of dietary supplementation of mixed *Ulva* spp. and *Solieria chordalis* on intestinal health and growth performance of nursery pigs**

Yi-Chi Cheng ¹, Marie Gallissot ², Maria Garcia Suarez ², Sung Woo Kim ¹

¹North Carolina State University, ²Olmix

**Genetics, Genomics and Bioinformatics Symposium:
Functional Annotation of Animal Genomes (FAANG) Project**

1:30 PM - 5:00 PM

Ballroom B

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

1:30 p.m. **Functional annotation of the equine genome: from sample collection to FAIR data**

Jessica L. Petersen ¹, Alexa Barber ², Carrie J. Finno ³, Rebecca R. Bellone ³, Sichong Peng ³, Nicole B. Kingsley ³, Eleonora Capelletti ⁴, Francesca M. Piras ⁴, Elena Giulotto ⁴, Ted Kalbfleisch ⁵

¹University of Nebraska - Lincoln, ²University of Nebraska-Lincoln, ³University of California-Davis,

⁴University of Pavia, Italy, ⁵University of Kentucky

1:30 p.m. **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

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

1:30 p.m. **FAANG in cattle**

Huaijun Zhou ¹

¹University of California, Davis

1:30 p.m. **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 ¹, David Ertl ⁴, Carolyn J. Lawrence-Dill ¹, Eric Lyons ⁵, Patrick S. Schnable ¹

¹Iowa State University, ²University of Nebraska-Lincoln, ³University of Idaho, ⁴Iowa Corn Promotion Board, ⁵University of Arizona

1:30 p.m. **Identification of regulatory mutations affecting complex traits**

Luiz Lehmann Coutinho ¹

¹University of Sao Paulo - ESALQ

Animal Behavior, Health and Well-Being

2:00 PM - 4:30 PM

Hall of Ideas J

2:00 p.m. **Effect of providing liquid milk replacer during lactation to litters of different size on piglet pre-weaning performance**

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

¹University of Illinois, ²The Maschhoffs, LLC, ³TechMix Global

2:15 p.m. **Effect of mixing at weaning and dietary nutrient density on growth performance and welfare of pigs**

Francesc González-Solé ¹, Jordi Camp Montoro ², David Solà-Oriol ¹, José Francisco Pérez ¹, Peadar G. Lawlor ³, Laura A. A. Boyle ³, Edgar Garcia Manzanilla ³

¹Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain, ²PIC Europe, ³Pig Development Department, Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland

2:30 p.m. **Influence of Group Size on Performance and Tail Damage caused by Tail Biting in Undocked Growing-Finishing Pigs**

Courtney Archer ¹, Adrienne Hilbrands ², Lee J. Johnston ², Benny E. Mote ³, Ty B. Schmidt ³, Yuzhi Li ²

¹Department of Animal Science, University of Minnesota, ²West Central Research and Outreach Center, University of Minnesota, ³Department of Animal Science, University of Nebraska – Lincoln

2:45 p.m. **Ramped piglet housing during the nursery phase increases speed of loading during transportation to market**

Mary L. Kasakamu ¹, Jennifer M. Young ¹, Ryan S. Samuel ², Sarah A. Wagner ³, Christopher J. Byrd ¹

¹Department of Animal Sciences, North Dakota State University, ²Department of Animal Science, South Dakota State University, ³Texas Tech University School of Veterinary Medicine

3:00 p.m. **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 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. **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 ¹

¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln

3:45 p.m. **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. **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. **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 ¹, Jennifer L. Hurlbert ¹, Kerri A. Bochantin ¹, Alison K. Ward ¹, Carl R. Dahlen ¹, Samat Amat ¹

¹North Dakota State University, ²Agriculture Agri-Food Canada, Lacombe Research and Development Center

Ruminant Nutrition III

2:00 PM - 4:45 PM

Hall of Ideas E

2:00 p.m. **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. **Evaluation of methane and carbon dioxide production from cattle on different diet adaptation strategies**

Cindy Mansfield ¹, Rebecca L. Sjostrand ¹, Braden C. Troyer ¹, Holly A. Heil ¹, Mitchell M. Norman ², Maggie Youngers ³, Andrea K. Watson ¹, Galen E. Erickson ¹

¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln, ³Cargill

2:30 p.m. **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 ¹, Mitch Norman ¹, Galen E. Erickson ¹, Andrea K. Watson ¹

¹University of Nebraska-Lincoln

2:45 p.m. **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 ², Paul J. Kononoff ¹

¹University of Nebraska Lincoln, ²University of Nebraska-Lincoln

3:00 p.m. **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 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. **Effects of programmed compensatory gain on feedlot steer performance**

Joshua C. McCann ¹, Zachary Buessing ², Jebadiah Schwager ³, Michael Murphy ², Bruce Hannon ², Daniel W. Shike ¹

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

3:45 p.m. **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. **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. **Comparing the prediction accuracy of models for estimating DMI of beef heifers using surface area, volume, body measurements or body weight by the elastic net regularized regression method**

Mustapha Yusuf ¹, Macie K. Mosher ¹, Ananda B. P Fontoura ², Lauren L. Hulsman Hanna ¹, Marc L. Bauer ¹, Kris A. Ringwall ³, Kendall C. Swanson ¹

¹North Dakota State University, ²Cornell University, ³Dickinson Research Extension Center, North Dakota State University

4:30 p.m. **Efficacy of using the elastic net regularized regression method to predict body weight of beef heifers using body measurements and calculated frame score**

Mustapha Yusuf ¹, Macie K. Mosher ¹, Ananda B. P Fontoura ², Lauren L. Hulsman Hanna ¹, Marc L. Bauer ¹, Kris A. Ringwall ³, Kendall C. Swanson ¹

¹North Dakota State University, ²Cornell University, ³Dickinson Research Extension Center, North Dakota State University

Nonruminant Nutrition X: Grow-Finish--Ingredients, Energy and Minerals

2:00 PM - 5:00 PM

Hall of Ideas I

2:00 p.m. Hybrid rye in commercial grow-finish production diets: A case study

Carly M. Rundle ¹, Becca S. Brattain ¹, Jeffrey S. Knott ²

¹KWS Cereals, USA, ²IDEAL Animal Nutrition

2:15 p.m. Concentration of net energy in corn without or with microbial phytase fed to group-housed pigs

Diego A. Rodriguez ¹, Su A Lee ¹, Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign

2:30 p.m. The impact high soyhull and soybean meal diet formulations on grow-finish pig performance

Kayla A. Miller ¹, Omarh F. Mendoza ², Caleb M. Shull ², Nicholas K. Gabler ¹

¹Iowa State University, ²The Maschhoffs, LLC

2:45 p.m. The impact of increasing levels of dried distillers grains and solubles on finishing pig performance

Ethan Stephenson ¹, Emily Mauch-Swinford ², Brady McNeil ², Christine Mainquist-Whigham ³, Jason Schneider ⁴

¹Pillen Family Farms, ²DNA Swine Genetics, ³Pillen Family Farms LLC, ⁴DNA Genetics LLC

3:00 p.m. Effects of fat source and level on growth performance and carcass characteristics of commercial finishing pigs

Jenna J. Bromm ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Joel M. DeRouchey ¹, Jon A. De Jong ², Kiah M. Berg ², Courtney Pohlen ², Jordan T. Gebhardt ¹

¹Kansas State University, ²Pipestone Nutrition

3:15 p.m. Imprecision in nutrition leads to more desired feed intake in growing and finishing pigs

Noud Aldenhoven ¹, Nestor A. Gutierrez ¹, Neil W. Jaworski ¹

¹Trouw Nutrition Innovation

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

3:45 p.m. A survey of added trace mineral levels in diets utilized in the U.S. swine industry

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

¹Kansas State University, ²Kansas State University

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

Karen J. Wedekind ¹, Joe Cushing ², Chelsie Foran ², Jesus A. Acosta ³, Juxing Chen ³, Mercedes Vazquez ²

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

4:15 p.m. **Evaluation of growth performance and bone mineral density in grower pigs fed phosphorus, calcium, and vitamin D deficient diets**

Leah Smith ¹, Chris Sparks ², Nicholas K. Gabler ³

¹Gourley Research Group, ²Huvepharma, ³Iowa State University

4:30 p.m. **Evaluation calcium and phosphorus ratios in the presence of phytase on performance and whole body bone mineralization in growing pigs**

Leah Smith ¹, Chris Sparks ², Nicholas K. Gabler ³

¹Gourley Research Group, ²Huvepharma, ³Iowa State University

4:45 p.m. **Survey of biological measurements used to determine bone mineralization in pigs across the US swine industry**

Hadley Williams ¹, Jordan T. Gebhardt ², Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Jon R. Bergstrom ³, Michael Rahe ⁴, Christopher Siepker ⁴, Panchan Sitthicharoenchai ⁴

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

Swine Translational

2:00 PM - 5:00 PM

Hall of Ideas G

2:00 p.m. **The impact of developmental housing type on toe growth and wear in sows**

Dalton Obermier ¹, Benny E. Mote ², Melanie Trenhaile-Grannemann ³

¹University of Nebraska - Lincoln, ²Department of Animal Science, University of Nebraska – Lincoln, ³Cobb-Vantress

2:15 p.m. **Serum Trace Minerals and Tumor Necrosis Factor Alpha Concentrations in Prolapsed and Non-Prolapsed Sows**

Jared A. Harshman ¹, Scott D. Carter ¹, C Scanlon Daniels ², Kyle Coble ³, Darin Madson ³

¹Oklahoma State University, ²Circle H Headquarters LLC, ³JBS Live Pork

2:30 p.m. **Evaluating the associations between piglet's characteristics at birth and growth performance during lactation period on piglets from hyperprolific sows**

Pau Salgado-López ¹, Pau Aymerich ², Josep Gasa ¹, Joaquim Casellas ³, David Solà-Oriol ¹

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

³Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain

2:45 p.m. **Differential gene expression and metabolic pathway comparisons, of liver and duodenum from suckling piglets given one or two iron dextran injections.**

James L. Pierce ¹, James W. Lyons ², Tyler B. Chevalier ³, Duncan B. Paczosa ³, Merlin D.

Lindemann ³

¹James L Pierce Consulting, ²Pharmacosmos Inc., ³University of Kentucky

3:00 p.m. **Effects of an additional injection of iron administered to piglets on hemoglobin concentration, growth performance, and carcass characteristics through market weight**

Tyler B. Chevalier ¹, James W. Lyons ², Duncan B. Paczosa ¹, Gregg K. Rentfrow ¹, Merlin D. Lindemann ¹

¹University of Kentucky, ²Pharmacosmos Inc.

3:15 p.m. **Effect of Utilizing Nurse Sows Compared to No Nurse Sows on Nursery Productivity**

Kacey Allen ¹, Larissa E. Meier ², Ethan Stephenson ³, Emily Mauch-Swinford ⁴, Brady McNeil ⁴, John Sonderman ⁴, Amanda Cross ⁴

¹Kansas State University, ²University of Nebraska-Lincoln, ³Pillen Family Farms, ⁴DNA Swine Genetics

3:30 p.m. **Swine Translational Break**

3:45 p.m. **Transmission of zearalenone, deoxynivalenol and their metabolites from sows to piglets during lactation with or without an algae-clay-based decontaminant**

Xandra Benthem de Grave ¹, Janine Saltzmann ², Maria A. Rodriguez ³, Francesc Molist ⁴, Sven Danicke ², Regiane R. Santos ¹

¹Schothorst Feed Research, ²Institute of Animal Nutrition, Friedrich-Loeffler-Institute, ³Olmix Group, ⁴SFR Schothorst Feed Research

4:00 p.m. **Evaluation of increasing levels of mycotoxin-containing corn fines fed to nursery pigs on growth performance**

Duncan B. Paczosa ¹, Tyler B. Chevalier ¹, Lan Zheng ², Frank Berry ¹, Merlin D. Lindemann ¹

¹University of Kentucky, ²DSM Nutritional Products

4:15 p.m. **Effects of feeding varying levels of mycotoxin-containing corn fines on diet choice and growth performance of nursery pigs**

Duncan B. Paczosa ¹, Tyler B. Chevalier ¹, Merlin D. Lindemann ¹

¹University of Kentucky

4:30 p.m. **Effects of feeding celluTEIN to pigs at various concentrations from weaning through finishing**

Mathew A. Vaughn ¹, Mike Barnas ², James L. McNaughton ², John M. Gonzalez ³

¹Puretein Biosciences, ²AHPharma, ³University of Georgia

4:45 p.m. **Relationship of resiliency to weaning stress with growth, carcass, and meat quality traits in pigs.**

Andrea M. Luttman ¹, Grace E. Schmidt ¹, Nancy E. Raney ¹, Juan P. Steibel ², Catherine W. Ernst ¹

¹Michigan State University, ²Iowa State University

Nonruminant Nutrition VI: Breeding Herd--Feeding Management

3:15 PM - 5:15 PM

Hall of Ideas F

3:15 p.m. Effect of sow feeder design on sow body weight, litter performance, and feeder cleaning criteria

Zhong-Xing Rao ¹, Kyle Coble ², Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ¹

¹Kansas State University, ²JBS Live Pork

3:30 p.m. Simple blending of gestation and lactation diets during the transition period minimizes losses in back fat depth around parturition for primi and multiparous sows

Nicole Gregory ¹, Lee-Anne Huber ¹

¹University of Guelph

3:45 p.m. Effects of precision feeding and the “bump feeding” strategy in gestating sows on performances and body condition in sows monitored for the first two gestation-lactation cycles

Laetitia Cloutier ¹, Lucie Galiot ¹, Frédéric Guay ², Gabrielle Dumas ¹, Charlotte Gaillard ³, Jean-Yves Dourmad ³, Aude Simongiovanni ⁴, Patrick Gagnon ¹

¹CDPQ, ²Université Laval, ³INRAE, ⁴Metex Animal Nutrition

4:00 p.m. Impact of bump feeding during late gestation on reproductive performance of over-conditioned sows

Brooke Anderson ¹, David S. Rosero ², Sergio Canavate ³, Samuel Leiva ¹, Carine M. Vier ³, Hugo Hidalgo ¹, Julia A. Calderon Diaz ⁴, Ning Lu ³, Uislei A. Orlando ³

¹Hanor, ²Hanor Company, ³Genus PIC, ⁴PIC Europe

4:15 p.m. 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 Navales ¹, Gefferson Silva ², Lori Thomas ¹, Ning Lu ¹, Jordi Camp Montoro ³, Wayne R. Cast ¹, Steve Dritz ¹

¹Genus PIC, ²Agrocere PIC, ³PIC Europe

4:30 p.m. Effects of nutritional strategies of growth rate manipulation during the gilt development phases on growth and reproductive performance

Samuel 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 ³, Uislei A. Orlando ³

¹Hanor, ²Hanor Company, ³Genus PIC, ⁴PIC Europe

4:45 p.m. 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, ³Genus PIC

5:00 p.m. **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

Wednesday, March 15, 2023

Nonruminant Nutrition XIV: Management Practices

8:00 AM - 9:45 AM

Hall of Ideas I

8:00 a.m. **Effect of early vs. late maturing sire lines and creep feeding on the stress response, intestinal permeability, and growth performance of nursery and finishing pigs**

Madie R. Wensley ¹, Jason C. Woodworth ², Mike D. Tokach ², Robert D. Goodband ², Joel M. DeRouchey ², Jordan T. Gebhardt ²

¹Kansas State University, ²Kansas State University

8:15 a.m. **Effect of providing supplemental milk and liquid starter diet for 4 and 11 days post-weaning on feed intake, growth and intestinal structure and function of newly weaned piglets.**

Shiv R. Vasa ¹, Elisa A. Arnaud ¹, Gillian E. Gardiner ², Keelin O'Driscoll ¹, Giuseppe Bee ³, Peadar G. Lawlor ⁴

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

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

Kara Pounds ¹, Jacob A. Richert ¹, Taw Scaff ¹, Lauren A. Brizgys ¹, Mekenzie Cecil ¹, Caden Helfrich ¹, John Scott Radcliffe ¹, Allan Schinckel ¹, Brian T. Richert ¹, Matthew D. Asmus ², Daniel B. Jones ², Morgan T. Thayer ²

¹Purdue University, ²ADM

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

Abigail K. Jenkins ¹, Jenna J. Bromm ¹, Jordan T. Gebhardt ¹, Jason C. Woodworth ¹, Mike D. Tokach ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹

¹Kansas State University

9:00 a.m. **The effect of weaning age and diet complexity on nursery pig growth performance and weight at market**

Jacob A. Richert ¹, Taw Scaff ¹, Lauren A. Brizgys ¹, Jon Ferrel ², Allan P. Schinckel ¹, John Scott Radcliffe ¹, Brian T. Richert ¹

¹Purdue University, ²Azomite

9:15 a.m. **Short-term diurnal heat stress modulation of growing gilt and barrow growth and feed intake**

Elizabeth M. Due ¹, Thomas Weber ², Nicholas K. Gabler ¹

¹Iowa State University, ²Kent Nutrition Group

9:30 a.m. **Determining the effects of energy concentrations and diet forms on growth performance of nursery pigs**

Raquel Lunedo ¹, Gerson Schlesner ¹, Dani Perondi ¹, Ademir Dahmer Junior ¹, Carine M. Vier ², Ning Lu ², Uislei A. Orlando ², Mônica Santi ¹, Rafael Kummer ¹

¹Master Agroindustrial, ²Genus PIC

Growth, Development, Muscle Biology and Meat Science Symposium: Understanding the Effects of Heat Stress on Growth and Production Efficiencies of Cattle and Pigs

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. **Heat stress impacts on cattle production**

Lance H. Baumgard ¹, Robert P. Rhoads ²

¹Iowa State University, ²Virginia Tech

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

Jay S. Johnson ¹

¹USDA-ARS Livestock Behavior Research Unit

9:20 a.m. **Cellular response to heat exposure: influences on the growth potential of bovine skeletal muscle and adipose tissue**

Jongkyoo Kim ¹

¹Michigan State University

Nonruminant Nutrition XV: Ingredients Evaluation/Digestibility

8:00 AM - 10:30 AM

Hall of Ideas J

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

Abidemi A. Adekoya ¹, Olayiwola Adeola ¹

¹Purdue University

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

Jung Yeol Sung ¹, Chan Sol Park ², Darryl Ragland ¹, Markus K. Wiltafsky-Martin ³, Olayiwola Adeola ¹

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

8:30 a.m. **Metabolizable energy and amino acid digestibility by growing pigs may be reduced if excessive heat is applied during drying of corn**

Maryane Sespere Faria de Oliveira ¹, Leidy J. Torres-Mendoza ², Markus K. Wiltafsky-Martin ³, Hans H. Stein ¹

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

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

Jimena A. Ibagon ¹, Su A Lee ², Charles Martin Nyachoti ³, Hans H. Stein ²

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

9:00 a.m. **Interactive effects of pelleting and particle size reduction of corn on net energy and digestibility of nutrients in corn-soybean meal diets fed to group-housed pigs**

Su A Lee ¹, Diego A. Rodriguez ¹, Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign

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

9:30 a.m. **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 Lee ¹, Diego A. Rodriguez ¹, Hans H. Stein ¹

¹University of Illinois at Urbana-Champaign

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

Thomas A. Crome ¹, Mark A. Giesemann ², Amy L. Petry ¹

¹Texas Tech University, ²Adisseo

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

Garrin Shipman ¹, Jorge Y. Perez-Palencia ¹, Rob Patterson ², Crystal L. Levesque ¹

¹South Dakota State University, ²CBS Bio-Platforms Inc.

10:15 a.m. **Nutrient digestibility and dietary energy values in growing pigs fed a corn distillers dried grains with soluble (cDDGS)-based diet with multi-enzyme supplementation**

Joseph G. Halbur ¹, Jinsu Hong ², Sara Llamas-Moya ³, Tri Duong ³, Steve J. Kitt ⁴, Eric Weaver ¹, Mark Bertram ⁴

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

³Kerry Inc., ⁴First Choice Livestock, LLC

Nonruminant Nutrition XIII: Grow-Finish Additives

8:00 AM - 10:45 AM

Hall of Ideas F

8:00 a.m. **Awardee Talk: Effects of various feed additives on finishing pig feed efficiency: A review**

Zhong-Xing Rao ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Joel M. DeRouchey ¹, Robert D. Goodband ¹, Jordan T. Gebhardt ¹

¹Kansas State University

8:30 a.m. **Growth Performance, Carcass Characteristics and Economic Parameters Comparison between Medicated and Antibiotics Free Programs in Wean-to-Finish Pigs**

Rafael A. Cabrera ¹, Dolores Cabrera ¹, Emily Bruder ², Gene Gourley ³

¹Nutrinae LLC, ²Protein Sources, ³Gourley Research Group

8:45 a.m. **A meta-regression analysis to evaluate the effects of narasin on grow-finish pig performance**

Larissa L. Becker ¹, Jordan T. Gebhardt ¹, Mike D. Tokach ¹, Jason C. Woodworth ¹, Robert D. Goodband ¹, Joel M. DeRouchey ¹, Jenna A. Seltzer ², Roger Arentson ³, Michael Shields ³, Christopher Puls ²

¹Kansas State University, ²Elanco Animal Health, ³Elanco

9:00 a.m. **Effects of dietary lysozyme supplementation on nitrogen balance, microbiota diversity and growth performance of growing pigs**

Bruna Schroeder ¹, Candido Pomar ², Ines Andretta ³, Renée Petri ⁴, Jennifer Ronholm ⁵, Jeffery Escobar ⁶, Sara Ricci ⁴, Aline Remus ⁴

¹AAFC/ UFRGS, ²AgriFood Canada, ³Universidade Federal do Rio Grande do Sul, ⁴AAFC, ⁵McGill University, ⁶BiomEdit

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

9:30 a.m. **The Effect of Dietary Copper Levels and Source on the performance and profitability of finishing pigs**

Casey L. Bradley ¹, S'phamandla B. Mshengu ², Jaco Raath ³, Liliana Nolasco ⁴, Myles Van Deventer ², Willem J. Steyn ³, Chantel Pennicott ⁵

¹The Sunswine Group LLC, ²Baynesfield Estate, ³Swine Nutrition Management, ⁴The Sunswine Group, LLC, ⁵Baynesfield Estates

9:45 a.m. **The effect of higher inclusion levels of DDGS with or without a Syncra® SWI in swine grower-finisher diets on performance and economics**

Casey L. Bradley ¹, Jaco Raath ², Chantel Pennicott ³, Mitchell Rowland ⁴, Myles Van Deventer ⁵, Willem J. Steyn ²

¹The Sunswine Group LLC, ²Swine Nutrition Management, ³Baynesfield Estates, ⁴The Sunswine Group, LLC, ⁵Baynesfield Estate

10:00 a.m. **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 ¹, Chris P. A. Van de Ligt ²

¹Kansas State University, ²Micronutrients

10:15 a.m. **Zinc source and genotype influenced the growth rate and carcass characteristics of commercially-housed fattening pigs**

Leslie L. Mcknight ¹, Atta Kofi Agyekum ¹, Francis Simard ¹, Mohsen Abedin ¹, Yanming Han ²

¹Trouw Nutrition North America, ²Trouw Nutrition Innovation

10:30 a.m. **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

9:00 AM - 10:30 AM

Hall of Ideas E

9:00 a.m. **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. **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. **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. **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. **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. **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 ¹

¹North Carolina State University

Ruminant Nutrition IV

9:00 AM - 10:30 AM

Hall of Ideas G

9:00 a.m. **Effect of calcium magnesium carbonate and/or tylosin phosphate supplementation on receiving period growth performance in yearling beef steers**

Becca Grimes ¹, Forest L. Francis ¹, Erin R. Gubbels ¹, Warren C. Rusche ¹, Zachary K. Smith ¹, Devan Paulus ²

¹South Dakota State University, ²Papillon Agricultural Company

9:15 a.m. **Zinc supplementation and implant abscess effects on growth performance and immune system of growing beef steers**

Emma L. Rients ¹, Carlos Franco ¹, Fabian Diaz ², Jodi McGill ¹, Stephanie L. Hansen ¹

¹Iowa State University, ²Iowa State University

9:30 a.m. **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 ¹, Braden C. Troyer ¹, Mitchell M. Norman ², Tyler Spore ³, Mark Corrigan ³, Galen E. Erickson ¹, James C. MacDonald ⁴

¹University of Nebraska-Lincoln, ²University of Nebraska - Lincoln, ³MS Biotec, ⁴University of Nebraska

9:45 a.m. **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. **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

10:15 a.m. **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

9:30 AM - 10:30 AM

Hall of Ideas H

9:30 a.m. **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, ⁴Hanor Company

9:45 a.m. **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. Htoo ², Lee-Anne Huber ¹

¹University of Guelph, ²Evonik Operations GmbH

10:00 a.m. **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. **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, ⁴Genus PIC, ⁵JBS Live Pork Veterinarian