



**ASAS Midwest Section / ADSA Midwest Branch  
2020 Joint Meeting  
March 2-4, 2020 • Omaha, Nebraska**



**Monday, March 2, 2020**

**Ruminant Nutrition I: Forages and Feed Management**

Chair: Joel Caton, North Dakota State University

8:30 AM - 10:15 AM

211/212

**8:30 a.m. 1 Alternative Heifer Development Systems Utilizing Corn Residue and Cover Crops**

Hannah Speer<sup>1</sup>, Hannah Riley<sup>1</sup>, Robert Cushman<sup>2</sup>, Harvey C. Freetly<sup>2</sup>, Mary Drewnoski<sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>USDA, ARS, U.S. Meat Animal Research Center

**8:45 a.m. 2 Evaluation of Masters Choice Corn Silage on Growing Steer Performance**

J. Xiong<sup>1</sup>, Bradley M. Boyd<sup>2</sup>, Levi J. McPhillips<sup>3</sup>, Kyle Vosburgh<sup>4</sup>, Galen E. Erickson<sup>3</sup>

<sup>1</sup>University of Nebraska- Lincoln, <sup>2</sup>University of Nebraska - Lincoln, <sup>3</sup>University of Nebraska-Lincoln, <sup>4</sup>Masters Choice

**9:00 a.m. 3 Influence of Backgrounding Systems on Cattle Growth and Performance**

Bobwealth O. Omontese<sup>1</sup>, Jason Langlie<sup>2</sup>, Joe Armstrong<sup>2</sup>, Eric Mousel<sup>3</sup>, Dan Braaten<sup>3</sup>, Andres Gomez<sup>2</sup>, Alfredo DiCostanzo<sup>2</sup>, Megan J. Webb<sup>2</sup>

<sup>1</sup>Alabama A&M University, <sup>2</sup>University of Minnesota, <sup>3</sup>NCROC, University of Minnesota

**9:15 a.m. 4 Effect of Inclusion Rate of Silage with or Without the Presence of Alpha-amylase on Feedlot Performance, Carcass Characteristics, and Efficiency Measures**

Warren C. Rusche<sup>1</sup>, Julie Walker<sup>2</sup>, Zachary K. Smith<sup>1</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>South Dakota State University Department of Animal Science, Brookings, SD

**9:30 a.m. 5 Evaluating Finishing Performance of Cattle Fed HMC:SFC Blends with Modified Distillers Grains**

Braden C. Troyer<sup>1</sup>, Zac Carlson<sup>2</sup>, Levi J. McPhillips<sup>1</sup>, Andrea K. Watson<sup>1</sup>, James C. MacDonald<sup>2</sup>, Galen E. Erickson<sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska

**9:45 a.m. 6 Feed Intake Variability and Performance Implications of Adjusting for Dry Matter Content of Cattle Feedlot Feed Ingredients Exposed to the Elements**

Allison VanDerWal<sup>1</sup>, Alfredo DiCostanzo<sup>1</sup>

<sup>1</sup>University of Minnesota

**10:00 a.m. 7 Effects of Syngenta Enogen Feed Corn (SYT-EFC) and Corn Processing Methods Fed with Byproducts on Finishing Cattle Performance and Carcass Characteristics**

Stacia M. Hopfauf<sup>1</sup>, Hannah C. Wilson<sup>2</sup>, James C. MacDonald<sup>3</sup>, Galen E. Erickson<sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska Lincoln, <sup>3</sup>University of Nebraska

**Gary Allee Symposium - Sponsored by ASAS Foundation:  
Gary L. Allee Appreciation Club**

Chair: Russell Fent, Ralco Nutrition

9:00 AM - 12:00 PM

Grand Ballroom South

9:00 a.m. **Gary Allee Symposium Introduction**

9:10 a.m. 8 **How to Drive Efficiencies in Pork production: What Are the Gaps in Knowledge and Obstacles?**

Steve J. Kitt <sup>1</sup>

<sup>1</sup>First Choice Livestock, LLC

9:45 a.m. 9 **Research Topic Prioritization in a Commercial Production System**

Ashley DeDecker <sup>1</sup>

<sup>1</sup>Smithfield Foods

10:10 a.m. **Gary Allee Symposium Break**

10:30 a.m. 10 **A Personal Perspective - ASF**

Clayton Johnson <sup>1</sup>

<sup>1</sup>Carthage Veterinary Service

11:05 a.m. 11 **Understanding Today's Sow and Challenging Ourselves for the Future**

Laura L. Greiner <sup>1</sup>

<sup>1</sup>Iowa State University

11:40 a.m. **Gary Allee Symposium Panel Discussion**

**Digestive Physiology of Pigs Lecture and Lunch**

Chair: R.T. Zijlstra, University of Alberta

12:00 PM - 1:00 PM

Grand Ballroom North

12:00 p.m. 12 **Nutrient Digestion Kinetics in Pigs: A Look Inside the Gastrointestinal Tract**

Sonja de Vries <sup>1</sup>

<sup>1</sup>Wageningen University & Research

**Poster Session I**

12:30 PM - 1:30 PM

CHI Health Center Convention Center Grand Ballroom Foyer

12:30 p.m. PSI-1 **Effects of choline on immune cell function in growing cattle supplemented with guanidinoacetic acid and creatine**

Hope D. Aufdemberge <sup>1</sup>, Madeline S. Grant <sup>2</sup>, Barry J. Bradford <sup>1</sup>, Laman K. Mamedova <sup>1</sup>, Evan C. Titgemeyer <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences and Industry, Kansas State University

12:30 p.m. PSI-2 **Effects of extended release eprinomectin on heifer performance while grazed on endophyte-infected tall fescue or housed in drylot**

Julissa Navarrete <sup>1</sup>, Sarah M. Graham <sup>2</sup>, Lucas T. Neira <sup>3</sup>, Joshua C. McCann <sup>4</sup>, Daniel W. Shike <sup>2</sup>

<sup>1</sup>Illinois State University, <sup>2</sup>University of Illinois at Urbana-Champaign, <sup>3</sup>University of Illinois Champaign-Urbana, <sup>4</sup>University of Illinois

12:30 p.m. PSI-3 **Effects of housing cow-calf pairs in drylots vs pasture during the summer on cow performance**

Keiffer Sexton <sup>1</sup>, Megan Myerscough <sup>2</sup>, Wesley P. Chapple <sup>2</sup>, William T. Meter <sup>2</sup>, Keela Trennepohl <sup>1</sup>, Joshua C. McCann <sup>3</sup>, Daniel W. Shike <sup>2</sup>

<sup>1</sup>Western Illinois University, <sup>2</sup>University of Illinois at Urbana-Champaign, <sup>3</sup>University of Illinois

12:30 p.m. PSI-4 **Effects of increasing metabolizable protein on starch digestion in lightweight beef cattle**

Cierra N. Crowell <sup>1</sup>, Sara M. Tondini <sup>2</sup>, Miles D. Redden <sup>3</sup>, Daniel W. Shike <sup>4</sup>, Joshua C. McCann <sup>2</sup>

<sup>1</sup>Southern Illinois University, <sup>2</sup>University of Illinois, <sup>3</sup>University of Illinois Champaign-Urbana, <sup>4</sup>University of Illinois at Urbana-Champaign

12:30 p.m. PSI-5 **Effects of rest period prior to processing on anthelmintic response during the receiving period in feedlot heifers**

Nicole Stafford <sup>1</sup>, Anthony J. Tarpoff <sup>1</sup>, Miles Theurer <sup>2</sup>, Tom Jones <sup>3</sup>, Jason C. Woodworth <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Veterinary Research & Consulting Services, <sup>3</sup>Hy-Plains Feedyard

12:30 p.m. PSI-6 **Effects of rest period prior to processing on vaccine response and blood metabolites in feedlot heifers.**

Macie E. Reeb <sup>1</sup>, Anthony J. Tarpoff <sup>1</sup>, Miles Theurer <sup>2</sup>, Tom Jones <sup>3</sup>, Jason C. Woodworth <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Veterinary Research & Consulting Services, <sup>3</sup>Hy-Plains Feedyard

12:30 p.m. PSI-8 **Evaluation of two burning dates and addition of spices on stocker cattle gains on tallgrass native range**

Juliette Toothaker <sup>1</sup>, Jaymelynn K. Farney <sup>1</sup>

<sup>1</sup>Kansas State University

12:30 p.m. PSI-9 **Factors associated with birthing interval and total farrowing duration in sows and gilts within a production setting**

Madison Kovarna <sup>1</sup>, Jorge Y. Perez-Palencia <sup>1</sup>, Crystal L. Levesque <sup>1</sup>

<sup>1</sup>South Dakota State University

12:30 p.m. PSI-10 **Genetic parameters for soybean allergy response in divergently-selected pigs**

Yuwen Chen <sup>1</sup>, Allan P. Schinckel <sup>1</sup>, Terry S. Stewart <sup>1</sup>, Luiz Fernando F. Brito <sup>2</sup>, Hinayah Rojas de Oliveira <sup>1</sup>, Amanda B. Alvarenga <sup>1</sup>

<sup>1</sup>Purdue University, <sup>2</sup>Department of Animal Sciences, Purdue University, West Lafayette, IN, USA

12:30 p.m. PSII-15 **Hydrogenation of palm kernel oil, palm oil, and soybean oil on energy and lipid digestibility, and performance when fed to 20 to 40 kg pigs**

Sophia Breuer <sup>1</sup>, Brian J. Kerr <sup>2</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>USDA-ARS

12:30 p.m. PSI-11 **Moisture Content Throughout the Pelleting Process and Subsequent Effects on Pellet Quality**

Rachel Kort <sup>1</sup>, Haley Otott <sup>1</sup>, Chance J. Fiehler <sup>2</sup>, Aundria M. Ogles <sup>1</sup>, Jared Froetschner <sup>3</sup>, Charles R. Stark <sup>1</sup>, Chad B. Paulk <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences & Industry, Kansas State University, <sup>3</sup>Elanco Animal Health

12:30 p.m. PSI-12 **Performance and carcass measurements by rabbits offered diets with and without a phytogenic feed additive**

Kimberly Wilbers <sup>1</sup>, Bruce C. Shanks <sup>1</sup>, James D. Caldwell <sup>2</sup>, Megan Koppen <sup>2</sup>, Kevin Adams <sup>2</sup>

<sup>1</sup>Lincoln University, <sup>2</sup>Delacon USA, Inc.

12:30 p.m. PSI-13 **The effect of Advanced Digestive Enhancing Protein Plus Technology on growth performance and fecal score in weaning pigs**

Clare McNerney <sup>1</sup>, Kathryn Nelson <sup>1</sup>, Baylee Close <sup>1</sup>, Jamil Talukder <sup>2</sup>, Young Dal Jang <sup>3</sup>

<sup>1</sup>University of Wisconsin - River Falls, <sup>2</sup>Vets Plus, Inc., <sup>3</sup>University of Wisconsin-River Falls

12:30 p.m. PSI-14 **The effect of creep feed and its nutrient level on growth performance in suckling and weaning pigs**

Paige K. Isensee <sup>1</sup>, Sarah Albers <sup>1</sup>, Lindsey Wichman <sup>1</sup>, Autumn Thoma <sup>1</sup>, Young Dal Jang <sup>2</sup>

<sup>1</sup>University of Wisconsin - River Falls, <sup>2</sup>University of Wisconsin-River Falls

**Poster Session II**

12:45 PM - 1:30 PM

CHI Health Center Convention Center Grand Ballroom Foyer

12:45 p.m. PSII-16 **Comparative digestibility of polysaccharide-complexed zinc and zinc sulfate in diets for gestating and lactating sows**

Julia P. Holen <sup>1</sup>, Lee J. Johnston <sup>2</sup>, Pedro E. Urriola <sup>1</sup>, Jack E. Garrett <sup>3</sup>, Gerald C. Shurson <sup>1</sup>

<sup>1</sup>University of Minnesota, <sup>2</sup>West Central Research and Outreach Center, University of Minnesota, <sup>3</sup>QualiTech

12:45 p.m. PSII-17 **Comparison of corn ethanol co-products from Brazil and USA apparent total tract digestibility of nutrients in pigs**

Vinicius R. C. Paula <sup>1</sup>, Natália C. Milani <sup>2</sup>, Cândida P.F. Azevedo <sup>1</sup>, Leury J. Souza <sup>2</sup>, Anderson A. Sedano <sup>1</sup>, Brian P. Mike <sup>3</sup>, Gerald C. Shurson <sup>4</sup>, Urbano Ruiz <sup>1</sup>

<sup>1</sup>University of São Paulo, <sup>2</sup>University of Sao Paulo, <sup>3</sup>FS Bioenergia, <sup>4</sup>University of Minnesota

12:45 p.m. PSII-18 **Dietary Strategy for Gilt Development**

Michael E. Johnston <sup>1</sup>, Katherine A. McCormick <sup>1</sup>, Grant I. Petersen <sup>1</sup>, Chris L. Eden <sup>2</sup>

<sup>1</sup>United Animal Health, <sup>2</sup>United Animal Health, Inc.

12:45 p.m. PSII-19 **Effect of inclusion level of synthetic lysine, threonine, methionine, and tryptophan in corn-soybean meal and DDGS based diets for grow-finish pigs on growth performance and carcass characteristics.**

Caleb J. Grohmann <sup>1</sup>, Mike Ellis <sup>1</sup>, Omarh F. Mendoza <sup>2</sup>, Caleb M. Shull <sup>2</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>The Maschhoffs, LLC

12:45 p.m. PSII-20 **Evaluation of Different Vitamin Concentrations in a Commercial Wean-to-Finish Program**

Robyn Thompson <sup>1</sup>, Brandon Knopf <sup>1</sup>, Carine M. Vier <sup>2</sup>, Ning Lu <sup>3</sup>, Wayne R. Cast <sup>2</sup>, Uislei A. Orlando <sup>2</sup>

<sup>1</sup>Carthage Innovative Swine Solutions, <sup>2</sup>Genus PIC, <sup>3</sup>PIC

12:45 p.m. PSII-21 **The Effect of Feeding a LucraFit® Feed Nursery Program without Lactose on Piglet Performance.**

Stacie Crowder <sup>1</sup>, Terry Weeden <sup>2</sup>, Clayton Hankins <sup>2</sup>, Terry Meyer <sup>2</sup>, Brenda de Rodas <sup>2</sup>

<sup>1</sup>PMI Additives, <sup>2</sup>Purina Animal Nutrition

12:45 p.m. PSII-22 **Trends in Mycotoxin Contamination in United States Corn**

Erika G. Hendel <sup>1</sup>, Shelby M. Ramirez <sup>2</sup>, Paige N. Gott <sup>2</sup>, G. Raj Murugesan <sup>1</sup>, Ursula Hofstetter <sup>3</sup>, Lan Zheng <sup>2</sup>

<sup>1</sup>BIOMIN America Inc, <sup>2</sup>BIOMIN America Inc., <sup>3</sup>BIOMIN Holding GmbH

**David Baker Symposium**

**Sponsored by ASAS Foundation: David H. Baker Appreciation Club**

Chair: Hans Stein, University of Illinois at Urbana-Champaign

1:00 PM - 5:00 PM

Grand Ballroom South

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

1:05 p.m. 13 **Opportunities for Using Low-protein Diets for Weanling Pigs to Improve Intestinal Health**

Martin Nyachoti <sup>1</sup>, Jinyoung Lee <sup>1</sup>

<sup>1</sup>University of Manitoba

1:40 p.m. 15 **Young Scholar Presentation: Impact of a near Ideal Amino Acid Profile on the Efficiency of Nitrogen and Energy Utilization in Lactating Sows**

Sai Zhang <sup>1</sup>, Nathalie Trottier <sup>2</sup>

<sup>1</sup>University of Maryland, <sup>2</sup>Department of Animal Science, Michigan State University

2:10 p.m. 14 **Challenges and Opportunities for Formulating Low-protein Diets for Maintaining Growth and N-retention of Weanling and Growing-finishing Pigs**

John K. Htoo <sup>1</sup>

<sup>1</sup>Evonik Operations GmbH

2:45 p.m. **David Baker Symposium Break**

3:10 p.m. 205 **An Adjusted sid-thr:lys Ratio Offsets Growth Performance Depressions in Finishing Pigs Fed Moderately High Distillers Dried Grains with Solubles (DDGS)**

Sharon A. Norton <sup>1</sup>, Pengcheng Xue <sup>2</sup>, Brian Ramer <sup>3</sup>, Jim Erickson <sup>3</sup>

<sup>1</sup>Provimi, Cargill Animal Nutrition and Health, <sup>2</sup>Cargill Animal Nutrition, <sup>3</sup>TDM Midwest, Inc

3:25 p.m. 16 **Sulfur Amino Acid Utilization During Immune System Stimulation in Growing Pigs**

Anoosh Rakhshandeh <sup>1</sup>

<sup>1</sup>Texas Tech University

4:00 p.m. 206 **Meta-analysis of the Response of Piglets to Dietary Valine: Impact of Other Branched Chain Amino Acids**

Maroua Zouaoui <sup>1</sup>, Aude Simongiovanni <sup>2</sup>, Marie-Pierre Létourneau-Montminy <sup>1</sup>  
<sup>1</sup>Université Laval, <sup>2</sup>Ajinomoto Animal Nutrition Europe

4:15 p.m. 17 **Challenges and Implications of Feeding Diets with Excess Concentrations of Leucine to Growing-finishing Pigs**

Mike D. Tokach <sup>1</sup>, Henrique S. Cemin <sup>2</sup>, Hayden R. Kerkaert <sup>3</sup>, Jason C. Woodworth <sup>3</sup>, Steve S. Dritz <sup>3</sup>, Joel M. DeRouchey <sup>3</sup>, Robert D. Goodband <sup>3</sup>  
<sup>1</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506,  
<sup>2</sup>Hubbard Feeds, <sup>3</sup>Kansas State University

**Graduate Student Oral Competition: MS I**  
**Sponsored by ASAS Foundation: Gretchen Hill Appreciation Club**

Chair:

1:45 PM - 3:30 PM

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1:45 p.m. 18 **Impact of In-feed vs. In-water Antibiotic Administrations on the Fecal Prevalence and Antimicrobial Susceptibilities of Campylobacter and Salmonella in Piglets**

Victor L. Ishengoma <sup>1</sup>, Raghavendra G. Amachawadi <sup>2</sup>, Kellen A. Habib <sup>3</sup>, Xiaorong Shi <sup>2</sup>, Taghreed Mahmood <sup>4</sup>, Wade M. Hutchens <sup>2</sup>, Mike D. Tokach <sup>5</sup>, Steve S. Dritz <sup>2</sup>, Jason C. Woodworth <sup>2</sup>, Robert D. Goodband <sup>2</sup>, Joel M. DeRouchey <sup>2</sup>, Michael D. Apley <sup>2</sup>, T.G. Nagaraja <sup>6</sup>  
<sup>1</sup>Department of Clinical Sciences, College of Veterinary Medicine, Manhattan, KS 66506,  
<sup>2</sup>Kansas State University, <sup>3</sup>Department of Clinical Sciences, College of Veterinary Medicine, Manhattan, KS 66506., <sup>4</sup>Department of Clinical Sciences, College of Veterinary Medicine, Kansas State University, <sup>5</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>6</sup>Department of Diagnostic Medicine & Pathobiology, College of Veterinary Medicine, Manhattan, KS 66506

2:00 p.m. 19 **Assessment of Nitrogen Intake, Excretion and Deposition in Lipopolysaccharide-challenged Pigs**

Joyce Barcellos <sup>1</sup>, Warley J. Alves <sup>1</sup>, Carolaine R. Ferreira <sup>1</sup>, Filipe Monteiro <sup>1</sup>, Gabriel Viana <sup>2</sup>, Paulo H. Reis Furtado Campos <sup>3</sup>, Fabyano Silva <sup>3</sup>, Melissa I. Hannas <sup>1</sup>  
<sup>1</sup>Universidade Federal de Viçosa, <sup>2</sup>Natural Resources Institute Finland, <sup>3</sup>Federal University of Viçosa

2:15 p.m. 20 **Assessment of Lysine Requirement in Lipopolysaccharide-challenged Pigs**

Joyce Barcellos <sup>1</sup>, Warley J. Alves <sup>1</sup>, Pedro R. Arnaut <sup>1</sup>, Lucimauro Fonseca <sup>1</sup>, Paulo H. Reis Furtado Campos <sup>2</sup>, Gabriel Viana <sup>3</sup>, Fabyano Silva <sup>2</sup>, Melissa I. Hannas <sup>1</sup>  
<sup>1</sup>Universidade Federal de Viçosa, <sup>2</sup>Federal University of Viçosa, <sup>3</sup>Natural Resources Institute Finland

2:30 p.m. 21 **Effects of Supplementing Late Gestation Sow Diets with Zinc on Pre-weaning Mortality of Pigs Under Commercial Rearing Conditions**

Julia P. Holen<sup>1</sup>, Pedro E. Urriola<sup>1</sup>, Mark Schwartz<sup>2</sup>, Jae-Cheol Jang<sup>3</sup>, Gerald C. Shurson<sup>1</sup>, Lee J. Johnston<sup>4</sup>

<sup>1</sup>University of Minnesota, <sup>2</sup>Schwartz Farms, <sup>3</sup>Department of Animal Science, University of Minnesota, <sup>4</sup>West Central Research and Outreach Center, University of Minnesota

2:45 p.m. 256 **The Effect of Closely Meeting Estimated Daily Lysine and Energy Requirements of Pregnant First Parity Sows on Offspring Growth and Carcass Quality**

Lauren Hansen<sup>1</sup>, Victoria Stewart<sup>1</sup>, Ira B. Mandell<sup>1</sup>, Lee-Anne Huber<sup>1</sup>

<sup>1</sup>University of Guelph

3:00 p.m. 23 **Protein Source Selection During Choice-feeding in Nursery Pigs**

Jackie Harr<sup>1</sup>, Marcia Shannon<sup>2</sup>, Jeffre Firman<sup>3</sup>

<sup>1</sup>University of Missouri - Columbia, <sup>2</sup>MU, <sup>3</sup>University of Missouri-Columbia

3:15 p.m. 24 **Determining the Phosphorus Release of Smizyme TS G5 2,500 Phytase in Nursery Pigs**

Madie R. Wensley<sup>1</sup>, Jason C. Woodworth<sup>2</sup>, Joel M. DeRouchey<sup>2</sup>, Mike D. Tokach<sup>3</sup>, Robert D. Goodband<sup>2</sup>, Steve S. Dritz<sup>2</sup>, Hilda I. Calderon<sup>4</sup>, Jill M. Faser<sup>5</sup>, Baolin L. Guo<sup>6</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Kansas State University, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>4</sup>Department of Statistics, College of Arts and Sciences, Kansas State University, <sup>5</sup>Barentz, <sup>6</sup>Beijing Smile Feed

**Physiology I: Reproductive Physiology**

Chair: Alison Ward, North Dakota State University

1:45 PM - 3:45 PM

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1:45 p.m. 26 **Factors Effecting Collection Characteristics in Beef Bulls at an Artificial Insemination Facility**

Ashley R. Hartman<sup>1</sup>, Madison L. Butler<sup>1</sup>, Esther D. McCabe<sup>1</sup>, Nicole Goodenow<sup>2</sup>, Sharon Tucker<sup>3</sup>, Jennifer M. Bormann<sup>1</sup>, David M. Grieger<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Kansas Artificial Breeding Service Unit, Manhattan, KS, <sup>3</sup>Kansas Artificial Breeding Service Unit

2:00 p.m. 27 **Shotgun Proteomics Reveal Seminal Plasma Proteomes Are Reflective of Boar Reproductive Performance**

Kayla M. Mills<sup>1</sup>, Uma Aryal<sup>2</sup>, Tiago Sobreira<sup>3</sup>, Amanda Minton<sup>4</sup>, Theresa Casey<sup>2</sup>, Kara R. Stewart<sup>2</sup>

<sup>1</sup>Department of Animal Science, Purdue University, <sup>2</sup>Purdue University, <sup>3</sup>Proteomics and Metabolomics Core, Purdue University, <sup>4</sup>Acuity Swine Genetics

2:15 p.m. 28 **Steroid Hormones Are Differentially Abundant in Sows with Elevated Risk for Pelvic Organ Prolapse During Late Gestation**

Zoe E. Kiefer<sup>1</sup>, Amanda Chipman<sup>2</sup>, Jamie M. Studer<sup>1</sup>, Rafael Dal Forno Gianluppi<sup>1</sup>, Aileen F. Keating<sup>1</sup>, Nicholas K. Gabler<sup>1</sup>, Jason W. Ross<sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Iowa Pork Industry Center

2:30 p.m. 29 **Influence of Dietary Manganese Source on the Corpus Luteum Proteome in Pigs**

Jamie M. Studer<sup>1</sup>, Zoe E. Kiefer<sup>1</sup>, Aileen F. Keating<sup>1</sup>, Lance H. Baumgard<sup>1</sup>, Kristin M. Olsen<sup>1</sup>, Zachary Rambo<sup>2</sup>, Mark E. Wilson<sup>2</sup>, Christof Rapp<sup>2</sup>, Jason W. Ross<sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Zinpro Corporation

2:45 p.m. 30 **Uterine Flushing as a Non-invasive Method to Access Inflammatory Cytokines in Sows Reproductive Tract After Parturition**

Ricardo M. Garcia<sup>1</sup>, Kara R. Stewart<sup>1</sup>, John Scott Radcliffe<sup>1</sup>, Allan P. Schinckel<sup>1</sup>, Brian T. Richert<sup>1</sup>

<sup>1</sup>Purdue University

3:00 p.m. 31 **Effect of Polyunsaturated Fatty Acid and Methionine Supplementation During Late Gestation on Offspring Growth, Glucose Tolerance Test, and Carcass Characteristic in Sheep**

Milca Rosa-Velazquez<sup>1</sup>, Juan M. Pinos-Rodriguez<sup>2</sup>, Alejandro E. Relling<sup>1</sup>

<sup>1</sup>The Ohio State University, <sup>2</sup>Universidad Veracruzana

3:15 p.m. 32 **What Determines Placental Size in Beef Cattle? The Consideration of Maternal and Fetal Factors**

Colby A. Redifer<sup>1</sup>, Natalie B. Duncan<sup>1</sup>, Allison M. Meyer<sup>1</sup>

<sup>1</sup>Division of Animal Sciences, University of Missouri

3:30 p.m. 33 **Influence of Age of Dam on Daughter Reproductive Performance and Follicle Numbers in Beef Heifers**

Robert Cushman<sup>1</sup>, Renata Spuri-Gomes<sup>2</sup>, Sarah Tenley<sup>2</sup>, Shelby L. Rosasco<sup>3</sup>, Jerica Rich<sup>4</sup>, Emmalee J. Northrop-Albrecht<sup>4</sup>, Jeremy R. Miles<sup>1</sup>, Amanda Lindhom-Perry<sup>1</sup>, Brittney Keel<sup>1</sup>, George Perry<sup>4</sup>, Adam F. Summers<sup>5</sup>, Andrea S. Cupp<sup>6</sup>

<sup>1</sup>USDA, ARS, U.S. Meat Animal Research Center, <sup>2</sup>University of Nebraska, <sup>3</sup>University of Wyoming, <sup>4</sup>South Dakota State University, <sup>5</sup>New Mexico State University, <sup>6</sup>University of Nebraska-Lincoln

**Graduate Student Oral Competition: MS II**  
**Sponsored by ASAS Foundation: Gretchen Hill Appreciation Club**

Chair:

1:45 PM - 4:00 PM

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1:45 p.m. 34 **Effects of Rumen-protected Capsicum Oleoresin on Growth Performance and Immune Response in Growing Beef Cattle**

Mariana Fontana Westphalen<sup>1</sup>, Joonpyo Oh<sup>1</sup>, Alexander N. Hristov<sup>2</sup>, Tara L. Felix<sup>3</sup>

<sup>1</sup>Pennsylvania State University, <sup>2</sup>The Pennsylvania State University, <sup>3</sup>Penn State

2:00 p.m. 35 **Effect of Feeding 60% Dried Corn Distillers Grains Plus Solubles or the Equivalent Sulfur on Performance, Hormone Concentrations, and Glutathione Peroxidase Activity in Yearling Angus Bulls**

Cierrah J. J. Kassetas<sup>1</sup>, Joel S. Caton<sup>2</sup>, James D. Kirsch<sup>3</sup>, Sheri T. Dorsam<sup>2</sup>, Kacie L.

McCarthy<sup>4</sup>, Matthew S. Crouse<sup>2</sup>, Bryan W. W. Neville<sup>5</sup>, Kevin K. Sedivec<sup>2</sup>, Carl R. Dahlen<sup>6</sup>



<sup>1</sup>USDA-NIFA, <sup>2</sup>North Dakota State University, <sup>3</sup>Department of Animal Sciences, North Dakota State University, <sup>4</sup>University of Nebraska-Lincoln, <sup>5</sup>U.S. DEPARTMENT OF AGRICULTURE, <sup>6</sup>North Dakota State University, Department of Animal Sciences

2:15 p.m. 36 **Evaluation and Mitigation of the Effects of in Utero Heat Stress on Pig Performance Following Weaning and Transport**

Jacob M. Maskal <sup>1</sup>, Alan W. Duttlinger <sup>1</sup>, Kouassi R. Kpodo <sup>1</sup>, Betty R. McConn <sup>2</sup>, Christopher J. Byrd <sup>3</sup>, Brian T. Richert <sup>1</sup>, Donald C. Lay <sup>4</sup>, Jeremy Marchant-Forde <sup>5</sup>, Matt Lucy <sup>6</sup>, Tim J. Safranski <sup>6</sup>, Jay S. Johnson <sup>7</sup>

<sup>1</sup>Purdue University, <sup>2</sup>Oak Ridge Institute for Science and Education, <sup>3</sup>Department of Animal Sciences, North Dakota State University, <sup>4</sup>USDA-Agricultural Research Service, <sup>5</sup>USDA-ARS, <sup>6</sup>University of Missouri-Columbia, <sup>7</sup>USDA-ARS Livestock Behavior Research Unit

2:30 p.m. 37 **Sibs: An R Toolkit for Computation of Relatedness Measures Using Large Pedigrees**

Victor Oribamise <sup>1</sup>, Lauren L. Hulsman Hanna <sup>2</sup>

<sup>1</sup>North Dakota State University, Department of Animal Sciences, <sup>2</sup>North Dakota State University

2:45 p.m. 38 **Effects of Combining Nose Flap Weaning with Short-term Creep Feeding of Beef Calves on Cow and Calf Performance**

Kendi Tjardes <sup>1</sup>, Katy Lippolis <sup>1</sup>

<sup>1</sup>Iowa State University

3:00 p.m. 39 **Effects of Increasing Iron Dextran Dosage at Birth on the Hematological Profile and Growth Performance of Piglets During the Lactation Period**

Tyler B. Chevalier <sup>1</sup>, Harold J. Monegue <sup>1</sup>, Merlin D. Lindemann <sup>1</sup>

<sup>1</sup>University of Kentucky

3:15 p.m. 40 **Resilience of the Ocular Microbiome in Beef Calves**

Alison Neujahr <sup>1</sup>, Nirosh Aluthge <sup>2</sup>, J. Dustin Loy <sup>1</sup>, Matthew L. Spangler <sup>3</sup>, Samodha C. Fernando <sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>UNL, <sup>3</sup>University of Nebraska - Lincoln

3:30 p.m. 41 **Characterizing the Amount and Variability of Intramuscular Fat Deposition Throughout the Loin Using Barrows and Gilts from Two Genotypes**

Jack D. Redifer <sup>1</sup>, Jonathan Beever <sup>2</sup>, Chad Stahl <sup>3</sup>, D. Boler <sup>4</sup>, Anna Dilger <sup>1</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>University of Tennessee Institute of Agriculture, <sup>3</sup>Choice Genetics, <sup>4</sup>Topigs Norsvin USA

3:45 p.m. 42 **Quantifying Mammary Growth and Proliferative Effects of Estradiol in Holstein Heifer Calves**

Nicole R. Hardy <sup>1</sup>, Kellie Enger <sup>1</sup>, Benjamin Enger <sup>1</sup>

<sup>1</sup>The Ohio State University

**Graduate Student Oral Competition – PHD**  
**Sponsored by ASAS Foundation: Gretchen Hill Appreciation Club**

Chair:

1:45 PM - 4:15 PM

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1:45 p.m. 43 **Effects of Steroidal Implants on Feedlot Growth Performance, Carcass Characteristics, and Serum and Meat estradiol-17 $\beta$  Concentrations of Holstein Steers**

Pedro Carvalho<sup>1</sup>, Tara L. Felix<sup>2</sup>, George Perry<sup>3</sup>

<sup>1</sup>Penn State University, <sup>2</sup>Penn State, <sup>3</sup>South Dakota State University

2:00 p.m. 44 **Pre-transit Vitamin C Injection Improves Post-transit Performance of Beef Steers**

Erin L. Deters<sup>1</sup>, Stephanie L. Hansen<sup>1</sup>

<sup>1</sup>Iowa State University

2:15 p.m. 45 **Effect of Increasing Corn Silage Inclusion in Finishing Diets with or Without Tylosin on Performance and Liver Abscesses**

Hannah C. Wilson<sup>1</sup>, Bradley M. Boyd<sup>2</sup>, Levi J. McPhillips<sup>3</sup>, Andrea K. Watson<sup>3</sup>, James C. MacDonald<sup>4</sup>, Galen E. Erickson<sup>3</sup>

<sup>1</sup>University of Nebraska Lincoln, <sup>2</sup>University of Nebraska - Lincoln, <sup>3</sup>University of Nebraska-Lincoln, <sup>4</sup>University of Nebraska

2:30 p.m. 46 **Novel Creep Area Heat Source Impact on Pre-wean Mortality Occurrence**

Benjamin Smith<sup>1</sup>, Brett C. Ramirez<sup>1</sup>, Laura L. Greiner<sup>1</sup>

<sup>1</sup>Iowa State University

2:45 p.m. 47 **Quantitative Evaluation of Hunger in Pregnant Sows: Metabolic and Hormonal Responses to Feeding Frequency Under Limit-fed Regime**

Hayford Manu<sup>1</sup>, Lee SuHyup<sup>2</sup>, Ping Ren<sup>3</sup>, Blair Tostenson<sup>3</sup>, Abel Tekeste<sup>2</sup>, Devi Pangeni<sup>3</sup>, Xiaojian Yang<sup>2</sup>, Samuel Kofi Baidoo<sup>2</sup>

<sup>1</sup>University of Minnesota Southern Research and Outreach Center, Waseca, MN, <sup>2</sup>University of Minnesota - SROC, Waseca, <sup>3</sup>University of Minnesota - Department of Animal Science

3:00 p.m. 48 **Effects of Dietary Isoleucine and Valine Supplementation to Excess or Low Leucine Diets on Nitrogen Balance and Metabolism of Branched-chained Amino Acids in Growing Pigs**

Woong Bi Kwon<sup>1</sup>, Jose A. Soto<sup>2</sup>, Hans H. Stein<sup>3</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>Ajinomoto Heartland, <sup>3</sup>University of Illinois at Urbana-Champaign

3:15 p.m. 49 **Solar Radiation as a Predictor Variable for Dry Matter Intake in Beef Steers**

Mustapha Yusuf<sup>1</sup>, Kendall C. Swanson<sup>1</sup>, Lauren L. Hulsman Hanna<sup>1</sup>, Ronald Degges<sup>1</sup>, Marc L. Bauer<sup>1</sup>

<sup>1</sup>North Dakota State University

3:30 p.m. 50 **Pelleting and Starch Characteristics of Diets Containing Enogen® Feed Corn**

Courtney N. Truelock<sup>1</sup>, Mike D. Tokach<sup>2</sup>, Charles R. Stark<sup>1</sup>, Chad B. Paulk<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506

3:45 p.m. 51 **Intranasal Oxytocin Improves Plasma Non-esterified Fatty Acids but Not Distance Walked or Cortisol Concentrations at Weaning**

Kirsten Nickles<sup>1</sup>, Alejandro E. Relling<sup>1</sup>, Anthony J. Parker<sup>1</sup>

<sup>1</sup>The Ohio State University

4:00 p.m. 52 **Alterations of Fecal Microbiome Characteristics by Dietary Soy Isoflavone Ingestion in Growing Pigs Infected with Porcine Reproductive and Respiratory Syndrome Virus**

Brooke N. Smith<sup>1</sup>, Stephen A. Fleming<sup>2</sup>, Mei Wang<sup>1</sup>, Ryan N. Dilger<sup>3</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Traverse Science, <sup>3</sup>University of Illinois Urbana-Champaign

**Undergraduate Student Oral Competition**  
**Sponsored by ASAS Foundation: Gretchen Hill Appreciation Club**

Chair: Emily Taylor, Purdue University

1:45 PM - 4:30 PM

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2:00 p.m. 54 **Substrate and Inoculum Composition Affect in vitro Model of Ruminant Acidosis**

Natalie Shaw<sup>1</sup>, Sara M. Tondini<sup>1</sup>, Daniel W. Shike<sup>2</sup>, Joshua C. McCann<sup>1</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>University of Illinois at Urbana-Champaign

2:15 p.m. 55 **Rumen Undegradable Protein Content of Native Range and Sub Irrigated Meadow Forages**

Kaylee E. Wheeler<sup>1</sup>, Terry J. Klopfenstein<sup>1</sup>, James C. MacDonald<sup>2</sup>, Andrea K. Watson<sup>1</sup>, Hannah C. Wilson<sup>3</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska, <sup>3</sup>University of Nebraska Lincoln

2:30 p.m. 56 **Impact of Electronically-controlled Cooling Pads on Physiological Signs of Heat Stress in Early Lactation Sows**

Flannery J. Whitmore<sup>1</sup>, Allan P. Schinckel<sup>1</sup>, Robert M. Stwalley<sup>1</sup>, Tyler C. Field<sup>1</sup>, Morgan Burgett<sup>1</sup>, Ricardo M. Garcia<sup>1</sup>, Jay S. Johnson<sup>2</sup>

<sup>1</sup>Purdue University, <sup>2</sup>USDA-ARS Livestock Behavior Research Unit

2:45 p.m. 57 **Effects of Rest Period Prior to Processing on Growth and Performance During the Receiving Period in Feedlot Heifers**

Zachary T. Buessing<sup>1</sup>, Anthony J. Tarpoff<sup>1</sup>, Miles Theurer<sup>2</sup>, Tom Jones<sup>3</sup>, Jason C. Woodworth<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Veterinary Research & Consulting Services, <sup>3</sup>Hy-Plains Feedyard

3:00 p.m. 58 **The Relationship Between the First Harmonic Intensity Levels Among Boer Goat Siblings from Birth to Weaning**

Thomas A. Burke<sup>1</sup>, Rachael C. Quandt<sup>1</sup>, Samantha S. Bartley<sup>1</sup>, Brandon Forshey<sup>1</sup>

<sup>1</sup>University of Findlay

3:15 p.m. 59 **The Effects of Audio Exposure to Goat Kids' Relative Intensity Ratios of Harmonics from Birth to Weaning**

Samantha S. Bartley<sup>1</sup>, Thomas A. Burke<sup>1</sup>, Rachael C. Quandt<sup>1</sup>, Brandon Forshey<sup>1</sup>

<sup>1</sup>University of Findlay

3:30 p.m. 60 **Use of Environmental Monitoring to Inform Biosecurity Compliance in a Swine Health Challenge**

Olivia Harrison <sup>1</sup>, Savannah Stewart <sup>1</sup>, Carine M. Vier <sup>2</sup>, Jordan T. Gebhardt <sup>3</sup>, Jason C. Woodworth <sup>1</sup>, Jason C. Woodworth <sup>1</sup>, Chad B. Paulk <sup>1</sup>, Steve S. Dritz <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Genus PIC, <sup>3</sup>Kansas State University

3:45 p.m. 61 **Impact of Broken Kernels and Foreign Matter Content of Corn on Nutrient and Energy Composition and Mycotoxin Levels**

Chloe S. Hagen <sup>1</sup>, Paul M. Cline <sup>2</sup>, Blair Tostenson <sup>3</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Christenesen Farms, <sup>3</sup>University of Minnesota - Department of Animal Science

4:00 p.m. 62 **Altering Sexual Behavior of Rats Through Neonatal Treatment with an Aromatase Inhibitor, Estrogen Receptor Antagonist and Testosterone**

Sara K. Gholson <sup>1</sup>, Amanda Schmelzle <sup>1</sup>, Jonathon Green <sup>1</sup>, Micheal Smith <sup>1</sup>, Rodney D. Geisert <sup>2</sup>

<sup>1</sup>University of Missouri, <sup>2</sup>University of Missouri-Columbia

4:15 p.m. 63 **Ileal Digestibility of Amino Acids in a New Source of High-protein Distillers Dried Grains with Solubles Fed to Growing Pigs**

Jessica P. Acosta Medellin <sup>1</sup>, Su A Lee <sup>2</sup>, Hans H. Stein <sup>2</sup>

<sup>1</sup>Monogastric Nutrition Laboratory UIUC, <sup>2</sup>University of Illinois at Urbana-Champaign

**Beef/small Ruminant Translational Symposium:  
Considerations for Indoor Cattle Feeding Facilities**

Chair: Joshua McCann, University of Illinois

1:45 PM - 4:45 PM

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1:45 p.m. **Beef/small Ruminant Translational Symposium Introduction**

1:50 p.m. 64 **Klopfenstein Lecture: 50 Years of Feedlot Nutrition Research: History and a Look to the Future**

Larry L. Berger <sup>1</sup>

<sup>1</sup>University of Nebraska

2:20 p.m. 65 **Health, Management, and Future Directions for Indoor Cattle Feeding Facilities**

Adam L. Shreck <sup>1</sup>

<sup>1</sup>Feedlot Health Management Services

2:50 p.m. **Beef/small Ruminant Translational Symposium Break**

3:00 p.m. 66 **Overview of Different Cattle Finishing Facilities: Economic Summary and Future Innovations**

Tom Peters <sup>1</sup>

<sup>1</sup>Corn Belt Livestock Services

3:30 p.m. 67 **Lameness in Indoor Cattle Feeding Facilities**

Van Mitchell <sup>1</sup>

<sup>1</sup>Metzger Veterinary Services

4:00 p.m. 68 **Nutritional and Management Solutions for Indoor Cattle Feeding Facilities**

Erik Loe <sup>1</sup>

<sup>1</sup>Midwest PMS

4:30 p.m. **Beef/small Ruminant Translational Symposium Panel**

### **Teaching and Extension Education**

Chair: Peter Lammers, UW-Platteville

3:30 PM - 4:15 PM

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3:30 p.m. 69 **Connecting with the Next Generation of Shepherds – an Online Sheep-based Webpage Serves as an Additional Tool in Extension Education**

Branden J. Campbell <sup>1</sup>, Jefferson S. McCutcheon <sup>1</sup>, Todd R. Callaway <sup>2</sup>, Anthony J. Parker <sup>1</sup>

<sup>1</sup>The Ohio State University, <sup>2</sup>University of Georgia

3:45 p.m. 70 **Identifying Factors That Play a Significant Role in the Animal Science Transfer Student Experience**

Jennifer M. Bundy <sup>1</sup>, Cori J. Siberski <sup>2</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Department of Animal Science, Iowa State University

4:00 p.m. 71 **Imitating the Dynamic Bovine Cervix with 3D Printing Technology to Teach Artificial Insemination in Cattle**

Esther D. McCabe <sup>1</sup>, Lane P. Sorell <sup>2</sup>, Meng Zhang <sup>1</sup>, Ashley R. Hartman <sup>1</sup>, Karol E. Fike <sup>1</sup>,

Kenneth G. Odde <sup>1</sup>, David M. Grieger <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Ontario Systems

### **Poster Session III**

4:45 PM - 5:45 PM

CHI Health Center Convention Center Grand Ballroom Foyer

4:45 p.m. PSIII-1 **A preliminary study to investigate the contribution of different tenderness factors to beef loin, tri-tip and heel tenderness**

Colin Chun <sup>1</sup>, Wanjun Wu <sup>1</sup>, Amelia Welter <sup>1</sup>, Travis O'Quinn <sup>1</sup>, Geraldine Magnin <sup>1</sup>, Michael Chao <sup>1</sup>

<sup>1</sup>Kansas State University

4:45 p.m. PSIII-2 **Considering a large creep pellet as a means to improve suckling and early weaned pig performance**

Shannen T. Mahal <sup>1</sup>, Jodi M. Morton <sup>1</sup>, Jorge Y. Perez-Palencia <sup>1</sup>, Crystal L. Levesque <sup>1</sup>, Paul Groenewegen <sup>2</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>Masterfeeds

4:45 p.m. PSIII-3 **Effect of Day of Induction on Sow and Piglet Performance**  
Miranda R. McGuire<sup>1</sup>, Jenelle Dunckelberger<sup>2</sup>, J. Eggert<sup>2</sup>, Allan P. Schinckel<sup>1</sup>, Egbert Knol<sup>3</sup>  
<sup>1</sup>Purdue University, <sup>2</sup>Topigs Norsvin USA, <sup>3</sup>Topigs Norsvin Research Centre

4:45 p.m. PSIII-4 **Effect of Housing System and Supplementation of 25-hydroxicholecalciferol (25-OH-D3) on Performance and 25(OH)D3 Serum Levels of Sows during Gestation and Lactation**

Bruno Alexander N. Silva<sup>1</sup>, Nathalia Oliveira<sup>1</sup>, Cristina Sá-Fortes<sup>1</sup>, Wagner Araújo<sup>2</sup>, Francine Falleiros<sup>3</sup>, Adso Passos<sup>3</sup>, Mateus F. Gonçalves<sup>1</sup>, Flavio Igor G. Rebordoes<sup>1</sup>, Iara Ataide<sup>1</sup>, Valesca Lima<sup>4</sup>, Rafaela Evangelista<sup>4</sup>  
<sup>1</sup>Universidade Federal de Minas Gerais, <sup>2</sup>IFNMG, <sup>3</sup>DSM, <sup>4</sup>UFMG

4:45 p.m. PSIII-5 **Effects of ingredient composition of oral drenches in small piglets post-farrowing on average daily gain and pre-wean mortality**

Olivia Harrison<sup>1</sup>, Sam Tauer<sup>2</sup>, Brent Frederick<sup>3</sup>  
<sup>1</sup>Kansas State University, <sup>2</sup>christensen farms, <sup>3</sup>Christensen Farms

4:45 p.m. PSIII-6 **Effects of repeated freeze and thaw cycles on serum and plasma metabolite concentrations in beef cattle**

Jera L. Monaghan<sup>1</sup>, Abigail R. Rathert<sup>2</sup>, Allison M. Meyer<sup>3</sup>  
<sup>1</sup>Department of Animal Sciences, University of Wisconsin-River Falls, <sup>2</sup>Oklahoma State University, <sup>3</sup>Division of Animal Sciences, University of Missouri

4:45 p.m. PSIII-7 **Evaluating sow colostrum somatic cell count as an indicator for colostrum composition or litter characteristics**

Ryan T. Maurer<sup>1</sup>, Kiah M. Gourley<sup>1</sup>, Theresa J. Rathbun<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Mike D. Tokach<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Robert D. Goodband<sup>1</sup>  
<sup>1</sup>Kansas State University

4:45 p.m. PSIII-8 **Impact of SYNOVEX® ONE GRASS implantation during suckling on pre-weaning calf growth performance**

Shane Newton<sup>1</sup>, Payton L. Dahmer<sup>1</sup>, Larry Corah<sup>1</sup>, Keith Harmony<sup>1</sup>, John Jaeger<sup>1</sup>, Jason C. Woodworth<sup>1</sup>  
<sup>1</sup>Kansas State University

4:45 p.m. PSIII-9 **Performance by weaned Katahdin lambs offered diets with and without Actifor® Pro**

Kandace Edwards<sup>1</sup>, Bruce C. Shanks<sup>1</sup>, James D. Caldwell<sup>2</sup>, Kevin Adams<sup>2</sup>  
<sup>1</sup>Lincoln University, <sup>2</sup>Delacon USA, Inc.

4:45 p.m. PSIII-10 **The association of genes involved in mitochondrial function with growth, size, and feed efficiency traits in developing beef heifers**

Samantha J. Schmoker<sup>1</sup>, Nayan Bhowmik<sup>2</sup>, Carl R. Dahlen<sup>1</sup>, Kendall C. Swanson<sup>2</sup>, Kris A. Ringwall<sup>3</sup>, Lauren L. Hulsman Hanna<sup>2</sup>  
<sup>1</sup>North Dakota State University, Department of Animal Sciences, <sup>2</sup>North Dakota State University, <sup>3</sup>University of Saskatchewan, Livestock and Forage Centre of Excellence

4:45 p.m. PSIII-11 **The effect of GALR2 genotype and differing implant strategies on blood metabolite concentrations in finishing steers**

Ellie S. Anderson <sup>1</sup>, Jerica R. Hall <sup>1</sup>, Mara R. Hirschert <sup>1</sup>, Kendall C. Swanson <sup>1</sup>, Kasey R. Maddock Carlin <sup>1</sup>, Carl R. Dahlen <sup>2</sup>, Alison K. Ward <sup>1</sup>

<sup>1</sup>North Dakota State University, <sup>2</sup>North Dakota State University, Department of Animal Sciences

4:45 p.m. PSIII-12 **The effect of sodium butyrate and benzoic acid on nutrient digestibility and fecal volatile fatty acid concentrations in nursery pigs.**

Casey L. Bradley <sup>1</sup>, Alisun Watson <sup>2</sup>, Kristopher Bottoms <sup>2</sup>, Tsungcheng Tsai <sup>2</sup>, Charles V. Maxwell <sup>2</sup>

<sup>1</sup>DSM Nutritional Products LLC, <sup>2</sup>University of Arkansas

4:45 p.m. PSIII-13 **The Effects of Corn Gluten Feed and Corn Dried Distillers Grains as a Replacement for Soybean Meal on Boer Type Goat Diets**

Samantha Costigan <sup>1</sup>, Alison R. Crane <sup>2</sup>, James M. Lattimer <sup>1</sup>, Jason C. Woodworth <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Animal Sciences and Industry, Kansas State University

4:45 p.m. PSIII-14 **The effects of variant auditory stimuli on goat kids' formant patterns from birth to weaning**

Rachael C. Quandt <sup>1</sup>, Samantha S. Bartley <sup>1</sup>, Thomas A. Burke <sup>1</sup>, Brandon Forshey <sup>1</sup>

<sup>1</sup>University of Findlay

#### **Poster Session IV**

5:00 PM - 5:45 PM

CHI Health Center Convention Center Grand Ballroom Foyer

5:00 p.m. PSIV-15 **Determining the effects of increasing levels of xylanase in nutrient adequate diets on growth performance, carcass characteristics of growing-finishing pigs**

Hayden R. Kerkaert <sup>1</sup>, Joel M. DeRouchey <sup>1</sup>, Steve S. Dritz <sup>1</sup>, Robert D. Goodband <sup>1</sup>, Mike D. Tokach <sup>1</sup>, Jason C. Woodworth <sup>1</sup>, Hilda I. Calderon <sup>2</sup>, Ludovic Lahaye <sup>3</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Statistics, College of Arts and Sciences, Kansas State University, <sup>3</sup>Jefo

5:00 p.m. PSIV-16 **Effects of a functional protein on growth performance of nursery pigs**

Henrique S. Cemin <sup>1</sup>, Luke A. Swalla <sup>1</sup>, Jamie L. Pietig <sup>1</sup>, Sharlie A. Hansen <sup>1</sup>, Ernie L. Hansen <sup>1</sup>, Brent W. Ratliff <sup>2</sup>, Aaron M. Gaines <sup>2</sup>, James Usry <sup>2</sup>

<sup>1</sup>Hubbard Feeds, <sup>2</sup>Ani-Tek Group, LLC

5:00 p.m. PSIV-17 **Effects of zinc level and calcium source on growth performance of nursery pigs**

Henrique S. Cemin <sup>1</sup>, Luke A. Swalla <sup>1</sup>, Jamie L. Pietig <sup>1</sup>, Sharlie A. Hansen <sup>1</sup>, Ernie L. Hansen <sup>1</sup>

<sup>1</sup>Hubbard Feeds

5:00 p.m. PSIV-18 **Effects on performance and market weight of DNA 600 Duroc sired pigs when fed diets with a blend of phytonutrients (Lean Fuel) in combination with Narasin (Skycis)**

Luis Ochoa <sup>1</sup>, Megan Bible <sup>1</sup>, Kevin Soltwedel <sup>1</sup>, Fredrik Sandberg <sup>1</sup>

<sup>1</sup>Furst-McNess Company

5:00 p.m. PSIV-19 **Evaluation of Enogen® high amylase corn on growth performance and carcass characteristics of finishing pigs**

Patricia Ochonski<sup>1</sup>, Fangzhou Wu<sup>1</sup>, Mike D. Tokach<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Robert D. Goodband<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, James M. Lattimer<sup>1</sup>

<sup>1</sup>Kansas State University

5:00 p.m. PSIV-20 **Impact of OutPace® Feed Additive on nursery pig growth performance: A meta-analysis**

Benjamin Bass<sup>1</sup>, Stacie Crowder<sup>2</sup>, Terry Weeden<sup>3</sup>, Murali Raghavendra Rao<sup>3</sup>, Brenda de Rodas<sup>3</sup>, Peter Karnezos<sup>3</sup>

<sup>1</sup>Land O'Lakes, <sup>2</sup>PMI Additives, <sup>3</sup>Purina Animal Nutrition

5:00 p.m. PSIV-21 **Pellet processing reduces variability of corn soybean meal based diet digestibility in growing pigs**

Élisabeth Chassé<sup>1</sup>, Frédéric Guay<sup>1</sup>, Marie-Pierre Létourneau-Montminy<sup>1</sup>

<sup>1</sup>Université Laval

5:00 p.m. PSIV-22 **Supplemental effects of dietary lysophospholipids in lactation diets on sow performance, milk composition, and intestinal health of piglets**

Kibeom Jang<sup>1</sup>, Jerry Purvis<sup>2</sup>, Sung Woo Kim<sup>1</sup>

<sup>1</sup>North Carolina State University, <sup>2</sup>Purvis Farms

**Poster Session V**

6:15 PM - 7:00 PM

CHI Health Center Convention Center Grand Ballroom Foyer

6:15 p.m. PSV-1 **A Subcutaneous Ear Implant to Deliver an Anaplasmosis Vaccine to Dairy Steers**

Andrew K. Curtis<sup>1</sup>, Kathryn E. Reif<sup>2</sup>, Michael D. Kleinhenz<sup>1</sup>, Miriam S. Martin<sup>1</sup>, Brandt Skinner<sup>1</sup>, Sean Kelly<sup>3</sup>, Douglas Jones<sup>3</sup>, Emily Reppert<sup>1</sup>, Shawnee R. Montgomery<sup>1</sup>, Balaji Narasimhan<sup>3</sup>, Tippawan Anantatat<sup>1</sup>, Majid Jaber-Douraki<sup>1</sup>, Johann F. Coetzee<sup>4</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Kansas State University, College of Veterinary Medicine, Department of Diagnostic Medicine/Pathobiology, <sup>3</sup>Iowa State University, <sup>4</sup>Kansas State University College of Veterinary Medicine, Department of Anatomy and Physiology, Manhattan, KS

6:15 p.m. PSV-11 **Accuracies of genomic prediction for reproductive traits in PRRSV-infected sows**

Felipe M. W. Hickmann<sup>1</sup>, José Braccini Neto<sup>1</sup>, Luke M. Kramer<sup>2</sup>, Kent A. Gray<sup>3</sup>, Yijian Huang<sup>3</sup>, Jack C.M. Dekkers<sup>2</sup>, Letícia P. Sanglard<sup>2</sup>, Nick V. Serão<sup>4</sup>

<sup>1</sup>UFRGS, <sup>2</sup>Iowa State University, <sup>3</sup>Smithfield Premium Genetics, <sup>4</sup>Department of Animal Science, Iowa State University

6:15 p.m. PSV-2 **An exploration of sociality among pre-weaned beef calves**

Jesse Robbins<sup>1</sup>, Rebecca Parsons<sup>1</sup>, Grant Dewell<sup>1</sup>, Derek B. Haley<sup>2</sup>, Anna K. Johnson<sup>1</sup>, Reneé Dewell<sup>1</sup>, Suzanne Millman<sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>University of Guelph

6:15 p.m. PSV-21 **Assessment of Undergraduate Research Students in the Animal Science Department**

Shana M. Winkel<sup>1</sup>, Lisa Karr<sup>2</sup>, Thomas E. Burkey<sup>3</sup>

<sup>1</sup>University of Nebraska - Lincoln, <sup>2</sup>UNL, <sup>3</sup>University of Nebraska-Lincoln



6:15 p.m. PSV-3 **Detection of Bruising in Holstein Slaughter Cows with Infrared Thermography**

Ashlynn Kirk<sup>1</sup>, Kurt D. Vogel<sup>1</sup>

<sup>1</sup>University of Wisconsin - River Falls

6:15 p.m. PSV-4 **Direct-fed microbial program improved survivability of nursery pigs in commercial production**

Victor G. Perez<sup>1</sup>, Terry Parrott<sup>2</sup>, Janet C. Remus<sup>2</sup>, Michael Perry<sup>3</sup>

<sup>1</sup>Dupont, <sup>2</sup>DuPont Animal Nutrition, <sup>3</sup>DuPont

6:15 p.m. PSV-5 **Effect of oxygen administration to piglets at birth on post-natal body temperatures**

Naomi C. Willard<sup>1</sup>, Katherine D. Vande Pol<sup>1</sup>, Mike Ellis<sup>1</sup>, Yijie Xiong<sup>1</sup>, Richard Gates<sup>2</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>Iowa State University

6:15 p.m. PSV-6 **Effects of chilled drinking water and cooled floor pads on behavior of lactating sows under heat stress**

Yuzhi Li<sup>1</sup>, Yunhui Zhu<sup>2</sup>, Michael Reese<sup>2</sup>, Eric Buchanan<sup>2</sup>, Lee J. Johnston<sup>1</sup>

<sup>1</sup>West Central Research and Outreach Center, University of Minnesota, <sup>2</sup>University of Minnesota

6:15 p.m. PSV-7 **Effects of drying and oxygenation of piglets at birth on rectal temperatures in the early post-natal period.**

Katherine D. Vande Pol<sup>1</sup>, Naomi C. Willard<sup>1</sup>, Andres Tolosa<sup>1</sup>, Mike Ellis<sup>1</sup>, Richard Gates<sup>2</sup>, Yijie Xiong<sup>1</sup>, Caleb M. Shull<sup>3</sup>, Katie Brown<sup>3</sup>, Stephan da Silva<sup>4</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>Iowa State University, <sup>3</sup>The Maschhoffs, LLC, <sup>4</sup>Universidade Federal

6:15 p.m. PSV-12 **Evaluator effect on the prediction of genetic merit using subjective measures of beef cattle temperament**

Elfren F. Celestino<sup>1</sup>, Jordan K. Hieber<sup>2</sup>, Carl R. Dahlen<sup>1</sup>, David G. Riley<sup>3</sup>, Sarah A. Wagner<sup>1</sup>, Lauren L. Hulsman Hanna<sup>4</sup>

<sup>1</sup>North Dakota State University, Department of Animal Sciences, <sup>2</sup>Department of Animal and Range Sciences, Montana State University, <sup>3</sup>Texas A&M University, Department of Animal Science, <sup>4</sup>North Dakota State University

6:15 p.m. PSV-13 **Genetic parameters and quantitative trait loci for heat stress related traits in sheep**

Devin R. Jacobs<sup>1</sup>, Claudia E. Silvera-Rojas<sup>1</sup>, Jennifer M. Bormann<sup>1</sup>, Terry A. Gipson<sup>2</sup>, Arthur L. Goetsch<sup>3</sup>, Robert L. Weaber<sup>1</sup>, Megan M. Rolf<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>American Institute for Goat Research, Langston University, <sup>3</sup>Langston University

6:15 p.m. PSV-14 **Genome Centric Approaches to Understand Antimicrobial Resistance in the Rumen Microbiome**

Wesley A. Tom<sup>1</sup>, Kristin E. Hales<sup>2</sup>, James Wells<sup>3</sup>, Samodha C. Fernando<sup>4</sup>

<sup>1</sup>UNL, <sup>2</sup>Texas Tech University, Department of Animal and Food Sciences, <sup>3</sup>U.S. Meat Animal Research Center USMARC, <sup>4</sup>University of Nebraska-Lincoln

6:15 p.m. PSV-15 **Genomic basis of reproductive performance in PRRSV-infected sows**

Felipe M. W. Hickmann<sup>1</sup>, José Braccini Neto<sup>1</sup>, Luke M. Kramer<sup>2</sup>, Kent A. Gray<sup>3</sup>, Yijian Huang<sup>3</sup>, Jack C.M. Dekkers<sup>2</sup>, Letícia P. Sanglard<sup>2</sup>, Nick V. Serão<sup>4</sup>

<sup>1</sup>UFRGS, <sup>2</sup>Iowa State University, <sup>3</sup>Smithfield Premium Genetics, <sup>4</sup>Department of Animal Science, Iowa State University

6:15 p.m. PSV-8 **Glucocorticoid receptor agonist (GRA): what is the best delivery method to newly weaned pigs?**

Hailey Wooten<sup>1</sup>, Hwanhee Kim<sup>1</sup>, Amanda Rakhshandeh<sup>2</sup>, Anoosh Rakhshandeh<sup>1</sup>

<sup>1</sup>Texas Tech University, <sup>2</sup>South Plain Collage

6:15 p.m. PSV-16 **Influence of the late gestation maternal rumen microbiome on the calf meconium and early rumen microbiome**

Kelly Woodruff<sup>1</sup>, Gwendolynn Hummel<sup>2</sup>, Kathleen J. Austin<sup>2</sup>, Travis Smith<sup>2</sup>, Hannah Cunningham-Hollinger<sup>2</sup>

<sup>1</sup>Department of Animal and Range Sciences, Clayton Livestock Research Center, New Mexico State University, <sup>2</sup>University of Wyoming

6:15 p.m. PSV-19 **Pasture history and supplementation affects parasite status of naïve lambs in grazing systems**

Branden J. Campbell<sup>1</sup>, Jefferson S. McCutcheon<sup>1</sup>, Antoinette E. Marsh<sup>1</sup>, Todd R. Callaway<sup>2</sup>, Anthony J. Parker<sup>1</sup>

<sup>1</sup>The Ohio State University, <sup>2</sup>University of Georgia

6:15 p.m. PSV-17 **Pinpointing Differences between Significant QTL of Carcass Traits in Yorkshire and Landrace Pig Populations**

Hanna Ostrovski<sup>1</sup>, Cedric Gondro<sup>1</sup>, Donghyun Shin<sup>2</sup>

<sup>1</sup>Michigan State University, <sup>2</sup>Chonbuk National University

6:15 p.m. PSV-20 **The effect of differing implant strategies on the galanin receptor 2 genotype on feed intake, efficiency, and feeding behavior of crossbred Angus finishing steers.**

Jerica R. Hall<sup>1</sup>, Mara R. Hirschert<sup>1</sup>, Kasey R. Maddock Carlin<sup>1</sup>, Carl R. Dahlen<sup>2</sup>, Alison K. Ward<sup>1</sup>

<sup>1</sup>North Dakota State University, <sup>2</sup>North Dakota State University, Department of Animal Sciences

6:15 p.m. PSV-9 **The effect of warming and drying piglets at birth under cool or warm farrowing room temperatures on post-natal rectal temperatures.**

Katherine D. Vande Pol<sup>1</sup>, Andres Tolosa<sup>1</sup>, Mike Ellis<sup>1</sup>, Caleb M. Shull<sup>2</sup>, Katie Brown<sup>2</sup>, Stephan da Silva<sup>3</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>The Maschhoffs, LLC, <sup>3</sup>Universidade Federal

6:15 p.m. PSV-18 **The role of leptin in feed efficiency and behavior attributes of commercial beef heifers**

Nayan Bhowmik<sup>1</sup>, Kris A. Ringwall<sup>2</sup>, Carl R. Dahlen<sup>3</sup>, Kendall C. Swanson<sup>1</sup>, Jeffrey A. Clapper<sup>4</sup>, Alison K. Ward<sup>1</sup>, Lauren L. Hulsman Hanna<sup>1</sup>

<sup>1</sup>North Dakota State University, <sup>2</sup>University of Saskatchewan, Livestock and Forage Centre of Excellence, <sup>3</sup>North Dakota State University, Department of Animal Sciences, <sup>4</sup>South Dakota State University

6:15 p.m. PSV-10 **The use of oleic acid during heat stress on lameness and joint health**

Morgan L. Dotson<sup>1</sup>, Teagan R. Schnurbusch<sup>1</sup>, Bryon R. Wiegand<sup>2</sup>, Nichole C. Anderson<sup>2</sup>  
<sup>1</sup>University of Missouri-Columbia, <sup>2</sup>University of Missouri

6:15 p.m. PSV-22 **Use of weekly quizzes in a graduate-level physiology course does not enhance student learning but may help regulate study time**

Renee M. McFee<sup>1</sup>, Katie Bidne<sup>1</sup>  
<sup>1</sup>University of Nebraska-Lincoln

**Tuesday, March 3, 2020**

**Poster Session VI**

7:30 AM - 8:15 AM

CHI Health Center Convention Center Grand Ballroom Foyer

7:30 a.m. PSVI-1 **Dietary protease supplementation on growth performance and post-weaning diarrhea of nursery pigs**

Jorge Y. Perez-Palencia<sup>1</sup>, David A. Clizer<sup>1</sup>, Christian Ramirez-Camba<sup>1</sup>, Ryan S. Samuel<sup>2</sup>, Crystal L. Levesque<sup>1</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>Department of Animal Science, South Dakota State University

7:30 a.m. PSVI-2 **Dietary supplementation of Bacillus licheniformis derived-protease increased the digestibility of dry matter and crude protein in post-weaned and growing pigs**

Seok wooJung<sup>1</sup>, Lei Cheng<sup>1</sup>, Palanisamy Thanapal<sup>1</sup>, Xiangting Fu<sup>1</sup>, In Ho Kim<sup>1</sup>

<sup>1</sup>Dankook University

7:30 a.m. PSVI-3 **Dietary supplementation with coated omega-3 fatty acids has positive effects on growth performance and nutrients digestibility in weaned pigs**

Seok wooJung<sup>1</sup>, Je Min Ahn<sup>2</sup>, Jing Hu<sup>1</sup>, De Xin Dang<sup>1</sup>, Yanjiao Li<sup>2</sup>, In Ho Kim<sup>1</sup>, Jian Ying Zhang<sup>1</sup>

<sup>1</sup>Dankook University, <sup>2</sup>Dankook university

7:30 a.m. PSVI-4 **Digestible and metabolizable energy content, and standardized ileal digestibility of amino acids in novel corn co-products for swine**

Zhaohui Yang<sup>1</sup>, Amanda Palowski<sup>1</sup>, Pedro E. Urriola<sup>1</sup>, Gerald C. Shurson<sup>1</sup>

<sup>1</sup>University of Minnesota

7:30 a.m. PSVI-5 **Effect of apple and anise flavour supplementation on growth performance, nutrient digestibility, blood profiles and carcass quality in growing-finishing pigs**

Seok wooJung<sup>1</sup>, Yong Min Kim<sup>1</sup>, Je Min Ahn<sup>2</sup>, Xiao Liu<sup>1</sup>, Xiang Ao<sup>1</sup>, In Ho Kim<sup>1</sup>

<sup>1</sup>Dankook University, <sup>2</sup>Dankook university

7:30 a.m. PSVI-14 **Effect of Dietary Nitrates and Sulfates on Enteric Methane Mitigation in Finishing Cattle**

Mohamed Abdelmoteleb<sup>1</sup>, Allie Knoell<sup>1</sup>, Samodha C. Fernando<sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln

7:30 a.m. PSVI-15 **Effect of direct-fed microbials on fecal characteristics during an acidosis induction**

Kaylie Huizenga <sup>1</sup>, Sara M. Tondini <sup>1</sup>, Joshua C. McCann <sup>1</sup>  
<sup>1</sup>University of Illinois

7:30 a.m. PSVI-21 **Effect of preconditioning pre-shipment and injectable antioxidant trace elements and vitamins on growth, antioxidant status, and plasma metabolites and insulin concentration in weaned beef cattle.**

Raul M. Lizarraga <sup>1</sup>, Esteban Galarza <sup>1</sup>, Guillermo Mattioli <sup>2</sup>, Anthony J. Parker <sup>1</sup>, Alejandro E. Relling <sup>1</sup>  
<sup>1</sup>The Ohio State University, <sup>2</sup>Universidad Nacional de La Plata

7:30 a.m. PSVI-6 **Effect of reduced dietary protein and amino acid supply imposed in the grower and finisher period or solely in the finisher period on growth traits and carcass protein deposition efficiency in pigs**

Bee Giuseppe <sup>1</sup>, Claudia Kasper <sup>1</sup>, Patrick Schlegel <sup>1</sup>  
<sup>1</sup>Agroscope

7:30 a.m. PSVI-23 **Effects of a vitamin and mineral supplement and an energy supplement on concentrations of glucose and non-esterified fatty acids in artificially inseminated beef heifers up to d 84 post-insemination**

Laura I. Sauer <sup>1</sup>, Tammi L. Neville <sup>2</sup>, Cierrah J. J. Kassetas <sup>3</sup>, Friederike Baumgaertner <sup>1</sup>, James D. Kirsch <sup>4</sup>, Sheri T. Dorsam <sup>1</sup>, Pawel Borowicz <sup>1</sup>, Lawrence P. Reynolds <sup>1</sup>, Alison K. Ward <sup>1</sup>, J. Christopher Forcherio <sup>5</sup>, Ronald Scott <sup>6</sup>, Kacie L. McCarthy <sup>7</sup>, Carl R. Dahlen <sup>8</sup>, Joel S. Caton <sup>1</sup>  
<sup>1</sup>North Dakota State University, <sup>2</sup>USDA- NIFA, <sup>3</sup>USDA-NIFA, <sup>4</sup>Department of Animal Sciences, North Dakota State University, <sup>5</sup>Land O' Lakes, <sup>6</sup>Purina Animal Nutrition, <sup>7</sup>University of Nebraska-Lincoln, <sup>8</sup>North Dakota State University, Department of Animal Sciences

7:30 a.m. PSVI-16 **Effects of feeding spices on heifer gains and potential as tick management**

Jaymelynn K. Farney <sup>1</sup>  
<sup>1</sup>Kansas State University

7:30 a.m. PSVI-17 **Effects of increasing doses of trenbolone acetate and estradiol on sera metabolites following implantation during the finishing phase in beef steers**

Dathan Smerchek <sup>1</sup>, Zachary K. Smith <sup>1</sup>  
<sup>1</sup>South Dakota State University

7:30 a.m. PSVI-18 **Effects of rumen-protected lysine on performance and plasma amino acid metabolism in early lactation Holstein cows**

Geoffrey Carney <sup>1</sup>, Felipe Cardoso <sup>2</sup>, Perry Doane <sup>3</sup>  
<sup>1</sup>University of Illinois Department of Animal Sciences, <sup>2</sup>University of Illinois, <sup>3</sup>Archer Daniels Midland

7:30 a.m. PSVI-19 **Evaluating the addition of an alpha-amylase enzyme to two bulk-flake density weights of corn fed to beef finishing steers.**

Caleb G. Lockard <sup>1</sup>, Cathy Lockard <sup>2</sup>, Wyatt N. Smith <sup>3</sup>, Brian Campbell <sup>4</sup>, Jenny Jennings <sup>2</sup>  
<sup>1</sup>AgriLife Research, <sup>2</sup>Texas A&M AgriLife Research, <sup>3</sup>West Texas A&M, <sup>4</sup>DSM

7:30 a.m. PSVI-20 **Impact of *Saccharomyces cerevisiae* fermentation products on in vitro rumen microbial fermentation of new crop corn silage.**

Coleman G. Reedy<sup>1</sup>, Joan Butler<sup>1</sup>, Ilkyu Yoon<sup>1</sup>, Tom Oelberg<sup>1</sup>, Tracy Werner<sup>1</sup>, Ehsan Khafipour<sup>1</sup>

<sup>1</sup>Diamond V

7:30 a.m. PSVI-7 **Increased consumption of Methionine as DL-Methionine or OH-Methionine improved pigs growing performance and carcass traits under hot conditions**

Caio A. da Silva<sup>1</sup>, Marco A. Callegari<sup>2</sup>, José Henrique Barbi<sup>3</sup>, Naiara Fagundes<sup>3</sup>, Cleandro P. Dias<sup>2</sup>, Kelly L. Souza<sup>4</sup>, Dolores I. Batonon-Alavo<sup>5</sup>

<sup>1</sup>University of Londrina, Animal Science Department, <sup>2</sup>AKEI, <sup>3</sup>Adisseo Brasil Nutrição Animal, <sup>4</sup>Akei, <sup>5</sup>Adisseo France SAS

7:30 a.m. PSVI-8 **Mineral composition of feed grade monocalcium phosphate**

Diego A. Lopez<sup>1</sup>, Hans H. Stein<sup>2</sup>

<sup>1</sup>Department of Animal Sciences, University of Illinois, <sup>2</sup>University of Illinois at Urbana-Champaign

7:30 a.m. PSVI-9 **Mint oil, yeast cell, and  $\gamma$ -tocopherol supplementation in gestation and lactation diets on offspring performance during the post-wean period.**

Lily P. Hernandez<sup>1</sup>, James L. Dunn<sup>2</sup>, Joel Wenninghoff<sup>2</sup>, Crystal L. Levesque<sup>1</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>ADM Animal Nutrition

7:30 a.m. PSVI-10 **Mint oil, yeast cell, and  $\gamma$ -tocopherol supplementation in gestation and lactation diets on the antioxidant status of the sow and offspring performance during the suckling period.**

Lily P. Hernandez<sup>1</sup>, James L. Dunn<sup>2</sup>, Joel Wenninghoff<sup>2</sup>, Crystal L. Levesque<sup>1</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>ADM Animal Nutrition

7:30 a.m. PSVI-11 **Non-GMO beet pulp and canola meal corn-soybean meal diet has comparable effects as that of GMO corn-soybean meal diet on the performance of sows and piglets**

Seok wooJung<sup>1</sup>, Huan Wang<sup>2</sup>, Sumya Kibria<sup>2</sup>, Yanjiao Li<sup>2</sup>, In Ho Kim<sup>1</sup>

<sup>1</sup>Dankook University, <sup>2</sup>Dankook university

7:30 a.m. PSVI-12 **Phosphorous digestibility of corn ethanol co-products, from Brazil and USA, in growing pigs**

Vinicius R. C. Paula<sup>1</sup>, Natália C. Milani<sup>2</sup>, Cândida P.F. Azevedo<sup>1</sup>, Gabriel A.G. Casarotti<sup>1</sup>, Leonardo A. Granja<sup>1</sup>, Brian P. Mike<sup>3</sup>, Gerald C. Shurson<sup>4</sup>, Urbano Ruiz<sup>1</sup>

<sup>1</sup>University of São Paulo, <sup>2</sup>University of Sao Paulo, <sup>3</sup>FS Bioenergia, <sup>4</sup>University of Minnesota

7:30 a.m. PSVI-22 **Rumen microbiome of beef cattle is modulated by backgrounding systems**

Bobwealth O. Omontese<sup>1</sup>, Ashok K. Sharma<sup>2</sup>, Jason Langlie<sup>2</sup>, Joe Armstrong<sup>2</sup>, Alfredo DiCostanzo<sup>2</sup>, Megan J. Webb<sup>2</sup>, Andres Gomez<sup>2</sup>, Hayford Manu<sup>3</sup>

<sup>1</sup>Alabama A&M University, <sup>2</sup>University of Minnesota, <sup>3</sup>University of Minnesota Southern Research and Outreach Center, Waseca, MN

7:30 a.m. PSVI-13 **Sequential feeding with diets varying in amino acid content improves body composition in growing-finishing pigs**

Alini M. Veira<sup>1</sup>, Luan S. Santos<sup>2</sup>, Alícia Z. Fraga<sup>3</sup>, Marllon M. Oliveira<sup>3</sup>, Paulo H. Reis Furtado Campos<sup>4</sup>, Luciano Hauschild<sup>5</sup>

<sup>1</sup>FAPESP Scholarship, São Paulo State University, Jaboticabal, Brazil, <sup>2</sup>Federal Rural University of Rio De Janeiro, Seropédica, Brazil, <sup>3</sup>São Paulo State University (UNESP),

<sup>4</sup>Federal University of Viçosa, <sup>5</sup>Unesp Jaboticabal

**Student Breakfast and Learn**

Chair: Miriam Martin, Kansas State University

7:30 AM - 8:30 AM

203

7:30 a.m. **Communicating Science to Different Audiences**

Stephanie Wisdom<sup>1</sup>

<sup>1</sup>National Pork Board

**Nonruminant Nutrition II: Grow-finish Nutrition**

Chair: Henrique Cemin, Hubbard Feeds; Andrea Hanson, Professional Swine Management

8:00 AM - 10:30 AM

202

8:00 a.m. 72 **Young Scholar Presentation: Use of Medium Chain Fatty Acids as Mitigation or Prevention Strategies Against Pathogens in Swine Feed**

Annie B. Lerner<sup>1</sup>, Roger A. Cochrane<sup>2</sup>, Jordan T. Gebhardt<sup>3</sup>, Steve S. Dritz<sup>4</sup>, Jason C. Woodworth<sup>4</sup>, Mike D. Tokach<sup>5</sup>, Robert D. Goodband<sup>4</sup>, Joel M. DeRouchey<sup>4</sup>, Phillip C. Gauger<sup>6</sup>, Jianqiang Zhang<sup>6</sup>, Drew Magstadt<sup>6</sup>, Jianfa Bai<sup>7</sup>, Elizabeth Poulsen-Porter<sup>4</sup>, Joe Anderson<sup>4</sup>, Benjamin Bass<sup>8</sup>, Peter Karnezos<sup>9</sup>, Brenda de Rodas<sup>9</sup>, Jason C. Woodworth<sup>4</sup>

<sup>1</sup>Schwartz Farms, Inc., <sup>2</sup>Pipestone Grow Finish, <sup>3</sup>Kansas State University, <sup>4</sup>Kansas State University, <sup>5</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>6</sup>Iowa State University, <sup>7</sup>Kansas State University, <sup>8</sup>PMI, <sup>9</sup>Purina Animal Nutrition

8:30 a.m. 73 **Effects of Dietary Neutral Detergent Fiber and Standardized Ileal Digestible Lysine Levels on Growth Performance and Carcass Characteristics of Growing-finishing Pigs**

Uislei A. Orlando<sup>1</sup>, Ning Lu<sup>2</sup>, Carine M. Vier<sup>1</sup>, Wayne R. Cast<sup>1</sup>, Xun Zhou<sup>3</sup>, Malachy Young<sup>3</sup>

<sup>1</sup>Genus PIC, <sup>2</sup>PIC, <sup>3</sup>Gowans Feed Consulting

8:45 a.m. 74 **Isotonic Electrolyte Solution Improves Pig Wean to Finish Performance**

Jessica Jasper<sup>1</sup>, Omarh F. Mendoza<sup>2</sup>, Katie Brown<sup>2</sup>, Caleb M. Shull<sup>2</sup>, Nicholas K. Gabler<sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>The Maschhoffs, LLC

9:00 a.m. 75 **Effects of Dietary Energy and Lysine Concentration on Feed Intake and Productive Performance of Lean Growing Pigs**

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

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

9:15 a.m. 76 **Compensatory Growth Following Lysine Restriction in Grow-finish Pigs: Literature Review and Analysis**

Mariana Boscato Menegat <sup>1</sup>, Steve S. Dritz <sup>2</sup>, Mike D. Tokach <sup>3</sup>, Jason C. Woodworth <sup>2</sup>, Joel M. DeRouchey <sup>2</sup>, Robert D. Goodband <sup>2</sup>

<sup>1</sup>Holden Farms, <sup>2</sup>Kansas State University, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506

9:30 a.m. 77 **The Effect of Naturally Occurring Levels of Multiple Mycotoxins on Growth Performance and Carcass Parameters of Grow-finish Pigs**

Leigh Ruckman <sup>1</sup>, Stacie Matchan <sup>1</sup>, John Patience <sup>2</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Oxford Nutrition Consulting, LLC

9:45 a.m. 198 **Effects of Different Dietary Standardized Ileal Digestible Lysine Specifications on Growth Performance of Grow-finish Pigs**

Ning Lu <sup>1</sup>, Carine M. Vier <sup>2</sup>, Wayne R. Cast <sup>2</sup>, Uislei A. Orlando <sup>2</sup>, Dan Hamilton <sup>2</sup>, Denise Van De Stroet <sup>3</sup>, Isaiah Spath <sup>2</sup>, Dan B. Hanson <sup>4</sup>, Roy Edler <sup>5</sup>, Emily E. Scholtz <sup>6</sup>

<sup>1</sup>PIC, <sup>2</sup>Genus PIC, <sup>3</sup>PIC North America, <sup>4</sup>Pipestone applied research, <sup>5</sup>Pipestone Veterinary Services, <sup>6</sup>Pipestone Nutrition

10:00 a.m. 78 **Evaluation of the Growth Performance of Finishing Pigs (Genesus Genetics) to Titrated Levels of Dietary Lysine**

Russell W. Fent <sup>1</sup>, Jim D. Hedges <sup>1</sup>, Kelly M. Peper <sup>1</sup>, Dennis O. Liptrap <sup>2</sup>

<sup>1</sup>Ralco Nutrition, <sup>2</sup>Ralco Nutrition, Inc

10:15 a.m. 79 **Effects of Dietary Net Energy and Neutral Detergent Fiber Levels on Growth Performance and Carcass Characteristics of Growing Finishing Pigs**

Ning Lu <sup>1</sup>, Carine M. Vier <sup>2</sup>, Wayne R. Cast <sup>2</sup>, Uislei A. Orlando <sup>2</sup>, Márcio Gonçalves <sup>3</sup>, Xun Zhou <sup>4</sup>, Malachy Young <sup>4</sup>

<sup>1</sup>PIC, <sup>2</sup>Genus PIC, <sup>3</sup>Swine It, <sup>4</sup>Gowans Feed Consulting

**Animal Behavior, Health and Well-being I: Early Life Stress**

Chair: Nichole Anderson, University of Missouri

8:30 AM - 10:00 AM

204

8:30 a.m. 81 **Effects of Neutrapath™ on Growth Performance, Diarrhea and Fecal-hemolytic Coliforms of Weaned Pigs Challenged with an Enterotoxigenic Escherichia coli**

LeAnn Johnston <sup>1</sup>, Peng Ji <sup>2</sup>, Hongyu Xue <sup>1</sup>

<sup>1</sup>Amlan International, <sup>2</sup>University of California, Davis

8:45 a.m. 82 **Struggle Behavior and Vocalizations of Male Piglets During Castration**

Maria E. Lou <sup>1</sup>, Yuzhi Li <sup>2</sup>, Beth Ventura <sup>1</sup>

<sup>1</sup>University of Minnesota, <sup>2</sup>West Central Research and Outreach Center, University of Minnesota

9:00 a.m. 83 **Evaluation of Transmammary-delivered Firocoxib and an Ethyl Chloride Spray to Mitigate Pain Associated with Processing Procedures in Piglets**

Abbie V. Viscardi <sup>1</sup>, Elizabeth Shirtcliff <sup>2</sup>, Emily Eppler <sup>1</sup>, Savannah Miller <sup>1</sup>, Johann F. Coetzee <sup>3</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Iowa State University, <sup>3</sup>Kansas State University College of Veterinary Medicine, Department of Anatomy and Physiology, Manhattan, KS

9:15 a.m. 84 **Effect of Rearing Cross-fostered Piglets in Litters of Either Uniform or Mixed Birth Weights on Pre-weaning Performance**

Katherine D. Vande Pol <sup>1</sup>, Rafael Ovidio Bautista Rivas <sup>1</sup>, Heath Harper <sup>1</sup>, Mike Ellis <sup>1</sup>, Caleb M. Shull <sup>2</sup>, Katie Brown <sup>2</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>The Maschhoffs, LLC

9:30 a.m. 85 **The Effect of Drying and Warming Piglets at Birth on Pre-weaning Mortality**

Katherine D. Vande Pol <sup>1</sup>, Andres Fernando F. Tolosa Russi <sup>2</sup>, Mike Ellis <sup>1</sup>, Caleb M. Shull <sup>3</sup>, Katie Brown <sup>3</sup>, Stephan da Silva <sup>4</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>University of Illinois Urbana-Champaign, <sup>3</sup>The Maschhoffs, LLC, <sup>4</sup>Universidade Federal

9:45 a.m. 86 **Factors Affecting Beef Calf Vigor at Birth: Dam Peripartum Body Condition Score, Calving Season, and Calf Size**

Lindsey G. Wichman <sup>1</sup>, Colby A. Redifer <sup>1</sup>, Natalie B. Duncan <sup>1</sup>, Craig A. Payne <sup>2</sup>, Allison M. Meyer <sup>1</sup>

<sup>1</sup>Division of Animal Sciences, University of Missouri, <sup>2</sup>College of Veterinary Medicine, University of Missouri

**Nonruminant Nutrition Symposium:  
Nutrition and Feeding of the Modern Hyperprolific Sow**

Chair: Omarh Mendoza, The Maschhoffs, LLC

8:30 AM - 10:45 AM

Grand Ballroom North

8:30 a.m. **Nonruminant Nutrition Symposium Introduction**

8:35 a.m. 87 **Energy and Lysine Utilization and Requirements of Lactating Sows**

Peter K. Theil <sup>1</sup>

<sup>1</sup>Aarhus University, Denmark

9:05 a.m. 88 **Benefits of Increasing Amino Acid Intake in Late Gestation in Prolific Sows**

Ron Ball <sup>1</sup>, Crystal L. Levesque <sup>2</sup>, D. J. Cadogan <sup>3</sup>

<sup>1</sup>University of Alberta, <sup>2</sup>South Dakota State University, <sup>3</sup>

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

9:45 a.m. 89 **Controlling Intrinsic Pathways to Optimize Efficiencies of Mineral and Vitamin Use by Sows**

Thomas D. Crenshaw <sup>1</sup>, Mariola Grez Capdeville <sup>1</sup>, Laura A. Amundson <sup>1</sup>

<sup>1</sup>Department of Animal and Dairy Sciences, University of Wisconsin-Madison

10:15 a.m. 89 **Nutrition and Feeding of the Modern Hyperprolific Sow**

Laura L. Greiner <sup>1</sup>

<sup>1</sup>Iowa State University



## **Genetics, Genomics and Bioinformatics**

Chair: Nick Serão, Department of Animal Science, Iowa State University

8:30 AM - 11:00 AM

207

### **8:30 a.m. 91 Electronic Probes for Assessment of Changes in Gastrointestinal Microbiome in Nursery Pigs**

Scott D. Carter <sup>1</sup>, Kitty Cardwell <sup>2</sup>, Andres Espindola Camacho <sup>2</sup>, Ishtar Silva Lara <sup>1</sup>

<sup>1</sup>Oklahoma State University, <sup>2</sup>National Institute of Microbial Forensics and Food and Agricultural Biosecurity (NIMFFAB)

### **8:45 a.m. 92 Phenotypic and Genomic Relationships Between Vulva Score and Reproductive Performance in First-parity Sows**

Flor-Anita Corredor <sup>1</sup>, Leticia P. Sanglard <sup>1</sup>, Jason W. Ross <sup>1</sup>, Aileen F. Keating <sup>1</sup>, Nick V. Serão <sup>2</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Department of Animal Science, Iowa State University

### **9:00 a.m. 93 Genomic Basis of Antibody Response to Porcine Reproductive and Respiratory Syndrome Virus Vaccination**

Leticia P. Sanglard <sup>1</sup>, Rohan Fernando <sup>1</sup>, Kent A. Gray <sup>2</sup>, Daniel C.L. Linhares <sup>1</sup>, Jack C.M. Dekkers <sup>1</sup>, Megan niederwerder <sup>3</sup>, Nick V. Serão <sup>4</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Smithfield Premium Genetics, <sup>3</sup>Kansas State University, <sup>4</sup>Department of Animal Science, Iowa State University

### **9:15 a.m. 94 Genetic Basis of Blood Traits in Beef Cattle and Their Relationship to Production Traits at Weaning**

Josue Chinchilla-Vargas <sup>1</sup>, Luke M. Kramer <sup>1</sup>, Toby D Lester <sup>2</sup>, Elizabeth A Backes <sup>3</sup>, Karen Anschutz <sup>4</sup>, Jared E. Decker <sup>5</sup>, Kenneth J. Stalder <sup>1</sup>, Max F. Rothschild <sup>1</sup>, James E. Koltes <sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>University of Arkansas, <sup>3</sup>Purina, <sup>4</sup>University of Arkansas System Division of Agriculture Department of Animal Science, <sup>5</sup>University of Missouri

### **9:30 a.m. 95 Evaluation of Variation Attributable to Lab and Technician for Measurements of Beef Carcass Traits Made Using Ultrasound**

Bradie M. Schmidt <sup>1</sup>, Michael MacNeil <sup>2</sup>, Michael Gonda <sup>1</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>Delta Genetics

### **9:45 a.m. Genetics, Genomics and Bioinformatics Break**

### **10:00 a.m. 96 Estimation of the Genetic Parameters of Beef Bull Semen Attributes**

Madison L. Butler <sup>1</sup>, Jennifer M. Bormann <sup>1</sup>, Robert L. Weaver <sup>1</sup>, David M. Grieger <sup>1</sup>, Megan M. Rolf <sup>1</sup>

<sup>1</sup>Kansas State University

### **10:15 a.m. 97 An Insight into the Piglet's Microbial Colonization Evolution: From Birth Towards Weaning**

Mireia Saladrigas García <sup>1</sup>, Mario Durán <sup>2</sup>, Jaume Coma <sup>2</sup>, José Francisco Pérez <sup>1</sup>, Susana María Martín-Orúe <sup>1</sup>

<sup>1</sup>Animal Nutrition and Welfare Service. Universitat Autònoma de Barcelona (UAB), <sup>2</sup>Vall Companies Group

10:30 a.m. 98 **Using Differential Evolution to Improve Predictive Accuracy of Deep Learning Models Applied to Pig Production Data**

Junjie Han <sup>1</sup>, Cedric Gondro <sup>2</sup>, Juan P. Steibel <sup>2</sup>

<sup>1</sup>Bayer, <sup>2</sup>Michigan State University

10:45 a.m. 99 **Breed Authentication of Five Lines Comparing Structure, Admixture, and an Allele Frequency Method**

Austin M. Putz <sup>1</sup>, Patrick Charagu <sup>1</sup>, Abe Huisman <sup>1</sup>

<sup>1</sup>Hendrix Genetics Swine

**Growth, Dev, Muscle Biology and Meat Science Symposium:**

**A Market Assessment of the Pork Industry**

Chair: Benjamin Bohrer, University of Guelph

8:30 AM - 11:00 AM

216

8:30 a.m. **Growth, Dev, Muscle Biology and Meat Science Symposium Introduction**

8:35 a.m. 113 **Current Status of Marking Hogs in North America and Future Potential for Refinement**

Allan P. Schinckel <sup>1</sup>, Paul Preckel <sup>2</sup>, Kenneth Foster <sup>2</sup>, Nathanel Thompson <sup>2</sup>, Francisco Cabezón <sup>3</sup>

<sup>1</sup>Purdue University, <sup>2</sup>Department of Agricultural Economics/Purdue University, <sup>3</sup>Agrícola Super Ltda

9:15 a.m. 114 **Domestic and International Pork Demand and Their Implication on Pork Production Practices**

Elliott J. Dennis <sup>1</sup>

<sup>1</sup>Agricultural Economics

9:55 a.m. **Growth, Dev, Muscle Biology and Meat Science Symposium Break**

10:10 a.m. 115 **Handicapping the Economic Prospects for Pork Production and Marketing**

Lee Schulz <sup>1</sup>

<sup>1</sup>Iowa State University

10:50 a.m. **Growth, Development, Muscle Biology and Meat Science Symposium Panel**

## **Ruminant Nutrition II: Growth Promotants**

Chair: James MacDonald, University of Nebraska

8:30 AM - 11:00 AM

211/212

### **8:30 a.m. 100 Young Scholar Presentation: Energy and Mineral Supplementation Strategies for Beef Cattle Grazing the Northern Great Plains**

Kacie L. McCarthy<sup>1</sup>, Sarah Underdahl<sup>2</sup>, Michael Undi<sup>3</sup>, Stephanie Becker<sup>4</sup>, Kevin K. Sedivec<sup>2</sup>, J. Christopher Forcherio<sup>5</sup>, Ronald Scott<sup>6</sup>, Joel S. Caton<sup>2</sup>, Carl R. Dahlen<sup>7</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>North Dakota State University, <sup>3</sup>NDSU, <sup>4</sup>CGREC, NDSU, <sup>5</sup>Land O' Lakes, <sup>6</sup>Purina Animal Nutrition, <sup>7</sup>North Dakota State University, Department of Animal Sciences

### **9:00 a.m. 101 Effects of Traditional Growth-promoting Re-implant or Long-acting Implant Programs on Growth Performance and Carcass Characteristics of Heifers Fed for 221 Days**

Marshall N. Streeter<sup>1</sup>, John P. Hutcheson<sup>1</sup>, Wade T. Nichols<sup>1</sup>, Brandon L. Nuttelman<sup>1</sup>, Grant I. Crawford<sup>1</sup>, Lee-anne J. Walter<sup>1</sup>, Shane Davis<sup>2</sup>

<sup>1</sup>Merck Animal Health, <sup>2</sup>Bos Technica Research Services

### **9:15 a.m. 102 Pooled Analysis of Six Large-pen Feedlot Studies: Non-coated Initial and a Non-coated Terminal Implant Compared with a Single Initial and Delayed Release Implant at Arrival in Feedlot Heifers**

Zachary K. Smith<sup>1</sup>, Grant I. Crawford<sup>2</sup>, Wade T. Nichols<sup>2</sup>, Brandon L. Nuttelman<sup>2</sup>, Marshall N. Streeter<sup>2</sup>, John P. Hutcheson<sup>2</sup>, David Amrine<sup>3</sup>, David Renter<sup>4</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>Merck Animal Health, <sup>3</sup>Kansas State University, <sup>4</sup>The Dr. Robert MacDonald Professor of Veterinary Medicine Kansas State University

### **9:30 a.m. 103 Effect of a Single Revalor-xh or revalor-200/revalor-200 Re-implant Program and Zinc Supplementation on Performance, Carcass Characteristics, and Liver Mineral of Feedlot Heifers**

Elizabeth M. Messersmith<sup>1</sup>, Emma Niedermayer<sup>1</sup>, Grant I. Crawford<sup>2</sup>, Stephanie L. Hansen<sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Merck Animal Health

### **9:45 a.m. 104 Effects of Nutritional Management and Implant Strategies on Growth and Carcass Performance of Steers Selected for Superior Marbling**

Erika L. Lundy<sup>1</sup>, Aubree M. Beenken<sup>1</sup>, Patrick B. Wall<sup>1</sup>, Daniel D. Loy<sup>1</sup>

<sup>1</sup>Iowa State University

### **10:00 a.m. 105 A Comparison of Long-acting Growth-promoting Implants and Re-implant Programs in Finishing Heifers Fed for 184 Days**

Grant I. Crawford<sup>1</sup>, Wade T. Nichols<sup>1</sup>, John P. Hutcheson<sup>1</sup>, Marshall N. Streeter<sup>1</sup>, Brandon L. Nuttelman<sup>1</sup>, Lee-anne J. Walter<sup>1</sup>, Josh Szasz<sup>2</sup>, Tony C. Bryant<sup>2</sup>

<sup>1</sup>Merck Animal Health, <sup>2</sup>Five Rivers Cattle Feeding

### **10:15 a.m. 106 Effects of Revalor-xh and Combination revalor-ih/revalor-200 on Yearling Heifer Growth Performance and Carcass Characteristics**

Zachary E. Carlson<sup>1</sup>, Galen E. Erickson<sup>1</sup>, Bill Dicke<sup>2</sup>, Marshall N. Streeter<sup>3</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Dicke Consulting, <sup>3</sup>Merck Animal Health

10:30 a.m. 107 **Effects of Increasing Doses of Trenbolone Acetate and Estradiol on Finishing Phase Growth Performance and Carcass Trait Responses in Beef Steers**

Dathan Smerchek<sup>1</sup>, Zachary K. Smith<sup>1</sup>

<sup>1</sup>South Dakota State University

10:45 a.m. 108 **Effect of Revalor-xh, revalor-200, and Combination revalor-ih/revalor-200 on Yearling Heifer Growth Performance and Carcass Characteristics**

Zachary E. Carlson<sup>1</sup>, Caitlin A. Coulson<sup>2</sup>, Galen E. Erickson<sup>1</sup>, D.J. Jordon<sup>3</sup>, Rob Cooper<sup>3</sup>, Tony Scott<sup>3</sup>, Sheri Bundy<sup>3</sup>, Brandon L. Nuttelman<sup>4</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska - Lincoln, <sup>3</sup>Cattlemen's Nutrition Services LLC, <sup>4</sup>Merck Animal Health

### **David Schingoethe Symposium**

**Sponsored by ASAS Foundation: David J. Schingoethe Appreciation Club**

Chair: Daryl Kleinschmit, Zinpro

8:30 AM - 11:30 AM

210

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

8:35 a.m. 109 **Stretching Forages with Limited Quality and Quantity by Using Non-forage Fiber Sources (NFFS) Available in the Midwestern United States**

Paul J. Kononoff<sup>1</sup>, Cassidy K. Buse<sup>2</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska Lincoln

9:20 a.m. 110 **Managing Feed Efficiency to Improve Dairy Farm Margin**

Micheal J. Brouk<sup>1</sup>

<sup>1</sup>Kansas State University

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

10:15 a.m. 111 **Pathogenic Bacterial Levels in US Silages**

Tom G. Rehberger<sup>1</sup>, Jesse Thompson<sup>2</sup>

<sup>1</sup>Arm & Hammer Animal and Food Production, <sup>2</sup>Church & Dwight, Inc.

11:00 a.m. 112 **Young Scholar Presentation: Protein and Amino Acid Nutrition in Fresh Cows**

Alex W. Tebbe<sup>1</sup>, Bill Weiss<sup>1</sup>

<sup>1</sup>The Ohio State University

**Precision Livestock Farming Symposium I: Nonruminant - Sponsored by Zoetis**

Chair: Juan Steibel, Michigan State University

8:30 AM - 11:30 AM

Grand Ballroom South

8:30 a.m.      **Precision Livestock Farming Symposium I Introduction**

8:35 a.m.    122    **How Will Our Understanding of Growth and Development of Swine Advance Adoption of Precision Livestock Farming by the Pork Industry?**

John Patience<sup>1</sup>

<sup>1</sup>Oxford Nutrition Consulting, LLC

9:15 a.m.    123    **Precision Animal Management – the Future of Animal Ag?**

Tami M. Brown-Brandl<sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln

9:50 a.m.      **Precision Livestock Farming Symposium I Break**

10:00 a.m.    124    **High-throughput, Digital Platforms and Potential Impact on Genetic Improvement in Pork Production**

William O. Herring<sup>1</sup>, Justin W. Holl<sup>1</sup>, Rob Fitzgerald<sup>2</sup>

<sup>1</sup>Genus PIC, <sup>2</sup>Pig Improvement Company

10:45 a.m.    125    **Slaughter Logistics and Chilling**

Brandon Fields<sup>1</sup>

<sup>1</sup>Pig Improvement Company, Inc.

**Harlan Ritchie Symposium**

**Sponsored by ASAS Foundation: Harlan D. Ritchie Appreciation Club**

Chair: Robert Weaber, Kansas State University

8:30 AM - 11:45 AM

213

8:30 a.m.      **Harlan Ritchie Symposium Introduction**

8:45 a.m.    117    **Consumer Perceptions of Beef and Beef Production**

Rick Husted<sup>1</sup>

<sup>1</sup>National Cattlemen's Beef Association

9:15 a.m.    118    **Where We Are at and Evolving in Management Systems That Are Consumer Focused?**

Brad Morgan<sup>1</sup>

<sup>1</sup>Colorado State University, Department of Animal Sciences

9:45 a.m.    119    **Carcass Composition and Leanness-industry Trends and Needs**

David McKenna<sup>1</sup>

<sup>1</sup>Tyson Fresh Meats, Inc.

10:15 a.m.      **Harlan Ritchie Symposium Break**

10:30 a.m. 121 **The Impact of Changing Consumer Preferences on Production and Management Practices at Cow-calf Level**

Robbi H. Pritchard <sup>1</sup>

<sup>1</sup>Annawan Cattle, LLC

11:00 a.m. 120 **The Future of Genome Editing in Food Animal Species**

Alison L. Van Eenennaam <sup>1</sup>

<sup>1</sup>University of California, Davis

11:30 a.m. **Harlan Richie Symposium Panel Discussion**

**Nonruminant Nutrition I: Enzymes**

Chair: Diego Navarro, United Animal Health; Kory Moran, Delacon Biotechnik

8:30 AM - 11:45 AM

201

8:30 a.m. 126 **Porcine in vitro Digestion and Fermentation Characteristics of Heat and Multi-enzyme Pretreated Whole Stillage**

Kevin S. Jerez-Bogota <sup>1</sup>, Tofuko A. Woyengo <sup>2</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>Assistant professor

8:45 a.m. 127 **Porcine in vitro Digestibility of Whole Stillage Predigested with Multi-enzyme During Different Time Periods**

Kevin S. Jerez-Bogota <sup>1</sup>, Tofuko A. Woyengo <sup>2</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>Assistant professor

9:00 a.m. 128 **Determining the Effects of High Phytase Levels and Feeding Duration on Growth Performance and Carcass Characteristics of Growing-finishing Pigs**

Carine M. Vier <sup>1</sup>, Steve S. Dritz <sup>2</sup>, Mike D. Tokach <sup>3</sup>, Jon R. Bergstrom <sup>4</sup>, Jason C. Woodworth <sup>2</sup>, Robert D. Goodband <sup>2</sup>, Joel M. DeRouchey <sup>2</sup>

<sup>1</sup>Genus PIC, <sup>2</sup>Kansas State University, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>4</sup>DSM

9:15 a.m. 129 **Effect of Phytase on Growth Performance and Carcass Classification in Growing-finishing Pigs**

Caio A. Silva <sup>1</sup>, Cleandro P. Dias <sup>2</sup>, Marco A. Callegari <sup>2</sup>, Kelly L. Souza <sup>2</sup>, Adson Passos <sup>3</sup>, Claudia C. Silva <sup>3</sup>

<sup>1</sup>UEL, <sup>2</sup>AKEI, <sup>3</sup>DSM

9:30 a.m. 130 **Assessing Current Phytase Release Values for Calcium, Phosphorus, Amino Acids and Energy in Diets for Growing Pigs**

Madie R. Wensley <sup>1</sup>, Jason C. Woodworth <sup>2</sup>, Joel M. DeRouchey <sup>2</sup>, Mike D. Tokach <sup>3</sup>, Robert D. Goodband <sup>2</sup>, Steve S. Dritz <sup>2</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Kansas State University, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506

9:45 a.m. 131 **Functionality of a Next Generation Biosynthetic Bacterial 6-phytase in Enhancing Phosphorus Availability to Weaned Piglets Fed a Corn-soybean Meal-based Diet Without Added Inorganic Phosphate**

Yueming Dersjant-Li<sup>1</sup>, Boris Villca<sup>2</sup>, Vincent Sewalt<sup>3</sup>, Leon Marchal<sup>3</sup>, Deepak Velayudhan<sup>3</sup>, Janet C. Remus<sup>4</sup>, Rosil Lizardo<sup>5</sup>

<sup>1</sup>Danisco Animal Nutrition (IFF), <sup>2</sup>IRTA – Animal Nutrition, Spain, <sup>3</sup>DuPont Nutrition and Biosciences, <sup>4</sup>DuPont Animal Nutrition, <sup>5</sup>IRTA

10:00 a.m. **Nonruminant Nutrition I Break**

10:15 a.m. 132 **A Longer Adaptation Time Increased Xylanases Efficacy in Improving Dry Matter and Fiber Digestibility in the Small Intestine of Growing Pigs Fed Insoluble Fiber**

Amy L. Petry<sup>1</sup>, Stacie Matchan<sup>1</sup>, Nichole Huntley<sup>2</sup>, Michael R. Bedford<sup>3</sup>, John Patience<sup>4</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Mazuri, <sup>3</sup>AB Vista, <sup>4</sup>Oxford Nutrition Consulting, LLC

10:30 a.m. 133 **Supplementing Xylanase Increased the Digestibility of Non-starch Polysaccharides, Particularly Arabinoxylan, in Diets High in Insoluble Corn Fiber Fed to Swine with a 36-d Dietary Adaptation Period**

Amy L. Petry<sup>1</sup>, Nichole Huntley<sup>2</sup>, Michael R. Bedford<sup>3</sup>, R.T. Zijlstra<sup>4</sup>, John Patience<sup>5</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Mazuri, <sup>3</sup>AB Vista, <sup>4</sup>University of Alberta, <sup>5</sup>Oxford Nutrition Consulting, LLC

10:45 a.m. 134 **Inclusion of High Levels of Phytase Improves Feed Efficiency and Reduces the Carbon Footprint of Diets Fed to Growing Pigs**

Laura A. Merriman<sup>1</sup>, Peter Wilcock<sup>1</sup>, Gustavo Cordero<sup>1</sup>

<sup>1</sup>AB Vista

11:00 a.m. 135 **Xylanase Supplementation Enhances Growth Performance Post PRRS Outbreak and Increases Carcass Yield**

Laura A. Merriman<sup>1</sup>, Peter Wilcock<sup>1</sup>, Gustavo Cordero<sup>1</sup>

<sup>1</sup>AB Vista

11:15 a.m. 136 **Xylanase Supplementation Improves Growth Performance and Carcass Characteristics in Growing and Finishing Pigs**

Laura A. Merriman<sup>1</sup>, Gustavo Cordero<sup>1</sup>, Peter Wilcock<sup>1</sup>, Robyn Thompson<sup>2</sup>, Brandon Knopf<sup>2</sup>

<sup>1</sup>AB Vista, <sup>2</sup>Carthage Innovative Swine Solutions

11:30 a.m. 137 **Inclusion of Xylanase and Phytase to Nutrient Deficient Diets Restore Growth Performance, and Bone Characteristics Improving Sustainability**

Gustavo Cordero<sup>1</sup>, Peter Wilcock<sup>1</sup>, Gilson Gomes<sup>1</sup>, Boris Villca<sup>2</sup>, Rosil Lizardo<sup>3</sup>

<sup>1</sup>AB Vista, <sup>2</sup>IRTA – Animal Nutrition, Spain, <sup>3</sup>IRTA

**Ruminant Nutrition Symposium:  
Update on Macro and Trace Mineral Requirements for Beef and Dairy**

Chair: Maggie Youngers, Cargill

8:30 AM - 12:00 PM

214

8:30 a.m. **Ruminant Nutrition Symposium Introduction**

8:35 a.m. 138 **Analytical Methods for Organometallic Chelation Testing**

Edward Walker <sup>1</sup>

<sup>1</sup>Weber State University

9:10 a.m. 141 **Mineral Requirements of Dairy Cattle: Emphasis on Organic Minerals**

Bill Weiss <sup>1</sup>

<sup>1</sup>The Ohio State University

9:45 a.m. 140 **Young Scholar Presentation: Immune Activation and Its Effects on Energetics and Calcium Homeostasis**

Erin A. Horst <sup>1</sup>, Lance H. Baumgard <sup>2</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Iowa State University

10:20 a.m. **Ruminant Nutrition Symposium Break**

10:35 a.m. 139 **Ruminal Microbiota Mineral Requirements to Optimize Performance on Different Diets**

Jerry W. Spears <sup>1</sup>

<sup>1</sup>North Carolina State University

11:10 a.m. 142 **Mineral Requirements of Fed Cattle**

Stephanie L. Hansen <sup>1</sup>

<sup>1</sup>Iowa State University

11:45 a.m. **Ruminant Nutrition Symposium Round Table Discussion**

**Physiology Symposium: Nutritional Advances in Fetal and Neonatal Development**

Chair: Joel Caton, North Dakota State University

8:45 AM - 11:45 AM

205/206

8:45 a.m. 148 **Nutritional Advances in Fetal and Neonatal Development: Introduction to Current Knowledge**

Joel S. Caton <sup>1</sup>

<sup>1</sup>North Dakota State University

9:00 a.m. 144 **Nutritional Advances in Fetal and Neonatal Development: Stage of Gestation and Placental Nutrient Supply**

Caleb O. Lemley <sup>1</sup>

<sup>1</sup>Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State



9:30 a.m. 143 **Nutritional Advances in Fetal and Neonatal Development: Amino Acid Supplementation**

Kendall C. Swanson<sup>1</sup>, Jessica N. Reiners<sup>1</sup>  
<sup>1</sup>North Dakota State University

10:00 a.m. **Physiology Symposium Break**

10:15 a.m. 145 **Nutritional Advances in Fetal and Neonatal Development: Methyl Donors**

Fernanda Batistel<sup>1</sup>  
<sup>1</sup>Department of Animal, Dairy, and Veterinary Sciences, Utah State University

10:45 a.m. 146 **Nutritional Advances in Fetal and Neonatal Development: Effect of Fatty Acid Supplementation**

Alejandro E. Relling<sup>1</sup>  
<sup>1</sup>The Ohio State University

11:15 a.m. 147 **Nutritional Advances in Fetal and Neonatal Development: Mineral Nutrition**

Allison M. Meyer<sup>1</sup>  
<sup>1</sup>Division of Animal Sciences, University of Missouri

**Swine Translational**

Chair: Megan Bible, Furst-McNess Company  
10:45 AM - 12:30 PM  
202

10:45 a.m. 149 **Maxwell Lectureship**

Jiangchao Zhao<sup>1</sup>  
<sup>1</sup>Department of Animal Science, University of Arkansas, Fayetteville, AR, 72701

11:15 a.m. 150 **Effects of Specialty Lipids as Alternatives to Conventional Antimicrobial Feed Additives on Nursery Pig Growth Performance**

Payton L. Dahmer<sup>1</sup>, Annie B. Lerner<sup>2</sup>, Grace Luebcke<sup>1</sup>, Jason C. Woodworth<sup>1</sup>  
<sup>1</sup>Kansas State University, <sup>2</sup>Schwartz Farms, Inc.

11:30 a.m. 151 **Effect of Enhanced Organic Acid Supplementation in Late Gestation and Lactation of Sows on Body Weight Change, Litter Performance and Wean to Estrus Interval**

Drew W. W. Lugar<sup>1</sup>, Shelby M. Ramirez<sup>2</sup>, Justin Rickard<sup>1</sup>, Jennifer E. Earing<sup>1</sup>, Antonia Tacconia<sup>3</sup>, G. Raj Murugesan<sup>4</sup>  
<sup>1</sup>Illinois State University, <sup>2</sup>BIOMIN America Inc., <sup>3</sup>BIOMIN Holding GmbH, <sup>4</sup>BIOMIN America Inc

11:45 a.m. 152 **Effects of a Solar-powered Cooling System on Performance of Heat-stressed Lactating Sows**

Lee J. Johnston<sup>1</sup>, Mike Reese<sup>2</sup>, Eric Buchanan<sup>2</sup>, Yuzhi Li<sup>1</sup>, Adrienne Hilbrands<sup>1</sup>, Brigit Lozinski<sup>3</sup>, Joel Tallaksen<sup>2</sup>, Kevin Janni<sup>2</sup>, Brian Hetchler<sup>2</sup>, Erin Cortus<sup>2</sup>  
<sup>1</sup>West Central Research and Outreach Center, University of Minnesota, <sup>2</sup>University of Minnesota, <sup>3</sup>University of Minnesota-Twin Cities, Department of Animal Science

12:00 p.m. 153 **Effect of Dietary Live Yeast Supplementation on Growth Performance, Diarrhea Severity, Antioxidant Status and Immunological Parameters of Weaned Piglets**

Tengfei He<sup>1</sup>, Qinghui Shang<sup>2</sup>, Shenfei Long<sup>1</sup>, Tadele G. G. Kiros<sup>3</sup>, Xiangshu Piao<sup>1</sup>

<sup>1</sup>College of Animal Science and Technology, China Agricultural University, <sup>2</sup>China Agricultural University, <sup>3</sup>Phileo by Lesaffre

12:15 p.m. 154 **A Genetic Marker for PRRS Resistance Has No Adverse Effect on Economically Important Traits in Pigs**

Chunyan Zhang<sup>1</sup>, Dinesh Thekkoot<sup>2</sup>, Bob Kemp<sup>2</sup>, Jack C.M. Dekkers<sup>3</sup>, Graham Plastow<sup>4</sup>

<sup>1</sup>Genesis Inc., <sup>2</sup>Genesis, <sup>3</sup>Iowa State University, <sup>4</sup>University of Alberta

### **Bentley Lecture and Lunch - Sponsored by National Pork Board**

Chair: Steven Moeller, The Ohio State University

12:00 PM - 1:30 PM

Grand Ballroom North

12:05 p.m. 155 **Bentley Lecture: Dr. Daniel Berckmans**

Daniel A. Berckmans<sup>1</sup>

<sup>1</sup>Catholic University of Leuven

### **Poster Session VII**

12:45 PM - 1:30 PM

CHI Health Center Convention Center Grand Ballroom Foyer

12:45 p.m. PSVII-12 **Acceptability of Milne blueberry juice and blueberry puree in horse feed**

Michael Y. Halpin<sup>1</sup>, Teresa Douthit<sup>1</sup>, Caitlin E. Evans<sup>1</sup>, Michaela B. Braun<sup>1</sup>, Charles R. Stark<sup>1</sup>, Chad B. Paulk<sup>1</sup>, James M. Lattimer<sup>1</sup>

<sup>1</sup>Kansas State University

12:45 p.m. PSVII-1 **Carcass weight and quality grade impact the rate of internal temperature decline in beef primals**

Samantha Egolf<sup>1</sup>, Lydia Hite<sup>1</sup>, Austin Egolf<sup>1</sup>, Christina Bakker<sup>1</sup>, Amanda Blair<sup>1</sup>, J. Kyle Grubbs<sup>1</sup>, Keith Underwood<sup>2</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>SDSU Animal Science

12:45 p.m. PSVII-2 **Differentially expressed genes and their biological function in skeletal muscle of calves born from cows with or without protein supplementation during mid-gestation**

Elisa B. Carvalho<sup>1</sup>, Letícia P. Sanglard<sup>1</sup>, Karolina B. Nascimento<sup>2</sup>, Javier M. Meneses<sup>2</sup>, Daniel R. Casagrande<sup>2</sup>, Marcio Duarte<sup>3</sup>, Mateus P. Gionbelli<sup>2</sup>, Nick V. Serão<sup>4</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Universidade Federal de Lavras, <sup>3</sup>University of Guelph, <sup>4</sup>Department of Animal Science, Iowa State University

12:45 p.m. PSVII-3 **Effect of feeding finishing steers two different commercially available blends of essential oils with or without benzoic acid on growth performance, carcass characteristics, and meat quality**

Lydia M. Wang<sup>1</sup>, Benjamin M. Bohrer<sup>1</sup>

<sup>1</sup>University of Guelph

12:45 p.m. PSVII-4 **Effect of Green Grass supplementation of swine diet on pork quality characteristics**

Rebecca Furbeck <sup>1</sup>, Josh P. Knapp <sup>2</sup>, Melanie D. Trenhaile-Grannemann <sup>3</sup>, Thomas E. Burkey <sup>2</sup>, Samodha C. Fernando <sup>2</sup>, Gary Sullivan <sup>2</sup>, Phillip S. Miller <sup>2</sup>

<sup>1</sup>University of Nebraska - Lincoln, <sup>2</sup>University of Nebraska-Lincoln, <sup>3</sup>University of Lincoln-Nebraska

12:45 p.m. PSVII-5 **Effect of maternal feed restriction at different stages of gestation on development of gastrointestinal tract of newborn goats**

Luana Santos <sup>1</sup>, Thaís Costa <sup>2</sup>, Ranyeri Souza <sup>2</sup>, Felipe Moura <sup>3</sup>, Ivam Oliveira Junior <sup>1</sup>, Tathyane Gionbelli <sup>1</sup>, Marcio Duarte <sup>4</sup>, Mateus P. Gionbelli <sup>1</sup>

<sup>1</sup>Universidade Federal de Lavras, <sup>2</sup>Universidade Federal de Viçosa, <sup>3</sup>University of Nevada - Reno, <sup>4</sup>University of Guelph

12:45 p.m. PSVII-13 **Effect of polyunsaturated fatty acid and methionine supplementation during late gestation on offspring duodenal amino acid and peptides transporters in sheep**

Milca Rosa-Velazquez <sup>1</sup>, Fernanda Batistel <sup>2</sup>, Alejandro E. Relling <sup>1</sup>

<sup>1</sup>The Ohio State University, <sup>2</sup>Department of Animal, Dairy, and Veterinary Sciences, Utah State University

12:45 p.m. PSVII-14 **Effects of birth characteristics, nursing behaviors, and supplemental milk on piglet pre-weaning growth and survival.**

Courtney Moore Clemons <sup>1</sup>, William Flowers <sup>1</sup>

<sup>1</sup>North Carolina State University

12:45 p.m. PSVII-15 **Effects of feeding rumen-protected methionine to mature beef bulls**

Carl R. Dahlen <sup>1</sup>, Sarah R. Underdahl <sup>2</sup>, Kacie L. McCarthy <sup>3</sup>, Matt C. Crouse <sup>2</sup>, James D. Kirsch <sup>4</sup>, Sheri T. Dorsam <sup>2</sup>, Cierrah J. J. Kassetas <sup>5</sup>, Trent C. Gilbery <sup>2</sup>, Kevin K. Sedivec <sup>2</sup>, Joel S. Caton <sup>2</sup>

<sup>1</sup>North Dakota State University, Department of Animal Sciences, <sup>2</sup>North Dakota State University, <sup>3</sup>University of Nebraska-Lincoln, <sup>4</sup>Department of Animal Sciences, North Dakota State University, <sup>5</sup>USDA-NIFA

12:45 p.m. PSVII-16 **Effects of genetic selection for early puberty on the hypothalamic-pituitary-ovarian axis in gilts**

KaLynn Harlow <sup>1</sup>, Allison Renwick <sup>1</sup>, Sydney Shuping <sup>1</sup>, Jeff Sommer <sup>1</sup>, Mark Knauer <sup>1</sup>, Casey Nestor <sup>1</sup>

<sup>1</sup>North Carolina State University

12:45 p.m. PSVII-6 **Effects of heat stress on proteolysis in dairy cattle skeletal muscle**

Melissa S. Roths <sup>1</sup>, Megan A. Abeyta <sup>1</sup>, Tori E. Rudolph <sup>1</sup>, Brittany Wilson <sup>2</sup>, Matthew B. Hudson <sup>2</sup>, Robert P. Rhoads <sup>3</sup>, Lance H. Baumgard <sup>1</sup>, Joshua T. Selsby <sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>University of Delaware, <sup>3</sup>Virginia Tech

12:45 p.m. PSVII-17 **Effects of zinc chloride supplementation during ovarian cortex vitrification prior to in vitro fertilization on embryo development in pigs**

Emma C. Hicks <sup>1</sup>, Haley A. Arena <sup>1</sup>, Brian D. Whitaker <sup>1</sup>

<sup>1</sup>University of Findlay

12:45 p.m. PSVII-18 **Fatty acid composition of the longissimus muscle from Angus and Wagyu sired cattle at the 6th and 12th rib location**

Jerad Jaborek <sup>1</sup>, Todd R. Callaway <sup>2</sup>, Alejandro E. Relling <sup>1</sup>

<sup>1</sup>The Ohio State University, <sup>2</sup>University of Georgia

12:45 p.m. PSVII-7 **Fatty acid profile is not affected by feeding finishing cattle essential oils and/or benzoic acid**

Lydia M. Wang <sup>1</sup>, Benjamin M. Bohrer <sup>1</sup>

<sup>1</sup>University of Guelph

12:45 p.m. PSVII-19 **Fatty acid profiles in subcutaneous adipose and the mammary fat pad of Holstein calves receiving different estradiol treatments**

Marina Miquilini <sup>1</sup>, Nicole R. Hardy <sup>1</sup>, Kellie Enger <sup>1</sup>, Phyllis Dieter <sup>1</sup>, Alejandro E. Relling <sup>1</sup>, Benjamin Enger <sup>1</sup>

<sup>1</sup>The Ohio State University

12:45 p.m. PSVII-20 **Heat stress alters reproductive phenotypic impacts of Zearalenone in pre-pubertal gilts**

Crystal M. Roach <sup>1</sup>, Edith J. Mayorga <sup>1</sup>, Jason W. Ross <sup>1</sup>, Lance H. Baumgard <sup>1</sup>, Aileen F. Keating <sup>1</sup>

<sup>1</sup>Iowa State University

12:45 p.m. PSVII-21 **Impacts of various farrowing induction protocols on attended farrowings**

Katharine G. Sharp <sup>1</sup>, Kayla M. Mills <sup>1</sup>, Larissa K. Shirley <sup>1</sup>, Ricardo M. Garcia <sup>2</sup>, Kara R. Stewart <sup>2</sup>

<sup>1</sup>Department of Animal Science, Purdue University, <sup>2</sup>Purdue University

12:45 p.m. PSVII-8 **miRNAs explain the variation in muscle and blood transcriptomes of beef calves born from dams with or without energy restriction during late gestation**

Elisa B. Carvalho <sup>1</sup>, Letícia P. Sanglard <sup>1</sup>, Moysés Nascimento <sup>2</sup>, Philippe Moriel <sup>3</sup>, Jeffrey Sommer <sup>4</sup>, Melissa Merrill <sup>4</sup>, Matthew H. Poore <sup>4</sup>, Marcio Duarte <sup>5</sup>, Nick V. Serão <sup>6</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Universidade Federal de Viçosa, <sup>3</sup>University of Florida - Range Cattle Research & Education Center, <sup>4</sup>North Carolina State University, <sup>5</sup>University of Guelph,

<sup>6</sup>Department of Animal Science, Iowa State University

12:45 p.m. PSVII-9 **Post transcriptional modifications may lead to changes in newborn goats' skeletal muscle proteome as a consequence of maternal feed restriction at different stages of gestation**

Thaís Costa <sup>1</sup>, Tiago Mendes <sup>1</sup>, Felipe Moura <sup>2</sup>, Ranyeri Souza <sup>1</sup>, Marta Fontes <sup>1</sup>, MARIANA LOPES <sup>3</sup>, Nick V. Serão <sup>4</sup>, Fabyano Silva <sup>5</sup>, Mateus P. Gionbelli <sup>6</sup>, Marcio Duarte <sup>7</sup>

<sup>1</sup>Universidade Federal de Viçosa, <sup>2</sup>University of Nevada - Reno, <sup>3</sup>Department of Animal Science, Universidade Federal de Viçosa, <sup>4</sup>Department of Animal Science, Iowa State University, <sup>5</sup>Federal University of Viçosa, <sup>6</sup>Universidade Federal de Lavras, <sup>7</sup>University of Guelph

12:45 p.m. PSVII-10 **Skeletal muscle transcriptome reveals gene expression differences in newborn goats' as a result of maternal feed restriction at different stages of gestation**

Thaís Costa <sup>1</sup>, Tiago Mendes <sup>1</sup>, Felipe Moura <sup>2</sup>, Ranyeri Souza <sup>1</sup>, Marta Fontes <sup>1</sup>, MARIANA LOPES <sup>3</sup>, Nick V. Serão <sup>4</sup>, Fabyano Silva <sup>5</sup>, Mateus P. Gionbelli <sup>6</sup>, Marcio Duarte <sup>7</sup>

<sup>1</sup>Universidade Federal de Viçosa, <sup>2</sup>University of Nevada - Reno, <sup>3</sup>Department of Animal Science, Universidade Federal de Viçosa,, <sup>4</sup>Department of Animal Science, Iowa State University, <sup>5</sup>Federal University of Viçosa, <sup>6</sup>Universidade Federal de Lavras, <sup>7</sup>University of Guelph

12:45 p.m. PSVII-22 **Trichostatin A as an aging agent in an oocyte**

Haley A. Arena <sup>1</sup>, Emma C. Hicks <sup>1</sup>, Brian D. Whitaker <sup>1</sup>

<sup>1</sup>University of Findlay

12:45 p.m. PSVII-11 **Utilizing digital images to evaluate accuracy and repeatability of body condition score in cull sows**

William E. Taylor <sup>1</sup>, Christopher J. Cassady <sup>1</sup>, Steven M. Lonergan <sup>1</sup>, Ben D. Peyer <sup>2</sup>, Kenneth J. Stalder <sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Johnsonville Sausage LLC

**Nonruminant Nutrition III: Ingredients**

Chair: Annie Lerner, Schwartz Farms; Darlene Bloxham, Cactus Feeders

1:00 PM - 5:00 PM

203

1:00 p.m. 156 **Influence of Viscosity and Fiber on Nutrient Digestibility and Intestinal Physiology in Growing Pigs**

Yuan-Tai Hung <sup>1</sup>, Jinlong Zhu <sup>2</sup>, Gerald C. Shurson <sup>3</sup>, Milena Saqui-Salces <sup>3</sup>, Pedro E. Urriola <sup>3</sup>

<sup>1</sup>Devenish Nutrition, <sup>2</sup>Department of Animal Science, University of Minnesota, <sup>3</sup>University of Minnesota

1:15 p.m. 157 **The Effect of Different Inclusion Levels of Corn Starch and Fine Ground Corn with Different Conditioning Temperatures or Die Thickness on Pellet Quality**

Caitlin E. Evans <sup>1</sup>, Jason C. Woodworth <sup>1</sup>, Chad B. Paulk <sup>1</sup>, Charles R. Stark <sup>1</sup>

<sup>1</sup>Kansas State University

1:30 p.m. 158 **Effect of Fumonisin-contaminated Corn on Growth Performance of 9- to 28-kg Nursery Pigs**

Zhong-Xing Rao <sup>1</sup>, Mike D. Tokach <sup>2</sup>, Steve S. Dritz <sup>1</sup>, Jason C. Woodworth <sup>1</sup>, Joel M. DeRouchey <sup>1</sup>, Robert D. Goodband <sup>1</sup>, Hilda I. Calderon <sup>3</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>3</sup>Department of Statistics, College of Arts and Sciences, Kansas State University

1:45 p.m. 159 **Effects of Mycotoxin Challenge on Growth and Health of Weanling Pigs with Different Weaning Weights**

Debora Muratori Holanda <sup>1</sup>, Sung Woo Kim <sup>1</sup>

<sup>1</sup>North Carolina State University

2:00 p.m. 160 **Effects of Dietary Amino Acid Concentration on Digestibility of Amino Acids in Soybean Meal and Soy Protein Concentrate Fed to Growing Pigs**

Su A Lee <sup>1</sup>, Hans H. Stein <sup>1</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign

2:15 p.m. 161 **Dietary Oxidized Protein Result in Growth and Histology Differences in Pigs**

Carl A. Frame <sup>1</sup>, Elisabeth Huff Lonergan <sup>2</sup>, Brian J. Kerr <sup>3</sup>, Mariana C. Rossoni-Serao <sup>2</sup>

<sup>1</sup>Iowa State University - Department of Animal Science, <sup>2</sup>Iowa State University, <sup>3</sup>USDA-ARS National Laboratory for Agriculture and the Environment

2:30 p.m. 162 **Digestibility of Energy and Nutrients and Concentration of Metabolizable Energy in Soybean Expellers and Soybean Meal Fed to Growing Pigs**

Diego A. Rodriguez <sup>1</sup>, Su A Lee <sup>1</sup>, Hans H. Stein <sup>1</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign

2:45 p.m. 163 **Aviplus@s Improves Wean to Finish Performance in Pigs**

Benedetta Tugnoli <sup>1</sup>, Andrea Piva <sup>1</sup>, Ester Grilli <sup>2</sup>, Kaylee Keppy <sup>3</sup>

<sup>1</sup>Vetagro S.p.A., <sup>2</sup>Vetagro Inc., <sup>3</sup>Vetagro, INC.

3:00 p.m. **Nonruminant Nutrition III Break**

3:15 p.m. 164 **Evaluation of the Energy Value of Soybean Meal Relative to Corn Based on Growth Performance of 11- to 22-kg Pigs**

Henrique S. Cemin <sup>1</sup>, Mike D. Tokach <sup>2</sup>, Steve S. Dritz <sup>3</sup>, Jason C. Woodworth <sup>3</sup>, Joel M. DeRouchey <sup>3</sup>, Robert D. Goodband <sup>3</sup>

<sup>1</sup>Hubbard Feeds, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>3</sup>Kansas State University

3:30 p.m. 165 **Digestibility of Energy and Dietary Fiber by Growing Pigs and Concentrations of Digestible and Metabolizable Energy in Corn- or Sorghum Based Diets Without or with Microbial Enzymes**

Maryane Oliveira <sup>1</sup>, Charmaine D. Espinosa <sup>1</sup>, Ferdinando Almeida <sup>2</sup>, Hans H. Stein <sup>1</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Archer Daniels Midland

3:45 p.m. 166 **Enhanced Torula Yeast Has Increased Nutritional Value Compared to Fish Meal When Fed to Weanling Pigs**

Jeimmy Paola Lancheros Castaneda <sup>1</sup>, Vanessa Lagos <sup>1</sup>, Hans H. Stein <sup>2</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>University of Illinois at Urbana-Champaign

4:00 p.m. 167 **Analysis of Variation in Net Energy Prediction of Feed Ingredients Fed to Swine**

Noud Aldenhoven <sup>1</sup>, Nestor A. Gutierrez <sup>1</sup>, Neil W. Jaworski <sup>1</sup>, Harmen van Laar <sup>2</sup>

<sup>1</sup>Trouw Nutrition Innovation, <sup>2</sup>Trouw Nutrition

4:15 p.m. 168 **Nursery Diets Formulated with Deoxynivalenol-contaminated Corn Reduced Growth Performance but Did Not Modulate the Cutaneous Hypersensitivity Response to Ovalbumin or Candida Albicans**

Elise Lafleur Lariviere <sup>1</sup>, Cuilan Zhu <sup>1</sup>, Sabrina Zettell <sup>2</sup>, Rob Patterson <sup>3</sup>, Lee-Anne Huber <sup>1</sup>

<sup>1</sup>University of Guelph, <sup>2</sup>Canadian Bio-Systems Inc., <sup>3</sup>CBS Bio-Platforms Inc.

4:30 p.m. 169 **Standardized Ileal Digestible Amino Acids and Net Energy Contents in Full Fat and Defatted Black Soldier Fly Larvae Meals (*Hermetia Illucens*) Fed to Growing Pigs**

Michelina M. Crosbie<sup>1</sup>, Cuilan Zhu<sup>1</sup>, Anna K. Shoveller<sup>1</sup>, Lee-Anne Huber<sup>1</sup>

<sup>1</sup>University of Guelph

4:45 p.m. 170 **Energy Values and Digestibility of Amino Acids in Dried Yeast and Soybean Meal Fed to Pigs**

Chan Sol Park<sup>1</sup>, AYODEJI S. ADERIBIGBE<sup>2</sup>, Gary Hayen<sup>3</sup>, Olayiwola Adeola<sup>1</sup>

<sup>1</sup>Purdue University, <sup>2</sup>Department of Animal Sciences, Purdue University, <sup>3</sup>Amyris Inc.

**Nonruminant Nutrition V: Feed Additives**

Chair: Chad Pilcher, Cargill Animal Nutrition; Jordan Gebhardt, Kansas State University

1:00 PM - 5:15 PM

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1:00 p.m. 171 **Young Scholar Presentation: dietary Supplementation of *Bacillus Subtilis* Influenced Intestinal Health and Metabolomic Profiles of Weaned Pigs Experimentally Infected with a Pathogenic *E. coli***

Kwangwook Kim<sup>1</sup>, Yijie He<sup>2</sup>, Xia Xiong<sup>1</sup>, Amy Ehrlich<sup>1</sup>, Xunde Li<sup>1</sup>, Helen Raybould<sup>1</sup>, Edward Robert Atwill<sup>1</sup>, Elizabeth Maga<sup>1</sup>, Jens Jørgensen<sup>3</sup>, Yanhong Liu<sup>1</sup>

<sup>1</sup>University of California, Davis, <sup>2</sup>Department of Animal Science, University of California, Davis, <sup>3</sup>Chr. Hansen A/S, Hoersholm, Denmark

1:30 p.m. 172 **Increasing Inclusion of Fermentable Fiber Decreases Nutrient Digestibility in Grower Pigs**

Charlotte Heyer<sup>1</sup>, L. F. Wang<sup>1</sup>, R. T. Zijlstra<sup>1</sup>

<sup>1</sup>Department of Agricultural, Food and Nutritional Science, University of Alberta

1:45 p.m. 173 **Lysed *Corynebacterium Glutamicum* Cell Mass from Lysine Production as a Novel Feed Additive to Enhance Gut Health and Growth of Newly-weaned Pigs**

Yi-Chi Cheng<sup>1</sup>, Marcos E. Duarte<sup>1</sup>, Sung Woo Kim<sup>1</sup>

<sup>1</sup>North Carolina State University

2:00 p.m. 174 **The Effect of a Microbial Muramidase on Peptidoglycan Content in the Gut of Swine Using in-vitro and in-vivo Measures**

Ursula M. McCormack<sup>1</sup>, Mikkel Klausen<sup>2</sup>, Lisa A. Laprade<sup>1</sup>, Sonja Christian<sup>2</sup>, Carsten Østergaard Frederiksen<sup>2</sup>, Maria C. Walsh<sup>1</sup>, Tsungcheng Tsai<sup>3</sup>, Charles V. Maxwell<sup>3</sup>, Casey L. Bradley<sup>4</sup>

<sup>1</sup>DSM Nutritional Products, <sup>2</sup>Novozymes A/S, <sup>3</sup>University of Arkansas, <sup>4</sup>DSM Nutritional Products LLC

2:15 p.m. 175 **Effects of Dietary Supplementation with Xylanase and Probiotics on Growth Performance and Gut Health of Newly Weaned Pigs Challenged with Enterotoxigenic *E. coli* on D 7 Post Weaned**

Marcos E. Duarte<sup>1</sup>, James Tyus<sup>2</sup>, Sung Woo Kim<sup>1</sup>

<sup>1</sup>North Carolina State University, <sup>2</sup>BioResource International, Inc.

2:30 p.m. 176 **Evaluation of a Novel Threonine Source for Nursery Pig Diets**  
Dalton C. Humphrey<sup>1</sup>, Spenser Becker<sup>1</sup>, Jason Lee<sup>2</sup>, Keith D. Haydon<sup>3</sup>, Laura L. Greiner<sup>1</sup>  
<sup>1</sup>Iowa State University, <sup>2</sup>CJ America - Bio, <sup>3</sup>CJ Bio America

2:45 p.m. 177 **Effect of Supplementing a Fatty Acid-based Product, Monomix, or Pharmacological Levels of Zinc Oxide on Growth Performance of Nursery Pigs**  
Kelsey L. Batson<sup>1</sup>, Lori Thomas<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Mike D. Tokach<sup>2</sup>, Robert D. Goodband<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Jim Bryte<sup>3</sup>  
<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>3</sup>Quality Technology International, Inc.

3:00 p.m. **Nonruminant Nutrition V Break**

3:15 p.m. 178 **Efficacy of Commercial Products on Growth Performance of Nursery Pigs Fed Diets with Fumonisin-contaminated Corn**  
Zhong-Xing Rao<sup>1</sup>, Mike D. Tokach<sup>2</sup>, Steve S. Dritz<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Robert D. Goodband<sup>1</sup>, Hilda I. Calderon<sup>3</sup>  
<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>3</sup>Department of Statistics, College of Arts and Sciences, Kansas State University

3:30 p.m. 179 **Efficacy and Safety of Amino Acids with Biomass for Growth and Health of Newly-weaned Pigs**  
Yi-Chi Cheng<sup>1</sup>, Marcos E. Duarte<sup>1</sup>, Sung Woo Kim<sup>1</sup>  
<sup>1</sup>North Carolina State University

3:45 p.m. 180 **Effects of Copper Hydroxychloride and Distillers Dried Grains with Solubles on Intestinal Microbial Protein Concentration and Digestibility of Energy, Crude Protein, and Fat by Growing Pigs**  
Charmaine D. Espinosa<sup>1</sup>, Robert Scott Fry<sup>2</sup>, Matthew Kocher<sup>2</sup>, Hans H. Stein<sup>1</sup>  
<sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Micronutrients USA LLC

4:00 p.m. 181 **Effects of Aspergillus Oryzae Prebiotic on Energy and Nutrient Digestibility of Growing Pigs**  
Jinlong Zhu<sup>1</sup>, Gerald C. Shurson<sup>2</sup>, Lynsey Whitacre<sup>3</sup>, Ignacio R. Ipharraguerre<sup>4</sup>, Pedro E. Urriola<sup>2</sup>  
<sup>1</sup>Department of Animal Science, University of Minnesota, <sup>2</sup>University of Minnesota, <sup>3</sup>BioZyme Inc., <sup>4</sup>Christian Albrechts University of Kiel

4:15 p.m. 182 **The Effects of Pure Benzoic Acid, an Acid Blend Product, or Their Combination in Nursery Pig Diets on Post-weaning Growth Performance**  
Jon R. Bergstrom<sup>1</sup>, Jose Luis Landero<sup>2</sup>, Malachy Young<sup>2</sup>, J.D. Hahn<sup>3</sup>  
<sup>1</sup>DSM, <sup>2</sup>Gowans Feed Consulting, <sup>3</sup>DSM Nutritional Products

4:30 p.m. 183 **Isoquinoline Alkaloids Increase Apparent Ileal Digestibility of Amino Acids and Crude Protein and Apparent Total Tract Digestibility of Crude Protein by Finishing Pigs Fed Corn-soybean Meal Diets**  
Carly M. Rundle<sup>1</sup>, Hans H. Stein<sup>1</sup>  
<sup>1</sup>University of Illinois at Urbana-Champaign



4:45 p.m. 184 **Effects of Phytogetic Feed Additives and Ractopamine Hcl on Growth Performance and Carcass Characteristics in Grow-finish Pigs**

Lan Zheng <sup>1</sup>, Shelby M. Ramirez <sup>1</sup>, G. Raj Murugesan <sup>2</sup>, Erika G. Hendel <sup>2</sup>, Antonia Tacconia <sup>3</sup>  
<sup>1</sup>BIOMIN America Inc., <sup>2</sup>BIOMIN America Inc, <sup>3</sup>BIOMIN Holding GmbH

5:00 p.m. 185 **Effect of Dacitic Tuff Breccia in Nursery Diets on Pig Growth Performance and Nutrient Digestibility**

Ricardo M. Garcia <sup>1</sup>, Jon Ferrel <sup>2</sup>, Karissa N. Rulon <sup>1</sup>, Morgan T. Thayer <sup>1</sup>, Julie F. Mahoney <sup>1</sup>, Alan W. Duttlinger <sup>1</sup>, Flannery J. Whitmore <sup>1</sup>, Clayton S. Chastain <sup>1</sup>, John Scott Radcliffe <sup>1</sup>, Brian T. Richert <sup>1</sup>  
<sup>1</sup>Purdue University, <sup>2</sup>Azomite

**Equine Translational Symposium:  
Sustaining Prosperous Academic Equine Programs**

Chair: James Lattimer, Kansas State University

1:30 PM - 4:15 PM

214

1:30 p.m. **Equine Translational Symposium Introduction**

1:35 p.m. 191 **Equine Extension Program Delivery Methods**

Colleen Brady <sup>1</sup>  
<sup>1</sup>Purdue University

2:05 p.m. 192 **Meeting Industry Needs and the Changing Dynamics of Equine Students**

Leslie Janecka <sup>1</sup>  
<sup>1</sup>Kentucky Equine Management Internship

2:35 p.m. 245 **Equine Research Programs: where Are They Going?**

Brian D. Nielsen <sup>1</sup>  
<sup>1</sup>Department of Animal Science, Michigan State University

3:05 p.m. **Equine Translational Symposium Break**

3:15 p.m. 193 **Equine Teaching Programs – Where Do They Fit?**

Kathy Anderson <sup>1</sup>  
<sup>1</sup>University of Nebraska - Lincoln

3:45 p.m. 190 **Developing Graduates with Competitive and Comparative Backgrounds**

James M. Lattimer <sup>1</sup>  
<sup>1</sup>Kansas State University

## Nonruminant Nutrition IV: Amino Acids

Chair: Trey Kellner, AMVC Nutritional Services; Dean Koehler, CSA Animal Nutrition

1:30 PM - 4:30 PM

201

### 1:30 p.m. 199 **Supplemental Arginine Affects Intestinal Gene Expression and Serum Concentration of Amino Acids of Heat Stress Pigs**

Adriana Morales<sup>1</sup>, Fernanda González<sup>2</sup>, Lucero R. Pérez Mejía<sup>1</sup>, Salvador Espinoza<sup>1</sup>, Caroline González-Vega<sup>3</sup>, John K. Htoo<sup>4</sup>, Miguel Cervantes-Ramírez<sup>1</sup>, Hugo Bernal<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Baja California, <sup>2</sup>Universidad Autónoma de Nuevo León, <sup>3</sup>Evonik Nutrition & Care GmbH, <sup>4</sup>Evonik Operations GmbH

### 1:45 p.m. 200 **Reduced Growth Performance of Pigs Fed Methionine Deficient Diet May Be Associated with Their Reduced Muscle Cell Differentiation**

Shengfa T. Liao<sup>1</sup>, Zhongyue Yang<sup>1</sup>, Shamimul Hasan<sup>1</sup>, Rebecca Humphrey<sup>1</sup>, Jean M. Feugang<sup>1</sup>, Derris D. Burnett<sup>2</sup>, John K. Htoo<sup>3</sup>

<sup>1</sup>Mississippi State University, <sup>2</sup>PhD, <sup>3</sup>Evonik Operations GmbH

### 2:00 p.m. 80 **Effects of Dietary Standardized Ileal Digestible Lysine Level in the Nursery Period and Number of Dietary Phases in the Grow-finish Period on Wean-to-finish Growth Performance of Pigs**

Andres Fernando F. Tolosa Russi<sup>1</sup>, Mike Ellis<sup>2</sup>, Omarh F. Mendoza<sup>3</sup>, Caleb M. Shull<sup>3</sup>, Clint Schwab<sup>3</sup>

<sup>1</sup>University of Illinois Urbana-Champaign, <sup>2</sup>University of Illinois, <sup>3</sup>The Maschhoffs, LLC

### 2:15 p.m. 201 **Increased Ratio of SID Lysine to Metabolizable Energy Improves Pig Performance During a Viral Challenge**

Jessica Jasper<sup>1</sup>, Omarh F. Mendoza<sup>2</sup>, Caleb M. Shull<sup>2</sup>, Wes Schweer<sup>1</sup>, Kent Schwartz<sup>1</sup>, Nicholas K. Gabler<sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>The Maschhoffs, LLC

### 2:30 p.m. 202 **Determining the Effects of Increasing Dietary Standardized Ileal Digestible Lysine Levels on Growth Performance and Carcass Characteristics of Growing-finishing Pigs from 29- to 129-kg**

Steve J. Kitt<sup>1</sup>, Wayne R. Cast<sup>2</sup>, Mark Hover<sup>3</sup>, Carine M. Vier<sup>2</sup>, Chris Sievers<sup>4</sup>, Ning Lu<sup>5</sup>, Alyssa Betlach<sup>4</sup>, Dan Hamilton<sup>2</sup>, Ross Kiehne<sup>4</sup>, Uislei A. Orlando<sup>2</sup>

<sup>1</sup>First Choice Livestock, LLC, <sup>2</sup>Genus PIC, <sup>3</sup>Reicks View Farms, <sup>4</sup>Swine Vet Center, <sup>5</sup>PIC

### 2:45 p.m. 203 **Efficiency of SID Lysine Utilization and Maximum SID Lysine Retention for Gilts in Early, Mid and Late Gestation**

Christian D. Ramirez-Camba<sup>1</sup>, Ron A. Navales<sup>2</sup>, James L. Dunn<sup>3</sup>, John K. Htoo<sup>4</sup>, Caroline Gonzalez-Vega<sup>5</sup>, Kevin Touchette<sup>6</sup>, Robert C. Thaler<sup>1</sup>, Ryan S. Samuel<sup>7</sup>, Crystal L. Levesque<sup>1</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>Genus PIC, <sup>3</sup>ADM Animal Nutrition, <sup>4</sup>Evonik Operations GmbH, <sup>5</sup>Evonik, <sup>6</sup>Ralco, <sup>7</sup>Department of Animal Science, South Dakota State University

### 3:00 p.m. 204 **Piglets Exhibited Similar Performance When Fed Oh-methionine or DI-methionine During the Post-weaning Period**

Marta I. Gracia<sup>1</sup>, Yves Mercier<sup>2</sup>, O. Casabuena Rincon<sup>3</sup>, Jaime Sanchez Laguna<sup>3</sup>, Dolores I. Batonon-Alavo<sup>2</sup>

<sup>1</sup>IMASDE, <sup>2</sup>Adisseo France SAS, <sup>3</sup>IMASDE Agroalimentaria

3:15 p.m.      **Nonruminant Nutrition IV Break**

3:30 p.m.    207    **Improving Performance of Finishing Pigs with Added Val, Ile, and Trp: Validating a Meta-analysis Model**

Hayden R. Kerkaert <sup>1</sup>, Henrique S. Cemin <sup>2</sup>, Mike D. Tokach <sup>3</sup>, Jason C. Woodworth <sup>1</sup>, Joel M. DeRouchey <sup>1</sup>, Robert D. Goodband <sup>1</sup>, Steve S. Dritz <sup>1</sup>, Keith D. Haydon <sup>4</sup>, Chad W. Hastad <sup>5</sup>, Zach Post <sup>5</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Hubbard Feeds, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>4</sup>CJ Bio America, <sup>5</sup>New Fashion Pork

3:45 p.m.    208    **Do Prediction Equations with High R-squared in Low Sample Size Studies Have High Predictive Ability?**

Nick V. Serão <sup>1</sup>, Amy L. Petry <sup>2</sup>

<sup>1</sup>Department of Animal Science, Iowa State University, <sup>2</sup>Iowa State University

4:00 p.m.    209    **Effects of High Standardized Ileal Digestible tryptophan:lysine Ratios with Ractopamine HCL on Growth and Carcass Performance of Pigs from 110 to 135 Kg**

Hayden E. Williams <sup>1</sup>, Mike D. Tokach <sup>2</sup>, Steve S. Dritz <sup>1</sup>, Joel M. DeRouchey <sup>1</sup>, Jason C. Woodworth <sup>1</sup>, Robert D. Goodband <sup>1</sup>, Jose A. Soto <sup>3</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>3</sup>Ajinomoto Heartland

4:15 p.m.    210    **Effects of d-methionine Compared with L-methionine on N Retention, Gut Morphology and Antioxidant Status of Weaned Pigs**

John K. Htoo <sup>1</sup>, John Mathai <sup>2</sup>, Laia Blavi <sup>3</sup>, Yanhong Liu <sup>4</sup>, Caroline González-Vega <sup>5</sup>, Hans H. Stein <sup>2</sup>

<sup>1</sup>Evonik Operations GmbH, <sup>2</sup>University of Illinois at Urbana-Champaign, <sup>3</sup>University of Illinois, <sup>4</sup>University of California, Davis, <sup>5</sup>Evonik Nutrition & Care GmbH

**Dairy Translational Symposium: Dairy Management Affecting Milk Quality and Subsequent Products**

Chair: Maristela Rovai, South Dakota State University

1:30 PM - 4:45 PM

210

1:30 p.m.      **Dairy Translational Symposium Introduction**

1:35 p.m.    187    **Protocols, Standard Operating Procedures, and Employee Training to Improve Milk Safety and Quality**

Mireille Chahine <sup>1</sup>, Maristela Rovai <sup>2</sup>

<sup>1</sup>University of Idaho, <sup>2</sup>South Dakota State University

2:10 p.m.    188    **Teaching Animal Handling Through Classrooms and Hands-on Experiences**

Heidi K. Carroll <sup>1</sup>, Maristela Rovai <sup>1</sup>, Tracey Erickson <sup>2</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>South Dakota State University Extension

2:45 p.m.    244    **Algae Taste Preference of Chlorella Sp. from Dairy Wastewater by Weaned Dairy Calves**

Brad J. Heins <sup>1</sup>, Siane C. Luzzi <sup>1</sup>, Robert D. Gardner <sup>1</sup>

<sup>1</sup>University of Minnesota

3:00 p.m.     **Dairy Translational Symposium Break**

3:15 p.m.   186   **Young Scholar Presentation: Immunometabolism During Periods of Negative Nutrient Balance or Heat Stress Is Altered by Dietary Methyl Donor Supply in Dairy Cows**

Danielle Coleman <sup>1</sup>, Mario Vailati Riboni <sup>1</sup>, R. Pate <sup>1</sup>, M. Miura <sup>2</sup>, Daniel D. Luchini <sup>3</sup>, Erminio Trevisi <sup>4</sup>, X Y. Pan <sup>1</sup>, Juan Loo <sup>5</sup>, Felipe Cardoso <sup>6</sup>

<sup>1</sup>University of Illinois Urbana-Champaign, <sup>2</sup>Ajinomoto Co. Inc., <sup>3</sup>Adisseo, <sup>4</sup>Department of Animal Sciences, Food and Nutrition (DIANA), Università Cattolica del Sacro Cuore, <sup>5</sup>University of Illinois Urbana Champaign, <sup>6</sup>University of Illinois

3:45 p.m.   189   **Interventions for Reduction of Sporeforming Bacteria at Farm Level**

Andreia Bianchini <sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln

4:20 p.m.     **Dairy Translational Symposium Panel Discussion**

**Animal Behavior, Health and Well-being Symposium: Feeding Mgmt and Nutritional Strategies for Improving Animal Welfare**

Chair: Jay Johnson, USDA-ARS Livestock Behavior Research Unit

1:30 PM - 5:00 PM

205/206

1:30 p.m.   194   **Microbial Endocrinology: How Evolved Intersections of Microbiology and Neurobiology Matter to Animal Health and Nutrition**

Mark Lyte <sup>1</sup>

<sup>1</sup>Iowa State University

2:15 p.m.   195   **Nutritional Influences on Brain and Cognitive Development**

Ryan N. Dilger <sup>1</sup>

<sup>1</sup>University of Illinois Urbana-Champaign

3:00 p.m.     **Animal Behavior, Health and Well-being Symposium Break**

3:25 p.m.   196   **Feeding and Nutritional Strategies to Improve Welfare of Group-housed Gestating Sows**

Yuzhi Li <sup>1</sup>

<sup>1</sup>West Central Research and Outreach Center, University of Minnesota

4:10 p.m.   197   **Feed Efficiency and Good Animal Welfare: Are the Two Compatible?**

Jessica D. Colpoys <sup>1</sup>

<sup>1</sup>Truman State University

## **Animal Behavior, Health and Well-being II: Livestock Health**

Chair: Christopher Byrd, Department of Animal Sciences, North Dakota State University

1:45 PM - 3:15 PM

204

### **1:45 p.m. 211 Biosecurity Practices Associated with Antimicrobial Usage in Farrow-to-finish Pig Farms**

Julia A. Calderon Diaz <sup>1</sup>, Lorcan O'Neill <sup>2</sup>, Maria Rodrigues da Costa <sup>2</sup>, Edgar Garcia Manzanilla <sup>2</sup>

<sup>1</sup>PIC Europe, <sup>2</sup>Pig Development Department, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland; School of Veterinary Medicine, University College Dublin, Dublin, Ireland

### **2:00 p.m. 212 Biosecurity Practices Associated with Negative Farm Status for Mycoplasma Hyopneumoniae, Porcine Reproductive and Respiratory Syndrome Virus, and Swine Influenza Virus in Farrow-to-finish Pig Farms**

Julia A. Calderon Diaz <sup>1</sup>, Maria Rodrigues da Costa <sup>2</sup>, Edgar Garcia Manzanilla <sup>2</sup>

<sup>1</sup>PIC Europe, <sup>2</sup>Pig Development Department, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland; School of Veterinary Medicine, University College Dublin, Dublin, Ireland

### **2:15 p.m. 213 Distribution of Subjectively Evaluated Conformation Traits in Commercial Growing Replacement Gilts**

Grace A. Moeller <sup>1</sup>, Courtney L. Abell <sup>2</sup>, Tom P. Somrack <sup>3</sup>, William O. Herring <sup>4</sup>, Justin W. Holl <sup>4</sup>, Kenneth J. Stalder <sup>1</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Iowa Select Farms, <sup>3</sup>Pig Improvement Company, <sup>4</sup>Genus PIC

### **2:30 p.m. 214 The Effects of an 18 Hour Transit or Complete Feed and Water Restriction on Feed Bunk Displacements and Need Preferences in Growing Feedlot Steers**

Katie J. Heiderscheit <sup>1</sup>, Erin L. Deters <sup>1</sup>, Alyssa D. Freestone <sup>1</sup>, Joshua Peschel <sup>1</sup>, Stephanie L. Hansen <sup>1</sup>

<sup>1</sup>Iowa State University

### **2:45 p.m. 215 Assessment of the Diagnostic Sensitivity and Specificity of Pain Biomarkers in Cattle Using Receiver Operating Characteristic Curves**

Miriam S. Martin <sup>1</sup>, Michael D. Kleinhenz <sup>1</sup>, Karen S. Schwartzkopf-Genswein <sup>2</sup>, Johann F. Coetzee <sup>3</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Agriculture and Agri-Food Canada, Lethbridge Research and Development Centre, Lethbridge, AB Canada, <sup>3</sup>Kansas State University College of Veterinary Medicine, Department of Anatomy and Physiology, Manhattan, KS

### **3:00 p.m. 216 Thermoregulatory and Physiological Responses of Sows at Different Reproductive Stages Exposed to Increasing Ambient Temperature**

Betty R. McConn <sup>1</sup>, Alan W. Duttlinger <sup>2</sup>, Kouassi R. Kpodo <sup>2</sup>, Jacob M. Maskal <sup>2</sup>, Brianna N. Gaskill <sup>2</sup>, Allan P. Schinckel <sup>2</sup>, Angela R. Green-Miller <sup>3</sup>, Donald C. Lay <sup>4</sup>, Jay S. Johnson <sup>5</sup>

<sup>1</sup>Oak Ridge Institute for Science and Education, <sup>2</sup>Purdue University, <sup>3</sup>University of Illinois Urbana - Champaign, <sup>4</sup>USDA-Agricultural Research Service, <sup>5</sup>USDA-ARS Livestock Behavior Research Unit

**Growth, Development, Muscle Biology and Meat Science**

Chair: Benjamin Bohrer, University of Guelph

1:45 PM - 3:30 PM

216

1:45 p.m. 217 **Young Scholar Presentation: The Use of Diverse Cattle Breeds to Understand Marbling Development and Growth**

Jerad Jaborek<sup>1</sup>, Todd R. Callaway<sup>2</sup>, Alejandro E. Relling<sup>1</sup>

<sup>1</sup>The Ohio State University, <sup>2</sup>University of Georgia

2:15 p.m. 218 **Impact of Diet and Quality Grade on Tenderness of Beef Steaks**

Nicolas Bland<sup>1</sup>, Nicolas Herrera<sup>2</sup>, Morgan Henriott<sup>3</sup>, Felipe Ribeiro<sup>3</sup>, Kellen Hart<sup>3</sup>, Chris Calkins<sup>2</sup>

<sup>1</sup>University of Nebraska Lincoln, <sup>2</sup>University of Nebraska-Lincoln, <sup>3</sup>University of Nebraska

2:30 p.m. 219 **Effects of Maternal Nutrient Restriction and Rumen-protected Arginine Supplementation on Post-ruminal Digestive Enzyme Activities of Lamb Offspring**

Ronald J. Trotta<sup>1</sup>, Faithe E. Keomanivong<sup>2</sup>, Jena L. Bjertness<sup>2</sup>, Joel S. Caton<sup>2</sup>, Kendall C. Swanson<sup>2</sup>

<sup>1</sup>University of Kentucky, <sup>2</sup>North Dakota State University

2:45 p.m. 220 **Effects of Supplemental Leucine in Milk Replacer on Lamb Growth Performance and Carcass Characteristics**

Jessica N. Reiners<sup>1</sup>, Steven Anderson<sup>1</sup>, Travis W. Hoffman<sup>2</sup>, Kendall C. Swanson<sup>1</sup>

<sup>1</sup>North Dakota State University, <sup>2</sup>Department of Animal Sciences, North Dakota State University

3:00 p.m. 221 **Effect of Varying Growth Rates on Early and Aged Pork Loin and Chop Quality**

Emily D. Schunke<sup>1</sup>, Jessica Lowell<sup>1</sup>, Chad Stahl<sup>2</sup>, Bailey Harsh<sup>3</sup>, Anna Dilger<sup>4</sup>

<sup>1</sup>University of Illinois Urbana-Champaign, <sup>2</sup>Choice Genetics, <sup>3</sup>University of Illinois at Urbana-Champaign, <sup>4</sup>University of Illinois

3:15 p.m. 222 **Effect of Genetic Line and Parity of Dam on Litter Birth Weight and Weaning Weight in Swine**

Marcie I. Christianson<sup>1</sup>, Kenneth J. Stalder<sup>1</sup>, Alejandro Ramirez<sup>1</sup>, Donald Beitz<sup>1</sup>, Aileen F. Keating<sup>1</sup>

<sup>1</sup>Iowa State University

**Ruminant Nutrition III: Mineral Nutrition and Feed Additives**

**Sponsored by Qualitech, Inc**

Chair: Larry Berger, University of Illinois

1:45 PM - 3:15 PM

211/212

1:45 p.m. 223 **The Effects of Supplemental Zinc and Ractopamine Hydrochloride on the Longissimus Dorsi Proteome of Finishing Beef Steers**

Katherine Hochmuth<sup>1</sup>, Matthew Schulte<sup>1</sup>, Elisabeth Huff Lonergan<sup>1</sup>, Stephanie L. Hansen<sup>1</sup>

<sup>1</sup>Iowa State University

2:00 p.m. 224 **Epimural Microbiota and Rumen Epithelial Gene Expression in Healthy and Liver-abscessed Animals**

Waseem Abbas<sup>1</sup>, Amanda Lindholm-Perry<sup>2</sup>, Brittney N. Keel<sup>3</sup>, James E. Wells<sup>4</sup>, Kristin E. Hales<sup>5</sup>, Allison Knoell<sup>1</sup>, Henry A. Paz<sup>6</sup>, Samodha C. Fernando<sup>7</sup>

<sup>1</sup>Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE 68583, USA, <sup>2</sup>US Meat Animal Research Center- USDA-ARS, <sup>3</sup>USDA, ARS, U.S. Meat Animal Research Center, <sup>4</sup>USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE 68933, USA, <sup>5</sup>Texas Tech University, Department of Animal and Food Sciences, <sup>6</sup>Department of Animal and Dairy Sciences, Mississippi State University, MS, USA, <sup>7</sup>University of Nebraska-Lincoln

2:15 p.m. 225 **Effects of Late Gestation Calcium Salts of Fatty Acids Supplementation to Beef Cows on Offspring Pre-weaning Growth Performance and Gene Expression**

Taoqi Shao<sup>1</sup>, Frank Ireland<sup>1</sup>, Joshua C. McCann<sup>1</sup>, Daniel W. Shike<sup>2</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>University of Illinois at Urbana-Champaign

2:30 p.m. 226 **Influence of Trace Mineral Source on Digestion, Ruminal Volatile Fatty Acid and Soluble Mineral on Steers Fed a Dairy Type Diet Balanced to Meet Requirements for a High Producing Lactating Dairy Cow**

Octavio Guimaraes<sup>1</sup>, John J. Wagner<sup>2</sup>, Jerry W. Spears<sup>3</sup>, Terry E. Engle<sup>1</sup>

<sup>1</sup>Colorado State University, <sup>2</sup>professor, <sup>3</sup>North Carolina State University

2:45 p.m. 227 **Impact of Feeding Aspergillus Subspecies (ssp.) Blend and Different Corn Processing Methods on Finishing Beef Cattle Performance and Carcass Characteristics**

Stacia M. Hopfauf<sup>1</sup>, Bradley M. Boyd<sup>2</sup>, Levi J. McPhillips<sup>1</sup>, Galen E. Erickson<sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska - Lincoln

3:00 p.m. 228 **Effect of Exogenous Glucoamylase Inclusion on in vitro Digestion and Feedlot Cattle Performance**

Alejandro Pittaluga<sup>1</sup>, Shukun Yu<sup>2</sup>, Wenting Li<sup>3</sup>, Joshua C. McCann<sup>4</sup>

<sup>1</sup>The Ohio State University, <sup>2</sup>Dupont-Nutrition&Biosciences, <sup>3</sup>Dupont- Nutrition&Biosciences,

<sup>4</sup>University of Illinois

3:15 p.m. 229 **Evaluation of Wheat Blended with Corn in Finishing Diets Containing Wet Distillers Grains**

Caitlin A. Coulson<sup>1</sup>, Bradley M. Boyd<sup>1</sup>, Brianna Conroy<sup>1</sup>, Galen E. Erickson<sup>2</sup>

<sup>1</sup>University of Nebraska - Lincoln, <sup>2</sup>University of Nebraska-Lincoln

**Physiology II: Heat Stress and Disease Challenge**

Chair: Alison Ward, North Dakota State University

1:45 PM - 3:45 PM

207

1:45 p.m. 230 **Young Scholar Presentation: Heat Stress and Its Effects on Energetics, Gut Integrity, and Inflammation in Pigs**

Edith J. Mayorga<sup>1</sup>, Lance H. Baumgard<sup>1</sup>

<sup>1</sup>Iowa State University

2:15 p.m. 231 **Impact of Brachyspira Hyodysenteriae on Intestinal Function and Integrity**

Emma T. Helm<sup>1</sup>, Susanne J. Lin<sup>1</sup>, Nicholas K. Gabler<sup>1</sup>, Eric R. Burrough<sup>1</sup>  
<sup>1</sup>Iowa State University

2:30 p.m. 232 **Reduced Growth Performance During Viral Challenge Primarily Results from Disease Hypophagia**

Blaire Todd<sup>1</sup>, Larissa Becker<sup>1</sup>, Nicholas K. Gabler<sup>1</sup>  
<sup>1</sup>Iowa State University

2:45 p.m. 233 **Naturesafe® Supplementation Mitigates Some Aspects of the Acute Phase Immune Response to a Lipopolysaccharide (LPS) Challenge in Weaned Beef Calves**

Nicole C. Burdick Sanchez<sup>1</sup>, Jeff A. Carroll<sup>1</sup>, Rand P. Broadway<sup>2</sup>, Tom S. Edrington<sup>3</sup>, Ilkyu Yoon<sup>4</sup>, Craig R. Belknap<sup>3</sup>  
<sup>1</sup>USDA ARS, <sup>2</sup>Livestock Issues Research Unit, Agricultural Research Service, United States Department of Agriculture, <sup>3</sup>Diamond V, <sup>4</sup>Cargill, Diamond V brand

3:00 p.m. 234 **In Utero Heat Stress Alters the Postnatal Immune and Metabolic Response of Growing Pigs Subjected to a Lipopolysaccharide Challenge**

Jay S. Johnson<sup>1</sup>, Jacob M. Maskal<sup>2</sup>, Alan W. Duttlinger<sup>2</sup>, Kouassi R. Kpodo<sup>2</sup>, Betty R. McConn<sup>3</sup>, Christopher J. Byrd<sup>4</sup>, Brian T. Richert<sup>2</sup>, Donald C. Lay<sup>5</sup>, Jeremy Marchant-Forde<sup>6</sup>, Matt Lucy<sup>7</sup>, Tim J. Safranski<sup>7</sup>  
<sup>1</sup>USDA-ARS Livestock Behavior Research Unit, <sup>2</sup>Purdue University, <sup>3</sup>Oak Ridge Institute for Science and Education, <sup>4</sup>Department of Animal Sciences, North Dakota State University, <sup>5</sup>USDA-Agricultural Research Service, <sup>6</sup>USDA-ARS, <sup>7</sup>University of Missouri-Columbia

3:15 p.m. 235 **Effects of Rapamycin During an Acute Heat Stress Exposure in Growing Pigs**

Edith J. Mayorga<sup>1</sup>, Erin A. Horst<sup>2</sup>, Brady M. Goetz<sup>1</sup>, Sonia Rodriguez-Jimenez<sup>1</sup>, Megan A. Abeyta<sup>1</sup>, Mohammad Al-Qaisi<sup>1</sup>, Samantha Lei<sup>1</sup>, Robert P. Rhoads<sup>3</sup>, Joshua T. Selsby<sup>1</sup>, Lance H. Baumgard<sup>1</sup>  
<sup>1</sup>Iowa State University, <sup>2</sup>Iowa State University, <sup>3</sup>Virginia Tech

3:30 p.m. 236 **Effects of Mitoquinol During Acute Heat Stress Exposure in Growing Pigs**

Edith J. Mayorga<sup>1</sup>, Erin A. Horst<sup>2</sup>, Brady M. Goetz<sup>1</sup>, Sonia Rodriguez-Jimenez<sup>1</sup>, Megan A. Abeyta<sup>1</sup>, Mohammad Al-Qaisi<sup>1</sup>, Samantha Lei<sup>1</sup>, Robert P. Rhoads<sup>3</sup>, Joshua T. Selsby<sup>1</sup>, Lance H. Baumgard<sup>1</sup>  
<sup>1</sup>Iowa State University, <sup>2</sup>Iowa State University, <sup>3</sup>Virginia Tech



**Precision Livestock Farming Symposium II: Ruminant - Sponsored by Zoetis**

Chair: Juan Steibel, Michigan State University

1:45 PM - 5:00 PM

Grand Ballroom South

1:45 p.m.     **Precision Livestock Farming Symposium II Introduction**

1:50 p.m.   237   **Developing a Dairy Brain: Improved Decision-making from Continuous Integrated Data**

Victor E. Cabrera <sup>1</sup>

<sup>1</sup>University of Wisconsin Madison

2:30 p.m.   238   **Linking Livestock Phenomics and Precision Livestock Farming**

Manuel M. Juarez <sup>1</sup>

<sup>1</sup>Agriculture and Agri-Food Canada

3:10 p.m.     **Precision Livestock Farming Symposium II Break**

3:25 p.m.   239   **Grazing Distribution of Beef Cattle: Acronyms of Technology and Spatial Measures**

Milton G. G. Thomas <sup>1</sup>, Jasmine A. Dillon <sup>1</sup>, Derek Bailey <sup>2</sup>, Courtney Pierce <sup>1</sup>, Scott E. Speidel <sup>1</sup>, Mark Enns <sup>1</sup>

<sup>1</sup>Colorado State University, <sup>2</sup>New Mexico State University

4:10 p.m.   240   **Enhancing Beef Production and Quality Using Big Data Analytics and Computer Vision Techniques**

Guilherme JM Rosa <sup>1</sup>, Vera C. Aiken <sup>1</sup>, Arthur Fernandes <sup>1</sup>, Joao R. Dorea <sup>2</sup>

<sup>1</sup>University of Wisconsin-Madison, <sup>2</sup>University of Wisconsin Madison

4:50 p.m.     **Precision Livestock Farming Symposium II: Ruminant Panel**

**Beef/small Ruminant Translational**

Chair: Warren Rusche, South Dakota State University

3:30 PM - 4:15 PM

216

3:30 p.m.   241   **Trends in the Percentage of Modified Live, Killed, and Combination Respiratory Viral Vaccines Administered to Beef Calves Offered for Sale in Summer Video Auctions from 2000 Through 2018**

Maggie J. Smith <sup>1</sup>, Mike E. King <sup>1</sup>, Karol E. Fike <sup>1</sup>, Esther D. McCabe <sup>1</sup>, Glenn M. Rogers <sup>2</sup>, Kenneth G. Odde <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Grassy Ridge Consulting

3:45 p.m.   242   **Effect of Trucking Distance on Sale Price of Beef Calf and Feeder Cattle Lots Sold Through Video Auctions from 2010 Through 2018**

Esther D. McCabe <sup>1</sup>, Mike E. King <sup>1</sup>, Karol E. Fike <sup>1</sup>, Maggie J. Smith <sup>1</sup>, Glenn M. Rogers <sup>2</sup>, Kenneth G. Odde <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Grassy Ridge Consulting

4:00 p.m. 243 **Effects of Rubber Matting on Cattle Performance and Carcass Characteristics in Slatted Facilities**

Cody Dawson <sup>1</sup>, Parker Henley <sup>2</sup>, Adam Schroeder <sup>2</sup>, Courtney Hayes <sup>2</sup>, Tara L. Felix <sup>3</sup>, Daniel W. Shike <sup>1</sup>, Joshua C. McCann <sup>2</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>University of Illinois, <sup>3</sup>Penn State

**Equine Translational**

Chair:

4:15 PM - 4:30 PM

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4:15 p.m. 246 **Effect of Increasing Levels of Dietary Starch on Equine Cecal Microbiota**

Michael Y. Halpin <sup>1</sup>, James Drouillard <sup>1</sup>, Teresa Douthit <sup>1</sup>, Qinghong Ran <sup>1</sup>, Barry J. Bradford <sup>1</sup>, Douglas Marthaler <sup>1</sup>, Patricia Ochonski <sup>1</sup>, James M. Lattimer <sup>1</sup>

<sup>1</sup>Kansas State University

**Poster Session VIII**

5:00 PM - 5:45 PM

CHI Health Center Convention Center Grand Ballroom Foyer

5:00 p.m. PSVIII-17 **Assessment of conformational changes across three parities in sows**

Melanie D. Trenhaile-Grannemann <sup>1</sup>, Ronald M. Lewis <sup>2</sup>, Stephen D. Kachman <sup>3</sup>, Kenneth J. Stalder <sup>4</sup>, Benny E. Mote <sup>5</sup>

<sup>1</sup>University of Lincoln-Nebraska, <sup>2</sup>University of Nebraska - Lincoln, <sup>3</sup>University of Nebraska-Lincoln, <sup>4</sup>Iowa State University, <sup>5</sup>Department of Animal Science, University of Nebraska – Lincoln

5:00 p.m. PSVIII-3 **Can the fermentation of insoluble corn fiber be improved in the pig? – An investigation into the in vivo mode of action of xylanase**

Amy L. Petry <sup>1</sup>, Lucas R. Koester <sup>1</sup>, Stephan Schmitz-Esser <sup>1</sup>, Nichole Huntley <sup>2</sup>, Mike Bedford <sup>3</sup>, John Patience <sup>4</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>Mazuri, <sup>3</sup>AB Vista, <sup>4</sup>Oxford Nutrition Consulting, LLC

5:00 p.m. PSVIII-1 **Determination of in vitro DM, N and NDF digestibility and fermentability in novel corn co-products for swine**

Amanda Palowski <sup>1</sup>, Zhaohui Yang <sup>1</sup>, Jae-Cheol Jang <sup>2</sup>, Pedro E. Urriola <sup>1</sup>, Gerald C. Shurson <sup>1</sup>

<sup>1</sup>University of Minnesota, <sup>2</sup>Department of Animal Science, University of Minnesota

5:00 p.m. PSVIII-2 **Dietary supplementation of Bacillus subtilis altered metabolites in the intestine of weaned pigs**

Yijie He <sup>1</sup>, Kwangwook Kim <sup>2</sup>, Cynthia N. Jinno <sup>2</sup>, Xunde Li <sup>2</sup>, Yanhong Liu <sup>2</sup>

<sup>1</sup>Department of Animal Science, University of California, Davis, <sup>2</sup>University of California, Davis

5:00 p.m. PSVIII-4 **Effect of coarse wheat bran and crude protein level in nursery diets without zinc oxide on pig performance**

Kelsey L. Batson <sup>1</sup>, Hilda I. Calderon <sup>2</sup>, Mike D. Tokach <sup>1</sup>, Jason C. Woodworth <sup>1</sup>, Robert D. Goodband <sup>1</sup>, Steve S. Dritz <sup>1</sup>, Joel M. DeRouchey <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Statistics, College of Arts and Sciences, Kansas State University

5:00 p.m. PSVIII-5 **Effect of glycemic and endocrine response to feeding time in pregnant sows**

Hayford Manu <sup>1</sup>, Lee SuHyup <sup>2</sup>, Samuel Kofi Baidoo <sup>2</sup>

<sup>1</sup>University of Minnesota Southern Research and Outreach Center, Waseca, MN, <sup>2</sup>University of Minnesota - SROC, Waseca

5:00 p.m. PSVIII-6 **Effect of Pellet Die Thickness and Conditioning Temperature During the Pelleting Process on Phytase Stability**

Courtney N. Truelock <sup>1</sup>, Nelson E. Ward <sup>2</sup>, Jonathan W. Wilson <sup>3</sup>, Charles R. Stark <sup>1</sup>, Chad B. Paulk <sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>DSM Nutritional Products, <sup>3</sup>Veramaris

5:00 p.m. PSVIII-7 **Effects of Bacillus subtilis on colon digesta metabolomic profiles in weanling pigs experimentally infected with a pathogenic E. coli**

Kwangwook Kim <sup>1</sup>, Yanhong Liu <sup>1</sup>

<sup>1</sup>University of California, Davis

5:00 p.m. PSVIII-8 **Effects of dietary L-arginine on growth performance, nutrient digestibility, and meat quality in finishing pigs**

Seok wooJung <sup>1</sup>, Je Min Ahn <sup>2</sup>, Yong Min Kim <sup>1</sup>, Sumya Kibria <sup>2</sup>, Huan Shi <sup>1</sup>, In Ho Kim <sup>1</sup>

<sup>1</sup>Dankook University, <sup>2</sup>Dankook university

5:00 p.m. PSVIII-9 **Effects of different sources and levels of dietary iron and selenium on the postprandial net portal appearance of these minerals in pigs**

Danyel Bueno Dalto <sup>1</sup>, Jacques Matte <sup>1</sup>

<sup>1</sup>Agriculture and Agri-Food Canada

5:00 p.m. PSVIII-10 **Effects of enzyme supplementation in corn distiller's dried grains with solubles (DDGS) diets on growth performance in broilers: a meta-analysis**

Jae-Cheol Jang <sup>1</sup>, Zhikai Zeng <sup>1</sup>, Pedro E. Urriola <sup>2</sup>, Gerald C. Shurson <sup>2</sup>

<sup>1</sup>Department of Animal Science, University of Minnesota, <sup>2</sup>University of Minnesota

5:00 p.m. PSVIII-11 **Effects of feeding diets containing corn distiller's dried grains with solubles (DDGS) on growth performance in broilers: a meta-analysis**

Jae-Cheol Jang <sup>1</sup>, Zhikai Zeng <sup>1</sup>, Pedro E. Urriola <sup>2</sup>, Gerald C. Shurson <sup>2</sup>

<sup>1</sup>Department of Animal Science, University of Minnesota, <sup>2</sup>University of Minnesota

5:00 p.m. PSVIII-12 **Effects of increasing iron dextran dosage at birth on hematological profile, growth performance, and tissue mineral concentrations of pigs in the nursery**

Tyler B. Chevalier <sup>1</sup>, Harold J. Monegue <sup>1</sup>, Merlin D. Lindemann <sup>1</sup>

<sup>1</sup>University of Kentucky

5:00 p.m. PSVIII-19 **Evaluation of Cooling Pads on Late Lactating Sows**

Larissa K. Shirley <sup>1</sup>, Morgan Burgett <sup>2</sup>, Tyler C. Field <sup>2</sup>, Allan P. Schinckel <sup>2</sup>, Kara R. Stewart <sup>2</sup>, Ricardo M. Garcia <sup>2</sup>, Jay S. Johnson <sup>3</sup>, Robert M. Stwalley <sup>2</sup>

<sup>1</sup>Department of Animal Science, Purdue University, <sup>2</sup>Purdue University, <sup>3</sup>USDA-ARS Livestock Behavior Research Unit

5:00 p.m. PSVIII-13 **Finishing non-castrated male and female pigs have different response to the lysine to energy ratio**

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

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

5:00 p.m. PSVIII-14 **Impact of altering Lys:energy ratio during gestation on offspring post-wean growth performance**

Tiffany Bruhn <sup>1</sup>, Hyatt Frobose <sup>2</sup>, Crystal L. Levesque <sup>1</sup>

<sup>1</sup>South Dakota State University, <sup>2</sup>Gestal - JYGA Technologies

5:00 p.m. PSVIII-20 **Impact of soybean meal inclusion in late gestation on sow productivity and litter performance**

Abigail R. Loucks <sup>1</sup>, Dana van Sambeek <sup>2</sup>, Elizabeth A. Hines <sup>3</sup>

<sup>1</sup>Penn State University, <sup>2</sup>U.S. Army Combat Capabilities and Development Command Soldier Center, <sup>3</sup>Pennsylvania State University

5:00 p.m. PSVIII-21 **Parasite prevalence and fecal egg counts on organic pig farms**

Yuzhi Li <sup>1</sup>, Alexander Hernandez <sup>2</sup>, Rick Carr <sup>3</sup>, Shelby Dukes <sup>3</sup>, Maria Lou <sup>4</sup>, Diane DeWitte <sup>5</sup>

<sup>1</sup>West Central Research and Outreach Center, University of Minnesota, <sup>2</sup>Kutztown University of Pennsylvania, <sup>3</sup>Rodale Institute, <sup>4</sup>University of Minnesota, <sup>5</sup>University of Minnesota Extension

5:00 p.m. PSVIII-15 **Phytogenics reduces medical treatment in nursery pigs affected by post-weaning diarrhea**

Kory Moran <sup>1</sup>, Tobias Aumiller <sup>2</sup>, Klaus Männer <sup>3</sup>, Jurgen Zentek <sup>4</sup>, Jan Dirk van der Klis <sup>1</sup>, Andreas Muller <sup>1</sup>

<sup>1</sup>Delacon Biotechnik GmbH, <sup>2</sup>Delacon, <sup>3</sup>Freie Universität Berlin, Berlin, Germany, 14195, <sup>4</sup>Free University of Berlin

5:00 p.m. PSVIII-16 **The effects of adding two organic acid blends with or without high levels of zinc or copper, on post-weaning pig performance.**

Casey L. Bradley <sup>1</sup>, Jon R. Bergstrom <sup>2</sup>, Jeremiah Nemechek <sup>1</sup>, J.D. Hahn <sup>3</sup>

<sup>1</sup>DSM Nutritional Products LLC, <sup>2</sup>DSM, <sup>3</sup>DSM Nutritional Products

5:00 p.m. PSVIII-22 **Utilization of NUtrack to assess sire influence on pig activity and activity effects on weight**

Lexi M. Ostrand <sup>1</sup>, Garret See <sup>2</sup>, Melanie D. Trenhaile-Grannemann <sup>3</sup>, Ty B. Schmidt <sup>4</sup>, Eric Psota <sup>5</sup>, Gary Rohrer <sup>6</sup>, Benny E. Mote <sup>4</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska - Lincoln, <sup>3</sup>University of Lincoln-Nebraska, <sup>4</sup>Department of Animal Science, University of Nebraska – Lincoln, <sup>5</sup>University of Nebraska, <sup>6</sup>US Meat Animal Research Center

**Wednesday, March 4, 2020**

**Poster Session IX**

7:30 AM - 8:15 AM

CHI Health Center Convention Center Grand Ballroom Foyer

7:30 a.m. PSIX-1 **Altering dietary fiber components mitigates severity of *Brachyspira hyodysenteriae* challenge**

Emma T. Helm<sup>1</sup>, Nicholas K. Gabler<sup>1</sup>, Eric R. Burrough<sup>1</sup>

<sup>1</sup>Iowa State University

7:30 a.m. PSIX-2 **Amino acid digestibility and digestible indispensable amino acid scores of a few protein isolates and concentrates derived from cereal grains, plant proteins, or dairy proteins**

Hannah M. Bailey<sup>1</sup>, Hans H. Stein<sup>2</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>University of Illinois at Urbana-Champaign

7:30 a.m. PSIX-20 **Antibacterial activity of an essential oil combination against several common enteropathogens in swine production**

Bernat Canal<sup>1</sup>, Luis Mesas<sup>1</sup>, Cinta Sol<sup>1</sup>, Monica Puyalto<sup>1</sup>, Ana Carvajal<sup>2</sup>, Manuel Gomez<sup>2</sup>, Juan Jose Mallo<sup>1</sup>

<sup>1</sup>Norel SA, <sup>2</sup>Universidad de Leon

7:30 a.m. PSIX-4 **Concentrations of digestible and metabolizable energy and digestibility of phosphorus in a new source of high-protein distillers dried grains with solubles fed to growing pigs**

Minoy A. Cristobal<sup>1</sup>, Su A Lee<sup>1</sup>, Hans H. Stein<sup>1</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign

7:30 a.m. PSIX-5 **Dietary supplementation of *Bacillus subtilis* modified fecal microbiome of weaned pigs in comparison to antibiotics**

Cynthia N. Jinno<sup>1</sup>, Yijie He<sup>2</sup>, Xunde Li<sup>1</sup>, Yanhong Liu<sup>1</sup>

<sup>1</sup>University of California, Davis, <sup>2</sup>Department of Animal Science, University of California, Davis

7:30 a.m. PSIX-3 **Effect of a combination of brown, green and red seaweeds on performance of nursery and growing-finishing pigs, and on carcass characteristics**

Hayford Manu<sup>1</sup>, Qiang Huang<sup>2</sup>, Devi Pangen<sup>3</sup>, Augustine Owusu-Asiedu<sup>4</sup>, Jason Sands<sup>5</sup>, Samuel Kofi Baidoo<sup>2</sup>

<sup>1</sup>University of Minnesota Southern Research and Outreach Center, Waseca, MN, <sup>2</sup>University of Minnesota - SROC, Waseca, <sup>3</sup>University of Minnesota - Department of Animal Science, <sup>4</sup>Ocean Harvest Technology, Milltown, Galway, Ireland, <sup>5</sup>Ocean Harvest Technology

7:30 a.m. PSIX-6 **Effect of dacitic tuff breccia in nursery diets on pig growth performance, blood parameters, and intestinal morphology**

Ricardo M. Garcia<sup>1</sup>, Jon Ferrel<sup>2</sup>, Morgan T. Thayer<sup>1</sup>, Julie F. Mahoney<sup>1</sup>, Alan W. Duttlinger<sup>1</sup>, Clayton S. Chastain<sup>1</sup>, Brian T. Richert<sup>1</sup>, John Scott Radcliffe<sup>1</sup>

<sup>1</sup>Purdue University, <sup>2</sup>Azomite

7:30 a.m. PSIX-7 **Effects of a dietary seaweed product on sow progeny performance, fecal consistency, and fecal microbiota during gestation, lactation, nursery and grow-finish periods**

Hadley Williams<sup>1</sup>, Leandro Del Tuffo<sup>1</sup>, Mike D. Tokach<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Robert D. Goodband<sup>1</sup>, Fernanda Laskoski<sup>1</sup>, Carine M. Vier<sup>2</sup>, Laura Constance<sup>1</sup>, Megan niederwerder<sup>1</sup>, Emily Arkfeld<sup>3</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Genus PIC, <sup>3</sup>Triumph Foods

7:30 a.m. PSIX-8 **Effects of an algae-clay complex-based feed additive and diet formulation regimen on finishing pig growth performance and carcass characteristics**

Hadley Williams<sup>1</sup>, Leandro Del Tuffo<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Mike D. Tokach<sup>1</sup>, Robert D. Goodband<sup>1</sup>, Jake Erceg<sup>2</sup>, Marie Gallissot<sup>2</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Olmix

7:30 a.m. PSIX-9 **Effects of Conditioning Temperature on Pellet Quality of Nursery Pig Diets**

Gage E. Nichols<sup>1</sup>, Charles R. Stark<sup>1</sup>, Aundria M. Ogles<sup>1</sup>, Kara M. Dunmire<sup>2</sup>, Chad B. Paulk<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Grain Science & Industry, Kansas State University

7:30 a.m. PSIX-10 **Effects of SID Lysine:Calorie NE ratio on the Growth Performance and Carcass Characteristics of DNA 600 Sired Pigs**

Brittany Carrender<sup>1</sup>, Hayden E. Williams<sup>2</sup>, Mandy Gerhart<sup>1</sup>, Kyle Coble<sup>3</sup>, Joel M. DeRouchey<sup>2</sup>, Mike D. Tokach<sup>2</sup>, Steve S. Dritz<sup>2</sup>, Jason C. Woodworth<sup>2</sup>, Robert D. Goodband<sup>2</sup>

<sup>1</sup>JBS, <sup>2</sup>Kansas State University, <sup>3</sup>JBS Live Pork

7:30 a.m. PSIX-11 **Effects of Spray-Dried Lactococcus-Based Fermentation Products on Growth Performance of Nursery Pigs**

Kara M. Dunmire<sup>1</sup>, Michaela B. Braun<sup>2</sup>, Gage E. Nichols<sup>2</sup>, Caitlin E. Evans<sup>2</sup>, Marut Saensukjaroenphon<sup>2</sup>, Courtney N. Truelock<sup>2</sup>, Jason C. Woodworth<sup>2</sup>, Jarred Callura<sup>3</sup>, Chad B. Paulk<sup>2</sup>

<sup>1</sup>Department of Grain Science & Industry, Kansas State University, <sup>2</sup>Kansas State University, <sup>3</sup>Intrexon Corporation

7:30 a.m. PSIX-12 **Effects of tannin supplementation on zootechnical performance and blood parameters of weaned piglets**

Monika Hejna<sup>1</sup>, Matteo Dell'Anno<sup>1</sup>, Valentina Caprarulo<sup>1</sup>, Stefania Sotira<sup>1</sup>, Luciana Rossi<sup>2</sup>

<sup>1</sup>Department of Health, Animal Science and Food Safety, University of Milan, Italy, <sup>2</sup>University of Milan

7:30 a.m. PSIX-13 **Effects of zinc and copper levels on growth performance of nursery pigs**

Henrique S. Cemin<sup>1</sup>, Luke A. Swalla<sup>1</sup>, Jamie L. Pietig<sup>1</sup>, Sharlie A. Hansen<sup>1</sup>, Ernie L. Hansen<sup>1</sup>

<sup>1</sup>Hubbard Feeds

7:30 a.m. PSIX-14 **Evaluation of high-protein distillers dried grains on growth performance and carcass characteristics of growing-finishing pigs**

Zhong-Xing Rao<sup>1</sup>, Mike D. Tokach<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Robert D. Goodband<sup>1</sup>, Hilda I. Calderon<sup>2</sup>, Mallorie Wilken<sup>3</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Statistics, College of Arts and Sciences, Kansas State University, <sup>3</sup>ICM Inc.

7:30 a.m. PSIX-15 **Extrusion of corn-soybean product blends in replacement of soybean meal in weanling pig diets**

Natália C. Milani <sup>1</sup>, Vinicius R.C. Paula <sup>2</sup>, Cândida P.F. Azevedo <sup>2</sup>, Anderson A. Sedano <sup>2</sup>, Hélio Moreira Junior <sup>2</sup>, Raquel S. Fernandes <sup>2</sup>, José M. M. Andrade <sup>2</sup>, Urbano Ruiz <sup>2</sup>

<sup>1</sup>University of Sao Paulo, <sup>2</sup>University of São Paulo

7:30 a.m. PSIX-16 **Growth performance and blood immune parameters of nursery pigs fed canola meal-based diets**

Jinsu Hong <sup>1</sup>, Joy Scaria <sup>2</sup>, Tofuko A. Woyengo <sup>3</sup>

<sup>1</sup>Department of Animal Science, South Dakota State University, <sup>2</sup>Department of Veterinary & Biomedical Sciences, South Dakota State University, <sup>3</sup>Assistant professor

7:30 a.m. PSIX-17 **Investigating the biological activities of sodium cellobionate produced from cellulosic biomass**

Lauren L. Kovanda <sup>1</sup>, Zhiliang Fan <sup>1</sup>, Xunde Li <sup>1</sup>, Yanhong Liu <sup>1</sup>

<sup>1</sup>University of California, Davis

7:30 a.m. PSIX-18 **Prediction of urinary P excretion as a tool to assess mineral status of growing pigs**

Marie-Pierre Létourneau-Montminy <sup>1</sup>, Theophane de Rauglaudre <sup>1</sup>

<sup>1</sup>Université Laval

7:30 a.m. PSIX-19 **The impact of piglet nursing location along the sow udder line on piglet gain and subsequent weaning weight**

Shannon L. Dierking <sup>1</sup>, Harold J. Monegue <sup>1</sup>, Merlin D. Lindemann <sup>1</sup>

<sup>1</sup>University of Kentucky

**Ruminant Nutrition IV: By-products and Alternative Feeds**

Chair: Andrea Watson, University of Nebraska-Lincoln

8:30 AM - 9:45 AM

211/212

8:30 a.m. 247 **The Effect of Diet on the Microbial Community Structure and Composition in Lactating Jersey Cows Consuming a Mixture of Straw and Dry Distillers Grains Plus Solubles in Replacement of Alfalfa Hay**

Allison Knoell <sup>1</sup>, Nirosh Aluthge <sup>2</sup>, Waseem Abbas <sup>1</sup>, Alison Neujahr <sup>3</sup>, Jared Judy <sup>2</sup>, Dennis Morris <sup>2</sup>, Hannah C. Wilson <sup>4</sup>, Kevin J. Herrick <sup>5</sup>, Paul J. Kononoff <sup>3</sup>, Samodha C. Fernando <sup>3</sup>

<sup>1</sup>Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE 68583, USA, <sup>2</sup>UNL,

<sup>3</sup>University of Nebraska-Lincoln, <sup>4</sup>University of Nebraska Lincoln, <sup>5</sup>POET

8:45 a.m. 248 **Evaluation of RUP Content of Nexpro Dried Distillers Grains Plus Solubles in Corn Silage Based Growing Calf Diets**

Aksel Wiseman <sup>1</sup>, Zachary Carlson <sup>1</sup>, Levi J. McPhillips <sup>1</sup>, Scott Tilton <sup>2</sup>, Andrea K. Watson <sup>1</sup>, Galen E. Erickson <sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Flint Hills Resources

9:00 a.m. 249 **Evaluation of Fluidquip Dried Distillers Grains Plus Solubles in Cattle Finishing Diets**

Aksel Wiseman <sup>1</sup>, Brad Boyd <sup>1</sup>, Levi J. McPhillips <sup>1</sup>, Scott Tilton <sup>2</sup>, Andrea K. Watson <sup>1</sup>, Galen E. Erickson <sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>Flint Hills Resources

9:15 a.m. 250 **Evaluation of Green Grass as a Feed Ingredient in Beef Finishing Rations and Impact on Cattle Performance, Carcass Characteristics, and Fatty Acid Profiles in Meat**

Mitchell M. Norman<sup>1</sup>, Nicolas Bland<sup>1</sup>, Bradley M. Boyd<sup>2</sup>, Brianna Conroy<sup>2</sup>, Chris Calkins<sup>3</sup>, Andrea K. Watson<sup>3</sup>, Galen E. Erickson<sup>3</sup>

<sup>1</sup>University of Nebraska Lincoln, <sup>2</sup>University of Nebraska - Lincoln, <sup>3</sup>University of Nebraska-Lincoln

9:30 a.m. 251 **Evaluation of Condensed Algal Residue Solubles as an Ingredient in Cattle Finishing Diets**

John C. Gibbons<sup>1</sup>, Andrea K. Watson<sup>2</sup>, Galen E. Erickson<sup>2</sup>, Bradley M. Boyd<sup>3</sup>, Levi J. McPhillips<sup>2</sup>, Hannah C. Wilson<sup>1</sup>, Jonathan W. Wilson<sup>4</sup>

<sup>1</sup>University of Nebraska Lincoln, <sup>2</sup>University of Nebraska-Lincoln, <sup>3</sup>University of Nebraska - Lincoln, <sup>4</sup>Veramaris

**Teaching and Extension Education Symposium: Women in Animal Science**

Chair: Jack Whittier, University of Nebraska

8:30 AM - 10:15 AM

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8:30 a.m. **Teaching and Extension Education Symposium Introduction**

8:35 a.m. 252 **Expand Your Horizons—competition Helps!**

Gretchen Myers Hill<sup>1</sup>

<sup>1</sup>Michigan State University

8:50 a.m. 253 **Make Yourself Really Good at Your Career**

Temple Grandin<sup>1</sup>

<sup>1</sup>Colorado State University

9:05 a.m. 254 **Presentation: Dr. Andrea Cupp**

Andrea S. Cupp<sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln

9:20 a.m. 255 **Lessons Learned by a Woman in Animal Science**

Lee-Anne Huber<sup>1</sup>

<sup>1</sup>University of Guelph

9:35 a.m. **Teaching and Extension Education Symposium Panel Discussion**

**Nonruminant Nutrition VI: Nursery Nutrition**

Chair: Mariana Menegat, Holden Farms; Jorge Estrada, Premex

8:30 AM - 12:00 PM

Ballroom B

8:30 a.m. 257 **Young Scholar Presentation: Using an Integrated Systems Biology Platform to Determine the Mode of Action of Feed Additives in Nursery Pig Diets**

Michaela Trudeau<sup>1</sup>, Huyen Tran<sup>2</sup>, Brenda de Rodas<sup>2</sup>, Peter Karnezos<sup>2</sup>, Andres Gomez<sup>3</sup>, Chi Chen<sup>3</sup>, Pedro E. Urriola<sup>3</sup>, Gerald C. Shurson<sup>3</sup>

<sup>1</sup>Department of Animal Science, University of Minnesota, <sup>2</sup>Purina Animal Nutrition, <sup>3</sup>University of Minnesota



9:00 a.m. 258 **Effects of Iron Administration Timing on Subsequent Nursery Performance**

Hayden E. Williams<sup>1</sup>, Ryan T. Maurer<sup>1</sup>, Brittany Carrender<sup>2</sup>, Joel M. DeRouchey<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Mike D. Tokach<sup>3</sup>, Robert D. Goodband<sup>1</sup>, Kyle Coble<sup>4</sup>, Andrew Holtcamp<sup>5</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>JBS, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>4</sup>JBS Live Pork, <sup>5</sup>CEVA Animal Health

9:15 a.m. 259 **Effects of Dietary Crude Protein Level on Growth Performance, Fecal Score, Gastrointestinal Ph, and Blood Characteristics in Weanling Pigs Fed Antibiotic-free Diets**

Joseph R. Limbach<sup>1</sup>, Estefania Perez-Calvo<sup>2</sup>, Hans H. Stein<sup>3</sup>

<sup>1</sup>University of Illinois, <sup>2</sup>DSM Nutritional Products France, <sup>3</sup>University of Illinois at Urbana-Champaign

9:30 a.m. 260 **Effects of Iron Administration Timing on Pre-weaning Performance and Hematological Criteria in Pigs**

Hayden E. Williams<sup>1</sup>, Ryan T. Maurer<sup>1</sup>, Brittany Carrender<sup>2</sup>, Joel M. DeRouchey<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Mike D. Tokach<sup>3</sup>, Robert D. Goodband<sup>1</sup>, Kyle Coble<sup>4</sup>, Andrew Holtcamp<sup>5</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>JBS, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>4</sup>JBS Live Pork, <sup>5</sup>CEVA Animal Health

9:45 a.m. 261 **Increasing Dietary Amylose Reduces Rate of Starch Digestion and Increases Microbial Fermentation in Weaned Pigs**

F.P.Y. Tan<sup>1</sup>, L. F. Wang<sup>2</sup>, E. Beltranena<sup>3</sup>, R.T. Zijlstra<sup>1</sup>

<sup>1</sup>University of Alberta, <sup>2</sup>Department of Agricultural, Food and Nutritional Science, University of Alberta, <sup>3</sup>Alberta Agriculture and Forestry

10:00 a.m. **Nonruminant Nutrition VI Break**

10:15 a.m. 262 **Effects of Phase-feeding Programs on Growth Performance of Nursery Pigs**

Henrique S. Cemin<sup>1</sup>, Luke A. Swalla<sup>1</sup>, Jamie L. Pietig<sup>1</sup>, Sharlie A. Hansen<sup>1</sup>, Stewart T. Galloway<sup>1</sup>, Ernie L. Hansen<sup>1</sup>

<sup>1</sup>Hubbard Feeds

10:30 a.m. 263 **Effects of Soybean Meal Level on Growth Performance of 11- to 25-kg Nursery Pigs**

Henrique S. Cemin<sup>1</sup>, Mike D. Tokach<sup>2</sup>, Steve S. Dritz<sup>3</sup>, Jason C. Woodworth<sup>3</sup>, Joel M. DeRouchey<sup>3</sup>, Robert D. Goodband<sup>3</sup>

<sup>1</sup>Hubbard Feeds, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>3</sup>Kansas State University

10:45 a.m. 264 **Effects of Water Quality on Nursery Pig Performance and Health**

Brigit Lozinski<sup>1</sup>, Brent Frederick<sup>2</sup>, Adrienne Hilbrands<sup>3</sup>, Yuzhi Li<sup>3</sup>, Milena Saqui-Salces<sup>4</sup>, Gerald C. Shurson<sup>4</sup>, Pedro E. Urriola<sup>4</sup>, Melissa Wilson<sup>4</sup>, Lee J. Johnston<sup>3</sup>

<sup>1</sup>University of Minnesota-Twin Cities, Department of Animal Science, <sup>2</sup>Christensen Farms, <sup>3</sup>West Central Research and Outreach Center, University of Minnesota, <sup>4</sup>University of Minnesota

11:00 a.m. 265 **Evaluating the Route of Antibiotic Administration and Its Effect on Nursery Pig Growth Performance**

Wade M. Hutchens<sup>1</sup>, Annie B. Lerner<sup>2</sup>, Hadley Williams<sup>1</sup>, Mike D. Tokach<sup>3</sup>, Steve S. Dritz<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Robert D. Goodband<sup>1</sup>, Hilda I. Calderon<sup>4</sup>, Kellen A. Habib<sup>5</sup>, Victor L. Ishengoma<sup>6</sup>, T.G. Nagaraja<sup>7</sup>, Raghavendra G. Amachawadi<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Schwartz Farms, Inc., <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>4</sup>Department of Statistics, College of Arts and Sciences, Kansas State University, <sup>5</sup>Department of Clinical Sciences, College of Veterinary Medicine, Manhattan, KS 66506., <sup>6</sup>Department of Clinical Sciences, College of Veterinary Medicine, Manhattan, KS 66506, <sup>7</sup>Department of Diagnostic Medicine & Pathobiology, College of Veterinary Medicine, Manhattan, KS 66506

11:15 a.m. 266 **Dietary Strategies in Diets Without Zinc Oxide for Nursery Pigs**

Fernanda Laskoski<sup>1</sup>, Wade M. Hutchens<sup>1</sup>, Mike D. Tokach<sup>2</sup>, Jason C. Woodworth<sup>1</sup>, Robert D. Goodband<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506

11:30 a.m. 267 **Determining the Effects of Diet Complexity and Body Weight Categories on Growth Performance of Nursery Pigs**

Raquel Lunedo<sup>1</sup>, Dani Perondi<sup>1</sup>, Carine M. Vier<sup>2</sup>, Uislei A. Orlando<sup>2</sup>, Gustavo Lima<sup>3</sup>, Ademir Junior<sup>1</sup>, Rafael Kummer<sup>1</sup>

<sup>1</sup>Master Agroindustrial, <sup>2</sup>Genus PIC, <sup>3</sup>Agroceres PIC

11:45 a.m. 268 **Administration of a *bacillus* Probiotic to Sows Improves Growth Response and Health of Their Progeny After Weaning**

Ellen Davis<sup>1</sup>, Jen Christianson<sup>2</sup>, Samantha Anderson<sup>2</sup>, Tom G. Rehberger<sup>1</sup>, Justin Sawall<sup>2</sup>

<sup>1</sup>Arm & Hammer Animal and Food Production, <sup>2</sup>Arm & Hammer

**Nonruminant Nutrition VII: Gestation and Lactation Nutrition**

Chair: Márcio Gonçalves, Swine It; David Rosero, The Hanor Company

8:30 AM - 12:00 PM

Ballroom C

8:30 a.m. 269 **Effects of High Phytase Supplementation in Lactation Diets on Sow and Litter Performance**

Kelsey L. Batson<sup>1</sup>, Hilda I. Calderon<sup>2</sup>, Robert D. Goodband<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Mike D. Tokach<sup>3</sup>, Steve S. Dritz<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Statistics, College of Arts and Sciences, Kansas State University, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506

8:45 a.m. 270 **Efficacy of *Bacillus Subtilis* and *Bacillus Licheniformis* (BioPlus2B®) on Sow Lactation Performance, Litter Growth, Nursery Performance and Health of Pigs Challenged with PRRS Virus Post-wean**

Steve P. Lerner<sup>1</sup>, Sage R. Becker<sup>2</sup>, Scott A. Dee<sup>3</sup>, Steve J. Kitt<sup>4</sup>, Mark J. Bertram<sup>5</sup>, Todd E. Williams<sup>6</sup>, Brent J. Pepin<sup>6</sup>, Dan B. Hanson<sup>7</sup>, Erin A. Little<sup>6</sup>, Paul F. Frahm<sup>3</sup>, Roy Edler<sup>6</sup>

<sup>1</sup>Chr. Hansen, Inc., <sup>2</sup>Iowa State University, <sup>3</sup>Pipestone Applied Research, <sup>4</sup>First Choice Livestock, LLC, <sup>5</sup>First Choice Livestock LLC, <sup>6</sup>Pipestone Veterinary Services, <sup>7</sup>Pipestone applied research

9:00 a.m. 271 **Maternal Transfer of Phytogetic Compounds Supplemented During Gestation And/or Lactation of Hyperprolific Sows: Effects on Reproductive Performance and Colostrum-milk Features**

David Reyes-Camacho <sup>1</sup>, José Francisco Pérez <sup>2</sup>, Tobias Aumiller <sup>3</sup>, Jan Dirk van der Klis <sup>4</sup>, David Solà-Oriol <sup>5</sup>

<sup>1</sup>Autonomous University of Barcelona, <sup>2</sup>Animal Nutrition and Welfare Service. Universitat Autònoma de Barcelona (UAB), <sup>3</sup>Delacon, <sup>4</sup>Delacon Biotechnik GmbH, <sup>5</sup>Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain

9:15 a.m. 272 **Hybrid Rye May Replace up to 75% of the Corn in Diets for Gestating and Lactating Sows Without Negatively Impacting Sow and Piglet Performance**

Molly L. McGhee <sup>1</sup>, Hans H. Stein <sup>1</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign

9:30 a.m. 273 **Impact of Either High Energy or High SID lys:me on Parity 1 Performance in Lactation**

Katherine A. McCormick <sup>1</sup>, Michael E. Johnston <sup>1</sup>, Grant I. Petersen <sup>1</sup>

<sup>1</sup>United Animal Health

9:45 a.m. 274 **Determination of Phosphorus Requirement of Lactating Sows Based on 24-hour Urinary Phosphorus Excretion**

Mariola Grez Capdeville <sup>1</sup>, Ning Lu <sup>2</sup>, Uislei A. Orlando <sup>3</sup>, Jon R. Bergstrom <sup>4</sup>, Thomas D. Crenshaw <sup>1</sup>

<sup>1</sup>Department of Animal and Dairy Sciences, University of Wisconsin-Madison, <sup>2</sup>PIC, <sup>3</sup>Genus PIC, <sup>4</sup>DSM

10:00 a.m. 275 **Feeding a Whole-cell Inactivated Pichia Guilliermondi Yeast to Gestating and Lactating Sows in a Commercial Production System**

Morgan T. Thayer <sup>1</sup>, Ricardo M. Garcia <sup>1</sup>, Alan W. Duttlinger <sup>1</sup>, Julie F. Mahoney <sup>1</sup>, Allan P. Schinckel <sup>1</sup>, Matthew D. Asmus <sup>2</sup>, Daniel B. Jones <sup>3</sup>, James L. Dunn <sup>3</sup>, Brian T. Richert <sup>1</sup>

<sup>1</sup>Purdue University, <sup>2</sup>ADM, <sup>3</sup>ADM Animal Nutrition

10:15 a.m. **Nonruminant Nutrition VII Break**

10:30 a.m. 276 **Impact of Pre-farrow Feeding Amount and Timing on Stillborn Rate of Sows**

Kayla A. Miller <sup>1</sup>, Trey A. Kellner <sup>2</sup>

<sup>1</sup>Iowa State University, <sup>2</sup>AMVC Nutritional Services

10:45 a.m. 277 **Effects of Timing and Amount of Feed Prior to Farrowing on Sow and Litter Performance Under Commercial Conditions**

Kiah M. Gourley <sup>1</sup>, Analicia J. Swanson <sup>1</sup>, Rafe Royall <sup>2</sup>, Jason C. Woodworth <sup>1</sup>, Joel M. DeRouchey <sup>1</sup>, Mike D. Tokach <sup>3</sup>, Steve S. Dritz <sup>1</sup>, Kayla J. Milnes <sup>4</sup>, Chad W. Hastad <sup>4</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Texas Tech University, <sup>3</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506, <sup>4</sup>New Fashion Pork

11:00 a.m. 278 **Feeding a Whole-cell Inactivated Pichia Guilliermondi Yeast to Gestating and Lactating Sows over Two Consecutive Parities**

Morgan T. Thayer <sup>1</sup>, Matthew D. Asmus <sup>2</sup>, Gene Gourley <sup>3</sup>, Emily Bruder <sup>4</sup>, Daniel B. Jones <sup>5</sup>

<sup>1</sup>Purdue University, <sup>2</sup>ADM, <sup>3</sup>Gourley Research Group, <sup>4</sup>Protein Sources, <sup>5</sup>ADM Animal Nutrition

11:15 a.m. 279 **Evaluation of the NRC (2012) Model in Estimating Standard Maintenance Metabolizable Energy Requirement of PIC Sows During Mid-gestation**  
Mark Knauer<sup>1</sup>, Jerry Purvis<sup>2</sup>, Ning Lu<sup>3</sup>, Uislei A. Orlando<sup>4</sup>, Carine M. Vier<sup>4</sup>, Wayne R. Cast<sup>4</sup>  
<sup>1</sup>North Carolina State University, <sup>2</sup>Purvis Farms, <sup>3</sup>PIC, <sup>4</sup>Genus PIC

11:30 a.m. 280 **Effects of Metabolizable Energy and Standardized Ileal Digestible Lysine Levels on Lactating Sow and Litter Performance**  
Gustavo Silva<sup>1</sup>, Robyn Thompson<sup>2</sup>, Brandon Knopf<sup>2</sup>, Laura L. Greiner<sup>1</sup>, Jose A. Soto<sup>3</sup>, Carine M. Vier<sup>4</sup>, Ning Lu<sup>5</sup>, Uislei A. Orlando<sup>4</sup>  
<sup>1</sup>Iowa State University, <sup>2</sup>Carthage Innovative Swine Solutions, <sup>3</sup>Ajinomoto Heartland, <sup>4</sup>Genus PIC, <sup>5</sup>PIC

11:45 a.m. 25 **The Effects of Closely Meeting Estimated Daily Lysine and Energy Requirements for Pregnant Sows Across Two Pregnancies on Sow Body Weight Change and Litter Characteristics at Birth**  
Victoria Stewart<sup>1</sup>, Lauren Hansen<sup>1</sup>, Ira B. Mandell<sup>1</sup>, Lee-Anne Huber<sup>1</sup>  
<sup>1</sup>University of Guelph

#### **Nonruminant Nutrition VIII: Minerals - Sponsored by Chemlock Nutrition**

Chair: Caroline González-Vega, Evonik Nutrition & Care GmbH;  
Fangzhou Wu, Pipestone Nutrition  
8:30 AM - 12:00 PM  
Ballroom A

8:30 a.m. 281 **Young Scholar Presentation: Digestibility of Calcium and Phosphorus in Feed Ingredients Fed to Gestating Sows and Growing Pigs**  
Su A Lee<sup>1</sup>, Hans H. Stein<sup>1</sup>  
<sup>1</sup>University of Illinois at Urbana-Champaign

9:00 a.m. 282 **Effect of Formulating Diets Based on a Ratio Between STTD Ca and STTD P and the Inclusion of Phytase on the Calcium and Phosphorus Balance of Growing Pigs**  
Vanessa Lagos<sup>1</sup>, Michael R. Bedford<sup>2</sup>, Hans H. Stein<sup>3</sup>  
<sup>1</sup>University of Illinois, <sup>2</sup>AB Vista, <sup>3</sup>University of Illinois at Urbana-Champaign

9:15 a.m. 283 **Performance and Mineral Fecal Excretion of Post Weaned Piglets Are Influenced by Different Sources of Zinc Oxide**  
Vitor Hugo C. Moita<sup>1</sup>, Márvio L. Abreu<sup>2</sup>, Bruno N. Silva<sup>3</sup>, Rhuan F. Chaves<sup>2</sup>, Ronaldo Lucas S. Tolentino<sup>4</sup>, Mateus F. Gonçalves<sup>3</sup>, Valesca Lima<sup>3</sup>  
<sup>1</sup>North Carolina State University, <sup>2</sup>Universidade Federal de Lavras, <sup>3</sup>Universidade Federal de Minas Gerais - Campus Montes Claros, <sup>4</sup>Universidade Estadual de Londrina

9:30 a.m. 284 **Effect of Formulating Diets Based on a Ratio Between STTD Ca and STTD P and the Inclusion of Phytase on Growth Performance, Plasma Ca and P, and Bone Ash of Pigs from 11 to 130 Kg**  
Vanessa Lagos<sup>1</sup>, Michael R. Bedford<sup>2</sup>, Hans H. Stein<sup>3</sup>  
<sup>1</sup>University of Illinois, <sup>2</sup>AB Vista, <sup>3</sup>University of Illinois at Urbana-Champaign

9:45 a.m. 285 **Effects of Dietary MINTREX Trace Minerals and Validation of Serum Biomarkers in Measuring Lameness in Pigs**

Karen J. Wedekind<sup>1</sup>, Ashley Provin<sup>1</sup>, Chelsie Foran<sup>1</sup>, Tom Hampton<sup>1</sup>, Ping Ren<sup>2</sup>, Juxing Chen<sup>3</sup>, Sara Herbstreit<sup>1</sup>, Mercedes Vazquez<sup>4</sup>

<sup>1</sup>Novus International, Inc., <sup>2</sup>University of Minnesota - Department of Animal Science, <sup>3</sup>Novus International Inc., <sup>4</sup>Novus International, Inc

10:00 a.m. **Nonruminant Nutrition VIII Break**

10:15 a.m. 286 **Effects of Dietary MINTREX Trace Minerals in a Sodium Urate-induced Transient Lameness Model in Pigs and Validation of Lameness Measurements**

Karen J. Wedekind<sup>1</sup>, Ashley Provin<sup>1</sup>, Chelsie Foran<sup>1</sup>, Tom Hampton<sup>1</sup>, Ping Ren<sup>2</sup>, Juxing Chen<sup>3</sup>, Sara Herbstreit<sup>1</sup>, Mercedes Vazquez<sup>4</sup>

<sup>1</sup>Novus International, Inc., <sup>2</sup>University of Minnesota - Department of Animal Science, <sup>3</sup>Novus International Inc., <sup>4</sup>Novus International, Inc

10:30 a.m. 287 **Effects of Copper Hydroxychloride on Growth Performance and Abundance of Genes Involved in Lipid Metabolism of Growing Pigs**

Charmaine D. Espinosa<sup>1</sup>, Robert Scott Fry<sup>2</sup>, Matthew Kocher<sup>2</sup>, Hans H. Stein<sup>1</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>Micronutrients USA LLC

10:45 a.m. 288 **Dietary Calcium Decreases Digestibility of Phosphorus in Late Gestating Sows, but Blood Biomarkers May Be Used to Predict Bone Formation and Resorption**

Su A Lee<sup>1</sup>, Michael R. Bedford<sup>2</sup>, Hans H. Stein<sup>1</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign, <sup>2</sup>AB Vista

11:00 a.m. 289 **Effects of Supranutritional Levels of Dietary Zinc Oxide on Zinc, Copper, and Iron Metabolism in Post-weaned Pigs**

Danyel Bueno Dalto<sup>1</sup>, Frédéric Guay<sup>2</sup>, Yan Martel-Kennes<sup>2</sup>, Guylaine Talbot<sup>1</sup>, Martin Lessard<sup>1</sup>, Jacques Matte<sup>1</sup>, Jérôme Lapointe<sup>1</sup>

<sup>1</sup>Agriculture and Agri-Food Canada, <sup>2</sup>Université Laval

11:15 a.m. 290 **Phosphorus and Calcium Requirements of Growing Pigs Predicted by Mechanistic Modelling**

Marion Lautrou<sup>1</sup>, Candido Pomar<sup>2</sup>, Jean-Yves Dourmad<sup>3</sup>, Agnès Narcy<sup>3</sup>, Philippe Schmidely<sup>4</sup>, Marie-Pierre Létourneau-Montminy<sup>5</sup>

<sup>1</sup>Laval University, <sup>2</sup>Agriculture and Agri-food Canada, <sup>3</sup>INRA, <sup>4</sup>INRA - AgroParisTech, <sup>5</sup>Université Laval

11:30 a.m. 291 **Determining the Effects of Manganese Source and Level on Growth Performance, Carcass Characteristics, and Economics of Growing-finishing Pigs**

Hayden R. Kerkaert<sup>1</sup>, Jason C. Woodworth<sup>1</sup>, Joel M. DeRouchey<sup>1</sup>, Steve S. Dritz<sup>1</sup>, Mike D. Tokach<sup>2</sup>, Robert D. Goodband<sup>1</sup>

<sup>1</sup>Kansas State University, <sup>2</sup>Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506

11:45 a.m. 292 **The Effect of Pharmacological Zinc on Oral Salmonella Vaccine Efficacy**

Carson M. DeMille<sup>1</sup>, Eric R. Burrough<sup>2</sup>, Nicholas K. Gabler<sup>2</sup>

<sup>1</sup>Iowa State University Dept of Animal Science, <sup>2</sup>Iowa State University

**Ruminant Nutrition V: Environment and Animal Performance**

Chair: Alejandro Relling, The Ohio State University

9:45 AM - 10:30 AM

211/212

9:45 a.m. 293 **Evaluation of the Water Footprint of Beef Cattle Production in Nebraska**

Tyler Spore<sup>1</sup>, Mesfin Mekonnen<sup>2</sup>, Christopher Neale<sup>2</sup>, Andrea K. Watson<sup>1</sup>, James C. MacDonald<sup>3</sup>, Galen E. Erickson<sup>1</sup>

<sup>1</sup>University of Nebraska-Lincoln, <sup>2</sup>University of Nebraska - Lincoln, <sup>3</sup>University of Nebraska

10:00 a.m. 294 **Effects of Bedding Application on Growth Performance and Carcass Traits in Finishing Beef Steers During the Winter and Spring in Eastern South Dakota**

Dathan Smerchek<sup>1</sup>, Zachary K. Smith<sup>1</sup>

<sup>1</sup>South Dakota State University

10:15 a.m. 295 **Impact of Increasing Levels of Fumonisin on Performance of Finishing Beef Steers**

Jenny Jennings<sup>1</sup>, Steve Ensley<sup>2</sup>, Ty Lawrence<sup>3</sup>, Cathy Lockard<sup>1</sup>

<sup>1</sup>Texas A&M AgriLife Research, <sup>2</sup>Kansas State Veterinary Diagnostic Laboratory, <sup>3</sup>West Texas A&M University