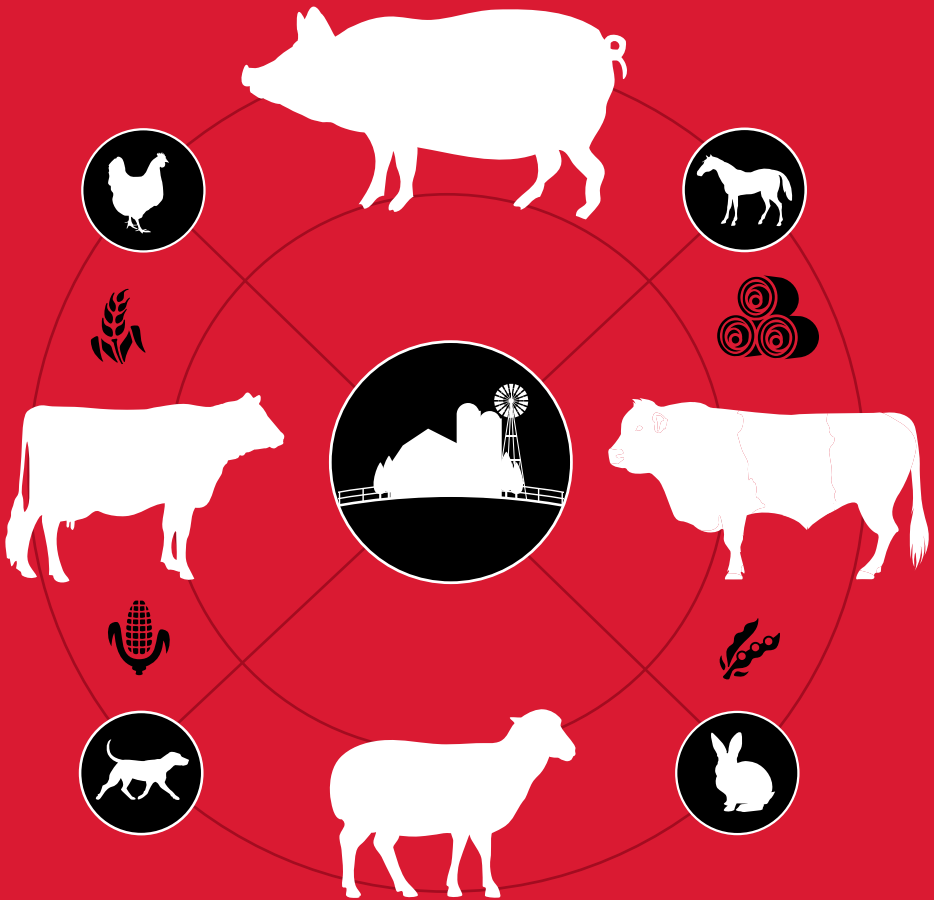




ASAS Midwestern Section and ADSA Midwest Branch

SCIENTIFIC SESSIONS & BUSINESS MEETING



Omaha, NE • March 13 – 15, 2017



American Dairy Science Association®

MIDWEST

American Society of Animal Science



FUTURE MEETINGS

OMAHA, NE

2018 March 12 - March 14

2019 March 11 - March 13



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Dr. Timothy Safranski, ASAS/ADSA Director-at-Large
University of Missouri, Columbia, MO

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REGISTRATION

CenturyLink Center Floor 2, Grand Ballroom Foyer

Sunday, March 12, 3:00 PM – 5:00 PM

Monday, March 13, 7:00 AM – 6:00 PM

Tuesday, March 14, 7:00 AM – 4:00 PM

Wednesday, March 15, 7:00 AM – 11:00 AM

HOTEL INFORMATION

Hilton Omaha – Headquarters

1001 Cass St.

Omaha, NE 68154

402-998-3400

Courtyard by Marriott Omaha Downtown – Student/Overflow

101 South 10th St.

Omaha, NE 68102

402-346-2200

Hampton Inn and Suites Omaha Downtown

1212 Cuming St.

Omaha, NE 68102

402-345-5501

Hilton Garden Inn and Suites Omaha Downtown / Old Market Area

1005 Dodge St.

Omaha, NE 68102

402-341-4400

SPEAKER UPLOAD ROOM

CenturyLink Center, 215

Monday, March 13, 7:30 AM – 5:00 PM

Tuesday, March 14, 7:30 AM – 5:00 PM

Wednesday, March 15, 7:30 AM – 12:00 PM

JOB RESOURCE CENTER

The traditional Job Resource Center and the Cyber Café is located on Floor 2 in the Grand Ballroom Foyer of the CenturyLink Center.

Students, graduates and experienced professionals are encouraged to post résumés at the Job Resource Center. Professionals from hundreds of companies, universities and governmental agencies are represented each year at the Midwest Meeting. Prospective employees are requested to bring 25 to 50 copies of their (two-page) résumés.

Employers from industry, academia and government are encouraged to post position announcements. Employers are asked to bring 25 to 50 copies of all position announcements.

Job descriptions and résumés can be posted at the Job Resource Center in Omaha beginning at 7:00 AM on Monday, March 13, 2017.

ARPAS CONTINUING EDUCATION UNITS

The 2017 Midwest Meeting has been approved for up to 16 continuing education units (CEUs) for the American Registry of Professional Animal Scientists (ARPAS) certification requirements. ARPAS exams are available Tuesday, March 14 at 7:30 AM and 5:00 PM. Stop by the ARPAS Booth to sign up.

ASAS CAREER CENTER

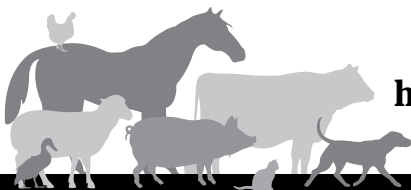
ASAS Career Center is the premier electronic recruitment resource for the animal science industry. This site is a great tool that offers benefits to both employers and job seekers alike.

EMPLOYERS

Here, employers and recruiters can access the most qualified talent pool with relevant work experience to fulfill staffing needs.

JOB SEEKERS

This site offers job seekers the opportunity to send information out to potential employers and search job postings.



<http://careers.asas.org/>

SCHEDULE OF EVENTS

All rooms are at the CenturyLink Convention Center in Omaha, NE unless otherwise noted.

*Schedule Note: Presenting authors of Competition Posters are required to stand by their designated screen 15 minutes prior to the start of Poster Sessions I and II. If you are presenting a competition poster, you may be asked to remain by your poster longer than the scheduled hour listed in this program. Please plan accordingly.

SUNDAY, MARCH 12, 2017

6:30 PM Welcome Reception, Durham Railroad Museum

MONDAY, MARCH 13, 2017

7:30 AM Gary Allee Breakfast, Grand Ballroom North
8:00 AM Gary Allee Symposium
Swine Industry Expansion: Needs and Opportunities Within,
Grand Ballroom South
10:00 AM Judges' Brunch, Hilton-Omaha, Blackstone A
12:00 PM Digestive Physiology of Pigs Lecture and Lunch
Featuring Dr. Eugeni Roura from The University of Queensland on
Nutrient Sensing on Appetite in Pigs, Grand Ballroom North
12:45 PM* Poster Session I, Grand Ballroom Foyer
1:00 PM David Baker Symposium
Current Issues in Amino Acids in Pigs, Grand Ballroom South
1:45 PM Graduate Student Oral Competition – MS I, 212
1:45 PM Graduate Student Oral Competition – MS II, 210/211
1:45 PM Graduate Student Oral Competition – PhD, 216
1:45 PM Undergraduate Student Oral Competition I, 213
1:45 PM Undergraduate Student Oral Competition II, 214
4:45 PM* Poster Session II, Grand Ballroom Foyer
6:00 PM Klopenfenstein Opening Lecture, Grand Ballroom North
6:30 PM Reception and Recognition of Young Scholar Winners,
Grand Ballroom North
7:00 PM AQ Quiz Bowl Finals and Awards Presentation,
Grand Ballroom North
7:30 PM Graduate Student Mixer, Upstream Brewing Company

TUESDAY, MARCH 14, 2017

- 7:30 AM Poster Session III, Grand Ballroom Foyer
- 7:30 AM Graduate Student Breakfast and Learn, Hilton Omaha, Saint Nicholas
- 8:30 AM Physiology Symposium
Molecular Events Impacting Production of Fertile Gametes, 205/206
- 8:30 AM Growth, Development, Muscle Biology and Meat Science
Symposium
Is Bigger Better? A Discussion about the Benefits and Implications of
Pigs Becoming Heavier, 216
- 8:30 AM Nonruminant Nutrition Symposium
Programming of the Immune System, 203/204
- 8:30 AM David Schingoethe Symposium
Key Challenges to Dairy Cattle Production in the Midwest, 210/211
- 8:30 AM Ruminant Nutrition I: By-Products and Beef, 213
- 8:30 AM Ruminant Nutrition II: Beef and General, 214
- 8:30 AM Extension – Swine, 207
- 8:30 AM Breeding and Genetics I, 212
- 8:30 AM Nonruminant Nutrition I: Minerals, 201
- 8:30 AM Nonruminant Nutrition II: Feed Processing/Ingredients, 202
- 12:50 PM Bentley Lecture and Lunch
Featuring Dr. Kenny Rutherford from Scotland's Rural College
on Pain Management in Livestock: Understanding the Views of
Producers and Veterinarians,
Grand Ballroom North
- 12:45 PM Poster Session IV, Grand Ballroom Foyer
- 1:45 PM Extension – Dairy Symposium
The Optimization of the Nutrition of Transition Dairy Cows, 210/211
- 1:45 PM Breeding and Genetics Symposium
Genomics of Reproduction, 201
- 1:45 PM Ruminant Nutrition Symposium
Genetic, Dietary and Microbial Contribution to Feed Efficiency in
Cattle, 203/204
- 1:45 PM Animal Behavior, Housing and Well-Being Symposium
Finding Effective Ways to Manage Pain in Livestock,
Grand Ballroom South
- 1:45 PM Billy Day Symposium
Batch Farrowing: Reasons, Limitations and Reproductive
Management, 205/206
- 1:45 PM Growth, Development, Muscle Biology and Meat Science, 212
- 1:45 PM Physiology I: General, 207
- 1:45 PM Nonruminant Nutrition III: Nursery Pig I, 213

-
- 1:45 PM Nonruminant Nutrition IV: Gestation/Lactation, 214
1:45 PM Nonruminant Nutrition V: Enzymes, 216
5:00 PM Poster Session V, Grand Ballroom Foyer
6:00 PM Business Meeting and Awards Program, Grand Ballroom North
7:00 PM Awards Reception, Grand Ballroom North

WEDNESDAY, MARCH 15, 2017

- 7:30 AM Poster Session VI, Grand Ballroom Foyer
8:30 AM Harlan Ritchie Symposium, 205/206
8:30 AM Animal Behavior, Housing and Well-Being, Grand Ballroom South
8:30 AM Physiology II: Swine, 207
8:30 AM Nonruminant Nutrition VI: Grow/Finish Management and Nutrition, 214
8:30 AM Breeding and Genetics II, 212
8:30 AM Nonruminant Nutrition VII: Feed Additives/Ingredients, 213
8:30 AM Nonruminant Nutrition VIII: Nursery Pig II, Grand Ballroom North
8:30 AM Ruminant Nutrition III: Dairy, 210/211

**Download the Scientific Program
to your Mobile Device**



CAMERA, VIDEO CAMERA, AND CELL PHONE POLICY

Use of cameras, video cameras, and cell phones (for calls or as cameras) is prohibited during oral and poster presentations to minimize disruption and unauthorized dissemination of data. Violators may be asked to leave the session/conference. Exceptions to this policy must be approved in advance by the Midwest ASAS Program Secretary.

POSTER SCHEDULE

All posters are presented as ePosters. This allows all posters to be on display for the duration of the meeting and available to all attendees to view at their leisure.

The posters are divided into six poster sessions to allow greater access to presenters. The list of poster sessions, with presentation times appears below. All posters sessions take place in the Grand Ballroom Foyer.

Competition Posters

Presenting authors of Competition Posters are required to stand by their designated screen 15 minutes prior to the start of the General Poster Session.

*Competition Posters in Session I should arrive at 12:30 PM.

**Competition Posters in Session II should arrive at 4:45 PM.

If you are presenting a competition poster, you may be asked to remain by your poster longer than the scheduled hour listed in this program. Please plan accordingly.

MONDAY, MARCH 13, 2017

Poster Session I – Authors present 12:45 PM – 1:30 PM

*Graduate Student Poster Competition - MS I

*Graduate Student Poster Competition – PhD

*Undergraduate Student Poster Competition I

Nonruminant Nutrition I: Feed Additives I

Nonruminant Nutrition II: Enzymes

Poster Session II – Authors present 5:00 PM – 5:45 PM

**Graduate Student Poster Competition - MS II

**Undergraduate Student Poster Competition II

Nonruminant Nutrition III: Gestation/Lactation

Nonruminant Nutrition IV: Nursery Pig I

TUESDAY, MARCH 14, 2017

Poster Session III – Authors present 7:30 AM – 8:15 AM

Extension – Dairy

Extension – Swine

Growth, Development, Muscle Biology and Meat Science

Nonruminant Nutrition V: Feed Additives II

Breeding and Genetics

Poster Session IV – Authors present 12:45 PM – 1:30 PM

Nonruminant Nutrition VI: Nursery Pig II
Nonruminant Nutrition VII: Feed Additives III
Nonruminant Nutrition VIII: General

Poster Session V – Authors present 5:00 PM – 5:45 PM

Nonruminant Nutrition IX: Feed Processing/Ingredients
Physiology
Nonruminant Nutrition X: Minerals

WEDNESDAY, MARCH 15, 2017

Poster Session IV – Authors present 7:30 AM – 8:15 AM

Animal Behavior, Housing and Well-Being
Equine Science
Extension – Beef/Small Ruminant
Ruminant Nutrition

EPOSTER HELP DESK HOURS

CenturyLink Center, Grand Ballroom Foyer

Monday, March 13, 9:00 AM – 7:00 PM

Tuesday, March 14, 7:00 AM – 5:45 PM

Wednesday, March 15, 7:00 AM – 12:30 PM

SPECIAL EVENTS

Welcome Reception

Sunday, March 12 • 6:30 PM • Durham Museum

Join us at the historic Durham Museum as we welcome Midwest 2017 attendees to a new city. Beautiful architecture blends with memories of a time gone by at The Durham Museum. Making its home in one of Omaha's most unique treasures, Union Station, the Durham Museum offers a fascinating look at the history of the region and offers a broad-range of traveling exhibits covering subjects ranging from history and culture, to science, industry and more through our affiliation with the Smithsonian Institution and strong ties with the Library of Congress, National Archives and the Field Museum. The Durham Museum is located at 801 S. 10th Street and is a 20 minute walk from the Convention Center and Headquarters Hotel.

Klopfenstein Opening Lecture

Monday March 13 • 6:00 PM • Grand Ballroom North

The Klopfenstein Student Excellence Scholarship Fund was established in honor of Dr. Terry Klopfenstein. Klopfenstein is a highly respected and productive scientist and teacher who he has given the livestock industry outstanding leadership. The Klopfenstein Student Excellence Scholarship Fund is used to fund the Klopfenstein Lectureship speaker. Speakers are selected from internationally recognized experts in beef cattle nutrition, forage utilization, co-product usage in beef cattle diets, and beef cattle production systems.

Digestive Physiology of Pigs Lecture and Lunch

Monday, March 13 • 12:00 PM • Grand Ballroom North

Nutrient Sensing and Appetite in Pigs

Dr. Eugeni Roura, The University of Queensland

Nutritional chemosensing has been defined as the science studying the perception of nutrients in animals. Dietary nutrients are perceived in the oral cavity mainly through the taste system, which involves a large set of taste receptors. This presentation will explore the functional properties of bitter taste receptors. *Sponsored by: DPP-NA. Registration is required; attendance is limited to first 400 registrants. Registration is \$15.00.*

Reception and Recognition of Young Scholar Winners

Monday, March 13 • 6:30 PM • Grand Ballroom North

Join us for the opening reception of the 2016 Midwest Meeting. This is a great time to catch up with your colleagues and recognize the 2017 Young Scholar Winners. Young Scholars must be in attendance to receive their award.

ASAS Academic Quadrathlon Quiz Bowl Finals and Award Presentation

Monday, March 13 • 7:00 PM • Grand Ballroom North

ASAS is excited to offer our undergraduates the chance to compete in the Midwestern Section Academic Quadrathlon (AQ). The AQ competition concludes with the Quiz

Bowl final Monday night as the final two teams compete for the honor of representing the Midwestern Section at the National AQ in Baltimore. Following the Quiz Bowl the AQ Awards will be presented. Please come out and support our undergraduates. *Sponsored by: Agri-King, ASAS Foundation, and University of Nebraska-Lincoln*

Graduate Student Mixer

Monday, March 13 • 8:00 PM • Upstream Brewing Company

Join your fellow graduate students at a mixer for all to enjoy. This event will provide an opportunity to catch up with old friends and make new ones. *Preregistration is highly recommended; all students are welcome. Registration fee is \$10.00.*

Graduate Student Breakfast and Learn

Tuesday, March 14 • 7:30 AM • Hilton Omaha, Saint Nicholas

This Breakfast and Learn features former Senior Media Relations Strategist of Charleston/Orwig Inc. and founder of CS Communications, LLC., Chuck Sanger. Sanger is a communications professional, spokesperson and writer with more than 20 years of corporate and agency experience in media relations, issues/reputation management, public relations and general marketing communications. Specific practice areas include media relations, crisis communications, reputation management and event marketing. Journalism experience includes editorial positions with two daily newspapers and several freelance writing assignments. *Sponsored by: Zoetis, Zinpro, ARPAS and ASAS. Preregistration is required. Registration is \$10.00.*

Bentley Lecture and Lunch

Tuesday, March 14 • 12:50 PM • Grand Ballroom North

Pain Management in Livestock: Understanding the Views of Producers and Veterinarians

Dr. Kenny Rutherford, Scotland's Rural College

Treatment of pain is an important part of livestock management. In the UK various pain management options are available. Yet despite this, and a historical emphasis on animal well being, use of pain relief for livestock is perceived to be limited. This presentation will assess the evidence regarding how much livestock producers actually use pain relief, and discuss the contributory factors which dictate whether pain relief is used or not. *Sponsored by: Bentley Appreciation Club. Registration is required; attendance is limited to first 400 registrants. Registration is \$15.00.*

Business Meeting and Awards Program

Tuesday, March 14 • 6:00 PM • Grand Ballroom North

Please join the ASAS Midwestern Section / ADSA® Midwest Branch Joint Board this evening for the annual Business Meeting and 2017 Awards Program. Immediately following the Awards Program, everyone is invited to the Awards Reception.

Awards Reception

Tuesday, March 14 • 7:00 PM • Grand Ballroom North

Come and join us after the Business Meeting and Awards Program to celebrate and congratulate all of the 2017 Midwest award winners.

A SPECIAL THANK YOU

From the American Society of Animal Science Midwestern Section and the American Dairy Science Midwest Branch for support of the 2017 awards to the following companies:

Outstanding Young Scientist Awards

Extension Award – Purina Animal Nutrition
Research Award – DSM Nutritional Products, Inc.
Teaching Award – ADSA/ASAS MW Board

Agribusiness Award

BASF

Student Competition Awards

Graduate Oral, M.S. – ADSA/ASAS MW Board
Graduate Oral, Ph.D. – ADSA/ASAS MW Board
Graduate Poster, M.S. – ADSA/ASAS MW Board
Graduate Poster, Ph.D. – ADSA/ASAS MW Board
Undergraduate Oral – Gretchen Hill Appreciation Club, ASAS Foundation
Undergraduate Poster – Gretchen Hill Appreciation Club, ASAS Foundation

The Tim S. Stahly & Ernie Peo Outstanding Swine Nutrition Midwest Graduate Student Award

The Tim S. Stahly & Ernie Peo Memorial and Tribute Fund

Academic Quadrathlon

Agri-King
ASAS Foundation
University of Nebraska – Lincoln

2017 MIDWEST MEETING SPONSORS

Platinum Level

American Society of Animal Science (ASAS)
ASAS Foundation
Diamond V

Gold Level

Dupont

Silver Level

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DPP-NA
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Kemin
NutriQuest
Puretein Agri, LLC.
Purina Animal Nutrition
Ralco
Zinpro

Bronze Level

ADM Animal Nutrition, Inc.
Agri-King, Inc.
BASF Animal Nutrition
Beijing Keyoung Technology Co., Ltd.
Furst McNess
King Techina Group
Micronutrients
University of Nebraska – Lincoln
JBS United, Inc.
Vetagro, Inc.

Contributor Level

Adisseo
American Dairy Science Association (ADSA)

ORAL SESSIONS AND SYMPOSIA
MONDAY, MARCH 13, 2017

GARY ALLEE SYMPOSIUM
SWINE INDUSTRY EXPANSION:
NEEDS AND OPPORTUNITIES WITHIN

Chair: Rodney Hinson, JBS United
Sponsor: ASAS Foundation - Gary Allee Appreciation Club
8:00 AM - 12:00 PM
Grand Ballroom South

- 8:00 AM Welcoming Remarks
- 8:10 AM 78 **Overview of Swine Industry Growth: Packing and Production Facilities Needed for Growth.**
*L. Mulberry**, and *D. DiPietre, Knowledge Ventures, LLC, Columbia, MO*
- 9:05 AM 79 **What Does Growth Mean for the Swine Industry: Economics and Exports.**
S. Malakowsky, AgStar Financial Services, Mankato, MN*
- 10:00 AM **Break**
- 10:15 AM 80 **Nutritional Philosophies for Formulation and Practical Approaches to Feeding During Times of Depressed Margins.**
P. M. Cline, Christensen Farms, Sleepy Eye, MN*
- 11:05 AM 81 **Technologies to Reduce the Reliance on Antibiotics.**
C. Johnson, Carthage Veterinary Service, Carlyle, IL*

DAVID BAKER SYMPOSIUM
CURRENT ISSUES IN AMINO ACIDS IN PIGS

Chair: Hans H. Stein, University of Illinois at Urbana-Champaign
Sponsor: ASAS Foundation - David Baker Appreciation Club
1:00 PM - 5:15 PM
Grand Ballroom South

- 1:00 PM Welcoming Remarks
- 1:05 PM 48 **New Directions and Technologies in AA Research for Livestock.**
P. J. Moughan, Riddet Institute, Massey University, Palmerston North, New Zealand*

- 1:55 PM 230 **Effects of Dietary Standardized Ileal Digestible Ile:Lys Ratio on Growth Performance of 6 to 11 Kg Pigs.**
*A. B. Clark^{*1}, M. D. Tokach¹, J. M. DeRouchey¹, S. S. Dritz¹, K. J. Touchette², R. D. Goodband¹, and J. C. Woodworth¹, ¹Kansas State University, Manhattan, ²Ajinomoto Heartland, Inc., Chicago, IL*
- 2:10 PM 46 **Basic Concepts and Potential Impact of Precision Feeding Technologies in the Production of Growing-Finishing Pigs.**
C. Pomar^{}, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*
- 2:50 PM **Break**
- 3:10 PM 240 **Threonine:Lysine Ratio Requirement in Lactating Sows.**
*L. Greiner^{*1}, A. Graham¹, K. J. Touchette², M. A. D. Goncalves³, U. A. D. Orlando³, and J. Connor⁴, ¹Carthage Innovative Swine Solutions, LLC, Carthage, IL, ²Ajinomoto Heartland, Inc., Chicago, IL, ³Genus PIC, Hendersonville, TN, ⁴Carthage Veterinary Service, Ltd., Carthage, IL*
- 3:25 PM 47 **Use of Low Protein Diets for Weanling Pigs.**
M. Nyachoti^{}, University of Manitoba, Winnipeg, MB, Canada*
- 4:05 PM 241 **Impact of Feeding Reduced Dietary Crude Protein Diets with Crystalline Amino Acid Supplementation in Late Gestation on Nitrogen Balance of Sows.**
*N. Regmi^{*1}, J. Babcock¹, D. Chamberlin¹, K. J. Touchette², J. L. De Vries¹, S. Zhang¹, and N. L. Trottier¹, ¹Michigan State University, East Lansing, ²Ajinomoto Heartland, Inc., Chicago, IL*
- 4:20 PM 49 **Amino Acid Requirements of Sows Nursing 13 to 14 Piglets.**
P. K. Theil^{}, Aarhus University, Tjele, Denmark*
- 5:00 PM **Concluding Remarks**

GRADUATE STUDENT ORAL COMPETITION - MS I

Chair: Daniel W. Shike, University of Illinois at Urbana-Champaign

Sponsor: ADSA/ASAS MW Board

1:45 PM - 3:45 PM

212

- 1:45 PM 82 **Growth Performance Responses of Growing Pigs when Fed Corn-Soybean Meal Diets with Corn DDGS Treated with Fiber Degrading Enzymes with or without Extended Steeping.**
*Y. Rho^{*1}, K. Moran², D. Wey¹, C. Zhu¹, M. C. Walsh³, E. Kiarie¹, E. van Heugten², and C. F. M. de Lange¹, ¹University of Guelph, Department of Animal Biosciences, ON, Canada, ²North Carolina State University, Raleigh, ³Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom*

- 2:00 PM 83 **Effects of Yeast-Derived Rumen Escape Microbial Protein on Lactational Performance and Metabolic Status of Transition Dairy Cows.**
*V. Higginson**, *B. Baurhoo*, *Y. Schuermann*, *M. Taibi*, *A. St-Yves*, *R. Duggavathi*, and *A. Mustafa*, *McGill University, Sainte-Anne De Bellevue, QC, Canada*
- 2:15 PM 84 **Effect of Diet Complexity and Multicarbohydase on Growth Performance and Intestinal Morphology in Weaned Pigs.**
*B. Koo*¹, *C. F. M. de Lange*², and *C. M. Nyachoti*¹, ¹*University of Manitoba, Winnipeg, MB, Canada*, ²*University of Guelph, Department of Animal Biosciences, ON, Canada*
- 2:30 PM 85 **Assessment of Growth and Health Performance of Pigs Born from Magnetically Nanopurified Boar Spermatozoa.**
*C. L. Durfey*¹, *S. F. Liao*¹, *D. D. Burnett*¹, *M. A. Crenshaw*¹, *C. S. Steadman*¹, *S. T. Willard*¹, *P. L. Ryan*¹, *H. Clemente*², and *J. M. Feugang*¹, ¹*Mississippi State University, Department of Animal and Dairy Sciences, Mississippi State*, ²*Clemente Associates, Madison, CT*
- 2:45 PM **Break**
- 3:00 PM 86 **Timely on-Farm Euthanasia of Pigs: Development of an Innovative and Interactive Training Program for Caretakers.**
*C. R. Mullins**, *M. Pairis-Garcia*, and *M. R. B. Campler*, *The Ohio State University, Columbus*
- 3:15 PM 87 **Determining the Phosphorus Release for Natuphos E 5,000 G Phytase for Nursery Pigs.**
*K. M. Gourley**, *J. C. Woodworth*, *J. M. DeRouchey*, *M. D. Tokach*, *S. S. Dritz*, and *R. D. Goodband*, *Kansas State University, Manhattan*
- 3:30 PM 88 **Effects of Cow-Calf Production System and Post-Weaning Management on Finishing Performance and Carcass Characteristics of Calves Produced from an Intensively Managed Cow-Calf Production System.**
*S. E. Gardine**, *University of Nebraska, Lincoln*

GRADUATE STUDENT ORAL COMPETITION - MS II

Chair: Kendall C. Swanson, North Dakota State University

Sponsor: ADSA/ASAS MW Board

1:45 PM - 4:00 PM

210/211

- 1:45 PM 89 **The Effects of Hydroponic Wheat Fodder on Fecal Metabolites in Equines.**
*J. M. Francis**, *G. C. Handlos*, *G. A. Apgar*, and *E. B. Venable*, *Southern Illinois University, Carbondale*

- 2:00 PM 90 **Effect of Essential Oils or Tylosin on Performance, Liver Abscesses, Carcass Characteristics and Meat Quality in Feedlot Steers.**
*J. R. Pukrop^{*1}, B. T. Campbell², and J. P. Schoonmaker¹, ¹Purdue University, West Lafayette, IN, ²DSM Nutritional Products, LLC., Parsippany, NJ*
- 2:15 PM 91 **Assessment of an Alternative Technique for Measuring Body Temperature in Pigs.**
*A. L. Petry^{*1}, W. S. McGilvray¹, A. R. Pendleton², and A. R. Rakhshandeh¹, ¹Texas Tech University, Lubbock, ²South Plains College, Lubbock, TX*
- 2:30 PM 92 **Influence of GnRH Supplementation at CIDR Removal on Estrus Expression and Interval to Estrus in Beef Cattle.**
J. J. J. Rich^{}, E. J. Northrop, E. L. Larimore, and G. A. Perry, Department of Animal Science, South Dakota State University, Brookings*
- 2:45 PM **Break**
- 3:00 PM 93 **Influence of Ethanol Co-Products and Barley on Growth Performance and Carcass Characteristics of Growing-Finishing Pigs in Liquid or Dry Feeding Systems.**
B. Tostenson^{}, A. Tekeste, D. Pangeni, H. Manu, P. Ren, X. Yang, and S. K. Baidoo, University of Minnesota, Southern Research and Outreach Center, Waseca*
- 3:15 PM 94 **Selection of Pigs for Lean Gain when Fed High Fiber Diets to Improve Fiber, N, and Energy Digestibility and Digestive Tract Characteristics.**
J. A. Erceg^{}, K. Moran, M. T. Knauer, and E. van Heugten, North Carolina State University, Raleigh*
- 3:30 PM 95 **Comparison of Expression of Glucose, Fructose and Cationic Amino Acid Transporters in Bovine Caruncular and Inter-Caruncular Tissue Between the Pregnant and Non-Pregnant Uterine Horn from Days 16 to 50 of Gestation.**
*M. S. Crouse^{*1}, K. J. McLean¹, N. P. Greseth¹, M. R. Crosswhite¹, N. Negrin Pereira¹, A. K. Ward¹, L. P. Reynolds¹, C. R. Dahlen¹, B. W. Neville², P. P. Borowicz³, and J. S. Caton¹, North Dakota State University, Department of Animal Sciences, Fargo, ²North Dakota State University, Central Grasslands Research Extension Center, Streeter*
- 3:45 PM 96 **Influence of Thermally Peroxidized Soybean Oil on Growth Performance and Oxidative Status in Growing Pigs.**
*S. C. Lindblom^{*1}, N. K. Gabler¹, and B. J. Kerr², ¹Iowa State University, Ames, ²USDA-ARS, Ames, IA*

GRADUATE STUDENT ORAL COMPETITION - PHD

Chair: Allison M. Meyer, University of Missouri

Sponsor: ADSA/ASAS MW Board

1:45 PM - 4:30 PM

216

- 1:45 PM 97 **The Effect of Isoflurane and Meloxicam on Behaviour of Dairy Goat Kids following Caustery Disbudding.**
M. N. Hempstead^{1,2}, M. Stewart³, J. R. Waas², V. M. Cave¹, and M. A. Sutherland¹, ¹AgResearch, Hamilton, New Zealand, ²The University of Waikato, Hamilton, New Zealand, ³InterAg, Hamilton, New Zealand
- 2:00 PM 98 **Impact of Maternal Protein Restriction on Meat Quality and Fatty Acid Profile of Progeny.**
*M. J. Webb^{*1}, J. J. Kincheloe², R. N. Funston³, K. R. Underwood¹, J. F. Legako⁴, M. G. Gondal¹, K. C. Olson², and A. D. Blair², ¹South Dakota State University, Brookings, ²South Dakota State University, Rapid City, ³University of Nebraska, West Central Research and Extension Center, North Platte, ⁴Texas Tech University, Lubbock*
- 2:15 PM 99 **Effect of Dietary Lysine on the Skeletal Muscle Intramuscular Fat Content and Fatty Acid Composition of Late-Stage Finishing Pigs.**
T. Wang, M. S. Hasan^{}, M. A. Crenshaw, A. T. Sukumaran, T. Dinh, and S. F. Liao, Mississippi State University, Department of Animal and Dairy Sciences, Mississippi State*
- 2:30 PM 100 **Evaluating the Efficacy of Commercial Feed Additives as Potential Porcine Epidemic Diarrhea Virus (PEDV) Mitigation Strategies in Complete Feed and Spray-Dried Porcine Plasma as Determined by Polymerase Chain Reaction Analysis and Bioassay.**
*J. T. Gebhardt^{*1}, J. C. Woodworth¹, C. K. Jones¹, M. D. Tokach¹, J. M. DeRouche¹, R. D. Goodband¹, J. R. Bergstrom², J. F. Bai¹, Q. Chen³, J. Zhang³, P. C. Gauger³, R. J. Derscheid³, D. R. Magstadt³, P. H. Arruda³, A. Ramirez³, R. G. Main³, and S. S. Dritz¹, ¹Kansas State University, Manhattan, DSM Nutritional Products, LLC., Parsippany, NJ, ³Iowa State University, Ames*
- 2:45 PM 101 **Comparison of Digestibility of Amino Acids in Full-Fat Soybean, Soybean Meal, and Peanut Flour Between Broiler Chickens and Pigs.**
*C. S. Park^{*1}, A. Helmbrecht², J. K. Htoo², and O. Adeola¹, ¹Purdue University, Department of Animal Sciences, West Lafayette, IN, ²Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*

- 3:00 PM **Break**
- 3:15 PM 103 **Lipid Peroxidation Decreases Performance and Viability of Nursery Pigs.**
*P. L. Chang^{*1}, D. S. Rosero², C. E. Zier-Rush², S. Smith², J. N. Wood³, K. E. Lloyd³, R. D. Boyd², and E. van Heugten³,*
¹North Carolina State University, Department of Animal Science, Raleigh, ²The Hanor Company, Inc., Franklin, KY, ³North Carolina State University, Raleigh
- 3:30 PM 104 **Genetic, Heterosis and Maternal Effects on Voluntary Water Consumption in Mice.**
M. T. Haag^{}, K. D. Wells, and W. R. Lamberson, University of Missouri, Division of Animal Sciences, Columbia*
- 3:45 PM 105 **A Meta-Analysis on the Effects of Backgrounding Strategy on Feedlot and Carcass Performance.**
H. E. Johnson^{}, and A. DiCostanzo, University of Minnesota, Saint Paul*
- 4:00 PM 106 **Determination of Net Energy Content of Hemp Hulls and Processed Hemp Hull Products Fed to Growing Pigs using Indirect Calorimetry.**
J. W. Kim^{}, and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada*
- 4:15 PM 102 **Effect of Rapeseed Meal Supplementation to Gestation Diet on Reproductive Performance, Blood Profiles and Milk Composition of Sows.**
J. S. Hong^{}, H. B. Choi, J. H. Jeong, L. H. Fang, and Y. Y. Kim, Seoul National University, School of Agricultural Biotechnology, Seoul, The Republic of Korea*

UNDERGRADUATE STUDENT ORAL COMPETITION I

Chair: Paul M. Walker, Illinois State University

Sponsor: ASAS Foundation - Gretchen Hill Appreciation Club

1:45 PM - 4:15 PM

213

- 1:45 PM 379 **Initial Evaluation of Floor Cooling on Lactating Sows Under Acute Heat Stress.**
*A. J. Smith^{*1}, F. A. Cabezon¹, A. P. Schinckel¹, J. N. Marchant-Forde², J. S. Johnson², and R. M. Stwalley³,*
¹Purdue University, Department of Animal Sciences, West Lafayette, IN, ²USDA-ARS, Livestock Behavior Research Unit, West Lafayette, IN, ³Purdue University, Department of Agricultural Biological Engineering, West Lafayette, IN

- 2:00 PM 380 **Effects of Dietary Zinc Source and Concentration on Performance of Growing-Finishing Pigs Reared with Reduced Floor Space.**
*J. P. Holen^{*1}, Z. J. Rambo², A. M. Hilbrands¹, and L. J. Johnston¹, ¹University of Minnesota, West Central Research and Outreach Center, Morris, ²Zinpro Corporation, Eden Prairie, MN*
- 2:15 PM 381 **Effects of Spring Administration of Extended-Release Eprinomectin (LongRange) on Fescue Toxicosis, Performance and Reproduction of Fall-Born Beef Heifers.**
J. M. Kordas^{}, F. A. Ireland, and D. W. Shike, University of Illinois at Urbana-Champaign*
- 2:30 PM 382 **Relationship of Proteolysis and Superoxide Dismutase Activity to Tenderness of Prime and Select Grade Beef.**
*N. J. Herrera^{*1}, E. K. Kunze¹, K. Domenech-Pérez¹, F. A. Ribeiro¹, M. D. Chao², and C. R. Calkins¹, ¹University of Nebraska-Lincoln, ²California State University, Chico*
- 2:45 PM 383 **Effect of Increasing Amount of Amaferm on Animal Performance in Receiving Feedlot Cattle.**
*K. Nickles^{*1}, and A. Relling², ¹The Ohio State University, Columbus, ²The Ohio State University, Department of Animal Sciences, Wooster*
- 3:00 PM **Break**
- 3:15 PM 384 **Influence of Seminal Additives on Sow Fertility.**
*T. Brown^{*1}, J. Ngula², B. Alegre², G. Hernandez¹, R. N. Kirkwood³, R. Manjarin¹, and J. C. D. de Tejerina², ¹California Polytechnic State University, San Luis Obispo, ²University of León, Department of Medicine, Surgery and Veterinary Anatomy, Leon, Spain, ³University of Adelaide, School of Animal and Veterinary Sciences, Roseworthy, Australia*
- 3:30 PM 385 **Neonatal Pig Supplement Effects on Mortality.**
*D. B. Scales^{*1}, and M. Schwartz², ¹Michigan State University, East Lansing, ²Swartz Farms Inc., Sleepy Eye, MN*
- 3:45 PM 386 **Validation of Individual Computerized Sow Feeding Systems in Lactation.**
*G. E. Nichols^{*1}, K. M. Gourley¹, J. M. DeRouchey¹, J. C. Woodworth¹, S. S. Dritzi¹, R. D. Goodband¹, and H. L. Frobose², ¹Kansas State University, Manhattan, ²Jyga Technologies Inc., Quebec City, QC, Canada*

- 4:00 PM 387 **Cooking from a Frozen State, Endpoint Temperature and Post-Cookery Chilling Affect Internal and External Color and Cooking Losses in Ground Beef Patties.**
*Z. M. Hicks**, *J. W. S. Yancey*, *J. A. Apple*, and *T. M. Johnson*,
University of Arkansas, Division of Agriculture, Department of Animal Science, Fayetteville

UNDERGRADUATE STUDENT ORAL COMPETITION II

Chair: Justin W. Rickard, Illinois State University

Sponsor: ASAS Foundation - Gretchen Hill Appreciation Club

1:45 PM - 4:15 PM

214

- 1:45 PM 388 **Piglet Creching Decreases Protein Content in Colostrum.**
*Y. A. Montano*¹, *R. Manjarin*¹, *K. Petrovski*², and
*R. N. Kirkwood*², ¹*California Polytechnic State University, San Luis Obispo*, ²*University of Adelaide, School of Animal and Veterinary Sciences, Roseworthy, Australia*
- 2:00 PM 389 **In-Vitro Dry Matter Digestibility of Multiple Sources of Microalgae and Microalgae Products for Growing Pigs.**
B. W. Hanson^{*1}, *Z. K. Zeng*¹, *G. C. Shurson*¹, *R. Ruan*², *C. Chen*¹,
and *P. E. Urriola*¹, ¹*University of Minnesota, Department of Animal Sciences, St. Paul*, ²*University of Minnesota, Department of Biosystems and Bioproducts Engineering, St. Paul*
- 2:15 PM 390 **Effects of Post-Insemination Dam Nutrition on Longevity and Calf Performance.**
C. L. Mogck^{*}, *J. A. Walker*, and *G. A. Perry*, *South Dakota State University, Department of Animal Science, Brookings*
- 2:30 PM 391 **The Impact of Oregano Essential Oil Supplementation over Two Complete Reproductive Cycles in Multiparous Sows.**
M. Renken^{*}, *B. C. Thaler*, *J. A. Clapper*, and *C. L. Levesque*,
South Dakota State University, Brookings
- 2:45 PM 392 **Cognitive Ability, Activity and Metabolic Rate in Mice Divergent for Water Consumption.**
D. Magee^{*1,2}, *M. T. Haag*², *S. B. Johnson*², *C. Rosenfeld*³,
*K. D. Wells*², and *W. R. Lamberson*², ¹*Tougaloo College, Tougaloo, MS*, ²*University of Missouri, Division of Animal Sciences, Columbia*, ³*University of Missouri, Department of Biomedical Sciences, Columbia*
- 3:00 PM **Break**

- 3:15 PM 393 **A Commercially Available Activity Monitor Attached to the Ear Tag Detects Swine Oral-Nasal-Facial Behaviors.**
*G. V. Hernandez^{*1}, R. Manjarin¹, Y. Luo², A. N. Schmitz², P. J. VandeVord³, E. M. Fievisohn³, and L. E. Hulbert²,*
¹California Polytechnic State University, San Luis Obispo,
²Kansas State University, Manhattan, ³Virginia Polytechnic Institute and State University, Blacksburg
- 3:30 PM 394 **Effects of Maternal Nutrition on Fructose Concentrations and Expression of GLUT5 in Bovine Utero-Placental Fluids and Tissues from Days 16 to 50 of Gestation.**
*N. P. Greseth^{*1}, M. S. Crouse¹, K. J. McLean¹, M. R. Crosswhite¹, N. Negrin Pereira¹, A. K. Ward¹, L. P. Reynolds¹, C. R. Dahlen¹, B. W. Neville², P. P. Borowicz³, and J. S. Caton¹,*
¹North Dakota State University, Department of Animal Sciences, Fargo,
²North Dakota State University, Central Grasslands Research Extension Center, Streeter
- 3:45 PM 395 **Effects of Dietary Probiotics on Cattle Stress Behavior.**
A. J. Kelsey^{}, K. W. Walter, and J. D. Colpoys,* Truman State University, Kirksville, MO
- 4:00 PM 396 **Dimensional Measurements and Visual Appraisal as Predictors of Liveweight of Finishing Pigs.**
S. Royal^{}, J. A. Erceg, J. G. Wiegert, M. T. Knauer, and E. van Heugten,* North Carolina State University, Raleigh

ORAL SESSIONS AND SYMPOSIA
TUESDAY, MARCH 14, 2017

PHYSIOLOGY SYMPOSIUM
MOLECULAR EVENTS IMPACTING PRODUCTION
OF FERTILE GAMETES

Chair: Clay A. Lents, USDA-ARS, U.S. Meat Animal Research Center

Sponsor: Elanco Animal Health

8:30 AM - 11:05 AM

205/206

- 8:30 AM Welcoming Remarks
- 8:35 AM 307 **Precision Animal Breeding to Make Genetically Castrated Animals for Improved Animal Welfare and Alternative Breeding Applications.**
T. S. Sonstegard^{}, S. C. Fahrenkrug, and D. Carlson, Recombinetics, Inc., St. Paul, MN*
- 9:05 AM 308 **A Transgenic Boar Model to Elucidate the Role of Gonadotropin-Releasing Hormone 2 (GnRH2) and Its Receptor in Regulating Testes and Sperm Function.**
*B. R. White^{*1}, A. T. Desaulniers¹, R. A. Cederberg¹, G. A. Mills¹, and C. A. Lents², ¹University of Nebraska-Lincoln, ²USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 9:35 AM **Break**
- 9:50 AM 309 **MicroRNA and Extracellular Vesicle Mediated Cellular Communication within the Bovine Follicle.**
L. K. Christenson^{}, University of Kansas Medical Center, Kansas City*
- 10:20 AM 310 **High-Throughput Sequencing Methods (RNA-Seq and PolyA-Seq) to Characterize Full-Length mRNAs in Transcriptionally-Silent Bull Sperm: Potential Non-Invasive Measures of Bull Fertility.**
B. L. Sartini^{}, University of Rhode Island, Kingston*
- 10:50 AM 311 **Characterization of Proteins in the Bovine Epididymal and Seminal Fluid and Proteins Attached to Epididymal and Ejaculated Sperm.**
*G. A. Perry^{*1}, E. J. Northrop¹, P. J. Gunn², and R. A. Cushman³, ¹South Dakota State University, Department of Animal Science, Brookings, ²Iowa State University, Department of Animal Science, Ames, ³USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*

**GROWTH, DEVELOPMENT, MUSCLE BIOLOGY AND
MEAT SCIENCE SYMPOSIUM
IS BIGGER BETTER? A DISCUSSION ABOUT THE BENEFITS
AND IMPLICATIONS OF PIGS BECOMING HEAVIER**

Chair: Dustin D. Boler, University of Illinois at Urbana-Champaign

Sponsor: JBS United, Inc.

8:30 AM - 11:00 AM

216

- 8:30 AM Welcoming Remarks
- 8:35 AM **Animal Handling, Transport and Lairage Considerations for Increased Market Hog Weights: A Producer Perspective.**
*Paul Ayers**, *The Maschhoffs, LLC., Carlyle, IL*
- 9:05 AM 122 **Heavy Weight Market Pigs: Status of Knowledge and Future Needs Assessment.**
*F. Wu**, *K. R. Vierck, J. M. DeRouchey, T. G. O'Quinn, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. C. Woodworth, Kansas State University, Manhattan*
- 9:35 AM **Break**
- 9:50 AM **Meat Quality of Heavy Weight Pigs.**
*Brandon Fields**, *Pig Improvement Company, Hendersonville, TN*
- 10:20 AM **Potential Implications on Consumer Acceptability of Increasing Carcass Weights of Pigs.**
*Steve Larsen**, *National Pork Board, Des Moines, IA*
- 10:50 AM **Concluding Remarks**

**NONRUMINANT NUTRITION SYMPOSIUM
PROGRAMMING OF THE IMMUNE SYSTEM**

Chair: Crystal L. Levesque, South Dakota State University

Sponsor: Purina Animal Nutrition

8:30 AM - 11:15 AM

203/204

- 8:30 AM 143 **What Are the Nutritional and Metabolic Costs of Immune System Activation in Pigs?**
*N. K. Gabler**¹, *S. M. Curry*¹, *W. P. Schweer*¹, *S. M. Lonergan*¹, *K. Schwartz*¹, *E. R. Burrough*¹, and *C. L. Loving*², ¹*Iowa State University, Ames,* ²*USDA National Animal Disease Center, Ames, IA*

- 9:00 AM 144 **Pre-Programming of the Immune System to Enhance Immunological Capacity of Offspring.**
*N. A. Karrow**, *S. Y. Oh*, *A. Lee*, *Z. Li*, *L. You*, *R. E. Fisher*, and *C. F. M. de Lange*, *University of Guelph, Department of Animal Biosciences, ON, Canada*
- 9:30 AM 145 **Immune System Stimulation Increases Nursery Pig Maintenance Energy Requirements.**
*N. F. Huntley**¹, *C. M. Nyachoti*², and *J. F. Patience*¹, ¹*Iowa State University, Ames*, ²*University of Manitoba, Winnipeg, MB, Canada*
- 9:45 AM 146 **Ingestion of Soy Isoflavones Alters the Immune Response of Pigs during a Respiratory Viral Challenge.**
B. N. Smith, *A. Morris*, *M. L. Oelschlager*, and *R. N. Dilger**, *University of Illinois at Urbana-Champaign*
- 10:00 AM 147 **Early Changes in the Human Microbiome Alter Immune Function and Immunologically Mediated Disorders.**
*J. Vanderhoof**, *Harvard Medical School, Boston, MA*
- 10:30 AM 148 **Immune System Stimulation (ISS) Alters the Protein Deposition (PD) and Increases Dietary Threonine Requirements of Growing Pigs.**
*W. S. McGilvray*¹, *C. F. M. de Lange*², *A. R. Pendleton*³, and *A. Rakhshandeh*¹, ¹*Texas Tech University, Lubbock*, ²*University of Guelph, Department of Animal Biosciences, ON, Canada*, ³*South Plains College, Lubbock, TX*
- 10:45 AM 149 **Management of Clinical or Subclinical Immune Activation.**
*E. Merlot*¹, *A. Prunier*², and *N. Le Floc'h*³, ¹*INRA, Saint-Gilles, France*, ²*PEGASE, Agrocampus Ouest, INRA, Saint-Gilles, France*, ³*INRA-UMR SENAH, Saint-Gilles, France*

DAVID SCHINGOETHE SYMPOSIUM

**KEY CHALLENGES TO DAIRY CATTLE PRODUCTION
 IN THE MIDWEST**

Chair: Daryl H. Kleinschmit, Zinpro Corporation

Sponsor: ASAS Foundation - David Schingoethe Appreciation Club

8:30 AM - 11:35 AM

210/211

- 8:30 AM **Welcoming Remarks**
- 8:32 AM 50 **Inflammation and Immune Activation During Periods of Stress in Dairy Cattle.**
*M. Garcia*², and *B. J. Bradford*, *Kansas State University, Manhattan*

- 9:17 AM 51 **Potential Impact of Midwest Dairy Facility Design on Cow Time Budgets.**
*J. P. Harner**, Kansas State University, Department of Biological and Agricultural Engineering, Manhattan
- 10:02 AM 52 **Key Challenges to Dairy Cattle Production in the Midwest Environment: Forage Quality.**
*D. K. Combs**, University of Wisconsin-Madison
- 10:47 AM 53 **The Next Frontier in Nutritional Modeling and Ration Formulation-Water.**
*D. P. Casper**, Furst-McNess Company, Freeport, IL

RUMINANT NUTRITION I: BY-PRODUCTS AND BEEF

Chair: Tara L. Felix, Pennsylvania State University

8:30 AM - 11:30 AM

213

- 8:30 AM 335 **Predicting Feedlot Growth Performance over the Feeding Period Utilizing Steer Age and Body Weight.**
*C. J. Bittner**, A. K. Watson, J. C. MacDonald, and G. E. Erickson, University of Nebraska-Lincoln
- 8:45 AM 336 **Evaluation of 0 or 300 Mg of Optaflexx on Growth Performance and Carcass Characteristics of Steers Fed to Different Degrees of Finish.**
*R. M. Jones*¹*, C. J. Bittner¹, F. H. Hilscher¹, M. F. Wilken², and G. E. Erickson¹, ¹University of Nebraska-Lincoln, ²Elanco Animal Health, Greenfield, IN
- 9:00 AM 337 **The Evaluation of Brown Midrib Corn Silage Hybrids and Silage Inclusion for Finishing Beef Cattle.**
*F. H. Hilscher*¹*, C. J. Bittner¹, J. N. Anderson², and G. E. Erickson¹, ¹University of Nebraska-Lincoln, ²Dow AgroSciences, Mycogen Seeds, Indianapolis, IN
- 9:15 AM 338 **The Evaluation of Brown Midrib Corn Silage Hybrids in Growing Diets Fed to Beef Steers.**
*F. H. Hilscher*¹*, C. J. Bittner¹, J. N. Anderson², and G. E. Erickson¹, ¹University of Nebraska-Lincoln, ²Dow AgroSciences, Mycogen Seeds, Indianapolis, IN
- 9:30 AM 339 **Effect of Feeding Brown Midrib Corn Silage in Growing Diets for Beef Cattle on Nutrient Digestibility and Ruminant Fermentation Characteristics.**
*F. H. Hilscher*¹*, M. J. Jolly-Briethaupt¹, J. L. Gramkow¹, M. M. Norman¹, J. N. Anderson², and G. E. Erickson¹, ¹University of Nebraska-Lincoln, ²Dow AgroSciences, Mycogen Seeds, Indianapolis, IN

- 9:45 AM 340 **Effects of Using Dried Distiller's Grains Plus Solubles in Post-Partum Diets of Beef Cows on Heifer Offspring Reproductive Performance.**
E. G. Taylor¹, R. P. Lemenager¹, and K. R. Stewart², ¹Purdue University, West Lafayette, IN ² Purdue University, Department of Animal Sciences, West Lafayette, IN
- 10:00 AM 341 **Evaluation of Corn Distillers Solubles on Finishing Steer Performance.**
B. Hansen^{}, University of Nebraska-Lincoln*
- 10:15 AM 342 **Evaluation of Protein in Distillers Grains on Site and Extent of Digestion in Finishing Diets.**
*Z. E. Carlson^{*1}, J. L. Gramkow¹, H. C. Hamilton¹, M. J. Jolly-Briethaupt¹, M. K. Luebbe², G. E. Erickson¹, and J. C. MacDonald¹, ¹University of Nebraska-Lincoln, ²University of Nebraska, Scottsbluff*
- 10:30 AM 343 **Effect of Three Initial Implant Programs with a Common Terminal Revalor-200 on Feedlot Performance and Carcass Traits of Weaned Steers.**
*C. R. Oney^{*1}, A. K. Watson¹, G. E. Erickson¹, M. N. Streeter², R. J. Cooper³, D. J. Jordan³, and B. D. Dicke⁴, ¹University of Nebraska-Lincoln, ²Merck Animal Health, DeSoto, KS, ³Cattlemen's Nutrition Services, LLC, Lincoln, NE, ⁴Dicke Consultin, Lincoln, NE*
- 10:45 AM 344 **Impact of Corn Oil Removal from Modified Distillers Grains Plus Solubles and Supplemental Corn Oil on Finishing Cattle Performance.**
J. E. Burhoop¹, C. J. Bittner¹, F. H. Hilscher¹, M. K. Luebbe², J. C. MacDonald¹, and G. E. Erickson¹, ¹University of Nebraska-Lincoln, ²University of Nebraska, Scottsbluff
- 11:00 AM 345 **Impact of Feeding Distillers Grains with or without Oil Removal as well as Oil Replenished on Nutrient Digestibility by Finishing Cattle.**
*J. E. Burhoop^{*1}, M. L. Jolly-Breithaupt¹, J. L. Gramkow¹, M. K. Luebbe², J. C. MacDonald¹, and G. E. Erickson¹, ¹University of Nebraska-Lincoln, ²University of Nebraska, Scottsbluff, NE*
- 11:15 AM 346 **Supplementing Varying Ratios of Modified Distillers Grains and Corn to Growing Beef Steers.**
*C. A. Welchons^{*1}, V. B. Ferrari^{1,2}, R. G. Bondurant¹, F. H. Hilscher¹, G. E. Erickson¹, T. J. Klopfenstein¹, and J. C. MacDonald¹, ¹University of Nebraska-Lincoln, ²University of Sao Paulo, Pirassununga, Brazil*

RUMINANT NUTRITION II: BEEF AND GENERAL

Chair: Mary E. Drewnoski, University of Nebraska-Lincoln

8:30 AM - 12:00 PM

214

- 8:30 AM 347 **Young Scholar Presentation: The Impact of Nutrition and Reproductive Stage on Maternal and Fetal Pancreatic Exocrine and Endocrine Function in Ruminants.**
*F. E. Keomanivong**, *P. P. Borowicz*, *J. S. Caton*, *K. A. Vonnahme*, *A. Grazul-Bilska*, *D. A. Redmer*, and *K. C. Swanson*, *North Dakota State University, Department of Animal Sciences, Fargo*
- 9:00 AM 348 **Young Scholar Presentation: Characterization and Implications of Novel Rumen Viral and Methanogen Diversity Discovered through Targeted Genomic Approaches.**
*C. L. Anderson**, and *S. C. Fernando*, *University of Nebraska-Lincoln*
- 9:30 AM 349 **Effect of Continuous or Rotational Grazing on Growing Steer Performance and Land Production.**
*C. A. Welchons**, *R. G. Bondurant*, *F. H. Hilscher*, *J. C. MacDonald*, *T. J. Klopfenstein*, and *A. K. Watson*, *University of Nebraska-Lincoln*
- 9:45 AM 350 **Corn Silage Rumen Undegradable Protein Levels and Extent of Digestion.**
*C. R. Oney**, *A. K. Watson*, *G. E. Erickson*, *J. C. MacDonald*, and *J. L. Gramkow*, *University of Nebraska-Lincoln*
- 10:00 AM 351 **Effect of an Injectable Trace Mineral at the Initiation of a 14 Day CIDR Protocol on Heifer Performance and Reproduction.**
*R. S. Stokes**, *A. R. Ralph*, *A. J. Mickna*, *W. P. Chapple*, *A. R. Schroeder*, *F. A. Ireland*, and *D. W. Shike*, *University of Illinois at Urbana-Champaign*
- 10:15 AM 352 **Effect of Late-Gestation Supplementation and Post-Partum Progesterin on Probability of Culling Spring Calving Cows in the Nebraska Sandhills.**
*D. L. Broadhead**, *M. Stockton*, *L. A. Stalker*, and *R. N. Funston*, *University of Nebraska, West Central Research and Extension Center, North Platte*
- 10:30 AM 353 **Effect of Maternal Nutrition on Performance of Nellore Cows and Pre-Weaning Growth of Their Progeny.**
*L. M. Rodrigues**¹, *J. P. Schoonmaker*², *F. D. Resende*³, *G. R. Siqueira*³, *O. R. Machado Neto*⁴, *T. R. Gionbelli*¹, and *M. M. Ladeira*¹, ¹*Federal University of Lavras, Lavras, Brazil*, ²*Purdue University, West Lafayette, IN*, ³*Agência Paulista de*

Tecnologia dos Agronegócios, Colina, Brazil, ⁴Universidade Estadual Paulista, Botucatu, Brazil

- 10:45 AM 354 **Effects of a Multi-Element Trace Mineral Injection and Dietary Vitamin E Supplementation on Performance, Carcass Characteristics and Color Stability of Strip Steaks from Beef Heifers.**
B. N. Harsh^{}, A. C. Dilger, D. D. Boler, and D. W. Shike, University of Illinois at Urbana-Champaign, Urbana, IL*
- 11:00 AM 355 **Comparison of Trace Mineral Repletion Strategies to Overcome a High Antagonist Diet.**
S. J. Hartman^{}, O. N. Genther-Schroeder, and S. L. Hansen, Iowa State University, Ames*
- 11:15 AM 356 **The Effects of Supplementing EPA and DHA during Late Gestation on Lamb Metabolism and Performance.**
*D. N. Coleman^{*1}, A. Relling¹, and K. C. Rivera-Acevedo^{2, 1} The Ohio State University, Department of Animal Sciences, Wooster, ²University of Puerto Rico at Mayagüez, Puerto Rico*
- 11:30 AM 56 **Influence of the Brahman Breed in Beef Calf Lots Marketed through Summer Video Auctions from 1995 through 2015.**
*E. D. McCabe^{*1}, M. E. King¹, K. E. Fike¹, K. L. Hill², G. M. Rogers³, and K. G. Odde¹, ¹Kansas State University, Manhattan, ²Merck Animal Health, Kaysville, UT, ³Grassy Ridge Consulting, Aledo, TX*
- 11:45 AM 90 **Effect of Essential Oils or Tylosin on Performance, Liver Abscesses, Carcass Characteristics and Meat Quality in Feedlot Steers.**
*J. R. Pukrop^{*1}, B. T. Campbell², and J. P. Schoonmaker¹, ¹Purdue University, West Lafayette, IN ²DSM Nutritional Products, LLC., Parsippany, NJ*

EXTENSION - SWINE

Chair: Michael J. Rincker, DPI Global

Sponsor: Ralco

8:30 AM - 12:00 PM

207

- 8:30 AM 68 **Characterization of Birth Weight and Colostrum Intake on Piglet Survival and Piglet Quality.**
J. G. Wiegert^{}, C. Garrison, and M. T. Knauer, North Carolina State University, Raleigh*

- 8:45 AM 69 **Troubleshooting Poor Litter Size in a Farrow-to-Wean Production System.**
*S. Bloomer^{*1}, J. G. Wiegert¹, C. Van Genderen², and M. T. Knauer¹, ¹North Carolina State University, Raleigh, ²US Pork Center of Excellence, Clive, IA*
- 9:00 AM 70 **Evaluation of the Impact of Errors in the Sorting of Pigs for Market on Sort Loss at a Range of Marketing Ages.**
Y. Que^{}, F. A. Cabezon, and A. P. Schinckel, Purdue University, Department of Animal Sciences, West Lafayette, IN*
- 9:15 AM 71 **Evaluation of the Impact of the Magnitude of Errors in the Sorting of Pigs for Market on the Optimal Market Weight.**
J. Cheng^{}, F. A. Cabezon, Y. Que, and A. P. Schinckel, Purdue University, Department of Animal Sciences, West Lafayette, IN*
- 9:30 AM 72 **Effects of Supplemental Betaine to Semen Extenders on Semen Quality in Boars.**
*D. W. Lugar^{*1}, W. A. Krom¹, J. A. Proctor¹, P. D. Mings¹, and K. R. Stewart², ¹Purdue University, West Lafayette, IN, ²Purdue University, Department of Animal Sciences, West Lafayette, IN*
- 9:45 AM 73 **Effect of Tail Docking on Welfare and Performance of Pigs during Nursery and Growing-Finishing Periods.**
Y. Li^{}, and L. J. Johnston, University of Minnesota, West Central Research and Outreach Center, Morris*
- 10:00 AM 74 **Effect of Pad Cooling on Summer Barn Environment and Finishing Pig Temperature.**
J. G. Wiegert^{}, M. T. Knauer, and S. B. Shah, North Carolina State University, Raleigh*
- 10:15 AM 75 **Changes in Feet and Leg Joint Angles during First Gestation in Gilts Divergently Selected for Residual Feed Intake.**
*J. D. Stock^{*1}, J. M. Mumm¹, J. C. M. Dekkers¹, A. K. Johnson¹, S. Azarpajouh¹, K. J. Stalder¹, and J. A. Calderon Diaz^{2,3}, ¹Iowa State University, Department of Animal Science, Ames, ²Polish Academy of Sciences, Institute of Genetics and Animal Breeding, Department of Animal Behaviour and Welfare, Jastrzębiec, Magdalenka, Poland, ³Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland*
- 10:30 AM 76 **Mycotoxin Prevalence in the 2016 Corn Crop.**
E. G. Hendel¹, S. M. Mendoza¹, T. Jenkins², and G. R. Murugesan¹, ¹BIOMIN America Inc., San Antonio, TX, ²BIOMIN Holding, GMBH, Getzersdorf, Austria
- 10:45 AM 77 **Metabolomic Characterization of Foaming Manure Pits in Swine Barns.**
*Z. Bi^{*1}, J. Gan¹, H. Li¹, B. Hu¹, and C. Chen², ¹University of Minnesota, St. Paul, ²University of Minnesota, Department of Animal Sciences, St. Paul*

- 11:00 AM 86 **Timely on-Farm Euthanasia of Pigs: Development of an Innovative and Interactive Training Program for Caretakers.**
*C. R. Mullins**, *M. Pairis-Garcia*, and *M. R. B. Campler*,
The Ohio State University, Columbus
- 11:15 AM 384 **Influence of Seminal Additives on Sow Fertility.**
*T. Brown*¹, *J. Ngula*², *B. Alegre*², *G. Hernandez*¹, *R. N. Kirkwood*³, *R. Manjarin*¹, and *J. C. D. de Tejerina*², ¹*California Polytechnic State University, San Luis Obispo*, ²*University of León, Department of Medicine, Surgery and Veterinary Anatomy, Leon, Spain*, ³*University of Adelaide, School of Animal and Veterinary Sciences, Roseworthy, Australia*
- 11:30 AM 388 **Piglet Creching Decreases Protein Content in Colostrum.**
*Y. A. Montano*¹, *R. Manjarin*¹, *K. Petrovski*², and *R. N. Kirkwood*², ¹*California Polytechnic State University, San Luis Obispo*, ²*University of Adelaide, School of Animal and Veterinary Sciences, Roseworthy, Australia*
- 11:45 AM 396 **Dimensional Measurements and Visual Appraisal As Predictors of Liveweight of Finishing Pigs.**
*S. Royal*¹, *J. A. Erceg*, *J. G. Wiegert*, *M. T. Knauer*, and *E. van Heugten*, *North Carolina State University, Raleigh*

BREEDING AND GENETICS I

Chair: Jared E. Decker, University of Missouri

8:30 AM - 10:30 AM

212

- 8:30 AM 32 **Genomic Prediction Accuracies Using Regularized Quantile Regression (RQR) Methodology.**
L. M. Barroso^{1,2}, *F. Morgante*³, *T. F. Mackay*³,
A. C. C. Nascimento^{1,2}, *M. Nascimento*^{1,2}, and *N. V. Serão*¹,
¹*North Carolina State University, Raleigh*, ²*Universidade Federal de Viçosa, Brazil*, ³*North Carolina State University, Department of Biological Sciences, Raleigh*
- 8:45 AM 33 **Estimation of Genetic Parameters, Genetic Trends and Growth Curve Parameters of Pigs Selected for Residual Feed Intake Using Quantile Regression.**
M. Nascimento^{1,2}, *A. C. C. Nascimento*^{1,2}, *J. C. M. Dekkers*³, and *N. V. Serão*², ¹*Universidade Federal de Viçosa, Brazil*, ²*North Carolina State University, Raleigh*, ³*Iowa State University, Department of Animal Science, Ames*

- 9:00 AM 34 **Biological Evidence for Genomic Regions Associated with Host Response to Co-Infection with PRRS Virus and PCV2b in Commercial Nursery Pigs.**
J. R. Dunkelberger¹, N. V. Serão^{1,2}, Z. Q. Weng^{1,3}, M. C. Niederwerder⁴, E. H. Waide^{1,5}, M. A. Kerrigan⁴, J. K. Lunney⁶, R. R. Rowland⁴, and J. C. M. Dekkers¹, ¹Iowa State University, Department of Animal Science, Ames ²North Carolina State University, Raleigh, ³ABS Global Inc., DeForest, WI, ⁴Kansas State University, Department of Diagnostic Medicine/Pathobiology, Manhattan, ⁵The Seeing Eye Inc., Morristown, NJ, ⁶USDA-ARS, Beltsville Agricultural Research Center, Animal Parasitic Diseases Laboratory, Beltsville, MD
- 9:15 AM 35 **Reaction Norm for Reproductive Performance During Porcine Reproductive and Respiratory Syndrome (PRRS) and Porcine Epidemic Diarrhea (PED) Outbreaks.**
C. L. Ferring¹, K. A. Gray², and N. V. Serão¹, ¹North Carolina State University, Raleigh, ²Smithfield Premium Genetics, Rose Hill, NC
- 9:30 AM **Break**
- 9:45 AM 36 **A Natural Challenge Model for Disease Resilience in Wean-to-Finish Pigs.**
A. M. Putz¹, J. C. S. Harding², F. Fortin³, G. Plastow⁴, and J. C. M. Dekkers⁵, ¹Iowa State University, Ames, ²University of Saskatchewan, Saskatoon, SK, Canada, ³Centre de Développement du Porc du Québec, QC, Canada, ⁴University of Alberta, Edmonton, AB, Canada, ⁵Iowa State University, Department of Animal Science, Ames
- 10:00 AM 37 **A Survey of Single Nucleotide Polymorphisms Identified from Whole-Genome Sequencing and Their Functional Effect in the Porcine Genome.**
B. N. Keel¹, D. J. Nonneman, and G. A. Rohrer, USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE
- 10:15 AM 38 **Assessment of Methods for Accurate Reproductive Tract Scoring by Vulva Width As a Tool for Gilt Selection.**
M. R. Romoser¹, B. J. Hale¹, J. T. Seibert¹, K. L. Bidne¹, M. J. Dickson¹, T. J. Gall², L. H. Baumgard¹, A. F. Keating¹, and J. W. Ross¹, ¹Iowa State University, Ames, ²TriOak Foods, Oakville, IA

NONRUMINANT NUTRITION I: MINERALS

Chair: Laura Merriman, ADM Animal Nutrition, Inc.

Sponsor: Micronutrients

8:30 AM - 11:15 AM

201

- 8:30 AM 178 **Effects of Zinc Oxide and Microbial Phytase on Standardized Total Tract Digestibility of Calcium in Maize-Based Diets Fed to Growing Pigs.**
*L. Blavi^{*1,2}, D. Solà-Oriol¹, J. F. Pérez¹, and H. H. Stein²,
¹Universitat Autònoma de Barcelona, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Bellaterra, Spain, ²University of Illinois at Urbana-Champaign*
- 8:45 AM 179 **Effects of Increasing Copper from either CuSO⁴ or Combinations of CuSO⁴ and a Cu-Amino Acid Complex on Growth Performance and Carcass Characteristics of Finishing Pigs.**
*C. B. Carpenter^{*1}, J. C. Woodworth¹, J. M. DeRouche^{y1}, M. D. Tokach¹, R. D. Goodband¹, S. S. Dritz¹, and Z. J. Rambo²,
¹Kansas State University, Manhattan, ²Zinpro Corporation, Eden Prairie, MN*
- 9:00 AM 180 **Phytate Hydrolysis, Intestinal Microbiota, Microbial Metabolites, and Innate Immune Cell Numbers are Changed in Growing Pigs Fed Diets with Varying Calcium-Phosphorus Levels and Fermentable Substrates.**
*C. M. E. Heyer^{*1,2}, S. Schmucker², E. Weiss², M. Eklund², T. Aumiller², E. Graeter², T. Hofmann², M. Rodehutschord², L. E. Hoelzl^{e2}, J. Seifert², R. T. Zijlstra¹, V. Stefanski², and R. Mosenthin², ¹University of Alberta, Department of Agricultural, Food and Nutritional Science, Edmonton, AB, Canada, ²University of Hohenheim, Institute of Animal Science, Stuttgart, Germany*
- 9:15 AM 181 **Effects of Increasing Copper from Tri-Basic Copper Chloride or a Cu-Amino Acid Complex on Growth Performance of Nursery Pigs.**
*C. B. Carpenter^{*1}, J. C. Woodworth¹, J. M. DeRouche^{y1}, M. D. Tokach¹, R. D. Goodband¹, S. S. Dritz¹, and J. L. Usry², ¹Kansas State University, Manhattan, ²Micronutrients, Indianapolis, IN*
- 9:30 AM 182 **True Total-Tract Digestibility of Calcium in Limestone and Dicalcium Phosphate for Twenty-Kilogram Pigs are Additive in a Semi-Purified Diet.**
*F. Zhang^{*1}, and O. Adeola², ¹Purdue University, West Lafayette, IN, ²Purdue University, Department of Animal Sciences, West Lafayette, IN*

- 9:45 AM **Break**
- 10:00 AM 183 **To Determine the Effect of Superdosing Phytase on Nursery Pig Performance, Zinc and Copper Blood Serum Levels when Fed Varying Levels of Copper Supplementation.**
*G. Cordero**, *C. L. Bradley*, and *P. Wilcock*, *AB Vista, Marlborough, United Kingdom*
- 10:15 AM 184 **Alleged Predisposing Factors in Diets Fail to Increase the Incidence of Osteochondrosis Lesions in Growing Pigs at 12 and 24 Weeks of Age.**
*J. Baker*¹, *M. Grez*^{*1}, *J. A. Shutter*¹, *M. E. Wilson*², and *T. D. Crenshaw*¹, ¹*University of Wisconsin-Madison* ²*Zinpro Corporation, Eden Prairie, MN*
- 10:30 AM 185 **Effects of Chromium Methionine and Zinc Source on Performance, Carcass Traits and Meat Quality of Growing-Finishing Pigs.**
*X. Xu*¹, *Z. C. Li*¹, *H. L. Wang*¹, *L. Pan*¹, *X. K. Ma*¹, *Y. T. Xu*¹, *X. S. Piao*¹, *T. L. Ward*², and *F. Ji*^{*3}, ¹*China Agricultural University, Beijing, China*, ²*Zinpro Corporation, Eden Prairie, MN*, ³*Zinpro (Wuxi) Additives Bio-Technology Co., LTD, Shanghai, China*
- 10:45 AM 186 **Effect of Organic Cu Supplementation on Growth Performance, Apparent Total Tract Digestibility (ATTD) and Tissue Mineral Composition in Nursery Pigs.**
Y. D. Jang^{*1}, *J. Chang*¹, *F. N. Almeida*², and *M. D. Lindemann*¹, ¹*University of Kentucky, Lexington*, ²*Novus International, Inc., St. Charles, MO*
- 11:00 AM 380 **Effects of Dietary Zinc Source and Concentration on Performance of Growing-Finishing Pigs Reared with Reduced Floor Space.**
J. P. Holen^{*1}, *Z. J. Rambo*², *A. M. Hilbrands*¹, and *L. J. Johnston*¹, ¹*University of Minnesota, West Central Research and Outreach Center, Morris*, ²*Zinpro Corporation, Eden Prairie, MN*

**NONRUMINANT NUTRITION II:
FEED PROCESSING/INGREDIENTS**

Chair: Omarh F. Mendoza, The Maschhoffs, LLC.

Sponsor: Micronutrients

8:30 AM - 11:45 AM

202

- 8:30 AM 187 **Chemical Composition and Physicochemical Characteristics of Feed Ingredients and Effects on in Vitro Ileal and Total Tract Digestibility of Dry Matter.**
D. M. D. L. Navarro^{*1}, *E. M. A. M. Bruininx*², *L. de Jong*², and *H. H. Stein*¹, ¹*University of Illinois at Urbana-Champaign*, ²*AgriFirm Innovation Center, Royal Dutch AgriFirm, Apeldoorn, Netherlands*

- 8:45 AM 188 **Effects of Physicochemical Characteristics of Feed Ingredients on Total Tract Digestibility of Dry Matter, Energy, Fiber and Protein By Growing Pigs.**
*D. M. D. L. Navarro^{*1}, E. M. A. M. Bruininx², L. de Jong², and H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, ²Agrifirm Innovation Center, Royal Dutch Agrifirm, Apeldoorn, Netherlands*
- 9:00 AM 189 **Does Chemical Composition Alter the Digestibility of Energy of Fat Sources Fed to 10 Kg and 50 Kg Pigs?**
T. A. Kellner^{}, and J. F. Patience, Iowa State University, Ames*
- 9:15 AM 190 **Comparative Starch, Fiber, and Energy Digestibility and Characterization of Undigested Starch Using Confocal Laser Scanning of Pulse and Cereal Grains in Growing-Finishing Pigs.**
*F. P. Tan^{*1}, L. F. Wang², J. Gao¹, E. Beltranena^{2,3}, T. Vasanthan¹, and R. T. Zijlstra¹, ¹University of Alberta, Department of Agricultural, Food and Nutritional Science, Edmonton, AB, Canada,, ²University of Alberta, Edmonton, AB, Canada, ³Alberta Agriculture and Forestry, Edmonton, AB, Canada*
- 9:30 AM 191 **Nutrient Digestibility of Mash, Steam Pelleted, and Extruded Barley and Faba Bean in Growing Pigs.**
*U. S. Ruiz^{*1,2}, G. C. Luna^{1,3}, L. F. Wang¹, E. Beltranena^{1,4}, and R. T. Zijlstra¹, ¹University of Alberta, Edmonton, AB, Canada, ²University of São Paulo, Piracicaba, SP, Brazil, ³Universidad Autónoma de Baja California, Mexicali, Mexico, ⁴Alberta Agriculture and Forestry, Edmonton, AB, Canada*
- 9:45 AM 192 **Determination of Optimal Pelletting Parameters to Maximize Pellet Durability of Reduced-Fat DDGS.**
A. D. Yoder^{}, J. M. Wilson, and C. R. Stark, Kansas State University, Manhattan*
- 10:00 AM 193 **Impact of PRRSV on Digestibility and Endogenous Losses in Pigs Fed High or Low Soybean Meal Diets.**
W. P. Schweer^{}, J. F. Patience, E. R. Burrough, and N. K. Gabler, Iowa State University, Ames*
- 10:15 AM 194 **Chemical Composition and Amino Acid Digestibility of Soybean Meal Produced in the United States, China, Argentina, Brazil, or India.**
L. V. Lagos^{}, and H. H. Stein, University of Illinois at Urbana-Champaign*
- 10:30 AM 195 **Estimation of the Productive Energy Content of Corn Germ Meal Based on a Growth Assay in Wean-to-Finish Pigs.**
*J. E. Estrada^{*1}, M. Ellis¹, O. F. Mendoza², and A. M. Gaines², ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs, LLC, Carlyle, IL*

- 10:45 AM 196 **Assessing the Effects of Medium Chain Fatty Acids and Fat Sources on Pedv RNA Stability and Infectivity.**
*R. A. Cochrane^{*1}, S. S. Dritz¹, J. C. Woodworth¹, A. R. Huss¹, C. R. Stark¹, M. Saensukjaroenphon¹, J. M. DeRouche¹, M. D. Tokach¹, R. D. Goodband¹, J. F. Bai¹, Q. Chen², J. Zhang², P. C. Gauger², R. J. Derscheid², R. G. Main², and C. K. Jones¹, ¹Kansas State University, Manhattan, ²Iowa State University, Ames*
- 11:00 AM 197 **Estimation of Energy and Nutrient Composition of Food Waste from Different Sources as Potential Use in Swine Diets.**
*L. Fung^{*1}, G. C. Shurson¹, P. E. Urriola¹, and L. Baker², ¹University of Minnesota, Department of Animal Sciences, St. Paul, ²University of Minnesota, Department of Biosystems and Bioproducts Engineering, St. Paul*
- 11:15 AM 198 **Growth and Performance of Finishing Pigs Fed Oat Screenings.**
*P. J. Lammers^{*1}, and M. S. Honeyman², ¹University of Wisconsin-Platteville, ²Iowa State University, Ames, IA*
- 11:30 AM 199 **Effect of Tail-End Dehulling of Canola Meal on Apparent and Standardized Total Tract Digestibility of Phosphorus when Fed to Growing Pigs.**
G. A. Mejicanos^{}, J. W. Kim, and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada*

EXTENSION - DAIRY SYMPOSIUM

THE OPTIMIZATION OF THE NUTRITION OF TRANSITION DAIRY COWS

Chair: Kamal Mjoun, Alltech

Sponsor: Furst McNess

1:45 PM - 4:40 PM

210/211

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 57 **The Transition Period in Dairy Cattle, Physiology and Nutritional Consideration: An Overview.**
F. Cardoso^{}, University of Illinois at Urbana-Champaign, Department of Animal Sciences*
- 2:25 PM 58 **Amino Acids for Transition Cows.**
C. G. Schwab^{}, Schwab Consulting, Boscobel, WI*
- 3:00 PM 59 **Vitamin Supplementation Strategies for Transition Dairy Cows.**
*G. Ferreira^{*1}, and B. Weiss², ¹Virginia Polytechnic Institute and State University, Department of Dairy Science, Blacksburg, ²The Ohio State University, Wooster*

- 3:35 PM 60 **New Insights into Calcium Intake in Transition Dairy Cattle.**
*L. L. Hernandez**, University of Wisconsin-Madison, Department of Dairy Science
- 4:10 PM 61 **Young Scholar Presentation: Immuno-Metabolic Adaptations to Lactation in Pasture-Based Transition Dairy Cows can be Regulated by Prepartum Nutritional Strategies.**
M. Vailati Riboni¹, J. R. Roche², and J. J. Loor¹, ¹University of Illinois at Urbana-Champaign, ²DairyNZ, Hamilton, New Zealand

**BREEDING AND GENETICS SYMPOSIUM
GENOMICS OF REPRODUCTION**

Chair: Jared E. Decker, University of Missouri

Sponsor: Kemin

1:45 PM - 4:45 PM

201

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 26 **Genetic Improvement of Sow Lifetime Productivity.**
G. A. Rohrer¹, A. J. Cross², C. A. Lents¹, J. R. Miles¹, D. J. Nonneman¹, and L. A. Rempel¹, ¹USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, ²South Dakota State University, Brookings
- 2:30 PM 27 **The Roles of Age at Puberty and Energy Restriction in Sow Reproductive Longevity: A Genomic Perspective.**
H. R. Wijesena¹, C. A. Lents², M. D. Trenhaile - Grannemann¹, J.-J. Riethoven¹, B. N. Keel², J. F. Thorson², P. S. Miller¹, R. K. Johnson¹, M. L. Spangler¹, S. D. Kachman¹, and D. C. Ciobanu^{1}*, ¹University of Nebraska-Lincoln; ²USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE
- 3:10 PM **Break**
- 3:25 PM 28 **Identification of Gene and Gene Sets Enriched for Heifer Conception Rate in US Holstein Heifers.**
E.M. Keuter¹, M. Neupane¹, J.N. Kiser¹, J.G. N. Moraes², J. Dalton³, G.W. Burns², T.E. Spencer², and H.L. Neibergs^{1}*, ¹Washington State University, Department of Animal Science and Center for Reproductive Biology, Pullman, ²University of Missouri, Division of Animal Sciences, Columbia, ³University of Idaho, Department of Animal and Veterinary Sciences, Caldwell

- 4:05 PM 25 **Identification of Variants Causing Early Embryonic Loss in Beef Cattle.**
*J. F. Taylor^{*1}, D. S. Brown¹, J. E. Decker¹, B. P. Kinghorn², M. D. MacNeil³, M. M. Rolf⁴, R. D. Schnabel¹, M. F. Smith¹, A. L. Van Eenennaam⁵, and D. J. Patterson¹, ¹University of Missouri, Columbia, ²University of New England, Armidale, Australia, ³Delta G, Miles City, MT, ⁴Kansas State University, Manhattan, ⁵University of California-Davis*

**RUMINANT NUTRITION SYMPOSIUM
 GENETIC, DIETARY AND MICROBIAL CONTRIBUTION
 TO FEED EFFICIENCY IN CATTLE**

Chair: Kristin E. Hales, USDA-ARS, U.S. Meat Animal Research Center

Sponsor: Diamond V

1:45 PM - 4:50 PM

203/204

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 331 **The Genetic Improvement of Feed Efficiency in Beef Cattle.**
*J. F. Taylor^{*1}, J. E. Beever², J. E. Decker¹, H. C. Freetly³, D. J. Garrick⁴, S. L. Hansen⁴, K. A. Johnson⁵, M. S. Kerley¹, D. D. Loy⁴, H. L. Neibergs⁵, M. Saatchi⁶, R. D. Schnabel¹, C. M. Seabury⁷, D. W. Shike², M. L. Spangler⁸, and R. L. Weaver⁹, ¹University of Missouri, Columbia, ²University of Illinois at Urbana-Champaign, ³USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, ⁴Iowa State University, Ames, ⁵Washington State University, Pullman, ⁶American Simmental Association, Bozeman, MT, ⁷Texas A&M University, College of Veterinary Medicine, College Station, ⁸University of Nebraska-Lincoln, ⁹Kansas State University, Manhattan*
- 2:35 PM 332 **Challenges in Measuring Feed Efficiency.**
H. C. Freetly^{}, K. Hales, W. M. Snelling, R. M. Thallman, and L. A. Kuehn, USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 3:20 PM 333 **Impact of Diet Type on Repeatability of Feed Efficiency in Beef Cattle.**
*S. L. Hansen^{*1}, M. S. Kerley², and J. R. Russell¹, ¹Iowa State University, Ames, ²University of Missouri, Columbia*
- 4:05 PM 334 **Host Specificity of the Rumen Microbial Community and Its Relationship to Feed Efficiency.**
P. J. Weimer^{}, USDA-ARS, Madison, WI*

**ANIMAL BEHAVIOR, HOUSING AND WELL-BEING SYMPOSIUM
FINDING EFFECTIVE WAYS TO MANAGE PAIN IN LIVESTOCK**

Chair: Yolande M. Seddon, University of Saskatchewan,
Western College of Veterinary Medicine

Sponsor: Dupont

1:45 PM - 4:45 PM

Grand Ballroom South

- 1:45 PM Welcoming Remarks
- 1:50 PM 1 **Why Does Pain in Livestock Matter? A Philosophical View of Pain Management.**
*A. Shriver**, University of Pennsylvania, Philadelphia
- 2:25 PM 2 **Pharmacological Approaches to Pain Management in Cattle.**
*H. Coetzee**, Kansas State University, Manhattan
- 3:00 PM 3 **Pigs in Pain – Causes, Mechanisms and Possibilities for Future Development.**
*M. S. Herskin*¹*, and *P. Di Giminiani²*, ¹Aarhus University, Tjele, Denmark, ²Newcastle University, Newcastle, United Kingdom
- 3:35 PM 4 **Lessons Learned from Pain Management Research in Dairy Cattle.**
*T. F. Duffield**, University of Guelph, ON, Canada
- 4:10 PM 5 **Pain Management in Livestock: Understanding the Views of Producers and Veterinarians.**
*K. Rutherford*¹*, *C. Thompson¹*, and *S. Ison²*, ¹Scotland's Rural College, Edinburgh, United Kingdom, ²Michigan State University, East Lansing

BILLY DAY SYMPOSIUM

BATCH FARROWING: REASONS, LIMITATIONS AND REPRODUCTIVE MANAGEMENT

Chair: Timothy J. Safranski, University of Missouri
Sponsor: ASAS Foundation Billy Day Appreciation Club

1:45 PM - 5:10 PM

205/206

- 1:45 PM Welcoming Remarks
- 1:50 PM 20 **Batch Farrowing as a Health Strategy in Modern Pork Production Systems.**
*D. A. Baumert**, JBS Live Pork Production, Marshall, MO
- 2:30 PM 21 **Gilt Management Using Matrix.**
*K. F. Greiner**, Merck Animal Health, Carthage, IL

- 3:10 PM 22 **Using Controlled Ovulation to Keep Sow Groups Together.**
*S. L. Terlouw^{*1}, and M. E. Johnston^{2, 1}JBS United Animal Health, Sheridan, IN, ²JBS United, Inc., Sheridan, IN*
- 3:40 PM 23 **Batch Farrowing: Labor, Pig Flow and Other Things to Consider.**
R. Schmitt^{}, Seaboard Foods, Guymon, OK*
- 4:10 PM 24 **The Impact of Batch Farrowing Systems on Managing Boar Stud Operations.**
A. M. Minton^{}, R. L. Bowman, and K. L. Van Dyke, The Maschhoffs, LLC., Carlyle, IL*
- 4:40 PM **Panel Discussion**

GROWTH, DEVELOPMENT, MUSCLE BIOLOGY AND MEAT SCIENCE

Chair: Justin W. Rickard, Illinois State University

Sponsor: Dupont

1:45 PM - 4:30 PM

212

- 1:45 PM 133 **Young Scholar Presentation: Metabolic Modifiers in Beef Cattle: Current Application and Future Considerations.**
*B. M. Bohrer^{*1,2}, A. C. Dilger¹, and D. D. Boler¹, ¹University of Illinois at Urbana-Champaign, ²University of Guelph, ON, Canada*
- 2:15 PM 134 **Growth Performance, Carcass Characteristics and Shelf-Life of Loin Chops of Finishing Pigs Fed Peroxidized Soybean Oil.**
*M. F. Overholt^{*1}, G. D. Kim^{1,2}, S. C. Lindblom³, B. J. Kerr⁴, D. D. Boler¹, and A. C. Dilger¹, ¹University of Illinois at Urbana-Champaign, ²Gyeongsang National University, Institute of Agriculture & Life Science, Jinju, Korea, The Republic of Korea, ³Iowa State University, Ames, ⁴USDA-ARS, Ames, IA*
- 2:30 PM 135 **Effect of Hot Carcass Weight on Fresh Loin, Ham and Belly Quality from Pigs Sourced from a Commercial Processing Facility.**
B. N. Harsh¹, E. K. Arkfeld¹, D. A. Mohrhauser², D. A. King³, T. L. Wheeler³, A. C. Dilger¹, S. D. Shackelford³, and D. D. Boler¹, ¹University of Illinois at Urbana-Champaign, ²Smithfield Foods, Denison, IA, ³USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE
- 2:45 PM 136 **Downregulated Myostatin Signaling Does Not Enhance Protein Kinase B/Akt Phosphorylation in Skeletal Muscle of Low Birthweight Neonatal Pigs.**
Y. Chen^{}, S. R. McCauley, R. P. Rhoads, and S. W. El-Kadi, Virginia Polytechnic Institute and State University, Blacksburg*

- 3:00 PM 137 **Fresh Belly Characteristics and Commercial Bacon Slicing Yield in Growing-Finishing Pigs Fed an Antibiotic-Free Diet or a Diet Supplemented with a Natural Antimicrobial.**
J. E. Lowell^{}, B. M. Bohrer, K. B. Wilson, M. F. Overholt, B. N. Harsh, H. H. Stein, A. C. Dilger, and D. D. Boler, University of Illinois at Urbana-Champaign*
- 3:15 PM **Break**
- 3:30 PM 85 **Assessment of Growth and Health Performance of Pigs Born from Magnetically Nanopurified Boar Spermatozoa.**
*C. L. Durfey^{*1}, S. F. Liao¹, D. D. Burnett¹, M. A. Crenshaw¹, C. S. Steadman¹, S. T. Willard¹, P. L. Ryan¹, H. Clemente², and J. M. Feugang¹, ¹Mississippi State University, Department of Animal and Dairy Sciences, Mississippi State, ²Clemente Associates, Madison, CT*
- 3:45 PM 382 **Relationship of Proteolysis and Superoxide Dismutase Activity to Tenderness of Prime and Select Grade Beef.**
*N. J. Herrera^{*1}, E. K. Kunze¹, K. Domenech-Pérez¹, F. A. Ribeiro¹, M. D. Chao², and C. R. Calkins¹, ¹University of Nebraska-Lincoln, ²California State University, Chico*
- 4:00 PM 138 **Young Scholar Presentation: Effects of Feeding Antioxidants to Steers Fed Microalgae (*Aurantiochytrium limacinum* CCAP 4087/2) on Color Stability and Palatability of Longissimus Lumborum Steaks.**
*K. J. Phelps^{*1}, J. S. Drouillard¹, K. A. Jacques², T. G. O'Quinn¹, and J. M. Gonzalez¹, ¹Kansas State University, Manhattan, ²Alltech Inc., Nicholasville, KY*

PHYSIOLOGY I: GENERAL

Chair: Allison M. Meyer, University of Missouri

Sponsor: Purina Animal Nutrition

1:45 PM - 4:30 PM

207

- 1:45 PM 312 **Young Scholar Presentation: Effective Use of Sexed Ultra Sex-Sorted Semen for Timed Artificial Insemination of Beef Heifers.**
*J. M. Thomas^{*1}, J. W. C. Locke¹, R. Vishwanath², J. B. Hall³, M. R. Eillersieck¹, M. F. Smith¹, and D. J. Patterson¹, ¹University of Missouri, Columbia, ²Sexing Technologies Inc., DeForest, WI, ³University of Idaho, Department of Animal & Veterinary Sciences, Moscow*
- 2:15 PM 313 **The Use of Testicular Fine Needle Aspiration, Histology and Immunohistochemistry for Sertoli and Germ Cell Determination in Peri-Pubertal Bulls.**
N. Negrin Pereira^{}, North Dakota State University, Fargo*

- 2:30 PM 314 **Physiological Adaptations in the GI Tract Detected by a Fecal RNA Method and Blood Inflammatory Biomarkers in Neonatal Dairy Calves Undergoing a Mild Diarrhea.**
*F. Rosa^{*1}, S. Busato², C. Avaroma², K. Linville³, E. Trevisi⁴, M. Bionaz¹, and J. S. Osorio⁵, ¹Oregon State University, Department of Animal and Rangeland Sciences, Corvallis, ²Escuela Agrícola Panamericana El Zamorano, El Zamorano, Honduras, ³South Dakota State University, Dairy and Food Science Department, Brookings, ⁴Università Cattolica del Sacro Cuore, Piacenza, Italy, ⁵South Dakota State University, Brookings*
- 2:45 PM 315 **Immunomodulation in Heifers Fed Endophyte-Infected Tall Fescue Seed.**
*A. W. Altman^{*1}, A. A. Adams², K. R. McLeod¹, and E. S. Vanzant¹, ¹University of Kentucky, Lexington, ²University of Kentucky, The Gluck Equine Research Center, Lexington*
- 3:00 PM **Break**
- 3:15 PM 316 **Comparison of Two Alternate Prostaglandin F_{2α} Products in Yearling Beef Heifers.**
A. C. Lansford^o, T. L. Meyer, and R. N. Funston, University of Nebraska, West Central Research and Extension Center, North Platte
- 3:30 PM 317 **Investigation of Ovarian Reserve Parameters in *Bos Indicus* Cows.**
*A. L. Patterson^{*1}, J. Beard², M. C. Herrington³, S. L. Rosasco³, E. M. Soares⁴, E. J. Northrop⁵, E. L. Larimore⁶, J. J. J. Rich⁵, O. L. Amundson⁶, A. K. McNeel¹, C. C. Chase, Jr.¹, G. A. Perry⁵, A. F. Summers³, and R. A. Cushman¹, ¹USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, ²New Mexico State University, Las Cruces, ³New Mexico State University, Animal and Range Science Department, Las Cruces, ⁴Federal University of Santa Maria, Santa Maria, Brazil, ⁵South Dakota State University, Department of Animal Science, Brookings, ⁶South Dakota State University, Brookings*
- 3:45 PM 318 **Impact of Dietary Fatty Acid Source on Ovarian Phosphatidylinositol-3 Kinase Signaling.**
K. L. Bidne^o, J. Lyte, J. H. Hollis, N. K. Gabler, and A. F. Keating, Iowa State University, Ames
- 4:00 PM 390 **Effects of Post-Insemination Dam Nutrition on Longevity and Calf Performance.**
C. L. Mogek^o, J. A. Walker, and G. A. Perry, South Dakota State University, Department of Animal Science, Brookings
- 4:15 PM 92 **Influence of GnRH Supplementation at CIDR Removal on Estrus Expression and Interval to Estrus in Beef Cattle.**
J. J. J. Rich^o, E. J. Northrop, E. L. Larimore, and G. A. Perry, Department of Animal Science, South Dakota State University, Brookings

NONRUMINANT NUTRITION III: NURSERY PIG I

Chair: Victor G. Perez, ADM Animal Nutrition, Inc.

Sponsor: Purinal Animal Nutrition

1:45 PM - 4:45 PM

213

- 1:45 PM 222 **Effects of Dietary Salt Concentration on Performance of 7 to 10 Kg Nursery Pigs.**
D. J. Hawk^{}, M. M. Moniz, R. D. Goodband, J. M. DeRouchey, M. D. Tokach, J. C. Woodworth, S. S. Dritz, A. B. Clark, and H. E. Williams, Kansas State University, Manhattan*
- 2:00 PM 223 **Evaluation of Nursery Diet Complexity on Growth Performance and Carcass Traits of Pigs.**
A. Tekeste^{}, H. Manu, P. Ren, D. Pangeni, B. Tostenson, X. Yang, and S. K. Baidoo, University of Minnesota, Southern Research and Outreach Center, Waseca*
- 2:15 PM 224 **Effects of Mixture of Organic Acids and Medium Chain Fatty Acids on Growth Performance, Diarrhea Incidence and Fecal Microbial Flora in Weaning Pigs Orally Challenged with Enterotoxigenic *Escherichia coli* K88.**
D. H. Nguyen^{}, X. J. Lei, J. W. Park, D. H. Baek, and I. H. Kim, Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea*
- 2:30 PM 103 **Lipid Peroxidation Decreases Performance and Viability of Nursery Pigs.**
*P. L. Chang^{*1}, D. S. Rosero², C. E. Zier-Rush², S. Smith², J. N. Wood³, K. E. Lloyd³, R. D. Boyd², and E. van Heugten³, ¹North Carolina State University, Department of Animal Science, Raleigh, ²The Hanor Company, Inc., Franklin, KY, ³North Carolina State University, Raleigh*
- 2:45 PM 225 **Effects of Feeding a Finishing Diet Blended with Different Phases of Nursery Diets on Growth Performance of Nursery Pigs.**
*F. Wu^{*1}, K. F. Coble², C. W. Hastad², J. M. DeRouchey¹, M. D. Tokach¹, S. S. Dritz¹, J. C. Woodworth¹, and R. D. Goodband¹, ¹Kansas State University, Manhattan, ²New Fashion Pork, Jackson, MN*
- 3:00 PM 226 **Soluble Fiber Improved Growth Performance of Weaned Pigs Challenged with Enterotoxigenic *Escherichia coli*.**
*Q. Li^{*1}, C. L. Loving², N. K. Gabler¹, E. R. Burrough¹, and J. F. Patience¹, ¹Iowa State University, Ames, ²USDA National Animal Disease Center, Ames, IA*

- 3:15 PM 227 **Compensatory Body Protein Gain in Newly Weaned Pigs.**
*A. D. Totafurno**, *W. D. Mansilla*, *D. Wey*, *I. B. Mandell*, and
C. F. M. de Lange, *University of Guelph, Department of Animal
 Biosciences, ON, Canada*
- 3:30 PM 228 **Supplemental Effects of Fermented Rice Bran Extracts on
 Gut Health and Growth of Nursery Pigs.**
*L. Zheng**, *M. E. Duarte*, *I. Park*, and *S. W. Kim*, *North Carolina
 State University, Raleigh*
- 3:45 PM 229 **Use of Wheat Gluten in Nursery Diets.**
*C. M. De Mille**, *M. J. Azain*, *C. R. Dove*, and *A. Yin*, *University
 of Georgia, Athens*
- 4:00 PM **Break: Abstract Withdrawn**
- 4:15 PM 231 **Effects of Replacing an Enzymatically Modified Soybean
 Meal (HP300) with a Corn/Yeast Protein By-Product (Gold
 Pro) on Performance and Health Status of Nursery Pigs.**
*F. B. Sandberg**, *S. J. England*, *T. M. Fakler*, *K. T. Soltwedel*,
 and *M. R. Bible*, *Furst McNess Company, Freeport, IL*
- 4:30 PM 232 **Effect of a New 6-Phytase, Natuphos E on Piglet
 Performance, Ileal Digestibility and Bone Mineralization.**
D. Torrallardona¹, *M. Coelho²*, and *P. Ader³*, *¹Institute for
 Food and Agricultural Research and Technology, Monogastric
 Nutrition, Constanti, Spain, ²BASF, Humble, TX, ³BASF SE,
 Lampertheim, Germany*

NONRUMINANT NUTRITION IV: GESTATION/LACTATION

**Chairs: Luis Ochoa and Amanda B. Graham,
 Carthage Innovative Swine Solutions, LLC.**

Sponsor: JBS United, Inc.

1:45 PM - 4:45 PM

214

- 1:45 PM 233 **Influence of Diet Contaminated with Deoxynivalenol (DON)
 on Lactating Sow and Litter Performance.**
*K. L. Herkelman**, *R. E. Hall*, and *Y. Martel-Kennes*,
Cooperative Research Farms, Richmond, VA
- 2:00 PM 234 **The Effect of Dietary Protein for Lactating Sows on Sow
 Body Composition and Metabolism.**
C. F. Hansen¹, *T. S. Bruun²*, *A. H. Tauson¹*, and *A. V. Strathe^{2,3}*,
¹*University of Copenhagen, Fredriksberg, Denmark, ²SEGES
 Pig Research Centre, Copenhagen V, Denmark, ³University
 of Copenhagen, Department of Large Animal Sciences,
 Copenhagen, Denmark*

- 2:15 PM 235 **Increased Dietary Protein for Lactating Sows Improved Sow and Litter Performance.**
*A. V. Strathe^{*1}, T. S. Bruun², N. Geertsen³, and C. F. Hansen⁴,
¹University of Copenhagen, Department of Large Animal Sciences, Copenhagen, Denmark, ²SEGES Pig Research Centre, Copenhagen V, Denmark, ³Danbred International, Copenhagen, Denmark, ⁴University of Copenhagen, Fredriksberg, Denmark*
- 2:30 PM 236 **Got Colostrum? Effect of Diet and Feeding Level on Piglet Colostrum Intake and Piglet Quality.**
C. Garrison^{}, E. van Heugten, J. G. Wiegert, and M. T. Knauer, North Carolina State University, Raleigh*
- 2:45 PM 237 **Effect of Sow Lactation Crate Size on Litter Performance and Survivability.**
*L. L. Thomas^{*1}, K. F. Coble², C. W. Hastad², M. D. Tokach¹, S. S. Dritz¹, R. D. Goodband¹, J. M. DeRouche¹, and J. C. Woodworth¹, ¹Kansas State University, Manhattan, ²New Fashion Pork, Jackson, MN*
- 3:00 PM 238 **Feed Efficiency of Gestating Gilts and Sows Under Commercial Conditions.**
L. L. Thomas^{}, S. S. Dritz, M. D. Tokach, R. D. Goodband, J. C. Woodworth, and J. M. DeRouche^y, Kansas State University, Manhattan*
- 3:15 PM 239 **Effect of Dietary Calcium Inclusion Rate in Diets for Lactating Sows.**
*A. Graham^{*1}, T. Hall¹, L. Ochoa¹, L. Greiner¹, M. A. D. Goncalves², U. A. D. Orlando², and J. Connor³, ¹Carthage Innovative Swine Solutions, LLC., Carthage, IL, ²Genus PIC, Hendersonville, TN, ³Carthage Veterinary Service, Ltd., Carthage, IL*
- 3:30 PM **Break: Abstract Withdrawn**
- 3:45 PM 241 **Impact of Feeding Reduced Dietary Crude Protein Diets with Crystalline Amino Acid Supplementation in Late Gestation on Nitrogen Balance of Sows.**
*N. Regmi^{*1}, J. Babcock¹, D. Chamberlin¹, K. J. Touchette², J. L. De Vries¹, S. Zhang¹, and N. L. Trottier¹, ¹Michigan State University, East Lansing, ²Ajinomoto Heartland, Inc., Chicago, IL*
- 4:00 PM 242 **Effect of Late Gestation Diet and Feeding Level on Changes in Sow Weight and Body Condition.**
C. Garrison^{}, E. van Heugten, J. G. Wiegert, and M. T. Knauer, North Carolina State University, Raleigh*

- 4:15 PM 243 **Young Scholar Presentation: Heat Stress Alleviation in Lactating Sows By Dietary Betaine Supplementation and Cooling Pads.**
F. A. Cabezon¹, A. P. Schinckel¹, K. R. Stewart¹, B. T. Richert¹, M. Gandarillas², J. N. Marchant-Forde³, J. S. Johnson³, W. A. Peralta⁴, and R. M. Stwalley⁵, ¹Purdue University, Department of Animal Sciences, West Lafayette, IN, ²Universidad Austral de Chile, Valdivia, Chile, ³USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN, ⁴Agrícola Super Ltda, Rancagua, Chile, ⁵ Purdue University, Department of Agricultural Biological Engineering, West Lafayette, IN

NONRUMINANT NUTRITION V: ENZYMES

Chair: Elijah Kiarie, University of Guelph

Sponsor: AB Vista

1:45 PM - 4:45 PM

216

- 1:45 PM 244 **Validation of the Extended Matrix Values for Energy and Amino Acids of a New Novel 6-Phytase, Natuphos E in Weaned Piglets.**
D. Torrallardona¹, P. Ader², and M. Coelho³, ¹Institute for Food and Agricultural Research and Technology, Monogastric Nutrition, Constanti, Spain, ²BASF SE, Lampertheim, Germany, ³BASF, Humble, TX
- 2:00 PM 245 **Evaluating the Effect of Superdosing Natuphos E 5,000 G Phytase on Nursery Pig Performance.**
K. M. Gourley^{}, J. C. Woodworth, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, and R. D. Goodband, Kansas State University, Manhattan*
- 2:15 PM 246 **Super Dosing Effects of Corn-Expressed Phytase on Bone Characteristics and Nutrient Digestibility in Nursery Pigs Fed Diets Sufficient in Phosphorus and Calcium.**
J. K. Lee^{}, H. Chen, I. Park, and S. W. Kim, North Carolina State University, Raleigh*
- 2:30 PM 247 **Effects of Feeding Corn-Expressed Phytase on the Live Performance, Bone Characteristics and Phosphorus Digestibility of Nursery Pigs.**
J. N. Broomhead¹, P. A. Lessard¹, R. M. Raab¹, M. B. Lanahan¹, and J. J. Chewning², ¹Agrivida, Medford, MA, ²Swine Research Services, Inc., Springdale, AR

- 2:45 PM 248 **Improvement of Ileal Digestibility of DM and Gross Energy by Commercial Carbohydrases is Associated with Depression of Fermentability in an in-Vitro Digestibility Determination System.**
*Z. K. Zeng**, *J. Zhu*, *C. Chen*, *P. E. Urriola*, and *G. C. Shurson*,
University of Minnesota, Department of Animal Sciences, St. Paul
- 3:00 PM **Break**
- 3:15 PM 249 **Effects of Adding Multi-Enzymes to Growing Pig Diets Containing Wheat and Corn Fiber Sources on Growth Performance, Nutrient Digestibility, and Digesta Viscosity.**
*Z. K. Zeng**, *G. C. Shurson*, *C. Chen*, and *P. E. Urriola*,
University of Minnesota, Department of Animal Sciences, St. Paul
- 3:30 PM 250 **Effect of Protease and α -Galactosidase Supplementation to Field Bean (*Vicia faba*) Based Diets on Growth and Carcass Traits of Grow-Finisher Pigs.**
A. Torres-Pitarch^{1,2}, *E. G. Manzanilla*², *G. E. Gardiner*³,
*D. Torrallardona*⁴, *J. V. O'Doherty*¹, and *P. G. Lawlor*²,
¹*University College Dublin, School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland,*
²*Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland,* ³*Waterford Institute of Technology, Department of Science, Waterford, Ireland,* ⁴*Institute for Food and Agricultural Research and Technology, Monogastric Nutrition, Constanti, Spain*
- 3:45 PM 251 **Beta-Mannanase Supplementation Effects on Nursery Pig Growth Performance, Feed Efficiency and Serum Acute Phase Protein Concentrations.**
*N. F. Huntley**, *S. A. Gould*, and *J. F. Patience*, *Iowa State University, Ames*
- 4:00 PM 252 **An in-Vitro Evaluation of the Effects of a Protease and a *Bacillus* Spp. Direct-Fed Microbial, Alone or in Combination, on the Microstructure and Protein Solubilisation of a Variety of Feed Ingredients Fed to Grower Pigs.**
*L. Payling*¹, *S. Arent*², and *M. C. Walsh*¹, ¹*Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom,* ²*Dupont, Industrial Biosciences, Brabrand, Denmark*
- 4:15 PM 253 **Porcine in-Vitro Degradation and Fermentation Characteristics of Canola Co-Products without or with Fiber-Degrading Enzymes.**
*J. W. Lee*¹, *R. Patterson*², and *T. A. Woyengo*¹, ¹*South Dakota State University, Brookings,* ²*Canadian Biosystems, Calgary, AB, Canada*

- 4:30 PM 254 **Effects of Supplementation with a Protease, Carbohydases, and Phytase in Reduced Nutrient Diets Fed from Weaning to Market on Growth Performance, Nutrients Digestibility, Intestinal Morphology and Hematological Characteristics.**
T. C. Tsai¹, H. Kim², X. Wang¹, J. J. Chewning³, J. A. Apple¹, J. R. Bergstrom⁴, and C. V. Maxwell¹, ¹ University of Arkansas, Division of Agriculture, Department of Animal Science, Fayetteville, ²University of Arkansas, Fayetteville, ³Swine Research Services, Inc., Springdale, AR, ⁴DSM Nutritional Products, Parsippany, NJ

**ORAL SESSIONS AND SYMPOSIA
 WEDNESDAY, MARCH 15, 2017**

HARLAN RITCHIE SYMPOSIUM

Chair: Carl R. Dahlen, North Dakota State University
Sponsor: ASAS Foundation - Harlan Ritchie Appreciation Club
8:30 AM - 11:40 AM
205/206

- 8:30 AM **Tribute**
- 8:40 AM 139 **Beef Cattle Type and Selection Tools Have Evolved to Meet Consumer Demands and Maximize Producer Profitability.**
D. W. Shike^{}, University of Illinois at Urbana-Champaign*
- 9:25 AM 140 **Factors Contributing to Increased Quality Grade of U.S. Fed Cattle.**
P. S. Dykstra, and W. J. Sexten^{}, Certified Angus Beef, LLC, Wooster, OH*
- 10:10 AM 141 **Where are We Going as Cattle Get Bigger?**
K. W. Bruns¹, R. H. Pritchard², J. C. MacDonald³, R. G. Bondurant³, and R. N. Funston⁴, ¹University of Nebraska-Lincoln, West Central Research and Extension Center, North Platte, ²South Dakota State University, Brookings, ³University of Nebraska-Lincoln, ⁴University of Nebraska, North Platte
- 10:55 AM 142 **Beef Yield Grading: History, Issues and Opportunities.**
T. E. Lawrence^{}, West Texas A&M University, Canyon*

ANIMAL BEHAVIOR, HOUSING AND WELL-BEING**Chair: Jennifer A. Brown, Prairie Swine Center****8:30 AM - 11:30 AM****Grand Ballroom South**

- 8:30 AM 117 **Effects of Floor Cooling on Late Lactation Sows Under Acute Heat Stress.**
F. A. Cabezon¹, A. P. Schinckel¹, J. N. Marchant-Forde², J. S. Johnson², and R. M. Stwalley³, ¹Purdue University, Department of Animal Sciences, West Lafayette, IN, ²USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN, ³Purdue University, Department of Agricultural Biological Engineering, West Lafayette, IN
- 8:45 AM 12 **Design and Feasibility of a Novel Sprinkler Control Algorithm for Swine Heat Stress Alleviation.**
B. C. Ramirez^{}, S. J. Hoff, and J. D. Harmon, Iowa State University, Agricultural and Biosystems Engineering, Ames*
- 9:00 AM 13 **Evaluating the Health and Productivity of weaned Piglets after Simulated Transport and Heat Stress when Antibiotics are Eliminated from the Diet.**
J. S. Johnson^{}, and D. C. Lay Jr., USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN*
- 9:15 AM 14 **Dynamic Space Requirements of Lame and Non-Lame Sows Determined by the Lying-Standing Sequence.**
J. M. Mumm¹, J. D. Stock¹, K. J. Stalder¹, A. K. Johnson¹, A. Ramirez², S. Azarpajouh¹, and J. A. Calderon Diaz^{3,4}, ¹Iowa State University, Department of Animal Science, Ames, ²Iowa State University, Ames, Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland, ⁴Polish Academy of Sciences, Institute of Genetics and Animal Breeding, Department of Animal Behaviour and Welfare, Jastrzębiec, Magdalena, Poland
- 9:30 AM 15 **Do Pigs Form Social Structures? An Application of Social Network Analysis.**
*Y. Li^{*1}, H. Zhang¹, L. J. Johnston¹, and W. Martin², ¹University of Minnesota, West Central Research and Outreach Center, Morris, ²University of Minnesota Extension, Saint Paul*
- 9:45 AM **Break**
- 10:00 AM 16 **Changes in Scratches and Skin Elasticity in Cull Sows after Transport to the Abattoir.**
K. Thodberg^{}, K. K. Fogsgaard, C. Gaillard, and M. S. Herskin, Aarhus University, Tjele, Denmark*

- 10:15 AM 17 **Bio-Pesticide Management of Pasture Flies in the Great Plains via a Push-Pull Strategy.**
*D. J. Boxler^{*1}, G. J. Brewer², J. Zhu², and R. N. Funston³,
¹University of Nebraska-Lincoln, West Central Research and Extension Center, North Platte, ²University of Nebraska-Lincoln,
³University of Nebraska, North Platte*
- 10:30 AM 18 **Salivary Cortisol Concentrations of Group-Housed Gestating Sows: Individual vs. Group Samples.**
*Y. Li^{*1}, S. Cui¹, X. Yang², B. A. Crooker³, S. K. Baidoo², and L. J. Johnston¹,
¹University of Minnesota, West Central Research and Outreach Center, Morris, ²University of Minnesota, Southern Research and Outreach Center, Waseca, ³University of Minnesota, Department of Animal Sciences, Saint Paul*
- 10:45 AM 19 **The Use of Prepartal Standing Behavior as a Parameter for Early Detection of Subclinical Ketosis in Postpartal Dairy Cows.**
*S. Rodriguez-Jimenez^{*1}, K. J. Haerr², J. J. Loor², J. S. Osorio³, and F. C. Cardoso²,
¹South Dakota State University, Brookings, ²University of Illinois at Urbana-Champaign, ³South Dakota State University, Dairy and Food Science Department, Brookings*
- 11:00 AM 97 **The Effect of Isoflurane and Meloxicam on Behaviour of Dairy Goat Kids Following Cautey Disbudding.**
*M. N. Hempstead^{*1,2}, M. Stewart³, J. R. Waas², V. M. Cave¹, and M. A. Sutherland¹,
¹AgResearch, Hamilton, New Zealand, ²The University of Waikato, Hamilton, New Zealand, ³InterAg, Hamilton, New Zealand*
- 11:15 AM 393 **A Commercially Available Activity Monitor Attached to the Ear Tag Detects Swine Oral-Nasal-Facial Behaviors.**
*G. V. Hernandez^{*1}, R. Manjarin¹, Y. Luo², A. N. Schmitz², P. J. VandeVord³, E. M. Fievisohn³, and L. E. Hulbert²,
¹California Polytechnic State University, San Luis Obispo, ²Kansas State University, Manhattan, ³Virginia Polytechnic Institute and State University, Blacksburg*

PHYSIOLOGY II: SWINE

Chair: Tiffany A. Wilmoth, Clemson University

Sponsor: Elanco Animal Health

8:30 AM - 10:30 AM

207

- 8:30 AM 324 **Diurnal Ambient Temperature Variations in Warm Climate Regions Affect the Serum Concentrations of Free Amino Acids in Growing Pigs.**
A. Morales, N. Ibarra, S. Espinoza, F. Reyes, E. Avelar, R. L. Camacho, and M. Cervantes Ramirez^{}, Universidad Autónoma de Baja California, Mexicali, Mexico*

- 8:45 AM 325 **Effects of Zinc Amino Acid Complex on Biomarkers of Gut Integrity and Metabolism during Heat Stress and a Following Recovery Period in Growing Pigs.**
E. J. Mayorga¹, S. K. Kvidera¹, E. A. Horst¹, M. A. Al-Qaisi¹, M. J. Dickson¹, J. T. Seibert¹, S. Lei¹, Z. J. Rambo², M. E. Wilson², and L. H. Baumgard¹, ¹Iowa State University, Ames, ²Zinpro Corporation, Eden Prairie, MN
- 9:00 AM 326 **Evaluation of a QTL for Porcine Circovirus Type 2b (PCV2) Viral Load on Long-Term Growth Performance and Nutrient Digestibility in Inoculated or Vaccinated Pigs for PCV2.**
D. M. van Sambeek^{}, M. D. Trenhaile-Grannemann, P. S. Miller, and T. E. Burkey, University of Nebraska-Lincoln*
- 9:15 AM 327 **A Humanized Gnotobiotic Piglet Model to Study Host-Microbiota Interactions.**
N. D. Aluthge^{}, W. Tom, T. E. Burkey, P. S. Miller, D. E. Hostetler, K. D. Heath, C. Kreikemeier, and S. C. Fernando, University of Nebraska-Lincoln*
- 9:30 AM **Break**
- 9:45AM 328 **Ex Vivo Translocation of *Escherichia coli* (E. coli) F18 in Pig Ileum that was Challenged with Norepinephrine (NE) or Adrenocorticotrophic Hormone (ACTH) compared with Controls.**
S. M. Curry^{}, E. R. Burrough, and N. K. Gabler, Iowa State University, Ames*
- 10:00 AM 329 **Characterizing the Effects of Acute and Chronic Heat Stress on Porcine Ovarian Function.**
M. J. Dickson^{}, J. Nteeba, K. L. Bidne, B. J. Hale, C. L. Hager, S. K. Kvidera, J. T. Seibert, L. H. Baumgard, J. W. Ross, and A. F. Keating, Iowa State University, Ames*
- 10:15 AM 330 **Impact of *Lawsonia intracellularis*-*Mycoplasma hyopneumoniae* Dual Challenge on Growth Performance of Pigs Divergently Selected for Residual Feed Intake.**
*E. Helm^{*1}, A. C. Outhouse¹, K. Schwartz¹, J. C. M. Dekkers², S. M. Lonergan¹, and N. K. Gabler¹, ¹Iowa State University, Ames, ²Iowa State University, Department of Animal Science, Ames*

**NONRUMINANT NUTRITION VI:
GROW/FINISH MANAGEMENT AND NUTRITION**

Chair: Pedro E. Urriola, University of Minnesota

Sponsor: Purina Animal Nutrition

8:30 AM - 11:30 AM

214

- 8:30 AM 272 **The Effects of In Utero Heat Stress on Fasting Heat Production in Growing Pigs.**
N. M. Chapel¹, C. J. Byrd¹, D. W. Lugar¹, K. R. Stewart², M. C. Lucy³, T. J. Safranski³, L. H. Baumgard⁴, and J. S. Johnson⁵, ¹Purdue University, West Lafayette, IN, ²Purdue University, Department of Animal Sciences, West Lafayette, IN, ³University of Missouri, Columbia, ⁴Iowa State University, Ames, ⁵USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN
- 8:45 AM 273 **Standardized Ileal Digestible Lysine Requirements for Finishing PIC Pigs Under Commercial Conditions: A Meta-Analysis.**
M. Goncalves, U. Orlando, W. Cast^{}, and M. Culbertson, Genus PIC, Hendersonville, TN*
- 9:00 AM 274 **Effects of Various Dietary n-6:n-3 PUFA Ratios on Growth Performance, Carcass Traits, Blood Lipid Profiles and Meat Quality in Finishing Pigs.**
W. C. Liu^{}, T. S. Li, J. Yin, H. M. Yun, and I. H. Kim, Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea*
- 9:15 AM 275 **Effects of Kemtrace Cr Level and Feeding Regimen on Finishing Pig Growth Performance and Carcass Characteristics.**
*J. T. Gebhardt¹, H. S. Cemin^{*1}, J. C. Woodworth¹, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouchey¹, J. A. Loughmiller², and R. D. Goodband¹, ¹Kansas State University, Manhattan, ²Kemin Industries, Des Moines, IA*
- 9:30 AM 276 **Evaluation of Standardized Ileal Digestible Tryptophan: Lysine Ratio with and without Ractopamine HCl on Growth Performance and Carcass Characteristics of Finishing Pigs.**
*J. A. Soto^{*1}, M. D. Tokach¹, K. J. Touchette², S. S. Dritz¹, J. C. Woodworth¹, J. M. DeRouchey¹, and R. D. Goodband¹, ¹Kansas State University, Manhattan, ²Ajinomoto Heartland, Inc., Chicago, IL*
- 9:45 AM 277 **Effects of Dietary Electrolyte Balance and Crude Protein on Growth Performance and Carcass Characteristics of Finishing Pigs from 110 to 130 Kg.**
J. A. Soto^{}, M. D. Tokach, S. S. Dritz, J. C. Woodworth, J. M. DeRouchey, and R. D. Goodband, Kansas State University, Manhattan*

- 10:00 AM 278 **Does Chemical Composition of Dietary Fat Sources Alter mRNA Abundance of Genes Related to Lipid Digestion and Metabolism in Pigs?**
*T. A. Kellner**, and *J. F. Patience*, Iowa State University, Ames
- 10:15 AM 279 **Pigs Receiving Daily Tailored Diets Have Different Amino Acid Requirements than Pigs Raised in Conventional Phase Feeding Systems.**
A. Remus^{1,2,3}, *M. P. Létourneau Montminy*¹, *L. Hauschild*³, and *C. Pomar*², ¹Université Laval, Département des Sciences Animales, Québec, QC, Canada, ²Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ³Universidade Estadual Paulista, Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, Brazil
- 10:30 AM 280 **Evaluation of Sid Lys:ME Ratios in Grow-Finishing Pigs.**
*L. Ochoa*¹, *A. Graham*¹, *B. Knopf*¹, *L. Greiner*¹, and *J. Connor*², ¹Carthage Innovative Swine Solutions, LLC., Carthage, IL, ²Carthage Veterinary Service, Ltd., Carthage, IL
- 10:45 AM 281 **Impact of Grow-Finish Performance and Carcass Characteristics in Response to an Increased Apparent Health Challenge.**
*A. S. Cornelison*¹, *N. H. Williams*², *B. Haber*², *M. A. Berhow*³, *L. A. Karriker*¹, *J. Less*⁴, and *J. F. Patience*¹, ¹Iowa State University, Ames, ²Iowa Select Farms, Iowa Falls, ³USDA-ARS, National Center for Agricultural Utilization Research, Peoria, IL, ⁴ADM Animal Nutrition, Decatur, IL
- 11:00 AM 282 **Effects of High Neutral Detergent Fiber Diets on the N-balance Of Pigs Fed Thr-limited Diets.**
*J. K. Mathai*¹, *H. L. Spangler*¹, *H. H. Stein*¹, and *K. J. Touchette*¹, ¹University of Illinois at Urbana-Champaign, ²Ajinomoto Heartland, Inc., Chicago, IL
- 11:15 AM 283 **Effect of Increasing Sid Trp:Lys Ratio on Growth Performance of Grower-Finisher Pigs.**
*T. C. Tsai*¹, *H. Kim*², *X. Wang*¹, *J. J. Chewning*³, *J. A. Apple*¹, *J. E. Thomson*⁴, and *C. V. Maxwell*¹, ¹University of Arkansas, Division of Agriculture, Department of Animal Science, Fayetteville, ²University of Arkansas, Fayetteville, ³Swine Research Services, Inc., Springdale, AR, ⁴Evonik Degussa Corp, Kennesaw, GA

BREEDING AND GENETICS II

Chair: Jared E. Decker, University of Missouri

Sponsor: Diamon V

8:30 AM - 11:00 AM

212

- 8:30 AM 39 **Young Scholar Presentation: Follicle Dynamics and Hormonal Environment in a Novel High Fecundity Genotype in Cattle.**
*A. Garcia-Guerra^{*1,2}, B. W. Kirkpatrick¹, and M. C. Wiltbank¹,
¹University of Wisconsin-Madison, ²The Ohio State University, Columbus*
- 9:00 AM 40 **Impact of Blood Collection on Scoring Temperament in Angus-Based Weaned Calves is Negligible.**
*L. L. Hulsman Hanna^{*1}, J. K. Hieber¹, H. Yu¹, C. R. Dahlen¹, S. A. Wagner¹, and D. G. Riley², ¹North Dakota State University, Department of Animal Sciences, Fargo, ²Texas A&M University, Department of Animal Science, College Station*
- 9:15 AM 41 **Evaluation of Functional Variation in Candidate Genes for Pork Quality.**
*D. J. Nonneman^{*1}, G. A. Rohrer¹, T. S. Kalbfleisch², S. D. Shackelford¹, D. A. King¹, and T. L. Wheeler¹, ¹USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, ²Intrepid Bioinformatics, Louisville, KY*
- 9:30 AM 42 **Genome-Wide Association of Myoglobin Concentrations in Pork Loins.**
*A. J. Cross^{*1}, D. A. King², S. D. Shackelford², T. L. Wheeler², J. P. Cassidy¹, D. J. Nonneman², and G. A. Rohrer², ¹South Dakota State University, Brookings, ²USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 9:45 AM **Break**
- 10:00 AM 43 **Genetic Parameters for Age at Puberty and Associated Traits in Swine.**
G. M. See^{}, N. V. Serão, and M. T. Knauer, North Carolina State University, Raleigh*
- 10:15 AM 44 **Non-Random Distribution of Runs of Homozygosity Across the Genome of Landrace X Large White Crossbreds.**
*L. Gomez-Raya^{1,2}, J. R. Dunkelberger^{*1}, J. K. Lunney³, R. R. Rowland⁴, W. M. Rauw^{1,2}, and J. C. M. Dekkers¹, ¹Iowa State University, Department of Animal Science, Ames, ²Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria, Departamento de Mejora Genética Animal, Madrid, Spain, ³USDA-ARS, Beltsville Agricultural Research Center, Animal Parasitic Diseases Laboratory, Beltsville, MD ⁴Kansas State University, Department of Diagnostic Medicine/Pathobiology, Manhattan*

- 10:30 AM 45 **Selection for Age at Puberty in Swine: Correlated Boar Response.**
*G. M. See**, *W. L. Flowers*, and *M. T. Knauer*, *North Carolina State University, Raleigh*
- 10:45 AM 104 **Genetic, Heterosis and Maternal Effects on Voluntary Waer Consumption in Mice.**
*M. T. Haag**, *K. D. Wells*, and *W. R. Lamberson*, *University of Missouri, Division of Animal Sciences, Columbia*

NONRUMINANT NUTRITION VII: FEED ADDITIVES/INGREDIENTS

**Chair: Tofuko A. Woyengo, South Dakota State Univesity
 and Ryan S. Samuel, Alltech**

**Sponsor: Kemin
 8:30 AM - 12:00 PM
 213**

- 8:30 AM 284 **Young Scholar Presentation: The Impacts of Dietary Fat Source on Lipid Digestion, Absorption, Deposition and Metabolism in Grow-Finish Pigs.**
T. A. Kellner¹, and *J. F. Patience²*, ¹*Iowa State University, Ames, Iowa State University, Department of Animal Science, Ames, IA*
- 9:00 AM 285 **Effects of Prebiotic or Organic Acid Supplementation on Growth Performance, Nutrient Digestibility and Plasma Cytokines of Weaned Pigs Housed Under Poor Sanitary Conditions.**
B. V. Le Thanh¹, *J. K. Htoo²*, *L. F. Wang³*, and *R. T. Zijlstra¹*, ¹*University of Alberta, Department of Agricultural, Food and Nutritional Science, Edmonton, AB, Canada*, ²*Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*, ³*University of Alberta, Edmonton, AB, Canada*
- 9:15 AM 286 **Effects of a Yeast-Based Feed Additive on Nursery Pig Performance .**
H. E. Williams¹, *J. C. Woodworth¹*, *J. M. DeRouchey¹*, *S. S. Dritz¹*, *M. D. Tokach¹*, *R. E. Musser²*, and *R. D. Goodband¹*, ¹*Kansas State University, Manhattan*, ²*NutriQuest, Mason City, IA*
- 9:30 AM 287 **The Effects of Feeding Narasin (Skycis) on Late Finishing Pig Performance.**
M. T. Knauer¹, and *R. A. Arentson²*, ¹*North Carolina State University, Raleigh*, ²*Elanco Animal Health, Greenfield, IN*

- 9:45 AM 288 **Effects of Aminogut and Diet Formulation Approach on Growth Performance in Nursery Pigs.**
M. A. D. Goncalves¹, M. B. Menegat², M. D. Tokach², S. S. Dritsch², K. J. Touchette³, J. M. DeRouchey², J. C. Woodworth², and R. D. Goodband², ¹Genus PIC, Hendersonville, TN, ²Kansas State University, Manhattan, ³Ajinomoto Heartland, Inc., Chicago, IL
- 10:00 AM 289 **Effects of Mannan Oligosaccharides and *Lactobacillus mucosae* on the Growth Performance and Immune Response of Weanling Pigs Challenged with *Escherichia coli* Lipopolysaccharides.**
Y. S. Li^{}, M. D. Trenhaile, D. M. van Sambeek, K. C. Moore, S. M. Barnett, S. C. Fernando, T. E. Burkey, and P. S. Miller, University of Nebraska-Lincoln*
- 10:15 AM 290 **Effects of Mycotoxin Contaminated High Protein Distillers Dried Grains (HP-DDG) and Mycotoxin Mitigation Additive on Growth Performance and Plasma GLP-1 Concentration of Growing-Finishing Pigs.**
L. Fung^{}, G. C. Shurson, P. E. Urriola, and M. Saqui-Salces, University of Minnesota, Department of Animal Science, Saint Paul*
- 10:30 AM 291 **Effects of a Multi-Strain *Bacillus* Spp. Direct-Fed Microbial (DFM) and Protease Combination at Different Doses on Apparent Ileal (AID) and Total Tract Digestibility (ATTD) of Nutrients in Growing Pigs Fed Corn-Soybean Meal-Based Diets: A Combined Analysis of Two Studies.**
M. C. Walsh¹, L. Payling¹, I. H. Kim², and H. H. Stein³, ¹Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom, ²Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea, ³University of Illinois at Urbana-Champaign
- 10:45 AM 82 **Growth Performance Responses of Growing Pigs when Fed Corn-Soybean Meal Diets with Corn DDGS Treated with Fiber Degrading Enzymes with or without Extended Steeping.**
*Y. Rho^{*1}, K. Moran², D. Wey¹, C. Zhu¹, M. C. Walsh³, E. Kiarie¹, E. van Heugten², and C. F. M. de Lange¹, ¹University of Guelph, Department of Animal Biosciences, ON, Canada, ²North Carolina State University, Raleigh, ³Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom*
- 11:00 AM 292 **The Effect of Feeding Ambitine FA on Late Finishing Pig Performance.**
S. A. Crowder³, T. L. Weeden¹, M. B. Lachmann Sevilla¹, B. De Rodas¹, and T. P. Karnezos², ¹Purina Animal Nutrition LLC., Shoreview, MN, ²PMI Nutritional Additives, Shoreview, MN

- 11:15 AM 293 **Impact of a Direct-Fed Microbial at Three Inclusion Rates on Growth Performance in Growing and Finishing Pigs.**
*S. A. Weiland^{*1}, T. Waugh², and J. F. Patience¹, ¹Iowa State University, Ames, ²Kay Dee Feed Company, Sioux City, IA*
- 11:30 AM 93 **Influence of Ethanol Co-Products and Barley on Growth Performance and Carcass Characteristics of Growing-Finishing Pigs in Liquid or Dry Feeding Systems.**
B. Tostenson^{}, A. Tekeste, D. Pangen, H. Manu, P. Ren, X. Yang, and S. K. Baidoo, University of Minnesota, Southern Research and Outreach Center, Waseca*
- 11:45 AM 294 **Effect of Feeding Formaldehyde Treated Feed to Pigs Throughout the Growing Period on Amino Acid Utilization from Synthetic Lys or Protein Sources.**
L. Ochoa¹, R. J. Harrell², A. Graham¹, M. Bienhoff³, B. Kremer³, J. A. Loughmiller³, and L. Greiner¹, ¹Carthage Innovative Swine Solutions, LLC., Carthage, IL, ²Professional Swine Management, Carthage, IL, ³Kemin Industries, Inc., Des Moines, IA

NONRUMINANT NUTRITION VIII: NURSERY PIG II

**Chair: William T. Oliver, USDA-ARS,
 U.S. Meat Animal Research Center
 8:30 AM - 11:30 AM
 Grand Ballroom North**

- 8:30 AM 295 **Effect of Lactose, Inulin, Lactobacillus Acidophilus Fermentation Product or Dietary Antibiotics on Nursery Pig Digestibility and Nitrogen Retention.**
*J. A. Acosta^{*1}, N. K. Gabler¹, J. W. Frank², B. E. Bass², and J. F. Patience¹, ¹Iowa State University, Ames, ²Diamond V, Cedar Rapids, IA*
- 8:45 AM 296 **Evaluation of a Bio-Processed Soybean Meal on Nursery Pig Performance and Immune Status.**
J. Koepke^{}, C. L. Levesque, W. R. Gibbons, M. Brown, and R. Kaushik, South Dakota State University, Brookings*
- 9:00 AM 297 **Super Dosing Effects of Corn-Expressed Phytase on Growth Performance, Bone Characteristics and Nutrient Digestibility in Nursery Pigs Fed Diets Deficient in Phosphorus and Calcium.**
J. K. Lee^{}, M. E. Duarte, and S. W. Kim, North Carolina State University, Raleigh*
- 9:15 AM 298 **Validation of Deuterium Oxide Method for Estimating Milk Intake by Piglets.**
*S. Zhang^{*1}, N. L. Trottier¹, and J. C. Marini², ¹Michigan State University, East Lansing, ²USDA-ARS Children's Nutrition Research Center, Baylor College of Medicine, Houston, TX*

- 9:30 AM 299 **Evaluation of Dietary Electrolyte Balance on Nursery Pig Performance.**
*A. M. Jones**, *J. C. Woodworth*, *S. S. Dritz*, *M. D. Tokach*,
J. M. DeRouchey, and *R. D. Goodband*, *Kansas State University, Manhattan*
- 9:45 AM 300 **Comparative Analysis of Bacterial Composition in the Ileum of Early Post-Weaned Piglets Fed Microbially Enhanced Soybean Meal and Fishmeal.**
*J. L. Ortman*¹, *S. M. Sinn*¹, *B. St-Pierre*², and *C. L. Levesque*¹,
¹*South Dakota State University, Brookings*, ²*South Dakota State University, Animal Science Department, Brookings*
- 10:00 AM 301 **Evaluation of the Lysine Requirement of 11- to 23-Kg Nursery Pigs.**
*A. Graham*¹, *B. Knopf*¹, *L. Greiner*¹, *M. A. D. Goncalves*²,
*U. A. D. Orlando*², and *J. Connor*³, ¹*Carthage Innovative Swine Solutions, LLC., Carthage, IL*, ²*Genus PIC, Hendersonville, TN*,
³*Carthage Veterinary Service, Ltd., Carthage, IL*
- 10:15 AM 302 **Evaluation of Elarom SES in Nursery Pig Diets with or without the Inclusion of High Zinc Oxide or Feed Antimicrobials.**
*H. E. Williams*¹, *J. C. Woodworth*¹, *J. M. DeRouchey*¹,
*S. S. Dritz*¹, *M. D. Tokach*¹, *K. Hogan*², and *S. R. Webster*²,
¹*Kansas State University, Manhattan*, ²*Trouw Nutrition USA, LLC., Highland, IL*
- 10:30 AM 303 **Effect of Natural Feed Additives as Alternatives to in-Feed Antibiotics on the Performance of Nursery Pigs.**
*S. M. Mendoza*¹, *G. R. Murugesan*¹, *E. Hendel*¹, *E. Kadas-Toth*²,
and *A. Kovacs*², ¹*Biomin America Inc., San Antonio, TX*, ²*Biomin Holding GmbH, Getzersdorf, Austria*
- 10:45 AM 304 **Effect of Particle Size of Soy Protein Concentrate on Amino Acid Digestibility and Concentration of Metabolizable Energy and Effects of Soy Protein Concentrate on Growth Performance of Weanling Pigs.**
G. A. Casas^{1,2}, *C. Huang*³, and *H. H. Stein*², ¹*Universidad Nacional de Colombia, Bogota, Colombia*, ²*University of Illinois at Urbana-Champaign*, ³*Beijing TongLiXingKe Agriculture Science & Technology Co. Ltd, Beijing, China*
- 11:00 AM 305 **A Review and Evaluation of Antibiotic Alternatives in the Literature.**
*W. P. Schweer*¹, *J. F. Patience*¹, *K. Schwartz*¹, *D. Linhares*¹,
*C. Rademacher*¹, *H. K. Allen*², *C. L. Loving*², *A. Ramirez*¹, and
*N. K. Gabler*¹, ¹*Iowa State University, Ames*, ²*USDA National Animal Disease Center, Ames, IA*

- 11:15 AM 306 **Effect of Lactose, Inulin, *Lactobacillus acidophilus* Fermentation Product or Dietary Antibiotics on Intestinal Function of Nursery Pigs.**
J. A. Acosta^{*1}, *N. K. Gabler*¹, *J. W. Frank*², *B. E. Bass*², and *J. F. Patience*¹, ¹*Iowa State University, Ames*, ²*Diamond V, Cedar Rapids, IA*

RUMINANT NUTRITION III: DAIRY

Chair: Kristin E. Hales, USDA-ARS, U.S. Meat Animal Research Center

Sponsor: Micronutrient

8:30 AM - 11:30 AM

210/211

- 8:30 AM 372 **Young Scholar Presentation: Intestinal Barrier Function Involvement in Inefficient Nutrient Partitioning.**
S. K. Kvidera^{*}, and *L. H. Baumgard*, *Iowa State University, Ames*
- 9:00 AM 373 **Young Scholar Presentation: Making Something Out of Nothing: The Potential of Calcium Hydroxide Treated Corn Stover for Dairy Cows.**
B. A. Casperson^{*}, and *S. S. Donkin*, *Purdue University, West Lafayette, IN*
- 9:30 AM 374 **Growth Performance of Dairy Heifers Fed Carinata Meal.**
K. Rodriguez-Hernandez^{*1,2}, and *J. L. Anderson*¹, ¹*South Dakota State University, Dairy Science Department, Brookings*, ²*CIRNOC-INIFAP, Matamoros, Mexico*
- 9:45 AM 375 **Young Scholar Presentation: Effects of Dietary Factors and Rumen pH on Rumen Biohydrogenation Pathways and Risk of Milk Fat Depression.**
Y. Sun^{*}, *M. Allen*, and *A. Lock*, *Michigan State University, East Lansing*
- 10:15 AM 376 **Young Scholar Presentation: Manipulating Early Lactation Energy and Protein Balances Using Canola Meal as a Protein Source.**
S. A. E. Moore^{*1}, and *K. F. Kalscheur*², ¹*University of Wisconsin-Madison*, ²*USDA-ARS, U.S. Dairy Forage Research Center, Madison, WI*
- 10:45 AM 377 **In-Vitro Analysis of Rumen Microbial Fermentation at Different Temperatures.**
K. Linville^{*}, *D. P. Casper*, and *J. S. Osorio*, *South Dakota State University, Dairy and Food Science Department, Brookings*
- 11:00 AM 378 **Young Scholar Presentation: Feeding Peripubertal Dairy Heifers Diets High in Distillers Grains with Varying Forage to Concentrate Ratios.**
A. K. Manthey^{*1}, and *J. L. Anderson*^{2,1} *South Dakota State University, Dairy Science Department, Brookings*, ²*South Dakota State University, Brookings*



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MONDAY POSTER SESSIONS

SPONSOR: DUPONT

POSTER SESSION I

GRADUATE STUDENT POSTER COMPETITION - MS I

Sponsor: ADSA/ASAS MW Board

12:30 PM - 1:30 PM

Grand Ballroom Foyer

SCREEN

- 107 1 **Effect of Original XPC in Receiving Diets on Newly Weaned Beef Steer Performance.**
*E. L. Deters**, *R. S. Stokes*, *O. N. Genther-Schroeder*, and *S. L. Hansen*, *Iowa State University, Ames*
- 108 2 **Mortality and Survival Probability of Breeding-Female Pigs in Southern European Commercial Herds.**
*S. Tani*¹, *C. Pineiro*², and *Y. Koketsu*¹, ¹*Meiji University, Kawasaki, Japan*, ²*PigChamp Pro Europa, Segovia, Spain*
- 109 3 **Cows with Follicular Fluid Androgen Excess Exhibit Anovulation and have Altered Circulating Sex Hormone Binding Globulin, Gonadotropin Secretion and Plasma and Follicular Fluid Composition.**
*R. Spuri Gomes*¹, *S. C. Tenley*¹, *S. Romereim*¹, *M. Abedal-Majed*¹, *A. F. Summers*², *S. G. Kurz*¹, *J. Bergman*¹, *R. M. McFee*¹, *J. C. Gomes Neto*¹, *R. A. Cushman*³, *J. S. Davis*⁴, *J. R. Wood*¹, and *A. S. Cupp*¹, ¹*University of Nebraska - Lincoln*, ²*New Mexico State University, Animal and Range Science Department, Las Cruces*, ³*USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*, ⁴*University of Nebraska Medical Center, Department of OBGYN, Omaha*,
- 110 4 **Changes in Neonatal Foal Blood Chemistry during the First 72 Hours of Life.**
*N. B. Duncan**, *M. J. Crosby*, and *A. M. Meyer*, *Division of Animal Sciences, University of Missouri, Columbia*
- 111 5 **Effects of Exogenous Phytase Supplementation and Dietary Phosphorus Concentration on Metabolism and Digestibility of Beef Cattle.**
*C. J. Long**, *H. H. Stein*, and *T. L. Felix*, *University of Illinois at Urbana-Champaign*

GRADUATE STUDENT POSTER COMPETITION - PHD

Sponsor: ADSA/ASAS MW Board

12:30 PM - 1:30 PM

Grand Ballroom Foyer

SCREEN

- 117 6 **Effects of Floor Cooling on Late Lactation Sows Under Acute Heat Stress.**
F. A. Cabezon¹, A. P. Schinckel¹, J. N. Marchant-Forde², J. S. Johnson², and R. M. Stwalley³, ¹Purdue University, Department of Animal Sciences, West Lafayette, IN, ²USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN, ³Purdue University, Department of Agricultural Biological Engineering, West Lafayette, IN
- 118 7 **Effects of Dietary Copper Levels on Growth Performance and Response to Lipopolysaccharide Challenge in Nursery Pigs from Sows Fed Either High or Low Copper Diets.**
N. Lu^{}, and M. D. Lindemann, University of Kentucky, Lexington*
- 119 8 **Standardized Total Tract Digestible Phosphorus Requirement of 11- to 25-Kg Pigs.**
C. M. Vier¹, F. Wu¹, S. S. Dritz¹, M. D. Tokach¹, M. A. D. Goncalves², U. A. D. Orlando², J. C. Woodworth¹, R. D. Goodband¹, and J. M. DeRouchey¹, ¹Kansas State University, Manhattan, ²Genus PIC, Hendersonville, TN
- 120 9 **After All, Tomorrow is Another Day for the Transition Cow: Depending on Liver and Reproductive Health, of Course.**
*Y. Schuermann^{*1}, A. St-Yves¹, N. Dicks¹, R. C. Bohrer¹, R. Mondadori², V. Higginson¹, V. Boyer¹, M. Taibi¹, E. Madogwe¹, V. Bordignon¹, A. Mustafa¹, B. Baurhoo¹, and R. Duggavathi¹, ¹McGill University, Sainte-Anne De Bellevue, QC, Canada, ²Federal University of Pelotas, Capão do Leão, Brazil*
- 121 10 **Impact of Estrus Expression and Conceptus Presence on Plasma and Uterine Glucose Concentrations up until Maternal Recognition of Pregnancy in Beef Cattle.**
*E. J. Northrop^{*1}, J. J. J. Rich¹, R. A. Cushman², and G. A. Perry¹, ¹South Dakota State University, Department of Animal Science, Brookings, ²USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*

UNDERGRADUATE STUDENT POSTER COMPETITION I

Sponsor: ASAS Foundation - Gretchen Hill Appreciation Club

12:30 PM - 1:30 PM

Grand Ballroom Foyer

SCREEN

- 397 11 **Effects of Vitamins E and D on Performance and Antioxidant Enzymes in Nursery Pigs.**
*K. R. Copeland^{*1}, D. B. Scales¹, G. M. Hill¹, J. E. Link¹, K. C. Turner¹, C. J. Rozeboom¹, and R. L. Stuart², ¹Michigan State University, East Lansing, ²Stuart Products Inc., Bedford, TX*
- 398 12 **Effects of in Utero Heat Stress on Boar Growth and Reproduction prior to, During, and After Puberty.**
*J. A. Proctor^{*1}, D. W. Lugar¹, M. C. Lucy², T. J. Safranski², and K. R. Stewart³, ¹Purdue University, West Lafayette, IN, ²University of Missouri, Columbia, ³Purdue University, Department of Animal Sciences, West Lafayette, IN*
- 399 13 **Comparison of Igenity Silver Profile and Zoetis Predic Gen DNA Tests in Crossbred Beef Cattle.**
*D. M. Zuidema^{*1}, M. G. Gonda¹, W. C. Rusche², and J. Walker¹, ¹South Dakota State University, Brookings, ²South Dakota State University Extension, Brookings*
- 400 14 **The Effects of Different Oocyte Maturation Media on the Production of in Vitro Derived Pig Embryos.**
K. James^{}, J. Current, E. Winn, and B. D. Whitaker, University of Findlay, Findlay, OH*
- 401 15 **Feeding Liquid Sweet Whey to Growing Swine.**
*J. M. Lutz^{*1}, N. Ernst¹, A. R. Brummit¹, J. C. Hofman¹, J. P. Schweihofe², S. Cho¹, and D. W. Rozeboom¹, ¹Michigan State University, East Lansing, ²Michigan State University Extension, Bad Axe*

NONRUMINANT NUTRITION I: FEED ADDITIVES I

12:45 PM - 1:30 PM

Grand Ballroom Foyer

SCREEN

- 154 17 **Dose-Response Trial of an Umami Sensory Additive in Pig Transition Diets.**
*G. Tedo^{*1}, A. Meru^{1,2}, and F. Bargo¹, ¹Innovation Division, Lucta S.A., Barcelona, Spain, ²Yara International, Oslo, Norway*
- 155 18 **Effect of a New Montmorillonite-Based Feed Additive on the Production Performance of Newly Weaned Piglets.**
*M. S. Hasan^{*1}, T. Wang¹, S. Ching², J. M. Feugang¹, M. A. Crenshaw¹, S. L. Johnston², F. Chi², and S. F. Liao¹, ¹Mississippi State University, Department of Animal and Dairy Sciences, Mississippi State, ²Amlan International, Chicago, IL*

- 156 19 **Effect of Different Phase Level of Medium Chain Triglycerides on Growth Performance, Excreta Microflora and Blood Profiles in Broilers.**
*J. Hu**, *J. Y. Zhang*, *S. D. Upadhaya*, and *I. H. Kim*, *Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea*
- 157 20 **Effects of Kemtrace Cr Level and Feeding Regimen on Finishing Pig Growth Performance and Carcass Characteristics.**
*J. T. Gebhardt*¹, *J. C. Woodworth*¹, *M. D. Tokach*¹, *S. S. Dritz*¹, *J. M. DeRouche*¹, *J. A. Loughmiller*², and *R. D. Goodband*¹, ¹*Kansas State University, Manhattan*, ²*Kemin Industries, Des Moines, IA*
- 158 21 **Interactive Effects of Kemtrace Cr and Micro-Aid on Finishing Pig Growth Performance and Carcass Characteristics.**
*J. T. Gebhardt*¹, *J. C. Woodworth*¹, *M. D. Tokach*¹, *S. S. Dritz*¹, *J. M. DeRouche*¹, *J. A. Loughmiller*², and *R. D. Goodband*¹, ¹*Kansas State University, Manhattan*, ²*Kemin Industries, Des Moines, IA*
- 159 22 **Supplemental Effects of Fermented Rice Bran Extracts on Growth Performance, Bone Characteristics and Immune Response of Broiler Chickens.**
*L. Zheng**, *M. E. Duarte*, *I. Park*, and *S. W. Kim*, *North Carolina State University, Raleigh*

NONRUMINANT NUTRITION II: ENZYMES

12:45 PM - 1:30 PM
Grand Ballroom Foyer

SCREEN

- 150 23 **Supplementation of NSP Enzyme Increased the Nutritive Value of Diets Fed to Lactating Sows.**
*T. F. Pedersen*¹, *T. S. Bruun*², *B. N. Fisker*³, *I. Knap*⁴, and *P. K. Theil*⁵, ¹*Aarhus Universitet, Tjele, Denmark*, ²*SEGES Pig Research Centre, Copenhagen V, Denmark*, ³*DSM Nutritional Products, Broendby, Denmark*, ⁴*DSM Nutritional Products, Kaiseraugst, Switzerland*, ⁵*Aarhus University, Tjele, Denmark*
- 151 24 **Influence of Enterococcus Faecium and Endo-1,4-Xylanase Supplementation to Corn and Soybean Meal Based Diet on Growth Performance, Nutrient Digestibility, Meat Quality, Fecal Microflora and Fecal Gas Emission in Finishing Pigs.**
*D. H. Nguyen*¹, *K. Y. Lee*², *H. N. Tran*¹, and *I. H. Kim*¹, ¹*Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea*, ²*Morningbio Co. Ltd, Cheonan, The Republic of Korea*

- 152 25 **Effects of Addition of Protease with or without Fructo-Oligosaccharide to Low Protein Diet on Growth Performance, Nutrient Digestibility, and Fecal Ammonia Emission in Growing-Finishing Pigs.**
*X. J. Lei**, *J. H. Park*, *H. M. Yun*, *J. W. Park*, and *I. H. Kim*,
Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea
- 153 26 **Impact of Xylanase and an Enzyme Blend on Gut Barrier Function and Growth Performance in Nursery Pigs.**
*Q. Y. Li**¹, *N. K. Gabler*¹, *C. Sparks*², and *J. F. Patience*¹, ¹*Iowa State University, Ames*, ²*Huvepharma Inc., St. Louis, MO*

**POSTER SESSION II
 GRADUATE STUDENT POSTER COMPETITION - MS II**

**Sponsor: ADSA/ASAS MW Board
 4:45 PM - 5:45 PM
 Grand Ballroom Foyer**

SCREEN

- 112 1 **Vaginal and Uterine Bacterial Communities in Postpartum Lactating Cows.**
*B. A. Clemmons**¹, *F. Guirado Dantas*¹, *G. A. Franco*¹,
*S. T. Reese*¹, *O. I. Adeyosoye*², *T. P. Smith*³, *P. R. Myer*¹, and
*K. G. Pohler*¹, ¹*University of Tennessee, Knoxville*, ²*Obafemi Awolowo University, Ile-Ife, Nigeria*, ³*USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 113 2 **The Effects of Supplementing EPA and DHA during Late Gestation on Ewe Metabolic Profile and Milk Production.**
*D. N. Coleman**, *A. Relling*, and *P. A. Dieter*, *The Ohio State University, Department of Animal Sciences, Wooster*
- 114 3 **Improving Sow Productivity and Nursery Pig Performance by Injecting Sows with d- α -Tocopherol, Retinyl Palmitate and Cholecalciferol.**
*R. Becerra**¹, *E. van Heugten*¹, and *R. L. Stuart*², ¹*North Carolina State University, Raleigh*, ²*Stuart Products Inc., Bedford, TX*
- 115 4 **Enhancing the Nutritive Values of Corn DDGS Via Pretreatment and Digestion.**
*C. A. Zangaro**¹, *R. Patterson*², *W. R. Gibbons*¹, and
*T. A. Woyengo*¹, ¹*South Dakota State University, Brookings*,
²*Canadian Biosystems, Calgary, AB, Canada*
- 116 5 **On the Associations Between Linear Body Measurements, Feeding Behavior Traits and Feed Efficiency Measures in Finishing Steers.**
*A. B. P. Fontoura**¹, *E. Knutson*¹, *F. E. Keomanivong*¹,
*A. K. Ward*², and *K. C. Swanson*¹, ¹*North Dakota State University, Fargo*, ²*North Dakota State University, Department of Animal Sciences, Fargo*

UNDERGRADUATE STUDENT POSTER COMPETITION II

Sponsor: ASAS Foundation - Gretchen Hill Appreciation Club

4:45 PM - 5:45 PM

Grand Ballroom Foyer

SCREEN

- 402 6 **Analysis of Particle Size and Organic Matter in Recycled Sand Bedding.**
L. R. Statz, P. J. Lammers, and K. A. L. Hardyman, University of Wisconsin-Platteville*
- 403 7 **Acceptance of a Novel Cheese By-Product Powder by Young Ruminants.**
*S. L. Van Asten*¹, E. N. Alava², E. I. Alava³, and P. J. Lammers¹, ¹University of Wisconsin-Platteville, ²University of Findlay, Findlay, OH, ³Escuela Superior Politecnica del Litoral, Guayaquil, Ecuador*
- 404 8 **Supplementation of Fructose on Porcine Sperm Improves Characteristics on Frozen-Thawed Sperm.**
B. D. Whitaker, and E. Winn, University of Findlay, Findlay, OH*
- 405 9 **Effects of Nutrient Supplementation on Pig Sickness Behavior when Infected with Porcine Reproductive and Respiratory Syndrome Virus.**
*N. R. Gordon*¹, S. M. Curry², W. P. Schweer², N. K. Gabler², and J. D. Colpoys¹, ¹Truman State University, Kirksville, MO, ²Iowa State University, Ames*
- 406 10 **Oviductal Fluid Supplementation during Maturation and Fertilization Improves in Vitro Embryonic Development in Pigs.**
A. Goldacker, E. Winn, J. Current, and B. D. Whitaker, University of Findlay, Findlay, OH*
- 407 11 **Effects of Dietary Probiotics on Cattle Growth Performance.**
A. J. Kelsey, and J. D. Colpoys, Truman State University, Kirksville, MO*

NONRUMINANT NUTRITION III: GESTATION/LACTATION

5:00 PM - 5:45 PM

Grand Ballroom Foyer

SCREEN

- 160 12 **Effects of Energy Restriction during Gilt Development on Parity 1 Progeny Growth Performance.**
S. M. Barnett, M. D. Trenhaile-Grannemann, T. E. Burkey, P. S. Miller, and D. C. Ciobanu, University of Nebraska-Lincoln*

- 161 13 **Feed Intake of Lactation Diets by Sows during Extended Lactation Periods.**
*A. P. Schinckel^{*1}, F. A. Cabezon¹, L. Y. León², and B. A. Craig³,
¹Purdue University, Department of Animal Sciences, West Lafayette, IN, ²Universidad Nacional de Colombia, Department of Statistics, Bogotá, Colombia, ³Purdue University, Department of Statistics, West Lafayette, IN*
- 162 14 **Effects of Feeding Levels during Wean-to-Estrus Interval and First Week of Gestation on Reproductive Performance of Sows.**
*L. Almeida^{*1}, M. A. D. Goncalves², U. A. D. Orlando², and A. Maiorka¹,
¹Universidade Federal do Paraná, Curitiba, Brazil, ²Genus PIC, Hendersonville, TN*
- 163 15 **Predicting Post-Farrow Maternal Weight for Primiparous and Multiparous Sows.**
L. L. Thomas^{}, S. S. Dritz, R. D. Goodband, M. D. Tokach, J. M. DeRouche, and J. C. Woodworth, Kansas State University, Manhattan*
- 164 16 **Effects of Different Feeding Levels during Three Short Periods of Gestation on Gilt and Litter Performance, Nutrient Digestibility and Energy Homeostasis.**
*P. Ren^{*1}, X. Yang¹, S. Cu^{2,3}, J. Kim¹, D. Menon¹, D. Pangen¹, H. Manu¹, A. Tekeste¹, and S. K. Baidoo¹,
¹University of Minnesota, Southern Research and Outreach Center, Waseca, ²University of Minnesota, West Central Research and Outreach Center, Morris, ³Northeast Agricultural University, Harbin, China*
- 165 17 **Effects of Feeding Level and Physiological Stage on Digestibility of Gross Energy and Nutrients and Concentration of Digestible and Metabolizable Energy in Full Fat Rice Bran and Defatted Rice Bran Fed to Gestating Sows and Growing Gilts.**
*G. A. Casas^{*1,2}, and H. H. Stein²,
¹Universidad Nacional de Colombia, Bogota, Colombia, ²University of Illinois at Urbana-Champaign*
- 166 18 **Effects of Energy Restriction during Gilt Development on Milk Nutrient Profile and Progeny Biomarkers.**
*S. M. Barnett^{*1}, M. D. Trenhaile-Grannemann¹, P. S. Miller², T. E. Burkey², and D. M. van Sambeek¹,
¹University of Nebraska-Lincoln*

NONRUMINANT NUTRITION IV: NURSERY PIG I

5:00 PM - 5:45 PM
Grand Ballroom Foyer

SCREEN

- 167 19 **The Impact of Dietary SID Trp:Lys on Growth Performance of Nursery Pigs.**
D. D. Koehler¹, J. F. Patience², K. J. Touchette³, S. A. Gould², T. A. Kellner², L. M. Gesing¹, and L. S. Courtney¹, ¹Vita Plus Corporation, Madison, WI, ²Iowa State University, Ames, ³Ajinomoto Heartland, Inc., Chicago, IL
- 168 20 **Effects of a Gluco-Oligosaccharide on Growth Performance of Nursery Pigs.**
F. Wu, J. M. DeRouchey, M. D. Tokach, S. S. Dritz, J. C. Woodworth, and R. D. Goodband, Kansas State University, Manhattan*
- 169 21 **Effects of Dietary Supplementation with a Probiotic (*Enterococcus faecium*) on Growth Performance, Nutrient Digestibility, Fecal Microbiota and Fecal Score in Weanling Pigs.**
R. X. Lan, J. K. Kim, Y. H. Liu, H. M. Yun, and I. H. Kim, Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea*
- 170 22 **Comparing the Effects of Butyric Acid Source and Level on Growth Performance of Nursery Pigs.**
K. M. Gourley, J. C. Woodworth, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, and S. S. Dritz, Kansas State University, Manhattan*
- 171 23 **Effects of Encapsulated Butyric Acid and Copper on Nursery Pig Growth Performance from d 0 to 42 after Weaning.**
J. A. Loughmiller, D. Sanders, H. Feng, V. Mani, J. K. Rubach, A. L. P. De Souza, F. R. Valdez, and M. J. Poss, Kemin Industries, Des Moines, IA*
- 173 24 **Evaluation of Dose Response Effects of Butipearl™ C on Nursery Pig Growth Performance from d 0 to 42 after Weaning.**
J. A. Loughmiller, A. L. P. De Souza, J. K. Rubach, H. Feng, D. Sanders, V. Mani, F. R. Valdez, and M. J. Poss, Kemin Industries, Des Moines, IA*
- 172 25 **Effects of Feeding Probiotic or Chlortetracycline or a Combination on Nursery Pig Growth Performance.**
H. E. Williams, M. D. Tokach, S. S. Dritz, J. C. Woodworth, J. M. DeRouchey, R. G. Amachawadi, T. G. Nagaraja, and R. D. Goodband, Kansas State University, Manhattan*

- 174 26 **Effects of Dietary Lysine Level and Amino Acid Ratios on Nursery Pig Performance.**
A. B. Clark¹, M. D. Tokach¹, J. M. DeRouchey¹, S. S. Dritz¹, J. C. Woodworth¹, R. D. Goodband¹, K. J. Touchette², and M. Allerson³, ¹Kansas State University, Manhattan, ²Ajinomoto Heartland, Inc., Chicago, IL, ³Holden Farms Inc., Northfield, MN

TUESDAY POSTER SESSIONS

SPONSOR: PURINA ANIMAL NUTRITION

POSTER SESSION III

EXTENSION - DAIRY

7:30 AM - 8:15 AM
 Grand Ballroom Foyer

SCREEN

- 62 1 **Evaluation of Commercial Products to Improve Gut Health and Digestibility in Lactating Dairy Cows.**
P. Poudel¹, D. P. Casper², and B. St-Pierre¹, ¹South Dakota State University, Animal Science Department, Brookings, SD, ²Formerly South Dakota State University, Brookings

EXTENSION - SWINE

7:30 AM - 8:15 AM
 Grand Ballroom Foyer

SCREEN

- 63 2 **Effects of Betaine and Heat Stress on Lactation and Post-Weaning Reproductive Performance on Sows.**
F. A. Cabezon^{}, K. R. Stewart, A. P. Schinckel, and B. T. Richert, Purdue University, Department of Animal Sciences, West Lafayette, IN*
- 64 3 **Development and Application of a Model of Heat Production for Lactating Sows.**
F. A. Cabezon¹, A. P. Schinckel¹, B. T. Richert¹, W. A. Peralta², and M. Gandarillas³, ¹Purdue University, Department of Animal Sciences, West Lafayette, IN, ²Agrícola Super Ltda, Rancagua, Chile, ³Universidad Austral de Chile, Valdivia, Chile

- 65 4 **Effect of Gestational β -hydroxy- β -methylbutyrate Supplementation and Sire Line on Piglet Quality.**
*M. Parker, and M. T. Knauer**, North Carolina State University, Raleigh
- 66 5 **Effects of Frequency and Time of Feeding during Gestation on Sow and Litter Performance.**
*H. Manu**, *P. Ren*, *D. Pangeni*, *B. Tostenson*, *X. Yang*, *A. Tekeste*, *L. Su Hyup*, and *S. K. Baidoo*, University of Minnesota, Southern Research and Outreach Center, Waseca, MN
- 67 6 **Effect of the Lactation Length of Piglets on Their Later Performance.**
S. López-Vergé¹, *D. Solà-Oriol¹*, *J. Bonet²*, *J. Coma²*, and *J. Gasà¹*, ¹Universitat Autònoma de Barcelona, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Bellaterra, Spain, ²Vall Companys Group, Polígono Industrial El Segre, Lleida, Spain
- 108 7 **Mortality and Survival Probability of Breeding-Female Pigs in Southern European Commercial Herds.**
*S. Tani*¹*, *C. Pineiro²*, and *Y. Koketsu¹*, ¹Meiji University, Kawasaki, Japan, ²PigChamp Pro Europa, Segovia, Spain
- 398 8 **Effects of In Utero Heat Stress on Boar Growth and Reproduction prior to, during, and after Puberty.**
*J. A. Proctor*¹*, *D. W. Lugar¹*, *M. C. Lucy²*, *T. J. Safranski²*, and *K. R. Stewart³*, ¹Purdue University, West Lafayette, IN, ²University of Missouri, Columbia, ³Purdue University, Department of Animal Sciences, West Lafayette, IN

**GROWTH, DEVELOPMENT, MUSCLE BIOLOGY,
AND MEAT SCIENCE**

7:30 AM - 8:15 AM
Grand Ballroom Foyer

SCREEN

- 123 9 **Performance and Docosahexaenoic Acid (DHA) Content in Longissimus dorsi and Backfat Tissues of Grow-Finish Pigs Fed Diets Differing in Heterotrophically-Grown Algae Content.**
C. A. Moran¹, *G. Fusconi²*, *M. Morlacchini²*, and *K. A. Jacques*³*, ¹Alltech France, Vire, France, ²CERZOO, Piacenza, Italy, ³Alltech Inc., Nicholasville, KY
- 124 10 **Docosahexaenoic Acid Content in Longissimus dorsi and Backfat Tissues of Grow-Finish Pigs Fed Diets Containing 0, 0.25 or 0.5% Heterotrophically-Grown Algae: Study 2.**
C. A. Moran¹, *G. Fusconi²*, *M. Morlacchini²*, and *K. A. Jacques*³*, ¹Alltech France, Vire, France, ²CERZOO, Piacenza, Italy, ³Alltech Inc., Nicholasville, KY

- 125 11 **Changes in Docosahexaenoic Acid (DHA) Content in Longissimis dorsi and Backfat Tissue of Finishing Pigs Given Diets Containing 1% Heterotrophically-Grown Algae during the Last 28 Days.**
C. A. Moran¹, G. Fusconi², M. Morlacchini², and K. A. Jacques³, ¹Alltech France, Vire, France, ²CERZOO, Piacenza, Italy, ³Alltech Inc., Nicholasville, KY
- 126 12 **Effects of Dietary Fat Source and Modified Distillers Grains on Beef Quality.**
F. A. Ribeiro, E. K. Kunze, K. Domenech-Perez, N. J. Herrera, H. R. Voegelé, K. Hart, and C. R. Calkins, University of Nebraska-Lincoln*
- 127 13 **Effect of Double Stocking and Nursery Split-Out Age on Wean-to-Finish Growth Performance and Economic Parameters of Growing Pigs.**
R. L. Lemire¹, K. F. Coble², D. Garry², L. L. Thomas³, C. W. Hastad², and D. D. Burnett¹, ¹Mississippi State University, Department of Animal and Dairy Sciences, Mississippi State, ²New Fashion Pork, Jackson, MN, ³Kansas State University, Manhattan
- 128 14 **Fatty Acid Profile of Meat from Nellore and Angus Young Bulls Fed a Whole Shelled Corn Diet.**
P. D. Teixeira¹, J. P. Schoonmaker², M. L. Chizzotti³, J. R. R. Carvalho¹, C. V. R. Oliveira¹, A. C. Rodrigues¹, L. R. Santos¹, and M. M. Ladeira⁴, ¹Universidade Federal de Lavras, Brazil, ²Purdue University, West Lafayette, IN, ³Universidade Federal de Viçosa, Brazil, ⁴Federal University of Lavras, Brazil
- 129 15 **The Effects of Instrumental Color and Extractable Lipid Content on Sensory Characteristics of Pork Chops Cooked to a Medium-Rare Degree-of-Doneness.**
K. B. Wilson², M. F. Overholt¹, C. M. Shull², C. R. Schwab², A. C. Dilger¹, and D. D. Boler¹, ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs, LLC., Carlyle, IL
- 130 16 **Effects of Antibiotic Program and Floor Space in the Nursery and Grow-Finish Periods on Wean-to-Finish Growth Performance of Pigs Under Commercial Conditions.**
N. S. Grohmann¹, M. Ellis¹, J. J. Nankivil¹, N. C. Cooper¹, C. M. Shull², B. A. Peterson², and A. M. Gaines², ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs, LLC., Carlyle, IL
- 131 17 **Retail Color and Aerobic Bacterial Count of Strip Steaks from Beef Cattle Fed Endophyte-Infected Tall Fescue Seeds.**
A. J. Holtcamp, A. Theradiyil Sukumaran, R. L. Lemire, B. B. Karisch, D. D. Burnett, and T. Dinh, Mississippi State University, Department of Animal and Dairy Sciences, Mississippi State*

- 132 18 **Effects of Feeding Stockpiled Tall Fescue versus Tall Fescue Hay to Late Gestation Beef Cows on Steer Offspring Carcass Quality and Yield.**
*A. M. Meyer**, *K. N. Niederecker*, *A. R. Rathert*, *K. E. Shircliff*,
Z. D. Callahan, and *B. R. Wiegand*, *University of Missouri*,
Division of Animal Sciences, Columbia

NONRUMINANT NUTRITION V: FEED ADDITIVES II

7:30 AM - 8:15 AM
Grand Ballroom Foyer

SCREEN

- 175 19 **Evaluation of Dietary Phytochemicals on Growth Performance, Carcass Characteristics and Economics of Grow-Finish Pigs Housed Under Commercial Conditions.**
*J. A. Soto**¹, *M. D. Tokach*¹, *G. R. Murugesan*², *S. S. Dritz*¹,
*J. C. Woodworth*¹, *J. M. DeRouchey*¹, and *R. D. Goodband*¹,
¹*Kansas State University, Manhattan*, ²*Biomim America Inc., San Antonio, TX*
- 176 20 **Effect of Feeding Varying Levels of *Lactobacillus plantarum* on Nursery Pig Performance.**
*A. M. Jones**, *J. C. Woodworth*, *J. M. DeRouchey*, *S. S. Dritz*,
M. D. Tokach, and *R. D. Goodband*, *Kansas State University, Manhattan*
- 177 21 **The Effect of Feeding Ambitine FA on Growth Performance and Carcass Characteristics of Finishing Pigs.**
*R. L. Schmitt*¹, *M. Ellis*¹, *J. E. Estrada*¹, *A. M. Gaines*²,
*O. F. Mendoza*², *C. M. Shull*², *S. A. Crowder*³, and *T. P. Karnezos*⁴,
¹*University of Illinois, Urbana-Champaign*, ²*The Maschhoffs, LLC., Carlyle, IL*, ³*Purina Animal Nutrition LLC., Shoreview, MN*, ⁴*PMI Nutritional Additives, Shoreview, MN*

BREEDING AND GENETICS

7:30 AM - 8:15 AM
Grand Ballroom Foyer

SCREEN

- 29 23 **Effects of Genetics on Growth and Feed Intake in Response to Repeated Exposure to Heat Stress.**
W. M. Rauw^{1,2}, *E. J. Mayorga*^{*2}, *S. Lei*², *J. C. M. Dekkers*²,
*J. F. Patience*², *N. K. Gabler*², *S. M. Lonergan*², and *L. H. Baumgard*²,
¹*Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria, Departamento de Mejora Genética Animal, Madrid, Spain*, ²*Iowa State University, Department of Animal Science, Ames*

- 30 24 **Effect of Swine Sire Line and Selection Index Category on Wean-to-Finish Growth Performance and Carcass Characteristics.**
N. M. Stas¹, M. Ellis¹, N. S. Grohmann¹, C. R. Schwab², C. M. Shull², and K. Ewing², ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs, LLC., Carlyle, IL
- 31 25 **Selection for Age at Puberty in Swine: Correlated Response in Sow Productivity.**
G. M. See, and M. T. Knauer, North Carolina State University, Raleigh*
- 399 26 **Comparison of Igenity Silver Profile and Zoetis Predic Gen DNA Tests in Crossbred Beef Cattle.**
D. M. Zuidema¹, M. G. Gonda¹, W. C. Rusche², and J. Walker¹, ¹South Dakota State University, Brookings, ²South Dakota State University Extension, Brookings

POSTER SESSION IV

NONRUMINANT NUTRITION VI: NURSERY PIG II

12:45 PM - 1:30 PM

Grand Ballroom Foyer

SCREEN

- 397 1 **Effects of Vitamins E and D on Performance and Antioxidant Enzymes in Nursery Pigs.**
K. R. Copeland¹, D. B. Scales¹, G. M. Hill¹, J. E. Link¹, K. C. Turner¹, C. J. Rozeboom¹, and R. L. Stuart², ¹Michigan State University, East Lansing, ²Stuart Products Inc., Bedford, TX
- 209 2 **Effect of Enzymatically Fermented Soybean Meal and *Lactobacillus plantarum* on Nursery Pig Performance.**
A. M. Jones, J. C. Woodworth, S. S. Dritz, M. D. Tokach, and R. D. Goodband, Kansas State University, Manhattan*
- 210 3 **Effect of Diet Complexity and Specialty Protein Source on Nursery Pig Performance.**
A. M. Jones¹, J. C. Woodworth¹, J. M. DeRouchey¹, G. E. Fitzner², M. D. Tokach¹, S. S. Dritz¹, and R. D. Goodband¹, ¹Kansas State University, Manhattan, ²Hamlet Protein, Findlay, OH
- 211 4 **Evaluation of Berberine as an Alternative to Antibiotics in Nursery Pig Diets.**
E. E. Scholtz, South Dakota State University, Brookings*
- 212 5 **Effects of Mannan Oligosaccharides and *Lactobacillus Mucosae* on the Intestinal Morphology of Weanling Pigs Challenged with *Escherichia coli* Lipopolysaccharides.**
Y. S. Li, M. D. Trenhaile, D. M. van Sambeek, K. C. Moore, S. M. Barnett, S. C. Fernando, T. E. Burkey, and P. S. Miller, University of Nebraska-Lincoln*

- 213 6 **Effects of Increasing Standardized Ileal Digestible (SID) Lysine on Performance of 11 to 23 Kg Nursery Pigs.**
*E. D. Fruge^{*1}, A. J. Gerhart¹, E. L. Hansen¹, S. A. Hansen¹, and K. F. Coble², ¹Hubbard Feeds, Inc., Mankato, MN, ²New Fashion Pork, Jackson, MN*
- 214 7 **Effects of a Liquid Supplement and a Nursery Starter Diet Given Immediately Post-Weaning on Growth Performance and Morbidity and Mortality of Nursery Pigs.**
*J. R. Morris^{*1}, M. Ellis¹, J. E. Estrada¹, A. M. Gaines², C. M. Shull², and O. F. Mendoza², ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs, LLC., Carlyle, IL*
- 215 8 **Growth Performance of Nursery Pigs Fed Microalgae Carbohydrate Product.**
J. A. Mielke¹, P. E. Urriola¹, M. Saqui-Salces¹, L. J. Johnston², and G. C. Shurson¹, ¹University of Minnesota, Department of Animal Sciences, Saint Paul, ²University of Minnesota, West Central Research and Outreach Center, Morris
- 216 9 **Effect of a Post-Weaning Supplemental Nutrition Program on the Growth Performance, and Morbidity and Mortality of Nursery Pigs.**
*K. D. Vande Pol^{*1}, M. Ellis¹, C. M. Shull², A. M. Gaines², O. F. Mendoza², and E. Parr², ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs, LLC., Carlyle, IL*
- 217 10 **Alternative Feed Additive, Associated or Not with Antibiotic, in Weaned Piglets Feeding: Growth Performance and Diets Digestibility.**
*C. D. Silva Júnior¹, C. C. S. Martins², F. T. F. Dias², N. Y. Sitanaka³, L. B. Ferracioli³, J. E. Moraes³, C. C. Pizzolante³, F. E. L. Budiño³, and U. S. Ruiz^{*4}, ¹Univ. Estadual Paulista, Dracena, Brazil, ²DSM Nutritional Products Brazil S.A., São Paulo, Brazil, ³Institute of Animal Science and Pastures, Nova Odessa, Brazil, ⁴University of São Paulo, Piracicaba, Brazil*
- 218 11 **Alternative Feed Additive, Associated or Not with Antibiotic, in Weaned Piglets Feeding: Diarrhea Incidence, Intestinal Mucosa Morphology and Digestive Organs Weight.**
*C. D. Silva Júnior¹, C. C. S. Martins², F. T. F. Dias², L. B. Ferracioli³, N. Y. Sitanaka³, J. E. Moraes³, C. C. Pizzolante³, F. E. L. Budiño³, and U. S. Ruiz^{*4}, ¹Universidade Estadual Paulista, Dracena, Brazil, ²DSM Nutritional Products Brazil S.A., São Paulo, Brazil, ³Institute of Animal Science and Pastures, Nova Odessa, Brazil, ⁴University of São Paulo, Piracicaba, Brazil*

- 219 12 **Effect of Yeast Cell Wall (YCW) Inclusion Rate on Growth Performance in Nursery Pigs.**
*X. Wang^{*1}, T. C. Tsai¹, C. L. Walk², P. Wilcock², and C. V. Maxwell¹, ¹University of Arkansas, Division of Agriculture, Department of Animal Science, Fayetteville, ²AB Vista, Marlborough, United Kingdom*
- 220 13 **Performance of Nursery Pigs Fed a Customized Antibiotic-Free Feeding Program, with or without, Three Different Types of Feed Grade Antibiotics.**
F. B. Sandberg^{}, S. J. England, T. M. Fakler, K. T. Soltwedel, J. E. Stevenson, and M. R. Bible, Furst McNess Company, Freeport, IL*
- 221 14 **Effects of Feeding a Multi-Enzyme and Probiotic Bacteria Blend (CORE) on Performance of Nursery Pigs Fed a Highly Digestible Diet.**
*F. B. Sandberg^{*1}, H. D. Wilt², S. J. England¹, T. M. Fakler¹, K. T. Soltwedel¹, and M. R. Bible¹, ¹Furst McNess Company, Freeport, IL, ²GVC Research LLC, Monroe City, MO*

NONRUMINANT NUTRITION VII: FEED ADDITIVES III

12:45 PM - 1:30 PM
 Grand Ballroom Foyer

SCREEN

- 205 15 **Effect of *Lactobacillus acidophilus* Fermentation Product on Nursery Pig Performance and Economic Return.**
B. E. Bass^{}, and J. W. Frank, Diamond V, Cedar Rapids, IA*
- 206 16 **Impact of Ractopamine Hydrochloride (Paylean) on Performance of Heavy Finishing Pigs Using a 3 Cut Marketing Strategy.**
*J. W. Rickard^{*1}, G. L. Allee², P. J. Rincker³, J. P. Gooding³, R. Acheson⁴, D. R. McKenna⁴, and S. N. Carr³, ¹Illinois State University, Normal, ²Pork Tech, LLC., Columbia, MO, ³Elanco Animal Health, Greenfield, IN, ⁴Tyson Foods, Dakota Dunes, SD*
- 207 17 **A Mixture of Organic Acids and Botanicals Improves the Intestinal Barrier Functionality In Vitro.**
*E. Grilli¹, B. Tugnoli¹, B. Rossi^{*2}, and A. Piva^{1,2}, ¹DIMEVET University of Bologna, Ozzano Emilia BO, Italy, ²Vetagro, Reggio Emilia, Italy*
- 208 18 **The Interactive Effects of a Matrix Coated Organic Acids Blend and Antibiotic Supplementation in Growing Pigs.**
*M. M. Hossain^{*1}, B. Jayaraman¹, S. C. Kim², K. Y. Lee³, I. H. Kim², and C. M. Nyachoti¹, ¹University of Manitoba, Department of Animal Science, Winnipeg, MB, Canada, ²Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea, ³Morningbio Co. Ltd, Cheonan, The Republic of Korea*

NONRUMINANT NUTRITION VIII: GENERAL

12:45 PM - 1:30 PM
Grand Ballroom Foyer

SCREEN

- 200 19 **A Novel Simultaneous Determination of Native and Isotopically-Labeled Plasma Amino Acids in Pigs by Gas Chromatography Mass Spectrometry.**
W. S. McGilvray, D. M. Klein, and A. Rakhshandeh, Texas Tech University, Lubbock*
- 99 20 **Effect of Dietary Lysine on the Skeletal Muscle Intramuscular Fat Content and Fatty Acid Composition of Late-Stage Finishing Pigs.**
T. Wang, M. S. Hasan, M. A. Crenshaw, A. T. Sukumaran, T. Dinh, and S. F. Liao, Mississippi State University, Department of Animal and Dairy Sciences, Mississippi State*
- 201 23 **Effect of Different Milk By-Product Types and Levels on Growth Performance, Blood Profiles, Immune Response, and Diarrhea Incidence in Weaning Pigs.**
*T. W. Goh*¹, B. O. Kim¹, S. H. Do¹, Y. G. Han¹, and Y. Y. Kim², ¹Seoul National University, School of Agricultural Biotechnology, Seoul, The Republic of Korea, ² Seoul National University, Seoul, The Republic of Korea*
- 202 24 **Various Levels of Milk By-Products in Weaning Pig Diet on Growth Performance, Blood Profiles, Intestinal Morphology, Muscle Fiber Diameter and Diarrhea Incidence in Weaning Pigs.**
T. W. Goh, B. O. Kim, S. H. Do, H. S. Kim, D. H. Yoo, and Y. Y. Kim, Seoul National University, Seoul, The Republic of Korea*
- 203 25 **Effect of Different Supplementation Levels of Palm Kernel Meal with β -Mannanase on Growth Performance, Blood Profiles, Pork Quality and Economic Analysis in Growing-Finishing Pigs.**
J. H. Lee, H. B. Yoo, S. H. Do, J. S. Hong, and Y. Y. Kim, Seoul National University, Seoul, The Republic of Korea*
- 204 26 **Effect of Rapeseed Meal Supplementation on Nutrient Digestibility in Gestating Sows.**
J. H. Lee, W. L. Chung, S. O. Nam, and Y. Y. Kim, Seoul National University, Seoul, The Republic of Korea*

POSTER SESSION V
NONRUMINANT NUTRITION IX:
FEED PROCESSING/INGREDIENTS

5:00 PM - 5:45 PM
Grand Ballroom Foyer

SCREEN

- 255 1 **Using Environmental Swabbing to Quantify the Effectiveness of Chemical Disinfectant to Reduce the Quantity of Porcine Epidemic Diarrhea Virus RNA on Feed Manufacturing Surfaces.**
*M. B. Muckey¹, R. A. Cochrane^{*1}, J. C. Woodworth¹, S. S. Dritz¹, C. R. Stark¹, A. D. Yoder¹, J. F. Bai¹, J. Zhang², P. C. Gauger², R. G. Main², and C. K. Jones¹, ¹Kansas State University, Manhattan, ²Iowa State University, Ames*
- 256 2 **Evaluating the Roles of Surface Sanitation and Feed Sequencing on Mitigating *Salmonella enteritidis* Contamination on Animal Food Manufacturing Equipment.**
M. Muckey^{}, A. D. Yoder, R. A. Cochrane, A. R. Huss, S. S. Dritz, J. C. Woodworth, and C. K. Jones, Kansas State University, Manhattan*
- 257 3 **Standardized Ileal Digestible Amino Acids and Digestible Energy Contents in High Protein DDGS Fed to Growing Pigs.**
Y. Rho^{}, C. Zhu, E. Kiarie, and C. F. M. de Lange, University of Guelph, Department of Animal Biosciences, Guelph, ON, Canada*
- 258 4 **Effects of Rapeseed Feeding on Swine Metabolome.**
J. F. Kurtz²1, C. Chen², M. P. de Nanclares³, M. Trudeau², D. Yao¹, M. Saqui-Salces², P. E. Urriola², L. T. Mydland³, G. C. Shurson⁴, and M. Overland³, ¹University of Minnesota, Department of Food Science and Nutrition, Saint Paul, ²University of Minnesota, Department of Animal Sciences, Saint Paul, ³Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences Ås, Norway, ⁴University of Minnesota, Saint Paul
- 259 5 **Effects of *Enterococcus faecium* on Growth Performance, Blood Parameters, Relative Organ Weight, Breast Muscle Meat Quality, Excreta Microbial Shedding and Noxious Gas Emission in Broilers.**
*R. X. Lan^{*1}, Y. M. Kim¹, H. M. Yun¹, C. M. Nyachoti², and I. H. Kim¹, ¹Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea, ²University of Manitoba, Winnipeg, MB, Canada*

- 260 6 **Effect of Different Level of Lysine and Metabolic Energy on Growth Performance and Nutrient Digestibility in Broilers with Corn–Soybean Meal–Canola Meal as Based Diet.**
*J. Y. Zhang**, *J. H. Park*, *J. W. Park*, *H. M. Yun*, and *I. H. Kim*, *Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea*,
- 261 7 **Porcine In Vitro Degradation and Fermentation Characteristics of Oats.**
*J. W. Lee**, *M. Caffè-Tremblé*, and *T. A. Woyengo*, *South Dakota State University, Brookings*
- 262 8 **Nutritive Value of Extruded Cold-Pressed Camelina Cake for Pigs.**
*J. W. Lee**, *C. L. Levesque*, and *T. A. Woyengo*, *South Dakota State University, Brookings*
- 263 9 **Evaluating Pellets Produced on Three Distinct Pellet Mill Series.**
*A. D. Yoder**, *M. B. Muckey*, and *C. K. Jones*, *Kansas State University, Manhattan*
- 264 10 **Effect of Substituting Field Beans (*Vicia faba*) for Soybean Meal in Diets for Grow-Finisher Pigs.**
A. Torres-Pitarch^{1,2}, *E. G. Manzanilla¹*, *G. E. Gardiner³*, *D. Torrallardona⁴*, *J. V. O’Doherty²*, and *P. G. Lawlor¹*, *¹Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland, ²University College Dublin, School of Agriculture and Food Science, Belfield, Dublin, Ireland, ³Waterford Institute of Technology, Department of Science, Waterford, Ireland, ⁴IRTA, Monogastric Nutrition, Constantí, Spain*
- 265 11 **Heal Digestibility of Amino Acids in Corn Condensed Distiller’s Solubles and Whole Stillage for Pigs.**
*X. Yang**, *J. Kim*, *D. Pangen*, *A. Tekeste*, and *S. K. Baidoo*, *University of Minnesota, Southern Research and Outreach Center, Waseca*
- 266 12 **Porcine In Vitro Digestion and Fermentation Characteristics of Corn Wet Distillers’ Grains and DDGS without or with Multi-Carbohydase.**
C. A. Zangaro¹, *R. Patterson²*, and *T. A. Woyengo¹*, *¹South Dakota State University, Brookings, ²Canadian Biosystems, Calgary, AB, Canada*
- 115 13 **Enhancing the Nutritive Values of Corn DDGS via Pretreatment and Digestion.**
C. A. Zangaro¹, *R. Patterson²*, *W. R. Gibbons¹*, and *T. A. Woyengo¹*, *¹South Dakota State University, Brookings, ²Canadian Biosystems, Calgary, AB, Canada*

- 267 14 **Determining Starch Gelatinization from Grains Collected at Various Locations within the Extrusion Process.**
*A. D. Yoder^{*1}, M. B. Muckey¹, C. R. Stark¹, H. H. Stein², and C. K. Jones¹, ¹Kansas State University, Manhattan, ²University of Illinois at Urbana-Champaign*
- 268 15 **Effect of Number of Dietary Phases Fed during the Wean-to-Finish Period on Growth Performance and Carcass Characteristics of Pigs under Commercial Conditions.**
*J. E. Estrada^{*1}, M. Ellis¹, N. M. Stas¹, N. C. Cooper¹, A. M. Gaines², C. M. Shull², and O. F. Mendoza², ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs., LLC, Carlyle, IL*
- 269 16 **Growth Performance and Carcass Traits of Low and High Fiber Diet Selection Lines of Pigs Fed Either Low or High Fiber Diets.**
J. A. Erceg^{}, J. G. Wiegert, R. Becerra, M. T. Knauer, and E. van Heugten, North Carolina State University, Raleigh*

PHYSIOLOGY

5:00 PM - 5:45 PM
Grand Ballroom Foyer

SCREEN

- 320 17 **The Effect of Vitamin A Administration on Testicular Development in Peri-Pubertal Bulls.**
N. Negrin Pereira^{}, North Dakota State University, Fargo*
- 321 18 **Effect of Injectable Trace Mineral on Reproductive Performance in Beef Heifers.**
*S. A. Springman^{*1}, J. G. Maddux², M. E. Drewnoski³, and R. N. Funston¹, ¹University of Nebraska-North Platte, ²Maddux Ranches, Wauneta, NE, ³University of Nebraska-Lincoln*
- 322 19 **Plasma Acyl Ghrelin and Non-Esterified Fatty Acids Are the Best Indicators for Hunger Status in Pregnant Gilts.**
P. Ren^{}, X. Yang, J. Kim, D. Menon, D. Pangeni, H. Manu, A. Tekeste, and S. K. Baidoo, University of Minnesota, Southern Research and Outreach Center, Waseca, MN*
- 323 20 **Effects of Supplemental Citrulline on Intestinal Neutrophil Infiltration during Heat Stress and Nutrient Restriction in Growing Pigs.**
*S. K. Kvidera^{*1}, E. A. Horst¹, E. J. Mayorga Lozano², J. T. Seibert¹, M. A. Al-Qaisi¹, J. W. Ross¹, R. P. Rhoads³, and L. H. Baumgard¹, ¹Iowa State University, Ames, ²Iowa State University, Department of Animal Science, Ames, ³Virginia Polytechnic Institute and State University, Blacksburg*

- 110 21 **Changes in Neonatal Foal Blood Chemistry during the First 72 Hours of Life.**
*N. B. Duncan**, *M. J. Crosby*, and *A. M. Meyer*, *Division of Animal Sciences, University of Missouri, Columbia*
- 112 22 **Vaginal and Uterine Bacterial Communities in Postpartum Lactating Cows.**
*B. A. Clemmons*¹, *F. Guirado Dantas*¹, *G. A. Franco*¹, *S. T. Reese*¹, *O. I. Adeyosoye*², *T. P. Smith*³, *P. R. Myer*¹, and *K. G. Pohler*¹, ¹*University of Tennessee, Knoxville*, ²*Obafemi Awolowo University, Ile-Ife, Nigeria*, ³*USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*
- 120 23 **After All, Tomorrow is Another Day for the Transition Cow: Depending on Liver and Reproductive Health, of course.**
*Y. Schuermann*¹, *A. St-Yves*¹, *N. Dicks*¹, *R. C. Bohrer*¹, *R. Mondadori*², *V. Higginson*¹, *V. Boyer*¹, *M. Taibi*¹, *E. Madogwe*¹, *V. Bordignon*¹, *A. Mustafa*¹, *B. Baurhoo*¹, and *R. Duggavathi*¹, ¹*McGill University, Sainte-Anne De Bellevue, QC, Canada*, ²*Federal University of Pelotas, Capão do Leão, Brazil*
- 121 24 **Impact of Estrus Expression and Conceptus Presence on Plasma and Uterine Glucose Concentrations up until Maternal Recognition of Pregnancy in Beef Cattle.**
*E. J. Northrop*¹, *J. J. J. Rich*¹, *R. A. Cushman*², and *G. A. Perry*¹, ¹*South Dakota State University, Department of Animal Science, Brookings*, ²*USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE*

NONRUMINANT NUTRITION X: MINERALS

5:00 PM - 5:45 PM
 Grand Ballroom Foyer

SCREEN

- 270 25 **Effects of Chromium Methionine and Zinc Source on Serum Metabolites, Endocrine Parameters, and the Antioxidant Status of Growing-Finishing Pigs.**
*X. Xu*¹, *Z. C. Li*¹, *H. L. Wang*¹, *L. Pan*¹, *X. K. Ma*¹, *Y. T. Xu*¹, *X. S. Piao*¹, *T. L. Ward*², and *F. Ji*³, ¹*China Agricultural University, Beijing, China*, ²*Zinpro Corporation, Eden Prairie, MN*, ³*Zinpro (Wuxi) Additives Bio-Technology Co., LTD., Shanghai, China*
- 271 26 **Revision of the Simplified Balance Method to Evaluate Phosphorus Excretion by Growing-Finishing Pigs.**
M. P. Létourneau Montminy^{1,2}, *L. Cloutier*³, *C. Couture*⁴, *M. Marcoux*⁵, and *C. Pomar*⁵, ¹*Université Laval, Quebec, QC, Canada*, ²*Université Laval, Département des Sciences Animales, Québec, QC, Canada*, ³*Centre de Développement du Porc du Québec Inc., Québec, QC, Canada*, ⁴*Laval University, Quebec, QC, Canada*, ⁵*Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*

WEDNESDAY POSTER SESSIONS

SPONSOR: ARPAS

POSTER SESSION VI

ANIMAL BEHAVIOR, HOUSING AND WELL-BEING

7:30 AM - 8:15 AM

Grand Ballroom Foyer

SCREEN

- 6 1 **Characterization of the Lying Down Sequence in Lame and Non-Lame Sows.**
*J. M. Mumm^{*1}, J. D. Stock¹, S. Azarpajouh¹, K. J. Stalder¹, A. K. Johnson¹, and J. A. Calderon Diaz^{2,3}, ¹Iowa State University, Department of Animal Science, Ames, ²Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland, ³Polish Academy of Sciences, Institute of Genetics and Animal Breeding, Department of Animal Behaviour and Welfare, Jastrzębiec, Magdalena, Poland*
- 7 2 **Do Lame Sows Need More Time to Stand up?**
*J. M. Mumm^{*1}, S. Azarpajouh¹, J. D. Stock¹, K. J. Stalder¹, A. K. Johnson¹, and J. A. Calderon Diaz^{2,3}, ¹Iowa State University, Department of Animal Science, Ames, ²Polish Academy of Sciences, Institute of Genetics and Animal Breeding, Department of Animal Behaviour and Welfare, Jastrzębiec, Magdalena, Poland, ³Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland*
- 8 3 **The Effect of Blunt Trimming verses Functional Trimming on Sows.**
*A. Tinkle^{*1}, M. E. Wilson², M. A. Parsley³, M. J. Azain¹, and C. R. Dove¹, ¹University of Georgia, Athens, ²Zinpro Corporation, Eden Prairie, MN, ³Zinpro Corporation, Sheridan, IN*
- 9 4 **Effects of Genetics on Thermal Regulatory Responses to Repeated Heat Stress Exposure in Pigs.**
*W. M. Rauw^{1,2}, E. J. Mayorga^{*2}, S. Lei², J. C. M. Dekkers², J. F. Patience², N. K. Gabler², S. M. Lonergan², and L. H. Baumgard², ¹Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria, Departamento de Mejora Genética Animal, Madrid, Spain, ²Department of Animal Science, Iowa State University, Ames*

- 10 6 **Effects of Increasing Space Allowance by Removing a Pig or Gate Adjustment on Finishing Pig Growth Performance.**
*C. B. Carpenter**, *C. J. Holder*, *R. D. Goodband*, *M. D. Tokach*,
J. M. DeRouche, *J. C. Woodworth*, and *S. S. Dritz*, *Kansas State University, Manhattan*

EQUINE SCIENCE

7:30 AM - 8:15 AM
Grand Ballroom Foyer

SCREEN

- 54 7 **An Investigation of the Palatability of a Novel Ingredient Fed to Horses.**
*M. T. DeChant**, *E. Powell*, *G. A. Apgar*, and *E. B. Venable*,
Southern Illinois University, Carbondale

EXTENSION – BEEF/SMALL RUMINANT

7:30 AM - 8:15 AM
Grand Ballroom Foyer

SCREEN

- 55 8 **Using Corn Gluten Feed in Post-Partum Diets of Beef Cows to Optimize Reproductive Performance.**
E. G. Taylor¹, *R. P. Lemenager¹*, and *K. R. Stewart²*, *¹Purdue University, West Lafayette, IN, ²Purdue University, Department of Animal Sciences, West Lafayette, IN*

RUMINANT NUTRITION

7:30 AM - 8:15 AM
Grand Ballroom Foyer

SCREEN

- 357 10 **Two-Year Study: Effect of Backgrounding System on Growing and Finishing Performance and Carcass Characteristics of Beef Steers.**
J. L. Cox¹, *K. Hales²*, *K. M. Ulmer¹*, *R. J. Rasby¹*,
S. D. Shackelford², *H. C. Freetly²*, and *M. E. Drewnoski¹*,
¹University of Nebraska-Lincoln, ²USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE
- 358 11 **Identification of a Novel Rumen Bacteria Using Starch As a Selective Nutrient in Batch Cultures.**
*V. Bandarupalli**, *South Dakota State University, Brookings*

- 359 12 **In Vitro Apparent Ruminant Digestibility of Diets Containing Corn Distillers Grain with Different Quantities of Crude Fat.**
*D. E. Williams^{*1}, R. L. Atkinson¹, and P. M. Walker², ¹Southern Illinois University, Carbondale, ²Illinois State University, Normal, IL*
- 360 13 **Effects of Feeding Two Levels of a Pelleted 30 Percent Pea Starch and 70 Percent Dry Distillers Grain Feed in Feedlot Finishing Diets on Animal Performance and Carcass Characteristics.**
C. L. Engel^{}, North Dakota State University, Carrington Research Extension Center, Carrington*
- 361 14 **Effects of Whole or Rolled Corn Diets on Steer Growing and Finishing Feedlot Performance.**
C. L. Engel^{}, North Dakota State University, Carrington Research Extension Center, Carrington*
- 362 15 **Novel Direct Fed Microbials to Control Acidosis and Liver Abscesses in Cattle.**
S. K. Rohde^{}, University of Nebraska-Lincoln, Department of Animal Science*
- 363 16 **Effects of Foliar Fungicide on Whole Plant BMR and Floury Corn Varieties.**
*R. T. Pate^{*1}, M. Weatherly¹, L. B. Hedges², S. Mideros², G. M. Fellows³, and F. Cardoso¹, ¹University of Illinois at Urbana-Champaign, Department of Animal Sciences, ²University of Illinois at Urbana-Champaign, Department of Crop Sciences, ³BASF Corporation, Research Triangle Park, NC*
- 364 17 **Effects of Excess Dietary Sulfur on Mitochondrial Complex IV Activity in Beef Steers.**
*J. Hawley^{*1}, E. B. Kegley¹, D. L. Galloway¹, and W. G. Bottje^{2, 1} University of Arkansas, Division of Agriculture, Department of Animal Science, Fayetteville, ²University of Arkansas, Division of Agriculture, Department of Poultry Science, Fayetteville*
- 365 18 **Essential Oils and Prebiotics (Stay Strong and Start Strong) for New Born Calves.**
*C. Louwagie^{*1}, D. P. Casper², C. Chase¹, and K. Abdelsalam¹, ¹ South Dakota State University, Brookings, ²Formerly South Dakota State University, Brookings*
- 366 19 **Preference of Carinata Meal compared with Other Oilseed Meals and Distillers Dried Grains by Dairy Heifers.**
*K. Rodriguez-Hernandez^{*1,2}, J. L. Anderson¹, and M. A. Berhow³, ¹ South Dakota State University, Dairy Science Department, Brookings, ²CIRNOC-INIFAP, Matamoros, Mexico, ³USDA-ARS, National Center for Agricultural Utilization Research, Peoria, IL*

- 367 20 **Effect of Monensin and Protein Supplementation on Intake and Ruminant Fermentation Parameters in Cattle Consuming Low-Quality Forage.**
J. J. Martinez^{z1}, C. A. Loest², K. C. McCuiston¹, N. L. Bell¹, L. P. Sastre¹, and J. I. Solis¹, ¹Texas A&M University, Kingsville, ²New Mexico State University, Las Cruces
- 368 21 **Effects of Balancing Feedlot Diets for Amino Acid Requirements and Effective Energy Using Rumen Protected Lysine on Growing Steer Performance.**
J. M. Prestegard^e, and M. S. Kerley, University of Missouri, Columbia
- 369 22 **Effects of Winter Grazing Stockpiled Cool-Season Grass Pastures and Method of Initiating Stockpiling on Fall-Calving Cow Production Costs in comparison to Winter Drylot Hay Feeding Systems.**
B. T. Stokes^{s1}, J. R. Russell¹, P. J. Gunn¹, and L. L. Schulz², ¹Iowa State University, Department of Animal Science, Ames, ²Iowa State University, Department of Economics, Ames
- 371 24 **Rumen Protein Degradation Characteristics Among Six Protein Feed Sources Using a Batch Culture System.**
M. M. Masiero^{}, A. L. Landers, and M. S. Kerley, University of Missouri, Columbia*
- 116 25 **On the Associations Between Linear Body Measurements, Feeding Behavior Traits and Feed Efficiency Measures in Finishing Steers.**
A. B. P. Fontoura^{a1}, E. Knutson¹, F. E. Keomanivong¹, A. K. Ward^p, and K. C. Swanson¹, ¹North Dakota State University, Fargo, ²North Dakota State University, Department of Animal Sciences, Fargo
- 383 26 **Effect of Increasing Amount of Amaferm on Animal Performance in Receiving Feedlot Cattle.**
K. Nickles^{s1}, and A. Relling², ¹The Ohio State University, Columbus, ²The Ohio State University, Department of Animal Sciences, Wooster



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J. K. Apple

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C. T. Jobsis
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Student Competition Judges

Graduate Student Oral Competition – M.S. Judges

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Graduate Student Oral Competition – Ph.D. Judges

A. M. Meyer

N. V. L. Serão

G. I. Crawford

B.M. Bohrer

Graduate Student Poster Competition – M.S. Judges

A. C. Dilger

E. N. Alava

E. Davis

S. F. Liao

Graduate Student Poster Competition – Ph.D. Judges

P. J. Lammers

K. J. Herrick

S. J. Moeller

R. D. Coffey

Undergraduate Student Oral Competition

P. M. Walker

J. L. Amundson

A. Ampaire

A. P. Foote

J. W. Rickard

A. K. Lindholm-Perry

D. W. Rozeboom

C. L. Bradley

Undergraduate Student Poster Competition

J. Lee

K. M. Peper

A. D. Woodward

C. K. Jones

AWARD COMMITTEES

Outstanding Young Extension Specialist Award

J. C. Paulson
A. E. Wertz-Lutz
G. M. Hill

Outstanding Young Teacher Award

P. S. Miller
T. J. Safranski
J. M. DeFrain

Tim S. Stahly Award

A. E. Wertz-Lutz
J. C. Paulson
J. P. Schoonmaker
J. L. Anderson

Outstanding Young Research Award

J. L. Anderson
J. K. Apple
T. D. Nennich

PREVIOUS RECIPIENTS OF AWARDS FOR YOUNG ANIMAL SCIENCE LEADERS

OUTSTANDING EXTENSION SPECIALIST AWARD

1971	G. E. Ricketts, University of Illinois
1972	V. B. Mayrose, Purdue University
1974	M. R. Geasler, Iowa State University
1976	R. J. Vathauer, University of Wisconsin
1977	R. J. Epley, University of Minnesota
1978	W. L. Singleton, Purdue University
1979	D. E. Schafer, Kansas State University
1980	L. R. Corah, Kansas State University
1981	M. G. Hogberg, Michigan State University
1982	C. W. Spaeth, Kansas State University
1983	L. H. Thompson, University of Illinois
1984	M. F. Hutjens, University of Illinois
1985	G. L. Kuhl, Kansas State University
1986	D. D. Simms, Kansas State University
1987	F. K. Brazle, Kansas State University
1988	S. B. Laudert, Kansas State University
1989	M. A. Russell, Purdue University
1990	D. F. Parrett, University of Illinois
1991	D. B. Faulkner, University of Illinois
1992	J. L. Nelssen, Kansas State University
1993	A. P. Schinckel, Purdue University
1994	D. A. Funk, University of Wisconsin – Madison
1995	G. C. Shurson, University of Minnesota
1996	R. D. Shaver, University of Wisconsin – Madison
1997	R. D. Goodband, Kansas State University
1998	Not given
1999	M. D. Tokach, Kansas State University
2000	J. F. Smith, Kansas State University
2001	W. O. Herring, University of Missouri
2002	M. J. Brouk, Kansas State University
2003	W. J. Powers, Iowa State University
2004	S. J. Moeller, The Ohio State University
2005	K. J. Stalder, Iowa State University
2006	P. M. Fricke, University of Wisconsin
2007	G. C. Lamb, University of Minnesota
2008	J. M. DeRouche, Kansas State University
2009	P. S. Kuber, The Ohio State University
2010	C. L. Wright, South Dakota State University
2011	G. A. Perry, South Dakota State University
2012	W. J. Sexten, University of Missouri
2013	R. L. Weaber, Kansas State University
2014	G. K. Rentfrow, University of Kentucky
2015	M. L. Spangler, University of Nebraska
2016	C. R. Dahlen, North Dakota State University

OUTSTANDING RESEARCHER AWARD

1971	D. H. Baker, University of Illinois
1972	C. E. Allen, University of Minnesota
1974	F. N. Owens, University of Illinois
1976	W. G. Bergen, Michigan State University
1977	D. E. Bauman, University of Illinois
1978	G. L. Allee, Kansas State University
1979	S. E. Curtis, University of Illinois
1980	T. L. Veum, University of Missouri
1981	R. L. Prior, Roman L. Hruska U.S. Meat Animal Research Center
1982	B. D. Schanbacher, Roman L. Hruska U.S. Meat Animal Research Center
1983	H. A. Garverick, University of Missouri
1984	G. C. Fahey, Jr., University of Illinois
1985	J. J. Ford, Roman L. Hruska U.S. Meat Animal Research Center
1986	C. L. Ferrell, Roman L. Hruska U.S. Meat Animal Research Center
1987	D. Gianola, University of Illinois
1988	S. P. Ford, Iowa State University
1989	L. L. Berger, University of Illinois
1990	M. F. Rothschild, Iowa State University
1991	M. F. Smith, University of Missouri
1992	D. L. Harmon, Kansas State University
1993	R. L. Hruska, U.S. Meat Animal Research Center
	M. Koohmaraie, U.S. Meat Animal Research Center
1994	L. G. Sheffield, University of Wisconsin – Madison
1995	J. Odle, University of Illinois
1996	J. L. Nelssen, Kansas State University
1997	R. S. Prather, University of Missouri
1998	D. Pomp, University of Nebraska
1999	R. W. Johnson, University of Illinois
2000	M. C. Lucy, University of Missouri
2001	C. K. Tuggle, Iowa State University
2002	M. Morrison, Ohio State University
2003	T. P. L. Smith, USDA, NE
2004	C. W. Ernst, Michigan State University
2005	E. J. Huff-Lonergan, Iowa State University
2006	A. S. Cupp, University of Nebraska
2007	J. C. Matthews, University of Kentucky
2008	J. M. Reecy, Iowa State University
2009	G. E. Erickson, University of Nebraska
2010	J. M. DeRouchey, Kansas State University
2011	K. A. Vonnahme, North Dakota State University
2012	G. A. Perry, South Dakota State University
2013	J. P. Steibel, Michigan State University
2014	L. A. Kuehn, USDA-ARS
2015	N. K. Gabler, Iowa State University
2016	R. N. Dilger, University of Illinois

OUTSTANDING TEACHER AWARD

1971	B. G. Harmon, University of Illinois
1972	R. E. Hunsley, Purdue University
1974	D. H. Gee, South Dakota State University
1976	T. R. Cline, Purdue University
1977	P. J. Cunningham, University of Nebraska
1978	B. D. Moser, University of Nebraska
1979	C. L. Hausler, Southern Illinois University
1980	T. R. Carr, University of Illinois
1981	M. E. Dikeman, Kansas State University
1982	R. E. Morrow, University of Missouri
1983	D. J. Kesler, University of Illinois
1984	R. A. Easter, University of Illinois
1985	D. F. Parrett, University of Illinois
1986	J. G. Sebranek, Iowa State University
1987	D. R. Brink, University of Nebraska
1988	K. M. Irvin, The Ohio State University
1989	R. P. Lemenager, Purdue University
1990	B. R. Skaar, Iowa State University
1991	D. A. Nichols, Kansas State University
1992	M. A. Russell, Purdue University
1993	D. K. Combs, University of Wisconsin – Madison
1994	L. C. Martin, Kansas State University
1995	M. E. Benson, Michigan State University
1996	B. D. Banks, Michigan State University
1997	H. D. Tyler, Iowa State University
1998	C. R. Youngs, Iowa State University
1999	J. N. Spain, University of Missouri
2000	M. E. Doumit, Michigan State University
2001	S. M. Lonergan, Iowa State University
2002	W. N. Osburn, Michigan State University
2003	S. C. Kelm, University of Wisconsin-River Falls
2004	M. S. Weber Nielsen, Michigan State University
2005	B. D. Nielsen, Michigan State University
2006	B. A. Reiling, University of Nebraska
2007	K. W. Bruns, South Dakota State University
2008	H. N. Zerby, The Ohio State University
2009	B. R. Wiegand, University of Missouri
2010	K. A. Vonnahme, North Dakota State University
2011	S. A. Wagner, North Dakota State University
2012	J. M. Kouba, Kansas State University
2013	J. M. Bormann, Kansas State University T. A. Strauch, University of Missouri
2014	T. L. Douthit, Kansas State University
2015	B. D. Whitaker, University of Findlay
2016	B. J. Bradford, Kansas State University

OUTSTANDING EARLY CAREER AGRIBUSINESS AWARD

1995	P. L. Houghton, Heartland Cattle Co.
1996	J. A. Barmore, Vita Plus Corp.
1997	D. E. Dill, Dairy Strategies
1998	C. M. Luhman, Land O'lakes Research Farm
1999	Not Given
2000	D. L. Hancock, Elanco Animal Health
2001	J. M. Lynch, Heartland Cattle Co.
2002	Not Given
2003	J. M. Campbell, APC, Inc.
2004	D. M. Webel, United Feeds
2005	T. A. Rathje, Danbred North America
2006	T. E. Sauber, Pioneer, A Dupont Company
2007	M. J. Pettitt, Prairie Swine Centre, LLC, Canada
2008	J. C. Woodworth, Lonza Inc.
2009	Not given
2010	D. H. Kleinschmit, Agri-King, Inc.
2010	J. Spencer, JBS United Inc.
2011	A. M. Gaines, The Maschhoffs
2012	C. R. Schwab, National Swine Registry
2013	T. Loy, Adams Land and Cattle, Co.
2014	A. W. Brackenridge, Cargill
2015	M. L. Wolfe, Cargill
2016	C. R. Neill, Pipestone Veterinary Systems

INNOVATION IN DAIRY RESEARCH AWARD

2007	D. B. Carlson, University of Illinois
2008	A. Bettegowda, Michigan State University
2009	R. A. Naticov, Iowa State University
2010	S. M. Fredin, University of Wisconsin – Madison
2011	D. E. Graugnard, University of Illinois
2012	Not given
2013	J. S. Osorio, University of Illinois
2014	Not given
2015	L. J. Wilsdorf
2016	M. K. Hayr, Iowa State University

NATIONAL PORK BOARD INNOVATION AWARD

- 2006 M. C. Brumm, University of Nebraska*
N. L. Berry, Iowa State University**
T. V. Serenius, Iowa State University**
- 2007 T. J. Safranski, University of Missouri*
J. S. Bates, University of Nebraska**
G. Xu, University of Minnesota**
- 2008 S. A. Cutler, Iowa State University**
G. Xu, University of Minnesota**
- 2009 P. V. Anderson, Iowa State University**
N. J. Boddicker, Iowa State University**
P. J. Lammers, Iowa State University*
- 2010 E. G. Kiarie, University of Manitoba**
M. E. Johnston, The Hanor Company**
M.T. See, North Carolina State University*
- 2011 Education Not Given
A. E. DeDecker, University of Illinois**
M.-P. L. Montminy, Agriculture and Agri-Food Canada**
- 2012 Y. Liu, University of Illinois, Champaign-Urbana*
- 2013 K. J. Stalder, Iowa State University*
N. J. Boddicker, Iowa State University**
L. J. Johnston, University of Minnesota**
- 2014 B. D. Whitaker, University of Findlay*
N. V. L. Serão, Iowa State University**
- 2015 D. S. Rosero, North Carolina State University**
J. A. Brown, Prairie Swine Centre**
M. Walugembe, Iowa State University*
- 2016 L. L. Schumacher, Kansas State University**
C. E. Zier-Rush, The Hanor Company, Inc. **
A. T. Desaulniers, University of Nebraska-Lincoln*

*Education

** Research

PAST WINNERS OF INVITATIONAL COMPETITIVE RESEARCH PAPER AWARDS

UNDERGRADUATE STUDENTS - ORAL

1987	R. E. Raw, University of Missouri
1988	J. A. Ragains, University of Missouri
1989	G. L. Ambrose, South Dakota State University
1990	C. N. Kemper, University of Missouri
1991	T. R. Eberle, North Dakota State University
1992	B. J. MacDonald, North Dakota State University
1993	B. L. Dunn, Kansas State University
1994	S. M. Nelson, University of Nebraska
1995	L. J. Trinity, Iowa State University
1996	M. E. Cunningham, Oklahoma State University
1997	C. E. Sorenson, South Dakota State University
1998	J. L. Strickland, University of Nebraska
1999	B. A. DeMontigny, North Dakota State University
2000	K. S. Freise, University of Illinois
2001	K. R. Nollette, University of Nebraska
2002	B. Meyer, University of Nebraska
2003	A. Harvey, South Dakota State University
2004	L. H. Bach, Michigan State University
2005	A. M. Meyer, Michigan State University
2006	L. D. Holmes, Southern Illinois University R. Schnobrich, University of Minnesota
2007	B. H. Godsey, Kansas State University
2008	B. L. Varnes, Michigan State University
2009	H. L. Frobose, Kansas State University
2010	S. I. Fry, North Dakota State University
2011	R. L. Wangler, Michigan State University
2012	E. A. Nore, North Dakota State University
2013	B. Abramovitz, University of Missouri
2014	K. M. Gourley, Kansas State University B. O. Fleming, Mississippi State University
2015	J. T. Gebhardt, Michigan State University
2016	C. M. Zarek, U. S. Meat Animal Research Center C. M. Vier, Kansas State University

UNDERGRADUATE STUDENTS - POSTER

2009	E. I. Ince, University of Wisconsin
2010	D. P. Strassburg, University of Wisconsin
2011	S. J. Morine, Iowa State University
2012	E. J. Cretney, University of Wisconsin
2013	Z. E. Carlson, North Dakota State University
2014	E. G. Goose, Lincoln University
2015	C. D. Evans, Kansas State University
2016	K. M. Jones, Lincoln University
	N. Gross, University of Wisconsin

GRADUATE STUDENTS - ORAL

1976	D. G. Haught, Iowa State University
1977	L. L. Berger, University of Nebraska
1978	G. F. Collings, Michigan State University
1979	R. D. Boyd, University of Nebraska
1980	D. G. Cieslak, University of Wisconsin
1981	W. F. Pope, University of Nebraska
1982	P. F. Saenger, Purdue University
1983	D. A. Redmer, University of Missouri
1984	W. F. Brown, University of Nebraska
1985	J. H. Brendemuhl, University of Nebraska
1986	P. L. Houghton, Purdue University
1987	M. H. Wilde, The Ohio State University
1988	T. R. Radke, University of Nebraska
1989	K. K. Kreikemeier, Kansas State University
1990	R. A. Nold, Kansas State University
1991	M. D. Tokach, University of Minnesota
1992	G. F. Louis, University of Nebraska
1993	B. T. Larson, University of Missouri
1994	L. H. Anderson, The Ohio State University
1995	M. L. Augenstein, University of Minnesota
1996	D. D. Koehler, University of Minnesota
1997	R. A. Nold, South Dakota State University
1998	K. J. Rozeboom, University of Minnesota
1999	L. A. Averette, North Carolina State University
2000	T. A. Armstrong, North Carolina State University
2001	T. G. McDaniel, University of Nebraska*
	J. H. Hampton, University of Missouri**
2002	K. M. Hargrave, University of Nebraska*
	M. J. Hersom, Oklahoma State University**
2003	J. S. Luther, North Dakota State University*
	R. G. Main, Kansas State University**
2004	R. C. Bott, University of Nebraska*
	M. M. Martinez, Michigan State University**
2005	J. M. Koch, West Virginia University*
	N. D. Fastinger, The Ohio State University**
2006	D. M. Larson, North Dakota State University*
	M. A. Gorocica-Buenfil, The Ohio State University**

-
- 2007 P. E. Urriola, University of Minnesota*
R. N. Dilger, University of Illinois**
- 2008 J. M. Mapes, Michigan State University*
E. Kiarie, University of Manitoba, Winnipeg, Canada**
- 2009 L. A. Lekatz, North Dakota State University*
D. M. Gorbach, Iowa State University**
- 2010 H. L. Evans, University of Missouri*
R. C. Sulabo, Kansas State University**
- 2011 J. R. Bishop, North Carolina State University*
Y. Zhao, North Carolina State University**
- 2012 J. Flohr, Kansas State University*
J. K. Farney, Kansas State University**
- 2013 K. L. Gillespie, University of Nebraska*
D. B. Burken, University of Nebraska**
- 2014 F. Wu, University of Minnesota*
B. R. Mordhorst, North Dakota State University*
E. K. Harris, University of Minnesota**
H. L. Frobese, Kansas State University**
- 2015 J. G. Wiegert, Virginia Tech*
K. N. Niederecker, University of Missouri*
J. R. Russell, Iowa State University**
- 2016 A. B. Clark, Kansas State University*
W. D. Stuart, Texas Tech University**

GRADUATE STUDENTS - POSTER

- 2007 P. L. Nester, North Dakota State University*
N. DiLorenzo, University of Minnesota**
- 2008 N. R. Bork, North Dakota State University*
B. A. Peterson, University of Illinois**
- 2009 P. J. Gunn, Purdue University*
C. O. Lemley, West Virginia University**
- 2010 N. S. Schmetz, Purdue University*
L. S. Senaratne, University of Nebraska**
- 2011 K. E. Boesche, Purdue University*
P. J. Gunn, Purdue University*
- 2012 M. A. Berg, University of Wisconsin – Madison*
X. J. Li, University of Minnesota**
- 2013 B. M. Bohrer, The Ohio State University*
L. E. Camacho, North Dakota State University**
- 2014 J. L. Peine, North Dakota State University*
J. D. Colpoys, Iowa State University**
- 2015 R. S. Stokes, Iowa State University*
K. F. Coble, Kansas State University**
- 2016 L. L. Thomas, Kansas State University*
J. T. Gebhardt, Kansas State University**

*M.S. Division

**Ph.D. Division

PAST WINNERS OF UNDERGRADUATE CONTEMPORARY ISSUES COMPETITION

- 1998 M. Bode, University of Missouri
D. Hasekamp, University of Missouri
J. M. Rumph, Michigan State University
M. Schoenfield, University of Minnesota
- 1999 L. Becker, University of Minnesota
- 2000 R. Hawkins, North Dakota State University
- 2001 Discontinued

ADSA YOUNG DAIRY SCHOLARS

- 2006 B. J. Bradford, Michigan State University
N. B. Litherland, University of Illinois
W. Miller, Kansas State University
R. R. Rastani, University of Wisconsin
- 2007 M. M. Abdelqader, South Dakota State University
D. B. Carlson, University of Illinois
M. Carriquiry, University of Minnesota
M. Geha, University of Nebraska
N. A. Janovick-Guretzky, University of Illinois
D. H. Kleinschmit, South Dakota State University
E. D. Reid, University of Illinois
P. J. Ross, Michigan State University
- 2008 A. Bettegowda, Michigan State University
J. M. Bewley, Purdue University
E. L. Karcher, Iowa State University
K. M. Moyes, University of Illinois
B. W. Pamp, South Dakota State University
M. L. Raeth-Knight, University of Minnesota
- 2009 R. A. Nafikov, Iowa State University
- 2010 B. J. Heins, University of Minnesota
C. O. Lemley, West Virginia University
C. D. Mikolayunas, University of Wisconsin
K. Mjoun, South Dakota State University
- 2011 M. J. Aguerre, University of Wisconsin – Madison
N. M. Bello, Kansas State University
G. L. Golombeski, University of Minnesota
D. E. Graugnard, University of Illinois
H. M. White, Indiana University School of Medicine
- 2012 M. S. Akins, University of Wisconsin
M. S. Osman, Iowa State University
S. D. Ranathunga, South Dakota State University
- 2013 R. G. Cabral, University of New Hampshire
K. J. Herrick, South Dakota State University
J. L. Anderson, South Dakota State University
H. A. Tucker, Purdue University

-
- J. Farney, Kansas State University
D. A. Koltes, Iowa State University
E. Castillo Lopez, University of Nebraska
J. S. Osorio, University of Illinois
2014 K. Yuan, Kansas State University
P. Plantoni, Michigan State University
2015 J. P. Boerman, Cargill Animal Nutrition
T. S. Dennis, Provimi
L. F. Ferraretto, University of Wisconsin
J. Laporta, University of Florida
2016 P. R. F. Adkins, University of Missouri
K. Boesche, Purdue University
A. J. Carpenter, Kansas State University
C. Chapman, University of New Hampshire
J. P. Martins, Michigan State University
W. Weich, South Dakota State University
Z. Zhou, University of Illinois

ASAS ANIMAL SCIENCE YOUNG SCHOLARS

- 2010 J. A. Atkins, University of Missouri
T. M. Che, University of Illinois
S. Hooda, University of Alberta
J. A. Jendza, Purdue University
J. S. Jennings, South Dakota State University
V. G. Perez, University of Illinois
R. Poletto, Purdue University
2011 J. R. Bergstrom, Kansas State University
D. D. Boler, University of Illinois
A. E. DeDecker, University of Illinois
M. R. P. Elmore, University of Illinois
A. M. Meyer, North Dakota State University
B. W. Neville, North Dakota State University
C. E. Phillips, University of Minnesota
P. E. Urriola, Cargill Animal Nutrition
2012 R. J. Leach, USDA-ARS, US Meat Animal Research Center
J. M. Kelzer, University of Minnesota
R. Manjarin, Michigan State University
M. Song, University of Illinois
Y. Liu, University of Illinois
I. S. Choi, USDA
S. F. Cervantes-Pahm, University of Illinois
M. J. Weber, Cargill
2013 Y. Shen, North Carolina State University
L. A. Mack, Purdue University
F. Almeida, University of Illinois
A. R. Hanson, University of Minnesota

-
- E. A. Bobeck, Iowa State University
 A. F. Summers, University of Nebraska
 D. W. Brake, Kansas State University
 N. J. Boddicker, Iowa State University
 2014 S. M. Cruzen, Iowa State University
 E. K. Harris, University of Minnesota
 J. L. Zambito, West Virginia University
 M. V. Sanz Fernandez, Iowa State University
 L. E. Camacho, North Dakota State University
 C. M. Pilcher, Iowa State University
 C. B. Paulk, Kansas State University
 J. K. Grubbs, Iowa State University
 C. L. Daigle, Michigan State University
 D. Gonzalez-Pena Fundora, University of Illinois
 2015 A. S. Bhatnagar, University of Nebraska-Lincoln
 K. F. Coble, Kansas State University
 B. W. Daigneault, University of Illinois
 M. A. Erasmus, Michigan State University
 O. N. Genther, Iowa State University
 N. A. Gutierrez, Iowa State University
 L. D. Prezotto, North Dakota State University
 O. J. Rojas, University of Illinois
 D. S. Rosero, Tapia, North Carolina State University
 A. R. Taylor, South Dakota State University
 L. Wang, University of Alberta
 A. K. Watson, University of Nebraska-Lincoln
 2016 L. A. Amundson, University of Wisconsin-Madison
 E. K. Arkfeld, University of Illinois
 C. S. Bass, North Dakota State University
 J. Colpoys, Iowa State University
 J. De Jong, Kansas State University
 J. Flohr, Kansas State University
 J. McCann, University of Illinois
 K. Sargent, University of Nebraska-Lincoln
 J. C. Gonzalez Vega, University of Illinois

**TIM S. STAHLY OUTSTANDING SWINE NUTRITION
MIDWEST GRADUATE STUDENT AWARD**

- 2009 T. M. Che, University of Illinois
 2010 R. B. Hinson, University of Missouri
 2011 J. R. Bergstrom, Kansas State University
 2012 C. A. Jones, Iowa State University
 2013 J. S. Monegue, University of Kentucky
 2014 N. L. Horn, Purdue University
 2015 N. A. Gutierrez, Iowa State University
 2016 J. C. Gonzalez Vega, University of Illinois

ASAS MIDWESTERN SECTION PRESIDENTS

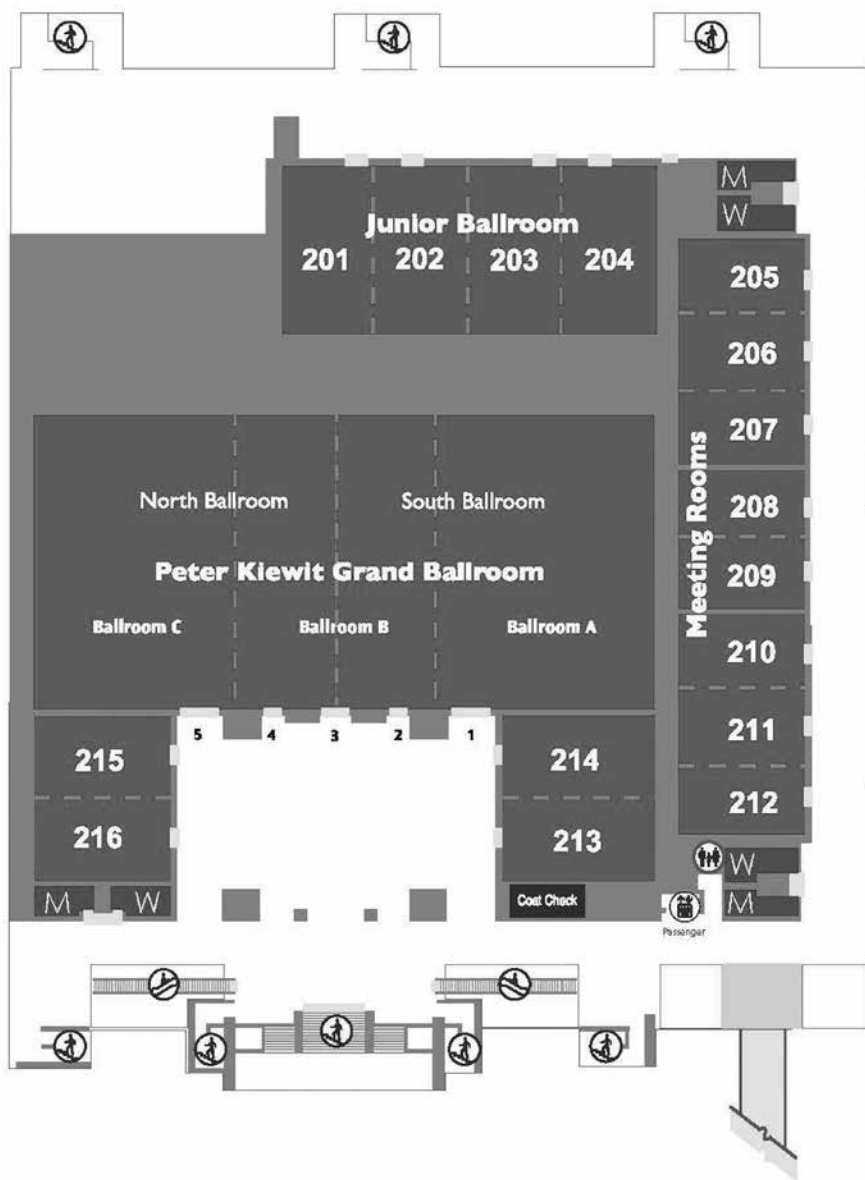
1963	O. G. Bentley, University of Illinois
1964-65	R. H. Grummer, University of Wisconsin
1966-67	G. R. Johnson, The Ohio State University
1968	R. J. Meade, University of Minnesota
1969	J. A. Hoefler, Michigan State University
1970-71	W. E. Dinusson, North Dakota State University
1972	J. F. Lasley, University of Missouri
1973	U. S. Garrigus, University of Illinois
1974-75	V. C. Speer, Iowa State University
1976	H. S. Teague, The Ohio State University
1977	R. M. Luther, South Dakota State University
1978	B. N. Day, University of Missouri
1979-80	D. R. Zimmerman, University of Nebraska
1981	A. L. Pope, University of Wisconsin
1982	R. D. Goodrich, University of Minnesota
1983	E. R. Miller, Michigan State University
1984	W. R. Woods, Purdue University
1985	L. R. Corah, Kansas State University
1986	B. D. Moser, University of Missouri
1987	S. E. Curtis, University of Illinois
1988	R. G. Zimbelman, Upjohn; D. J. Meisinger, Indiana
1989	T. J. Klopfenstein, University of Nebraska
1990	J. R. Romans, South Dakota State University
1991	J. E. Pettigrew, University of Minnesota
1992	C. E. Sasse, Cenex/Land O'Lakes
1993	M. G. Hogberg, Michigan State University
1994	G. L. Allee, University of Missouri
1995	S. K. Webel, Purina Mills
1996	D. L. Meeker, National Pork Producers Council
1997	T. S. Stahly, Iowa State University
1998	R. P. Lemenager, Purdue University
1999	S. P. Ford, Iowa State University
2000	J. R. Males, Oregon State University
2001	M. L. Day, The Ohio State University
2002	R. K. Johnson, University of Nebraska
2003	C. L. Ferrell, USDA, Clay Center
2004	G. C. Shurson, University of Minnesota
2005	A. L. Grant, Purdue University
2006	D. L. Hancock, Elanco Animal Health
2007	R. L. Moser, JBS United, Inc.
2008	M. K. Nielsen, University of Nebraska
2009	M. E. Spurlock, Iowa State University

2010	T. D. Crenshaw, University of Wisconsin
2011	C. W. Ernest, Michigan State University
2012	J. S. Radcliffe, Purdue University
2013	J. F. Patience, Iowa State University
2014	B. R. Wiegand, University of Missouri
2015	A. G. Mathew, Purdue University
2016	J. K. Apple, University of Arkansas

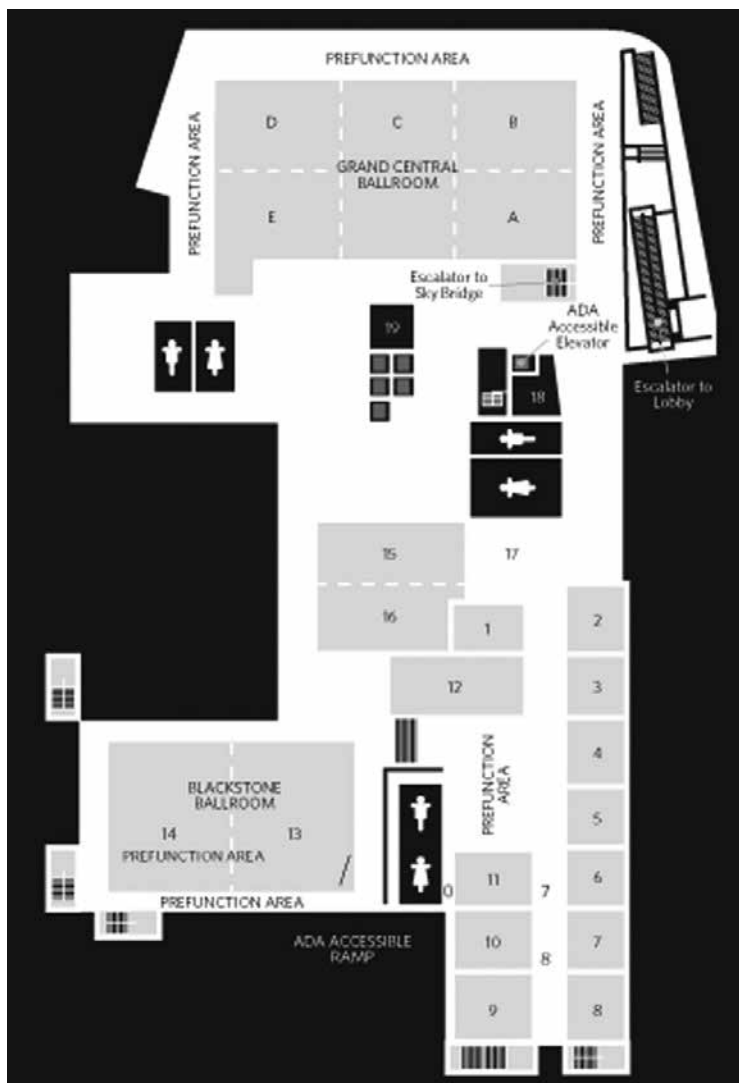
ADSA MIDWEST BRANCH PRESIDENTS

1992	J. F. Keown, University of Nebraska
1993	J. G. Linn, University of Minnesota
1994	D. J. Schingoethe, South Dakota State University
1995	J. L. Morrill, Kansas State University
1996	M. F. Hutjens, University of Illinois
1997	M. A. Faust, Iowa State University
1998	J. K. Drackley, University of Illinois
1999	R. D. Shaver, University of Wisconsin
2000	R. J. Grant, University of Nebraska
2001	M. L. Eastridge, The Ohio State University
2002	J. D. Quigley III, APC, Inc.
2003	S. T. Franklin, University of Kentucky
2004	D. K. Combs, University of Wisconsin
2005	L. L. Timms, Iowa State University
2006	P. Hoffman, University of Wisconsin - Madison
2007	M. M. Schutz, Purdue University
2008	J. R. Pursley, Michigan State University
2009	C. M. Luhman, Long View Animal Nutrition
2010	H. Chester-Jones, University of Minnesota
2011	D. P. Casper, Agri-King, Inc.
2012	K. F. Kalscheur, South Dakota State University
2013	L. H. Baumgard, Iowa State University
2014	M. J. Brouk, Kansas State University
2015	D. B. Carlson, Milk Products LLC
2016	T. D. Nennich, Famo Feeds

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| 6 Paxton | 14 Blackstone Ballroom B |
| 7 Murray | 15 Blackstone Ballroom Pre Function |
| 8 Prague | |

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Walking distance from CenturyLink Center and Hotels

AHMAD'S PERSIAN CUISINE

(0.9 miles from CenturyLink)

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(402) 341-9616

www.ahmadspersiancuisine.com

BLUE SUSHI SAKE GRILL OLD MARKET

(0.7 miles from CenturyLink)

416 S 12th St

(402) 408-5566

www.bluesushisakegrill.com

BRICKS AND MORTAR BAR AND BISTRO

(1.0 miles from CenturyLink)

1037 Jones St

(402) 934-0005

www.bricksandmortarbarandbistro.com

J'S ON JACKSON

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1101 Jackson St

Phone: (402) 991-1188

Website: <http://www.jsonjackson.com>

JACKSON STREET TAVERN

(0.9 miles from CenturyLink)

1125 Jackson St, Suite 3

(402) 991-5637

www.jacksonstreettavern.com

LA BUVETTE

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511 S 11th St

(402) 344-8627

labuvetteomaha.com

NICOLA'S ITALIAN WINE & FAIRE

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521 S 13th St

(402) 345-8466

www.nicolasintheoldmarket.com

SPAGHETTI WORKS - OLD MARKET

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1105 Howard St

(402) 422-0770

omaha.spagworks.com/

STOKES GRILL & BAR – DOWNTOWN

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1122 Howard St
(402) 408-9000
www.restaurantsinc.net/stokes/

THE BOILER ROOM RESTAURANT

(0.9 miles from CenturyLink)
1110 Jones St
(402) 916-9274
www.theboilerroomrestaurant.com

TRINI'S MEXICAN RESTAURANT

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1020 Howard St
(402) 346-8400
trinisoldmarket.com

TWISTED FORK GRILL AND SALOON

(0.8 miles from CenturyLink)
1014 Howard St
(402) 932-9600
restaurantsinc.net/twistedfork/

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(0.8 miles from CenturyLink)
514 S 11th St
(402) 344-0200
www.upstreambrewing.com

V. MERTZ

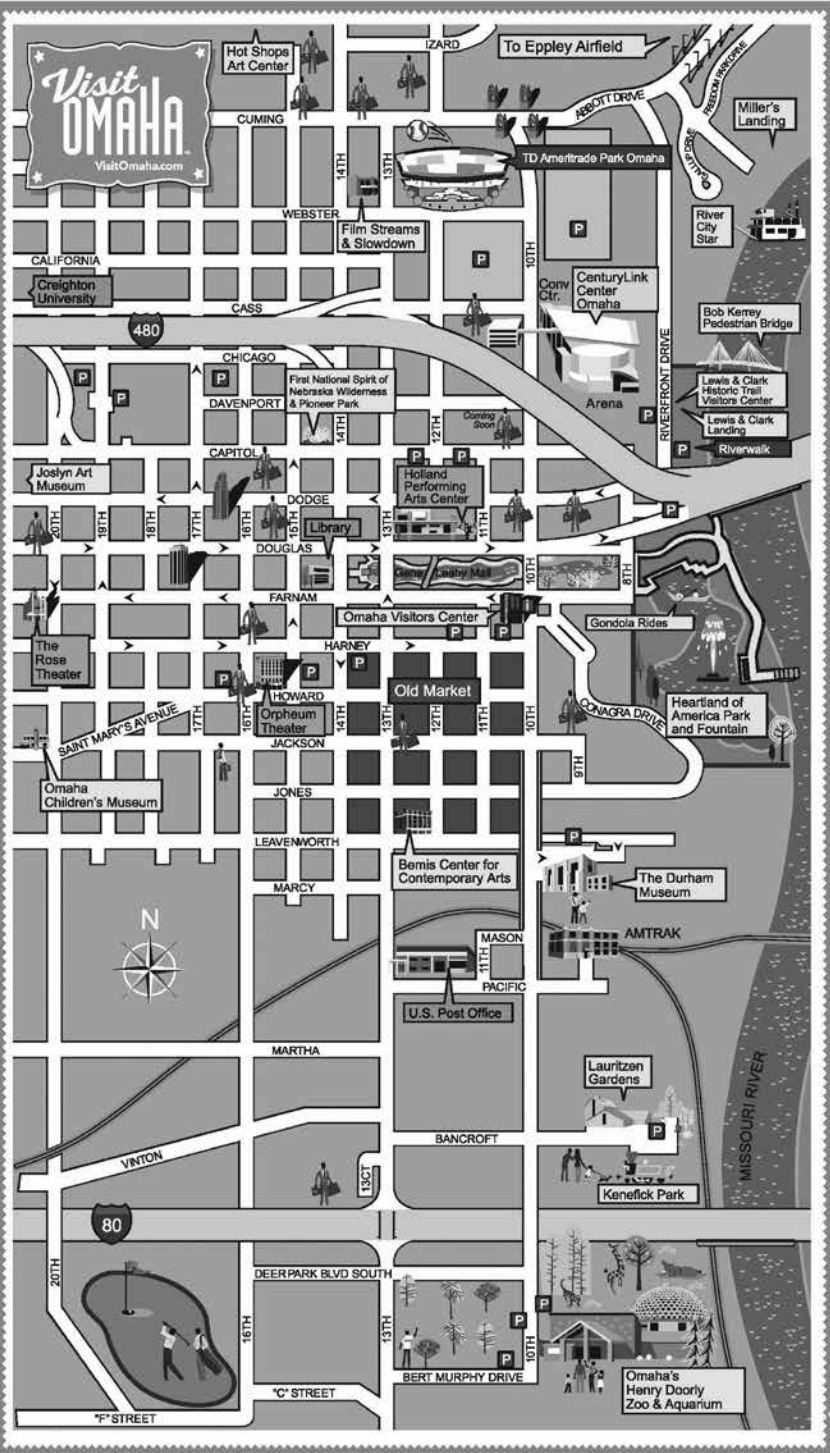
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(402) 614-9333
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POSTERS

March 13 | 12:30-1:30 PM | Grand Ballroom Foyer | [Abstract 107](#)

Effect of Original XPC™ in Receiving Diets on Newly Weaned Beef Steer Performance

E. L. Deters, R. S. Stokes, O. N. Genter-Schroeder, S. L. Hansen

March 14 | 12:45-1:30 PM | Grand Ballroom Foyer | [Abstract 205](#)

Effect of *Lactobacillus acidophilus* Fermentation Product on Nursery Pig Performance and Economic Return

B. E. Bass and J. W. Frank

ORAL PRESENTATIONS

March 15 | 8:30 AM | Room 213 | [Abstract 295](#)

Effect of Lactose, Inulin, *Lactobacillus acidophilus* Fermentation Product or Dietary Antibiotics on Nursery Pig Digestibility and Nitrogen Retention

J. A. Acosta, N. K. Gabler, J. W. Frank, B. E. Bass, and J. F. Patience

March 15 | 11:15 AM | Room 213 | [Abstract 306](#)

Effect of Lactose, Inulin, *Lactobacillus acidophilus* Fermentation Product or Dietary Antibiotics on Intestinal Function of Nursery Pigs

J. A. Acosta, N. K. Gabler, J. W. Frank, B. E. Bass, and J. F. Patience



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