American Dairy Science Association®
MIDWEST
American Society of Animal Science

FUTURE MEETINGS
OMAHA, NE

2018 March 12 - March 14
2019 March 11 - March 13
AMERICAN SOCIETY OF ANIMAL SCIENCE

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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.

<table>
<thead>
<tr>
<th>EMPLOYERS</th>
<th>JOB SEEKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Here, employers and recruiters can access the most qualified talent pool with relevant work experience to fulfill staffing needs.</td>
<td>This site offers job seekers the opportunity to send information out to potential employers and search job postings.</td>
</tr>
</tbody>
</table>

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  Kloopenfeststein 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
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 Quadrathalon**
- Agri-King
- ASAS Foundation
- University of Nebraska – Lincoln
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Beijing Kepyoung Technology Co., Ltd.
Furst McNess
King Techina Group
Micronutrients
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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
         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
Effects of Dietary Standardized Ileal Digestible Ile:Lys Ratio on Growth Performance of 6 to 11 Kg Pigs.
A. B. Clark, M. D. Tokach, J. M. DeRouchey, S. S. Dritz, K. J. Touchette, R. D. Goodband, and J. C. Woodworth, Kansas State University, Manhattan, Ajinomoto Heartland, Inc., Chicago, IL

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

Threonine:Lysine Ratio Requirement in Lactating Sows.

Use of Low Protein Diets for Weanling Pigs.
M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada

Impact of Feeding Reduced Dietary Crude Protein Diets with Crystalline Amino Acid Supplementation in Late Gestation on Nitrogen Balance of Sows.
N. Regmi, J. Babcock, D. Chamberlin, K. J. Touchette, J. L. De Vries, S. Zhang, and N. L. Trottier, Michigan State University, East Lansing, Ajinomoto Heartland, Inc., Chicago, IL

Amino Acid Requirements of Sows Nursing 13 to 14 Piglets.
P. K. Theil, Aarhus University, Tjele, Denmark

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

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, K. Moran, D. Wey, C. Zhu, M. C. Walsh, E. Kiarie, E. van Heugten, and C. F. M. de Lange, University of Guelph, Department of Animal Biosciences, ON, Canada, North Carolina State University, Raleigh, Danisco 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 Multicarbohydrase on Growth Performance and Intestinal Morphology in Weaned Pigs.
B. Koo*1, C. F. M. de Lange2, and C. M. Nyachoti3, 1University of Manitoba, Winnipeg, MB, Canada, 2University 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. Liao1, D. D. Burnett1, M. A. Crenshaw1, C. S. Steadman1, S. T. Willard2, P. L. Ryan1, H. Clemente2, and J. M. Feugang1, 1Mississippi State University, Department of Animal and Dairy Sciences, Mississippi State, 2Clemente 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. DeRouche, M. D. Tokach, S. S. Dritz, and R. D. Goodband, Kansas State University, Manhattan

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
Effect of Essential Oils or Tylosin on Performance, Liver Abscesses, Carcass Characteristics and Meat Quality in Feedlot Steers.

J. R. Pukrop¹, B. T. Campbell², and J. P. Schoonmaker¹, ¹Purdue University, West Lafayette, IN, ²DSM Nutritional Products, LLC., Parsippany, NJ

Assessment of an Alternative Technique for Measuring Body Temperature in Pigs.

A. L. Petry⁷, W. S. McGilvray¹, A. R. Pendleton², and A. Rakhshandeh¹, ¹Texas Tech University, Lubbock, ²South Plains College, Lubbock, TX

Influence of GnRH Supplementation at CIDR Removal on Estrus Expression and Interval to Estrus in Beef Cattle.


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

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

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. Crouse¹, K. J. McLean¹, N. P. Greseth¹, M. R. Crosswhite¹, N. Negrin Pereira¹, A. K. Ward¹, L. P. Reynolds¹, C. R. Dahlen¹, B. W. Neville¹, 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

Influence of Thermally Peroxidized Soybean Oil on Growth Performance and Oxidative Status in Growing Pigs.

S. C. Lindblom⁷, 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

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1:45 PM 97 The Effect of Isoflurane and Meloxicam on Behaviour of Dairy Goat Kids following Cautery Disbudding.
M. N. Hempstead\textsuperscript{1,2}, M. Stewart\textsuperscript{3}, J. R. Waas\textsuperscript{2}, V. M. Cave\textsuperscript{1}, and M. A. Sutherland\textsuperscript{1}, \textsuperscript{1}AgResearch, Hamilton, New Zealand, \textsuperscript{2}The University of Waikato, Hamilton, New Zealand, \textsuperscript{3}InterAg, Hamilton, New Zealand

2:00 PM 98 Impact of Maternal Protein Restriction on Meat Quality and Fatty Acid Profile of Progeny.
M. J. Webb\textsuperscript{1,4}, J. J. Kincheloe\textsuperscript{5}, R. N. Funston\textsuperscript{3}, K. R. Underwood\textsuperscript{1}, J. F. Legako\textsuperscript{1}, M. G. Gonda\textsuperscript{1}, K. C. Olson\textsuperscript{2}, and A. D. Blair\textsuperscript{2}, \textsuperscript{1}South Dakota State University, Brookings, \textsuperscript{2}South Dakota State University, Rapid City, \textsuperscript{3}University of Nebraska, West Central Research and Extension Center, North Platte, \textsuperscript{4}Texas 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\textsuperscript{*}, 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\textsuperscript{*}, J. C. Woodworth\textsuperscript{1}, C. K. Jones\textsuperscript{1}, M. D. Tokach\textsuperscript{1}, J. M. DeRouchey\textsuperscript{1}, R. D. Goodband\textsuperscript{1}, J. R. Bergstrom\textsuperscript{2}, J. F. Bai\textsuperscript{1}, Q. Chen\textsuperscript{1}, J. Zhang\textsuperscript{1}, P. C. Gauger\textsuperscript{1}, R. J. Derscheid\textsuperscript{3}, D. R. Magstadt\textsuperscript{4}, P. H. Arruda\textsuperscript{3}, A. Ramirez\textsuperscript{3}, R. G. Main\textsuperscript{3}, and S. S. Dritz\textsuperscript{1}, \textsuperscript{1}Kansas State University, Manhattan, DSM Nutritional Products, LLC., Parsippany, NJ, \textsuperscript{2}Iowa 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\textsuperscript{1,2}, A. Helmbrecht\textsuperscript{2}, J. K. Htoo\textsuperscript{2}, and O. Adeola\textsuperscript{1}, \textsuperscript{1}Purdue University, Department of Animal Sciences, West Lafayette, IN, \textsuperscript{2}Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany
3:00 PM Break

3:15 PM 103 Lipid Peroxidation Decreases Performance and Viability of Nursery Pigs.

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

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

1:45 PM 379 Initial Evaluation of Floor Cooling on Lactating Sows Under Acute Heat Stress.
A. J. Smith1, F. A. Cabezon1, A. P. Schinckel1, J. N. Marchant-Forde1, J. S. Johnson1, and R. M. Stvalley1, 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
Effects of Dietary Zinc Source and Concentration on Performance of Growing-Finishing Pigs Reared with Reduced Floor Space.
J. P. Holen*, 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

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

Relationship of Proteolysis and Superoxide Dismutase Activity to Tenderness of Prime and Select Grade Beef.
N. J. Herrera*, E. K. Kunze1, K. Domenech-Pérez1, F. A. Ribeiro1, M. D. Chao2, and C. R. Calkins1, 1University of Nebraska-Lincoln, 2California State University, Chico

Effect of Increasing Amount of Amaferm on Animal Performance in Receiving Feedlot Cattle.
K. Nickles*, and A. Relling2, 1The Ohio State University, Columbus, 2The Ohio State University, Department of Animal Sciences, Wooster

Influence of Seminal Additives on Sow Fertility.
T. Brown*, 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

Neonatal Pig Supplement Effects on Mortality.
D. B. Scales*, and M. Schwartz2, 1Michigan State University, East Lansing, 2Swartz Farms Inc., Sleepy Eye, MN

Validation of Individual Computerized Sow Feeding Systems in Lactation.
G. E. Nichols*, K. M. Gourley1, J. M. DeRouche1, J. C. Woodworth1, S. S. Dritz1, R. D. Goodband1, and H. L. Frobose1, 1Kansas State University, Manhattan, 2Jyga Technologies Inc., Quebec City, QC, Canada
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

1:45 PM  
Piglet Creching Decreases Protein Content in Colostrum.  
Y. A. Montano*, R. Manjarin¹, K. Petrovski², and R. N. Kirkwood², ¹California Polytechnic State University, San Luis Obispo, ²University of Adelaide, School of Animal and Veterinary Sciences, Roseworthy, Australia

2:00 PM  
In-Vitro Dry Matter Digestibility of Multiple Sources of Microalgae and Microalgae Products for Growing Pigs.  
B. W. Hanson¹, Z. K. Zeng¹, G. C. Shurson¹, R. Ruan², C. Chen¹, and P. E. Urriola¹, ¹University of Minnesota, Department of Animal Sciences, St. Paul, ²University of Minnesota, Department of Biosystems and Bioproducts Engineering, St. Paul

2:15 PM  
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  
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  
Cognitive Ability, Activity and Metabolic Rate in Mice Divergent for Water Consumption.  
D. Magee¹, M. T. Haag², S. B. Johnson², C. Rosenfeld³, K. D. Wells², and W. R. Lamberson², ¹Tougaloo College, Tougaloo, MS, ²University of Missouri, Division of Animal Sciences, Columbia, ³University of Missouri, Department of Biomedical Sciences, Columbia

3:00 PM  
Break
G. V. Hernandez*1, R. Manjarin1, Y. Luo2, A. N. Schmitz2, P. J. VandeVord3, E. M. Fievisohn1, and L. E. Hulbert1,
1California Polytechnic State University, San Luis Obispo, 2Kansas State University, Manhattan, 3Virginia Polytechnic Institute and State University, Blacksburg

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

Effects of Dietary Probiotics on Cattle Stress Behavior.
A. J. Kelsey*, K. W. Walter, and J. D. Colpoys, Truman State University, Kirksville, MO

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
**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.  

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

9:50 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  
*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, 2 Iowa 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 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 What Are the Nutritional and Metabolic Costs of Immune System Activation in Pigs?
N. K. Gabler*1, S. M. Curry1, W. P. Schweer1, S. M. Lonergan1, K. Schwartz1, E. R. Burrough1, and C. L. Loving2, 1Iowa State University, Ames, 2USDA 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*, C. M. Nyachoti, and J. F. Patience, Iowa State University, Ames, 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*, C. F. M. de Lange, A. R. Pendleton, and A. Rakhshandeh, Texas Tech University, Lubbock, University of Guelph, Department of Animal Biosciences, ON, Canada, South Plains College, Lubbock, TX

10:45 AM 149  **Management of Clinical or Subclinical Immune Activation.**  
* E. Merlot*, A. Prunier, N. Le Floc’h, INRA, Saint-Gilles, France, PEGASE, Agrocampus Ouest, INRA, Saint-Gilles, France, 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*, and B. J. Bradford, Kansas State University, Manhattan
Potential Impact of Midwest Dairy Facility Design on Cow Time Budgets.
J. P. Harner*, Kansas State University, Department of Biological and Agricultural Engineering, Manhattan

Key Challenges to Dairy Cattle Production in the Midwest Environment: Forage Quality.
D. K. Combs*, University of Wisconsin-Madison

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

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. Jones1, 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. Hilscher1, C. J. Bittner1, J. N. Anderson2, and G. E. Erickson1, 1University of Nebraska-Lincoln, 2Dow AgroSciences, Mycogen Seeds, Indianapolis, IN

F. H. Hilscher1, 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 Ruminal Fermentation Characteristics.
F. H. Hilscher1, 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
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. Burhoop*1, 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. Burhoop1, 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. Ferrari1,2, 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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>347</td>
<td>Young Scholar Presentation: The Impact of Nutrition and Reproductive Stage on Maternal and Fetal Pancreatic Exocrine and Endocrine Function in Ruminants.</td>
<td>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</td>
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<tr>
<td>9:00 AM</td>
<td>348</td>
<td>Young Scholar Presentation: Characterization and Implications of Novel Rumen Viral and Methanogen Diversity Discovered through Targeted Genomic Approaches.</td>
<td>C. L. Anderson*, and S. C. Fernando, University of Nebraska-Lincoln</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>350</td>
<td>Corn Silage Rumen Undegradable Protein Levels and Extent of Digestion.</td>
<td>C. R. Oney*, A. K. Watson, G. E. Erickson, J. C. MacDonald, and J. L. Gramkow, University of Nebraska-Lincoln</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>352</td>
<td>Effect of Late-Gestation Supplementation and Post-Partum Progestin on Probability of Culling Spring Calving Cows in the Nebraska Sandhills.</td>
<td>D. L. Broadhead*, M. Stockton, L. A. Stalker, and R. N. Funston, University of Nebraska, West Central Research and Extension Center, North Platte</td>
</tr>
</tbody>
</table>
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

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

The Effects of Supplementing EPA and DHA during Late Gestation on Lamb Metabolism and Performance.
D. N. Coleman1, A. Relling1, and K. C. Rivera-Acevedo2, 1The Ohio State University, Department of Animal Sciences, Wooster, 2University of Puerto Rico at Mayagüez, Puerto Rico

Influence of the Brahman Breed in Beef Calf Lots Marketed through Summer Video Auctions from 1995 through 2015.
E. D. McCabe*, M. E. King1, K. E. Fike1, K. L. Hill2, G. M. Rogers3, and K. G. Odde4, 1Kansas State University, Manhattan, 2Merck Animal Health, Kaysville, UT, 3Grassy Ridge Consulting, Aledo, TX

Effect of Essential Oils or Tylosin on Performance, Liver Abscesses, Carcass Characteristics and Meat Quality in Feedlot Steers.
J. R. Pukrop*, B. T. Campbell2, and J. P. Schoonmaker1, 1Purdue University, West Lafayette, IN 2DSM Nutritional Products, LLC., Parsippany, NJ

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

EXTENSION - SWINE

Chair: Michael J. Rincker, DPI Global
Sponsor: Ralco
8:30 AM - 12:00 PM
207
Troubleshooting Poor Litter Size in a Farrow-to-Wean Production System.
S. Bloomer*, J. G. Wiegert¹, C. Van Genderen², and M. T. Knauer¹, ¹North Carolina State University, Raleigh, ²US Pork Center of Excellence, Clive, IA

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

J. Cheng*, F. A. Cabezon, Y. Que, and A. P. Schinckel, Purdue University, Department of Animal Sciences, West Lafayette, IN

Effects of Supplemental Betaine to Semen Extenders on Semen Quality in Boars.
D. W. Lugar*, 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

Y. Li*, and L. J. Johnston, University of Minnesota, West Central Research and Outreach Center, Morris

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

Changes in Feet and Leg Joint Angles during First Gestation in Gilts Divergently Selected for Residual Feed Intake.
J. D. Stock¹, J. M. Mumm¹, J. C. M. Dekkers¹, A. K. Johnson¹, S. Azarpajouh¹, K. J. Stalder¹, and J. A. Calderon Diaz²,³, ¹Iowa State University, Department of Animal Science, Ames, ²Polish Academy of Sciences, Institute of Genetics and Animal Breeding, Department of Animal Behaviour and Welfare, Jastrzębie, Magdalena, Poland, ³Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland

Mycotoxin Prevalence in the 2016 Corn Crop.
E. G. Hendel*, S. M. Mendoza¹, T. Jenkins², and G. R. Murugesan¹, ¹BIOMIN America Inc., San Antonio, TX, ²BIOMIN Holding, GMBH, Getzersdorf, Austria

Metabolomic Characterization of Foaming Manure Pits in Swine Barns.
Z. Bi¹, 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*, J. Ngula², B. Alegre², G. Hernandez¹, R. N. Kirkwood³, R. Manjarín¹, 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

11:30 AM  388  Piglet Creching Decreases Protein Content in Colostrum.
Y. A. Montano*, R. Manjarín¹, K. Petrovski², and R. N. Kirkwood³, ¹California Polytechnic State University, San Luis Obispo, ²University 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*, 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. Barroso¹², F. Morgante¹, T. F. Mackay³, A. C. C. Nascimento¹², M. Nascimento¹², and N. V. Serão*, ¹North Carolina State University, Raleigh, ²Universidade Federal de Viçosa, Brazil, ³North 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. Nascimento¹², A. C. C. Nascimento¹², J. C. M. Dekkers³, and N. V. Serão*, ¹Universidade Federal de Viçosa, Brazil, ²North Carolina State University, Raleigh, ³Iowa State University, Department of Animal Science, Ames
Biological Evidence for Genomic Regions Associated with Host Response to Co-Infection with PRRS Virus and PCV2b in Commercial Nursery Pigs.

J. R. Dunkelberger*1, N. V. Serão1,2, Z. Q. Weng1,3, M. C. Niederwerder4, E. H. Waide1,5, M. A. Kerrigan4, J. K. Lunney6, R. R. Rowland4, and J. C. M. Dekkers1, 1 Iowa State University, Department of Animal Science, Ames 2 North Carolina State University, Raleigh, 3 ABS Global Inc., DeForest, WI, 4 Kansas State University, Department of Diagnostic Medicine/Pathobiology, Manhattan, 5 The Seeing Eye Inc., Morristown, NJ, 6 USDA-ARS, Beltsville Agricultural Research Center, Animal Parasitic Diseases Laboratory, Beltsville, MD

Reaction Norm for Reproductive Performance During Porcine Reproductive and Respiratory Syndrome (PRRS) and Porcine Epidemic Diarrhea (PED) Outbreaks.

C. L. Ferring*1, K. A. Gray2, and N. V. Serão1, 1 North Carolina State University, Raleigh, 2 Smithfield Premium Genetics, Rose Hill, NC

A Natural Challenge Model for Disease Resilience in Wean-to-Finish Pigs.

A. M. Putz*1, J. C. S. Harding2, F. Fortin3, G. Plastow4, and J. C. M. Dekkers5, 1 Iowa State University, Ames, 2 University of Saskatchewan, Saskatoon, SK, Canada, 3 Centre de Développement du Porc du Québec, QC, Canada, 4 University of Alberta, Edmonton, AB, Canada, 5 Iowa State University, Department of Animal Science, Ames

A Survey of Single Nucleotide Polymorphisms Identified from Whole-Genome Sequencing and Their Functional Effect in the Porcine Genome.


Assessment of Methods for Accurate Reproductive Tract Scoring by Vulva Width As a Tool for Gilt Selection.

M. R. Romoser*1, B. J. Hale1, J. T. Seibert1, K. L. Bidne1, M. J. Dickson1, T. J. GalP, L. H. Baumgard1, A. F. Keating1, and J. W. Ross1, 1 Iowa State University, Ames, 2 TriOak 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\textsuperscript{1,2}, D. Solà-Oriol\textsuperscript{1}, J. F. Pérez\textsuperscript{1}, and H. H. Stein\textsuperscript{2}, \textsuperscript{1}Universitat Autònoma de Barcelona, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Bellaterra, Spain, \textsuperscript{2}University of Illinois at Urbana-Champaign

8:45 AM 179 Effects of Increasing Copper from either CuSO\textsubscript{4} or Combinations of CuSO\textsubscript{4} and a Cu-Amino Acid Complex on Growth Performance and Carcass Characteristics of Finishing Pigs.
C. B. Carpenter\textsuperscript{*1}, J. C. Woodworth\textsuperscript{1}, J. M. DeRouchey\textsuperscript{1}, M. D. Tokach\textsuperscript{1}, R. D. Goodband\textsuperscript{1}, S. S. Dritz\textsuperscript{1}, and Z. J. Rambo\textsuperscript{2}, \textsuperscript{1}Kansas State University, Manhattan, \textsuperscript{2}Zinpro 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\textsuperscript{*1,2}, S. Schmucker\textsuperscript{2}, E. Weiss\textsuperscript{2}, M. Eklund\textsuperscript{2}, T. Aumiller\textsuperscript{2}, E. Graeter\textsuperscript{2}, T. Hofmann\textsuperscript{2}, M. Rodehutscord\textsuperscript{2}, L. E. Hoelzle\textsuperscript{2}, J. Seifert\textsuperscript{2}, R. T. Zijlstra\textsuperscript{1}, V. Stefanski\textsuperscript{2}, and R. Mosenthin\textsuperscript{2}, \textsuperscript{1}University of Alberta, Department of Agricultural, Food and Nutritional Science, Edmonton, AB, Canada, \textsuperscript{2}University 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\textsuperscript{*1}, J. C. Woodworth\textsuperscript{1}, J. M. DeRouchey\textsuperscript{1}, M. D. Tokach\textsuperscript{1}, R. D. Goodband\textsuperscript{1}, S. S. Dritz\textsuperscript{1}, and J. L. Usry\textsuperscript{2}, \textsuperscript{1}Kansas State University, Manhattan, \textsuperscript{2}Micronutrients, 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\textsuperscript{*1}, and O. Adeola\textsuperscript{2}, \textsuperscript{1}Purdue University, West Lafayette, IN, \textsuperscript{2}Purdue 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. Baker¹, M. Grez³, J. A. Shutter¹, M. E. Wilson², and T. D. Crenshaw¹, ¹University of Wisconsin-Madison ²Zinpro 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. Xu¹, Z. C. Li¹, H. L. Wang¹, L. Pan¹, X. K. Ma¹, Y. T. Xu¹, X. S. Piao¹, T. L. Ward², and F. Ji³, ¹China Agricultural University, Beijing, China, ²Zinpro Corporation, Eden Prairie, MN, ³Zinpro (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*, J. Chang¹, F. N. Almeida², and M. D. Lindemann¹, ¹University of Kentucky, Lexington, ²Novus 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. Holen¹, 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

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. Navarro⁴, E. M. A. M. Bruininx³, L. de Jong², and H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, ²Agrifirm 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. Navarro¹*, E. M. A. M. Bruininx², L. de Jong³, 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


F. P. Tan¹*, L. F. Wang², J. Gao¹, E. Beltranena²,³, 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. Ruiz¹, G. C. Luna¹,³, L. F. Wang¹, E. Beltranena¹,⁴, and R. T. Zijlstra¹, ¹University of Alberta, Edmonton, AB, Canada, ³University of São Paulo, Piracicaba, SP, Brazil, ⁴Universidad Autónoma de Baja California, Mexicali, Mexico, ⁴Alberta Agriculture and Forestry, Edmonton, AB, Canada

9:45 AM 192 Determination of Optimal Pelleting 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. Estrada¹, M. Ellis¹, O. F. Mendoza², and A. M. Gaines², ¹University of Illinois at Urbana-Champaign, ²The Maschhoffs, LLC, Carlyle, IL
Assessing the Effects of Medium Chain Fatty Acids and Fat Sources on Pedv RNA Stability and Infectivity.
R. A. Cochrane*, S. S. Dritz¹, J. C. Woodworth¹, A. R. Huss¹, C. R. Stark¹, M. Saensukjaroenphon¹, J. M. DeRouchey¹, 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

Estimation of Energy and Nutrient Composition of Food Waste from Different Sources as Potential Use in Swine Diets.
L. Fung*, 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

Growth and Performance of Finishing Pigs Fed Oat Screenings.
P. J. Lammers*, and M. S. Honeyman², ¹University of Wisconsin-Platteville, ²Iowa State University, Ames, IA

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*, 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 Riboni†1, J. R. Roche‡, and J. J. Loor†, 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

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<th>Time</th>
<th>Session</th>
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<tr>
<td>1:45 PM</td>
<td>Welcoming Remarks</td>
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<tr>
<td>1:50 PM</td>
<td>Genetic Improvement of Sow Lifetime Productivity.</td>
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<td>G. A. Rohrer†1, A. J. Cross2, C. A. Lents1, J. R. Miles1, D. J. Nonneman1,</td>
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<td>L. A. Rempel1, †USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, 2South Dakota State University, Brookings</td>
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<td>2:30 PM</td>
<td>The Roles of Age at Puberty and Energy Restriction in Sow Reproductive Longevity: A Genomic Perspective.</td>
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<td>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†, 1University of Nebraska-Lincoln; 2USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE</td>
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<td>3:10 PM</td>
<td>Break</td>
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<td>E.M. Keuter1, M. Neupane1, J.N. Kiser1, J.G. N. Moraes1, J. Dalton1, G.W. Burns2, T.E. Spencer2, and H.L. Neibergs†*, 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</td>
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Identification of Variants Causing Early Embryonic Loss in Beef Cattle.
J. F. Taylor1, D. S. Brown1, J. E. Decker1, B. P. Kinghorn2, M. D. MacNeil3, M. M. Rolf4, R. D. Schnabel4, 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

The Genetic Improvement of Feed Efficiency in Beef Cattle.
J. F. Taylor1, J. E. Beever2, J. E. Decker1, H. C. Freely1, D. J. Garrick4, S. L. Hansen4, K. A. Johnson5, M. S. Kerley1, D. D. Loy4, H. L. Neibergs5, M. Saatchi6, R. D. Schnabel4, C. M. Seabury7, D. W. Shike2, M. L. Spangler8, and R. L. Weaber9, 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

Challenges in Measuring Feed Efficiency.

Impact of Diet Type on Repeatability of Feed Efficiency in Beef Cattle.
S. L. Hansen1, M. S. Kerley2, and J. R. Russell1, 1Iowa State University, Ames, 2University of Missouri, Columbia

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
          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. Herskin1, 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. Rutherford1, 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
Using Controlled Ovulation to Keep Sow Groups Together.  
S. L. Terlouw1, and M. E. Johnston2, 1JBS United Animal Health, Sheridan, IN, 2JBS United, Inc., Sheridan, IN

Batch Farrowing: Labor, Pig Flow and Other Things to Consider.  
R. Schmitt*, Seaboard Foods, Guymon, OK


Panel Discussion
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.  

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*, S. F. Liao1, D. D. Burnett1, M. A. Crenshaw1, C. S. Steadman1, S. T. Willard1, P. L. Ryan1, H. Clemente*, 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. Herrera1, 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*, J. S. Drouillard1, K. A. Jacques2, T. G. O’Quinn1, and J. M. Gonzalez*, 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

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*, J. W. C. Locke1, R. Vishwanath2, J. B. Hall3, M. R. Ellersieck1, 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. Avaroma3, K. Linville3, E. Trevisi4, M. Bionaz5, 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\textsubscript{2α} Products in Yearling Beef Heifers.**
A. C. Lansford*, 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.**

4:00 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

4:15 PM 92 **Influence of GnRH Supplementation at CIDR Removal on Estrus Expression and Interval to Estrus in Beef Cattle.**
NONRUMINANT NUTRITION III: NURSERY PIG I

Chair: Victor G. Perez, ADM Animal Nutrition, Inc.
Sponsor: Purinal Animal Nutrition
1:45 PM - 4:45 PM

1:45 PM 222 Effects of Dietary Salt Concentration on Performance of 7 to 10 Kg Nursery Pigs.
D. J. Shawk*, 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


2:30 PM 103 Lipid Peroxidation Decreases Performance and Viability of Nursery Pigs.

2:45 PM 225 Effects of Feeding a Finishing Diet Blended with Different Phases of Nursery Diets on Growth Performance of Nursery Pigs.
F. Wu1, 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. Li1, C. L. Loving2, N. K. Gabler1, E. R. Burrough1, and J. F. Patience1, 1Iowa State University, Ames, 2USDA National Animal Disease Center, Ames, IA
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

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

Use of Wheat Gluten in Nursery Diets.
C. M. De Mille*, M. J. Azain, C. R. Dove, and A. Yin, University of Georgia, Athens

Break: Abstract Withdrawn

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.

Effect of a New 6-Phytase, Natuphos E on Piglet Performance, Ileal Digestibility and Bone Mineralization.
D. Torrallardona1, M. Coelho*2, 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

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

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. Strathe3, 1University of Copenhagen, Fredriksberg, Denmark, 2SEGES Pig Research Centre, Copenhagen V, Denmark, 3University of Copenhagen, Department of Large Animal Sciences, Copenhagen, Denmark
Increased Dietary Protein for Lactating Sows Improved Sow and Litter Performance.
A. V. Strathe*, T. S. Bruun, N. Geertsen, and C. F. Hansen,
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

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

Effect of Sow Lactation Crate Size on Litter Performance and Survivability.
L. L. Thomas*, K. F. Coble, C. W. Hastad, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. M. DeRouche, and J. C. Woodworth, 1Kansas State University, Manhattan, 2New Fashion Pork, Jackson, MN

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, Kansas State University, Manhattan

Effect of Dietary Calcium Inclusion Rate in Diets for Lactating Sows.

Impact of Feeding Reduced Dietary Crude Protein Diets with Crystalline Amino Acid Supplementation in Late Gestation on Nitrogen Balance of Sows.

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
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. Johnson4, 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

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. Coelho*3, 1Institute for Food and Agricultural Research and Technology, Monogastric Nutrition, Constanti, Spain, 2BASF SE, Lampertheim, Germany, 3BASF, Humble, TX

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

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

Effects of Feeding Corn-Expressed Phytase on the Live Performance, Bone Characteristics and Phosphorus Digestibility of Nursery Pigs.
J. N. Broomhead*, P. A. Lessard4, R. M. Raab4, M. B. Lanahan4, and J. J. Chewning2, 1Agrivida, Medford, MA, 2Swine Research Services, Inc., Springdale, AR
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.


Effect 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

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-Pitarch1,2, E. G. Manzanilla2, G. E. Gardiner3, D. Torrallardona4, J. V. O’Doherty1, and P. G. Lawlor2, 1University College Dublin, School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland, 2Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland, 3Waterford Institute of Technology, Department of Science, Waterford, Ireland, 4 Institute for Food and Agricultural Research and Technology, Monogastric Nutrition, Constanti, Spain

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

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. Arent2, and M. C. Walsh1, 1Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom, 2Dupont, Industrial Biosciences, Brabrand, Denmark

Porcine in-Vitro Degradation and Fermentation Characteristics of Canola Co-Products without or with Fiber-Degrading Enzymes.

J. W. Lee*1, R. Patterson2, and T. A. Woyengo1, 1South Dakota State University, Brookings, 2Canadian Biosystems, Calgary, AB, Canada
Effects of Supplementation with a Protease, Carbohydrases, 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. Maxwell⁴, 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
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 Diaz¹,⁴,
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, Magdalenka, Poland

9:30 AM 15 Do Pigs Form Social Structures? An Application of Social Network Analysis.
Y. Li¹, 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, Tjøle, Denmark
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

Y. Li1, 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 Cautery Disbudding.
M. N. Hempstead*12, M. Stewart1, 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

G. V. Hernandez*1, R. Manjarin1, Y. Luo2, A. N. Schmitz2, P. J. VandeVord3, E. M. Fievisohn1, 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 Ramírez*, Universidad Autónoma de Baja California, Mexicali, Mexico
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. Mayorga*, S. K. Kvidera†, E. A. Horst†, M. A. Al-Qaisi†, M. J. Dickson†, J. T. Seibert†, S. Lei†, Z. J. Rambo‡, M. E. Wilson‡, and L. H. Baumgard†, †Iowa State University, Ames, ‡Zinpro Corporation, Eden Prairie, MN

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

A Humanized Gnotobiotic Piglet Model to Study Host-Microbiota Interactions.


Ex Vivo Translocation of *Escherichia coli* (*E. coli*) F18 in Pig Ileum that was Challenged with Norepinephrine (NE) or Adrenocorticotropic Hormone (ACTH) compared with Controls.

S. M. Curry*, E. R. Burrough, and N. K. Gabler, Iowa State University, Ames

Characterizing the Effects of Acute and Chronic Heat Stress on Porcine Ovarian Function.


Impact of *Lawsonia intracellularis*-Mycoplasma *hyopneumoniae* Dual Challenge on Growth Performance of Pigs Divergently Selected for Residual Feed Intake.

E. Helm†, A. C. Outhouse†, K. Schwartz†, J. C. M. Dekkers‡, S. M. Lonergan†, and N. K. Gabler†, †Iowa State University, Ames, ‡Iowa 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. Chapel*, 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


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*, 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*, 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

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. Kellner¹, 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. Remus¹²³, M. P. Létourneau Montminy¹, L. Hauschild³, and C. Pomar², 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. Ochoa⁷¹, A. Graham¹, B. Knop⁰, L. Greiner¹, and J. Connor², ¹Carthage Innovative Swine Solutions, LLC., Carthage, IL, ²Carthage Veterinary Service, Ltd., Carthage, IL

A. S. Cornelison¹, N. H. Williams², B. Haber², M. A. Berhow³, L. A. Karriker¹, J. Less⁴, and J. F. Patience¹, 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. Mathai⁰¹, H. L. Spangler¹, H. H. Stein¹, and K. J. Touchette¹, ¹University of Illinois at Urbana-Champaign, ²Ajinomoto Heartland, Inc., Chicago, IL

T. C. Tsai¹, H. Kim², X. Wang¹, J. J. Chewning³, J. A. Apple¹, J. E. Thomson⁴, and C. V. Maxwell¹, 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. Cassady1, 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-Raya1,2, J. R. Dunkelberger*1, J. K. Lunney3,
R. R. R. Rowland4, W. M. Rauw1,2, 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 Water 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 University  
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. Kellner*, and J. F. Patience2, 1Iowa 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 Thanh*, J. K. Htoo2, L. F. Wang3, and R. T. Zijlstra4, 1University of Alberta, Department of Agricultural, Food and Nutritional Science, Edmonton, AB, Canada, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany, 3University of Alberta, Edmonton, AB, Canada

9:15 AM  286  Effects of a Yeast-Based Feed Additive on Nursery Pig Performance .  
H. E. Williams*, J. C. Woodworth1, J. M. DeRoucheey1, S. S. Dritz1, M. D. Tokach1, R. E. Musser2, and R. D. Goodband1, 1Kansas State University, Manhattan, 2NutriQuest, Mason City, IA

9:30 AM  287  The Effects of Feeding Narasin (Skycis) on Late Finishing Pig Performance.  
M. T. Knauer*, and R. A. Arentson2, 1North Carolina State University, Raleigh, 2Elanco 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. Tokach³, S. S. Dritz⁵, K. J. Touchette¹, 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. Fung¹, 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. Rho¹, K. Moran², D. Wey¹, C. Zhu¹, M. C. Walsh¹, 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. Crowder¹, 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. Weiland1, 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. Tostenson1, A. Tekeste, D. Pangeni, 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. Loughmiller1, 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. Acosta1, 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

S. Zhang1, 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
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*, S. M. Sinn, B. St-Pierre, and C. L. Levesque, South Dakota State University, Brookings, South Dakota State University, Animal Science Department, Brookings

10:00 AM  301  Evaluation of the Lysine Requirement of 11- to 23-Kg Nursery Pigs.

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*, J. C. Woodworth, J. M. DeRouchey, S. S. Dritz, M. D. Tokach, K. Hogan, and S. R. Webster, Kansas State University, Manhattan, Trouw Nutrition USA, 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*, G. R. Murugesan, E. Hendel, E. Kadas-Toth, and A. Kovacs, Biomin America Inc., San Antonio, TX, 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*, C. Huang, and H. H. Stein, Universidad Nacional de Colombia, Bogota, Colombia, University of Illinois at Urbana-Champaign, Beijing TongLiXingKe Agriculture Science & Technology Co. Ltd, Beijing, China

11:00 AM  305  A Review and Evaluation of Antibiotic Alternatives in the Literature.
Effect of Lactose, Inulin, *Lactobacillus acidophilus* Fermentation Product or Dietary Antibiotics on Intestinal Function of Nursery Pigs.

J. A. Acosta¹,², N. K. Gabler¹, J. W. Frank², B. E. Bass³, and J. F. Patience¹, Iowa State University, Ames, 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-Hernandez¹,², and J. L. Anderson¹, South Dakota State University, Dairy Science Department, Brookings, 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. Moore¹,³, and K. F. Kalscheur², University of Wisconsin-Madison, 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. Linville¹, 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. Manthey¹,², and J. L. Anderson², South Dakota State University, Dairy Science Department, Brookings, South Dakota State University, Brookings
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. Tani1, C. Pineiro2, and Y. Koketsu1, 1Meiji University, Kawasaki, Japan, 2PigChamp 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 Gomes1, S. C. Tenley1, S. Romereim1, M. Abedal-Majed1, A. F. Summers2, S. G. Kurz1, J. Bergman1, R. M. McFee1, J. C. Gomes Neto1, R. A. Cushman2, J. S. Davis4, J. R. Wood1, and A. S. Cupp1, 1University of Nebraska - Lincoln, 2New Mexico State University, Animal and Range Science Department, Las Cruces, 3USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, 4University 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. Cabezón*, 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. Vier*, 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. DeRoucley¹, 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*, A. St-Yves¹, N. Dicks¹, R. C. Bohrer¹, R. Mondadori², V. Higgison¹, V. Boyer¹, M. Taibi¹, E. Madogwe¹, V. Bordignon¹, A. Mustafa¹, B. Baurhoo¹, and R. Duggavathii, ¹McGill University, Sainte-Anne De Bellevue, QC, Canada, ²Federal University of Pelotas, Capão do Leão, Brazil

E. J. Northrop*, 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. 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

398 12 Effects of in Utero Heat Stress on Boar Growth and Reproduction prior to, During, and After Puberty.
J. A. Proctor2, 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. Zuidema1, 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. Lutz1, N. Ernst1, A. R. Brummit1, J. C. Hofman1, J. P. Schweithofer2, 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. Tedo1, A. Mereu1,2, 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. Hasan1, 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  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. Upadhyaya, and I. H. Kim, Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea

157  Effects of Kemtrace Cr Level and Feeding Regimen on Finishing Pig Growth Performance and Carcass Characteristics.  
J. T. Gebhardt*, J. C. Woodworth¹, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouchey¹, J. A. Loughmiller², and R. D. Goodband³, ¹Kansas State University, Manhattan, ²Kemin Industries, Des Moines, IA

158  Interactive Effects of Kemtrace Cr and Micro-Aid on Finishing Pig Growth Performance and Carcass Characteristics.  
J. T. Gebhardt*, J. C. Woodworth¹, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouchey¹, J. A. Loughmiller², and R. D. Goodband³, ¹Kansas State University, Manhattan, ²Kemin Industries, Des Moines, IA

159  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  Supplementation of NSP Enzyme Increased the Nutritive Value of Diets Fed to Lactating Sows.  
T. F. Pedersen*, T. S. Bruun², B. N. Fisker³, I. Knap⁴, and P. K. Theil⁵, ¹Aarhus Universitet, Tjele, Denmark, ²SEGES Pig Research Centre, Copenhagen V, Denmark, ³DSM Nutritional Products, Broendby, Denmark, ⁴DSM Nutritional Products, Kaiseraugst, Switzerland, ⁵Aarhus University, Tjele, Denmark

151  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*, K. Y. Lee², H. N. Tran³, and I. H. Kim¹, ¹Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea, ²Morningbio Co. Ltd, Cheonan, The Republic of Korea
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.

Impact of Xylanase and an Enzyme Blend on Gut Barrier Function and Growth Performance in Nursery Pigs.
Q. Y. Li*, N. K. Gabler¹, C. Sparks², and J. F. Patience¹, ¹Iowa State University, Ames, ²Huvepharma Inc., St. Louis, MO

Vaginal and Uterine Bacterial Communities in Postpartum Lactating Cows.
B. A. Clemmons*¹, F. Guirado Dantas¹, G. A. Franco¹, S. T. Reese¹, O. I. Adeyosoye², T. P. Smith¹, P. R. Myer¹, and K. G. Pohler¹, ¹University of Tennessee, Knoxville, ²Obafemi Awolowo University, Ile-Ife, Nigeria, ³USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE

The Effects of Supplementing EPA and DHA during Late Gestation on Ewe Metabolic Profile and Milk Production.
D. N. Coleman*¹, A. Relling, and P. A. Dieter, The Ohio State University, Department of Animal Sciences, Wooster

Improving Sow Productivity and Nursery Pig Performance by Injecting Sows with d-α-Tocopherol, Retinyl Palmitate and Cholecalciferol.
R. Becerra*¹, E. van Heugten¹, and R. L. Stuart², ¹North Carolina State University, Raleigh, ²Stuart Products Inc., Bedford, TX

Enhancing the Nutritive Values of Corn DDGS Via Pretreatment and Digestion.
C. A. Zangaro*¹, R. Patterson², W. R. Gibbons¹, and T. A. Woyengo¹, ¹South Dakota State University, Brookings, ²Canadian Biosystems, Calgary, AB, Canada

On the Associations Between Linear Body Measurements, Feeding Behavior Traits and Feed Efficiency Measures in Finishing Steers.
A. B. P. Fontoura*¹, E. Knutson¹, F. E. Keomanivong¹, A. K. Ward², and K. C. Swanson¹, ¹North Dakota State University, Fargo, ²North 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 Asten1*, 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. Gordon1*, 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

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

S. M. Barnett*, M. D. Trenhaile-Grannemann, T. E. Burkey,
P. S. Miller, and D. C. Ciobanu, University of Nebraska-Lincoln
161 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 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. Orlando3, and A. Maiorka1, 1Universidade Federal do Paraná, Curitiba, Brazil, 2Genus PIC, Hendersonville, TN

163 Predicting Post-Farrow Maternal Weight for Primiparous and Multiparous Sows.
L. L. Thomas*, S. S. Dritz, R. D. Goodband, M. D. Tokach, J. M. DeRouchey, and J. C. Woodworth, Kansas State University, Manhattan

164 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. Cui23, J. Kim7, D. Menon1, D. Pangeni1, 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 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*12, and H. H. Stein2, 1Universidad Nacional de Colombia, Bogota, Colombia, 2University of Illinois at Urbana-Champaign

166 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. Koehler\textsuperscript{1}, J. F. Patience\textsuperscript{2}, K. J. Touchette\textsuperscript{3}, S. A. Gould\textsuperscript{1}, T. A. Kellner\textsuperscript{2}, L. M. Gesing\textsuperscript{1}, and L. S. Courtney\textsuperscript{1}, \textsuperscript{1}Vita Plus Corporation, Madison, WI, \textsuperscript{2}Iowa State University, Ames, \textsuperscript{3}Ajinomoto Heartland, Inc., Chicago, IL

168 20  Effects of a Gluco-Oligosaccharide on Growth Performance of Nursery Pigs.
F. Wu\textsuperscript{*}, 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 (\textit{Enterococcus faecium}) on Growth Performance, Nutrient Digestibility, Fecal Microbiota and Fecal Score in Weanling Pigs.
R. X. Lan\textsuperscript{*}, 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\textsuperscript{*}, 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.

172 25  Effects of Feeding Probiotic or Chlortetracycline or a Combination on Nursery Pig Growth Performance.
H. E. Williams\textsuperscript{*}, 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

173 24  Evaluation of Dose Response Effects of Butipearl\textsuperscript{TM} C on Nursery Pig Growth Performance from d 0 to 42 after Weaning.
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

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

63 2 Effects of Betaine and Heat Stress on Lactation and Post-Weaning Reproductive Performance on Sows.
F. A. Cabezon¹, 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
M. Parker, and M. T. Knauer*, North Carolina State University, Raleigh

66  F. 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  G. Effect of the Lactation Length of Piglets on Their Later Performance.  
S. López-Vergé*, D. Solà-Oriol, J. Bone*, J. Coma, and J. Gasa, Universitat Autònoma de Barcelona, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Bellaterra, Spain, Vall Companys Group, Polígono Industrial El Segre, Lleida, Spain

S. Tani*, C. Pineiro, and Y. Koketsu, Meiji University, Kawasaki, Japan, PigChamp Pro Europa, Segovia, Spain

398  I. Effects of In Utero Heat Stress on Boar Growth and Reproduction prior to, during, and after Puberty.  
J. A. Proctor*, D. W. Lugar, M. C. Lucy, T. J. Safranski, and K. R. Stewart, Purdue University, West Lafayette, IN, University of Missouri, Columbia, Purdue University, Department of Animal Sciences, West Lafayette, IN

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

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


124  K. 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.  
125 11 Changes in Docosahexaenoic Acid (DHA) Content in Longissimus 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.

R. L. Lemire3,1, K. F. Coble2, D. Garry2, L. L. Thomas4, C. W. Hasta2, 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. Chizzotti1, 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 Extractible Lipid Content on Sensory Characteristics of Pork Chops Cooked to a Medium-Rare Degree-of-Doneness.
K. B. Wilson1, 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. Theradiyl 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.

NONRUMINANT NUTRITION V: FEED ADDITIVES II

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

SCREEN

J. A. Soto*, M. D. Tokach1, G. R. Murugesan2, S. S. Dritz3, J. C. Woodworth1, J. M. DeRouchey1, and R. D. Goodband1, 1Kansas State University, Manhattan, 2Biomin 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*, M. Ellis1, J. E. Estrada1, A. M. Gaines2, O. F. Mendoza2, C. M. Shul2, S. A. Crowder3, and T. P. Karnezos4, 1University of Illinois, Urbana-Champaign, 2The Maschhoffs, LLC., Carlyle, IL, 3Purina Animal Nutrition LLC., Shoreview, MN, 4PMI 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. Rauw1,2, 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, 2Iowa State University, Department of Animal Science, Ames
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

Selection for Age at Puberty in Swine: Correlated Response in Sow Productivity.
G. M. See*, and M. T. Knauer, North Carolina State University, Raleigh

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

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

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

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

Evaluation of Berberine as an Alternative to Antibiotics in Nursery Pig Diets.
E. E. Scholtz*, South Dakota State University, Brookings

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
Effects of Increasing Standardized Ileal Digestible (SID) Lysine on Performance of 11 to 23 Kg Nursery Pigs.
E. D. Fruge¹, A. J. Gerhart¹, E. L. Hansen¹, S. A. Hansen¹, and K. F. Coble², ¹Hubbard Feeds, Inc., Mankato, MN, ²New Fashion Pork, Jackson, MN

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. Morris¹, 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

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

K. D. Vande Pol¹, 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

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. Sitanaka¹, L. B. Ferracioli¹, J. E. Moraes¹, C. C. Pizzolante¹, F. E. L. Budiño¹, and U. S. Ruiz*¹, 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

Alternative Feed Additive, Associated or Not with Antibiotic, in Weaned Piglets Feeding: Diarrhea Incidence, Intestinal Mucosa Morphology and Digestive Organs Weight.
C. D. Silva Júnior², C. C. S. Martins², F. T. F. Dias², L. B. Ferracioli¹, N. Y. Sitanaka³, J. E. Moraes¹, C. C. Pizzolante¹, F. E. L. Budiño¹, and U. S. Ruiz*², 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
**POSTER SESSIONS / TUESDAY, MARCH 14, 2017**

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<td>Effect of Yeast Cell Wall (YCW) Inclusion Rate on Growth Performance in Nursery Pigs.</td>
<td>X. Wang1, 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</td>
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<td>221</td>
<td>Effects of Feeding a Multi-Enzyme and Probiotic Bacteria Blend (CORE) on Performance of Nursery Pigs Fed a Highly Digestible Diet.</td>
<td>F. B. Sandberg1, 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</td>
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**NONRUMINANT NUTRITION VII: FEED ADDITIVES III**

**SCREEN**

**12:45 PM - 1:30 PM**

**Grand Ballroom Foyer**

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<td>A Mixture of Organic Acids and Botanicals Improves the Intestinal Barrier Functionality In Vitro.</td>
<td>E. Grilli1, B. Tugnoli1, B. Rossi1, and A. Piva1, 1DIMEVET University of Bologna, Ozzano Emilia BO, Italy, 2Vetagro, Reggio Emilia, Italy</td>
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<td>208</td>
<td>The Interactive Effects of a Matrix Coated Organic Acids Blend and Antibiotic Supplementation in Growing Pigs.</td>
<td>M. M. Hossain1, 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</td>
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NONRUMINANT NUTRITION VIII: GENERAL
12:45 PM - 1:30 PM
Grand Ballroom Foyer

SCREEN

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.

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*, B. O. Kim, S. H. Do, Y. G. Han*, and Y. Y. Kim, Seoul 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.

203 25 Effect of Different Supplementation Levels of Palm Kernel Meal with ß-Mannanase on Growth Performance, Blood Profiles, Pork Quality and Economic Analysis in Growing-Finishing Pigs.

204 26 Effect of Rapeseed Meal Supplementation on Nutrient Digestibility in Gestating Sows.
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. Muckey\textsuperscript{1}, R. A. Cochrane\textsuperscript{*1}, J. C. Woodworth\textsuperscript{1}, S. S. Dritz\textsuperscript{1}, C. R. Stark\textsuperscript{1}, A. D. Yoder\textsuperscript{1}, J. F. Bai\textsuperscript{1}, J. Zhang\textsuperscript{2}, P. C. Gauger\textsuperscript{2}, R. G. Main\textsuperscript{2}, and C. K. Jones\textsuperscript{1}, \textsuperscript{1}Kansas State University, Manhattan, \textsuperscript{2}Iowa 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\textsuperscript{*}, 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\textsuperscript{*}, 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. Kurtz\textsuperscript{*1}, C. Chen\textsuperscript{2}, M. P. de Nanclares\textsuperscript{1}, M. Trudeau\textsuperscript{2}, D. Yao\textsuperscript{1}, M. Saqui-Salces\textsuperscript{2}, P. E. Urriola\textsuperscript{2}, L. T. Mydland\textsuperscript{2}, G. C. Shurson\textsuperscript{4}, and M. Overland\textsuperscript{3}, \textsuperscript{1}University of Minnesota, Department of Food Science and Nutrition, Saint Paul, \textsuperscript{2}University of Minnesota, Department of Animal Sciences, Saint Paul, \textsuperscript{3}Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences Ås, Norway, \textsuperscript{4}University 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\textsuperscript{*1}, Y. M. Kim\textsuperscript{1}, H. M. Yun\textsuperscript{1}, C. M. Nyachoti\textsuperscript{2}, and I. H. Kim\textsuperscript{1}, \textsuperscript{1}Dankook University, Department of Animal Resource and Science, Cheonan, The Republic of Korea, \textsuperscript{2}University of Manitoba, Winnipeg, MB, Canada
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,

Porcine In Vitro Degradation and Fermentation Characteristics of Oats.
J. W. Lee*, M. Caffe-Treml, and T. A. Woyengo, South Dakota State University, Brookings

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

Evaluating Pellets Produced on Three Distinct Pellet Mill Series.
A. D. Yoder*, M. B. Muckey, and C. K. Jones, Kansas State University, Manhattan

Effect of Substituting Field Beans (Vicia faba) for Soybean Meal in Diets for Grow-Finisher Pigs.
A. Torres-Pitarch1,2, E. G. Manzanilla1, G. E. Gardiner3, D. Torrallardona1, 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, Constanti, Spain

Ileal Digestibility of Amino Acids in Corn Condensed Distiller’s Solubles and Whole Stillage for Pigs.
X. Yang*, J. Kim, D. Pangeni, A. Tekeste, and S. K. Baidoo, University of Minnesota, Southern Research and Outreach Center, Waseca

Porcine In Vitro Digestion and Fermentation Characteristics of Corn Wet Distillers’ Grains and DDGS without or with Multi-Carbohydrase.
C. A. Zangaro1, R. Patterson2, and T. A. Woyengo1, 1South Dakota State University, Brookings, 2Canadian Biosystems, Calgary, AB, Canada

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
Determining Starch Gelatinization from Grains Collected at Various Locations within the Extrusion Process.
A. D. Yoder1, M. B. Muckey1, C. R. Stark1, H. H. Stein2, and C. K. Jones1, 1Kansas State University, Manhattan, 2University of Illinois at Urbana-Champaign

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. Estrada1, 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

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

The Effect of Vitamin A Administration on Testicular Development in Peri-Pubertal Bulls.
N. Negrin Pereira*, North Dakota State University, Fargo

Effect of Injectable Trace Mineral on Reproductive Performance in Beef Heifers.
S. A. Springman1, J. G. Maddux2, M. E. Drewnosi1, and R. N. Funston1, 1University of Nebraska-North Platte, 2Maddux Ranches, Wauneta, NE, 3University of Nebraska-Lincoln

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

Effects of Supplemental Citrulline on Intestinal Neutrophil Infiltration during Heat Stress and Nutrient Restriction in Growing Pigs.
S. K. Kvidera1, E. A. Horst1, E. J. Mayorga Lozano2, J. T. Seibert1, M. A. Al-Qaisi1, J. W. Ross2, R. P. Rhoads3, and L. H. Baumgard1, 1Iowa State University, Ames, 2 Iowa 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 Dantas1, G. A. Franco1, S. T. Reese1, O. I. Adeyosoye2, T. P. Smith3, P. R. Myer1, and K. G. Pohler1, 1University of Tennessee, Knoxville, 2Obafemi Awolowo University, Ile-Ife, Nigeria, 3USDA-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-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

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

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. Xu1, Z. C. Li1, H. L. Wang1, L. Pan1, X. K. Ma1, Y. T. Xu1, X. S. Piao1, T. L. Ward2, and F. Ji*3, 1China Agricultural University, Beijing, China, 2Zinpro Corporation, Eden Prairie, MN, 3Zinpro (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. Cloutier3, C. Couture4, M. Marcoux5, and C. Pomar5, 1Université Laval, Quebec, QC, Canada, 2Université Laval, Département des Sciences Animales, Québec, QC, Canada, 3Centre de Développement du Porc du Québec Inc., Québec, QC, Canada, 4Laval University, Quebec, QC, Canada, 5Agriculture 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, J. D. Stock, S. Azarpajouh, K. J. Stalder, A. K. Johnson, and J. A. Calderon Diaz,
Iowa State University, Department of Animal Science, Ames, Teagasc Moorepark Grassland Research and Innovation Centre, Pig Development, Fermoy, Co. Cork, Ireland, Polish Academy of Sciences, Institute of Genetics and Animal Breeding, Department of Animal Behaviour and Welfare, Jastrzębiec, Magdalenka, Poland

7 2 Do Lame Sows Need More Time to Stand up?
J. M. Mumm, S. Azarpajouh, J. D. Stock, K. J. Stalder, A. K. Johnson, and J. A. Calderon Diaz,
Iowa State University, Department of Animal Science, Ames, Polish Academy of Sciences, Institute of Genetics and Animal Breeding, Department of Animal Behaviour and Welfare, Jastrzębiec, Magdalenka, Poland, Teagasc 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, M. E. Wilson, M. A. Parsley, M. J. Azain, and C. R. Dove,
University of Georgia, Athens, Zinpro Corporation, Eden Prairie, MN, Zinpro Corporation, Sheridan, IN

9 4 Effects of Genetics on Thermal Regulatory Responses to Repeated Heat Stress Exposure in Pigs.
Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria, Departamento de Mejora Genética Animal, Madrid, Spain, Department of Animal Science, Iowa State University, Ames
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. DeRouchey, J. C. Woodworth, and S. S. Dritz, Kansas State University, Manhattan

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

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

Using Corn Gluten Feed in Post-Partum Diets of Beef Cows to Optimize Reproductive Performance.
E. G. Taylor*, 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

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

Identification of a Novel Rumen Bacteria Using Starch As a Selective Nutrient in Batch Cultures.
V. Bandarupalli*, South Dakota State University, Brookings
In Vitro Apparent Ruminal Digestibility of Diets Containing Corn Distillers Grain with Different Quantities of Crude Fat. D. E. Williams\textsuperscript{1}, R. L. Atkinson\textsuperscript{1}, and P. M. Walker\textsuperscript{2}, \textsuperscript{1}Southern Illinois University, Carbondale, \textsuperscript{2}Illinois State University, Normal, IL

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\textsuperscript{*}, North Dakota State University, Carrington Research Extension Center, Carrington

Effects of Whole or Rolled Corn Diets on Steer Growing and Finishing Feedlot Performance. C. L. Engel\textsuperscript{*}, North Dakota State University, Carrington Research Extension Center, Carrington

Novel Direct Fed Microbials to Control Acidosis and Liver Abscesses in Cattle. S. K. Rohde\textsuperscript{*}, University of Nebraska-Lincoln, Department of Animal Science

Effects of Foliar Fungicide on Whole Plant BMR and Floury Corn Varieties. R. T. Pate\textsuperscript{*}, M. Weatherly\textsuperscript{1}, L. B. Hedges\textsuperscript{2}, S. Mideros\textsuperscript{1}, G. M. Fellows\textsuperscript{1}, and F. Cardoso\textsuperscript{1}, \textsuperscript{1}University of Illinois at Urbana-Champaign, Department of Animal Sciences, \textsuperscript{2}University of Illinois at Urbana-Champaign, Department of Crop Sciences, \textsuperscript{3}BASF Corporation, Research Triangle Park, NC

Effects of Excess Dietary Sulfur on Mitochondrial Complex IV Activity in Beef Steers. J. Hawley\textsuperscript{*}, E. B. Kegley\textsuperscript{1}, D. L. Galloway\textsuperscript{1}, and W. G. Bottje\textsuperscript{1}, \textsuperscript{1}University of Arkansas, Division of Agriculture, Department of Animal Science, Fayetteville, \textsuperscript{2}University of Arkansas, Division of Agriculture, Department of Poultry Science, Fayetteville

Essential Oils and Prebiotics (Stay Strong and Start Strong) for New Born Calves. C. Louwagie\textsuperscript{*}, D. P. Casper\textsuperscript{2}, C. Chase\textsuperscript{1}, and K. Abdelsalam\textsuperscript{1}, \textsuperscript{1}South Dakota State University, Brookings, \textsuperscript{2}Formerly South Dakota State University, Brookings

Preference of Carinata Meal compared with Other Oilseed Meals and Distillers Dried Grains by Dairy Heifers. K. Rodriguez-Hernandez\textsuperscript{*12}, J. L. Anderson\textsuperscript{1}, and M. A. Berhow\textsuperscript{1}, \textsuperscript{1}South Dakota State University, Dairy Science Department, Brookings, \textsuperscript{2}CIRNOC-INIFAP, Matamoros, Mexico, \textsuperscript{3}USDA-ARS, National Center for Agricultural Utilization Research, Peoria, IL
367 20 Effect of Monensin and Protein Supplementation on Intake and Ruminal Fermentation Parameters in Cattle Consuming Low-Quality Forage.
J. J. Martinez*, C. A. Loest², K. C. McCuistion¹, 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. Prestegaard*, 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. Stokes¹, 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

A. B. P. Fontoura*, E. Knutson¹, F. E. Keomanivong¹, A. K. Ward², 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**, and A. Relling³, ¹The Ohio State University, Columbus, ²The Ohio State University, Department of Animal Sciences, Wooster
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C. T. Jobsis
A. R. Cobb
K. E. Fike
J. S. Radcliffe
R. A. Nold
A. J. Seykora
B. D. Whitaker
T. E. Burkey
G. W. Onan
J. N. Tembei
M. E. Wilson
L. L. Baranko
D. W. Rozeboom
J. S. Ottobre
Student Competitions

P. M. Walker
G. M. Hill

Student Competition Judges

Graduate Student Oral Competition – M.S. Judges
D. W. Shike
B. D. Whitaker
P. R. Myer
N. W. Jaworski
K. C. Swanson
J. S. Johnson
H. L. Frobose
J. H. Hampton

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. Vatthauer, 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
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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. Hauser, 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
2014  T. A. Strauch, University of Missouri
2015  T. L. Douthit, Kansas State University
2016  B. J. Bradford, Kansas State University
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| 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
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## UNDERGRADUATE STUDENTS - POSTER

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## GRADUATE STUDENTS - ORAL

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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. Frobose, 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
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<td>O. G. Bentley</td>
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**ADSA MIDWEST BRANCH PRESIDENTS**

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<td>C. M. Luhman</td>
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OLD MARKET DISTRICT RESTAURANTS
Walking distance from CenturyLink Center and Hotels

AHMAD’S PERSIAN CUISINE
(0.9 miles from CenturyLink)
1006 Howard St
(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
(0.8 miles from CenturyLink)
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
(0.8 miles from CenturyLink)
511 S 11th St
(402) 344-8627
labuvetteomaha.com

NICOLA’S ITALIAN WINE & FAIRE
(0.7 miles from CenturyLink)
521 S 13th St
(402) 345-8466
www.nicolasintheoldmarket.com

SPAGHETTI WORKS - OLD MARKET
(0.8 miles from CenturyLink)
1105 Howard St
(402) 422-0770
omaha.spagworks.com/
STOKES GRILL & BAR – DOWNTOWN
(0.8 miles from CenturyLink)
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
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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. Genther-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